



Geo-Environmental Consultants

MOORING LINE TEST FACILITY, HARENESS ROAD, ABERDEEN

GEO-ENVIRONMENTAL REPORT ON SITE INVESTIGATIONS

DATE
July 2024

CLIENT
ORE Catapult Limited

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MOORING LINE TEST FACILITY, HARENESS ROAD, ABERDEEN

Report on Site Investigations

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Executive Summary

Client	Energy Transition Zone Ltd (Aberdeen)
Site	Mooring Line Test Facility, Hareness Road, Aberdeen
Project Objectives	<ul style="list-style-type: none"> ▪ To investigate the possible presence of ground contamination associated with the historical uses of the site and any potential associated risks. ▪ To investigate the ground conditions and provide recommendations on foundation and infrastructure design. ▪ To provide recommendations (if any) for additional works/remediation required.
Assessment of Risks to Human and Plant Health	<p>The GQRA identified a contaminant exceedance of lead in the shallow soils, and as such we consider there to be a risk to human health from the lead impacted soils. Remedial measures including the excavation and removal of this localised lead exceedance, and placement of the contaminated soils within a less sensitive area of the site (i.e., beneath hardstanding or car parking areas).</p> <p>No asbestos was recorded within the shallow soils.</p> <p>A phytotoxic exceedance of zinc was identified within the shallow soils, and as such we consider there to be a risk to the plant life. We would recommend this localised exceedance of zinc is excavated and removed and placed beneath a less sensitive area of the site (i.e., beneath an area of hardstanding or car parking) in order to reduce the risk to plant life on the site.</p>
Assessment of Risks to the Water Environment	<p>In consideration of the groundwater samples results and P20 modelling, we would consider there to be a low risk to the groundwater body from the shallow soils.</p> <p>Additionally, following the P20 modelling to the compliance point of the Don Estuary to Souter Head which leads to the North Sea, we would consider the risk of contaminants to the surface water environment to be low.</p>
Assessment of the Built Environment	<p>As a proposed development layout was not available at the time of the site investigative works, UKWIR sampling was not undertaken and as such, will be undertaken in due course.</p> <p>In accordance with BRE Special Digest 1:2005 'Concrete in Aggressive Ground', recommendations for concrete would be Aggressive Chemical Environment for Concrete (ACEC) Classification DS-I with a Design Sulphate Class for the site of DS-1s.</p>
Waste Classification	Chemical results from the 5 No. samples obtained from the proposed development were subjected to the 'HazWasteOnline Classification Engine: Wm3 1 st Edition, May 2015' whereby the materials were classified as ' non-hazardous '.
Invasive Plant Survey	An invasive species survey was not undertaken as part of this investigation, and it is recommended that an invasive plant survey is undertaken by an invasive species specialist during the growing season.
Assessment of Ground Gas	The gas and groundwater monitoring is completed following 6 No. rounds. The site is classified as a ' <i>Characteristic Situation 1</i> ', whereby carbon dioxide and methane preclusion measures are not required within the site.
Foundation Construction	<p>Glacial till soils described as fine to coarse GRAVEL and silty gravelly SAND was recorded across the site area from surface to depths of between 0.70mbgl and 2.40mbgl.</p> <p>Solid strata was recorded as granite and psammite and pelite was recorded between depths of 0.70 mbgl and 2.40 mbgl.</p> <p>The finalised development layout was not available at the time of the site investigative works, however given the preliminary development proposals available at the time of reporting, we anticipate that the bedrock will provide a suitable bearing horizon. We consider that the weathered bedrock will provide at least of 910 kN/m². We would consider the shallow un-weathered bedrock would provide at least 1500 kN/m².</p>

	Once the development layout has been finalised, we would advise that discussions are held with us to ensure the pertinence of our recommendations.
Radon	The Envirocheck report notes that the site is in an Intermediate probability radon area where 1% to 3% of homes are estimated to be at or above the radon Action Level. As such, basic radon protective measures (radon protective membrane) will be required across the site.
Unexploded Ordnance	The Zetica UXO Risk Map (Appendix B) records the site to be with an area of 'low risk: areas indicated as having 15 bombs per 1000 acre or less'. We would therefore consider there to be a low risk to the site from unexploded ordnance.

1.0 INTRODUCTION

1.1 Commission

1.1.1 Mason Evans (ME) were commissioned by Energy Transition Zone (The Client) to undertake a geo-environmental assessment of a site named Mooring Line Test Facility, Hareness Road, Aberdeen, with a view for future development (Drawing Nos. P23/336/SI/R/F/01, 02 and 03). It is our understanding that ORE Catapult are engaged with Energy Transition Zone Limited in respect to the development of the site. A mooring line test facility is proposed which comprises a moor line test rig with areas of carriageway and car parking.

1.2 Investigation Proposals

1.2.1 The objective of these investigations was to provide information on the following:

- To determine the site history as far as could be ascertained from publicly available historical records.
- To provide an indication of the geological conditions in the site and its environs.
- To provide recommendations on the load bearing characteristics of the underlying strata and provide foundation recommendations.
- To provide an overview of potential constraints related to soil and groundwater contamination.
- To identify potential constraints related to gas emissions.
- To recommend the scope of remedial measures which may be required to address identified development constraints to the satisfaction of the regulatory authorities.

1.3 Limitations

1.3.1 Our interpretations of the ground conditions are based primarily on the information retrieved from the exploratory pits and bores sunk at the site during the investigations. While we have carried out some interpretation of the ground conditions between the exploratory locations, it should be recognised that soil and groundwater conditions can vary from point to point. As such, ground conditions at variance with those indicated by the exploratory pits/bores may exist in areas not investigated.

1.3.2 It should be recognised that this report is prepared in accordance with current recommended practice and existing legislation. It is written in the context of a sensitive end-use i.e., commercial. Should there be any alternative end-use, it would be prudent to consult MEP further to ensure the continued pertinence of the recommendations advised.



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 GLASGOW, G1 1RD

project title: MOOR LINE TEST FACILITY
 HARENES ROAD
 ABERDEEN

drawing title:

SITE LOCATION
 PLAN

project no:
P23/336

drawing no:
P23/336/SI/R/F/01

revision:

date:
05.03.24

drawn by:
LD

approved by:
HOL

scale:
Not to Scale

Altens
Industrial Estate

Dense vegetation

Substation

Hareness Road

NOTES

--- Approximate Site Boundary

REV	DATE	DETAILS
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ORE CATAPULT LIMITED
INOVO
121 GEORGE ST
GLASGOW G1 1RD

PROJECT TITLE

MOORING LINE TEST FACILITY
HARENESS ROAD
ABERDEEN

DRAWING TITLE

STUDY
AREA

DRAWN BY	CHK'D BY	APP'D BY	DATE	SCALES
LD	AO	HOL	04.03.24	1:1500 @ A3

PROJECT No.	DRAWING No.	REVISION
P23/336	P23/336/SI/R/F/02	

**MASON
EVANS**

A PHENNA GROUP COMPANY

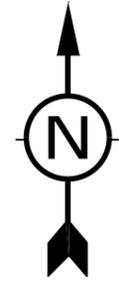
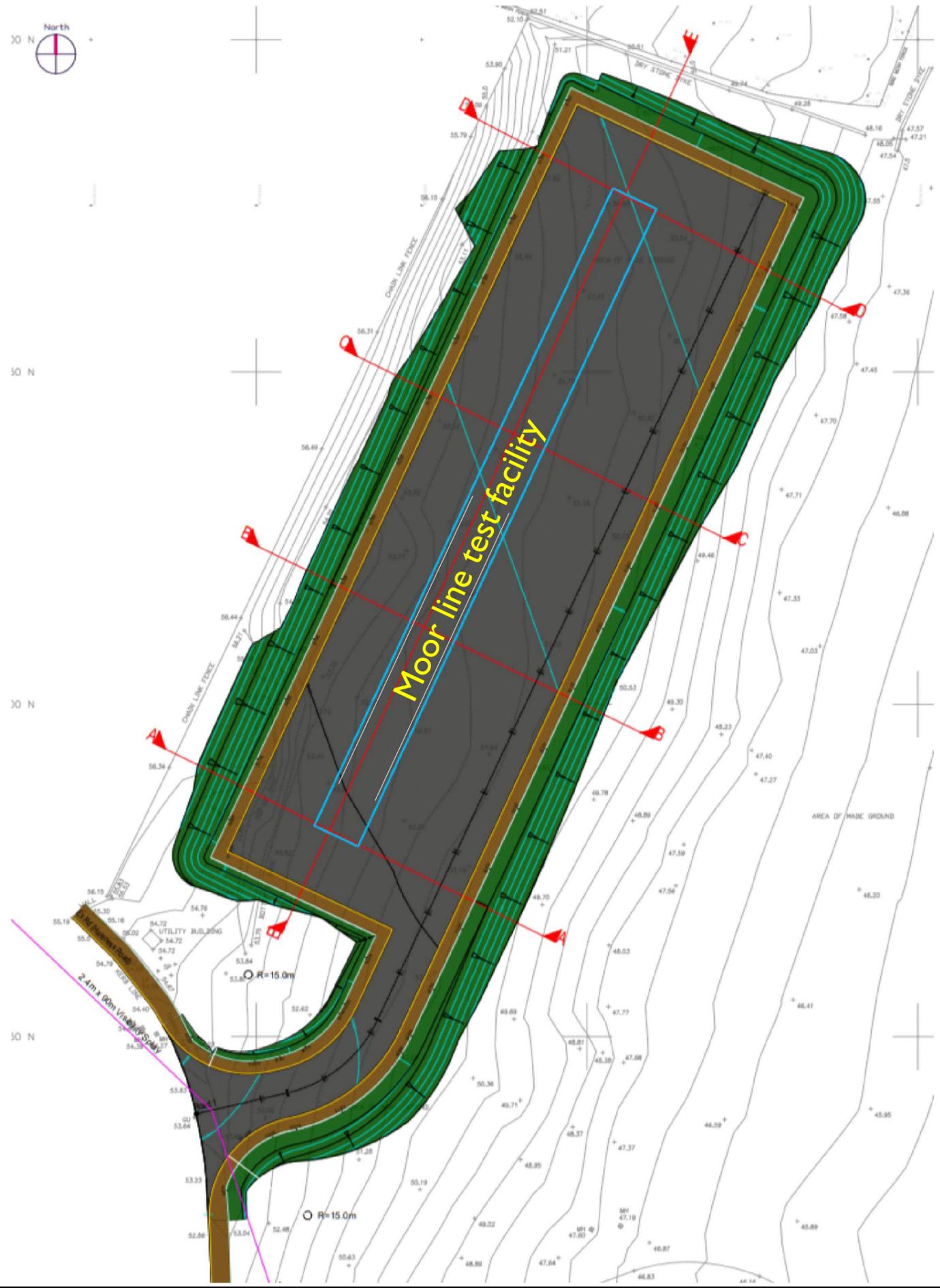
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30 N

30 N

30 N



NOTES

--- Approximate Site Boundary

REV	DATE	DETAILS

ORE CATAPULT LIMITED
 INOVO
 121 GEORGE ST
 GLASGOW, G1 1RD

PROJECT TITLE

**MOORING LINE TEST FACILITY
 HARENESS ROAD
 ABERDEEN**

DRAWING TITLE

**PROPOSED DEVELOPMENT
 LAYOUT**

DRAWN BY LD	CHK'D BY AO	APP'D BY HOL	DATE 04.03.24	SCALES Not to Scale
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PROJECT No. P23/336	DRAWING No. P23/336/SI/R/F/03	REVISION
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2.0 SUMMARY OF DESK STUDY INFORMATION

2.1 The Site

2.1.1 A summary of the current site conditions as understood from the supplied survey information and site reconnaissance is included in Table I. An Envirocheck Report (Appendix A) was procured and a review of selected publicly available databases was undertaken (Appendix B). A summary of the findings of this research is included in the table below:

TABLE I – Site Details and Review of Public Records

Site Name	Mooring Line Test Facility, Hareness Road, Aberdeen
National Grid Ref	95875, 02617
Site Area	1.00 Ha (approximately)
Topography	Heavily vegetated (gorse) with site levels recorded to decrease towards the south east.
Current Usage	The site is currently vacant land, surfaced by rough grass and gorse.
Proposed Use	The site is proposed to be developed into a mooring line test facility.
Surface Water Bodies	There were no SEPA defined surface water features within the site boundaries. The nearest surface water body was the 'Don Estuary to Souter Head (Aberdeen)' (ID No. 200105) located approximately 500 m to the east of the site (at its closest). The SEPA water classification hub indicated the water body to have an overall status of 'Good ecological potential' in 2020.
Groundwater	The SEPA Water Classification Hub indicated groundwater beneath the site to be associated with the 'Portlethen' bedrock aquifer (ID No. 150625). The Water Classification Hub indicated the groundwater body to have an overall status of 'Good' in 2020.
Flooding	SEPA's 'Interactive Flood Map' (Appendix B) indicated that the site is not at risk of surface, river or coastal water flooding. However, to the immediate north and south of the site areas were indicated to be at potential high risk of surface water flooding. If more detail is required, we would recommend a detailed flood risk assessment be undertaken by flood risk specialist.
Public Register Information	<p><u>Agency & Hydrological</u></p> <p>No discharge consents were recorded within 250 m of the site.</p> <p><u>Waste within 500 m of the site boundary</u></p> <p>No landfill sites were recorded within the site. Ness Farm former landfill was recorded within 250 m of the site.</p> <p>We understand that Ness Farm landfill was decommissioned around 1999/2000 when the landfill no longer accepted active or inert waste. We understand that the adjacent landfill (Ness Farm 7m North of the site) accepted industrial, household, and commercial waste including solid and oil waste. Liquid waste was recorded to be prohibited from this landfill.</p> <p><u>Hazardous Substances</u></p> <p>There were no records of any notifications of installations handling hazardous substances or planning hazardous substance consents and enforcements recorded within 500 m of the site.</p> <p>There were no control of major accident hazards (COMAH) sites or explosive sites within 250 m of the site, however 2 No. COMAH sites were recorded 307 m north west and 494 m west of the site and 1 No. explosive site was noted 452 m to the south west of the site.</p> <p><u>Industrial Land Use</u></p>

	<p>12 No. active Contemporary Trade Directory Entries were recorded within 250 m of the site relating to industries including: Engineering Services; Oil Fuel Distributors; Fork Lift Trucks; Garage Services; Engineering Materials; Drilling & Boring Equipment & Supplies; Road Haulage Services; Commercial Vehicle Dealers; and Engineers - General.</p> <p>31 No. inactive Contemporary Trade Directory Entries were recorded within 250 m of the site relating to industries including: Printers; Electrical Goods Sales, Manufacturers & Wholesalers; Scrap Metal Merchants; Road Haulage Services; Car Dealers; Distribution Services; Testing, Inspection & Calibration Equipment Manufacturers; Oil Fuel Distributors; Corrosion Prevention & Control; Oil & Gas Exploration Supplies & Services; Engineers – General; Door Manufacturers – Industrial; Fork Lift Trucks; Industrial Engineers; Materials Handling Equipment; Hydraulic Engineers; Oil Companies; Sports Equipment Manufacturers & Distributors; Generators – Sales & Service; Telecommunications Equipment & Systems; Commercial Vehicle Servicing, Repairs, Parts & Accessories; Nuts, Bolts & Fixings; and Drilling & Boring Equipment & Supplies.</p> <p>9 No. Points of Interest – Commercial Services were recorded within 250 m of the site, relating to: Distribution and Haulage; Scrap Metal Merchants; and Vehicle Repair, Testing and Servicing.</p> <p>9 No. Points of Interest – Manufacturing and Production were recorded within 250 m of the site, relating to Energy Production and Tanks (Generic).</p> <p><u>BGS Recorded Mineral Sites</u></p> <p>None recorded within the site.</p> <p>Within 250 m of site;</p> <p>Altens Gravel Pit (Mineral) located 61 m to the north.</p> <p>Altens Gravel Pit (Mineral) located 248 m to the south.</p> <p><u>Ancient Woodland</u></p> <p>No Ancient Woodland recorded within 250 m of the site.</p>
Radon	<p>The Envirocheck Report (Appendix A) records the site to be within an ‘intermediate probability radon area’ (where 1% to 3% of homes are estimated to be at or above the radon Action Level). Basic radon protective measures will therefore be required across the site.</p>

2.2 Site History

2.2.1 Information on the site’s historical use was obtained through an inspection of available Ordnance Surveys maps (copy of maps are included in Appendix A) dating from 1867 to the present day. A summary of the information is presented below:

2.2.2 A summary of the information is presented in Table 2 below.

TABLE 2 – Site History

Ordnance Survey Map Edition	The Site	The Surrounding Area
1867 (1:2,500) 1868 (1:10,560)	<ul style="list-style-type: none"> The site comprised predominantly vacant land surfaced by rough vegetation except for an access track which was recorded to run north east to south west. 	<ul style="list-style-type: none"> The area immediately surrounding the site was largely undeveloped. The road to the south of the site was recorded approximately its current position. Buildings collectively described as 'Altens' were recorded approximately 100 m to the south west of the site. 3 No. further groups of buildings were noted 320 m to the west, 330 m to the north and 500 m to the north of the site. A well was indicated approximately 150 m to the south of the site. The Scottish North Eastern Railway was noted to the east of the site, approximately 200 m away at its closest point.
1902 - 1904 (1:10,560) 1903 (1:2,500)	<ul style="list-style-type: none"> No significant changes were recorded. 	<ul style="list-style-type: none"> An 'Old Quarry' was recorded approximately 300 m to the south of the site. The railway to the east of the site had been renamed as the 'Caledonian Railway'.
1925 (1:2,500)	<ul style="list-style-type: none"> No significant changes were recorded. 	<ul style="list-style-type: none"> No significant changes were recorded.
1928 (1:10,560)	<ul style="list-style-type: none"> No significant changes were recorded. 	<ul style="list-style-type: none"> The railway was renamed as 'London Midland and Scottish Railway (LMSR), Perth & Aberdeen'. Tanks were recorded approximately 100 m to the south and north west of the site. The old quarry was not recorded on the map.
1944 (1:10,560) Historic Aerial Photographs	<ul style="list-style-type: none"> No significant changes were recorded. 	<ul style="list-style-type: none"> No significant changes were recorded.
1959 (1:10,000)	<ul style="list-style-type: none"> No significant changes were recorded. 	<ul style="list-style-type: none"> No significant changes were recorded.
1967 – 1968 (1:10,000)	<ul style="list-style-type: none"> A track was recorded close to the western site boundary. 	<ul style="list-style-type: none"> The tanks to the south and north west of the site were no longer indicated on the map. Altens Cottage was recorded approximately 200 m south of the site, beyond Altens farm.
1974 (1:10,000)	<ul style="list-style-type: none"> No significant changes were recorded. 	<ul style="list-style-type: none"> No significant changes were recorded.
1982 – 1984 (1:10,000) 1982 – 1987 (1:1,250)	<ul style="list-style-type: none"> No significant changes were recorded. 	<ul style="list-style-type: none"> Altens Industrial Estate was recorded to the immediate west of the site, consisting of factories, warehouses, works and depots.
1993 (1:1,250)	<ul style="list-style-type: none"> No significant changes were recorded. 	<ul style="list-style-type: none"> Altens Industrial Estate was noted to have expanded to the north of the site.
2000 (1:10,000)	<ul style="list-style-type: none"> No significant changes were recorded. 	<ul style="list-style-type: none"> Altens Industrial Estate was recorded to have further expanded to the north, south and west. Burnbanks Village housing development was recorded 500 m to the south of the site.
2001 Aerial Photograph	<ul style="list-style-type: none"> Vegetation on the site had been cleared, with bedrock potentially locally exposed at the ground surface. 	<ul style="list-style-type: none"> No significant changes were recorded.
2006 (1:10,000)	<ul style="list-style-type: none"> No significant changes were recorded. 	<ul style="list-style-type: none"> Alterations to the shape of Altens road to the south of the site were noted to be underway.
2023 (1:10,000)	<ul style="list-style-type: none"> Site was recorded as being vacant and vegetated. 	<ul style="list-style-type: none"> Altens Industrial Estate had further expanded to the north, north east and south. Road alterations had been completed.

2.3 Review of the Historical Usage in the Context of the Proposals

- 2.3.1 The site remained undeveloped from 1867 to present day, with the exception of an access track running through the site. The site was recorded to be heavily vegetated throughout history and was cleared of this vegetation in 2001. In 2023, the site was understood to have been covered by vegetation consisting of rough grasses and gorse.
- 2.3.2 From 1867 to 1982 the surrounding area primarily consisted of agricultural fields with associated farm buildings, and the Scottish North Eastern Railway was recorded approximately 300 m to the east of the site. In 1983, Altens Industrial Estate was developed immediately west and north of the site, comprising factories, warehouses, and depots. Altens industrial estate was further developed from 2000 to present day, alongside the development of residential estates in the surrounding area.
- 2.3.3 The key considerations regarding the sites condition and future usage are summarised in Section 2.5, and the summary of key considerations from the historical background is included in the table below.

Table 3 - Summary of Key Considerations Suspected from the Historical Background

Consideration	Potential Source of Impact
Contamination	Contamination on the site is considered to be unlikely, and if present to be of a limited thickness.
Gas Emissions	From potential biodegradable materials in natural soils at the site.
Adverse Foundations	Adverse foundations are considered to be unlikely at the site.
Buried Structures	Buried structures are thought unlikely to be present at the site.

Published Geological Information

Superficial Deposits

- 2.4.1 The published BGS maps indicate the site to be underlain by the Mill of Forest Till formation, which is indicated to be diamicton and typically comprises silty sandy red-brown material formed of metamorphic, igneous and sedimentary rocks (Drawing No. P23/336/SI/R/F/04).
- 2.4.2 Historical trial pits excavated by Bon Accord Geotechnical in January 2006 recorded the superficial deposits generally consisted of *medium dense, dark brown, silty sandy GRAVEL with many angular cobbles*, overlying *medium dense to dense dark brown, slightly silty to silty sandy GRAVEL with many angular cobbles and boulders*
- 2.4.3 The historical trial pits recorded drift to a maximum thickness between 0.60 mbgl and 1.20 mbgl, where boulders or suspected bedrock was encountered.
- 2.4.4 It was also noted from the historical aerial photographs and the walkover survey that the topsoil was potentially previously stripped from the site. It is understood that this occurred prior to 2001, with gorse and other rough vegetation having regrown in the interim.

- PEAT Peat
- BSA Blown Sand
- ALV Alluvium (undivided): clay, silt, sand, gravel, local peat
- CbSL Clay and silt
- SBG Sand and gravel
- TILL Till (boulder clay): clayey, silty or sandy deposit with stones and boulders
- SLIP Landslip
- SCR Scree
- Rock at or near surface
- MGR Made ground
- WGR Worked out ground
- Geological boundary
- S1* Selected Borehole, with thickness of drift in metres (+ = more than).
- Drift thickness generally more than 3 metres (where information is available).

ABERDEEN
(COUNTY OF THE CITY)
CITY PARISH OF ABERDEEN
(CP)



VEHICLE (V) & FOOT PASSENGER SHIP
Lerwick (V-F)



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project title: MOORING LIME TEST FACILITY
HARENNESS ROAD
ABERDEEN

drawing title: EXTRACT FROM PUBLISHED
GEOLOGICAL SURVEY MAP
(DRIFT LITHOLOGY)

project no: P23/336	drawing no: P23/336/SI/R/F/04	revision:	date: 04.03.24	drawn by: LD	approved by: HOL	scale: Not to Scale
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- 2.4.5 Localised thicknesses of made ground deposits are anticipated in relation to the previous alignment of the neighbouring Hareness Road to the south of the site, as well as existing waste water pipes.

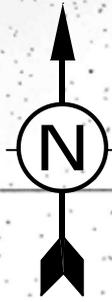
Solid Geology and Mining

- 2.4.6 The published BGS maps record that the solid strata underlying the site consists of semipelite and psammite, part of the Aberdeen formation (Drawing No. P23/336/SI/R/F/05).
- 2.4.7 Rockhead at the site is conjectured to be shallow, with historical trial pits encountering suspected bedrock at depths between 0.60 mbgl and 1.20 mbgl.
- 2.4.8 The site is not recorded to be within a Coal Authority Coal Mining Reporting Area (Appendix B) and there are no recorded non-coal mineral mines beneath the site. We therefore do not consider mining to pose a risk to the proposed development.
- 2.4.9 The geological context is summarised in Table 4:

Table 4 - Summary of Geological Context

Geological Unit	Typical description
Glacial Till	The British Geological Survey (BGS) indicate the soils across the site are formed of the Mill of Forest Till Formation, consisting of Diamictic glacial till deposits, typically comprises silty sandy red-brown material formed of metamorphic, igneous, and sedimentary rocks. Historical trial pits indicate drift deposits are shallow, with boulders or potential bedrock encountered between 0.60 mbgl and 1.20 mbgl.
Rockhead	Historical trial pits encountered suspected shallow rockhead at depths of between 0.60 mbgl and 1.20 mbgl.
Rock Strata	The published BGS maps record that the solid strata underlying the site consists of semipelite and psammite, part of the Aberdeen formation.
Mineral Extraction	No underground mining has been recorded at the site or surrounding area. Previous quarrying of the Mill of Forest Till Formation has been recorded by the Envirocheck report to the north and south of the site.

- GRA Granite and other coarse-grained acid igneous rocks
- BAS Gabbro, diorite, amphibolite and other coarse-grained basic igneous and metamorphic rocks.
- FEL Felsite and other fine-grained acid igneous rocks.
- DOL Dolerite, microdiorite and other fine-grained basic igneous rocks.
- CON Conglomerate.
- SAN Sandstone.
- LST Limestone, marble, and calc-silicate rock.
- QUA Chiefly quartzite, grit, quartz-schist and psammite (metamorphosed sandstone).
- SCH Chiefly mica-schist and quartz-schist.
- MIX Mixed beds of schist, grit, quartzite, psammite and local basic rocks.
- MIX(H) Mixed beds of schist, grit, quartzite and psammite with poorly defined layering.
- IM Complex of igneous and metamorphic rocks.
- X** Small exposure of rock type, indicated by symbol (GRA, BAS, FEL, DOL).
- Rock weathered to depth of 2 metres or more, with thickness in metres of weathered rock where known
- Lithological boundary.
- - - Fault.
- Inclination of principal plane of splitting (bedding, schistosity), with generalised dip in degrees.
- Quarry in solid rock, open.



ABERDEEN
(COUNTY OF THE CITY)
CITY PARISH OF ABERDEEN
(CP)

VEHICLE (V) & FOOT PASSENGER (F) FERRY
SHIP
Lerwick (V-F) 140m



ROCKS IN THIS AREA BROKEN
INTO BLOCKS BY SEVERAL
VEINS OF MISTRES ACROSS



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client details:		ORE CATAPULT LIMITED INOVO, 121 GEORGE ST GLASGOW G1 1RD		
project title: MOORING LIME TEST FACILITY HARENNESS ROAD ABERDEEN		drawing title: EXTRACT FROM PUBLISHED GEOLOGICAL SURVEY MAP (SOLID GEOLOGY)		
project no: P23/336	drawing no: P23/336/SI/R/F/05	revision:	date: 04.03.24	drawn by: LD
		approved by: HOL	scale: Not to Scale	

Hydrogeology

- 2.4.10 The site specific Envirocheck report (Appendix A) classifies the bedrock beneath the site as a 'Non or Weakly Permeable Aquifer – These formations with negligible permeability that are generally regarded as containing insignificant quantities of groundwater.
- 2.4.11 However, some formations can locally yield water supplies in sufficient quantities for private/domestic use. The SEPA Water Classification Hub records the bedrock aquifer beneath the site as the 'Portlethen' groundwater body (ID 150625), which is 178.3 km² in area.
- 2.4.12 SEPA classified this water body as 'Good' in 2020 (the most recent review). SEPA's Water Environment Hub does not record any pressures on the groundwater body. There are no known groundwater abstractions recorded on or in the vicinity of the site, although an information request response from SEPA confirming this has yet to be received. Interactive online mapping for Marine Scotland Water Abstraction points (latest dataset 2018) shows one abstraction point within 1 km of the study area. It is a coastal abstraction point (license number CAR/R/1157699) located northeast of the study area and is associated with the Aberdeen Harbour Expansion Project.
- 2.4.13 No commercial groundwater abstraction wells were recorded within, or within the immediate vicinity (<500 m) of, the site boundary. We would, however, highlight that groundwater abstraction has only recently become a licensed activity in Scotland and therefore an unrecorded (independent) 'well' could also exist in the area, associated with the farm.
- 2.4.14 It was considered likely that shallow groundwater could exist either within any made ground or natural soils. The Scottish Environmental Protection Agency (SEPA) provides guidance in document WAT-PS-10-01 'Assigning Groundwater Assessment Criteria for Pollutant Inputs' (March 2014) for assessing contaminations risks to groundwater and the water environment. It was considered possible that groundwater within the superficial soils beneath the site could meet the minimum criteria to be classified as a water body i.e., an abstraction could achieve an added 10 m³ per day, as the 'Portlethen' groundwater aquifer is recorded beneath the site and superficial soils are considered to be thin. It was considered prudent to regard groundwater as a potential receptor at this stage.

Table 5 - Typical Material Permeability

Material	Typical Permeability Range (m/sec)
Topsoil	Variable
Till - Diamicton	10 ⁻⁶ – 10 ⁻¹²
Metamorphic Bedrock	10 ⁻⁹ – 10 ⁻¹³

* Sourced from the Freeze and Cherry (1979).

2.5 Flood Risk

- 2.5.1 The Scottish Environmental Protection Agency has provided maps which indicate areas at risk from potential flooding. However, they highlight that the maps are for guidance only. As such, the maps included in Appendix B are provided for initial guidance on the potential for flooding based on the SEPA Surface Water Flood Maps, SEPA River Flood Maps and SEPA Coastal Water Flood Maps. In all such circumstances, more detailed studies of flood risk are required for a more comprehensive assessment of potential flood risk within the site.

2.5.2 In this particular instance, the SEPA Flood Maps (Appendix B) do not indicate that the site is at risk from coastal, river or surface water flooding. However, a limited area adjacent to the north west site boundary (out with site) has been identified by SEPA to be at a high likelihood of flooding from surface water.

2.5.3 The site specific Envirocheck report (Appendix B) also identifies a potential for groundwater flooding both at the surface and of property situated below ground level. Should more detail be sought on flood risk, we would advise a flood risk specialist is contacted.

2.6 Preliminary Conceptual Site Model

2.6.1 In order to fully evaluate the potential presence and impact of contamination at the site, the area must be considered in an environmental context taking account of its geology, topography, and past and present land-use. Science Report SC050021/SR3, published by the Environment Agency in January 2009, supersedes the previous Contaminated Land Reports (CLR7 to CLR10 and briefing notes) series and provides standard guidance for the assessment of sites that may be contaminated. This highlights the importance of developing a robust *Conceptual Site Model*. The model then forms an integral part of the contamination assessment for the proposed development site, looking at conventional source-pathway-receptor linkages.

2.6.2 Statutory guidance sets the definition of contaminated land within the context of the “suitable for use” approach. It is based on the principles of risk assessment, including the concept of a **pollutant linkage** between a **source** contaminant and a **receptor**, by means of a **pathway**. This concept is considered further below. We would highlight that the approach, while perhaps rendering the site suitable for its current use, may provide inappropriate to a change in site designation or specific land use, arising from existing site conditions.

2.6.3 The presence of all three elements identifies a plausible pollutant linkage. An assessment of the potential sources, pathways and receptors constitutes a conceptual model for the site.

2.7 Receptor Characterisation

2.7.1 Potential receptors at the site are defined based on the site proposal. The following receptors are considered relevant to his project:

- Humans – site end users and construction work (outdoor),
- Humans – site end users (indoor),
- Buildings and services (including water supply pipes),
- Vegetation (plants in landscaped areas),
- Water Environment (groundwater and surface water).

2.8 Source Characterisation

2.8.1 The potential on-site sources of contamination identified by this desk study are:

- Possible deposition of contaminated materials in limited made ground deposits associated with the surrounding industrial development.

- Generation and accumulation of ground gases from potentially biodegradable materials in made ground and natural soils.

2.8.2 The potential off-site sources of contamination identified by this desk study are:

- Possible deposition of contaminated fill materials in made ground associated with adjacent industrial estate and railway.
- Possible spillage/leakage of fuels/oils associated with activities at adjacent industrial estate, roads and railway line.
- Possible deposition of contaminated fill materials associated with the infilling of former quarries.
- Generation and migration of ground gases.

2.8.2 The typical processes involved, and associated Contaminants of Concern (CoC) are discussed and summarised in Table 6.

TABLE 6 - Contaminants of Concern

THE SITE	Industrial Activity/ Site Use	Potential Pathways	Associated Potential Contaminants*
CURRENT/PREVIOUS	<ul style="list-style-type: none"> • Possible deposition of made ground deposits associated with the surrounding development. • Possible biodegradable materials in natural soils. 	<ul style="list-style-type: none"> • Deposition of waste in made ground. • Leaching of contaminants to groundwater through soakaway infiltration and direct discharge to drains and the ground. • Generation of ground gases. 	Metals: As, Mg, Cd, Cr, Ni, Zn, Cu, Hg, Pb, V, Mo, Mn. Organics: Fuel oils, PAH, Phenol, Asbestos. Ground Gases: CO ₂ , CH ₄ .
IMMEDIATE SURROUNDING AREA	Industrial Activity/ Site Use	Potential Pathways	Associated Potential Contaminants*
CURRENT/PREVIOUS	<ul style="list-style-type: none"> • Possible deposition of contaminated fill materials associated with the surrounding landfill and industrial estate. • Possible spillage/leakage of fuels/oils 	<ul style="list-style-type: none"> • Deposition of waste in made ground. • Leaching of contaminants to groundwater through soakaway infiltration and direct discharge to drains and the ground. • Generation of ground gases. 	Metals: As, Mg, Cd, Cr, Ni, Zn, Cu, Hg, Pb. Organics: Fuel oils, PAH, Phenol, Asbestos, Ground Gases: CO ₂ , CH ₄ .

2.9 Pathway Characterisation (Pollutant Linkages)

2.9.1 The pathways by which sensitive receptors may be exposed to potential sources of contamination, as determined by the proposed end use for the site are as follows:

1. Humans – site end users and construction workers (outdoor)
 - Dermal (skin) contact with contaminated soil, fugitive dust and the absorption of any contaminants through the skin into the body.
 - Inhalation of fugitive soil dust or vapour.
 - Ingestion of soil by hand to mouth activity.
2. Humans – site end users (indoor)
 - Inhalation of any ground gas migrating into the buildings.

- Inhalation of soil derived dust.
3. Buildings
 - Potential soil gas generated in the ground vertically migrating and pooling within the structure.
 - Contact with aggressive or acidic soils will affect the concrete design of the foundations.
 4. Services including the domestic water supply
 - Direct contact with contaminated soil or groundwater.
 - Leaching of contaminants through the soil.
 - Service trenches acting as preferential migration pathways for contamination.
 - Permeation of plastic water supply pipes.
 5. Vegetation (plants in landscaped areas)
 - Direct contact with contaminated soils and groundwater.
 - Uptake of contaminants from the soil or groundwater into the plant.
 6. Water Environment (groundwater)
 - Leaching of contaminants from the soil to groundwater.
 - Contaminant migration offsite in the groundwater.
 - Contaminant uptake as base flow within surface watercourse.
 - Direct entry of contaminants (e.g., spillage or via outfall pipes) into surface water.

2.9.2 The potential source-receptor-pathway linkages identified for the site are illustrated within our Preliminary Conceptual Site Model (Drawing No. P23/336/SI/R/F/06) and in Tables 7A and 7B. Site investigations were required to confirm or otherwise prove the existence of such linkages in addition to providing further confirmation of the geological and geotechnical conditions.

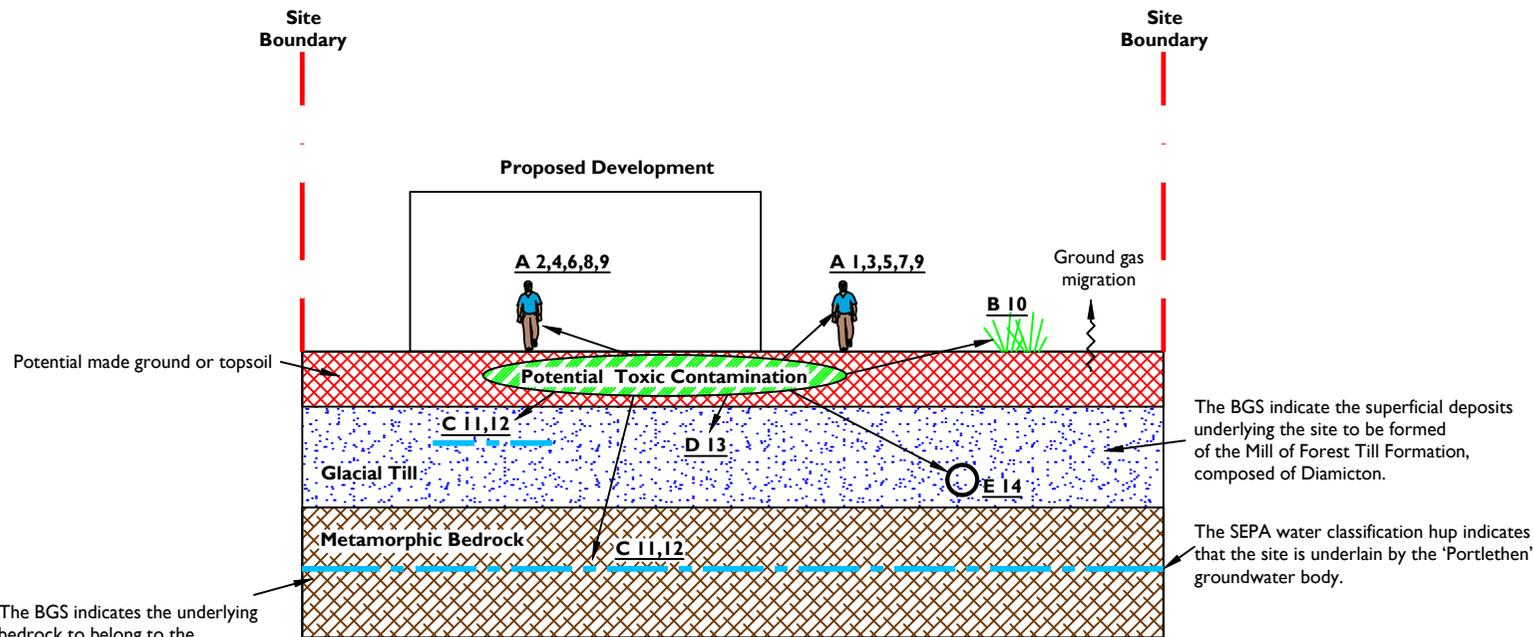
TABLE 7A - Preliminary Qualitative Risk Assessment – On Site

Source	COCs	Pathway	Receptors (s)	Assessment	Further Investigation Required
Possible deposition of contaminated materials in localised made ground deposits associated with the surrounding industrial development.	Metals: As, Cd, Cr, Ni, Zn, Cu, Hg, Pb.	Dermal contact, ingestion, inhalation	Human – site workers	Spillage/leakage of contaminants impacting near surface soils. Contaminated materials may have been deposited within the site.	Yes
			Humans – end users (outdoor)		
	Organics: Fuel oils, PAH, phenol.	Leaching through soil or direct migration	The water environment - groundwater	Contaminants may be leached and potentially mobilised from the soil by percolation and/or shallow groundwater movement.	Yes
	Ground Gasses: CO ₂ , CH ₄ . Asbestos	Direct contact, leaching through soil, groundwater migration	Buildings and services	Potential for aggressive chemical environments for concrete due to sulphate and acidic conditions. Presence of contaminants in soil that may permeate water supply pipes.	Yes
		Gas/vapour inhalation,	Buildings and services	Contamination may include gas/vapour	Yes

Generation and accumulation of ground gases from potentially biodegradable materials in localised made ground soils.	vertical/lateral migration	Humans – end users (indoor)	producing materials or compounds that could vertically migrate into overlying buildings producing a potentially asphyxiating or explosive environment.	
	Direct contact, uptake	Plants	Direct contact or uptake of contamination from the soil or groundwater could adversely affect any plants grown.	Yes
	Migration in the groundwater	Groundwater	Contaminants could impact the groundwater and migrate offsite.	Yes
	Point source discharge	Surface water	Direct entry of contaminants into surface water via accidental spillage/leakage or from discharge pipework.	Yes
	Diffuse source	Surface Water	Contaminants could migrate in the groundwater and act as base flow for surface water recharge.	Yes

TABLE 7B - Preliminary Qualitative Risk Assessment – Off-Site

Source	COCs	Pathway	Receptors (s)	Assessment	Further Investigation Required
Possible deposition of contaminated fill materials associated with the adjacent industrial estate and railway.	Metals: As, Cd, Cr, Ni, Zn, Cu, Hg, Pb. Organics: Fuel oils, PAH, phenol. Ground Gasses: CO ₂ , CH ₄ . Asbestos	Dermal contact, ingestion, inhalation	Human – site workers	Contaminants likely to migrate into the site via groundwater or via pore spaces in granular soils and therefore unlikely to be exposed to site users via direct contact, ingestion of inhalation pathways.	Yes
			Humans – end users (outdoor)		
Leaching through soil or direct migration		The water environment - groundwater	Contaminants may be leached and potentially mobilised by shallow groundwater movement.	Yes	
Possible spillage/leakage of fuels/oils associated with activities at adjacent industrial estate and railway line.		Direct contact, leaching through soil, groundwater migration	Buildings and services	Potential for aggressive chemical environments for concrete due to sulphate and acidic conditions. Presence of contaminants in soil that may permeate water supply pipes.	Yes
		Gas/vapour inhalation, vertical/lateral migration	Buildings and services	Contamination may include gas/vapour producing materials or compounds that could vertically migrate into overlying buildings producing a potentially asphyxiating or explosive environment.	Yes
Humans – end users (indoor)					
Possible deposition of contaminated fill materials associated with the infilling of former quarries.	Direct contact, uptake	Plants	Uptake of contamination from the soil or groundwater could adversely affect plant growth.	Yes	
Generation and migration of ground gases.	Migration in the groundwater	Groundwater	Leachates may migrate either into the site (from the offsite source) or offsite (via an onsite source).	Yes	



The BGS indicates the underlying bedrock to belong to the Aberdeen Formation, consisting of metamorphic psammite and semipelite rocks.

The BGS indicate the superficial deposits underlying the site to be formed of the Mill of Forest Till Formation, composed of Diamicton.

The SEPA water classification hup indicates that the site is underlain by the 'Portlethen' groundwater body.

Potential Source

- Made ground
- Generation and accumulation of ground gases from potential made ground sols.

Potential Exposure Pathways

1. Outdoor ingestion of dust.
2. Indoor ingestion of dust.
3. Consumption of homegrown vegetables.
4. Ingestion of soil attached to vegetables.
5. Skin contact with outdoor soil.
6. Skin contact with indoor dust.
7. Outdoor inhalation of dust.
8. Indoor inhalation of dust.
9. Outdoor inhalation of soil vapour.
10. Indoor inhalation of soil vapour.
11. Inhalation of ground gases.
12. Contaminant uptake by vegetation.
13. Leaching of contaminants to the groundwater.
14. Contaminant migration in the groundwater.
15. Detrimental effects on buried concrete.
16. Permeation of plastic water supply pipes.

Potential Receptors

- A. Site users / construction personnel.
- B. Vegetation / fauna.
- C. Groundwater.
- D. Buried concrete (Service and foundations)
- E. Plastic water supply pipes.

NOTES

REV	DATE	DETAILS

ORE Catapult Limited

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121 GEORGE STREET
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PROJECT TITLE
MOORING LINE TEST FACILITY
HARENESS ROAD
ABERDEEN

DRAWING TITLE
PRELIMINARY
CONCEPTUAL SITE

DRAWN BY LD	CHK'D BY AO	APP'D BY HOL	DATE 05.03.24	SCALES Not to Scale
PROJECT No. P23/336		DRAWING No. P23/336/SI/R/F/06		REVISION



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3.0 SITE INVESTIGATIONS

3.1 Objectives

3.1.1 The investigations were designed relative to the preliminary conceptual site model and in recognition of the nature of the proposed development. The objectives of the investigation included the determination of:

- a) The conjectured distribution and composition of natural soils.
- b) The geological context.
- c) The groundwater regime.
- d) Chemical contamination.
- e) Potential foundation solutions.

3.2 Scope and Methods of Investigations

3.2.1 The scope and method of investigation to fulfil objectives (a) to (e) is summarised in Table 8 below.

TABLE 8 - Site Investigations Based on Objectives

Objective		Site Investigation
a)	<i>The conjectured distribution and composition of (any) made ground and natural soils</i>	8 No. trial pits excavated by Mason Evans Partnership 4 No. rotary boreholes sunk by CGI limited to a depth of between 7.20 mbgl and 10.40 mbgl (BH01 – BH04).
b)	<i>The geological context</i>	
c)	<i>The groundwater regime</i>	Rotary boreholes with ground gas/groundwater monitoring well installations.
d)	<i>Chemical contamination</i>	<u>Soil Contamination</u> 8 No. soil samples collected for chemical analysis.
		<u>Water Contamination</u> 5 No. soil samples collected for leachate analysis. 4 No. groundwater samples collected for chemical analysis.
e)	<i>Potential foundation solutions</i>	All exploratory pits and soils boreholes.

3.3 Summary of Ground Investigation Data

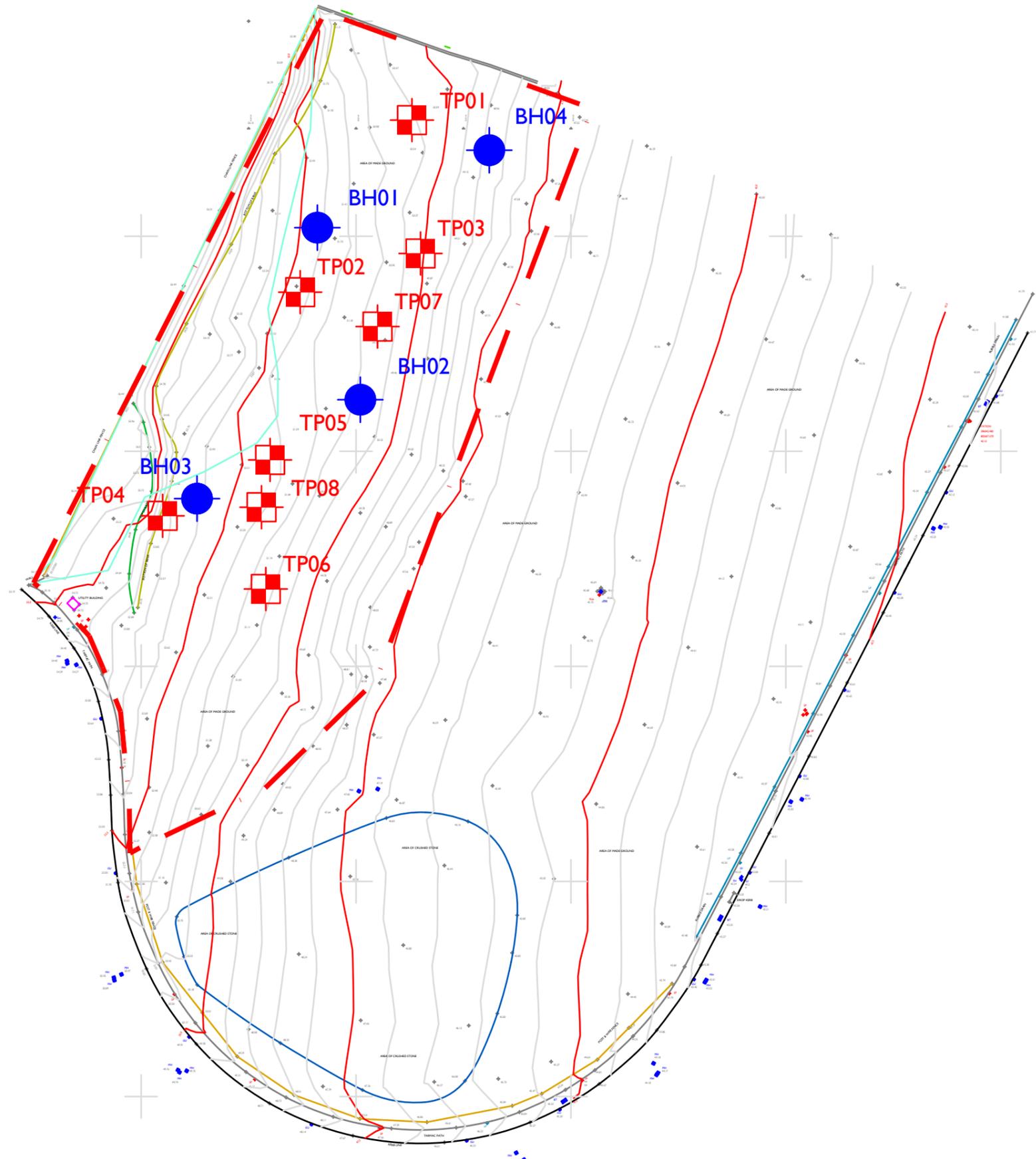
3.3.1 The scope and location of the works was determined by Mason Evans, where access permitted. The sampling was targeted to ensure sufficient coverage of the area of proposed development. Site works were implemented generally in accordance with BS:10175(2011) +A2(2017).

3.3.2 The following investigation works included in Table 9 were undertaken:

TABLE 9 – 2021 Site Investigations

Objective	Site Investigation
Trial Pits	(December 2023) 8 No. trial pits excavated by Mason Evans Partnership
Soils Boreholes	(December 2023 – January 2024) 4 No. rotary boreholes sunk by CGI limited to a depth of between 7.20 mbgl and 10.40 mbgl (BH01 – BH04).
Chemical Testing	(December 2023) 8 No. soil samples with chemical analysis. (December 2023) 5 No. trial pit excavations and boreholes with leachate analysis. (February 2024) 4 No. water samples have been tested with general suite of testing.
Geotechnical Testing	(March 2024) 2 No. UCS and 24 No. point load tests on core samples.

- 3.3.3 The trial pits were intended to provide coverage of the proposed development area, in order to define the general nature of the shallow soils and allow selection of representative samples for a comprehensive suite of chemical analyses. Given the proposed end-use of the site (commercial), the purpose of the sampling and testing was to identify potential risks to site users and the Water Environment.
- 3.3.4 The borehole investigations were intended to provide geotechnical and hydrogeological data along with contamination sampling of areas associated with the proposed development.
- 3.3.5 Representative samples of the underlying soils were obtained during the investigation and tested for an appropriate suite of testing associated with the potential risks from the previous site use. Samples sent for analysis were based on the conceptual model and historical activities on the site as per BS10175:2011+A2:2017. The results of the analyses were utilised in a site-specific risk assessment in accordance with the current UK technical guidance for human health and SEPA guidance for the Water Environment.
- 3.3.6 All soil samples recovered for chemical analysis were contained in sealed plastic tubs, labelled, and stored on site in cool boxes to maintain natural temperature. Where hydrocarbon or organic contamination was suspected, samples were contained in glass amber jars to prevent chemical breakdown because of exposure to light and limit absorption of the contaminant to the sample container. The procedure is designed to maintain sample integrity and ensure that the chemical analysis is as representative of the site conditions as possible.
- 3.3.7 All soil samples were collected and dispatched to the laboratory for immediate testing. The scope of the chemical testing of soil samples recovered during the various phases of investigation are discussed in detail in section 6.0 of this report.
- 3.3.8 Properties recorded during logging of the shallow soils included the general composition, strength, material, description, colour, density, state of weathering and any other notable feature. These were generally described in accordance with the guidelines provided by the Code of Practice for Site Investigations BS:5930(2015).
- 3.3.9 Locations of the investigative works are indicated on Drawing No. P23/336/SI/R/F/07 and records of the exploratory holes are included in Appendix C.



NOTES

- Approximate site boundary
- TP01 to TP08 Trial pit excavated by Mason Evans (January 2024)
- BH01 to BH04 Borehole sunk by Clyde Ground Investigation (January 2024)

REV	DATE	DETAILS
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121 GEORGE STREET
GLASGOW
GI IRD

PROJECT TITLE

MOORING LINE TEST FACILITY
HARENESS ROAD
ABERDEEN

DRAWING TITLE

LOCATION OF EXPLORATORY
HOLES

DRAWN BY	CHK'D BY	APP'D BY	DATE	SCALES
LD	AO	HOL	04.03.24	1:1500 @ A3

PROJECT No.	DRAWING No.	REVISION
P23/336	P23/336/SI/R/F/07	

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3.4 Investigation Rationale

3.4.1 The sampling strategy for the investigations undertaken was largely non-targeted across the site to determine the ground conditions throughout the site, as well as to provide geotechnical data.

3.4.2 The scope and location of exploratory holes was determined by MEP, where access permitted. The chemical analysis involved the sampling of any made ground and natural soils at regular depth intervals, to allow for an assessment of the risk to human health as well as to evaluate the risk to potential receptors including site users, groundwater, concrete structures/foundations and/or buried services (i.e., water supply pipes). The analytic schedule was then based on the interpreted origin of the soils and their description, which is consistent with best practice under current contaminated land guidance BS:10175(2011) +A2(2017) 'Code of Practice for the Investigation of Contaminated Land'. As such, we have implemented the following site practices:

- The drilling works have been undertaken by a suitably accredited sub-contractor.
- The geological succession at each exploratory hole location has been logged by an experienced field specialist and samples taken for laboratory analysis. A visual assessment was made of the geological character and potential contamination if present. Soil samples have predominantly been taken at approximately 0.5 m intervals, or at a change in lithology, or where evidence of potential contamination impact was observed.
- In selecting the appropriate samples for testing, we have taken cognisance of several factors, including the proposed site use. Sampling rationale has been determined in accordance with R&D Technical Report P5-066/TR Secondary Model Procedure for the Development of Appropriate Soil Sampling Strategies for Land Contamination, as indicated in Table 10.
- The scope of the testing implemented considered the interpreted origin of the materials in association with their description. This is consistent with best practice under current contaminated land guidance. The chemical condition of these materials was assessed for a wide spectrum of potential contaminants, comprising a broad range of common organic and inorganic substances primarily of a toxic or phytotoxic nature, and appropriate to the past usage of the site.
- During sample collection, relevant information such as notes of field observations has been logged before transferring the samples to laboratory-prepared sample container of appropriate type. Care was also taken to minimise the aeration of samples during transfer to the bottles.

TABLE 10 – Rationale for Sampling Strategy at Different Depths

Depth Range	Rationale
Ground Level – 1.0 m	To assess: <ul style="list-style-type: none"> • Human/ animal intake arising from ingestion and dermal contact. • Potential for wind entrainment leading to inhalation (of contaminated soils and dusts) or deposition onto neighbouring land. • Surface water run-off (e.g. due to flash flooding). • Uptake by shallow rooting plants (e.g. crops, ornamental and wild species). • Surface leaching to groundwater.
>1.0 m in made or natural ground	To assess: <ul style="list-style-type: none"> • Intake via ingestion/ inhalation/dermal contact arising from ‘abnormal’ (or unpredicted) excavation (e.g. children digging dens) or for other purposes such as swimming pools, ponds, house extensions. • Uptake by deep rooting shrubs or trees. • Intake by or arising from the activities of burrowing animals. • Intake arising from construction/ maintenance of buildings and services, for example: <ol style="list-style-type: none"> a. Foundations (usually within 2.0 m of final formation level). b. Water supply pipes, telecommunications, gas and power (0.5 m to 1.0 m of final formation levels). c. Sewers (from 0.5 m to >1.0 m of final formation level). • To locate perched water of groundwater. • To confirm depth of made ground. • To locate possible lateral pathways for gas or vapour migration in made ground. • To establish the extent of any leaching of soluble constituents from superficial soils. • To detect ‘deep’ contamination (e.g. gas generating materials, leachable materials, dense solvents located above an impermeable stratum). • To obtain information on ‘background’ soil properties. • To locate ‘natural’ lateral migration pathways.

3.4.3 Samples sent for chemical analysis were selected in order to provide site wide analysis and to provide representative coverage of the site. Samples were generally collected within the first meter of soil due to the limited potential for downward migration and the low risk to human health of any contaminants found at greater depths.

3.5 Analytical Procedures

3.5.1 Analytical procedures adopted during the chemical analyses, carried out on behalf of the consultant, by Derwentside Environmental Testing Services (DETS), conformed to recognised practices, allowing the award of UKAS accreditation (unless indicated otherwise).

4.0 RECORDED GROUND CONDITIONS

4.1 Ground Conditions

4.1.1 The ground conditions encountered during the investigation were generally consistent with the anticipated sequence of strata indicated by the desk study information.

4.1.2 Made ground was not encountered within the site investigative works.

4.1.3 The natural soils were generally recorded as fine to coarse GRAVEL and silty gravelly SAND. The ground conditions recorded within the site investigation works are presented in Table II below.

TABLE II – Summary of Ground Conditions

Soil Type	Depth Range (mbgl)	Thickness Range (m)
Made Ground	Not encountered	Not encountered
Sand and gravel	Ground level to 2.40 mbgl	0.70 mbgl – 2.40 mbgl
Rockhead	Recorded Between 0.70 mbgl and 2.40 mbgl in trial pits and boreholes. Weathered rockhead was recorded at surface in the northern site area.	Proven to >10.40 mbgl

Soils Encountered

Surface Covering (Topsoil)

4.1.4 Topsoil was recorded in TP02 and TP03 from depths of between ground level and 0.25 mbgl.

Sand and Gravel

4.1.5 Sand and gravel soils described as fine to coarse GRAVEL and silty gravelly SAND were recorded across the site at depths of between ground level and 2.40 mbgl.

Solid Strata

4.1.6 Solid strata recorded as metamorphic bedrock described as granite, psammite and pelite was recorded in the boreholes and trial pits between depths of 0.70 mbgl and >10.40 mbgl. Weathered rockhead was recorded at surface in the northern site area. The locations and depth of rockhead encountered is recorded on Drawing No. P23/336/SI/R/F/08.

4.2 Visual/Olfactory Evidence of Contamination

4.2.1 No visual or olfactory evidence of contamination was recorded.

4.3 Groundwater

4.3.1 Groundwater was recorded in the following exploratory positions;

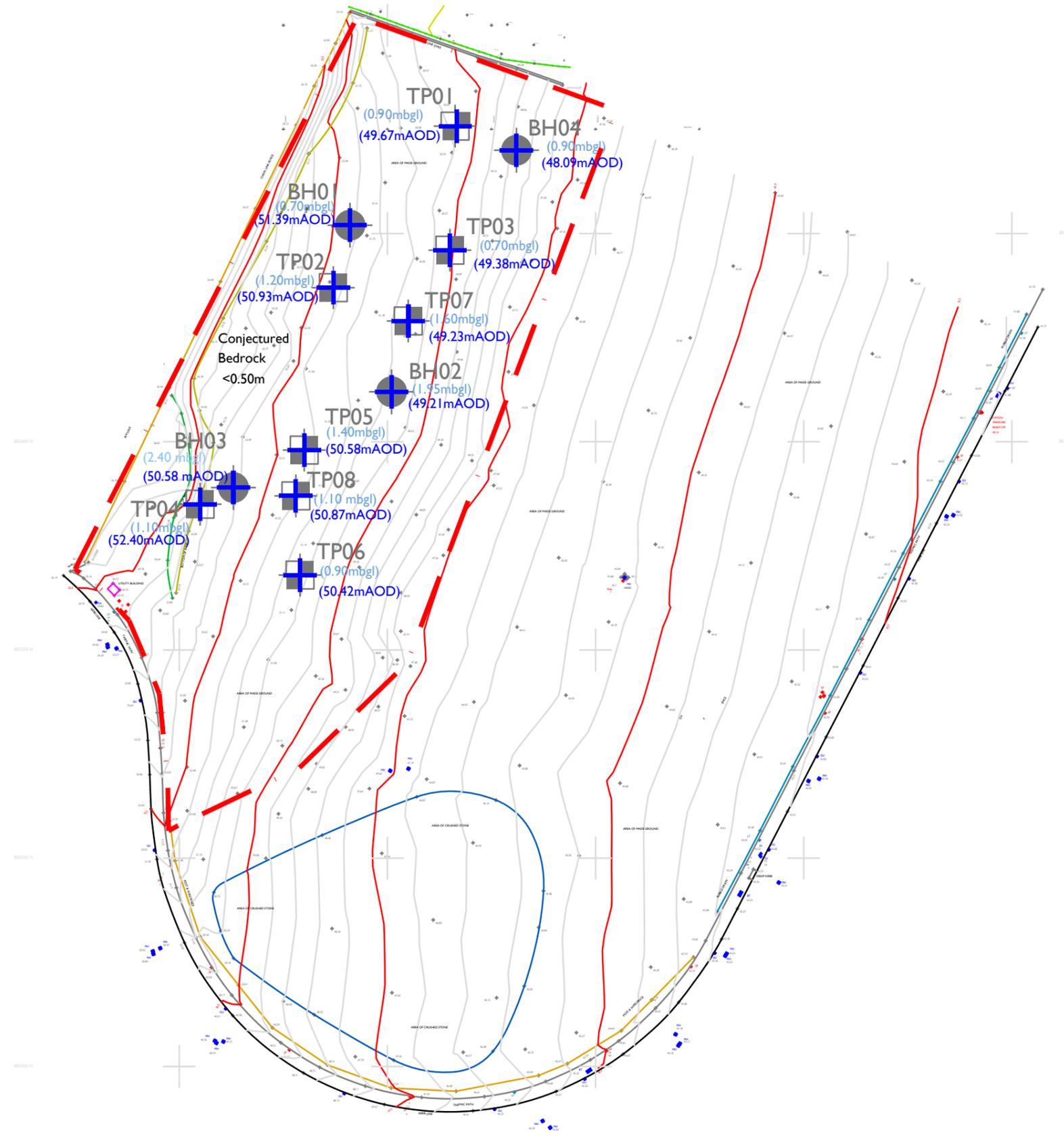
- A groundwater strike was recorded in BH01 at 4.00 mbgl, in BH02 at 2.00 mbgl, and in BH03 at 8.00 mbgl.
- A slight water seepage was recorded in TP04 at a depth of 0.70 mbgl.

4.3.3 Monitoring wells were installed in all 4 No. boreholes. Monitoring is complete following 6 No. rounds. The results of the groundwater monitoring are included in the table below.

Table 12 – Summary of Groundwater Monitoring

Location	BH01	BH02	BH03	BH04
Minimum Groundwater Level (mbgl)	2.15	2.20	3.70	2.30
Minimum Groundwater Level (mAOD)	49.24	47.01	46.88	45.59
Maximum Groundwater Level (mbgl)	3.15	4.65	6.90	3.00
Maximum Groundwater Level (mAOD)	48.24	44.56	43.68	45.09
Average Groundwater Level (mbgl)	2.48	6.81	5.55	2.58
Average Groundwater Depth (mAOD)	48.91	42.40	45.04	45.51

4.3.4 The recorded water depth results are suggestive of a continuous groundwater table beneath the site between depths of 49.24 mAOD and 43.68 mAOD.



NOTES

- TP01 to TP08 Trial pit excavated by Mason Evans (January 2024)
- BH01 to BH04 Borehole sunk by Clyde Ground Investigation (January 2024)
- + (0.90mbgl) Recorded depth to weathered rockhead (49.85m AOD)

REV	DATE	DETAILS

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121 GEORGE STREET
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PROJECT TITLE

MOORING LINE TEST FACILITY
HARENESS ROAD
ABERDEEN

DRAWING TITLE

RECORDED DEPTH OF
ROCKHEAD

DRAWN BY LD	CHK'D BY AO	APP'D BY HOL	DATE 04.03.24	SCALES 1:1500 @ A3
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PROJECT No. P23/336	DRAWING No. P23/336/SI/R/F/08	REVISION
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5.0 CONTAMINATION RISK ASSESSMENT

5.1 Human Health and Groundwater Risk Assessment Screening Criteria

5.1.1 Consideration of analytical results against applicable, conservative risk-based screening criteria has been used to provide an assessment of risk. A tiered risk-based approach comprises:

- Preliminary Risk Assessment (e.g., establishing potential pollutant linkages).
- Generic Quantitative Risk Assessment (GQRA) (e.g., the comparison of contaminant concentrations against Soil Guideline Values (SGV) or other Generic Assessment Criteria (GAC)); and
- Detailed Quantitative Risk Assessment (DQRA) (e.g., the comparison of contaminant concentrations against site specific assessment criteria).

5.1.2 A GQRA has been carried out as part of this assessment. Soil chemical analysis data has been assessed in terms of risks to human health and vegetation while leachate data has been assessed in terms of risks to the water environment. The GACs utilised are the Suitable 4 Use Levels (S4ULs) derived by LQM/CIEH, based on changes to the standard CLEA exposure parameters, as outlined in the DEFRA publication SPI010 (Category 4 Screening Levels (C4SLs) (March 2014). The S4ULs are derived in accordance with current UK legislation, and national policy using the EAs CLEA software (v1.06) and led to the most current publication of CLEA (v1.071). Normally the CLEA software utilises the default exposure pathways and land use assumptions outlined in SR3 (Environment Agency 2009b). To implement the revised exposure and land use assumptions introduced by DEFRA publication SPI010, a number of modifications were made to the land use and receptor databases of the CLEA model including the introduction of two additional land use scenarios: Public Open Space 'park' and Public Open Space, near residential housing. These changes are summarised in both DEFRA publication SPI010 (2014), and LQM/CIEH publication S4UL3203 (2015). These parameters are what was modified in CLEA v1.071.

5.1.3 The derived S4ULs are based on the concept of minimal tolerable risk as described in SR2 (Environment Agency 2009a) which underpins all previous EA SGVs and other GACs. Please note that S4ULs do not incorporate any toxicological parameter changes to the CLEA base model, however recent toxicological data has been incorporated into the contaminant databases. Furthermore, S4UL GACs are equivalent to the previously published Environment agency SGVs, and previous iterations of LQM/CIEH GACs and as such are suitable for use in generic quantitative risk assessments under both planning and Part IIa regimes.

5.1.4 In this case we have utilised S4UL values appropriate to a commercial development.

5.2 Statistical Analysis of Data

5.2.1 Where appropriate, chemical data for soils can be considered statistically in general accordance with the guidelines given in the Chartered Institute of Environmental Health Publication *Guidance on comparing Soil Contamination Data with a Critical Concentration* (May 2008). In this case statistical analysis has not been undertaken, as the dataset was considered to be robust, a statistical analysis was considered unnecessary.

Sample Depths

5.2.2 At the generic assessment stage, it should be assumed that all pathways contained within the generic model applied will be active. In reality, unless a contaminant is volatile (e.g., organic), exposure by direct contact will likely be mitigated by the depth of the contaminant or available surface cover. CLEA-SR3 states that 'Whether or not soil contamination at greater depth or beneath hard standing poses a risk to health depends on the importance of the contact pathways (primary injection and dermal contact and the likelihood that such soils may be brought to the surface through activities such as gardening and building works'. Generally, direct contact with contaminants at greater than 600 mm depth is considered unlikely to occur while direct contact with contaminants under hardstanding is highly unlikely to occur unless the ground is to be disturbed through removal of surfacing or earthworks.

5.3 **Ground Gas Assessment**

5.3.1 The potential presence of carbon dioxide and methane being generated at the site has been appraised in compliance with BS8576:2013 and BS 8485 (2015) & A1:2019. This document details site investigations methodologies and risk assessment procedures for assessing the results from such investigations. The risk assessment procedures are primarily based on those detailed by Wilson and Card (1999).

5.4 **Building Materials Assessment**

5.4.1 BRE Special Digest I 'Concrete in Aggressive Ground' (3rd Edition, 2005) has been used to determine an appropriate concrete class for the development.

6.0 HUMAN HEALTH RISK ASSESSMENT

6.1 Contaminants in Soils

6.1.1 Samples collected were subject to analysis for a range of contaminants with the results compared directly to the relevant Generic Assessment Criteria. We have compared the results to the most conservative criteria for commercial end use, due to the sensitive nature for the proposed development of a school. The tabulated results are below, and the testing certificate is included in Appendix D.

TABLE 13 - Exceedance of Guideline Levels (Commercial End-Use)

Contaminant	Effect	Measured Concentrations in Excess of SGV/GSV/SSTL (mg/kg)		Measured Exceedance Concentrations (mg/kg)		SGV/GSV/SSV (mg/kg)	Source
		Natural	Made Ground	Natural	Made Ground		
Arsenic	Toxic	0 out of 8	-		-	37	LQM/CIEH S4ULs (2015)
Boron	Toxic	0 out of 8	-		-	290	LQM/CIEH S4ULs (2015)
Cadmium	Toxic	0 out of 8	-		-	11	LQM/CIEH S4ULs (2015)
Chromium III	Toxic	0 out of 8	-		-	910	LQM/CIEH S4ULs (2015)
Chromium VI	Toxic	0 out of 8	-		-	6	LQM/CIEH S4ULs (2015)
Copper	Toxic	0 out of 8	-		-	2400	LQM/CIEH S4ULs (2015)
Copper	Phytotoxic	0 out of 8	-		-	200	BS:3882 (2015)
Lead	Toxic	1 out of 8	-	TP06 0.60m 320mg/kg	-	200	C4SL (DEFRA SP1010) (2014)
Mercury (Inorganic)	Toxic	0 out of 8	-		-	40	LQM/CIEH S4ULs (2015)
Nickel	Toxic	0 out of 8	-		-	130	LQM/CIEH S4ULs (2015)
Nickel	Phytotoxic	0 out of 8	-		-	110	BS:3882 (2015)
Selenium	Toxic	0 out of 8	-		-	250	LQM/CIEH S4ULs (2015)
Vanadium	Toxic	0 out of 8	-		-	410	LQM/CIEH S4ULs (2015)
Zinc	Toxic	0 out of 8	-		-	3700	LQM/CIEH S4ULs (2015)
Zinc	Phytotoxic	1 out of 8	-	TP06 0.60m 1000mg/kg	-	300	BS:3882 (2015)
Total Sulphate	Phytotoxic	0 out of 8	-		-	10,000	ICRCL/SAC
Phenol	Toxic	0 out of 8	-		-	120	LQM/CIEH S4ULs (2015)
Petroleum Hydrocarbons							
Aliphatic C5-C6	Toxic	0 out of 8	-		-	42	LQM/CIEH S4ULs (2015)
Aliphatic C6-C8	Toxic	0 out of 8	-		-	100	LQM/CIEH S4ULs (2015)
Aliphatic C8-C10	Toxic	0 out of 8	-		-	27	LQM/CIEH S4ULs (2015)
Aliphatic C10-C12	Toxic	0 out of 8	-		-	130	LQM/CIEH S4ULs (2015)
Aliphatic C12-C16	Toxic	0 out of 8	-		-	1100	LQM/CIEH S4ULs (2015)
Aliphatic C16-C21	Toxic	0 out of 8	-		-	65,000	LQM/CIEH S4ULs (2015)
Aliphatic C16-C35	Toxic	0 out of 8	-		-	65,000	LQM/CIEH S4ULs (2015)
Aliphatic C21-C35	Toxic	0 out of 8	-		-	65,000	LQM/CIEH S4ULs (2015)
Aromatic C5-C7	Toxic	0 out of 8	-		-	70	LQM/CIEH S4ULs (2015)
Aromatic C7-C8	Toxic	0 out of 8	-		-	130	LQM/CIEH S4ULs (2015)
Aromatic C8-C10	Toxic	0 out of 8	-		-	34	LQM/CIEH S4ULs (2015)
Aromatic C10-C12	Toxic	0 out of 8	-		-	74	LQM/CIEH S4ULs (2015)
Aromatic C12-C16	Toxic	0 out of 8	-		-	140	LQM/CIEH S4ULs (2015)
Aromatic C16-C21	Toxic	0 out of 8	-		-	260	LQM/CIEH S4ULs (2015)
Aromatic C21-C35	Toxic	0 out of 8	-		-	1100	LQM/CIEH S4ULs (2015)
PAHs							
Naphthalene	Toxic	0 out of 8	-		-	2.3	LQM/CIEH S4ULs (2015)
Acenaphthylene	Toxic	0 out of 8	-		-	170	LQM/CIEH S4ULs (2015)
Acenaphthene	Toxic	0 out of 8	-		-	210	LQM/CIEH S4ULs (2015)
Fluorene	Toxic	0 out of 8	-		-	170	LQM/CIEH S4ULs (2015)
Phenanthrene	Toxic	0 out of 8	-		-	95	LQM/CIEH S4ULs (2015)
Anthracene	Toxic	0 out of 8	-		-	2400	LQM/CIEH S4ULs (2015)
Fluoranthene	Toxic	0 out of 8	-		-	280	LQM/CIEH S4ULs (2015)
Pyrene	Toxic	0 out of 8	-		-	620	LQM/CIEH S4ULs (2015)
Benzo(a)anthracene	Toxic	0 out of 8	-		-	7.2	LQM/CIEH S4ULs (2015)
Chrysene	Toxic	0 out of 8	-		-	15	LQM/CIEH S4ULs (2015)
Benzo(b)fluoranthene	Toxic	0 out of 8	-		-	2.6	LQM/CIEH S4ULs (2015)
Benzo(k)fluoranthene	Toxic	0 out of 8	-		-	77	LQM/CIEH S4ULs (2015)
Benzo(a)pyrene	Toxic	0 out of 8	-		-	2.2	LQM/CIEH S4ULs (2015)
Indeno(1,2,3-CD) Pyrene	Toxic	0 out of 8	-		-	27	LQM/CIEH S4ULs (2015)
Dibenz(a,h)anthracene	Toxic	0 out of 8	-		-	0.24	LQM/CIEH S4ULs (2015)
Benzo(g,h,i)perylene	Toxic	0 out of 8	-		-	320	LQM/CIEH S4ULs (2015)
Other							
Asbestos	Toxic	-	-	-	-	Detection	HSE

* Based on SOM of 1%

** Phytotoxic values based on pH of between 6-7

*** Based on p-xylene (lowest value). If stratified xylene testing is available this value might be higher.

- 6.1.2 Comparing the results against S4UL guideline values appropriate to a commercial end use, an elevated concentration of lead was recorded in TP06 at a depth 0.60 mbgl. As such we consider a risk to human health from the recorded elevated concentration of lead.
- 6.1.3 A phytotoxic concentration of zinc was recorded within TP06 at 0.60 mbgl, and as such we consider there to be a risk to plant life from the shallow soils.
- 6.1.4 As both the toxic and phytotoxic contamination was recorded within the location of TP06 at 0.60 mbgl, we would recommend the material from this location is excavated, and either placed in a less sensitive area of the site (below hardstanding) or removed from site to landfill.

7.0 WATER ENVIRONMENT RISK ASSESSMENT

7.1 Water Environment Sensitivity Setting

7.1.1 There were no SEPA defined surface water features within the site boundaries. The nearest surface water body was the 'Don Estuary to Souter Head (Aberdeen)' (ID No. 200105) located approximately 510 m to the east of the site (at its closest). The SEPA water classification hub indicated the water body to have an overall status of 'Good ecological potential' in 2020.

7.1.2 The SEPA Water Classification Hub indicated groundwater beneath the site to be associated with the 'Portlethen' bedrock aquifer (ID No. 150625). The Water Classification Hub indicated the groundwater body to have an overall status of 'Good' in 2020.

7.1.3 Based on the above information, we have taken the groundwater environment to be the most sensitive water environment receptor with regards to the site, as it is recorded to be at shallow depth below the site. We have however also assessed the risk to the nearest surface water body of the 'Don Estuary to Souter Head'.

7.2 Groundwater and Surface Water Assessments

7.2.1 Following SEPA Position Statement WAT-PS-10-01, 'Assigning Groundwater Assessment Criteria for Pollutant Inputs' (August 2014), the following assessment should be carried out for potential pollutant linkages to the water environment:

- 1) Assess which receptors (including surface / coastal waters, wetlands, potable water extractions, and future drinking water potential) may be affected by contamination sources.
- 2) For potential pollutant linkages, assess contaminant concentrations against relevant screening values at the recommended assessment point, taking into consideration mixing and upstream/upgradient concentrations, where appropriate.
- 3) Evaluate whether remedial measures would be either disproportionately costly, a risk to other receptors, or cause deterioration of the natural environment

7.3 Groundwater Assessment

7.3.1 4 No. groundwater samples were collected (BH01 – BH04) and have been compared to the relevant guideline values in order to determine the risk of potential contaminants to the water environment. The groundwater sample results are included in Appendix D.

7.3.2 Should contaminant concentrations migrate to greater depths, perhaps to a deep groundwater aquifer, we considered it prudent to compare the groundwater sample results to the appropriate groundwater guideline values (SEPA's Resource Protection Values (RPV's) and Minimum Reporting Values (MRV's) and in the absence of any SEPA published MRVs and RPs we have reverted to WHO's Guidelines for Drinking Water Quality (4th Edition, 2011) or WHO: Petroleum Products in Drinking Water (2005). The groundwater sample results are included in Appendix D and are summarised in Table 14 below.

TABLE 14 – Groundwater Sample Analysis Compared with MRV/RVPs

Potential Contaminant	RPV/MRV (µg/l)	WHO (4 th Edition, First Addendum 2017) (µg/l)	WHO (Petroleum Products in Drinking Water (2005)) (µg/l)	CL:AIRE (Petroleum Hydrocarbons in Groundwater (2017) (µg/l)	Laboratory Limit of Detection (µg/l)	No of Samples Above Assessment Levels	Range of Concentrations which Exceeded Relevant Guidelines (µg/l)
Metals							
Arsenic	10	-	-	-	-	0 out of 4	-
Boron (water soluble)	1000	-	-	-	-	0 out of 4	-
Cadmium	0.1	-	-	-	-	3 out of 4	BH01 0.12 µg/l BH02 0.27 µg/l BH04 0.26 µg/l
Chromium	50	-	-	-	-	0 out of 4	-
Copper	-	2000	-	-	-	0 out of 4	-
Mercury	0.01	-	-	-	-	0 out of 4	-
Nickel	20	-	-	-	-	0 out of 4	-
Lead	25	-	-	-	-	0 out of 4	-
Selenium	10	-	-	-	-	0 out of 4	-
Zinc	-	3000	-	-	-	0 out of 4	-
Inorganics							
Sulphate as SO ₄	250 (mg/l)	-	-	-	-	0 out of 4	-
Total Cyanide	50	-	-	-	-	0 out of 4	-
Total Petroleum Hydrocarbons (TPHs)							
Aliphatic C5-C6	-	-	-	15000	-	0 out of 4	-
Aliphatic C6-C8	-	-	-	15000	-	0 out of 4	-
Aliphatic C8-C10	-	-	-	300	-	0 out of 4	-
Aliphatic C10-C12	-	-	-	300	-	0 out of 4	-
Aliphatic C12-C16	-	-	-	300	-	0 out of 4	-
Aliphatic C16-C21	-	-	300	-	-	0 out of 4	-
Aliphatic C21-C35	-	-	300	-	-	0 out of 4	-
Aromatic C5-C7	-	-	-	10	-	0 out of 4	-
Aromatic C7-C8	-	-	-	700	-	0 out of 4	-
Aromatic C8-C10	-	-	-	300	-	0 out of 4	-
Aromatic C10-C12	-	-	-	90	-	0 out of 4	-
Aromatic C12-C16	-	-	-	90	-	0 out of 4	-
Aromatic C16-C21	-	-	-	90	-	0 out of 4	-
Aromatic C21-C35	-	-	-	90	-	0 out of 4	-
Polycyclic Aromatic Hydrocarbons (PAHs)							
Naphthalene*	-	-	-	-	0.05	0 out of 4	-
Acenaphthylene*	-	-	-	-	0.01	0 out of 4	-
Acenaphthene*	-	-	-	-	0.01	3 out of 4	BH01 0.11 µg/l BH02 0.02 µg/l BH03 0.03 µg/l
Fluorene*	-	-	-	-	0.01	1 out of 4	BH01 0.10 µg/l
Phenanthrene*	-	-	-	-	0.01	2 out of 4	BH01 0.08 µg/l BH02 0.02 µg/l
Anthracene*	-	-	-	-	0.01	2 out of 4	BH01 0.08 µg/l BH03 0.02 µg/l
Fluoranthene	0.1	-	-	-	-	1 out of 4	BH01 0.17 µg/l
Pyrene*	-	-	-	-	0.01	4 out of 4	BH01 0.12 µg/l BH02 0.07 µg/l BH03 0.07 µg/l BH04 0.02 µg/l
Benzo(a)anthracene*	-	-	-	-	0.01	3 out of 4	BH01 0.04 µg/l BH02 0.03 µg/l BH03 0.02 µg/l
Chrysene*	-	-	-	-	0.01	3 out of 4	BH01 0.02 µg/l BH02 0.02 µg/l BH03 0.02 µg/l
Benzo(b)fluoranthene	0.1	-	-	-	-	0 out of 4	-
Benzo(k)fluoranthene	0.1	-	-	-	-	0 out of 4	-
Benzo(a)pyrene	0.01	-	-	-	-	2 out of 4	BH01 0.03 µg/l BH03 0.02 µg/l
Indeno(123-cd)pyrene	0.1	-	-	-	-	0 out of 4	-
Dibenzo(a,h)anthracene*	-	-	-	-	0.01	0 out of 4	-
Benzo(ghi)perylene	0.1	-	-	-	-	0 out of 4	-
Phenols							
Phenol*	-	-	-	-	0.5	0 out of 4	-

7.3.3 Comparing the groundwater sample results against relevant groundwater guidelines (MRV/RPV) contaminant concentration exceedances of cadmium and PAHs (acenaphthene, phenanthrene, anthracene, Fluoranthene, pyrene, benzo(a)anthracene, chrysene, and benzo(a)pyrene) were recorded.

7.3.4 Due to the contaminant exceedances recorded, groundwater modelling of cadmium and PAHs was undertaken to assess the potential risk of these contaminants to the groundwater environment. We utilized RD P20 RTM (V3.2) published by the Environment Agency in our assessment and a copy of the models are included in Appendix D. As discussed, the groundwater environment is considered to be the most sensitive water environment receptor with regards to the site, as it is potentially closer to the site than the nearest surface water body of the 'Don Estuary to Souter Head' located 510m east of the site. Furthermore, we have utilised the maximum concentration of any exceedances from across the site in our assessment. The model was run for each of the contaminants which were recorded to exceed the guideline values. The results of the modelling are shown in Table 15, and the P20 model worksheets and justification tables are included in Appendix E.

TABLE 15 – Results of P20 Groundwater Modelling

Contaminant	Maximum Recorded Exceedance (µg/l)	Target Value (µg/l)	Target Value Source	Contaminant Concentration at the Compliance Point (µg/l)
Cadmium	0.27	0.1	RPV/MRV	0.00708
Acenaphthene	0.11	0.01	LoD	0.00288
Fluorene	0.1			0.00262
Phenanthrene	0.08			0.0021
Anthracene	0.08			0.0021
Fluoranthene	0.17			0.1
Pyrene	0.12	0.01	LoD	0.00315
Benzo(a)anthracene	0.04			0.00105
Chrysene	0.02			0.000525
Benzo(a)pyrene	0.03	0.01	RPV/MRV	0.000787

7.3.5 Utilising the P20 modelling tool, the results indicated that the concentrations of cadmium and PAHs recorded in the groundwater were calculated to be below the MRV/RPV guideline or Laboratory Limits of Detection values. We therefore consider there to be a low risk to the groundwater from contaminants.

7.4 Surface Water Assessment

7.4.1 Following SEPA Position Statement WAT-PS-10-01, 'Assigning Groundwater Assessment Criteria for Pollutant Inputs' (August 2014), the following assessment should be carried out for potential pollutant linkages to the Water Environment:

- 1) Assess which receptors (including surface / coastal waters, wetlands, potable water extractions, and future drinking water potential) may be affected by contamination sources.
- 2) For potential pollutant linkages, assess contaminant concentrations against relevant screening values at the recommended assessment point, taking into consideration mixing and upstream/upgradient concentrations, where appropriate.

- 3) Evaluate whether remedial measures would be either disproportionately costly, a risk to other receptors, or cause deterioration of the natural environment.

7.4.2 In consideration of the proximity of the 'Don Estuary to Souter Head' in the North Sea to the site, the groundwater environment is considered to be the most sensitive receptor. However, as the nearest surface water body is a coastal water body, we have compared the groundwater sample results (included in Appendix D) to the relevant Environmental Quality Standards (EQSs) for a marine water body, as obtained from SEPA document WAT-SG-53 v7.1, (April 2020). In the absence of any SEPA published EQS we have reverted to the laboratory Limits of Detection, as recommended in SEPA position Statement WAT-PS-10-01. Groundwater sample results have been compared to EQS levels to highlight the potential for contaminants which could impact the surface water environment. This assessment is presented in Table 16 below.

TABLE 16 - Groundwater Samples Compared with Appropriate Marine Guideline Values (EQS)

Potential Contaminant	EQS values (µg/l)	Limit of Detection (LoD)**	No of Samples Above Guideline Values	Range of Concentrations which Exceeded Guideline Values
Arsenic	25		0 out of 4	
Boron	7000		0 out of 4	
Cadmium	0.20		1 out of 4	BH02 0.27 µg/l
Chromium (VI)	0.60		4 out of 4	BH01 1.8 µg/l BH02 1.1 µg/l BH03 1.1 µg/l BH04 2.0 µg/l
Copper	3.76		2 out of 4	BH01 4.5 µg/l BH04 5.9 µg/l
Lead	1.30		0 out of 4	
Mercury	0.07		0 out of 4	
Nickel	8.60		2 out of 4	BH01 16 µg/l BH02 13 µg/l
Zinc	7.90		4 out of 4	BH01 96 µg/l BH02 85 µg/l BH03 74 µg/l BH04 110 µg/l
Cyanide	1.0		0 out of 4	
Total Petroleum Hydrocarbons				
**C7-C8 Aromatic		0.1	0 out of 4	
**C6-C8 Aliphatic		1	0 out of 4	
**C5-C6 Aliphatic		1	0 out of 4	
**C5-C7 Aromatic		0.1	0 out of 4	
**C8-C10 Aliphatic		0.1	0 out of 4	
**C8-C10 Aromatic		0.1	0 out of 4	
**C10-C12 Aliphatic		1	0 out of 4	
**C10-C12 Aromatic		1	0 out of 4	
**C12-C16 Aliphatic		1	0 out of 4	
**C12-C16 Aromatic		1	0 out of 4	
**C16-C21 Aliphatic		1	0 out of 4	
**C16-C21 Aromatic		1	0 out of 4	
**C21-C36 Aliphatic		10	0 out of 4	
**C21-C35 Aliphatic		1	1 out of 4	BH03 29 µg/l
**C5-C35 Aliphatic		10	1 out of 4	BH03 29 µg/l
**C21-C36 Aromatic		10	0 out of 4	
**C21-C36 Aromatic		1	0 out of 4	
**C21-C35 Aromatic		1	0 out of 4	
**C5-C35 Aromatic		10	0 out of 4	
Polycyclic Aromatic Hydrocarbons				
Naphthalene	2.0		0 out of 4	
**Acenaphthylene		0.01	0 out of 4	
**Acenaphthene		0.01	3 out of 4	BH01 0.22 µg/l BH02 0.02 µg/l BH03 0.03 µg/l
**Fluorene		0.01	1 out of 4	BH01 0.10 µg/l
**Phenanthrene		0.01	2 out of 4	BH01 0.08 µg/l BH02 0.02 µg/l
Anthracene	0.10		0 out of 4	
Fluoranthene	0.0063		4 out of 4	BH01 0.17 µg/l BH02 0.09 µg/l BH03 0.09 µg/l

				BH04 0.02 µg/l
**Pyrene		0.01	4 out of 4	BH01 0.12 µg/l BH02 0.07 µg/l BH03 0.07 µg/l BH04 0.02 µg/l
**Benzo(a)anthracene		0.01	3 out of 4	BH01 0.04 µg/l BH02 0.03 µg/l BH03 0.02 µg/l
**Chrysene		0.01	3 out of 4	BH01 0.02 µg/l BH02 0.02 µg/l BH03 0.02 µg/l
Benzo(b)fluoranthene	0.00017		3 out of 4	BH01 0.03 µg/l BH02 0.02 µg/l BH03 0.02 µg/l
Benzo(k)fluoranthene	0.00017		1 out of 4	BH03 0.01 µg/l
Benzo(a)pyrene	0.00017		3 out of 4	BH01 0.03 µg/l BH02 0.01 µg/l BH03 0.02 µg/l
Indeno(1,2,3-c,d)pyrene	0.00017		1 out of 4	BH03 0.01 µg/l
Dibenzo(a,h)anthracene		0.01	0 out of 4	
Benzo(g,h,i)perylene	0.00017		3 out of 4	BH01 0.01 µg/l BH02 0.01 µg/l BH03 0.01 µg/l
Phenol	7.7		0 out of 4	

*In absence of Marine AA concentration guideline, we reverted to Freshwater AA concentration guideline.

**LoD utilised in the absence of EQS value.

7.4.2 Against current guideline values, the groundwater samples identified exceedances of the contaminants cadmium, chromium, copper, nickel, zinc, aliphatic and aromatic hydrocarbon fractions (TPHs), and several PAHs (acenaphthene, fluorene, phenanthrene, fluoranthene, pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, indeno(1,2,3-c,d)pyrene, and benzo(g,h,i)perylene).

7.4.3 It should be noted that several Total Petroleum Hydrocarbons (TPHs) and Polyaromatic Hydrocarbons (PAHs) were highlighted as the limit of detection was used in some instances as no reporting value was available in the WAT-SG-53 (2020) document. For this risk assessment, we have assumed that concentrations not significantly above the limit of detections do not pose a risk to the surface waters since the limit of detection is precisely that – the limit the laboratory equipment can achieve to an accredited standard. It is not based on any toxicological data or risk-based standards and highlighting exceedances of the LoD serves to highlight which values require further consideration only. However, the maximum recorded exceedance of concentrations which are significantly above the limit of detection have been modelled as included below.

7.4.4 We have therefore utilized Remedial Targets Methodology R&D P20 (v3.2) published by the Environment Agency in our assessment and a copy of the models are included in Appendix E. The model was run for the maximum concentrations of the contaminants identified above which are indicated to pose the highest risk of contamination to the most sensitive water receptor, the Don Estuary to Souter Head located in the North Sea.

7.4.5 The recorded contaminant exceedances were modelled using the P20 tool and the concentrations are listed in Table 17 below.

TABLE 17 – Results of P20 Modelling

Contaminant	Maximum Recorded Exceedance (µg/l)	Target Value – EQS (µg/l)	Contaminant Concentration at the Compliance Point (µg/l)
Cadmium	0.27	0.20	0.00294
Chromium	2.0	0.60	0.0218
Copper	5.9	3.76	0.0643
Nickel	16	8.60	0.174
Zinc	110	7.90	1.20
C21-35 Aliphatic	29	1	0.316
C5-35 Aliphatic	29	10	0.316
Acenaphthene	0.22	0.01	0.0024
Fluorene	0.10	0.01	0.00109
Phenanthrene	0.08	0.01	0.000872
Fluoranthene	0.17	0.0063	0.00185
Pyrene	0.12	0.01	0.00185

7.4.6 Utilising the P20 modelling tool, the results indicated that the concentrations of cadmium, chromium, copper, nickel, zinc, TPHs and PAHs at the compliance point of the Don Estuary to Souter Head were calculated to be below the EQS guideline values. As such, we consider there to be a low risk to the surface water environment from contaminants.

Interpretation of Results

7.4.7 In consideration of the above results, and the P20 modelling, we would consider there to be a low risk to the groundwater body from the shallow soils. Additionally, following the P20 modelling to the compliance point of the Don Estuary to Souter Head which leads to the North Sea, we would consider the risk of contaminants to the surface water environment to be low.

7.4.8 Please note that the above does not include for dilution modelling which would reduce concentrations by significant order of magnitude less than that modelled above.

8.0 GROUND GAS EMISSIONS

8.1 General

8.1.1 The ground gas assessment has been completed following 6 No. rounds of monitoring, and is undertaken to assess risks associated with carbon dioxide and methane to new buildings and their users. The identified potential sources of carbon dioxide and methane gas on site are the natural soils (results included in Appendix F). We consider the source of the radon to be the underlying bedrock.

8.1.2 The assessment of risk due to ground gases has been further discussed in publications for CIRIA and BRE, which have indicated a number of 'characteristic situations' depending on the concentrations and flow rates of gas. This classification system has been further developed by Wilson and Card (1999), and Boyle and Witherington (2006) and a revised industry guidance has been provided within CIRIA Report C665 (2007) and BS 8485 (2015) & A1:2019.

8.1.3 The gas monitoring data was reviewed, and a risk assessment prepared in line with BS 8485 (2015) & A1:2019 whereby a scoring system is used to design suitable gas preclusion measures

8.2 Ground Gas – Results

8.2.1 Ground gas monitoring of the installations in BH01 – BH04 has been completed following 6 No. rounds of monitoring. The results are included in Appendix F.

8.2.2 Measurements of the soils boreholes were taken over a variety of atmospheric conditions, including falling pressure conditions, with steady barometric pressure ranging from 981 mb to 1011 mb. Oxygen concentrations ranged between 11.4% and 20.6%. Carbon dioxide concentrations were recorded to range from 0.0% to 3.5% vol. Methane concentrations were recorded at 0.0% and steady state flow rates were recorded between -1.5 l/hr and 0.1 l/hr respectively. The results of the gas monitoring are included in Appendix D.

8.3 Ground Gas - Assessment

8.3.1 Gas Screening Values have been calculated from the soils borehole results in line with CIRIA 665 and BS 8485 (2015) & A1:2019 guidance.

8.3.2 This is done by calculating a Q_{hg} for each monitoring point, for each monitoring event. Hazardous gas flow rate Q_{hg} (in $l\cdot h^{-1}$) is calculated using the following:

$$Q_{hg} = C_{hg}/100 \times q$$

Where:

C_{hg} is the measured hazardous gas concentration (in percentage volume-by-volume)

q is the flow rate (in litres per hour) of combined gasses from the standpipe found by direct measurement.

- 8.3.3 Hazardous gas flow rates were calculated for each of the soil borehole monitoring points during each event. A 'worst-case' scenario was realised on the 21st of May 2024 where carbon dioxide concentration was 3.5 % vol in BH01 and a representative steady-state gas flow rate of 0.0 l/h was recorded. The resultant hazardous gas flow rate is therefore as follows:

$$Q_{hg} = 3.5/100 \times 0.1^*$$

$$Q_{hg} = 0.0035$$

*If a gas flow rate is not detected, it should be assumed that it is at the limit of detection of the equipment used for the purpose of this calculation i.e. 0.1 l/hr

- 8.3.4 Based on the BS:8485(2015) +A1(2019) guidance, the calculated GSV corresponds generally to 'Characteristic Situation 1' (Table 18), which does not require gas preclusion measures.

TABLE 18 – Assessment of Gas Characterisation

Characteristic Situation	Hazard Potential	Gas Screening Value (GSV) (l/hr)	Additional Limiting Factors
1	Very Low	<0.07	Methane not to exceed 1% by volume and carbon dioxide not to exceed 5% by volume.
2	Low	0.07 to <0.7	Borehole air flow not to exceed 70 l/hr, otherwise increase to CS3.
3	Moderate	0.7 to <3.5	None
4	Moderate to High	3.5 to <15	None
5	High	15 to <70	None
6	Very High	>70	None

- 8.3.5 The construction and use of the building, together with the control of future structural changes to the building and its maintenance should be assessed, since potential risks posed by ground gases are strongly influenced by these factors. The assessment should lead to the categorisation of the building as a whole, or each different part of the building, into one of four building types: Type A, Type B, Type C or Type D.

- 8.3.6 New buildings should be categorised in accordance with Table 19, as outlined in BS 8485 (2015). In this case, the commercial development is categorised as type C.

TABLE 19 – Building Types and Descriptions (BS 8485 (2015) & A1:2019)

Building Type	Description
A	Private ownership with no building management controls on alterations to the internal structure, the use of rooms, the ventilation of rooms or the structural fabric of the building. Some small rooms present. Probably conventional building construction (rather than civil engineering). Examples include private housing and some retail premises.
B	Private or commercial property with central building management control of any alterations to the building or its uses but limited or no central building management control of the maintenance of the building, including the gas protection measures. Multiple occupancy. Small to medium size rooms with passive ventilation of rooms and other internal spaces throughout ground floor and basement areas. May be conventional building or civil engineering construction. Examples include managed apartments, multiple occupancy offices, some retail premises, and parts of some public buildings (such as schools, hospitals, leisure centres) and parts of hotels.
C	Commercial building with central building management control of any alterations to the building or its uses and central building management control of the maintenance of the building, including the gas protection measures. Single occupancy of ground floor and basement areas.

	Small to large size rooms with active ventilation or good passive ventilation of all rooms and other internal spaces throughout ground floor and basement areas. Probably civil engineering construction. Examples include offices, some retail premises, and parts of some public buildings (such as schools, hospitals, leisure centres and parts of hotels).
D	Industrial style building having large volume internal space(s) that are well ventilated. Corporate ownership with building management controls on alterations to the ground floor and basement areas of the building and on maintenance of ground gas protective measures. Probably civil engineering construction. Examples are retail park sales buildings, factory shop floor areas, warehouses. (Small rooms within these style buildings should be separately categorized as Type B or Type C).

8.3.7 From the identified Characteristic Situation and type of building, the minimum gas protection score should be calculated, in accordance with Table 20 below.

TABLE 20 - Gas Protection Score by Characteristic Situation and Type of Building

Characteristic Situation (CIRIA I49)	MINIMUM GAS PROTECTION SCORE (POINTS)			
	High Risk Type A Building	Type B Building	Medium Risk Type C Building	Low Risk Type D Building
1	0	0	0	0
2	3.5	3.5	2.5	1.5
3	4.5	4	3	2.5
4	6.5	5.5	4.5	3.5
5	-	6.5	5.5	4.5
6	-	-	7.5	6.5

8.3.8 Following the determination of the minimum gas protection score, carbon dioxide and methane preclusion measures are not required within this site.

8.3.12 The above ground gas risk assessment should be reviewed once final development proposals are known.

8.4 Radon

8.4.1 The Envirocheck report (Appendix A) notes that the site is in an Intermediate probability radon area where 1% to 3% of homes are estimated to be at or above the radon Action Level. **As such, basic radon protective measures will be required across the site.** This should comprise of the incorporation of a radon resistant membrane as a minimum.

9.0 RISKS TO CONSTRUCTED DEVELOPMENT

9.1 Sulphate Attack on Construction Materials

9.1.1 Laboratory testing was undertaken on selected soil samples recovered from the site to determine the sulphate content and acidity and hence the concrete class required for buried concrete. The results of chemical tests carried out are summarised in Table 21 below:

TABLE 21 – Sulphate and pH Summary

Determinant	Recorded Values*	SDI DS Class	SDI ACEC Class
pH	6.3 – 8.1	DS-I	AC-1s
Total Sulphate as SO ₄	0.02 – 0.7 %		

9.1.2 In accordance with BRE Special Digest 1:2005 'Concrete in Aggressive Ground', recommendations for concrete would be Aggressive Chemical Environment for Concrete (ACEC) Classification DS-I with a Design Sulphate Class for the site of DS-1s.

9.2 Water Supply Pipework

9.2.1 The development proposal plan for the site was not available at the time of the site investigation works, and as such UKWIR testing was not undertaken. We would recommend that UKWIR testing and assessment is completed once a development proposal has been finalised.

9.3 Phytotoxicity

9.3.1 Guidance on the effects of metal contamination on plant growth is provided within BS:3882(2015) Specification for Topsoil and similar guidance issued by the Scottish Agricultural College (SAC). A summary of test results, versus the recommended phytotoxic screening criteria is provided in Table 22.

TABLE 22 – Summary of Soil Results vs Phytotoxic Screening Criteria

Contaminant	Screening Value * (mg/kg)	Recorded Concentration Range (mg/kg)	Max > BS 3882:2015 Screening Value
Zinc	300	42 – 1000	Yes
Copper	135	14 – 59	No
Nickel	75	11 - 27	No

9.3.2 As per the above, phytotoxic concentration exceedances of zinc were recorded within the shallow soils of TP06, and therefore we consider there to be a risk to plant life.

9.3.4 We would recommend this localised exceedance of zinc is excavated and removed and placed beneath a less sensitive area of the site (i.e., beneath an area of hardstanding or car parking) in order to reduce the risk to plant life of the site.

10.0 REVISED CONCEPTUAL SITE MODEL

10.1 Contamination Sources

- Human Health:** The GQRA identified a contaminant exceedance of lead in the shallow soils, and as such we consider there to be a risk to human health from the lead impacted soils. Remedial measures including the excavation and removal of this localised lead exceedance, and placement of the contaminated soils within a less sensitive area of the site (i.e., beneath hardstanding or car parking areas).
- Water Environment:** In consideration of the groundwater samples results and P20 modelling, we would consider there to be a low risk to the groundwater body from the shallow soils.
- Additionally, following the P20 modelling to the compliance point of the Don Estuary to Souter Head which leads to the North Sea, we would consider the risk of contaminants to the surface water environment to be low.
- Ground Gas:** The gas and groundwater monitoring is complete following 6 No. rounds. The site is classified as a 'Characteristic Situation 1', whereby carbon dioxide and methane preclusion measures are not required within this site.
- The Envirocheck report notes that the site is in an Intermediate probability radon area where 1% to 3% of homes are estimated to be at or above the radon Action Level. As such, basic radon protective measures will be required across the site.
- Built Environment:** The development proposal plan for the site was not available at the time of the site investigation works, and as such UKWIR testing was not undertaken. We would recommend that UKWIR testing and assessment is completed once a development proposal has been finalised.
- In accordance with BRE Special Digest 1:2005 'Concrete in Aggressive Ground', recommendations for concrete would be Aggressive Chemical Environment for Concrete (ACEC) Classification DS-I with a Design Sulphate Class for the site of DS-1s.
- Plant Life:** A phytotoxic exceedance of zinc was identified within the shallow soils, and as such we consider there to be a risk to the plant life. We would recommend this localised exceedance of zinc is excavated and removed and placed beneath a less sensitive area of the site (i.e., beneath an area of

hardstanding or car parking) in order to reduce the risk to plant life on the site.

10.2 Pollutant Linkage Assessment

10.2.1 Based on the ground and groundwater contamination conditions noted at the site, viable source-pathway-receptor pollutant linkages have been identified in relation to contaminated natural soils and ground gases and the conceptual site model has been revised as indicated on Drawing No. P23/336/SI/R/F/09.

10.3 Mitigation Measures

Human Health and Plant Life

10.3.1 The GQRA identified a contaminant exceedance of lead in the shallow soils, and as such we consider there to be a risk to human health from the lead impacted soils. Remedial measures including the excavation and removal of this localised lead exceedance, and placement of the contaminated soils within a less sensitive area of the site (i.e., beneath hardstanding or car parking areas).

10.3.2 A phytotoxic exceedance of zinc was identified within the shallow soils, and as such we consider there to be a risk to the plant life. We would recommend this localised exceedance of zinc is excavated and removed and placed beneath a less sensitive area of the site (i.e., beneath an area of hardstanding or car parking) in order to reduce the risk to plant life on the site.

Groundwater

10.3.3 In consideration of the groundwater samples results and P20 modelling, we would consider there to be a low risk to the groundwater body from the shallow soils. Additionally, following the P20 modelling to the compliance point of the 'Don Estuary to Souter Head' which leads to the 'North Sea', we would consider the risk of contaminants to the surface water environment to be low.

Ground Gas

10.3.5 The gas and groundwater monitoring is complete following 6 No. rounds. The site is classified as a 'Characteristic Situation 1', whereby carbon dioxide and methane preclusion measures are not required within the site.

10.3.7 The Envirocheck report notes that the site is in an Intermediate probability radon area where 1% to 3% of homes are estimated to be at or above the radon Action Level. As such, basic radon protective measures will be required across the site.

The Built Environment

10.3.8 The development proposal plan for the site was not available at the time of the site investigation works, and as such UKWIR testing was not undertaken. We would recommend that UKWIR testing and assessment is completed once a development proposal has been finalised.

- 10.3.9 In accordance with BRE Special Digest 1:2005 'Concrete in Aggressive Ground', recommendations for concrete would be Aggressive Chemical Environment for Concrete (ACEC) Classification DS-I with a Design Sulphate Class for the site of DS-Is.

Construction/Maintenance Workers

- 10.3.9 All site staff should remain vigilant to the possible risk of encountering isolated areas of unrecorded contaminated material, especially asbestos. Should such materials be encountered, further testing may be required to assess the risk to health and safety of the site workers and the environment.

- 10.3.10 Good site working practices should be followed, including:

- Use of appropriately qualified personnel for the task.
- Use of appropriate PPE.
- Provision of on-site washing facilities.
- Maintenance of a high standard of basic hygiene.
- Implementation of a non-smoking and eating policy within the working area, with designated clean areas set aside for these activities

10.4 Waste Management Legislation

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

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

- 10.4.3 Should development plans include the removal of materials; the proposed remedial strategy plan should include details of proposed frequency and assessment standards for the waste disposal strategy.

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

- 10.4.5 The HazWasteOnline toolkit was used to undertake a Hazard Assessment Screen, to establish whether the sampled soils should be considered as representative of either hazardous or non-hazardous waste. This classification process is in accordance with technical guidance document WM3, *Guidance on the classification and assessment of waste (VI.2.GB)*, published jointly by Natural Resources Wales / Cyfoeth Naturiol Cymru, the Scottish Environment Protection Agency and the Environment Agency (WM3, 2021).

- 10.4.6 The HazWasteOnline output sheets for each of the 5 No. natural soils shallow samples collected gives an initial waste classification as **non-hazardous waste**, based on the chemical properties of the material (Appendix G).

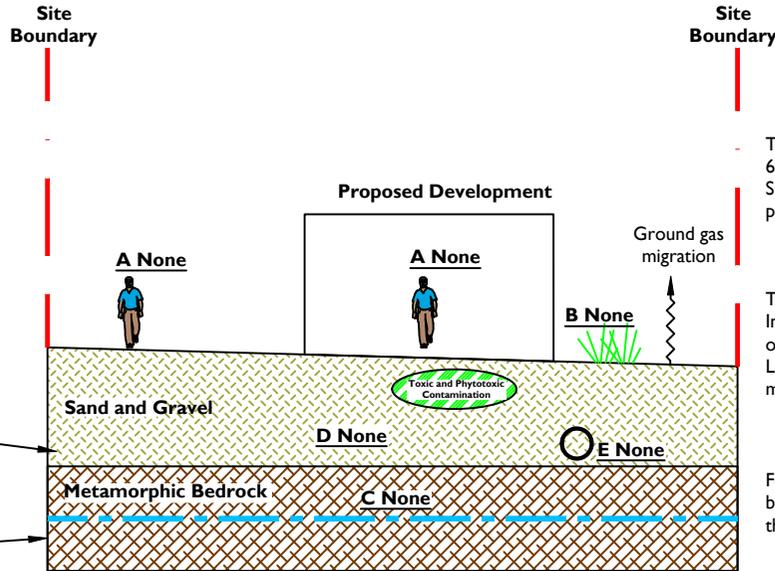
- 10.4.7 All the samples were screened for the presence of asbestos. None of the samples tested positive for the presence of asbestos.
- 10.4.8 Based on the results of the analysis, and the assessment described above, the List of Waste code for the material sampled is considered to be '17 05 04 Soil and stones other than those mentioned in 17 05 03, i.e., non-hazardous waste.
- 10.4.9 Materials classified as non-hazardous may be disposed of at a non-hazardous landfill without further testing or at an inert waste facility.
- 10.4.10 In the event that material, uncharacteristic to that which has been previously identified within the site is encountered, we would recommend that a suitably qualified engineer/scientist obtain samples of the suspect material for chemical analysis, thus determining how the material should be managed.
- 10.4.1 As cut/fill may be required within the site, WAC samples are anticipated to be collected once the final site levels have been confirmed.
- 10.5 **Contingent Liabilities**
- 10.5.1 Assessments of the site include the determination of contingent liabilities in respect of current and future ownerships subsequent to remedial measures. These consider the impact of the environmental conditions on the study area and surrounding areas on site users, properties and also the liability of the site owners.
- 10.5.2 With regard to site users, considerations in relation to liability are inherent in the development of a suitable remedial strategy. In the site-specific circumstances presented by the identified conditions, the risk levels suggest minimal liability on ownership due to the environmental conditions, subsequent to development.
- 10.5.3 The potential for liability arising from site conditions impacting on the surrounding environment largely considers the potential for migration of pollutants beyond the site boundary normally associated with groundwater. However, the potential for contaminants to migrate beyond the site boundary was considered to be low. Therefore, the potential for liability arising from the site conditions is considered to be low following development of the site.
- 10.5.4 In the event that more definitive advice is required, we would recommend that the Client seeks specific advice on the liability's incumbent on ownership from their legal advisors.

As both the toxic and phytotoxic contamination was recorded within the location of TP06 at 0.60 mbgl, we would recommend the material from this location is excavated, and either placed in a less sensitive area of the site (below hardstanding) or removed from site to landfill.

Topsoil was recorded in TP02 and TP03 from depths of between ground level and 0.25 mbgl.

Glacial till soils described as fine to coarse GRAVEL and silty gravelly SAND was recorded across the site area from surface to depths of between 0.70mbgl and 2.40mbgl.

Solid strata recorded as metamorphic bedrock described as granite, psammite and pelite was recorded between depths of 0.70 mbgl and 2.40 mbgl.



The gas and groundwater monitoring is complete following 6 No. rounds. The site is classified as a 'Characteristic Situation 1', whereby carbon dioxide and methane preclusion measures are not required within the site.

The Envirocheck report notes that the site is in an Intermediate probability radon area where 1% to 3% of homes are estimated to be at or above the radon Action Level. As such, basic radon protective measures will be required across the

Following the P20 modelling, we would consider there to be a low risk to the groundwater and surface water from the shallow soils.

The SEPA water classification hub indicates that the site is underlain by the 'Portlethen' groundwater body.

Potential Source

- Toxic and phytotoxic contamination.
- Radon gas.

Potential Exposure Pathways

- None following remedial measures.

Potential Receptors

- A. Site users / construction personnel.
- B. Vegetation / fauna.
- C. Groundwater.
- D. Buried concrete (Service and foundations)
- E. Plastic water supply pipes.

NOTES

REV	DATE	DETAILS

ORE Catapult Limited

INOVO
121 GEORGE STREET
GLASGOW
G1 1RD

PROJECT TITLE

MOORING LINE TEST FACILITY
HARENES ROAD
ABERDEEN

DRAWING TITLE

REVISED CONCEPTUAL
SITE MODEL

DRAWN BY LD	CHK'D BY AO	APP'D BY HOL	DATE 05.03.24	SCALE Not to Scale
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PROJECT No. P23/336	DRAWING No. P23/336/SI/R/F/09	REVISION
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 A PHENNA GROUP COMPANY
 Geo-Environmental Consultants
 t: 0141 420 2025 e: mail@masonevans.co.uk
 100 Brand Street, Glasgow, G51 1DG

11.0 GEOTECHNICAL ASSESSMENT

11.1 General

11.1.1 Geotechnical laboratory testing was undertaken on rock core collected from the rotary boreholes.

11.2 Unconfined Compressive Strength

11.2.1 Unconfined compressive strength testing was undertaken on 2 No. samples collected from BH02. The results are included in Appendix H and in the table below.

TABLE 23 - Results of Unconfined Compressive Strength Testing

Borehole No.	Rock description	Sample Depth (m)	Failure Load (kN)	Unconfined compressive strength (MPa)
BH02	Very strong dark grey thickly laminated to medium bedded fine to coarse grained PSAMMITE with occasional quartz micro veins	2.20	307.6	74.3
		2.85	426.5	103.1

11.2.2 The results of the testing record the PSAMMITE samples to have an unconfined compressive strength ranging from 74.3 MPa to 103.1 MPa.

11.3 Point Load Testing

11.3.1 Point load testing was undertaken on 24 No. samples collected from BH01, BH03, and BH04 (results included in Appendix H and in the table below).

Table 24 – Point Load Testing Results

Borehole No.	Rock description	Sample Depth (m)	Is (50) (MPa)
BH01	Strong dark grey PSAMMITE with occasional quartz micro veins. Fresh with very little evidence of weathering.	1.20	1.50
		1.30	
		1.50	
		1.60	
		2.40	
		2.60	
		2.90	
		3.10	
BH03	Weak to strong PSAMMITE interlaminated with PELITE. Partially to very weathered with staining and weakened core throughout.	2.30	0.91
		5.90	
		6.20	
		6.60	
		6.85	
		7.40	
		7.90	
		8.40	

BH04	Strong locally very strong dark grey PSAMMITE with occasional quartz micro veins and coarse grained granitic veins. Predominantly fresh with only slight evidence of weathering.	1.20	1.14
		1.70	
		2.50	
		3.00	
		5.45	
		6.20	
		6.60	
		6.90	

11.3.2 Where competent core was not retrieved, point load testing was undertaken. Generally, the less competent core is considered to be the weathered bedrock where fractured bedrock core was retrieved.

12.0 FOUNDATION RECOMMENDATIONS

12.1 Details of the Development

12.1.1 The site is proposed to be a mooring line testing facility.

12.2 Foundations

12.2.1 Glacial till soils described as fine to coarse GRAVEL and silty gravelly SAND was recorded across the site area from surface to depths of between 0.70mbgl and 2.40mbgl. Solid strata was recorded as granite and psammite and pelite was recorded between depths of 0.70 mbgl and 10.40 mbgl.

12.2.2 Given the preliminary development proposals available at the time of reporting, we anticipate that the bedrock will provide a suitable bearing horizon. We consider that the weathered bedrock will provide at least of 910 kN/m². We would consider the shallow un-weathered bedrock would provide at least 1500 kN/m².

12.2.3 Once the development layout has been finalised, we would advise that discussions are held with us to ensure the pertinence of our recommendations.

12.3 Excavations

12.3.1 The exploratory holes indicate that the superficial deposits are likely to be relatively stable in the short term in open excavations. All excavations exceeding 1.2 m depth that require manned entry call for a specific risk assessment prior to entry.

13.0 **ROAD CONSTRUCTION**

13.1 **General**

13.1.1 The site is proposed to be developed into a mooring line test facility.

13.2 **Ground Conditions**

13.2.1 Road sub-base will utilise the natural medium dense (or better) SAND soils or the shallow bedrock

13.3 **Chemical Contamination**

13.3.1 No significant constraints from chemical contamination in relation to road or car park construction have been identified. However, appropriate health and safety measures are still advised during construction works.

13.4 **Gas Emissions**

13.4.1 No significant risk to road construction or maintenance personnel is envisaged due to ground gases.

14.0 **INVASIVE PLANT SURVEY**

14.1 **General**

- 14.1.1 An invasive species survey was not undertaken as part of this investigation. It is recommended that an invasive plant survey is undertaken by an invasive species specialist during the growing season (between April and September).

15.0 CONCLUSIONS AND RECOMMENDATIONS

15.1 General

15.1.1 Mason Evans undertook an intrusive investigation to identify ground related risks that have the potential to impact on the proposed development at the site.

15.1.2 The ground conditions encountered during the investigation were generally consistent with those anticipated from published information.

15.2 Contamination and Ground Gas Emissions

15.2.1 The GQRA identified a contaminant exceedance of lead in the shallow soils (TP06 at 0.60 mbgl), and as such we consider there to be a risk to human health from the lead impacted soils. Remedial measures including the excavation and removal of this localised lead exceedance, and placement of the contaminated soils within a less sensitive area of the site (i.e., beneath hardstanding or car parking areas).

15.2.2 No asbestos was recorded on site.

15.2.3 A phytotoxic exceedance of zinc was identified within the shallow soils (TP06 at 0.60 mbgl), and as such we consider there to be a risk to the plant life. We would recommend this localised exceedance of zinc is excavated and removed and placed beneath a less sensitive area of the site (i.e., beneath an area of hardstanding or car parking) in order to reduce the risk to plant life on the site.

15.2.4 In consideration of the groundwater samples results and P20 modelling, we would consider there to be a low risk to the groundwater body from the shallow soils. Additionally, following the P20 modelling to the compliance point of the Don Estuary to Souter Head which leads to the North Sea, we would consider the risk of contaminants to the surface water environment to be low.

15.2.5 The gas and groundwater monitoring is complete following 6 No. rounds. The site is classified as a 'Characteristic Situation 1', whereby carbon dioxide and methane preclusion measures are not required within the site.

15.2.6 The Envirocheck report (Appendix A) notes that the site is in an Intermediate probability radon area where 1% to 3% of homes are estimated to be at or above the radon Action Level. As such, basic radon protective measures (radon resistant membrane) will be required across the site.

15.3 The Built Environment

15.3.1 The development proposal plan for the site was not available at the time of the site investigation works, and as such UKWIR testing was not undertaken. We would recommend that UKWIR testing and assessment is completed once a development proposal has been finalised.

- 15.3.2 In accordance with BRE Special Digest 1:2005 'Concrete in Aggressive Ground', recommendations for concrete would be Aggressive Chemical Environment for Concrete (ACEC) Classification DS-I with a Design Sulphate Class for the site of DS-1s.
- 15.3.3 The HazWasteOnline output sheets for each of the 5 No. natural soils shallow samples collected gives an initial waste classification as **non-hazardous waste**, based on the chemical properties of the material (Appendix G).
- 15.3.4 All the samples were screened for the presence of asbestos. None of the samples tested positive for the presence of asbestos.
- 15.3.5 Based on the results of the analysis, and the assessment described above, the List of Waste code for the material sampled is considered to be '17 05 04 Soil and stones other than those mentioned in 17 05 03, i.e., non-hazardous waste.
- 15.4 **Foundation Recommendations**
- 15.4.1 Glacial till soils described as fine to coarse GRAVEL and silty gravelly SAND was recorded across the site area from surface to depths of between 0.70mbgl and 2.40mbgl. Solid strata was recorded as granite and psammite and pelite was recorded between depths of 0.70 mbgl and 12.40 mbgl.
- 15.4.2 Given the preliminary development proposals available at the time of reporting, we anticipate that the bedrock will provide a suitable bearing horizon. We consider that the weathered bedrock will provide at least of 910 kN/m². We would consider the shallow un-weathered bedrock would provide at least 1500 kN/m².
- 15.4.3 Once the development layout has been finalised, we would advise that discussions are held with us to ensure the pertinence of our recommendations.
- 15.5 **Consultations with Public Authorities**
- 15.5.1 It should be noted that various local authority departments may become involved in the review of the site conditions, including the issues of contaminated land. While measures proposed are consistent with conventional practice, we would advise that before design works are advanced to any considerable stage appropriate approvals are received from the relevant Council departments. We would be pleased to liaise with the Council's representatives in this regard.

We trust that this will meet with your current requirements. However, should you require any further information, please do not hesitate to contact us.



Amy Owen
Geo-Environmental Engineer



Hugh O Leary
Associate

Appendix A
Envirocheck

Appendix B
Publicly Available Database

Appendix C
Records of Exploratory Holes

Appendix D
DETS Chemical Analysis Results

Appendix E
P20 Modelling Worksheets and Justification Table

Appendix F
Groundwater and Gas Monitoring Results

Appendix G
HazWasteOnline Classification Report

Appendix G
Geotechnical Analysis Results

Appendix A
Envirocheck

Envirocheck[®] Report:

Datasheet

Order Details:

Order Number:

328169547_1_1

Customer Reference:

P23-336 AP

National Grid Reference:

395890, 802620

Slice:

A

Site Area (Ha):

1.16

Search Buffer (m):

1000

Site Details:

Hareness Road

ABERDEEN

AB12 3LE

Client Details:

Ms P Morton

Mason Evans Partnership

The Piazza

95 Morrison Street

(office side door on Dalenober St)

Glasgow

G5 8BE

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Waste	12
Hazardous Substances	24
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Industrial Land Use	29
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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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Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Agency & Hydrological					
BGS Groundwater Flooding Susceptibility	pg 1	Yes	Yes	Yes	n/a
Contaminated Land Register Entries and Notices					
Discharge Consents	pg 3			4	9
Prosecutions Relating to Controlled Waters			n/a	n/a	n/a
Enforcement and Prohibition Notices					
Integrated Pollution Controls					
Integrated Pollution Prevention And Control					
Local Authority Integrated Pollution Prevention And Control					
Local Authority Pollution Prevention and Controls	pg 6				1
Local Authority Pollution Prevention and Control Enforcements					
Nearest Surface Water Feature	pg 6		Yes		
Pollution Incidents to Controlled Waters					
Prosecutions Relating to Authorised Processes					
Registered Radioactive Substances	pg 6		2	5	6
River Quality					
Substantiated Pollution Incident Register					
Water Abstractions					
Water Industry Act Referrals					
Groundwater Vulnerability	pg 8	Yes	n/a	n/a	n/a
Drift Deposits			n/a	n/a	n/a
Source Protection Zones					
River Flood Data (Scotland)				n/a	n/a
OS Water Network Lines	pg 8		5	13	7
Waste					
BGS Recorded Landfill Sites					
Integrated Pollution Control Registered Waste Sites					
Licensed Waste Management Facilities (Landfill Boundaries)					
Licensed Waste Management Facilities (Locations)					
Local Authority Landfill Coverage	pg 12	1	n/a	n/a	n/a
Local Authority Recorded Landfill Sites					
Potentially Infilled Land (Non-Water)	pg 12			1	3
Potentially Infilled Land (Water)	pg 12			4	7
Registered Landfill Sites	pg 13				3
Registered Waste Transfer Sites	pg 14			3	8
Registered Waste Treatment or Disposal Sites	pg 19			6	4

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Hazardous Substances					
Control of Major Accident Hazards Sites (COMAH)	pg 24			2	5
Explosive Sites	pg 24			1	
Notification of Installations Handling Hazardous Substances (NIHHS)					
Planning Hazardous Substance Consents	pg 24				2
Planning Hazardous Substance Enforcements					
Geological					
BGS 1:625,000 Solid Geology	pg 26	Yes	n/a	n/a	n/a
BGS Estimated Soil Chemistry	pg 26	Yes		Yes	Yes
BGS Recorded Mineral Sites	pg 26		2	1	2
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 27	Yes		n/a	n/a
Potential for Compressible Ground Stability Hazards	pg 27	Yes	Yes	n/a	n/a
Potential for Ground Dissolution Stability Hazards				n/a	n/a
Potential for Landslide Ground Stability Hazards	pg 27	Yes		n/a	n/a
Potential for Running Sand Ground Stability Hazards	pg 27	Yes		n/a	n/a
Potential for Shrinking or Swelling Clay Ground Stability Hazards	pg 28	Yes		n/a	n/a
Radon Potential - Radon Affected Areas	pg 28	Yes	n/a	n/a	n/a
Radon Potential - Radon Protection Measures	pg 28	Yes	n/a	n/a	n/a
Industrial Land Use					
Contemporary Trade Directory Entries	pg 29		43	78	128
Fuel Station Entries	pg 51				1
Points of Interest - Commercial Services	pg 51		6	9	22
Points of Interest - Education and Health					
Points of Interest - Manufacturing and Production	pg 55		9	11	7
Points of Interest - Public Infrastructure	pg 57		1	1	1
Points of Interest - Recreational and Environmental	pg 57				3
Gas Pipelines					

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	pg 58		1		
Areas of Unadopted Green Belt					
Environmentally Sensitive Areas					
Forest Parks					
Local Nature Reserves					
Marine Nature Reserves					
National Nature Reserves					
National Parks					
National Scenic Areas					
Nitrate Sensitive Areas					
Nitrate Vulnerable Zones					
Ramsar Sites					
Sites of Special Scientific Interest					
Special Areas of Conservation					
Special Protection Areas					
World Heritage Sites					

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13NE (E)	0	1	395900 802624
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A13NE (E)	0	1	395950 802624
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13NW (W)	0	1	395850 802624
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13NW (E)	0	1	395891 802624
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13SW (W)	26	1	395800 802600
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13SW (S)	28	1	395850 802500
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13NW (NW)	37	1	395850 802700
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13SW (SW)	58	1	395800 802500
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13SE (E)	122	1	396050 802600
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13NE (E)	140	1	396100 802700
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13SE (S)	154	1	395950 802400
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13SW (S)	178	1	395891 802350
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13SE (SE)	182	1	396000 802400
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13NW (N)	190	1	395850 802900
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13SE (SE)	191	1	396050 802450
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13SE (S)	198	1	395950 802350
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13SE (SE)	219	1	396050 802400
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13SE (S)	245	1	395950 802300
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13SE (SE)	253	1	396050 802350
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13SE (SE)	259	1	396100 802400
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A18SW (N)	283	1	395891 803000
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13SE (SE)	289	1	396100 802350

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	A13SE (SE)	329	1	396150 802350
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A18SW (N)	333	1	395891 803050
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A18SW (N)	337	1	395850 803050
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A18SE (N)	337	1	395950 803050
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A14SW (E)	346	1	396250 802500
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A14NW (NE)	356	1	396250 802900
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13SE (SE)	359	1	396150 802300
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A14NW (NE)	374	1	396300 802850
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A18SE (N)	383	1	395900 803100
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A8NE (S)	389	1	395950 802150
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A14NW (E)	394	1	396350 802750
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13SE (SE)	398	1	396200 802300
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A14NW (NE)	398	1	396300 802900
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A14NW (E)	404	1	396350 802800
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A14SW (SE)	415	1	396250 802350
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A14NW (E)	440	1	396400 802700
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A14NW (E)	443	1	396400 802750
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A14NW (E)	453	1	396400 802800
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A8NW (S)	478	1	395891 802050

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
1	<p>Discharge Consents</p> <p>Operator: Grampian Regional Council Property Type: Not Given Location: Altens Industrial Estate, Easter Croft Surface Water Sewer Authority: Scottish Environment Protection Agency, North Region Catchment Area: Kincardine Reference: K/95/12/C/R Permit Version: Not Supplied Effective Date: Not Supplied Issued Date: 18th May 1995 Revocation Date: Not Supplied Discharge Type: Discharge Of Other Matter-Surface Water Discharge: Coastal Environment: Receiving Water: Not Supplied Status: Not Supplied Positional Accuracy: Located by supplier to within 100m</p>	A14SW (SE)	445	2	396310 802400
1	<p>Discharge Consents</p> <p>Operator: Grampian Regional Council Property Type: Not Given Location: Altens Industrial Estate, Easter Croft Surface Water Outfall Authority: Scottish Environment Protection Agency, North Region Catchment Area: Kincardine Reference: K/89/11* Permit Version: Not Supplied Effective Date: Not Supplied Issued Date: 3rd October 1989 Revocation Date: Not Supplied Discharge Type: Discharge Of Other Matter-Surface Water Discharge: Coastal Environment: Receiving Water: Not Supplied Status: Not Supplied Positional Accuracy: Located by supplier to within 100m</p>	A14SW (SE)	447	2	396310 802395
1	<p>Discharge Consents</p> <p>Operator: North Of Scotland Water Authority Property Type: Not Given Location: Easter Croft Surface Water Sewer, Altens Industrial Estate, ABERDEEN Authority: Scottish Environment Protection Agency, North Region Catchment Area: Kincardine Reference: PN/K/96/48/S Permit Version: Not Supplied Effective Date: Not Supplied Issued Date: 9th July 1996 Revocation Date: Not Supplied Discharge Type: Discharge Of Other Matter-Surface Water Discharge: Coastal Environment: Receiving Water: North Sea Status: Not Supplied Positional Accuracy: Located by supplier to within 100m</p>	A14SW (SE)	450	2	396315 802400
1	<p>Discharge Consents</p> <p>Operator: Grampian Regional Council Property Type: Not Given Location: Altens Industrial Estate, Easter Croft Surface Water Outfall Authority: Scottish Environment Protection Agency, North Region Catchment Area: Kincardine Reference: K/87/23/D* Permit Version: Not Supplied Effective Date: Not Supplied Issued Date: 15th October 1987 Revocation Date: Not Supplied Discharge Type: Discharge Of Other Matter-Surface Water Discharge: Coastal Environment: Receiving Water: Not Supplied Status: Not Supplied Positional Accuracy: Located by supplier to within 100m</p>	A14SW (SE)	452	2	396315 802395

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
2	<p>Discharge Consents</p> <p>Operator: Grampian Regional Council Property Type: Not Given Location: Altens Industrial Estate, Cave Of Red Rocks , South West Outfall Authority: Scottish Environment Protection Agency, North Region Catchment Area: Kincardine Reference: K/87/22/D* Permit Version: Not Supplied Effective Date: Not Supplied Issued Date: 15th October 1987 Revocation Date: Not Supplied Discharge Type: Discharge Of Other Matter-Surface Water Discharge: Coastal Environment: Receiving Water: Not Supplied Status: Not Supplied Positional Accuracy: Located by supplier to within 100m</p>	A14NW (NE)	519	2	396450 802865
2	<p>Discharge Consents</p> <p>Operator: Grampian Regional Council Property Type: Not Given Location: Altens Industrial Estate, Cave Of Red Rocks , South West Outfall Authority: Scottish Environment Protection Agency, North Region Catchment Area: Kincardine Reference: K/89/12* Permit Version: Not Supplied Effective Date: Not Supplied Issued Date: 3rd October 1989 Revocation Date: Not Supplied Discharge Type: Discharge Of Other Matter-Surface Water Discharge: Coastal Environment: Receiving Water: Not Supplied Status: Not Supplied Positional Accuracy: Located by supplier to within 100m</p>	A14NW (NE)	521	2	396450 802870
2	<p>Discharge Consents</p> <p>Operator: Grampian Regional Council Property Type: Not Given Location: Altens Industrial Estate, Cave Of Red Rocks , South West Outfall Authority: Scottish Environment Protection Agency, North Region Catchment Area: Kincardine Reference: K/95/13/C/R Permit Version: Not Supplied Effective Date: Not Supplied Issued Date: 18th May 1995 Revocation Date: Not Supplied Discharge Type: Discharge Of Other Matter-Surface Water Discharge: Coastal Environment: Receiving Water: Not Supplied Status: Not Supplied Positional Accuracy: Located by supplier to within 100m</p>	A14NW (NE)	524	2	396455 802865
2	<p>Discharge Consents</p> <p>Operator: North Of Scotland Water Authority Property Type: Not Given Location: Red Rocks Surface Water Sewer, Altens Industrial Estate, ABERDEEN Authority: Scottish Environment Protection Agency, North Region Catchment Area: Kincardine Reference: PN/K/96/45/S Permit Version: Not Supplied Effective Date: Not Supplied Issued Date: 9th July 1996 Revocation Date: Not Supplied Discharge Type: Discharge Of Other Matter-Surface Water Discharge: Coastal Environment: Receiving Water: North Sea Status: Not Supplied Positional Accuracy: Located by supplier to within 100m</p>	A14NW (NE)	526	2	396455 802870

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
3	<p>Discharge Consents</p> <p>Operator: Grampian Regional Council Property Type: Not Given Location: Altens Industrial Estate, Cove Surface Water Outfall Authority: Scottish Environment Protection Agency, North Region Catchment Area: Kincardine Reference: K/89/13* Permit Version: Not Supplied Effective Date: Not Supplied Issued Date: 3rd October 1989 Revocation Date: Not Supplied Discharge Type: Discharge Of Other Matter-Surface Water Discharge: Coastal Environment: Receiving Water: Not Supplied Status: Not Supplied Positional Accuracy: Located by supplier to within 100m</p>	A8SE (S)	871	2	396000 801670
3	<p>Discharge Consents</p> <p>Operator: North Of Scotland Water Authority Property Type: Not Given Location: Cove Surface Water Sewer, Altens Industrial Estate, ABERDEEN Authority: Scottish Environment Protection Agency, North Region Catchment Area: Kincardine Reference: PN/K/96/46/S Permit Version: Not Supplied Effective Date: Not Supplied Issued Date: 9th July 1996 Revocation Date: Not Supplied Discharge Type: Discharge Of Other Matter-Surface Water Discharge: Coastal Environment: Receiving Water: North Sea Status: Not Supplied Positional Accuracy: Located by supplier to within 100m</p>	A8SE (S)	872	2	396005 801670
3	<p>Discharge Consents</p> <p>Operator: Grampian Regional Council Property Type: Not Given Location: Altens Industrial Estate, Cove Surface Water Sewer, COVE Authority: Scottish Environment Protection Agency, North Region Catchment Area: Kincardine Reference: K/95/15/C/R Permit Version: Not Supplied Effective Date: Not Supplied Issued Date: 18th May 1995 Revocation Date: Not Supplied Discharge Type: Discharge Of Other Matter-Surface Water Discharge: Coastal Environment: Receiving Water: Not Supplied Status: Not Supplied Positional Accuracy: Located by supplier to within 100m</p>	A8SE (S)	876	2	396000 801665
3	<p>Discharge Consents</p> <p>Operator: Grampian Regional Council Property Type: Not Given Location: Altens Industrial Estate, Cove Surface Water Outfall, COVE Authority: Scottish Environment Protection Agency, North Region Catchment Area: Kincardine Reference: K/87/21/D* Permit Version: Not Supplied Effective Date: Not Supplied Issued Date: 15th October 1987 Revocation Date: Not Supplied Discharge Type: Discharge Of Other Matter-Surface Water Discharge: Coastal Environment: Receiving Water: Not Supplied Status: Not Supplied Positional Accuracy: Located by supplier to within 100m</p>	A8SE (S)	877	2	396005 801665

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
4	<p>Discharge Consents</p> <p>Operator: Mr James Donald Property Type: Not Given Location: Doonies Farm, Nigg, ABERDEEN Authority: Scottish Environment Protection Agency, North Region Catchment Area: Kincardine Reference: K/78/4 Permit Version: Not Supplied Effective Date: Not Supplied Issued Date: 30th May 1978 Revocation Date: Not Supplied Discharge Type: Surface Water Discharge: Coastal Environment: Receiving Water: North Sea Status: Not Supplied Positional Accuracy: Located by supplier to within 100m</p>	A19NW (NE)	898	2	396550 803370
5	<p>Local Authority Pollution Prevention and Controls</p> <p>Name: Swire EPD Location: Swire House, Souterhead Road, Altens, ABERDEEN, Aberdeenshire, AB12 3 Authority: Scottish Environment Protection Agency, North Region Permit Reference: K/97/28/X Dated: 21st April 1997 Process Type: Local Authority Air Pollution Control Description: Part B process (no specific reference) Status: Authorised Positional Accuracy: Manually positioned to the road within the address or location</p>	A7NW (SW)	840	2	395109 802131
	<p>Nearest Surface Water Feature</p>	A13NE (E)	141	-	396093 802640
6	<p>Registered Radioactive Substances</p> <p>Name: Metal & Pipeline Endurance Ltd Location: C/o Press Offshore, Minto Drive, Dyce, ABERDEEN, Aberdeenshire, AB1 4LW Authority: Scottish Environment Protection Agency, Head Office Permit Reference: IPB/3/2/GA/110 Dated: 24th January 1984 Process Type: Registration under S10 RSA for the keeping and use of mobile Radioactive sources (was RSA60 S3) Description: Registration under S7 or S10 RSA for the keeping and use of radioactive material or apparatus for 1 or more tracer test sources dated pre April 1991 Status: Not Given Positional Accuracy: Unknown</p>	A13NW (NW)	242	3	395743 802902
6	<p>Registered Radioactive Substances</p> <p>Name: Metal & Pipeline Endurance Ltd Location: C/o Press Offshore, Minto Drive, Dyce, ABERDEEN, Aberdeenshire, AB1 4LW Authority: Scottish Environment Protection Agency, East Region Permit Reference: IPB/3/2/GA/110 Dated: 12th June 1990 Process Type: Registration under S10 RSA for the keeping and use of mobile Radioactive sources (was RSA60 S3) Description: Registration under S7 or S10 RSA for the keeping and use of radioactive material or apparatus for 1 or more tracer test sources dated pre April 1991 Status: Not Given Positional Accuracy: Unknown</p>	A13NW (NW)	246	4	395738 802902
7	<p>Registered Radioactive Substances</p> <p>Name: Shell Uk Expl & Prod Ltd Location: Altens Farm Industrial Estate, ABERDEEN, Aberdeenshire, AB1 4LU Authority: Scottish Environment Protection Agency, Head Office Permit Reference: IPB/3/2/GA/042 Dated: 30th October 1979 Process Type: Registration under S7 RSA for the keeping and use of Radioactive materials (was RSA60 S1) Description: Registration under S7 RSA of 1 or more open sources Status: Not Given Positional Accuracy: Manually positioned to the address or location</p>	A13NW (W)	273	3	395592 802711
7	<p>Registered Radioactive Substances</p> <p>Name: Shell Uk Expl & Prod Ltd Location: Altens Farm Industrial Estate, ABERDEEN, Aberdeenshire, AB1 4LU Authority: Scottish Environment Protection Agency, East Region Permit Reference: IPB/3/2/GA/042 Dated: 30th October 1979 Process Type: Authorisation under S13 or S14 RSA for the accumulation or disposal of Radioactive waste (was RSA60 S6/S7) Description: Authorisation under RSA Status: Not Given Positional Accuracy: Manually positioned to the address or location</p>	A13NW (W)	275	4	395592 802716

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
7	<p>Registered Radioactive Substances</p> <p>Name: Shell Uk Expl & Prod Ltd Location: Altens Operations Base, Minto Avenue; Altens Industrial Estate, Tullos, ABERDEEN, Aberdeen City, AB1 4JZ Authority: Scottish Environment Protection Agency, East Region Permit Reference: IPB/3/2/GA/109 Dated: 12th August 1986 Process Type: Registration under S7 RSA for the keeping and use of Radioactive materials (was RSA60 S1) Description: Registration under S7 RSA for 1 or more closed sources Status: Not Given Positional Accuracy: Unknown</p>	A13NW (W)	276	4	395592 802717
8	<p>Registered Radioactive Substances</p> <p>Name: Can Inspection Location: Unit 9 Forties Industrial Estate, Hareness Circle, Altens, ABERDEEN, Aberdeenshire, AB1 4LY Authority: Scottish Environment Protection Agency, Head Office Permit Reference: IPB/3/2/GA/185 Dated: 21st April 1994 Process Type: Registration under S10 RSA for the keeping and use of mobile Radioactive sources (was RSA60 S3) Description: Registration under S7 or S10 RSA for the keeping and use of radioactive material or apparatus for 1 or more tracer test sources dated pre April 1991 Status: Not Given Positional Accuracy: Unknown</p>	A12SE (W)	407	3	395420 802593
9	<p>Registered Radioactive Substances</p> <p>Name: Wormald Ansul (UK) Ltd Location: Unit 22 Ocean Trade Centre, Minto Avenue, Altens Industrial Estate, ABERDEEN, Aberdeenshire, AB1 4JZ Authority: Scottish Environment Protection Agency, Head Office Permit Reference: IPB/3/2/GA/107 Dated: 10th March 1992 Process Type: Registration under S10 RSA for the keeping and use of mobile Radioactive sources (was RSA60 S3) Description: Registration under S7 or S10 RSA for the keeping and use of radioactive material or apparatus for 1 or more tracer test sources dated pre April 1991 Status: Not Given Positional Accuracy: Automatically positioned to the address</p>	A18SW (N)	418	3	395752 803108
10	<p>Registered Radioactive Substances</p> <p>Name: L R Integrity Management Ltd Location: C/o Rtd, Hareness Circle, Altens Industrial Estate, ABERDEEN, Aberdeenshire, AB12 3LY Authority: Scottish Environment Protection Agency, Head Office Permit Reference: IPB/3/2/GA/195 Dated: 20th June 1995 Process Type: Registration under S10 RSA for the keeping and use of mobile Radioactive sources (was RSA60 S3) Description: Registration under S7 or S10 RSA for the keeping and use of radioactive material or apparatus for 1 or more tracer test sources dated pre April 1991 Status: Not Given Positional Accuracy: Unknown</p>	A12SE (W)	616	3	395225 802435
10	<p>Registered Radioactive Substances</p> <p>Name: Rtd (UK) Ltd Location: Hareness Circle, Altens Industrial Estate, ABERDEEN, Aberdeenshire, AB1 4LY Authority: Scottish Environment Protection Agency, Head Office Permit Reference: IPB/3/2/GA/183 Dated: 12th March 1996 Process Type: Registration under S10 RSA for the keeping and use of mobile Radioactive sources (was RSA60 S3) Description: Registration under S7 or S10 RSA for the keeping and use of radioactive material or apparatus for 1 or more tracer test sources dated pre April 1991 Status: Not Given Positional Accuracy: Unknown</p>	A12SE (W)	621	3	395220 802435
11	<p>Registered Radioactive Substances</p> <p>Name: Baker Hughes Inteq Location: Block 1, Hareness Circle, Altens Industrial Estate, ABERDEEN, Aberdeen City, AB1 4LY Authority: Scottish Environment Protection Agency, East Region Permit Reference: IPB/3/2/GA/123 Dated: 5th July 1994 Process Type: Registration under S7 RSA for the keeping and use of Radioactive materials (was RSA60 S1) Description: Registration under S7 RSA for 1 or more closed sources Status: Not Given Positional Accuracy: Unknown</p>	A12NW (W)	644	4	395190 802667

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
11	<p>Registered Radioactive Substances</p> <p>Name: Lloyds Register Integrity Man. Location: Hareness Circle, Altens Industrial Estate, ABERDEEN, AB12 3 Authority: Scottish Environment Protection Agency, North Region Permit Reference: RSA/N/20191 Dated: 18th July 1997 Process Type: Authorisation under RSA (no specific reference) Description: Authorisation under RSA Status: Application has been determined by the EA Positional Accuracy: Manually positioned to the road within the address or location</p>	A12NW (W)	671	2	395162 802660
12	<p>Registered Radioactive Substances</p> <p>Name: Chevron Uk Ltd Location: Crawpeel Road, Altens Industrial Estate, ABERDEEN, Aberdeenshire, AB1 4LG Authority: Scottish Environment Protection Agency, Head Office Permit Reference: IPB/3/2/GA/055 Dated: 11th July 1989 Process Type: Registration under S7 RSA for the keeping and use of Radioactive materials (was RSA60 S1) Description: Registration under S7 RSA for 1 or more closed sources Status: Not Given Positional Accuracy: Unknown</p>	A12NW (W)	855	3	394982 802705
12	<p>Registered Radioactive Substances</p> <p>Name: B J Services Co (U K) Ltd Location: Crawpeel Road, Altens Industrial Estate, ABERDEEN, Aberdeenshire, AB1 4LG Authority: Scottish Environment Protection Agency, Head Office Permit Reference: IPB/3/2/GA/117 Dated: 11th October 1994 Process Type: Registration under S10 of RSA 93 to keep and use mobile radioactive substances including tracer testing Description: Use of mobile source(s) Status: Not Given Positional Accuracy: Unknown</p>	A12NW (W)	856	3	394982 802710
	<p>Groundwater Vulnerability</p> <p>Geological Classification: Non or Weakly Permeable Aquifer - These formations with negligible permeability that are generally regarded as containing insignificant quantities of groundwater Soil Classification: Not classified Map Sheet: Map of Scotland Scale: 1:625,000</p>	A13NW (E)	0	3	395891 802624
	<p>Drift Deposits</p> <p>None</p>				
	<p>River Flood Data (Scotland)</p> <p>None</p>				
13	<p>OS Water Network Lines</p> <p>Watercourse Form: Inland river Watercourse Length: 50.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Kincardine and Angus Coastal Primacy: 1</p>	A13NE (E)	147	5	396107 802685
14	<p>OS Water Network Lines</p> <p>Watercourse Form: Inland river Watercourse Length: 6.0 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Kincardine and Angus Coastal Primacy: 1</p>	A13NE (E)	193	5	396151 802661
15	<p>OS Water Network Lines</p> <p>Watercourse Form: Inland river Watercourse Length: 28.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Kincardine and Angus Coastal Primacy: 1</p>	A13NE (E)	199	5	396157 802661

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
16	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 97.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Kincardine and Angus Coastal Primacy: 1	A13NE (NE)	207	5	396057 802875
17	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 37.6 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Kincardine and Angus Coastal Primacy: 1	A13NE (E)	227	5	396185 802658
18	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 62.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Kincardine and Angus Coastal Primacy: 1	A13NE (E)	264	5	396222 802652
19	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 40.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Kincardine and Angus Coastal Primacy: 1	A13NE (NE)	304	5	396106 802959
20	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 9.7 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Kincardine and Angus Coastal Primacy: 1	A13NE (NE)	308	5	396142 802940
21	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 74.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Kincardine and Angus Coastal Primacy: 1	A13NE (NE)	309	5	396151 802936
22	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 123.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Kincardine and Angus Coastal Primacy: 1	A13SE (SE)	316	5	396185 802439
23	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 12.8 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Kincardine and Angus Coastal Primacy: 1	A14NW (E)	326	5	396283 802642
24	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 230.5 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Kincardine and Angus Coastal Primacy: 1	A13NE (NE)	330	5	396217 802901

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
25	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 139.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Kincardine and Angus Coastal Primacy: 1	A14NW (E)	339	5	396295 802639
26	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 6.8 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Kincardine and Angus Coastal Primacy: 1	A14SW (SE)	436	5	396303 802406
27	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 9.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Kincardine and Angus Coastal Primacy: 1	A14SW (SE)	443	5	396309 802403
28	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 3.5 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Kincardine and Angus Coastal Primacy: 1	A14SW (E)	479	5	396433 802618
29	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 19.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Kincardine and Angus Coastal Primacy: 1	A14SW (E)	482	5	396437 802618
30	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 18.1 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Kincardine and Angus Coastal Primacy: 1	A14NW (E)	499	5	396455 802625
31	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 126.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Kincardine and Angus Coastal Primacy: 1	A18SE (NE)	502	5	396198 803135
32	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 19.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Kincardine and Angus Coastal Primacy: 1	A14NW (NE)	517	5	396446 802872
33	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 11.1 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Kincardine and Angus Coastal Primacy: 1	A14NW (E)	521	5	396455 802855

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
34	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 596.0 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Aberdeen South Coastal Primacy: 1	A12SW (W)	867	5	394961 802513
35	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 60.4 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Aberdeen South Coastal Primacy: 1	A17SW (NW)	913	5	395021 803000
36	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 307.8 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Aberdeen South Coastal Primacy: 1	A12NW (W)	922	5	394975 802921
37	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 2035.5 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Not Supplied Primacy: 1	A17SW (W)	942	5	394972 802965

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Local Authority Landfill Coverage Name: Aberdeen City Council - Has no landfill data to supply		0	6	395891 802624
38	Potentially Infilled Land (Non-Water) Bearing Ref: S Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1989	A8NE (S)	355	-	395957 802187
39	Potentially Infilled Land (Non-Water) Bearing Ref: N Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1989	A18SE (N)	580	-	396134 803247
40	Potentially Infilled Land (Non-Water) Bearing Ref: N Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1989	A18NE (N)	612	-	396076 803302
41	Potentially Infilled Land (Non-Water) Bearing Ref: SW Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1989	A7NE (SW)	662	-	395250 802242
42	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1959	A18SW (N)	260	-	395880 802976
43	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1959	A13NW (NW)	333	-	395573 802809
44	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1959	A12NE (NW)	387	-	395511 802804
45	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1959	A12SE (W)	399	-	395427 802577
46	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1959	A17SE (NW)	533	-	395442 802989
47	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1959	A17SE (NW)	552	-	395475 803069
48	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1959	A17SE (NW)	583	-	395503 803144
49	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1868	A12NW (W)	636	-	395203 802697
50	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1959	A12SW (SW)	674	-	395202 802315
51	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1868	A12NW (W)	943	-	394940 802890
52	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1959	A12NW (W)	959	-	394939 802932

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
53	<p>Registered Landfill Sites</p> <p>Licence Holder: Aberdeen City Council Licence Reference: WML/N/20016 Site Location: Ness Farm, Tullos Hill, Nigg Bay, Aberdeen, Aberdeenshire Licence Easting: Not Supplied Licence Northing: Not Supplied Operator Location: 38 Powis Terrace, ABERDEEN, Aberdeenshire, AB2 3QE Authority: Scottish Environment Protection Agency - North Region, Aberdeen Office Site Category: Landfill Max Input Rate: Very Large (Equal to or greater than 250,000 tonnes per year) Waste Source: No known restriction on source of waste Restrictions: Status: May not be workingUnder Review Dated: 29th October 1999 Preceded By: WML/N/20016/97 Licence: Superseded By: Not Given Licence: Positional Accuracy: Positioned by the supplier Boundary Accuracy: Moderate Authorised Waste: After 31/08/2000 - Inactive Waste Only - Comprising Asbestos Brick, Stone, Concrete Rubble Household, Commercial & Industrial Waste Or Active Waste (Until 31/08/2000) Non-Special Fragmentiser Waste Containing Mineral Oil Uncontam Soil/Subsoil Liquid Wastes Other Waste/Waste Not Otherwise Specified Special Waste (As In Epa 1990:S62 Of 1996 Regs) - Except</p> <p>Prohibited Waste</p>	A17SE (NW)	813	7	395304 803278
54	<p>Registered Landfill Sites</p> <p>Licence Holder: Aberdeen City Council Licence Reference: WML/N/20016/97 Site Location: Ness Farm, Tullos Hill, Nigg Bay, Aberdeen, Aberdeenshire Licence Easting: Not Supplied Licence Northing: Not Supplied Operator Location: 38 Powis Terrace, ABERDEEN, Aberdeenshire, AB2 3QE Authority: Scottish Environment Protection Agency - North Region, Aberdeen Office Site Category: Landfill Max Input Rate: Very Large (Equal to or greater than 250,000 tonnes per year) Waste Source: No known restriction on source of waste Restrictions: Status: Record supersededSuperseded Dated: 31st October 1997 Preceded By: 1995/02 Licence: Superseded By: WML/N/20016 Licence: Positional Accuracy: Positioned by the supplier Boundary Accuracy: Moderate Authorised Waste: Asbestos H'Hold/Com./Ind. Waste (S75 Epa'90) Max.Waste Permitted By Licence Mineral Oil Mineral Oils Non-Spec. Stabil'D Drilling Mud Cont Non-Special Fragmentiser Waste Contain Sub'S Control. Radioactive Subs Act'60 Spec.Waste (Epa'90:S62) Except</p> <p>Prohibited Waste</p>	A17SE (NW)	813	7	395304 803278

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
55	<p>Registered Landfill Sites</p> <p>Licence Holder: Aberdeen City Council Licence Reference: 1995/02 Site Location: Ness Farm, Tullos Hill, Nigg Bay, Aberdeen, Aberdeenshire Licence Easting: Not Supplied Licence Northing: Not Supplied Operator Location: 38 Powis Terrace, ABERDEEN, Aberdeenshire, AB2 3QE Authority: Scottish Environment Protection Agency - North Region, Aberdeen Office Site Category: Landfill - with civic amenity Max Input Rate: Very Large (Equal to or greater than 250,000 tonnes per year) Waste Source: No known restriction on source of waste Restrictions: Status: Record supersededSuperseded Dated: 1st April 1984 Preceded By: Not Given Licence: Superseded By: WML/N/20016/97 Licence: Positional Accuracy: Positioned by the supplier Boundary Accuracy: Moderate Authorised Waste: Asbestos Domestic, Com. & Ind. Waste Max.Waste Permitted By Licence Prohibited Waste: Liquid Wastes Special Wastes (As In S17 1980) N.O.S Waste N.O.S. Environment Agency Low-Level Radioactive W.Perm By Hmipi must give specific authorisation for this waste to be acceptedWaste requires prior approval Soil Contam.With Beet Rhizomania</p>	A17SE (NW)	844	7	395253 803265
56	<p>Registered Waste Transfer Sites</p> <p>Licence Holder: Taylors Industrial Services Ltd Licence Reference: Wml/N/0220002 Site Location: Hareness Circle., Altens Industrial Estate, Aberdeen, Aberdeenshire, Ab12 3ly Operator Location: Hareness Circle., Altens Industrial Estate, Aberdeen, Aberdeenshire, Ab12 3ly Authority: Scottish Environment Protection Agency - North Region, Aberdeen Office Site Category: Transfer Max Input Rate: Small (Equal to or greater than 10,000 and less than 25,000 tonnes per year) Waste Source: No known restriction on source of waste Restrictions: Licence Status: Operational as far as is knownOperational Dated: 8th March 2003 Preceded By: Not Given Licence: Superseded By: Not Given Licence: Positional Accuracy: Positioned by the supplier Boundary Quality: Good Authorised Waste: Batteries Clinical Waste Difficult Wastes (All Groups In Wmp.26) Household, Commercial & Industrial Waste (Appl'N Includes)- Inert Waste Maximum Waste Permitted By Licence Sewage Sludge Prohibited Waste: Infected/Infectious Wastes</p>	A12SE (W)	313	7	395516 802526

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
57	<p>Registered Waste Transfer Sites</p> <p>Licence Holder: Shell Uk Exploration & Production Licence Reference: WML/N/20163 Site Location: Operations Base Minto Avenue, Altens Industrial Estate, Aberdeen, Aberdeenshire</p> <p>Operator Location: 1 Altens Farm Road, Nigg, Aberdeen, Aberdeenshire Authority: Scottish Environment Protection Agency - North Region, Aberdeen Office Site Category: Transfer Max Input Rate: Small (Equal to or greater than 10,000 and less than 25,000 tonnes per year) Waste Source: Some restriction on source of waste</p> <p>Restrictions: Licence Status: Licence has completion certificateSurrendered Dated: 30th September 1999 Preceded By: WML/N/20163/97 Licence: Superseded By: Not Given Licence: Positional Accuracy: Positioned by the supplier Boundary Quality: Moderate Authorised Waste: Industrial Wastes From Offshore Oil/Gas Exploration/Production - Including Liquid Wastes Maximum Waste Permitted By Licence Special Waste (As In Epa 1990:S62 Of 1996 Regs)</p> <p>Prohibited Waste: Household & Commercial Waste Industrial Waste Not From Offshore Activities/Assoc.Support Other Waste/Waste Not Otherwise Specified</p>	A18SE (NE)	440	7	396115 803106
58	<p>Registered Waste Transfer Sites</p> <p>Licence Holder: Shell Uk Exploration & Production Licence Reference: WML/N/20163/97 Site Location: Operations Base Minto Avenue, Altens Industrial Estate, Aberdeen, Aberdeenshire</p> <p>Operator Location: 1 Altens Farm Road, Nigg, Aberdeen, Aberdeenshire Authority: Scottish Environment Protection Agency - North Region, Aberdeen Office Site Category: Transfer Max Input Rate: Small (Equal to or greater than 10,000 and less than 25,000 tonnes per year) Waste Source: Some restriction on source of waste</p> <p>Restrictions: Licence Status: Record supersededSuperseded Dated: 18th August 1997 Preceded By: Not Given Licence: Superseded By: WML/N/20163 Licence: Positional Accuracy: Manually positioned to the address or location Boundary Quality: Not Supplied Authorised Waste: Asbestos Chemical Residues Empty Used Containers Ferrous Metal Scrap Halons/Carbon Dioxide Lead/Acid Batteries Liquids Max.Waste Permitted By Licence Mineral Oils Nickel Cadmium Batteries Non-Ferrous Metal Scrap Packaged Spec.Waste (Epa'90:S62) Incl Packaging Mat'Ls Paint Waste Paper Pcb'S And Analogues Vegetable And Other Oils Wood And</p> <p>Prohibited Waste: All Household & Commercial Waste Other Industrial Wastes Waste N.O.S.</p>	A18SW (N)	498	7	395780 803200

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
59	<p>Registered Waste Transfer Sites</p> <p>Licence Holder: Amerada Hess Ltd Licence Reference: WML/N/20157 Site Location: Amerada Hess Ltd, Minto Avenue, Altens Industrial Estate, Aberdeen, Aberdeenshire Operator Location: Scott House, Hareness Road, Altens Industrial Estate, Aberdeen, Aberdeenshire Authority: Scottish Environment Protection Agency - North Region, Aberdeen Office Site Category: Transfer Max Input Rate: Very Small (Less than 10,000 tonnes per year) Waste Source: Some restriction on source of waste Restrictions: Licence Status: Operational as far as is knownOperational Dated: 27th August 1999 Preceded By: 1992/24 Licence: Superseded By: Not Given Licence: Positional Accuracy: Positioned by the supplier Boundary Quality: Moderate Authorised Waste: Industrial Waste From Off-Shore Oil/Gas Exploration/Production - Including Liquid Wastes Maximum Waste Permitted By Licence Special Waste (As In Epa 1990:S62 Of 1996 Regs) Other Waste/Waste Not Otherwise Specified Waste Not From Off-Shore Activities</p>	A12NE (NW)	522	7	395391 802866
60	<p>Registered Waste Transfer Sites</p> <p>Licence Holder: Oryx Uk Energy Co Licence Reference: WML/N/20159/96 Site Location: Ninian House, Crawpeel Road, Altens, ABERDEEN, Aberdeenshire, AB1 4LG Operator Location: As Site Address Authority: Scottish Environment Protection Agency - North Region, Aberdeen Office Site Category: Transfer Max Input Rate: Very Small (Less than 10,000 tonnes per year) Waste Source: No known restriction on source of waste Restrictions: Licence Status: Licence has completion certificateSurrendered Dated: 6th January 1997 Preceded By: 1992/27 Licence: Superseded By: Not Given Licence: Positional Accuracy: Manually positioned to the address or location Boundary Quality: Not Supplied Authorised Waste: Female Hygiene Waste Max.Waste Permitted By Licence Other Industrial Wastes Paper Scrap Metal Waste Treated Timber Prohibited Waste: Liquid Wastes Special Wastes (As In S17 1980) Waste N.O.S.</p>	A12SE (SW)	582	7	395300 802320
60	<p>Registered Waste Transfer Sites</p> <p>Licence Holder: Chevron Uk Licence Reference: 1992/27 Site Location: Ninian House, Crawpeel Road, Altens, ABERDEEN, Aberdeenshire, AB1 4LG Operator Location: As Site Address Authority: Scottish Environment Protection Agency - North Region, Aberdeen Office Site Category: Transfer Max Input Rate: Undefined Waste Source: Waste produced/controlled by licence holder Restrictions: Licence Status: Record supersededSuperseded Dated: 6th November 1992 Preceded By: Not Given Licence: Superseded By: WML/N/20159/96 Licence: Positional Accuracy: Manually positioned to the address or location Boundary Quality: Not Supplied Authorised Waste: Chemical Residues Clinical Wastes Compacted Galley Waste Pre-Spec. Ind./Com. Waste Scrap Metal Waste Oil Residues Prohibited Waste: All Other Forms Of Ind./Com./H'Hold Wa</p>	A12SE (SW)	582	7	395300 802320

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
61	<p>Registered Waste Transfer Sites</p> <p>Licence Holder: Amerada Hess Ltd Licence Reference: 1992/24 Site Location: Amerada Hess Ltd, Minto Avenue, Altens Industrial Estate, Aberdeen, Aberdeenshire Operator Location: Scott House, Hareness Road, Altens Industrial Estate, Aberdeen, Aberdeenshire Authority: Scottish Environment Protection Agency - North Region, Aberdeen Office Site Category: Transfer Max Input Rate: Very Small (Less than 10,000 tonnes per year) Waste Source: Some restriction on source of waste Restrictions: Licence Status: Record supersededSuperseded Dated: 18th August 1992 Preceded By: Not Given Licence: Superseded By: WML/N/20157 Licence: Positional Accuracy: Manually positioned to the address or location Boundary Quality: Not Supplied Authorised Waste: Dry Waste Pre-Spec. Ind./Com.Waste From Offshore Scrap Metal Waste Oil Waste Paint Waste Thinners Prohibited Waste: All Other Forms Ind./Com./H'Hold Waste</p>	A12SW (SW)	681	7	395200 802300
62	<p>Registered Waste Transfer Sites</p> <p>Licence Holder: Total Oil Marine Plc Licence Reference: WML/N/20166 Site Location: Crawpeel Road, Altens, Aberdeen, Aberdeenshire Operator Location: As Site Address Authority: Scottish Environment Protection Agency - North Region, Aberdeen Office Site Category: Transfer Max Input Rate: Very Small (Less than 10,000 tonnes per year) Waste Source: No known restriction on source of waste Restrictions: Licence Status: Licence has completion certificateSurrendered Dated: 20th December 1999 Preceded By: 1993/13 Licence: Superseded By: Not Given Licence: Positional Accuracy: Positioned by the supplier Boundary Quality: Good Authorised Waste: Industrial Waste From Off-Shoe Oil/Gas Exploration/Production - Including Liquid Wastes Maximum Waste Permitted By Licence Special Waste (As In Epa 1990:S62 Of 1996 Regs) Prohibited Waste: Other Waste/Waste Not Otherwise Specified Waste Not From Off-Shore Activities</p>	A12SW (W)	879	7	394947 802546
63	<p>Registered Waste Transfer Sites</p> <p>Licence Holder: Total Oil Marine Plc Licence Reference: 1993/13 Site Location: Crawpeel Road, Altens, Aberdeen, Aberdeenshire Operator Location: As Site Address Authority: Scottish Environment Protection Agency - North Region, Aberdeen Office Site Category: Transfer Max Input Rate: Very Small (Less than 10,000 tonnes per year) Waste Source: Some restriction on source of waste Restrictions: Licence Status: Record supersededSuperseded Dated: 17th September 1993 Preceded By: Not Given Licence: Superseded By: 1993/13 Licence: Positional Accuracy: Positioned by the supplier Boundary Quality: Good Authorised Waste: Chemical Wastes Max.Stor. Ferrous Metal Scrap Max.Stor. Max.Waste Permitted By Licence Non-Ferrous Metal Scrap Max.Stor. Prohibited Waste: All Other Household, Com & Ind.Waste Explosive Waste Gaseous Waste Sub'S Control. Radioactive Subs Act'60 Waste N.O.S.</p>	A12SW (W)	941	7	394886 802535

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
64	<p>Registered Waste Transfer Sites</p> <p>Licence Holder: Swire E.P.D. Licence Reference: 1992/02 (1990/15) Site Location: Souterhead Road, Altens Industrial Estate, Aberdeen, Aberdeenshire Operator Location: Swire House, Souterhead Road, Altens, ABERDEEN, Aberdeenshire, AB12 3LF Authority: Scottish Environment Protection Agency - North Region, Aberdeen Office Site Category: Transfer Max Input Rate: Small (Equal to or greater than 10,000 and less than 25,000 tonnes per year) Waste Source: No known restriction on source of waste Restrictions: Licence Status: Record supersededSuperseded Dated: 1st October 1989 Preceded By: Not Given Licence: Superseded By: WML/N/20165 Licence: Positional Accuracy: Manually positioned to the address or location Boundary Quality: Not Supplied Authorised Waste: Liquid Com. + Ind. Waste Solid Com. + Ind. Waste</p>	A7NW (SW)	943	7	395020 802080
65	<p>Registered Waste Transfer Sites</p> <p>Licence Holder: Total Oil Marine Plc Licence Reference: 1993/13 Site Location: Crawpeel Road, Altens, Aberdeen, Aberdeenshire Operator Location: As Site Address Authority: Scottish Environment Protection Agency - North Region, Aberdeen Office Site Category: Transfer Max Input Rate: Very Small (Less than 10,000 tonnes per year) Waste Source: Some restriction on source of waste Restrictions: Licence Status: Record supersededSuperseded Dated: 1st March 1996 Preceded By: 1993/13 Licence: Superseded By: WML/N/20166 Licence: Positional Accuracy: Positioned by the supplier Boundary Quality: Moderate Authorised Waste: Chemical Waste Cinbins Ferrous Metal Scrap Gaseous Waste Hazardous Waste Liquid Waste Max.Storage In Licence Max.Waste Permitted By Licence Non-Ferrous Metal Scrap Paper Special Wastes (As In S17 1980) Waste From Off-Shore Oil/Gas Facs Incl Prohibited Waste: Waste N.O.S.</p>	A12SW (W)	945	7	394882 802535

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
66	<p>Registered Waste Treatment or Disposal Sites</p> <p>Licence Holder: Taylors Industrial Services Ltd Licence Reference: 1991/12B Site Location: Hareness Circle, Altens Industrial Estate, ABERDEEN, Aberdeenshire, AB1 4LY</p> <p>Operator Location: As Site Address Authority: Scottish Environment Protection Agency - North Region, Aberdeen Office Site Category: Transfer - with treatment Max Input Rate: Medium (Equal to or greater than 25,000 and less than 75,000 tonnes per year)</p> <p>Waste Source: No known restriction on source of waste Restrictions: Licence Status: Record supersededSuperseded Dated: 1st June 1991 Preceded By: Not Given Licence: Superseded By: WML/N/20001/96 Licence: Positional Accuracy: Positioned by the supplier Boundary Quality: Good Authorised Waste: Acids Alkalis Chemical Interceptor Waste Fuel Oil & Derv Sludge Hydrocarbons Max.Waste Permitted By Licence Oil/Water Mixtures Paper Waste Sewage Wastes For Temp.Storage Tank Cleaning</p> <p>Prohibited Waste: Waste N.O.S.</p>	A12SE (W)	280	7	395546 802563
67	<p>Registered Waste Treatment or Disposal Sites</p> <p>Licence Holder: Taylors Industrial Services Ltd Licence Reference: Wml/N/20001 Mo6 Site Location: Hareness Circle, Altens Industrial Estate, Aberdeen, Aberdeenshire, Ab1 4ly Operator Location: As Site Address Authority: Scottish Environment Protection Agency - North Region, Aberdeen Office Site Category: Transfer - with treatment Max Input Rate: Medium (Equal to or greater than 25,000 and less than 75,000 tonnes per year)</p> <p>Waste Source: No known restriction on source of waste Restrictions: Licence Status: Operational as far as is knownOperational Dated: 17th March 2000 Preceded By: Wml/N/20001/96 Licence: Superseded By: Not Given Licence: Positional Accuracy: Positioned by the supplier Boundary Quality: Moderate Authorised Waste: Household, Commercial & Industrial Waste - Including Maximum Waste Permitted By Licence Special Waste (As In Epa 1990:S62 Of 1996 Regs) Other Waste/Waste Not Otherwise Specified Potentially Infectious Microbiological Cultures From Pathology/Clinical/Research Labs</p> <p>Prohibited Waste:</p>	A12SE (W)	281	7	395546 802563

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
68	<p>Registered Waste Treatment or Disposal Sites</p> <p>Licence Holder: Taylors Industrial Services Ltd Licence Reference: WML/N/20001/96 Site Location: Hareness Circle, Altens Industrial Estate, ABERDEEN, Aberdeenshire, AB1 4LY</p> <p>Operator Location: As Site Address Authority: Scottish Environment Protection Agency - North Region, Aberdeen Office Site Category: Transfer - with treatment Max Input Rate: Medium (Equal to or greater than 25,000 and less than 75,000 tonnes per year)</p> <p>Waste Source: No known restriction on source of waste Restrictions: Licence Status: Record supersededSuperseded Dated: 8th January 1997 Preceded By: 1991/12B Licence: Superseded By: Wml/N/20001 Mo6 Licence: Positional Accuracy: Manually positioned to the address or location Boundary Quality: Not Supplied Authorised Waste</p> <ul style="list-style-type: none"> Aliphatic Acids Alkali Metal Oxides/Hydroxides Alkali/Alkaline Earth/Haz. Metals Ammonium Salts Animal Processing Wastes Asbestos Bentonite/Clay Sludge Biocides Cadmium Compounds Calcium Hydroxide Cellulose Wastes (Natural/Synth.) Cement/Concrete Slurry Contaminated Rubbish/Bags/Sacks Contaminated Soil Cyanides Distillation Residues Dyestuffs Waste Empty Used Containers Fats, Waxes And Greases Food Processing Wastes/Starch Fuel Oil Glue Wastes Graphite Grinding Residues Halogenated Cleaning Cmpds Halogenated Cmpds(Not Cleaning Cmpds) Hydrocarbons (Not Fuels/Oils/Greases) Hydrochloric Acid Ind. & Com. Waste As Listed Below Interceptor Pit Wastes Ion-Exchange Resin Wastes Kerosene And Derv. Latex, Latex/Rubber Sol'Ns/Susp'Ns Lead Compounds Mercury Compounds Mineral Oils Mixed Inorganic Compounds Mixed Organic Compounds Mixed Toxic Metal Compounds Of Which Special Wastes Oil/Water Mixtures Organic Cmpds Containing N,S Or P Organic Peroxides Organo-Metallic Cmpds Other Alkalis Other Inorganic Acids Other Inorganic Compounds Other Inorganic Materials Other Organic Compounds Other Resins And Polymeric Materials Oxidising Compounds Oxygen Containing Organic Compounds Paint Waste Phenols, Analogues/Derivatives Phosphoric Acid Polyurethane Printing Industry Wastes/Ink Prod'Ts Of Incomplete Polymerisation Scrap Batteries Sewage Sludge Silt And Dredgings Soaps & Detergents Sodium/Potassium Carbonates Sulphides, Selen'S, Tell'S, Arsen'S Sulphonic Acids 	A12SE (W)	327	7	395500 802550

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	<p>Sulphuric Acid Synthetic Adhesive Wastes Tank Cleaning Sludge Tannery Waste Toxic Inorganic Compounds Unidentified Chemical Waste Vegetable And Other Oils Waste From Clinics, Dentists, Nursing Water (Contaminated)</p>				
69	<p>Registered Waste Treatment or Disposal Sites Licence Holder: Taylors Industrial Services Ltd Licence Reference: WML/N/20204 Site Location: Hareness Circle., Altens Industrial Estate, ABERDEEN, Aberdeenshire, AB12 3LY Operator Location: 38 Albyn Place, ABERDEEN, Aberdeenshire, AB9 1US Authority: Scottish Environment Protection Agency - North Region, Aberdeen Office Site Category: Transfer - with treatment Max Input Rate: Small (Equal to or greater than 10,000 and less than 25,000 tonnes per year) Waste Source: No known restriction on source of waste Restrictions: Licence Status: Licence has completion certificateSurrendered Dated: 20th March 2000 Preceded By: Not Given Licence: Superseded By: Not Given Licence: Positional Accuracy: Positioned by the supplier Boundary Quality: Moderate Authorised Waste: Household, Commercial & Industrial Waste Maximum Waste Permitted By Licence Prohibited Waste: Liquid Wastes Other Waste/Waste Not Otherwise Specified Special Waste (As In Epa 1990:S62 Of 1996 Regs)</p>	A12SE (W)	349	7	395489 802479
70	<p>Registered Waste Treatment or Disposal Sites Licence Holder: Wormald Engineering & Contracting Licence Reference: 1993/02 Site Location: Unit 8 Ocean Trade Centre, Altens Industrial Estate, Aberdeen, Aberdeenshire Operator Location: Units 14/15 Ocean Trading Centre, Minto Avenue, ABERDEEN, Aberdeenshire, AB1 4JZ Authority: Scottish Environment Protection Agency - North Region, Aberdeen Office Site Category: Transfer - with treatment Max Input Rate: Undefined Waste Source: No known restriction on source of waste Restrictions: Licence Status: Site exempt from licenceExempt Dated: 1st June 1993 Preceded By: Not Given Licence: Superseded By: Not Given Licence: Positional Accuracy: Positioned by the supplier Boundary Quality: Good Authorised Waste: Contaminated Halon 1301 & Halon 1211 Prohibited Waste: Waste N.O.S.</p>	A18SW (NW)	438	7	395647 803075

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
71	<p>Registered Waste Treatment or Disposal Sites</p> <p>Licence Holder: Shell Uk Exploration & Production Licence Reference: 1993/14 Site Location: Operations Base Minto Avenue, Altens Industrial Estate, Aberdeen, Aberdeenshire</p> <p>Operator Location: 1 Altens Farm Road, Nigg, Aberdeen, Aberdeenshire Authority: Scottish Environment Protection Agency - North Region, Aberdeen Office Site Category: Storage - with transfer Max Input Rate: Very Small (Less than 10,000 tonnes per year) Waste Source: Some restriction on source of waste Restrictions: Licence Status: Record supersededSuperseded Dated: 1st November 1993 Preceded By: Not Given Licence: Superseded By: WML/N/20163/97 Licence: Positional Accuracy: Manually positioned to the address or location Boundary Quality: Not Supplied Authorised Waste Asbestos Chemical Residues Empty Used Containers Ferrous Metal Scrap Lead/Acid Batteries Max.Waste Permitted By Licence Mineral Oils Nickel Cadmium Batteries Non-Ferrous Metal Scrap Paint Waste Paper/Cardboard Waste Packaging Mat'Ls Pcb'S And Analogues Plastics Packaging Materials Vegetable And Other Oils Wood Waste/Timber</p> <p>Prohibited Waste All Household & Commercial Waste Gases Other Industrial Wastes Radioactive Waste Waste N.O.S.</p>	A18SW (N)	498	7	395780 803200
72	<p>Registered Waste Treatment or Disposal Sites</p> <p>Licence Holder: Champion Servo Licence Reference: WML/N/20008/96 Site Location: Minto Avenue, Altens Industrial Estate, Aberdeen, Aberdeenshire Operator Location: Maitlands Quay, Sinclair Road, Aberdeen, Aberdeenshire, Ab11 9pl Authority: Scottish Environment Protection Agency - North Region, Aberdeen Office Site Category: Transfer - with treatment Max Input Rate: Very Small (Less than 10,000 tonnes per year) Waste Source: No known restriction on source of waste Restrictions: Licence Status: Operational as far as is knownOperational Dated: 5th May 1997 Preceded By: 1993/01 Licence: Superseded By: Not Given Licence: Positional Accuracy: Positioned by the supplier Boundary Quality: Good Authorised Waste Com. & Ind. Waste Max.Storage In Licence Max.Waste Permitted By Licence Special Wastes (As In '96 Regs)</p>	A17SE (NW)	505	7	395461 802977

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
73	<p>Registered Waste Treatment or Disposal Sites</p> <p>Licence Holder: Blacksmith Chemical Services Ltd Licence Reference: 1993/01 Site Location: Minto Avenue, Altens Industrial Estate, Aberdeen, Aberdeenshire Operator Location: As Site Address Authority: Scottish Environment Protection Agency - North Region, Aberdeen Office Site Category: Transfer - with treatment Max Input Rate: Very Small (Less than 10,000 tonnes per year) Waste Source: No known restriction on source of waste Restrictions: Licence Status: Record supersededSuperseded Dated: 1st June 1993 Preceded By: Not Given Licence: Superseded By: WML/N/20008/96 Licence: Positional Accuracy: Manually positioned to the address or location Boundary Quality: Not Supplied Authorised Waste: Chemical Wastes Max.Storage In Licence Max.Waste Permitted By Licence Prohibited Waste: Explosive Waste Gaseous Waste Other House, Com & Ind.Waste Sub'S Control. Radioactive Subs Act'60 Waste N.O.S.</p>	A17SE (NW)	571	7	395450 803070
74	<p>Registered Waste Treatment or Disposal Sites</p> <p>Licence Holder: Caird Confidential Licence Reference: 1991/07 Site Location: Block 2 Unit 8 Souterhead Road, Altens, ABERDEEN, Aberdeenshire, AB1 4LS Operator Location: As Site Address Authority: Scottish Environment Protection Agency - North Region, Aberdeen Office Site Category: Transfer - with Baling(compaction) Max Input Rate: Very Small (Less than 10,000 tonnes per year) Waste Source: No known restriction on source of waste Restrictions: Licence Status: Licence lapsed/cancelled/defunct/not applicable/surrenderedCancelled Dated: 1st April 1991 Preceded By: Not Given Licence: Superseded By: Not Given Licence: Positional Accuracy: Positioned by the supplier Boundary Quality: Moderate Authorised Waste: Commercial Waste Paper Computer & Other Tapes Max.Storage In State.Intent Prohibited Waste: All Other Com./Ind./H'Hold Waste</p>	A7NE (SW)	815	7	395269 801956
75	<p>Registered Waste Treatment or Disposal Sites</p> <p>Licence Holder: Swire Oilfield Services Licence Reference: WML/N/20165 Site Location: Souterhead Road, Altens Industrial Estate, Aberdeen, Aberdeenshire Operator Location: Swire House, Souterhead Road, Altens, ABERDEEN, Aberdeenshire, AB12 3LF Authority: Scottish Environment Protection Agency - North Region, Aberdeen Office Site Category: Transfer - with treatment Max Input Rate: Very Small (Less than 10,000 tonnes per year) Waste Source: No known restriction on source of waste Restrictions: Licence Status: Operational as far as is knownOperational Dated: 1st March 1998 Preceded By: 1992/02 (1990/15) Licence: Superseded By: Not Given Licence: Positional Accuracy: Positioned by the supplier Boundary Quality: Good Authorised Waste: Household/Commercial/Industrial Waste - Including Liq. Spec.Waste (Epa'90:S62/1996 Regs) - Comprising Max.Waste Permitted By Licence Oil Contaminated Substances Waste Oil Waste Oil Containers Prohibited Waste: Asbestos</p>	A7NW (SW)	832	7	395127 802118

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
76	<p>Control of Major Accident Hazards Sites (COMAH)</p> <p>Name: Schlumberger Oilfield Uk Limited Location: Aberdeen, Schlumberger Production Chemistry, Minto Drive, Altens Industrial Estate, Aberdeen, Aberdeenshire, Ab12 3LW Reference: Not Supplied Type: Lower Tier Status: Active Positional Accuracy: Manually positioned to the road within the address or location</p>	A13NW (NW)	307	8	395639 802879
77	<p>Control of Major Accident Hazards Sites (COMAH)</p> <p>Name: Nalco Manufacturing Limited Location: Aberdeen, Minto Avenue, Altens Industrial Estate, Aberdeen, Aberdeenshire, Ab12, 3JZ Reference: Not Supplied Type: Lower Tier Status: Active Positional Accuracy: Automatically positioned to the address</p>	A12NE (W)	494	8	395364 802742
78	<p>Control of Major Accident Hazards Sites (COMAH)</p> <p>Name: Champion Technologies Limited Location: Minto Avenue, Altens Industrial Estate, Aberdeen, Aberdeenshire, AB12 3JZ Reference: Not Supplied Type: Lower Tier Status: Active Positional Accuracy: Manually positioned to the address or location</p>	A17SE (NW)	681	8	395379 803156
79	<p>Control of Major Accident Hazards Sites (COMAH)</p> <p>Name: Norsea Group (Uk) Limited Location: Peterhead, Smith Quay, Peterhead Harbour, Peterhead, Ab42 Reference: Not Supplied Type: Lower Tier Status: Active Positional Accuracy: Manually positioned within the geographical locality</p>	A12SW (W)	719	8	395130 802389
80	<p>Control of Major Accident Hazards Sites (COMAH)</p> <p>Name: John Swire & Sons Ltd Location: Swire House, Souter Head Road, Altens Industrial Estate, ABERDEEN, AB12 3LF Reference: 1032168 Type: Lower Tier Status: Active Positional Accuracy: Automatically positioned to the address</p>	A7NW (SW)	857	8	395103 802109
80	<p>Control of Major Accident Hazards Sites (COMAH)</p> <p>Name: Swire Oilfield Services Limited Location: Souter Head Road, Altens Industrial Estate, Aberdeen, AB12 3LF Reference: Not Supplied Type: Lower Tier Status: Active Positional Accuracy: Automatically positioned to the address</p>	A7NW (SW)	857	8	395103 802109
80	<p>Control of Major Accident Hazards Sites (COMAH)</p> <p>Name: Reda Oilfield Uk Ltd Location: Aberdeen South Supply Base, Souterhead Road, Altens, Aberdeen, Aberdeenshire, Ab12, 3lf Reference: Not Supplied Type: Lower Tier Status: Active Positional Accuracy: Manually positioned to the address or location</p>	A7NW (SW)	872	8	395101 802083
81	<p>Explosive Sites</p> <p>Name: Baker Oil Tools Location: Altens Ind. Estate, ABERDEEN, Grampian Status: Not Active Positional Accuracy: Manually positioned to the road within the address or location</p>	A8NW (SW)	452	8	395565 802177
82	<p>Planning Hazardous Substance Consents</p> <p>Name: Cove And Altens Location: Site 17 Peterseat Drive And Site 49 Minto Avenue, Altens Industrial Estate, Aberdeen, Ab12 3ht Authority: Aberdeen City Council, Planning and City Development Services Application Ref: 140028 Hazardous: Unknown at time of report Substance: Maximum Quantity: 0 Application date: 25th November 2013 Decision: New application granted conditionallyGranted Positional Accuracy: Located by supplier to within 10m</p>	A17SE (NW)	591	9	395431 803077

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
83	<p>Planning Hazardous Substance Consents</p> <p>Name: Swire Oilfield Services Location: Swire House, Souter Head Road, Altens Industrial Estate, Aberdeen, Aberdeenshire, Ab12 3lf Authority: Aberdeen City Council, Planning and City Development Services Application Ref: A3/0349 Hazardous Substance: Extremely flammable (extremely flammable gases and liquids with a flash point <21C and boiling point at normal pressure <=35C, and gaseous substances flammable in contact with air at ambient temperature and pressure excluding extremely flammable gases and natural gas, and flammable liquid substances maintained at a temperature above their boiling point) Maximum Quantity: 0 Application date: 31st January 2003 Decision: Deemed Consent Granted Positional Accuracy: Manually positioned to the address or location</p>	A7NW (SW)	857	9	395103 802109

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS 1:625,000 Solid Geology Description: Argyll Group	A13NW (E)	0	1	395891 802624
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: <15 mg/kg Cadmium Concentration: no data Chromium Concentration: 40 - 60 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 15 - 30 mg/kg	A13NW (E)	0	1	395891 802624
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: <15 mg/kg Cadmium Concentration: no data Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 15 - 30 mg/kg	A14SW (SE)	384	1	396238 802393
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: no data Cadmium Concentration: no data Chromium Concentration: no data Lead Concentration: <100 mg/kg Nickel Concentration: no data	A14SW (SE)	524	1	396400 802359
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: <15 mg/kg Cadmium Concentration: no data Chromium Concentration: 40 - 60 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 15 - 30 mg/kg	A9NW (SE)	648	1	396260 802012
84	BGS Recorded Mineral Sites Site Name: Altens Gravel Pit Location: Altens, Aberdeen, Aberdeenshire Source: British Geological Survey, National Geoscience Information Service Reference: 164720 Type: Opencast Status: Ceased Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Quaternary, Devensian Geology: Mill Of Forest Till Formation Commodity: Mineral Positional Accuracy: Located by supplier to within 10m	A13NE (N)	61	1	395911 802776
85	BGS Recorded Mineral Sites Site Name: Altens Gravel Pit Location: Altens, Aberdeen, Aberdeenshire Source: British Geological Survey, National Geoscience Information Service Reference: 164719 Type: Opencast Status: Ceased Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Quaternary, Devensian Geology: Mill Of Forest Till Formation Commodity: Mineral Positional Accuracy: Located by supplier to within 10m	A8NE (S)	248	1	395895 802284

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
86	BGS Recorded Mineral Sites Site Name: Burnbanks Location: Burnbanks, Altens, Aberdeen, Aberdeenshire Source: British Geological Survey, National Geoscience Information Service Reference: 164718 Type: Opencast Status: Ceased Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Neoproterozoic Geology: Aberdeen Formation Commodity: Igneous and Metamorphic Rock Positional Accuracy: Located by supplier to within 10m	A8NE (S)	350	1	395952 802191
87	BGS Recorded Mineral Sites Site Name: North Loirston Quarries Location: Altens, Aberdeen, Aberdeenshire Source: British Geological Survey, National Geoscience Information Service Reference: 164717 Type: Opencast Status: Ceased Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Neoproterozoic Geology: Aberdeen Formation Commodity: Igneous and Metamorphic Rock Positional Accuracy: Located by supplier to within 10m	A7NE (SW)	628	1	395275 802268
87	BGS Recorded Mineral Sites Site Name: North Loirston Quarries Location: Altens, Aberdeen, Aberdeenshire Source: British Geological Survey, National Geoscience Information Service Reference: 164716 Type: Opencast Status: Ceased Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Neoproterozoic Geology: Aberdeen Formation Commodity: Igneous and Metamorphic Rock Positional Accuracy: Located by supplier to within 10m	A7NE (SW)	665	1	395246 802244
	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	A13NW (E)	0	1	395891 802624
	Potential for Compressible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SE (E)	0	1	395937 802616
	Potential for Compressible Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NW (E)	0	1	395891 802624
	Potential for Compressible Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SW (S)	173	1	395849 802355
	Potential for Ground Dissolution Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13NW (E)	0	1	395891 802624
	Potential for Landslide Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NW (E)	0	1	395891 802624
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NW (E)	0	1	395891 802624

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Potential for Running Sand Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13NE (N)	193	1	395952 802902
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NW (E)	0	1	395891 802624
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13NE (N)	193	1	395952 802902
	Radon Potential - Radon Affected Areas Affected Area: The property is in an Intermediate probability radon area (1 to 3% of homes are estimated to be at or above the Action Level). Source: British Geological Survey, National Geoscience Information Service	A13NW (E)	0	1	395891 802624
	Radon Potential - Radon Protection Measures Protection Measure: Basic radon protective measures are necessary in the construction of new dwellings or extensions Source: British Geological Survey, National Geoscience Information Service	A13NW (E)	0	1	395891 802624

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
88	<p>Contemporary Trade Directory Entries</p> <p>Name: Compass Print Group Ltd Location: Hareness Road, Altens Industrial Estate, ABERDEEN, AB12 3LE Classification: Printers Status: Inactive Positional Accuracy: Automatically positioned to the address</p>	A13NW (W)	14	-	395840 802629
88	<p>Contemporary Trade Directory Entries</p> <p>Name: Electro-Flow Controls Location: Hareness Road, Altens Industrial Estate, Aberdeen, AB12 3LE Classification: Electrical Goods Sales, Manufacturers & Wholesalers Status: Inactive Positional Accuracy: Automatically positioned to the address</p>	A13NW (W)	57	-	395797 802638
88	<p>Contemporary Trade Directory Entries</p> <p>Name: John Lawrie Demolition Ltd Location: Hareness Road, Altens Industrial Estate, Aberdeen, AB12 3LE Classification: Scrap Metal Merchants Status: Inactive Positional Accuracy: Automatically positioned to the address</p>	A13NW (W)	57	-	395797 802638
89	<p>Contemporary Trade Directory Entries</p> <p>Name: Peterson S B S Ltd Location: Unit 1a, Minto Drive, Altens Industrial Estate, Aberdeen, AB12 3LW Classification: Road Haulage Services Status: Inactive Positional Accuracy: Automatically positioned to the address</p>	A13NW (N)	45	-	395862 802742
90	<p>Contemporary Trade Directory Entries</p> <p>Name: Altens Fleet Sales Location: Hareness Road, Aberdeen, Aberdeenshire, AB12 3LE Classification: Car Dealers Status: Inactive Positional Accuracy: Manually positioned to the road within the address or location</p>	A13SW (W)	46	-	395786 802591
91	<p>Contemporary Trade Directory Entries</p> <p>Name: Redwing Location: Minto Drive, Altens Industrial Estate, Aberdeen, AB12 3LW Classification: Distribution Services Status: Inactive Positional Accuracy: Automatically positioned to the address</p>	A13NE (N)	72	-	395935 802780
92	<p>Contemporary Trade Directory Entries</p> <p>Name: C A N Group Location: Hareness Road, Altens Industrial Estate, Aberdeen, AB12 3LE Classification: Engineering Services Status: Active Positional Accuracy: Automatically positioned to the address</p>	A13NW (NW)	81	-	395785 802669
93	<p>Contemporary Trade Directory Entries</p> <p>Name: Can Offshore Location: Hareness Rd, Altens Ind Est, Aberdeen, Aberdeenshire, AB12 3LE Classification: Testing, Inspection & Calibration Equipment Manufacturers Status: Inactive Positional Accuracy: Manually positioned to the road within the address or location</p>	A13SW (W)	96	-	395743 802616
93	<p>Contemporary Trade Directory Entries</p> <p>Name: Can Offshore Ltd Location: Hareness Rd, Altens Ind Est, Aberdeen, Aberdeenshire, AB12 3LE Classification: Testing, Inspection & Calibration Equipment Manufacturers Status: Inactive Positional Accuracy: Manually positioned to the road within the address or location</p>	A13SW (W)	96	-	395743 802616
93	<p>Contemporary Trade Directory Entries</p> <p>Name: Gleaner Oils Ltd Location: Hareness Road, Altens Industrial Estate, Aberdeen, AB12 3LE Classification: Oil Fuel Distributors Status: Inactive Positional Accuracy: Automatically positioned to the address</p>	A13NW (W)	115	-	395738 802649
93	<p>Contemporary Trade Directory Entries</p> <p>Name: Gleaner Location: Hareness Road, Altens Industrial Estate, Aberdeen, Aberdeenshire, AB12 3LE Classification: Oil Fuel Distributors Status: Active Positional Accuracy: Automatically positioned to the address</p>	A13NW (W)	115	-	395737 802648
93	<p>Contemporary Trade Directory Entries</p> <p>Name: Gleaner Oil & Gas Location: Hareness Road, Altens Industrial Estate, Aberdeen, AB12 3LE Classification: Oil Fuel Distributors Status: Active Positional Accuracy: Automatically positioned to the address</p>	A13NW (W)	115	-	395738 802649

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
94	<p>Contemporary Trade Directory Entries</p> <p>Name: Maxtube Ltd Location: Hareness Road, Altens Industrial Estate, Aberdeen, AB12 3LE Classification: Corrosion Prevention & Control Status: Inactive Positional Accuracy: Automatically positioned to the address</p>	A13SW (W)	118	-	395710 802587
95	<p>Contemporary Trade Directory Entries</p> <p>Name: A & S Forklift Services Ltd Location: Minto Drive, Altens, Altens Industrial Estate, Aberdeen, Aberdeenshire, AB12 3LW Classification: Fork Lift Trucks Status: Active Positional Accuracy: Manually positioned within the geographical locality</p>	A13NW (N)	119	-	395838 802819
95	<p>Contemporary Trade Directory Entries</p> <p>Name: Shut Off Solutions Ltd Location: Minto Dr, Altens Ind Est, Aberdeen, Aberdeenshire, AB12 3LW Classification: Oil & Gas Exploration Supplies & Services Status: Inactive Positional Accuracy: Manually positioned to the road within the address or location</p>	A13NW (N)	125	-	395828 802820
96	<p>Contemporary Trade Directory Entries</p> <p>Name: Central Garage Location: Derek Smith House, Hareness Road, Altens Industrial Estate, Aberdeen, Aberdeenshire, AB12 3LE Classification: Garage Services Status: Active Positional Accuracy: Automatically positioned to the address</p>	A13NE (NE)	120	-	396072 802737
97	<p>Contemporary Trade Directory Entries</p> <p>Name: Oil States Industries Inc Location: Blackness Road, Altens Industrial Estate, Aberdeen, Aberdeenshire, AB12 3LH Classification: Oil & Gas Exploration Supplies & Services Status: Inactive Positional Accuracy: Automatically positioned to the address</p>	A13SW (SW)	134	-	395696 802538
98	<p>Contemporary Trade Directory Entries</p> <p>Name: Wood Plc Location: Sir Ian Wood House, Hareness Road, Altens Industrial Estate, Aberdeen, Aberdeenshire, AB12 3LE Classification: Engineers - General Status: Inactive Positional Accuracy: Automatically positioned to the address</p>	A13NE (NE)	154	-	396070 802800
98	<p>Contemporary Trade Directory Entries</p> <p>Name: Macgregor Industrial Supplies Location: Hareness Road, Altens Industrial Estate, Aberdeen, Aberdeenshire, AB12 3LE Classification: Engineering Materials Status: Active Positional Accuracy: Automatically positioned to the address</p>	A13NE (NE)	154	-	396070 802800
99	<p>Contemporary Trade Directory Entries</p> <p>Name: Gilgen Door Systems Location: 4 Bourtrees Complex, Minto Drive, Altens Industrial Estate, Aberdeen, Aberdeenshire, AB12 3LW Classification: Door Manufacturers - Industrial Status: Inactive Positional Accuracy: Manually positioned to the road within the address or location</p>	A13NW (NW)	167	-	395779 802833
100	<p>Contemporary Trade Directory Entries</p> <p>Name: M R D S Location: Unit 15 Minto Drive, Altens Industrial Estate, Aberdeen, Aberdeenshire, AB12 3LW Classification: Drilling & Boring Equipment & Supplies Status: Active Positional Accuracy: Automatically positioned to the address</p>	A13NW (N)	170	-	395810 802862
100	<p>Contemporary Trade Directory Entries</p> <p>Name: Barloworld Handling Ltd Location: Minto Drive, Altens Industrial Estate, Aberdeen, Aberdeenshire, AB12 3LW Classification: Fork Lift Trucks Status: Inactive Positional Accuracy: Automatically positioned to the address</p>	A13NW (N)	170	-	395810 802862
100	<p>Contemporary Trade Directory Entries</p> <p>Name: Control Union International Inspections Location: Unit 1, Minto Drive, Aberdeen, AB12 3LW Classification: Industrial Engineers Status: Inactive Positional Accuracy: Automatically positioned to the address</p>	A13NW (N)	170	-	395810 802862

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
100	Contemporary Trade Directory Entries Name: Barlow Handling Location: Minto Drive, Altens Industrial Estate, Aberdeen, Aberdeenshire, AB12 3LW Classification: Materials Handling Equipment Status: Inactive Positional Accuracy: Automatically positioned to the address	A13NW (N)	171	-	395810 802862
100	Contemporary Trade Directory Entries Name: Barloworld Handling Location: Minto Drive, Altens Industrial Estate, Aberdeen, AB12 3LW Classification: Materials Handling Equipment Status: Inactive Positional Accuracy: Automatically positioned to the address	A13NW (N)	171	-	395810 802862
100	Contemporary Trade Directory Entries Name: Barloworld Handling Ltd Location: Minto Drive, Altens Industrial Estate, Aberdeen, AB12 3LW Classification: Fork Lift Trucks Status: Inactive Positional Accuracy: Automatically positioned to the address	A13NW (N)	171	-	395810 802862
100	Contemporary Trade Directory Entries Name: Oilfield Trading Co Ltd Location: Unit 3, Minto Drive, Aberdeen, AB12 3LW Classification: Oil & Gas Exploration Supplies & Services Status: Inactive Positional Accuracy: Automatically positioned to the address	A13NW (N)	174	-	395836 802879
100	Contemporary Trade Directory Entries Name: Beckett Logistics Management Location: Unit 3, Minto Drive, Altens Industrial Estate, Aberdeen, AB12 3LW Classification: Road Haulage Services Status: Active Positional Accuracy: Automatically positioned to the address	A13NW (N)	175	-	395837 802880
100	Contemporary Trade Directory Entries Name: Nova Hydraulics Ltd Location: Unit 3, Minto Drive, Altens Industrial Estate, Aberdeen, AB12 3LW Classification: Hydraulic Engineers Status: Inactive Positional Accuracy: Automatically positioned to the address	A13NW (N)	175	-	395837 802880
100	Contemporary Trade Directory Entries Name: Nova Oil Field Services Ltd Location: Unit 3, Minto Drive, Altens Industrial Estate, Aberdeen, Aberdeenshire, AB12 3LW Classification: Oil Companies Status: Inactive Positional Accuracy: Automatically positioned to the address	A13NW (N)	175	-	395837 802880
100	Contemporary Trade Directory Entries Name: Toco Sport Ltd Location: Unit 3, Minto Drive, Altens Industrial Estate, Aberdeen, AB12 3LW Classification: Sports Equipment Manufacturers & Distributors Status: Inactive Positional Accuracy: Automatically positioned to the address	A13NW (N)	175	-	395837 802880
100	Contemporary Trade Directory Entries Name: T C Oil Tools Ltd Location: Unit 3, Minto Drive, Altens Industrial Estate, Aberdeen, Aberdeenshire, AB12 3LW Classification: Oil Companies Status: Inactive Positional Accuracy: Automatically positioned to the address	A13NW (N)	175	-	395837 802880
101	Contemporary Trade Directory Entries Name: Aggreko Uk Ltd Location: Minto Drive, Altens Industrial Estate, Aberdeen, AB12 3LW Classification: Generators - Sales & Service Status: Inactive Positional Accuracy: Automatically positioned to the address	A13NE (N)	171	-	395960 802876
101	Contemporary Trade Directory Entries Name: Ntl Location: Minto Drive, Altens Industrial Estate, Aberdeen, Aberdeenshire, AB12 3LW Classification: Telecommunications Equipment & Systems Status: Inactive Positional Accuracy: Automatically positioned to the address	A13NE (N)	191	-	395935 802904

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
102	Contemporary Trade Directory Entries Name: Gray Forklift Services Location: Minto Drive, Altens Industrial Estate, ABERDEEN, AB12 3LW Classification: Fork Lift Trucks Status: Active Positional Accuracy: Automatically positioned to the address	A13NW (NW)	211	-	395708 802806
103	Contemporary Trade Directory Entries Name: Northwards Ltd Location: Northwards Ltd, Blackness Road, Aberdeen, AB12 3LH Classification: Road Haulage Services Status: Active Positional Accuracy: Automatically positioned to the address	A13SW (SW)	218	-	395668 802408
104	Contemporary Trade Directory Entries Name: Norscot Truck & Van Ltd Location: Minto Road, Altens Industrial Estate, Aberdeen, Aberdeenshire, AB12 3LU Classification: Commercial Vehicle Dealers Status: Active Positional Accuracy: Manually positioned to the road within the address or location	A13NW (NW)	227	-	395670 802765
104	Contemporary Trade Directory Entries Name: Manerf Location: Minto Rd, Altens Ind Est, Aberdeen, Aberdeenshire, AB12 3LU Classification: Commercial Vehicle Servicing, Repairs, Parts & Accessories Status: Inactive Positional Accuracy: Manually positioned to the road within the address or location	A13NW (NW)	227	-	395667 802758
105	Contemporary Trade Directory Entries Name: Q L Tech Location: Q L TECH, ALTENS INDUSTRIAL ESTATE, HARENESS ROAD, ABERDEEN, AB12 3LE Classification: Engineers - General Status: Active Positional Accuracy: Automatically positioned to the address	A13NW (W)	227	-	395609 802633
106	Contemporary Trade Directory Entries Name: Prosper Engineering Ltd Location: Minto Drive, Altens Industrial Estate, Aberdeen, AB12 3LW Classification: Nuts, Bolts & Fixings Status: Inactive Positional Accuracy: Automatically positioned to the address	A13NW (N)	240	-	395876 802955
106	Contemporary Trade Directory Entries Name: Prosper Engineering Location: Minto Drive, Altens Industrial Estate, Aberdeen, Aberdeenshire, AB12 3LW Classification: Nuts, Bolts & Fixings Status: Inactive Positional Accuracy: Automatically positioned to the address	A13NW (N)	240	-	395876 802955
107	Contemporary Trade Directory Entries Name: Midcontinent Location: Blackness Road, Altens Industrial Estate, Aberdeen, AB12 3LH Classification: Drilling & Boring Equipment & Supplies Status: Inactive Positional Accuracy: Automatically positioned to the address	A13SW (W)	247	-	395581 802539
107	Contemporary Trade Directory Entries Name: Midcontinent Location: Blackness Road, Altens Industrial Estate, Aberdeen, AB12 3LH Classification: Oil Fuel Distributors Status: Inactive Positional Accuracy: Automatically positioned to the address	A13SW (W)	247	-	395581 802539
108	Contemporary Trade Directory Entries Name: Freeland Freight Services Ltd Location: Blackness Road, Altens Industrial Estate, Aberdeen, AB12 3LH Classification: Road Haulage Services Status: Active Positional Accuracy: Automatically positioned to the address	A13SW (SW)	265	-	395682 802323
109	Contemporary Trade Directory Entries Name: A B B Ltd Location: Hareness Road, Altens Industrial Estate, Aberdeen, AB12 3LE Classification: Oil & Gas Exploration Supplies & Services Status: Active Positional Accuracy: Automatically positioned to the address	A13NW (W)	276	-	395592 802717

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
110	<p>Contemporary Trade Directory Entries</p> <p>Name: Eurocell Aberdeen South Location: UNIT 10, HARENESS ROAD INDUSTRIAL UNITS, HARENESS ROAD, ABERDEEN, AB12 3LE Classification: Builders' Merchants Status: Active Positional Accuracy: Automatically positioned to the address</p>	A12NE (W)	278	-	395553 802622
111	<p>Contemporary Trade Directory Entries</p> <p>Name: M A N A R F Aberdeen Location: Minto Road, Altens Industrial Estate, Aberdeen, AB12 3LU Classification: Commercial Vehicle Dealers Status: Inactive Positional Accuracy: Automatically positioned to the address</p>	A13NW (NW)	280	-	395630 802803
111	<p>Contemporary Trade Directory Entries</p> <p>Name: A A H Pharmaceuticals Ltd Location: Minto Road, Altens Industrial Estate, Aberdeen, AB12 3LU Classification: Chemists' & Pharmacists' Suppliers & Wholesalers Status: Active Positional Accuracy: Automatically positioned to the address</p>	A13NW (NW)	283	-	395646 802843
112	<p>Contemporary Trade Directory Entries</p> <p>Name: Beck Prosper Ltd Location: Minto Drive, Altens Industrial Estate, Aberdeen, Aberdeenshire, AB12 3LW Classification: Nuts, Bolts & Fixings Status: Inactive Positional Accuracy: Manually positioned within the geographical locality</p>	A13NW (NW)	293	-	395672 802902
113	<p>Contemporary Trade Directory Entries</p> <p>Name: Transmark Fcx Ltd Location: Minto Drive, Altens Industrial Estate, Aberdeen, Aberdeenshire, AB12 3LW Classification: Valve Manufacturers & Suppliers Status: Inactive Positional Accuracy: Automatically positioned to the address</p>	A13NW (NW)	308	-	395595 802797
113	<p>Contemporary Trade Directory Entries</p> <p>Name: Westerton Location: Unit 2, Minto Drive, Altens Industrial Estate, Aberdeen, AB12 3LW Classification: Oil & Gas Exploration Supplies & Services Status: Inactive Positional Accuracy: Automatically positioned to the address</p>	A13NW (NW)	316	-	395587 802799
113	<p>Contemporary Trade Directory Entries</p> <p>Name: Control Union International Inspection Location: Unit 2, Minto Drive, Altens Industrial Estate, Aberdeen, AB12 3LW Classification: Testing, Inspection & Calibration Equipment Manufacturers Status: Inactive Positional Accuracy: Automatically positioned to the address</p>	A13NW (NW)	316	-	395587 802799
113	<p>Contemporary Trade Directory Entries</p> <p>Name: Tinthaus Location: Unit 3, Bourtrees Technology Park, Minto Drive, Aberdeen, AB12 3LW Classification: Window Tinting Status: Inactive Positional Accuracy: Automatically positioned to the address</p>	A13NW (NW)	323	-	395582 802804
113	<p>Contemporary Trade Directory Entries</p> <p>Name: Vetco Gray Controls Ltd Location: Vetco Gray Controls Ltd, Hareness Road, Aberdeen, AB12 3LE Classification: Oil & Gas Exploration Supplies & Services Status: Inactive Positional Accuracy: Automatically positioned to the address</p>	A13NW (NW)	328	-	395568 802787
113	<p>Contemporary Trade Directory Entries</p> <p>Name: Consolidated Supply Management Location: Unit 4, Altec Centre, Minto Dr, Altens Ind Est, Aberdeen, Aberdeenshire, AB12 3LW Classification: Oil & Gas Exploration Supplies & Services Status: Inactive Positional Accuracy: Manually positioned to the address or location</p>	A13NW (NW)	331	-	395573 802803
113	<p>Contemporary Trade Directory Entries</p> <p>Name: C R Encapsulation Ltd Location: UNIT 1-4, BOURTREE TECHNICAL PARK, MINTO DRIVE, ALTENS INDUSTRIAL ESTATE, ABERDEEN, AB12 3LW Classification: Wire Products - Manufacturers Status: Active Positional Accuracy: Automatically positioned to the address</p>	A13NW (NW)	332	-	395574 802807

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
113	<p>Contemporary Trade Directory Entries</p> <p>Name: Konecranes Uk Ltd Location: Unit 5, Bourtree Technical Park, Minto Drive, Altens Industrial Estate, Aberdeen, AB12 3LW Classification: Lifting Equipment Status: Active Positional Accuracy: Automatically positioned to the address</p>	A13NW (NW)	338	-	395568 802809
113	<p>Contemporary Trade Directory Entries</p> <p>Name: Moody (International) Location: Unit 6-8, Bourtree Technical Park, Minto Drive, Altens Industrial Estate, Aberdeen, Aberdeenshire, AB12 3LW Classification: Oil & Gas Exploration Supplies & Services Status: Inactive Positional Accuracy: Manually positioned to the address or location</p>	A13NW (NW)	345	-	395560 802808
114	<p>Contemporary Trade Directory Entries</p> <p>Name: Climate Center Location: Unit 1, Blackness Industrial Centre, Blackness Road, Altens Industrial Estate, Aberdeen, AB12 3LH Classification: Refrigeration Equipment - Commercial Status: Inactive Positional Accuracy: Automatically positioned to the address</p>	A13SW (SW)	311	-	395586 802365
115	<p>Contemporary Trade Directory Entries</p> <p>Name: Trustford Aberdeen Location: Minto Drive, Altens Industrial Estate, Aberdeen, Aberdeenshire, AB12 3LW Classification: Car Dealers Status: Active Positional Accuracy: Manually positioned to the road within the address or location</p>	A13NW (NW)	333	-	395614 802889
115	<p>Contemporary Trade Directory Entries</p> <p>Name: Hutchinsons Location: Minto Dr, Altens Indust Est, Aberdeen, Aberdeenshire, AB12 3LW Classification: Sheet Metal Work Status: Inactive Positional Accuracy: Manually positioned to the address or location</p>	A13NW (NW)	337	-	395593 802857
116	<p>Contemporary Trade Directory Entries</p> <p>Name: The Lubricant Co Ltd Location: Minto Avenue, Altens Industrial Estate, Aberdeen, AB12 3JZ Classification: Lubricant Manufacturers & Distributors Status: Inactive Positional Accuracy: Automatically positioned to the address</p>	A18SW (N)	334	-	395872 803050
116	<p>Contemporary Trade Directory Entries</p> <p>Name: The Lubricant Company Location: Minto Avenue, Altens Industrial Estate, ABERDEEN, AB12 3JZ Classification: Lubrication Services Status: Active Positional Accuracy: Automatically positioned to the address</p>	A18SW (N)	335	-	395872 803050
117	<p>Contemporary Trade Directory Entries</p> <p>Name: Tidewater Support Services Location: 1, Minto Place, Altens Industrial Estate, Aberdeen, AB12 3SN Classification: Oil & Gas Exploration Supplies & Services Status: Inactive Positional Accuracy: Automatically positioned to the address</p>	A18SE (N)	336	-	396018 803031
117	<p>Contemporary Trade Directory Entries</p> <p>Name: Stork Technical Services Uk Ltd Location: 1, Minto Place, Altens Industrial Estate, Aberdeen, AB12 3SN Classification: Oil & Gas Extraction Status: Inactive Positional Accuracy: Automatically positioned to the address</p>	A18SE (N)	336	-	396018 803031
117	<p>Contemporary Trade Directory Entries</p> <p>Name: Rubicon Location: 1, Minto Place, Altens Industrial Estate, Aberdeen, AB12 3SN Classification: Oil Companies Status: Active Positional Accuracy: Automatically positioned to the address</p>	A18SE (N)	336	-	396018 803031
118	<p>Contemporary Trade Directory Entries</p> <p>Name: Tesco Location: Unit 3, Blackness Industrial Centre, Blackness Road, Altens Industrial Estate, Aberdeen, AB12 3LH Classification: Drilling & Boring Equipment & Supplies Status: Inactive Positional Accuracy: Automatically positioned to the address</p>	A13SW (SW)	336	-	395604 802300

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
118	<p>Contemporary Trade Directory Entries</p> <p>Name: Macscott Bond Ltd Location: Unit 2, Blackness Industrial Centre, Blackness Road, Altens Industrial Estate, Aberdeen, AB12 3LH Classification: Hydraulic Systems & Equipment Manufacturers Status: Active Positional Accuracy: Automatically positioned to the address</p>	A13SW (SW)	351	-	395580 802305
118	<p>Contemporary Trade Directory Entries</p> <p>Name: Control Center Location: Unit 1, Blackness Industrial Centre, Blackness Road, Altens Industrial Estate, Aberdeen, Aberdeenshire, AB12 3LH Classification: Refrigeration Equipment - Commercial Status: Inactive Positional Accuracy: Manually positioned to the address or location</p>	A13SW (SW)	361	-	395561 802312
118	<p>Contemporary Trade Directory Entries</p> <p>Name: Valvecare Engineering Ltd Location: Unit 1A, Blackness Industrial Centre, Blackness Road, Altens Industrial Estate, Aberdeen, Aberdeenshire, AB12 3LH Classification: Valve Manufacturers & Suppliers Status: Inactive Positional Accuracy: Automatically positioned to the address</p>	A13SW (SW)	361	-	395561 802312
118	<p>Contemporary Trade Directory Entries</p> <p>Name: Step Oil Tools Ltd Location: Unit 3, Blackness Industrial Centre, Blackness Road, Altens Industrial Estate, Aberdeen, AB12 3LH Classification: Waste Disposal Services Status: Active Positional Accuracy: Automatically positioned to the address</p>	A13SW (SW)	362	-	395561 802311
118	<p>Contemporary Trade Directory Entries</p> <p>Name: Kiowa Ltd Location: UNIT 1, BLACKNESS ROAD, ALTENS INDUSTRIAL ESTATE, ABERDEEN, AB12 3LH Classification: Hose, Tubing & Fittings Status: Active Positional Accuracy: Automatically positioned to the address</p>	A13SW (SW)	363	-	395560 802311
119	<p>Contemporary Trade Directory Entries</p> <p>Name: Rentokil Pest Control Location: Unit 25, Minto Avenue, Altens Industrial Estate, Aberdeen, AB12 3JZ Classification: Pest & Vermin Control Status: Inactive Positional Accuracy: Automatically positioned to the address</p>	A18SW (N)	336	-	395805 803039
119	<p>Contemporary Trade Directory Entries</p> <p>Name: C C F Location: Unit 23-25, Ocean Trade Centre, Minto Avenue, Aberdeen, AB12 3JZ Classification: Builders' Merchants Status: Active Positional Accuracy: Automatically positioned to the address</p>	A18SW (N)	361	-	395814 803068
119	<p>Contemporary Trade Directory Entries</p> <p>Name: Rentokil Property Care Location: Unit 24, Ocean Trade Centre, Minto Avenue, Altens Industrial Estate, Aberdeen, AB12 3JZ Classification: Damp & Dry Rot Control Status: Inactive Positional Accuracy: Automatically positioned to the address</p>	A18SW (N)	370	-	395817 803078
120	<p>Contemporary Trade Directory Entries</p> <p>Name: Taylors Industrial Services Location: Hareness Circle, Altens Industrial Estate, Aberdeen, AB12 3LY Classification: Recycling Services Status: Inactive Positional Accuracy: Automatically positioned to the address</p>	A12SE (W)	343	-	395483 802559
121	<p>Contemporary Trade Directory Entries</p> <p>Name: North East Corrosion Engineers Ltd Location: Unit A3-A4, Blackness Road, Altens Industrial Estate, Aberdeen, AB12 3LH Classification: Corrosion Prevention & Control Status: Inactive Positional Accuracy: Automatically positioned to the address</p>	A12SE (SW)	345	-	395508 802436
122	<p>Contemporary Trade Directory Entries</p> <p>Name: Aberdeen Valve Supplies Location: Unit 5 Minto PI, Altens Ind Est, Aberdeen, Aberdeenshire, AB12 3SN Classification: Valve Manufacturers & Suppliers Status: Inactive Positional Accuracy: Manually positioned within the geographical locality</p>	A18SE (N)	358	-	395976 803066

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
123	<p>Contemporary Trade Directory Entries</p> <p>Name: H S P Valves Group Ltd Location: Unit 6 Minto Place, Altens Industrial Estate, Aberdeen, Aberdeenshire, AB12 3SN Classification: Valve Manufacturers & Suppliers Status: Active Positional Accuracy: Manually positioned within the geographical locality</p>	A18SE (NE)	360	-	396076 803033
124	<p>Contemporary Trade Directory Entries</p> <p>Name: Econosto Ltd Location: Blackness Road, Altens Industrial Estate, Aberdeen, AB12 3LH Classification: Oil & Gas Exploration Supplies & Services Status: Inactive Positional Accuracy: Automatically positioned to the address</p>	A12SE (SW)	361	-	395515 802386
125	<p>Contemporary Trade Directory Entries</p> <p>Name: M I Swaco Technologies Uk Ltd Location: Minto Drive, Altens Industrial Estate, Aberdeen, AB12 3LW Classification: Oil & Gas Exploration Supplies & Services Status: Inactive Positional Accuracy: Automatically positioned to the address</p>	A13NW (NW)	373	-	395601 802940
126	<p>Contemporary Trade Directory Entries</p> <p>Name: Cabot Specialty Fluids Ltd Location: Cabot House, Hareness Circle, Altens Industrial Estate, ABERDEEN, AB12 3LY Classification: Oil & Gas Exploration Supplies & Services Status: Inactive Positional Accuracy: Automatically positioned to the address</p>	A12SE (W)	387	-	395447 802492
126	<p>Contemporary Trade Directory Entries</p> <p>Name: Sinomine Location: Cabot House, Hareness Circle, Altens Industrial Estate, Aberdeen, AB12 3LY Classification: Oil & Gas Exploration Supplies & Services Status: Active Positional Accuracy: Automatically positioned to the address</p>	A12SE (W)	388	-	395447 802490
127	<p>Contemporary Trade Directory Entries</p> <p>Name: Kooltech Ltd Location: Unit 17, Minto Avenue, Altens Industrial Estate, Aberdeen, AB12 3JZ Classification: Refrigeration Equipment Manufacturers & Distributors Status: Active Positional Accuracy: Automatically positioned to the address</p>	A18SW (N)	397	-	395740 803080
127	<p>Contemporary Trade Directory Entries</p> <p>Name: Specialist Electrical Supplies Ltd Location: Unit 17, Minto Avenue, Altens Industrial Estate, Aberdeen, AB12 3JZ Classification: Control Panels Status: Inactive Positional Accuracy: Automatically positioned to the address</p>	A18SW (N)	397	-	395740 803081
128	<p>Contemporary Trade Directory Entries</p> <p>Name: Flowserve Location: 2, Minto Place, Altens Industrial Estate, Aberdeen, AB12 3SN Classification: Pumps - Sales, Servicing & Repairs Status: Inactive Positional Accuracy: Automatically positioned to the address</p>	A18SE (N)	398	-	396052 803084
128	<p>Contemporary Trade Directory Entries</p> <p>Name: Flowserve Location: 2, Minto Place, Altens Industrial Estate, Aberdeen, AB12 3SN Classification: Pumps - Sales, Servicing & Repairs Status: Active Positional Accuracy: Automatically positioned to the address</p>	A18SE (N)	401	-	396054 803086
129	<p>Contemporary Trade Directory Entries</p> <p>Name: Hpf Energy Services Location: Hareness Rd, Altens Ind Est, Aberdeen, Aberdeenshire, AB12 3LE Classification: Fuel Dealers Status: Inactive Positional Accuracy: Manually positioned to the road within the address or location</p>	A12NE (W)	418	-	395436 802718
129	<p>Contemporary Trade Directory Entries</p> <p>Name: Printack Location: Hareness Rd, Altens Ind Est, Aberdeen, Aberdeenshire, AB12 3LE Classification: Copying & Duplicating Services Status: Inactive Positional Accuracy: Manually positioned to the road within the address or location</p>	A12NE (W)	444	-	395411 802726

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
130	<p>Contemporary Trade Directory Entries</p> <p>Name: Datalog Technology Ltd Location: Blackness Rd, Altens Ind Est, Aberdeen, Aberdeenshire, AB12 3LH Classification: Oil & Gas Exploration Supplies & Services Status: Inactive Positional Accuracy: Manually positioned to the road within the address or location</p>	A7NE (SW)	424	-	395512 802272
131	<p>Contemporary Trade Directory Entries</p> <p>Name: Mercedes Benz Commercial Vehicles Aberdeen Location: Hareness Road, Altens Industrial Estate, Aberdeen, AB12 3LE Classification: Commercial Vehicle Dealers Status: Inactive Positional Accuracy: Automatically positioned to the address</p>	A12NE (NW)	434	-	395466 802819
131	<p>Contemporary Trade Directory Entries</p> <p>Name: Sita Location: Unit 7, Altec Centre, 1 Minto Av, Altens Ind Est, Aberdeen, Aberdeenshire, AB12 3JZ Classification: Waste Merchants Status: Inactive Positional Accuracy: Manually positioned within the geographical locality</p>	A12NE (W)	439	-	395444 802786
132	<p>Contemporary Trade Directory Entries</p> <p>Name: Phoenix Location: Hareness Road, Altens Industrial Estate, Aberdeen, AB12 3LE Classification: Pharmaceutical Manufacturers & Distributors Status: Active Positional Accuracy: Automatically positioned to the address</p>	A12NE (W)	439	-	395396 802653
132	<p>Contemporary Trade Directory Entries</p> <p>Name: Dunlop Oil & Marine Location: Hareness Road, Altens Industrial Estate, Aberdeen, AB12 3LE Classification: Engineering Services Status: Inactive Positional Accuracy: Automatically positioned to the address</p>	A12NE (W)	439	-	395396 802653
132	<p>Contemporary Trade Directory Entries</p> <p>Name: Phoenix Healthcare Location: Hareness Road, Altens Industrial Estate, Aberdeen, AB12 3LE Classification: Chemists' & Pharmacists' Suppliers & Wholesalers Status: Inactive Positional Accuracy: Automatically positioned to the address</p>	A12NE (W)	439	-	395396 802653
133	<p>Contemporary Trade Directory Entries</p> <p>Name: Tyco Fire & Integrated Solutions Location: Alpec Centre, Minto Drive, Altens Industrial Estate, Aberdeen, AB12 3LW Classification: Oil & Gas Exploration Supplies & Services Status: Active Positional Accuracy: Manually positioned to the address or location</p>	A12NE (NW)	440	-	395520 802939
133	<p>Contemporary Trade Directory Entries</p> <p>Name: I S E S Technical Services Ltd Location: Altec Centre, Minto Drive, Altens Industrial Estate, Aberdeen, AB12 3LW Classification: Oil & Gas Extraction Status: Inactive Positional Accuracy: Automatically positioned to the address</p>	A12NE (NW)	451	-	395507 802941
133	<p>Contemporary Trade Directory Entries</p> <p>Name: K B Associates (Europe) Ltd Location: K B A House, Minto Drive, Altens Industrial Estate, Aberdeen, Aberdeenshire, AB12 3LW Classification: Oil & Gas Exploration Supplies & Services Status: Active Positional Accuracy: Manually positioned within the geographical locality</p>	A12NE (NW)	452	-	395506 802940
134	<p>Contemporary Trade Directory Entries</p> <p>Name: Denholm Valvecare Ltd Location: 7, Minto Place, Altens Industrial Estate, Aberdeen, AB12 3SN Classification: Valve Manufacturers & Suppliers Status: Inactive Positional Accuracy: Automatically positioned to the address</p>	A18SE (NE)	441	-	396114 803105
135	<p>Contemporary Trade Directory Entries</p> <p>Name: Baker Hughes Location: Hareness Circle, Altens Industrial Estate, Aberdeen, AB12 3LY Classification: Oil & Gas Exploration Supplies & Services Status: Inactive Positional Accuracy: Automatically positioned to the address</p>	A12SE (W)	453	-	395385 802466

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
136	<p>Contemporary Trade Directory Entries</p> <p>Name: Eden Springs Aberdeen Location: Unit 7, Ocean Trade Centre, Minto Avenue, Altens Industrial Estate, Aberdeen, AB12 3JZ Classification: Water Coolers Status: Active Positional Accuracy: Automatically positioned to the address</p>	A18SW (NW)	455	-	395634 803086
136	<p>Contemporary Trade Directory Entries</p> <p>Name: M A N B & W Diesel Ltd Location: Unit 7, Ocean Trade Centre, 1, Minto Avenue, Altens Industrial Estate, Aberdeen, AB12 3JZ Classification: Engine Rebuilding & Reconditioning Status: Inactive Positional Accuracy: Automatically positioned to the address</p>	A18SW (NW)	455	-	395634 803087
136	<p>Contemporary Trade Directory Entries</p> <p>Name: Eden Kafevend Location: Unit 7, Ocean Trade Centre, Minto Avenue, Altens Industrial Estate, Aberdeen, AB12 3JZ Classification: Water Coolers Status: Active Positional Accuracy: Automatically positioned to the address</p>	A18SW (NW)	456	-	395633 803087
136	<p>Contemporary Trade Directory Entries</p> <p>Name: Presserv Ltd Location: Unit 7, Ocean Trade Centre, Minto Avenue, Altens Industrial Estate, Aberdeen, AB12 3JZ Classification: Corrosion Prevention & Control Status: Active Positional Accuracy: Automatically positioned to the address</p>	A18SW (NW)	456	-	395633 803087
137	<p>Contemporary Trade Directory Entries</p> <p>Name: Power Utilities Location: Unit 4-6, Ocean Trade Centre, Minto Avenue, Altens Industrial Estate, Aberdeen, AB12 3JZ Classification: Distribution Services Status: Inactive Positional Accuracy: Automatically positioned to the address</p>	A18SW (N)	460	-	395706 803134
137	<p>Contemporary Trade Directory Entries</p> <p>Name: Power Utilities Ltd Location: Unit 4-6, Ocean Trade Centre, Minto Avenue, Altens Industrial Estate, ABERDEEN, AB12 3JZ Classification: Filter Manufacturers & Suppliers Status: Inactive Positional Accuracy: Automatically positioned to the address</p>	A18SW (N)	460	-	395706 803134
137	<p>Contemporary Trade Directory Entries</p> <p>Name: Reid Fasteners & Fixings Ltd Location: Unit 4, Ocean Trade Centre, Minto Ave, Altens, Aberdeen, Aberdeenshire, AB12 3JZ Classification: Nuts, Bolts & Fixings Status: Inactive Positional Accuracy: Manually positioned to the address or location</p>	A18SW (N)	460	-	395706 803134
137	<p>Contemporary Trade Directory Entries</p> <p>Name: Rentokil Specialist Hygiene Location: Ocean Trade Centre, Minto Avenue, Altens Industrial Estate, Aberdeen, AB12 3JZ Classification: Commercial Cleaning Services Status: Inactive Positional Accuracy: Automatically positioned to the address</p>	A18SW (NW)	486	-	395670 803146
137	<p>Contemporary Trade Directory Entries</p> <p>Name: M E T S Uk Ltd Location: Ocean Trade Centre, Minto Avenue, Altens Industrial Estate, Aberdeen, AB12 3JZ Classification: Oil & Gas Exploration Supplies & Services Status: Active Positional Accuracy: Automatically positioned to the address</p>	A18SW (NW)	486	-	395670 803145
138	<p>Contemporary Trade Directory Entries</p> <p>Name: Scania Aberdeen Location: Blackness Road, Altens Industrial Estate, Aberdeen, AB12 3LH Classification: Commercial Vehicle Dealers Status: Active Positional Accuracy: Automatically positioned to the address</p>	A7NE (SW)	480	-	395458 802252

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
139	<p>Contemporary Trade Directory Entries</p> <p>Name: B J Completion Services Location: Blackness Avenue, Altens Industrial Estate, Aberdeen, AB12 3PG Classification: Oil & Gas Extraction Status: Inactive Positional Accuracy: Automatically positioned to the address</p>	A8NW (SW)	482	-	395619 802105
140	<p>Contemporary Trade Directory Entries</p> <p>Name: Pipeline Engineering Location: Altens Base, Minto Avenue, Altens Industrial Estate, Aberdeen, AB12 3JZ Classification: Engineering Services Status: Inactive Positional Accuracy: Automatically positioned to the address</p>	A18SW (N)	483	-	395862 803198
141	<p>Contemporary Trade Directory Entries</p> <p>Name: Wellmack Resources Location: Minto Av, Altens Ind Est, Aberdeen, Aberdeenshire, AB12 3JZ Classification: Oil & Gas Exploration Supplies & Services Status: Inactive Positional Accuracy: Manually positioned to the road within the address or location</p>	A17SE (NW)	486	-	395519 803020
142	<p>Contemporary Trade Directory Entries</p> <p>Name: Neyrfor-Weir Ltd Location: Hareness Circle, Altens Industrial Estate, Aberdeen, Aberdeenshire, AB12 3LY Classification: Drilling & Boring Equipment & Supplies Status: Inactive Positional Accuracy: Automatically positioned to the address</p>	A12SE (SW)	487	-	395379 802377
143	<p>Contemporary Trade Directory Entries</p> <p>Name: Bakers Hughes Location: Blackness Avenue, Altens Industrial Estate, Aberdeen, Aberdeenshire, AB12 3PG Classification: Oil & Gas Extraction Status: Inactive Positional Accuracy: Manually positioned within the geographical locality</p>	A7NE (SW)	492	-	395541 802145
143	<p>Contemporary Trade Directory Entries</p> <p>Name: North Offshore Ltd Location: Saltire House, Blackness Avenue, Altens Industrial Estate, Aberdeen, AB12 3PG Classification: Oil & Gas Exploration Supplies & Services Status: Active Positional Accuracy: Automatically positioned to the address</p>	A7NE (SW)	492	-	395541 802145
144	<p>Contemporary Trade Directory Entries</p> <p>Name: Laws Tyres Location: Unit 4, Forties Industrial Centre, Hareness Circle, Altens Industrial Estate, Aberdeen, AB12 3LY Classification: Tyre Dealers Status: Active Positional Accuracy: Automatically positioned to the address</p>	A12SE (W)	494	-	395333 802594
144	<p>Contemporary Trade Directory Entries</p> <p>Name: Hedley Purvis Ltd Location: Unit 4, Forties Industrial Centre, Hareness Circle, Altens Industrial Estate, Aberdeen, AB12 3LY Classification: Hydraulic Equipment & Accessories - Sales & Service Status: Inactive Positional Accuracy: Automatically positioned to the address</p>	A12SE (W)	494	-	395333 802595
144	<p>Contemporary Trade Directory Entries</p> <p>Name: Gatts Interiors Location: Unit 3, Forties Industrial Centre, Hareness Circle, Altens Industrial Estate, Aberdeen, AB12 3LY Classification: French Polishing Status: Inactive Positional Accuracy: Automatically positioned to the address</p>	A12SE (W)	497	-	395330 802582
144	<p>Contemporary Trade Directory Entries</p> <p>Name: Old Mill Garage Services Location: UNIT 3, ELECTRIC CENTRE, HARENESS CIRCLE, ABERDEEN, AB12 3LY Classification: Garage Services Status: Active Positional Accuracy: Automatically positioned to the address</p>	A12SE (W)	497	-	395330 802582
145	<p>Contemporary Trade Directory Entries</p> <p>Name: Active Air Conditioning Ltd Location: Unit 3, Braehead Centre, Blackness Avenue, Altens Industrial Estate, Aberdeen, AB12 3PG Classification: Air Conditioning & Refrigeration Contractors Status: Inactive Positional Accuracy: Automatically positioned to the address</p>	A7NE (SW)	494	-	395529 802153

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
145	<p>Contemporary Trade Directory Entries</p> <p>Name: Gbh Technical Location: Unit 9, Braehead Centre, Blackness Avenue, Altens Industrial Estate, Aberdeen, Aberdeenshire, AB12 3PG Classification: Oil & Gas Exploration Supplies & Services Status: Inactive Positional Accuracy: Automatically positioned to the address</p>	A7NE (SW)	509	-	395492 802166
145	<p>Contemporary Trade Directory Entries</p> <p>Name: 3d Stabilisers Location: Unit 9, Braehead Centre, Blackness Av, Altens Ind Est, Aberdeen, Aberdeenshire, AB12 3PG Classification: Drilling & Boring Equipment & Supplies Status: Inactive Positional Accuracy: Manually positioned to the address or location</p>	A7NE (SW)	510	-	395491 802166
145	<p>Contemporary Trade Directory Entries</p> <p>Name: Seabourne Logistics Location: UNIT 11, BRAEHEAD CENTRE, BLACKNESS AVENUE, ABERDEEN, AB12 3PG Classification: Road Haulage Services Status: Active Positional Accuracy: Automatically positioned to the address</p>	A7NE (SW)	526	-	395485 802149
146	<p>Contemporary Trade Directory Entries</p> <p>Name: L & I Eaton Location: UNIT 1, FORTIES INDUSTRIAL CENTRE, HARENESS CIRCLE, ALTENS INDUSTRIAL ESTATE, ABERDEEN, AB12 3LY Classification: Car Body Repairs Status: Active Positional Accuracy: Automatically positioned to the address</p>	A12SE (W)	507	-	395320 802553
146	<p>Contemporary Trade Directory Entries</p> <p>Name: Sorbafreeze Location: Unit 11, Hareness Park, Hareness Circle, Aberdeen, AB12 3QY Classification: Refrigeration Equipment Manufacturers & Distributors Status: Inactive Positional Accuracy: Automatically positioned to the address</p>	A12SE (W)	545	-	395282 802588
146	<p>Contemporary Trade Directory Entries</p> <p>Name: Putreavie Packaging Location: Unit 11, Hareness Park, Hareness Circle, Aberdeen, AB12 3QY Classification: Packaging Materials Manufacturers & Suppliers Status: Inactive Positional Accuracy: Automatically positioned to the address</p>	A12SE (W)	545	-	395282 802588
146	<p>Contemporary Trade Directory Entries</p> <p>Name: Cummin'S Uk Location: Unit 5, Altens Trade Centre, Hareness Circle, Altens Industrial Estate, Aberdeen, AB12 3LY Classification: Diesel Engine Equipment & Services Status: Inactive Positional Accuracy: Automatically positioned in the proximity of the address</p>	A12SE (W)	549	-	395279 802532
146	<p>Contemporary Trade Directory Entries</p> <p>Name: Scottish Brewers Ltd Location: Unit 11, Hareness Pk, Hareness Circle, Altens Ind Est, Aberdeen, Aberdeenshire, AB12 3QY Classification: Brewers Status: Inactive Positional Accuracy: Manually positioned to the address or location</p>	A12SE (W)	551	-	395275 802574
146	<p>Contemporary Trade Directory Entries</p> <p>Name: Quartz Elec Ltd Location: UNIT 12, HARENESS PARK, HARENESS CIRCLE, ABERDEEN, AB12 3QY Classification: Marine Engineering Equipment Manufacturers Status: Active Positional Accuracy: Automatically positioned to the address</p>	A12SE (W)	558	-	395269 802592
147	<p>Contemporary Trade Directory Entries</p> <p>Name: Control Valve Solutions Location: 7, Minto Place, Altens Industrial Estate, Aberdeen, AB12 3SN Classification: Valve Manufacturers & Suppliers Status: Active Positional Accuracy: Automatically positioned to the address</p>	A18SE (NE)	511	-	396150 803166
148	<p>Contemporary Trade Directory Entries</p> <p>Name: Xtra Logistics Ltd Location: Minto Av, Altens Indust Est, Aberdeen, Aberdeenshire, AB12 3JZ Classification: Office Furniture & Equipment Status: Inactive Positional Accuracy: Manually positioned to the road within the address or location</p>	A18SW (N)	512	-	395668 803173

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
149	<p>Contemporary Trade Directory Entries</p> <p>Name: Northern Electrical Services Location: Hareness Circle, Altens Indust Est, Aberdeen, Aberdeenshire, AB12 3LY Classification: Electrical Engineers Status: Inactive Positional Accuracy: Manually positioned to the road within the address or location</p>	A12SE (W)	512	-	395334 802429
150	<p>Contemporary Trade Directory Entries</p> <p>Name: Siemens Location: Hareness Circle, Altens Industrial Estate, Aberdeen, AB12 3LY Classification: Oil & Gas Exploration Supplies & Services Status: Active Positional Accuracy: Automatically positioned to the address</p>	A12SE (W)	519	-	395314 802482
150	<p>Contemporary Trade Directory Entries</p> <p>Name: Rigmar Location: Hareness Circle, Altens Industrial Estate, Aberdeen, Aberdeenshire, AB12 3LY Classification: Oil & Gas Exploration Supplies & Services Status: Active Positional Accuracy: Manually positioned within the geographical locality</p>	A12SE (W)	520	-	395314 802481
151	<p>Contemporary Trade Directory Entries</p> <p>Name: Its Drilling Services Location: Unit 2, Minto Avenue, Altens Industrial Estate, Aberdeen, Aberdeenshire, AB12 3JZ Classification: Oil & Gas Exploration Supplies & Services Status: Inactive Positional Accuracy: Automatically positioned to the address</p>	A12NE (NW)	531	-	395405 802913
151	<p>Contemporary Trade Directory Entries</p> <p>Name: S B S Logistics Ltd Location: Minto Avenue, Altens Industrial Estate, Aberdeen, Aberdeenshire, AB12 3JZ Classification: Crane Hire, Sales & Service Status: Inactive Positional Accuracy: Automatically positioned to the address</p>	A12NE (NW)	542	-	395384 802897
152	<p>Contemporary Trade Directory Entries</p> <p>Name: Munro Pharmaceuticals Ltd Location: Unit A, Minto Avenue, Altens Industrial Estate, Aberdeen, AB12 3JZ Classification: Pharmaceutical Manufacturers & Distributors Status: Inactive Positional Accuracy: Automatically positioned to the address</p>	A17SE (NW)	531	-	395460 803014
152	<p>Contemporary Trade Directory Entries</p> <p>Name: Nortruck Services Ltd Location: Unit A, Minto Avenue, Altens Industrial Estate, Aberdeen, AB12 3JZ Classification: Commercial Vehicle Dealers Status: Inactive Positional Accuracy: Automatically positioned to the address</p>	A17SE (NW)	531	-	395460 803014
152	<p>Contemporary Trade Directory Entries</p> <p>Name: Euro N D T Location: Unit B, Minto Avenue, Altens Industrial Estate, Aberdeen, AB12 3JZ Classification: Radiographic Services Status: Active Positional Accuracy: Automatically positioned to the address</p>	A17SE (NW)	531	-	395436 802976
152	<p>Contemporary Trade Directory Entries</p> <p>Name: Munro Pharmaceuticals Location: Unit A, Minto Avenue, Altens Industrial Estate, Aberdeen, AB12 3JZ Classification: Pharmaceutical Manufacturers & Distributors Status: Inactive Positional Accuracy: Automatically positioned to the address</p>	A17SE (NW)	531	-	395460 803014
153	<p>Contemporary Trade Directory Entries</p> <p>Name: L H R Marine Location: 4, Minto Place, Altens Industrial Estate, Aberdeen, AB12 3SN Classification: Marine Equipment & Supplies Status: Inactive Positional Accuracy: Automatically positioned to the address</p>	A18SE (N)	542	-	396071 803231
154	<p>Contemporary Trade Directory Entries</p> <p>Name: Muller Milk & Ingredients Location: Minto Avenue, Altens Industrial Estate, Aberdeen, AB12 3JZ Classification: Dairies Status: Inactive Positional Accuracy: Automatically positioned to the address</p>	A12NE (W)	543	-	395356 802843

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
154	<p>Contemporary Trade Directory Entries</p> <p>Name: Robert Wiseman Ltd Location: Minto Avenue, Altens Industrial Estate, Aberdeen, AB12 3JZ Classification: Dairies Status: Inactive Positional Accuracy: Automatically positioned to the address</p>	A12NE (W)	543	-	395356 802843
155	<p>Contemporary Trade Directory Entries</p> <p>Name: Tenaris Location: Minto Avenue, Altens Industrial Estate, Aberdeen, AB12 3JZ Classification: Oil & Gas Exploration Supplies & Services Status: Inactive Positional Accuracy: Automatically positioned to the address</p>	A17SE (NW)	550	-	395522 803116
155	<p>Contemporary Trade Directory Entries</p> <p>Name: Teneris Hydril Location: Minto Avenue, Altens Industrial Estate, Aberdeen, AB12 3JZ Classification: Oil Fuel Distributors Status: Inactive Positional Accuracy: Automatically positioned to the address</p>	A17SE (NW)	550	-	395522 803116
155	<p>Contemporary Trade Directory Entries</p> <p>Name: Tenaris Global Services Uk Ltd Location: Minto Avenue, Altens Industrial Estate, Aberdeen, AB12 3JZ Classification: Oil & Gas Exploration Supplies & Services Status: Inactive Positional Accuracy: Automatically positioned to the address</p>	A17SE (NW)	551	-	395520 803116
156	<p>Contemporary Trade Directory Entries</p> <p>Name: Black Gold Oil Tools Ltd Location: Souter Head Road, Altens Industrial Estate, Aberdeen, AB12 3LF Classification: Petroleum Products - Manufacturers Status: Inactive Positional Accuracy: Automatically positioned to the address</p>	A8NW (SW)	566	-	395596 802022
157	<p>Contemporary Trade Directory Entries</p> <p>Name: Masterflo Location: Master Flo Building, Blackness Road, Altens Industrial Estate, Aberdeen, AB12 3LH Classification: Valve Manufacturers & Suppliers Status: Active Positional Accuracy: Automatically positioned to the address</p>	A7NE (SW)	570	-	395421 802153
158	<p>Contemporary Trade Directory Entries</p> <p>Name: Polestar A U P Aberdeen Ltd Location: Hareness Rd, Altens Ind Est, Aberdeen, Aberdeenshire, AB12 3LE Classification: Printers Status: Inactive Positional Accuracy: Manually positioned to the road within the address or location</p>	A12NE (W)	575	-	395286 802766
158	<p>Contemporary Trade Directory Entries</p> <p>Name: D G Fitness & Leisure Location: Unit 5, Hareness Circle, Altens Industrial Estate, Aberdeen, Aberdeenshire, AB12 3LY Classification: Sports Equipment Manufacturers & Distributors Status: Inactive Positional Accuracy: Manually positioned to the address or location</p>	A12NE (W)	578	-	395273 802735
158	<p>Contemporary Trade Directory Entries</p> <p>Name: Cummins Uk Location: Unit 5, Hareness Circle, Altens Industrial Estate, Aberdeen, AB12 3LY Classification: Engine Manufacturers & Distributors Status: Inactive Positional Accuracy: Automatically positioned to the address</p>	A12NE (W)	578	-	395273 802735
158	<p>Contemporary Trade Directory Entries</p> <p>Name: Belhaven North Location: Unit C-d, Hareness Circle, Altens Industrial Estate, ABERDEEN, AB12 3LY Classification: Brewers Status: Inactive Positional Accuracy: Automatically positioned to the address</p>	A12NE (W)	592	-	395259 802738
158	<p>Contemporary Trade Directory Entries</p> <p>Name: Independent Freight Ltd Location: Hareness Rd, Altens Ind Est, Aberdeen, Aberdeenshire, AB12 3LE Classification: Freight Forwarders Status: Inactive Positional Accuracy: Manually positioned to the road within the address or location</p>	A12NE (W)	610	-	395253 802776

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
158	<p>Contemporary Trade Directory Entries</p> <p>Name: Oiltube Ltd Location: Hareness Rd, Altens Ind Est, Aberdeen, Aberdeenshire, AB12 3LE Classification: Oil Fuel Distributors Status: Inactive Positional Accuracy: Manually positioned to the road within the address or location</p>	A12NE (W)	615	-	395248 802778
158	<p>Contemporary Trade Directory Entries</p> <p>Name: Optima Solutions UK Ltd Location: Hareness Road, Altens Industrial Estate, Aberdeen, Aberdeenshire, AB12 3LE Classification: Oil & Gas Exploration Supplies & Services Status: Active Positional Accuracy: Automatically positioned to the address</p>	A12NE (W)	618	-	395264 802824
159	<p>Contemporary Trade Directory Entries</p> <p>Name: Hughes Christensen Co Location: Unit 8/9, Hareness Park, Hareness Circle, Altens Industrial Estate, Aberdeen, AB12 3QY Classification: Drilling & Boring Equipment & Supplies Status: Inactive Positional Accuracy: Automatically positioned to the address</p>	A12SE (W)	579	-	395254 802481
159	<p>Contemporary Trade Directory Entries</p> <p>Name: In-Situ Oilfield Services Ltd Location: Hareness Circle, Altens Ind Est, Aberdeen, Aberdeenshire, AB12 3LY Classification: Machine Shops Status: Inactive Positional Accuracy: Manually positioned to the road within the address or location</p>	A12SE (W)	589	-	395248 802456
159	<p>Contemporary Trade Directory Entries</p> <p>Name: Fisher Rosemount Ltd Location: Hareness Circle, Altens Ind Est, Aberdeen, Aberdeenshire, AB12 3LY Classification: Valve Manufacturers & Suppliers Status: Inactive Positional Accuracy: Manually positioned to the road within the address or location</p>	A12SW (W)	619	-	395216 802466
160	<p>Contemporary Trade Directory Entries</p> <p>Name: Cummins Diesel Location: Unit 5, Altens Trade Centre, Hareness Circle, Altens Ind Est, Aberdeen, Aberdeenshire, AB12 3LY Classification: Diesel Engine Equipment & Services Status: Inactive Positional Accuracy: Manually positioned to the address or location</p>	A12NE (W)	579	-	395272 802734
161	<p>Contemporary Trade Directory Entries</p> <p>Name: Rigmar Location: Hareness Circle, Altens Industrial Estate, Aberdeen, AB12 3LY Classification: Oil & Gas Exploration Supplies & Services Status: Inactive Positional Accuracy: Automatically positioned to the address</p>	A12SE (W)	579	-	395268 802418
161	<p>Contemporary Trade Directory Entries</p> <p>Name: Jotun Paints Europe Ltd Location: Unit 1, Altens Trade Centre, Hareness Circle, Altens Industrial Estate, Aberdeen, AB12 3LY Classification: Painting & Decorating Supplies Status: Inactive Positional Accuracy: Automatically positioned to the address</p>	A12SE (W)	624	-	395228 802390
161	<p>Contemporary Trade Directory Entries</p> <p>Name: Element Location: Altens Trade Centre, Hareness Circle, Altens Industrial Estate, Aberdeen, Aberdeenshire, AB12 3LY Classification: Engineering Services Status: Inactive Positional Accuracy: Automatically positioned to the address</p>	A12SE (W)	624	-	395228 802390
161	<p>Contemporary Trade Directory Entries</p> <p>Name: Roberts On Site Services Location: Altens Trade Centre, Hareness Circle, Altens Ind Est, Aberdeen, Aberdeenshire, AB12 3LY Classification: Engineering Services Status: Inactive Positional Accuracy: Automatically positioned to the address</p>	A12SE (W)	624	-	395228 802390
161	<p>Contemporary Trade Directory Entries</p> <p>Name: Colin Lawson Transport Ltd Location: Altens Trade Centre, Hareness Circle, Altens Ind Est, Aberdeen, Aberdeenshire, AB12 3LY Classification: Road Haulage Services Status: Inactive Positional Accuracy: Automatically positioned to the address</p>	A12SE (W)	624	-	395228 802390

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
161	<p>Contemporary Trade Directory Entries</p> <p>Name: Solar Turbines Europe S A Location: Unit 2, Hareness Circle, Altens Industrial Estate, Aberdeen, AB12 3LY Classification: Turbine Manufacturers Status: Inactive Positional Accuracy: Automatically positioned to the address</p>	A12SW (W)	634	-	395217 802395
161	<p>Contemporary Trade Directory Entries</p> <p>Name: Element Materials Technology Location: Altens Trade Centre, Hareness Circle, Altens Industrial Estate, Aberdeen, Aberdeenshire, AB12 3LY Classification: Engineering Services Status: Active Positional Accuracy: Manually positioned to the road within the address or location</p>	A12SW (W)	634	-	395217 802395
161	<p>Contemporary Trade Directory Entries</p> <p>Name: North East Bolting Supplies Ltd Location: Unit 3, Altens Trade Centre, Hareness Circle, Altens Industrial Estate, Aberdeen, AB12 3LY Classification: Nuts, Bolts & Fixings Status: Active Positional Accuracy: Automatically positioned to the address</p>	A12SW (W)	645	-	395205 802397
161	<p>Contemporary Trade Directory Entries</p> <p>Name: D G Fitness & Leisure Location: Unit 5, Altens Trade Centre, Hareness Circle, Altens Industrial Estate, Aberdeen, AB12 3LY Classification: Sports Equipment Manufacturers & Distributors Status: Inactive Positional Accuracy: Automatically positioned to the address</p>	A12SW (W)	663	-	395184 802404
162	<p>Contemporary Trade Directory Entries</p> <p>Name: Office Furniture Centre Aberdeen Location: Altens Base, Minto Avenue, Altens Industrial Estate, Aberdeen, AB12 3JZ Classification: Office Furniture & Equipment Status: Inactive Positional Accuracy: Automatically positioned to the address</p>	A18SW (N)	603	-	395634 803258
162	<p>Contemporary Trade Directory Entries</p> <p>Name: Asco Uk Ltd Location: Altens Base, Minto Avenue, Altens Industrial Estate, Aberdeen, AB12 3JZ Classification: Oil & Gas Exploration Supplies & Services Status: Inactive Positional Accuracy: Automatically positioned to the address</p>	A18SW (N)	603	-	395634 803258
163	<p>Contemporary Trade Directory Entries</p> <p>Name: Brammer Location: Unit 4 Block A Hareness Park, Hareness Circle, Altens Industrial Estate, Aberdeen, Aberdeenshire, AB12 3QY Classification: Engineering Materials Status: Active Positional Accuracy: Manually positioned within the geographical locality</p>	A12SW (W)	618	-	395211 802508
164	<p>Contemporary Trade Directory Entries</p> <p>Name: Baker Hughes Inteq Location: Unit 14, Hareness Circle, Altens Industrial Estate, Aberdeen, Aberdeenshire, AB12 3LY Classification: Oil Companies Status: Inactive Positional Accuracy: Automatically positioned to the address</p>	A12SW (W)	620	-	395208 802613
165	<p>Contemporary Trade Directory Entries</p> <p>Name: Greig Engineering Ltd Location: Souter Head Road, Altens Industrial Estate, Aberdeen, AB12 3LF Classification: Metal Products - Fabricated Status: Active Positional Accuracy: Automatically positioned to the address</p>	A7NE (SW)	631	-	395391 802095
166	<p>Contemporary Trade Directory Entries</p> <p>Name: Weatherford Location: Souter Head Road, Altens Industrial Estate, Aberdeen, AB12 3LF Classification: Fuel Dealers Status: Active Positional Accuracy: Automatically positioned to the address</p>	A7NE (SW)	639	-	395283 802233
166	<p>Contemporary Trade Directory Entries</p> <p>Name: Weatherford Location: Souter Head Road, Altens Industrial Estate, Aberdeen, AB12 3LF Classification: Oil Companies Status: Inactive Positional Accuracy: Automatically positioned to the address</p>	A7NE (SW)	639	-	395283 802233

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
167	<p>Contemporary Trade Directory Entries</p> <p>Name: Kuehne + Nagel Ltd Location: Unit 2, Hareness Park, Hareness Circle, Aberdeen, AB12 3QY Classification: Road Haulage Services Status: Active Positional Accuracy: Automatically positioned to the address</p>	A12SW (W)	671	-	395157 802519
167	<p>Contemporary Trade Directory Entries</p> <p>Name: Business Express Location: Unit 2, Hareness Park, Hareness Circle, Aberdeen, AB12 3QY Classification: Distribution Services Status: Inactive Positional Accuracy: Automatically positioned to the address</p>	A12SW (W)	671	-	395157 802519
168	<p>Contemporary Trade Directory Entries</p> <p>Name: Hamdeen (Uk) Ltd Location: Unit 4, Hareness Circle, Altens Ind Est, Aberdeen, Aberdeenshire, AB12 3LY Classification: Oil & Gas Exploration Supplies & Services Status: Inactive Positional Accuracy: Manually positioned to the road within the address or location</p>	A12SW (W)	678	-	395150 802619
169	<p>Contemporary Trade Directory Entries</p> <p>Name: Champion X Location: W Sam White Building, Peterseat Drive, Altens Industrial Estate, Aberdeen, AB12 3HT Classification: Chemicals - Distributors & Wholesalers Status: Active Positional Accuracy: Automatically positioned to the address</p>	A17SE (NW)	681	-	395379 803157
170	<p>Contemporary Trade Directory Entries</p> <p>Name: Alba Gaskets Location: Souter Head Rd, Altens Ind Est, Aberdeen, Aberdeenshire, AB12 3LF Classification: Gaskets Status: Inactive Positional Accuracy: Manually positioned to the road within the address or location</p>	A7NE (SW)	693	-	395337 802063
170	<p>Contemporary Trade Directory Entries</p> <p>Name: Ceetak Ltd Location: Unit 13, Block 1, Souter Head Road, Altens Industrial Estate, Aberdeen, Aberdeenshire, AB12 3LF Classification: Seal & Joint Manufacturers Status: Inactive Positional Accuracy: Automatically positioned to the address</p>	A7NE (SW)	731	-	395320 802024
170	<p>Contemporary Trade Directory Entries</p> <p>Name: B & A Hydraulics Ltd Location: Unit 1-2, Block 1, Souter Head Road, Altens Industrial Estate, Aberdeen, AB12 3LF Classification: Hydraulic Equipment & Accessories - Sales & Service Status: Active Positional Accuracy: Automatically positioned to the address</p>	A7NE (SW)	770	-	395307 801982
171	<p>Contemporary Trade Directory Entries</p> <p>Name: Greenham Trading Ltd Location: Souter Head Road, Altens Industrial Estate, Aberdeen, AB12 3LF Classification: Builders' Merchants Status: Inactive Positional Accuracy: Automatically positioned to the address</p>	A7NE (SW)	694	-	395459 801955
172	<p>Contemporary Trade Directory Entries</p> <p>Name: Global Gas Supplies Ltd Location: International House, Peterseat Drive, Altens Industrial Estate, ABERDEEN, AB12 3HT Classification: Gas Suppliers Status: Inactive Positional Accuracy: Automatically positioned to the address</p>	A18NE (N)	699	-	396000 803409
172	<p>Contemporary Trade Directory Entries</p> <p>Name: Lubbers Logistics Location: International House Peterseat Drive, Altens Industrial Estate, Aberdeen, Aberdeenshire, AB12 3HT Classification: Road Haulage Services Status: Active Positional Accuracy: Manually positioned to the address or location</p>	A18NE (N)	699	-	395999 803408
172	<p>Contemporary Trade Directory Entries</p> <p>Name: R T H Lubbers Uk Ltd Location: International House, Peterseat Drive, Altens Industrial Estate, Aberdeen, AB12 3HT Classification: Road Haulage Services Status: Inactive Positional Accuracy: Automatically positioned to the address</p>	A18NE (N)	700	-	396000 803409

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
172	<p>Contemporary Trade Directory Entries</p> <p>Name: Glacier Energy Services Location: UNIT 3, PETERSEAT DRIVE, ALTENS INDUSTRIAL ESTATE, ABERDEEN, AB12 3HT Classification: Heat Exchangers Status: Active Positional Accuracy: Automatically positioned to the address</p>	A18NE (N)	703	-	395961 803417
172	<p>Contemporary Trade Directory Entries</p> <p>Name: Maclean International Location: Unit 3, Peterseat Drive, Altens Industrial Estate, Aberdeen, AB12 3HT Classification: Distribution Services Status: Active Positional Accuracy: Automatically positioned to the address</p>	A18NE (N)	703	-	395961 803417
172	<p>Contemporary Trade Directory Entries</p> <p>Name: Draka Distribution Location: Unit 3, Peterseat Drive, Altens Industrial Estate, Aberdeen, AB12 3HT Classification: Cable & Wire Equipment Manufacturers Status: Inactive Positional Accuracy: Automatically positioned to the address</p>	A18NE (N)	703	-	395961 803417
173	<p>Contemporary Trade Directory Entries</p> <p>Name: Mud Watcher Location: Unit 20, Altens Mini Units, Souter Head Road, Altens Industrial Estate, Aberdeen, AB12 3LF Classification: Drilling & Boring Equipment & Supplies Status: Inactive Positional Accuracy: Automatically positioned to the address</p>	A7NE (SW)	709	-	395405 801977
173	<p>Contemporary Trade Directory Entries</p> <p>Name: Offshore Sealants & Lubricants Location: Unit 2, Altens Mini Units, Souter Head Road, Altens Industrial Estate, Aberdeen, AB12 3LF Classification: Engineering Materials Status: Inactive Positional Accuracy: Automatically positioned to the address</p>	A7NE (SW)	713	-	395369 802003
173	<p>Contemporary Trade Directory Entries</p> <p>Name: Direct Vehicle Services Location: Unit 2, Altens Mini Units, Souter Head Road, Altens Industrial Estate, Aberdeen, AB12 3LF Classification: Distribution Services Status: Inactive Positional Accuracy: Automatically positioned to the address</p>	A7NE (SW)	713	-	395369 802003
173	<p>Contemporary Trade Directory Entries</p> <p>Name: First Choice Cleaning Services Location: Unit 8, Souter Head Rd Ind Est, Altens Ind Est, Aberdeen, AB12 3LF Classification: Cleaning Services - Commercial Status: Inactive Positional Accuracy: Automatically positioned to the address</p>	A7NE (SW)	714	-	395384 801988
173	<p>Contemporary Trade Directory Entries</p> <p>Name: Mud Automatics Location: Unit 4, Altens Mini Units, Souter Head Road, Altens Industrial Estate, Aberdeen, AB12 3LF Classification: Metal Products - Fabricated Status: Inactive Positional Accuracy: Automatically positioned to the address</p>	A7NE (SW)	722	-	395364 801994
173	<p>Contemporary Trade Directory Entries</p> <p>Name: Aberdeen Orings & Seals Location: Unit 8, Souter Head Rd Ind Est, Altens Ind Est, Aberdeen, Aberdeenshire, AB12 3LF Classification: Seal & Joint Manufacturers Status: Inactive Positional Accuracy: Manually positioned within the geographical locality</p>	A7NE (SW)	737	-	395348 801989
173	<p>Contemporary Trade Directory Entries</p> <p>Name: R A Engineering Location: 11 Souter Head Rd, Altens Ind Est, Aberdeen, Aberdeenshire, AB12 3LF Classification: Machinery - Industrial & Commercial Status: Inactive Positional Accuracy: Manually positioned to the road within the address or location</p>	A7NE (SW)	742	-	395340 801990
174	<p>Contemporary Trade Directory Entries</p> <p>Name: Glazier Energy Services Location: Unit 12 Peterseat Drive, Altens Industrial Estate, Aberdeen, Aberdeenshire, AB12 3HT Classification: Oil & Gas Exploration Supplies & Services Status: Inactive Positional Accuracy: Manually positioned within the geographical locality</p>	A18NE (N)	712	-	395918 803428

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
174	<p>Contemporary Trade Directory Entries</p> <p>Name: R S Components Ltd Location: Peterseat Drive, Altens Industrial Estate, Aberdeen, AB12 3HT Classification: Electronic Component Manufacturers & Distributors Status: Inactive Positional Accuracy: Automatically positioned to the address</p>	A18NE (N)	712	-	395918 803428
174	<p>Contemporary Trade Directory Entries</p> <p>Name: R S Components Ltd Location: Peterseat Drive, Altens Industrial Estate, Aberdeen, AB12 3HT Classification: Electronic Component Manufacturers & Distributors Status: Active Positional Accuracy: Automatically positioned to the address</p>	A18NE (N)	712	-	395918 803428
175	<p>Contemporary Trade Directory Entries</p> <p>Name: Muehlhan Industrial Services Ltd Location: Souter Head Road, Altens Industrial Estate, Aberdeen, Aberdeenshire, AB12 3LF Classification: Scaffolding & Work Platforms Status: Active Positional Accuracy: Manually positioned to the road within the address or location</p>	A7NE (SW)	726	-	395280 802079
175	<p>Contemporary Trade Directory Entries</p> <p>Name: Alpha Supplies Ltd Location: Souter Head Rd, Altens Ind Est, Aberdeen, Aberdeenshire, AB12 3LF Classification: Cleaning Materials & Equipment Status: Inactive Positional Accuracy: Manually positioned to the road within the address or location</p>	A7NE (SW)	752	-	395238 802092
175	<p>Contemporary Trade Directory Entries</p> <p>Name: Axiom N D T Location: Unit 3, Burbank Business Centre, Souter Head Road, Altens Industrial Estate, Aberdeen, AB12 3LF Classification: Industrial Engineers Status: Inactive Positional Accuracy: Manually positioned within the geographical locality</p>	A7NE (SW)	767	-	395248 802053
176	<p>Contemporary Trade Directory Entries</p> <p>Name: Weatherford Completion Systems Location: Souter Head Road, Altens Industrial Estate, Aberdeen, AB12 3LF Classification: Oil & Gas Exploration Supplies & Services Status: Inactive Positional Accuracy: Automatically positioned to the address</p>	A7NE (SW)	727	-	395230 802148
177	<p>Contemporary Trade Directory Entries</p> <p>Name: S D Pints Location: Mini Unit 9, Souter Head Rd, Altens Ind Est, Aberdeen, Aberdeenshire, AB12 3LF Classification: Window Film Products Status: Inactive Positional Accuracy: Manually positioned to the road within the address or location</p>	A7NE (SW)	728	-	395371 801980
177	<p>Contemporary Trade Directory Entries</p> <p>Name: Harran Ltd Location: Harran Base, Souter Head Road, Altens Industrial Estate, Aberdeen, AB12 3LF Classification: Oil Fuel Distributors Status: Inactive Positional Accuracy: Automatically positioned to the address</p>	A7SE (SW)	761	-	395369 801939
177	<p>Contemporary Trade Directory Entries</p> <p>Name: Sunlight Service Group Location: Souter Head Road, Altens Industrial Estate, Aberdeen, AB12 3LF Classification: Laundries & Launderettes Status: Inactive Positional Accuracy: Automatically positioned to the address</p>	A7SE (SW)	761	-	395369 801939
178	<p>Contemporary Trade Directory Entries</p> <p>Name: Rowan Drilling Uk Ltd Location: Rowan House, Peterseat Drive, Altens Industrial Estate, Aberdeen, AB12 3HT Classification: Drilling & Boring Equipment & Supplies Status: Inactive Positional Accuracy: Automatically positioned to the address</p>	A18NW (N)	744	-	395855 803459
178	<p>Contemporary Trade Directory Entries</p> <p>Name: Rowan Drilling (Uk) Ltd Location: Rowan House, Peterseat Drive, Altens Industrial Estate, Aberdeen, Aberdeenshire, AB12 3HT Classification: Oil & Gas Extraction Status: Inactive Positional Accuracy: Automatically positioned to the address</p>	A18NW (N)	744	-	395856 803460

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
179	Contemporary Trade Directory Entries Name: Frank'S International Ltd Location: Hareness Circle, Altens Industrial Estate, ABERDEEN, AB12 3LY Classification: Oil & Gas Exploration Supplies & Services Status: Active Positional Accuracy: Automatically positioned to the address	A12SW (W)	775	-	395057 802480
180	Contemporary Trade Directory Entries Name: A J T Engineering Location: 8 Souter Head Road, Altens Industrial Estate, Aberdeen, Aberdeenshire, AB12 3LF Classification: Tool Design, Manufacturers & Makers Status: Active Positional Accuracy: Automatically positioned to the address	A7NE (SW)	792	-	395289 801969
180	Contemporary Trade Directory Entries Name: Souter Head Garage Location: UNIT 2, BLOCK 2, SOUTER HEAD ROAD, ALTENS INDUSTRIAL ESTATE, ABERDEEN, AB12 3LF Classification: Garage Services Status: Active Positional Accuracy: Automatically positioned to the address	A7SE (SW)	811	-	395310 801923
180	Contemporary Trade Directory Entries Name: Harding Marine Services Location: Unit 3, Block 2, Souter Head Road, Altens Industrial Estate, Aberdeen, AB12 3LF Classification: Chandlers Status: Inactive Positional Accuracy: Automatically positioned to the address	A7SE (SW)	815	-	395302 801925
180	Contemporary Trade Directory Entries Name: Lokring Northern Uk Location: Unit 5, Block 2, Souter Head Road, Altens Industrial Estate, Aberdeen, AB12 3LF Classification: Distribution Services Status: Active Positional Accuracy: Automatically positioned to the address	A7SE (SW)	820	-	395289 801931
180	Contemporary Trade Directory Entries Name: Beldam Burgmann Location: Unit 7/8, Souter Head Industrial Centre, Souter Head Road, Altens Industrial Estate, Aberdeen, Aberdeenshire, AB12 3LF Classification: Industrial Engineers Status: Inactive Positional Accuracy: Automatically positioned to the address	A7SE (SW)	827	-	395274 801936
180	Contemporary Trade Directory Entries Name: Univar Ltd Location: Unit 7,Souter Head Rd, Altens Ind Est, Aberdeen, Aberdeenshire, AB12 3LF Classification: Chemicals - Distributors & Wholesalers Status: Inactive Positional Accuracy: Manually positioned to the address or location	A7SE (SW)	828	-	395273 801935
181	Contemporary Trade Directory Entries Name: C I E Well Control Ltd Location: Crawpeel rd, Altens Industrial Estate, Aberdeen, Aberdeenshire, AB12 3LG Classification: Oil & Gas Exploration Supplies & Services Status: Inactive Positional Accuracy: Manually positioned within the geographical locality	A12SW (W)	810	-	395016 802578
181	Contemporary Trade Directory Entries Name: Tidy Green Clean Location: Norsesea House, Crawpeel Road, Altens Industrial Estate, Aberdeen, Aberdeenshire, AB12 3LG Classification: Commercial Cleaning Services Status: Active Positional Accuracy: Manually positioned to the road within the address or location	A12SW (W)	854	-	394972 802582
182	Contemporary Trade Directory Entries Name: Weatherford Location: Souter Head Road, Altens Industrial Estate, Aberdeen, AB12 3LF Classification: Oil & Gas Exploration Supplies & Services Status: Inactive Positional Accuracy: Automatically positioned to the address	A7NW (SW)	815	-	395188 802052
182	Contemporary Trade Directory Entries Name: Gordon Engineering Location: Unit 7 Commerce Centre,Souter Head Road, Altens Industrial Estate, Aberdeen, Aberdeenshire, AB12 3LF Classification: Aviation Engineers Status: Active Positional Accuracy: Manually positioned within the geographical locality	A7NW (SW)	816	-	395188 802052

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
182	<p>Contemporary Trade Directory Entries</p> <p>Name: Mid European Supply Ltd Location: Orwell House, Souter Head Road, Altens Industrial Estate, Aberdeen, Aberdeenshire, AB12 3LF Classification: Oil & Gas Exploration Supplies & Services Status: Inactive Positional Accuracy: Manually positioned to the address or location</p>	A7NW (SW)	816	-	395188 802052
182	<p>Contemporary Trade Directory Entries</p> <p>Name: Fishing Services Ltd Location: Orwell House, Souter Head Road, Altens Industrial Estate, Aberdeen, Aberdeenshire, AB12 3LF Classification: Oil & Gas Exploration Supplies & Services Status: Inactive Positional Accuracy: Manually positioned to the address or location</p>	A7NW (SW)	816	-	395188 802052
182	<p>Contemporary Trade Directory Entries</p> <p>Name: Weatherford Location: Orwell House, Souter Head Road, Altens Industrial Estate, Aberdeen, AB12 3LF Classification: Oil & Gas Exploration Supplies & Services Status: Inactive Positional Accuracy: Automatically positioned to the address</p>	A7NW (SW)	816	-	395188 802052
183	<p>Contemporary Trade Directory Entries</p> <p>Name: Maersk Contractors Location: Crawpeel Road, Altens Industrial Estate, Aberdeen, Aberdeenshire, AB12 3LG Classification: Oil & Gas Exploration Supplies & Services Status: Inactive Positional Accuracy: Automatically positioned to the address</p>	A12SW (W)	816	-	395056 802300
183	<p>Contemporary Trade Directory Entries</p> <p>Name: Maersk Oil Location: Maersk House, Crawpeel Road, Altens Industrial Estate, Aberdeen, AB12 3LG Classification: Oil Companies Status: Inactive Positional Accuracy: Automatically positioned to the address</p>	A12SW (W)	816	-	395056 802300
183	<p>Contemporary Trade Directory Entries</p> <p>Name: Nippon Gases Location: CRAWPEEL HOUSE, CRAWPEEL ROAD, ABERDEEN, AB12 3LG Classification: Gas - Industrial & Medical Suppliers Status: Active Positional Accuracy: Automatically positioned to the address</p>	A12SW (W)	816	-	395056 802300
183	<p>Contemporary Trade Directory Entries</p> <p>Name: Total E N P North Sea Uk Ltd Location: Crawpeel House, Crawpeel Road, Altens Industrial Estate, Aberdeen, AB12 3LG Classification: Oil Companies Status: Active Positional Accuracy: Automatically positioned to the address</p>	A12SW (W)	818	-	395058 802289
183	<p>Contemporary Trade Directory Entries</p> <p>Name: Colin Lawson Transport Location: Crawpeel Road, Altens Industrial Estate, Aberdeen, Aberdeenshire, AB12 3LG Classification: Road Haulage Services Status: Active Positional Accuracy: Manually positioned within the geographical locality</p>	A12SW (W)	818	-	395058 802289
184	<p>Contemporary Trade Directory Entries</p> <p>Name: Swire Pacific Offshore North Sea Ltd Location: Swire House, Souter Head Road, Altens Industrial Estate, Aberdeen, AB12 3LF Classification: Chandlers Status: Inactive Positional Accuracy: Automatically positioned to the address</p>	A7NW (SW)	856	-	395103 802110
185	<p>Contemporary Trade Directory Entries</p> <p>Name: Tendeka Location: Peterseat Drive, Altens Industrial Estate, Aberdeen, AB12 3HT Classification: Oil & Gas Exploration Supplies & Services Status: Inactive Positional Accuracy: Automatically positioned to the address</p>	A18NE (N)	883	-	395928 803600
185	<p>Contemporary Trade Directory Entries</p> <p>Name: Ross Off Shore Location: 12b, Peterseat Drive, Altens Industrial Estate, Aberdeen, AB12 3HT Classification: Heat Exchangers Status: Inactive Positional Accuracy: Automatically positioned to the address</p>	A18NE (N)	892	-	395900 803609

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
185	<p>Contemporary Trade Directory Entries</p> <p>Name: Glacier Energy Services Location: 12b, Peterseat Drive, Altens Industrial Estate, Aberdeen, AB12 3HT Classification: Heat Exchangers Status: Inactive Positional Accuracy: Automatically positioned to the address</p>	A18NE (N)	892	-	395900 803609
185	<p>Contemporary Trade Directory Entries</p> <p>Name: Ross Off Shore Location: 12b, Peterseat Drive, Altens Industrial Estate, Aberdeen, AB12 3HT Classification: Heat Exchangers Status: Inactive Positional Accuracy: Automatically positioned to the address</p>	A18NE (N)	892	-	395900 803609
186	<p>Contemporary Trade Directory Entries</p> <p>Name: John R Weir Ltd Location: Hareness Road, Altens Industrial Estate, Aberdeen, AB12 3LE Classification: Commercial Vehicle Dealers Status: Inactive Positional Accuracy: Automatically positioned to the address</p>	A12NW (W)	887	-	394973 802813
187	<p>Contemporary Trade Directory Entries</p> <p>Name: Macgregor Location: 11b, Peterseat Drive, Altens Industrial Estate, Aberdeen, AB12 3HT Classification: Crane Manufacturers Status: Active Positional Accuracy: Automatically positioned to the address</p>	A18NE (N)	906	-	395968 803620
187	<p>Contemporary Trade Directory Entries</p> <p>Name: Wartsila Uk Ltd Location: Peterseat Drive, Altens Industrial Estate, Aberdeen, AB12 3HT Classification: Marine Equipment & Supplies Status: Active Positional Accuracy: Automatically positioned to the address</p>	A18NE (N)	911	-	395995 803623
187	<p>Contemporary Trade Directory Entries</p> <p>Name: Apex Industrial Chemicals Ltd Location: Peterseat Drive, Altens Industrial Estate, Aberdeen, AB12 3HT Classification: Chemical Manufacturers Status: Inactive Positional Accuracy: Automatically positioned to the address</p>	A18NE (N)	913	-	396024 803621
188	<p>Contemporary Trade Directory Entries</p> <p>Name: National Oilwell Varco Portable Power Location: Peterseat Drive, Altens Industrial Estate, Aberdeen, AB12 3HT Classification: Generators - Sales & Service Status: Inactive Positional Accuracy: Automatically positioned to the address</p>	A18NE (N)	938	-	396107 803631
188	<p>Contemporary Trade Directory Entries</p> <p>Name: Aalco Aberdeen Location: Peterseat Drive, Altens Industrial Estate, Aberdeen, AB12 3HT Classification: Alloys Status: Active Positional Accuracy: Automatically positioned to the address</p>	A23SE (N)	946	-	396061 803649
189	<p>Contemporary Trade Directory Entries</p> <p>Name: Ocean Kinetics Ltd Location: Unit 3 Commerce Centre, Souter Head Road, Altens Industrial Estate, Aberdeen, Aberdeenshire, AB12 3LF Classification: Marine Engineering Equipment Manufacturers Status: Active Positional Accuracy: Manually positioned to the address or location</p>	A7NW (SW)	948	-	395011 802084
189	<p>Contemporary Trade Directory Entries</p> <p>Name: S M H Ltd Location: Commerce Centre, Souter Head Rd, Altens, Aberdeen, Aberdeenshire, AB12 3LF Classification: Fork Lift Trucks Status: Inactive Positional Accuracy: Manually positioned to the address or location</p>	A7NW (SW)	948	-	395011 802084
189	<p>Contemporary Trade Directory Entries</p> <p>Name: Morrison Materials Handling Ltd Location: Unit 3, Commerce Centre, Souter Head Road, Altens Industrial Estate, Aberdeen, Aberdeenshire, AB12 3LF Classification: Fork Lift Trucks Status: Inactive Positional Accuracy: Manually positioned to the address or location</p>	A7NW (SW)	948	-	395011 802085

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
189	<p>Contemporary Trade Directory Entries</p> <p>Name: Punctureguard Location: Unit 4, Souter Head Road, Altens Industrial Estate, Aberdeen, AB12 3LF Classification: Tyre Repairs & Retreading Status: Inactive Positional Accuracy: Automatically positioned to the address</p>	A7NW (SW)	970	-	394993 802073
190	<p>Contemporary Trade Directory Entries</p> <p>Name: Ainscough Crane Hire Location: UNIT 14, ALTENS LORRY PARK, HARENESS ROAD, ALTENS INDUSTRIAL ESTATE, ABERDEEN, AB12 3LE Classification: Crane Hire, Sales & Service Status: Active Positional Accuracy: Automatically positioned to the address</p>	A12NW (W)	950	-	394884 802690
191	<p>Contemporary Trade Directory Entries</p> <p>Name: Tyre Services Aberdeen Location: Unit 7-9, Altens Lorry Park, Hareness Road, Altens Industrial Estate, Aberdeen, AB12 3LE Classification: Tyre Dealers Status: Active Positional Accuracy: Automatically positioned to the address</p>	A12NW (W)	958	-	394887 802758
192	<p>Contemporary Trade Directory Entries</p> <p>Name: Bin Cleaned Location: Crawpeel Road, Altens Industrial Estate, Aberdeen, Aberdeenshire, AB12 3LG Classification: Hygiene & Cleansing Services Status: Active Positional Accuracy: Manually positioned within the geographical locality</p>	A11SE (W)	960	-	394871 802476
193	<p>Contemporary Trade Directory Entries</p> <p>Name: Window Supply Co Ltd Location: Unit 1, Burnbank Business Centre, Souter Head Road, Altens Industrial Estate, Aberdeen, AB12 3LF Classification: Window Frame Manufacturers Status: Inactive Positional Accuracy: Automatically positioned to the address</p>	A7NW (SW)	966	-	394972 802118
193	<p>Contemporary Trade Directory Entries</p> <p>Name: Total Reclaim Solutions Ltd Location: Unit 2, Burnbank Business Centre, Souter Head Road, Altens Industrial Estate, Aberdeen, AB12 3LF Classification: Oil Companies Status: Active Positional Accuracy: Automatically positioned to the address</p>	A7NW (SW)	978	-	394956 802123
194	<p>Contemporary Trade Directory Entries</p> <p>Name: Drillgear Location: Altens Ind Est, Hareness Rd, Altens Ind Est, Aberdeen, Aberdeenshire, AB12 3LE Classification: Drilling & Boring Equipment & Supplies Status: Inactive Positional Accuracy: Manually positioned to the road within the address or location</p>	A12NW (W)	972	-	394908 802886
195	<p>Fuel Station Entries</p> <p>Name: Altens Lorry Park Hgv Location: Hareness Road, Altens Industrial Estate, Aberdeen, Aberdeen City, AB12 3LE Brand: UNBRANDED Premises Type: Petrol Station Status: Non-Retail Positional Accuracy: Manually positioned within the geographical locality</p>	A11NE (W)	988	-	394859 802770
196	<p>Points of Interest - Commercial Services</p> <p>Name: Peterson S B S Ltd Location: Unit 1a, Minto Drive, Altens Industrial Estate, Aberdeen, AB12 3LW Category: Transport, Storage and Delivery Class Code: Distribution and Haulage Positional Accuracy: Positioned to address or location</p>	A13NW (N)	46	10	395861 802742
196	<p>Points of Interest - Commercial Services</p> <p>Name: K & L Ross Location: Minto Drive, Altens Industrial Estate, Aberdeen, AB12 3LW Category: Transport, Storage and Delivery Class Code: Distribution and Haulage Positional Accuracy: Positioned to address or location</p>	A13NE (N)	72	10	395934 802780
197	<p>Points of Interest - Commercial Services</p> <p>Name: John Lawrie Group Aberdeen Location: Hareness Road, Altens Industrial Estate, Aberdeen, AB12 3LE Category: Recycling Services Class Code: Scrap Metal Merchants Positional Accuracy: Positioned to address or location</p>	A13NW (W)	57	10	395797 802638

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
198	<p>Points of Interest - Commercial Services</p> <p>Name: Central Garage Location: Derek Smith House, Hareness Road, Aberdeen, AB12 3LE Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location</p>	A13NE (NE)	120	10	396072 802737
199	<p>Points of Interest - Commercial Services</p> <p>Name: Northwards Ltd Location: Blackness Road, Aberdeen, AB12 3LH Category: Transport, Storage and Delivery Class Code: Distribution and Haulage Positional Accuracy: Positioned to address or location</p>	A13SW (SW)	219	10	395668 802407
199	<p>Points of Interest - Commercial Services</p> <p>Name: Freeland Freight Services Ltd Location: Blackness Road, Altens Industrial Estate, Aberdeen, AB12 3LH Category: Transport, Storage and Delivery Class Code: Distribution and Haulage Positional Accuracy: Positioned to address or location</p>	A13SW (SW)	265	10	395682 802323
199	<p>Points of Interest - Commercial Services</p> <p>Name: Freeland Freight Services Ltd Location: Blackness Road, Aberdeen, AB12 3LH Category: Transport, Storage and Delivery Class Code: Distribution and Haulage Positional Accuracy: Positioned to address or location</p>	A13SW (SW)	270	10	395680 802318
200	<p>Points of Interest - Commercial Services</p> <p>Name: Grampian Continental Location: Blacklaws House, Minto Drive, Altens Industrial Estate, Aberdeen, AB12 3LW Category: Transport, Storage and Delivery Class Code: Distribution and Haulage Positional Accuracy: Positioned to address or location</p>	A13NW (NW)	233	10	395731 802878
201	<p>Points of Interest - Commercial Services</p> <p>Name: Beckett Logistics Management Location: Unit 3 Bourtree Technology Park, Minto Drive, Aberdeen, AB12 3LW Category: Transport, Storage and Delivery Class Code: Distribution and Haulage Positional Accuracy: Positioned to address or location</p>	A13NW (NW)	323	10	395582 802804
202	<p>Points of Interest - Commercial Services</p> <p>Name: The Lubricant Company Location: Highland Fuels Ltd, Minto Avenue, Aberdeen, AB12 3JZ Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location</p>	A18SW (N)	334	10	395872 803050
203	<p>Points of Interest - Commercial Services</p> <p>Name: Taylors Industrial Services Location: Hareness Circle, Aberdeen, AB12 3LY Category: Recycling Services Class Code: Recycling, Reclamation and Disposal Positional Accuracy: Positioned to address or location</p>	A12SE (W)	344	10	395483 802558
203	<p>Points of Interest - Commercial Services</p> <p>Name: TNT Express Location: Unit 9, Hareness Circle, Altens Industrial Estate, Aberdeen, AB12 3LY Category: Transport, Storage and Delivery Class Code: Distribution and Haulage Positional Accuracy: Positioned to address or location</p>	A12SE (W)	408	10	395420 802593
204	<p>Points of Interest - Commercial Services</p> <p>Name: Sita Location: Unit 7 Altec Centre, Minto Avenue, Altens Industrial Estate, Aberdeen, AB12 3JZ Category: Recycling Services Class Code: Recycling, Reclamation and Disposal Positional Accuracy: Positioned to address or location</p>	A13NW (NW)	391	10	395571 802928
205	<p>Points of Interest - Commercial Services</p> <p>Name: Power Utilities Location: Unit 4-6 Ocean Trade Centre, Minto Avenue, Altens Industrial Estate, Aberdeen, AB12 3JZ Category: Transport, Storage and Delivery Class Code: Distribution and Haulage Positional Accuracy: Positioned to address or location</p>	A18SW (N)	460	10	395706 803134

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
206	<p>Points of Interest - Commercial Services</p> <p>Name: Old Mill Garage Services Location: Unit 3 Electric Centre, Hareness Circle, Aberdeen, AB12 3LY Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location</p>	A12SE (W)	497	10	395330 802582
206	<p>Points of Interest - Commercial Services</p> <p>Name: Asbestos Solutions UK Location: Unit 1 Forties Industrial Centre, Hareness Circle, Aberdeen, AB12 3LY Category: Recycling Services Class Code: Recycling, Reclamation and Disposal Positional Accuracy: Positioned to address or location</p>	A12SE (W)	507	10	395320 802553
206	<p>Points of Interest - Commercial Services</p> <p>Name: L & I Eaton Location: Unit 1 Forties Industrial Centre, Hareness Circle, Aberdeen, AB12 3LY Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location</p>	A12SE (W)	507	10	395320 802553
206	<p>Points of Interest - Commercial Services</p> <p>Name: Jim Brackenridge Ltd Location: Unit 10 Hareness Park, Hareness Circle, Altens Industrial Estate, Aberdeen, AB12 3QY Category: Transport, Storage and Delivery Class Code: Distribution and Haulage Positional Accuracy: Positioned to address or location</p>	A12SE (W)	530	10	395297 802563
206	<p>Points of Interest - Commercial Services</p> <p>Name: Kamyar Sadri Location: Unit 11 Hareness Park, Hareness Circle, Altens Industrial Estate, Aberdeen, AB12 3QY Category: Transport, Storage and Delivery Class Code: Distribution and Haulage Positional Accuracy: Positioned to address or location</p>	A12SE (W)	551	10	395275 802574
207	<p>Points of Interest - Commercial Services</p> <p>Name: Seabourne Logistics Location: Unit 11 Braehead Centre, Blackness Avenue, Aberdeen, AB12 3PG Category: Transport, Storage and Delivery Class Code: Distribution and Haulage Positional Accuracy: Positioned to address or location</p>	A7NE (SW)	526	10	395485 802149
208	<p>Points of Interest - Commercial Services</p> <p>Name: Belhaven North Location: Unit C-d, Hareness Circle, Altens Industrial Estate, Aberdeen, AB12 3LY Category: Transport, Storage and Delivery Class Code: Distribution and Haulage Positional Accuracy: Positioned to address or location</p>	A12NE (W)	592	10	395259 802738
209	<p>Points of Interest - Commercial Services</p> <p>Name: O I L Engineering Ltd Location: Hareness Road, Altens Industrial Estate, Aberdeen, AB12 3LE Category: Construction Services Class Code: Metalworkers Including Blacksmiths Positional Accuracy: Positioned to address or location</p>	A12NE (W)	621	10	395264 802831
210	<p>Points of Interest - Commercial Services</p> <p>Name: Kuehne + Nagel Ltd Location: Unit 2 Hareness Park, Hareness Circle, Aberdeen, AB12 3QY Category: Transport, Storage and Delivery Class Code: Distribution and Haulage Positional Accuracy: Positioned to address or location</p>	A12SW (W)	671	10	395157 802519
210	<p>Points of Interest - Commercial Services</p> <p>Name: Laws Tyres Location: Unit 4 Altens Trade Centre, Hareness Circle, Altens Industrial Estate, Aberdeen, AB12 3LY Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location</p>	A12SW (W)	724	10	395113 802445
211	<p>Points of Interest - Commercial Services</p> <p>Name: R T H Lubbers Location: International House, Peterseat Dr, Altens Ind Est, Aberdeen, Aberdeenshire, AB12 3HT Category: Transport, Storage and Delivery Class Code: Distribution and Haulage Positional Accuracy: Positioned to address or location</p>	A18NE (N)	699	10	395999 803408

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
211	<p>Points of Interest - Commercial Services</p> <p>Name: Lubbers Logistics Location: Peterseat Drive, Aberdeen, AB12 3HT Category: Transport, Storage and Delivery Class Code: Distribution and Haulage Positional Accuracy: Positioned to address or location</p>	A18NE (N)	700	10	396000 803409
211	<p>Points of Interest - Commercial Services</p> <p>Name: Maclean International Location: Unit 3, Peterseat Drive, Aberdeen, AB12 3HT Category: Transport, Storage and Delivery Class Code: Distribution and Haulage Positional Accuracy: Positioned to address or location</p>	A18NE (N)	703	10	395961 803417
212	<p>Points of Interest - Commercial Services</p> <p>Name: Direct Vehicle Services Location: Unit 20 Altens Mini Units, Souter Head Road, Altens Industrial Estate, Aberdeen, AB12 3LF Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location</p>	A7NE (SW)	709	10	395405 801977
212	<p>Points of Interest - Commercial Services</p> <p>Name: Souter Head Garage Location: Unit 2 Altens Mini Units, Souter Head Road, Altens Industrial Estate, Aberdeen, AB12 3LF Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location</p>	A7NE (SW)	713	10	395369 802003
212	<p>Points of Interest - Commercial Services</p> <p>Name: Punctureguard Tyre Repairs Location: Unit 4 Altens Mini Units, Souter Head Road, Altens Industrial Estate, Aberdeen, AB12 3LF Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location</p>	A7NE (SW)	721	10	395367 801993
212	<p>Points of Interest - Commercial Services</p> <p>Name: Beldam Burgmann Distribution Location: Unit 6-7 Block 1 Souter Head Industrial Centre, Souter Head Road, Altens Industrial Estate, Aberdeen, AB12 3LF Category: Transport, Storage and Delivery Class Code: Distribution and Haulage Positional Accuracy: Positioned to address or location</p>	A7NE (SW)	776	10	395294 801988
213	<p>Points of Interest - Commercial Services</p> <p>Name: Colin Lawson Transport Location: Crawpeel Road, Altens Industrial Estate, Aberdeen, AB12 3LG Category: Transport, Storage and Delivery Class Code: Distribution and Haulage Positional Accuracy: Positioned to address or location</p>	A12SW (W)	751	10	395076 802601
214	<p>Points of Interest - Commercial Services</p> <p>Name: Souter Head Garage Location: Block 2 Unit 2 Souter Head Industrial Units, Souter Head Road, Aberdeen, AB12 3LF Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location</p>	A7SE (SW)	811	10	395310 801923
214	<p>Points of Interest - Commercial Services</p> <p>Name: Lokring Northern UK Location: Block 2 Unit 5 Souter Head Industrial Units, Souter Head Road, Aberdeen, AB12 3LF Category: Transport, Storage and Delivery Class Code: Distribution and Haulage Positional Accuracy: Positioned to address or location</p>	A7SE (SW)	821	10	395288 801930
215	<p>Points of Interest - Commercial Services</p> <p>Name: Fastrack Parcels Location: Unit 8 Souter Head Business Park, Souter Head Road, Altens Industrial Estate, Aberdeen, AB12 3LF Category: Transport, Storage and Delivery Class Code: Distribution and Haulage Positional Accuracy: Positioned to address or location</p>	A7NW (SW)	964	10	394956 802154
216	<p>Points of Interest - Commercial Services</p> <p>Name: Punctureguard Location: Unit 4, Souter Head Road, Altens Industrial Estate, Aberdeen, AB12 3LF Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location</p>	A7NW (SW)	970	10	394993 802073

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
217	Points of Interest - Commercial Services Name: Alrens Lorry Park Location: Hareness Road, Alrens Industrial Estate, Aberdeen, AB12 3LE Category: Transport, Storage and Delivery Class Code: Distribution and Haulage Positional Accuracy: Positioned to address or location	A11NE (W)	988	10	394859 802768
218	Points of Interest - Manufacturing and Production Name: Wind Turbine Location: AB12 Category: Industrial Features Class Code: Energy Production Positional Accuracy: Positioned to an adjacent address or location	A13NE (NE)	49	10	395996 802726
219	Points of Interest - Manufacturing and Production Name: Tank Location: AB12 Category: Industrial Features Class Code: Tanks (Generic) Positional Accuracy: Positioned to address or location	A13SW (SW)	85	10	395753 802525
219	Points of Interest - Manufacturing and Production Name: Tanks Location: AB12 Category: Industrial Features Class Code: Tanks (Generic) Positional Accuracy: Positioned to an adjacent address or location	A13SW (SW)	85	10	395753 802525
220	Points of Interest - Manufacturing and Production Name: Tank Location: AB12 Category: Industrial Features Class Code: Tanks (Generic) Positional Accuracy: Positioned to an adjacent address or location	A13NE (N)	138	10	395974 802835
220	Points of Interest - Manufacturing and Production Name: Tank Location: AB12 Category: Industrial Features Class Code: Tanks (Generic) Positional Accuracy: Positioned to an adjacent address or location	A13NE (N)	206	10	395951 802916
221	Points of Interest - Manufacturing and Production Name: Tanks Location: AB12 Category: Industrial Features Class Code: Tanks (Generic) Positional Accuracy: Positioned to an adjacent address or location	A13NW (W)	150	10	395710 802671
221	Points of Interest - Manufacturing and Production Name: Tank Location: AB12 Category: Industrial Features Class Code: Tanks (Generic) Positional Accuracy: Positioned to address or location	A13NW (W)	165	10	395695 802674
221	Points of Interest - Manufacturing and Production Name: Tanks Location: AB12 Category: Industrial Features Class Code: Tanks (Generic) Positional Accuracy: Positioned to an adjacent address or location	A13NW (W)	165	10	395695 802674
221	Points of Interest - Manufacturing and Production Name: Tanks Location: AB12 Category: Industrial Features Class Code: Tanks (Generic) Positional Accuracy: Positioned to an adjacent address or location	A13NW (NW)	211	10	395679 802748
222	Points of Interest - Manufacturing and Production Name: Tank Location: AB12 Category: Industrial Features Class Code: Tanks (Generic) Positional Accuracy: Positioned to an adjacent address or location	A13NW (NW)	381	10	395605 802959
223	Points of Interest - Manufacturing and Production Name: Tanks Location: AB12 Category: Industrial Features Class Code: Tanks (Generic) Positional Accuracy: Positioned to an adjacent address or location	A7NE (SW)	385	10	395553 802284

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
223	Points of Interest - Manufacturing and Production Name: Tank Location: AB12 Category: Industrial Features Class Code: Tanks (Generic) Positional Accuracy: Positioned to address or location	A12SE (SW)	387	10	395544 802291
223	Points of Interest - Manufacturing and Production Name: Tank Location: AB12 Category: Industrial Features Class Code: Tanks (Generic) Positional Accuracy: Positioned to address or location	A12SE (SW)	390	10	395543 802288
223	Points of Interest - Manufacturing and Production Name: Tank Location: AB12 Category: Industrial Features Class Code: Tanks (Generic) Positional Accuracy: Positioned to address or location	A12SE (SW)	393	10	395541 802286
223	Points of Interest - Manufacturing and Production Name: Tank Location: AB12 Category: Industrial Features Class Code: Tanks (Generic) Positional Accuracy: Positioned to address or location	A7NE (SW)	396	10	395539 802284
224	Points of Interest - Manufacturing and Production Name: Wind Turbine Location: AB12 Category: Industrial Features Class Code: Energy Production Positional Accuracy: Positioned to an adjacent address or location	A12NE (NW)	386	10	395524 802828
225	Points of Interest - Manufacturing and Production Name: Forties Industrial Centre Location: AB12 Category: Industrial Features Class Code: Business Parks and Industrial Estates Positional Accuracy: Positioned to an adjacent address or location	A12SE (W)	461	10	395365 802559
226	Points of Interest - Manufacturing and Production Name: B J Completion Services Location: Blackness Avenue, Altens Industrial Estate, Aberdeen, AB12 3PG Category: Extractive Industries Class Code: Oil and Gas Extraction, Refinery and Product Manufacture Positional Accuracy: Positioned to address or location	A8NW (SW)	482	10	395619 802105
226	Points of Interest - Manufacturing and Production Name: Bakers Hughes Location: Blackness Avenue, Altens Industrial Estate, Aberdeen, AB12 3PG Category: Extractive Industries Class Code: Oil and Gas Extraction, Refinery and Product Manufacture Positional Accuracy: Positioned to address or location	A8NW (SW)	483	10	395618 802105
226	Points of Interest - Manufacturing and Production Name: Tank Location: AB12 Category: Industrial Features Class Code: Tanks (Generic) Positional Accuracy: Positioned to an adjacent address or location	A8NW (SW)	567	10	395557 802043
227	Points of Interest - Manufacturing and Production Name: Industrial Estate Location: AB12 Category: Industrial Features Class Code: Business Parks and Industrial Estates Positional Accuracy: Positioned to an adjacent address or location	A18SW (N)	485	10	395859 803200
228	Points of Interest - Manufacturing and Production Name: Altens Industrial Estate Location: AB12 Category: Industrial Features Class Code: Business Parks and Industrial Estates Positional Accuracy: Positioned to an adjacent address or location	A12NE (W)	567	10	395268 802665
229	Points of Interest - Manufacturing and Production Name: Wetherford Location: Crawpeel Road, Altens Industrial Estate, Aberdeen, AB12 3LG Category: Extractive Industries Class Code: Oil and Gas Extraction, Refinery and Product Manufacture Positional Accuracy: Positioned to address or location	A12SW (W)	716	10	395138 802372

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
229	<p>Points of Interest - Manufacturing and Production</p> <p>Name: Wetherford Wellserv Location: Crawpeel Road, Altens Industrial Estate, Aberdeen, AB12 3LG Category: Extractive Industries Class Code: Oil and Gas Extraction, Refinery and Product Manufacture Positional Accuracy: Positioned to address or location</p>	A12SW (W)	716	10	395138 802372
230	<p>Points of Interest - Manufacturing and Production</p> <p>Name: Rowan Drilling (UK) Ltd Location: Rowan House, Peterseat Drive, Altens Industrial Estate, Aberdeen, AB12 3HT Category: Extractive Industries Class Code: Oil and Gas Extraction, Refinery and Product Manufacture Positional Accuracy: Positioned to address or location</p>	A18NW (N)	744	10	395856 803460
231	<p>Points of Interest - Manufacturing and Production</p> <p>Name: Burnbank Business Units Location: AB12 Category: Industrial Features Class Code: Business Parks and Industrial Estates Positional Accuracy: Positioned to an adjacent address or location</p>	A7NW (SW)	975	10	394952 802138
232	<p>Points of Interest - Manufacturing and Production</p> <p>Name: Tank Location: AB12 Category: Industrial Features Class Code: Tanks (Generic) Positional Accuracy: Positioned to an adjacent address or location</p>	A11NE (W)	977	10	394869 802764
233	<p>Points of Interest - Public Infrastructure</p> <p>Name: Central Taxis Aberdeen Ltd Location: Hareness Road, Altens Industrial Estate, Aberdeen, AB12 3LE Category: Public Transport, Stations and Infrastructure Class Code: Bus and Coach Stations, Depots and Companies Positional Accuracy: Positioned to address or location</p>	A13NE (NE)	124	10	396075 802740
234	<p>Points of Interest - Public Infrastructure</p> <p>Name: Step Oil Tools Ltd Location: Unit 3 Blackness Industrial Centre, Blackness Road, Aberdeen, AB12 3LH Category: Infrastructure and Facilities Class Code: Waste Storage, Processing and Disposal Positional Accuracy: Positioned to address or location</p>	A13SW (SW)	362	10	395561 802311
235	<p>Points of Interest - Public Infrastructure</p> <p>Name: Waste Processing Facility Location: AB12 Category: Infrastructure and Facilities Class Code: Waste Storage, Processing and Disposal Positional Accuracy: Positioned to an adjacent address or location</p>	A19SW (NE)	624	10	396305 803212
236	<p>Points of Interest - Recreational and Environmental</p> <p>Name: Play Area Location: AB12 Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to an adjacent address or location</p>	A7SE (SW)	901	10	395317 801802
237	<p>Points of Interest - Recreational and Environmental</p> <p>Name: Play Area Location: Not Supplied Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to an adjacent address or location</p>	A7SW (SW)	951	10	395122 801917
237	<p>Points of Interest - Recreational and Environmental</p> <p>Name: Play Area Location: Nr Usan Ness, AB12 Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to an adjacent address or location</p>	A7SW (SW)	951	10	395122 801917

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
238	<p>Areas of Adopted Green Belt</p> <p>Authority: Aberdeen City Council Plan Name: Aberdeen City Local Development Plan - 2016 Status: Adopted Plan Date: 20th January 2017</p>	A13SE (SE)	121	6	396026 802555

Agency & Hydrological	Version	Update Cycle
Contaminated Land Register Entries and Notices Aberdeenshire Council Scottish Environment Protection Agency - Head Office Aberdeen City Council	December 2019 November 2023 September 2017	Annual Rolling Update Annually Annual Rolling Update
Discharge Consents Scottish Environment Protection Agency - North Region	April 2002	
Enforcement and Prohibition Notices Scottish Environment Protection Agency - North Region	March 2013	
Integrated Pollution Controls Scottish Environment Protection Agency - Head Office Scottish Environment Protection Agency - North Region	February 1998 March 2002	
Local Authority Pollution Prevention and Controls Scottish Environment Protection Agency - North Region	March 2002	Not Applicable
Local Authority Pollution Prevention and Control Enforcements Scottish Environment Protection Agency - North Region	June 2001	Variable
Nearest Surface Water Feature Ordnance Survey	September 2023	
Prosecutions Relating to Authorised Processes Scottish Environment Protection Agency - North Region	March 2013	
Prosecutions Relating to Controlled Waters Scottish Environment Protection Agency - North Region	March 2013	
Registered Radioactive Substances Scottish Environment Protection Agency - East Region Scottish Environment Protection Agency - North Region Scottish Environment Protection Agency - Head Office	April 1996 February 1998 January 1998	
River Quality Scottish Environment Protection Agency - Head Office Scottish Environment Protection Agency - North Region	December 1990 December 1990	Not Applicable Not Applicable
Water Abstractions Scottish Government - Agriculture, Environment and Fisheries Department	February 2004	
Water Industry Act Referrals Scottish Environment Protection Agency - North Region	April 1996	
Groundwater Vulnerability Scottish Environment Protection Agency - North Region Scottish Environment Protection Agency - Head Office	December 1995 December 1995	Not Applicable
Drift Deposits Scottish Environment Protection Agency - Head Office Scottish Environment Protection Agency - North Region	December 1995 December 1995	Not Applicable Not Applicable
OS Water Network Lines Ordnance Survey	October 2023	Quarterly
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
Integrated Pollution Control Registered Waste Sites Scottish Environment Protection Agency - Head Office Scottish Environment Protection Agency - North Region	March 2002 March 2002	Not Applicable Not Applicable
Local Authority Landfill Coverage Aberdeen City Council Aberdeenshire Council	February 2003 February 2003	Not Applicable Not Applicable
Local Authority Recorded Landfill Sites Aberdeen City Council Aberdeenshire Council	October 2018 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 Scottish Environment Protection Agency - Head Office Scottish Environment Protection Agency - North Region Scottish Environment Protection Agency - North Region - Aberdeen Office Scottish Environment Protection Agency - North Region - Elgin Office Scottish Environment Protection Agency - North Region - Fort William Office Scottish Environment Protection Agency - North Region - Fraserburgh Office Scottish Environment Protection Agency - North Region - Orkney Islands Office Scottish Environment Protection Agency - North Region - Shetland Islands Office Scottish Environment Protection Agency - North Region - Thurso Office Scottish Environment Protection Agency - North Region - Western Isles Office	March 2006 March 2006	Not Applicable Not Applicable Not Applicable Not Applicable Not Applicable Not Applicable Not Applicable Not Applicable Not Applicable Not Applicable
Registered Waste Transfer Sites Scottish Environment Protection Agency - Head Office Scottish Environment Protection Agency - North Region Scottish Environment Protection Agency - North Region - Aberdeen Office Scottish Environment Protection Agency - North Region - Elgin Office Scottish Environment Protection Agency - North Region - Fort William Office Scottish Environment Protection Agency - North Region - Fraserburgh Office Scottish Environment Protection Agency - North Region - Orkney Islands Office Scottish Environment Protection Agency - North Region - Shetland Islands Office Scottish Environment Protection Agency - North Region - Thurso Office Scottish Environment Protection Agency - North Region - Western Isles Office	April 2018 April 2018 April 2018 April 2018 April 2018 April 2018 April 2018 April 2018 April 2018 April 2018	
Registered Waste Treatment or Disposal Sites Scottish Environment Protection Agency - Head Office Scottish Environment Protection Agency - North Region Scottish Environment Protection Agency - North Region - Aberdeen Office Scottish Environment Protection Agency - North Region - Elgin Office Scottish Environment Protection Agency - North Region - Fort William Office Scottish Environment Protection Agency - North Region - Fraserburgh Office Scottish Environment Protection Agency - North Region - Orkney Islands Office Scottish Environment Protection Agency - North Region - Shetland Islands Office Scottish Environment Protection Agency - North Region - Thurso Office Scottish Environment Protection Agency - North Region - Western Isles Office	June 2015 June 2015 June 2015 June 2015 June 2015 June 2015 June 2015 June 2015 June 2015 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 Aberdeenshire Council - Aberdeenshire Council - Banff Area Aberdeenshire Council - Aberdeenshire Council - Buchan Area Aberdeenshire Council - Aberdeenshire Council - Formartine Area Aberdeenshire Council - Aberdeenshire Council - Garioch Area Aberdeenshire Council - Aberdeenshire Council - Kincardine and Mearns Area Aberdeenshire Council - Aberdeenshire Council - Marr Area Aberdeen City Council - Planning and City Development Services	June 2023 June 2023 June 2023 June 2023 June 2023 June 2023 May 2023	Variable Variable Variable Variable Variable Variable Variable
Planning Hazardous Substance Consents Aberdeen City Council - Planning and City Development Services Aberdeenshire Council - Aberdeenshire Council - Banff Area Aberdeenshire Council - Aberdeenshire Council - Kincardine and Mearns Area Aberdeenshire Council - Aberdeenshire Council - Buchan Area Aberdeenshire Council - Aberdeenshire Council - Formartine Area Aberdeenshire Council - Aberdeenshire Council - Garioch Area Aberdeenshire Council - Aberdeenshire Council - Marr Area	April 2016 April 2016 December 2015 February 2016 February 2016 February 2016 February 2016	Variable Variable Variable Variable Variable Variable Variable

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	October 2023	Annually
Radon Potential - Radon Protection Measures British Geological Survey - National Geoscience Information Service	October 2023	Annually
Industrial Land Use	Version	Update Cycle
Contemporary Trade Directory Entries Thomson Directories	October 2023	Quarterly
Fuel Station Entries Catalist Ltd - Experian	August 2023	Quarterly
Gas Pipelines National Grid	October 2021	Bi-Annually
Points of Interest - Commercial Services PointX	December 2023	Quarterly
Points of Interest - Education and Health PointX	December 2023	Quarterly
Points of Interest - Manufacturing and Production PointX	December 2023	Quarterly
Points of Interest - Public Infrastructure PointX	December 2023	Quarterly
Points of Interest - Recreational and Environmental PointX	December 2023	Quarterly

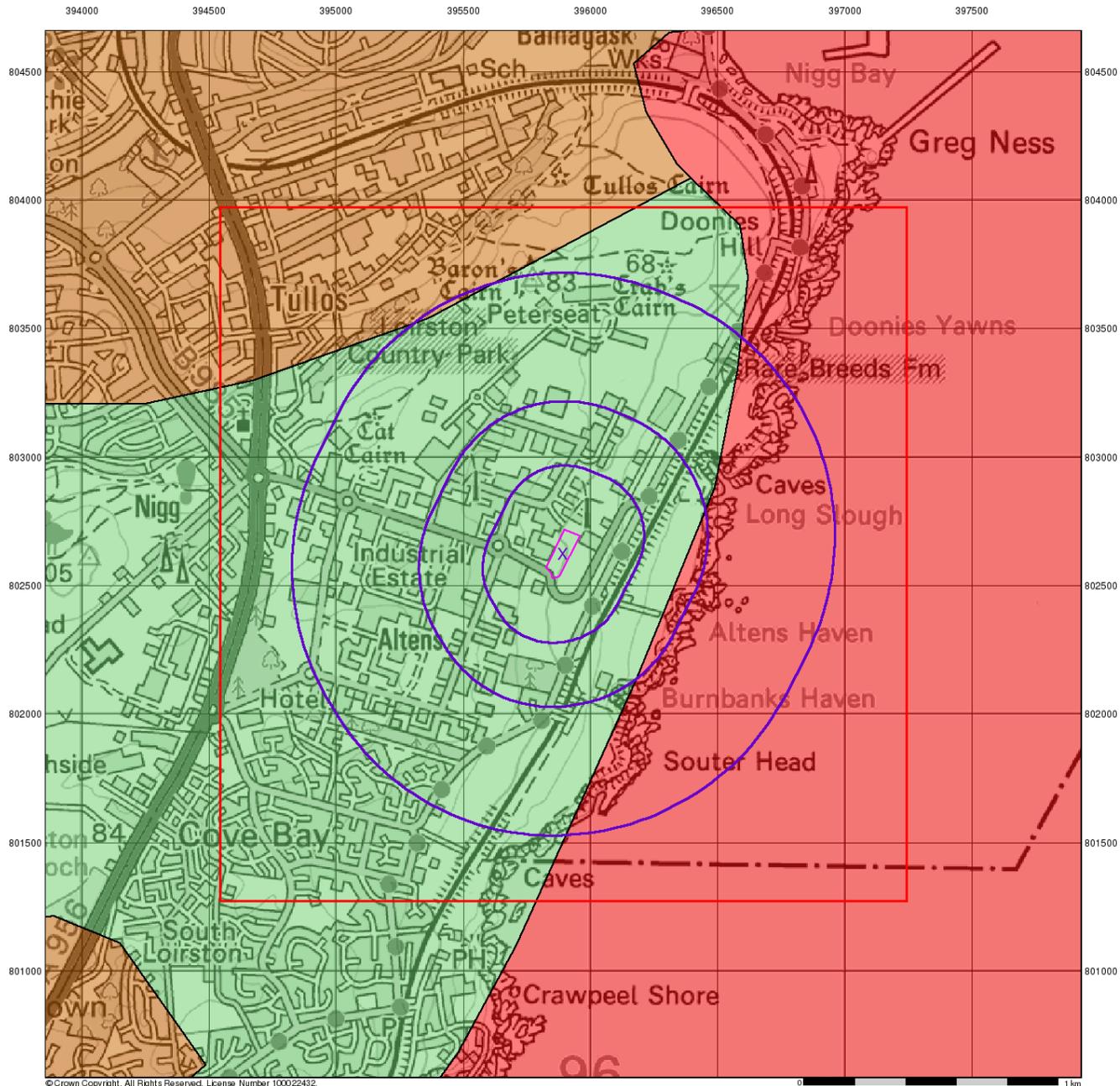
Sensitive Land Use	Version	Update Cycle
Ancient Woodland NatureScot	October 2023	Bi-Annually
Areas of Adopted Green Belt Aberdeen City Council Aberdeenshire Council	August 2023 August 2023	Quarterly Quarterly
Areas of Unadopted Green Belt Aberdeen City Council Aberdeenshire Council	August 2023 August 2023	Quarterly Quarterly
Environmentally Sensitive Areas Scottish Government	August 2023	
Forest Parks Forestry Commission	May 2023	Not Applicable
Local Nature Reserves Aberdeen City Council Aberdeenshire Council	August 2023 August 2023	Bi-Annually Bi-Annually
Marine Nature Reserves NatureScot	October 2023	Bi-Annually
National Nature Reserves NatureScot	August 2023	Bi-Annually
National Parks Scottish Government	February 2018	Bi-Annually
National Scenic Areas Scottish Government	November 2023	Bi-Annually
Nitrate Vulnerable Zones Scottish Government	March 2023	Annually
Ramsar Sites NatureScot	October 2023	Bi-Annually
Sites of Special Scientific Interest NatureScot	October 2023	Bi-Annually
Special Areas of Conservation NatureScot	April 2023	Bi-Annually
Special Protection Areas NatureScot	October 2023	Bi-Annually

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	 British Geological Survey <small>NATURAL ENVIRONMENT RESEARCH COUNCIL</small>
Centre for Ecology and Hydrology	 Centre for Ecology & Hydrology <small>NATURAL ENVIRONMENT RESEARCH COUNCIL</small>
Natural Resources Wales	
Scottish Natural Heritage	
Natural England	
Public Health England	
Ove Arup	
Stantec UK Ltd	

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	Scottish Environment Protection Agency - North Region Graesser House, Fodderty Way, Dingwall Business Park, Dingwall, Highland, IV15 9XB	Telephone: 01349 862021 Fax: 01349 863987
3	Scottish Environment Protection Agency - Head Office Erskine Court, The Castle Business Park, Stirling, Stirlingshire, FK9 4TR	Telephone: 01786 457700 Fax: 01786 446885
4	Scottish Environment Protection Agency - East Region Clearwater House, Heriot Watt Research Park, Avenue North, Riccarton, Edinburgh, Midlothian, EH14 4AP	Telephone: 0131 449 7296 Fax: 0131 449 7277
5	Ordnance Survey Adanac Drive, Southampton, Hampshire, SO16 0AS	Telephone: 03456 05 05 05 Email: customerservices@ordnancesurvey.co.uk Website: www.ordnancesurvey.gov.uk
6	Aberdeen City Council St Nicholas House, Broad Street, Aberdeen, AB10 1BW	Telephone: 01224 522000 Fax: 01224 636181 Website: www.aberdeencity.gov.uk
7	Scottish Environment Protection Agency - North Region - Aberdeen Office Greyhope House, Greyhope Road, Torry, Aberdeen, Aberdeenshire, AB1 3RD	Telephone: 01224 248338 Fax: 01224 248591
8	Health and Safety Executive 5S.2 Redgrave Court, Merton Road, Bootle, L20 7HS	Website: www.hse.gov.uk
9	Aberdeen City Council - Planning and City Development Services St Nicholas House, Broad Street, Aberdeen, AB10 1BW	Telephone: 01224 523133 Fax: 01224 636181 Email: citydev@aberdeencity.gov.uk Website: www.aberdeencity.gov.uk
10	PointX 7 Abbey Court, Eagle Way, Sowton, Exeter, Devon, EX2 7HY	Website: www.pointx.co.uk
11	NatureScot Great Glen House, Leachkin Road, Inverness, IV3 8NW	Telephone: 01463 725000 Email: enquiries@nature.scot Website: www.nature.scot
-	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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Groundwater Vulnerability

General

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

Agency and Hydrological

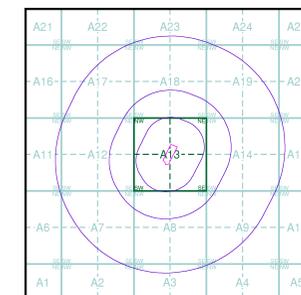
Geological Classes

- Highly Permeable
- Moderately Permeable
- Weakly Permeable
- Water or Sea
- Drift Deposit

Soil Classes

- High
- Intermediate
- Low

Site Sensitivity Context Map - Slice A



Order Details

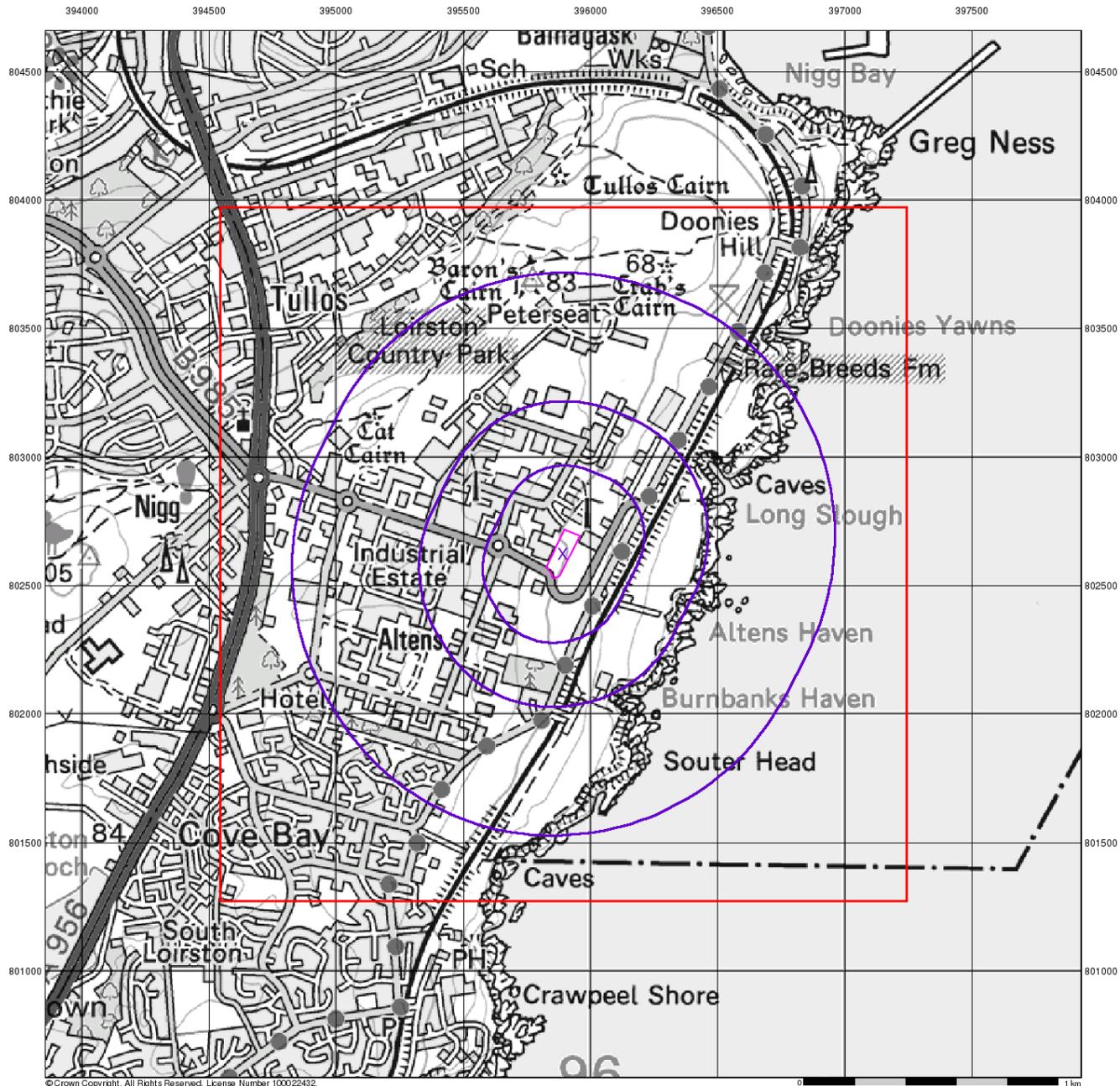
Order Number: 328169547_1_1
 Customer Ref: P23-336 AP
 National Grid Reference: 395890, 802620
 Slice: A
 Site Area (Ha): 1.16
 Search Buffer (m): 1000

Site Details

Hareness Road, ABERDEEN, AB12 3LE



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



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Source Protection Zones

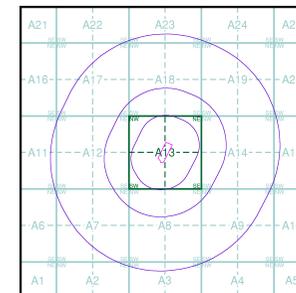
General

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

Agency and Hydrological

-  Inner zone (Zone 1)
-  Inner zone - subsurface activity only (Zone 1c)
-  Outer zone (Zone 2)
-  Outer zone - subsurface activity only (Zone 2c)
-  Total catchment (Zone 3)
-  Total catchment - subsurface activity only (Zone 3c)
-  Special interest (Zone 4)

Site Sensitivity Context Map - Slice A



Order Details

Order Number: 328169547_1_1
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Sensitive Land Uses

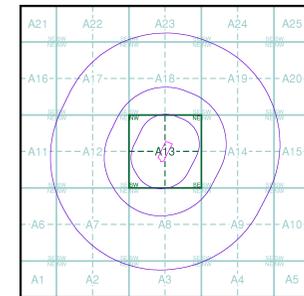
General

-  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
-  Environmentally Sensitive Area
-  Forest Park
-  Local Nature Reserve
-  Marine Nature Reserve
-  National Nature Reserve
-  National Park
-  National Scenic Area
-  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



Order Details

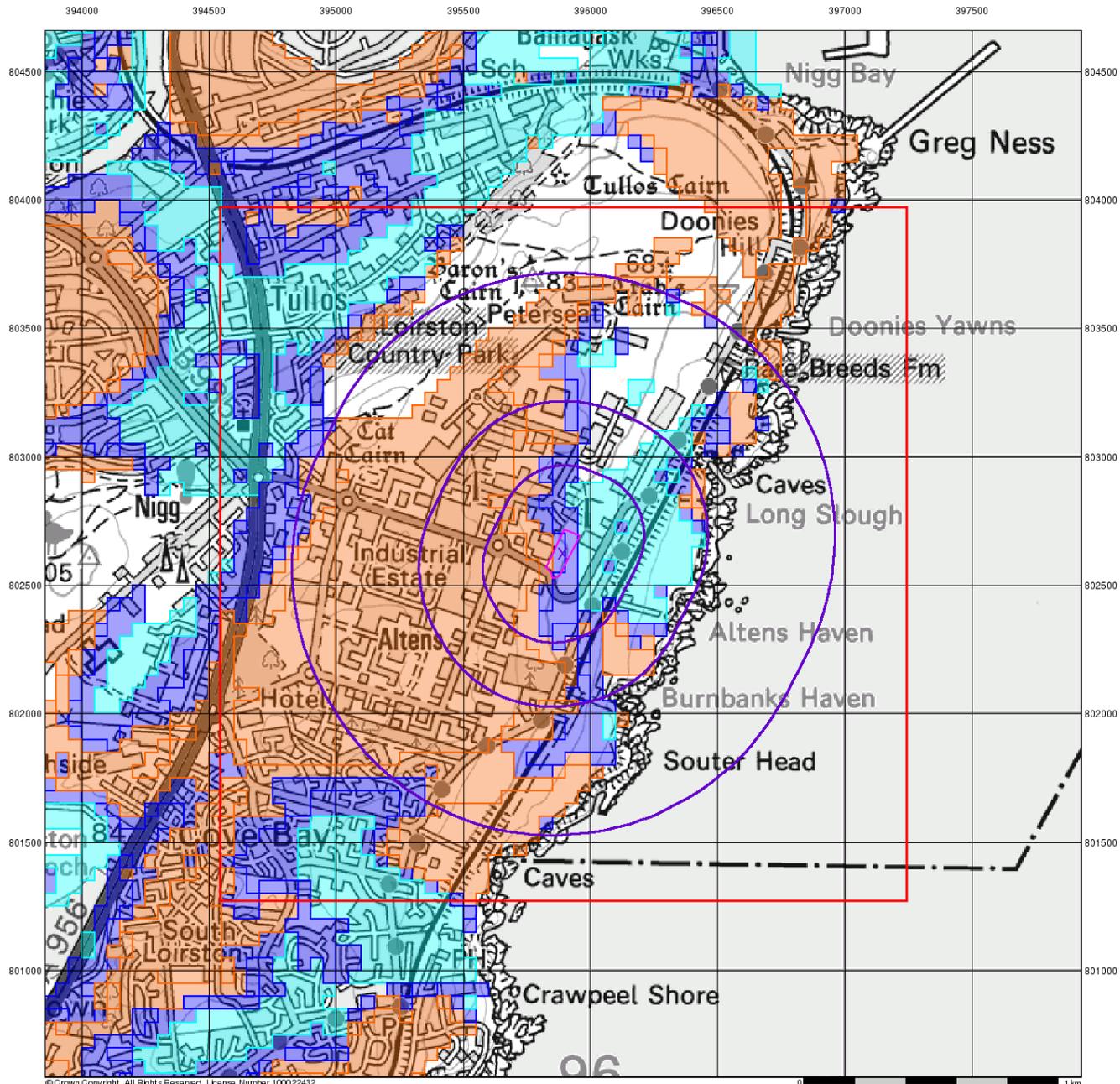
Order Number: 328169547_1_1
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BGS Flood GFS Data

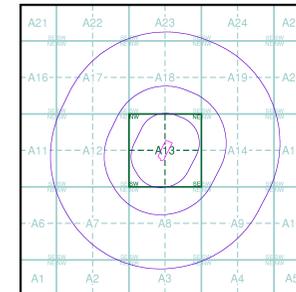
General

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

Agency and Hydrological (Flood)

- Limited Potential for Groundwater Flooding to Occur
- Potential for Groundwater Flooding of Property Situated Below Ground Level
- Potential for Groundwater Flooding to Occur at Surface

Site Sensitivity Context Map - Slice A



Order Details

Order Number: 328169547_1_1
 Customer Ref: P23-336 AP
 National Grid Reference: 395890, 802620
 Slice: A
 Site Area (Ha): 1.16
 Search Buffer (m): 1000

Site Details

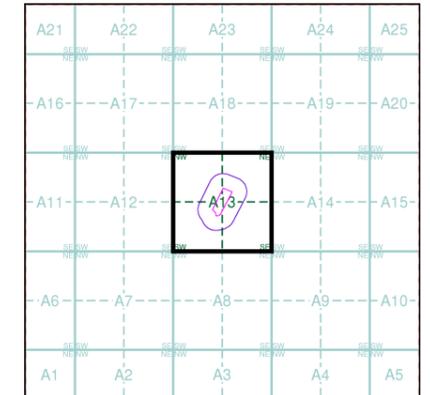
Hareness Road, ABERDEEN, AB12 3LE



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

- General**
- Specified Site
 - Specified Buffer(s)
 - Bearing Reference Point
 - Map ID
 - Severall 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 and Control
 - Local Authority Integrated 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
 - Substantiated Pollution Incident Register
 - Water Abstraction
 - Water Industry Act Referral
- Waste**
- BGS Recorded Landfill Site (Location)
 - BGS Recorded Landfill Site
 - Integrated Pollution Control Registered Waste Site
 - 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)
 - Registered Landfill Site
 - Registered Landfill Site (Point Buffered to 100m)
 - Registered Landfill Site (Point Buffered to 250m)
 - Registered Waste Transfer Site (Location)
 - Registered Waste Transfer Site
 - Registered Waste Treatment or Disposal Site (Location)
 - Registered Waste Treatment or Disposal Site
- Hazardous Substances**
- COMAH Site
 - Explosive Site
 - NIHHS Site
 - Planning Hazardous Substance Consent
 - Planning Hazardous Substance Enforcement
- Geological**
- BGS Recorded Mineral Site

Site Sensitivity Map - Segment A13

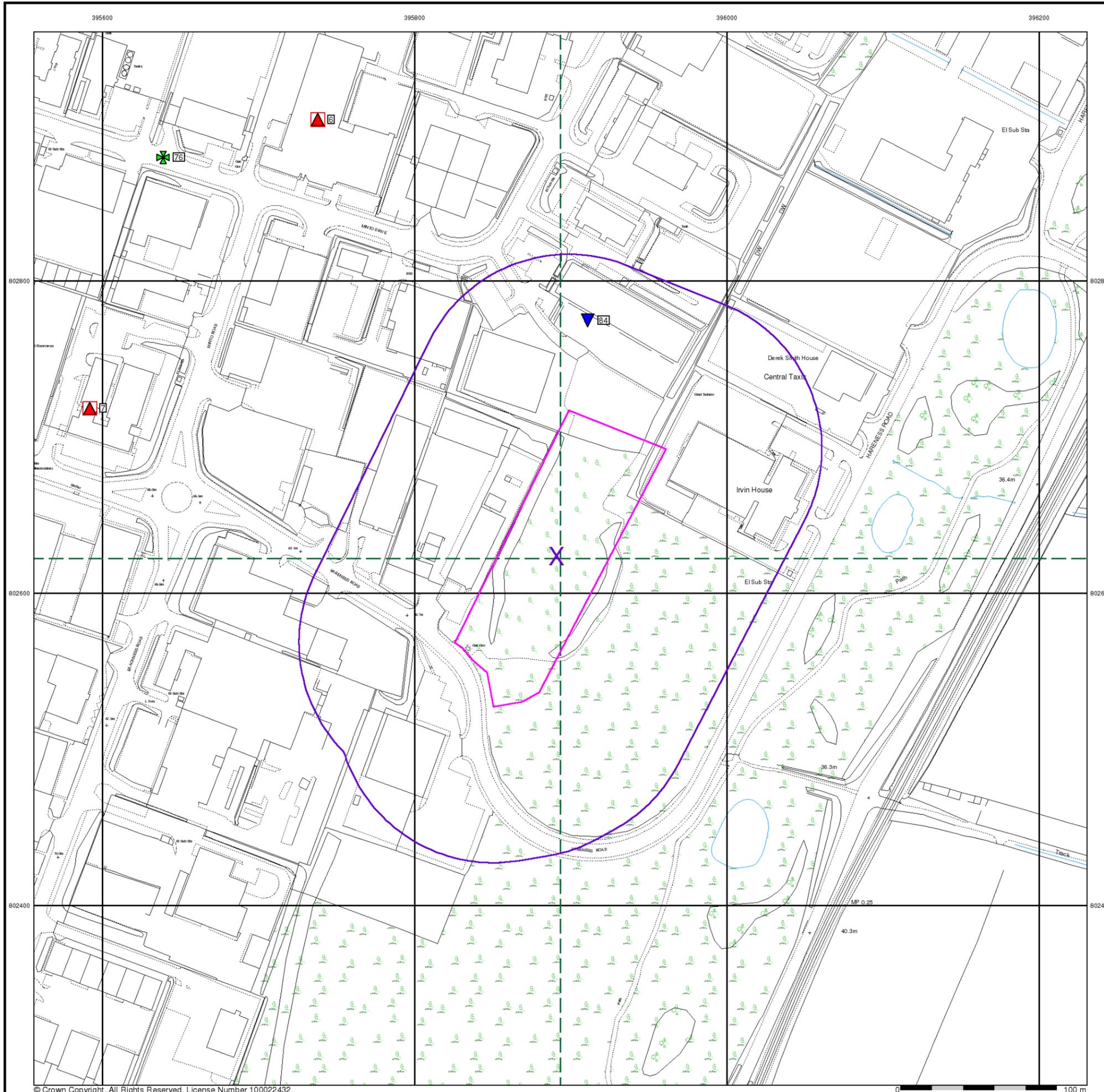


Order Details

Order Number: 328169547_1_1
 Customer Ref: P23-336 AP
 National Grid Reference: 395890, 802620
 Slice: A
 Site Area (Ha): 1.16
 Plot Buffer (m): 100

Site Details

Hareness Road, ABERDEEN, AB12 3LE



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 and Control
- Local Authority Integrated 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
- Substantiated Pollution Incident Register
- Water Abstraction
- Water Industry Act Referral

Waste

- BGS Recorded Landfill Site (Location)
- BGS Recorded Landfill Site
- Integrated Pollution Control Registered Waste Site
- Local Authority Recorded Landfill Site (Location)
- Local Authority Recorded Landfill Site
- Potentially Infilled Land (Non-water)
- Potentially Infilled Land (Non-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

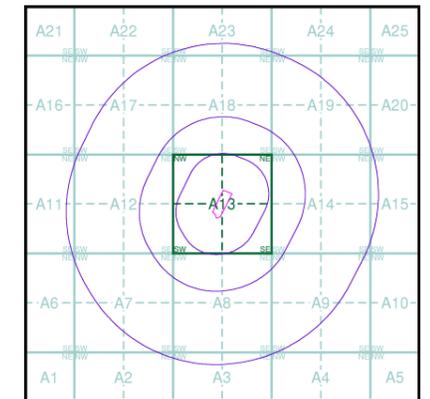
Hazardous Substances

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

Geological

- BGS Recorded Mineral Site

Site Sensitivity Map - Slice A

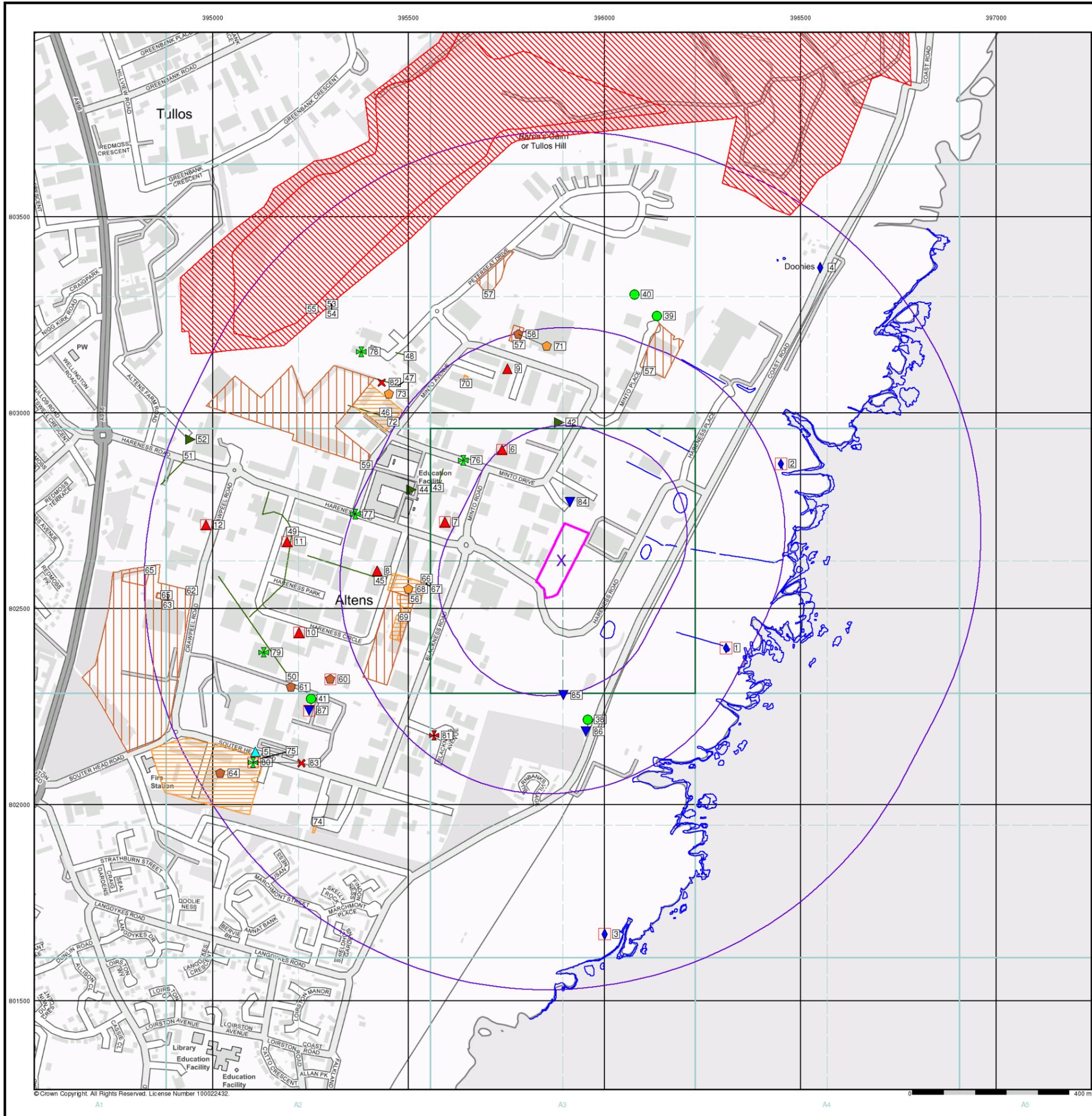


Order Details

Order Number: 328169547_1_1
 Customer Ref: P23-336 AP
 National Grid Reference: 395890, 802620
 Slice: A
 Site Area (Ha): 1.16
 Search Buffer (m): 1000

Site Details

Hareness Road, ABERDEEN, AB12 3LE



Industrial Land Use Map

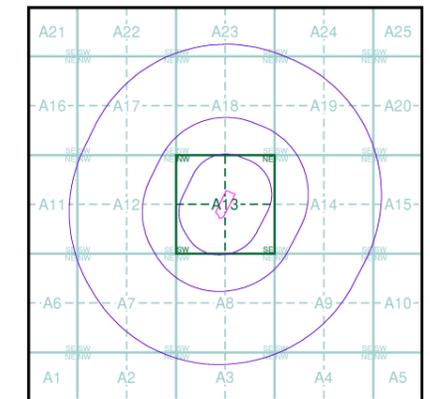
General

-  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

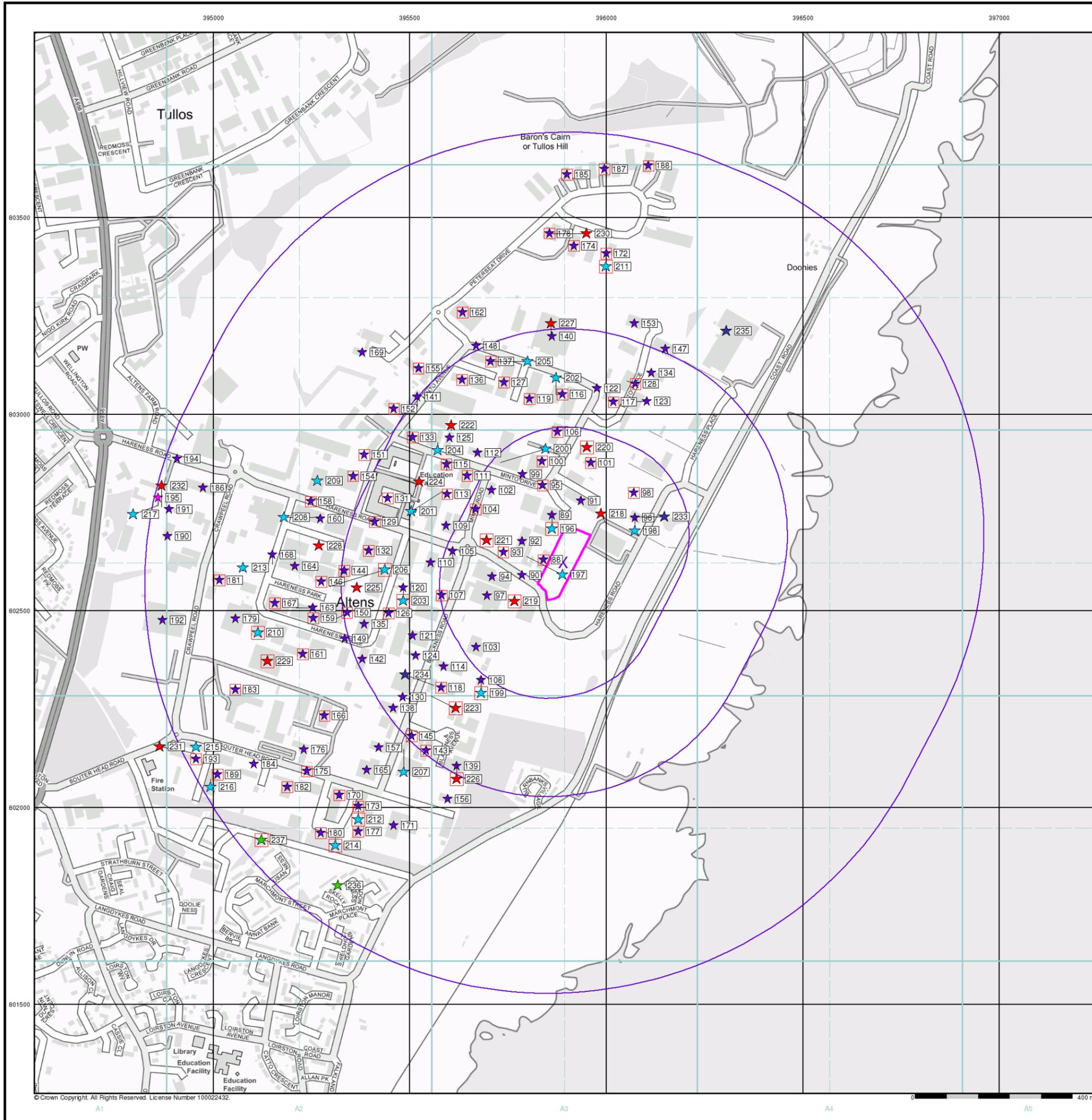


Order Details

Order Number: 328169547_1_1
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 Search Buffer (m): 1000

Site Details

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General

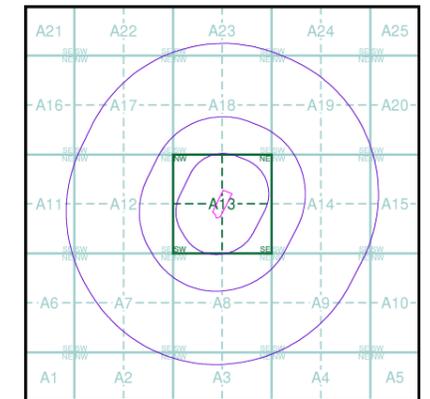
-  Specified Site
-  Specified Buffer(s)
-  Bearing Reference Point

Agency and Hydrological (Flood)

-  0 - 1m estimated 100yr flood depth
-  1 - 2m estimated 100yr flood depth
-  Over 2m estimated 100yr flood depth

The flooded areas have been generated using a generalised technique and should not, by themselves, be used to infer that specific areas are or are not at risk of inundation. Flood risk at any specific location may be influenced by local factors - not least flood defence - that have not been taken into account.

Flood Map - Slice A

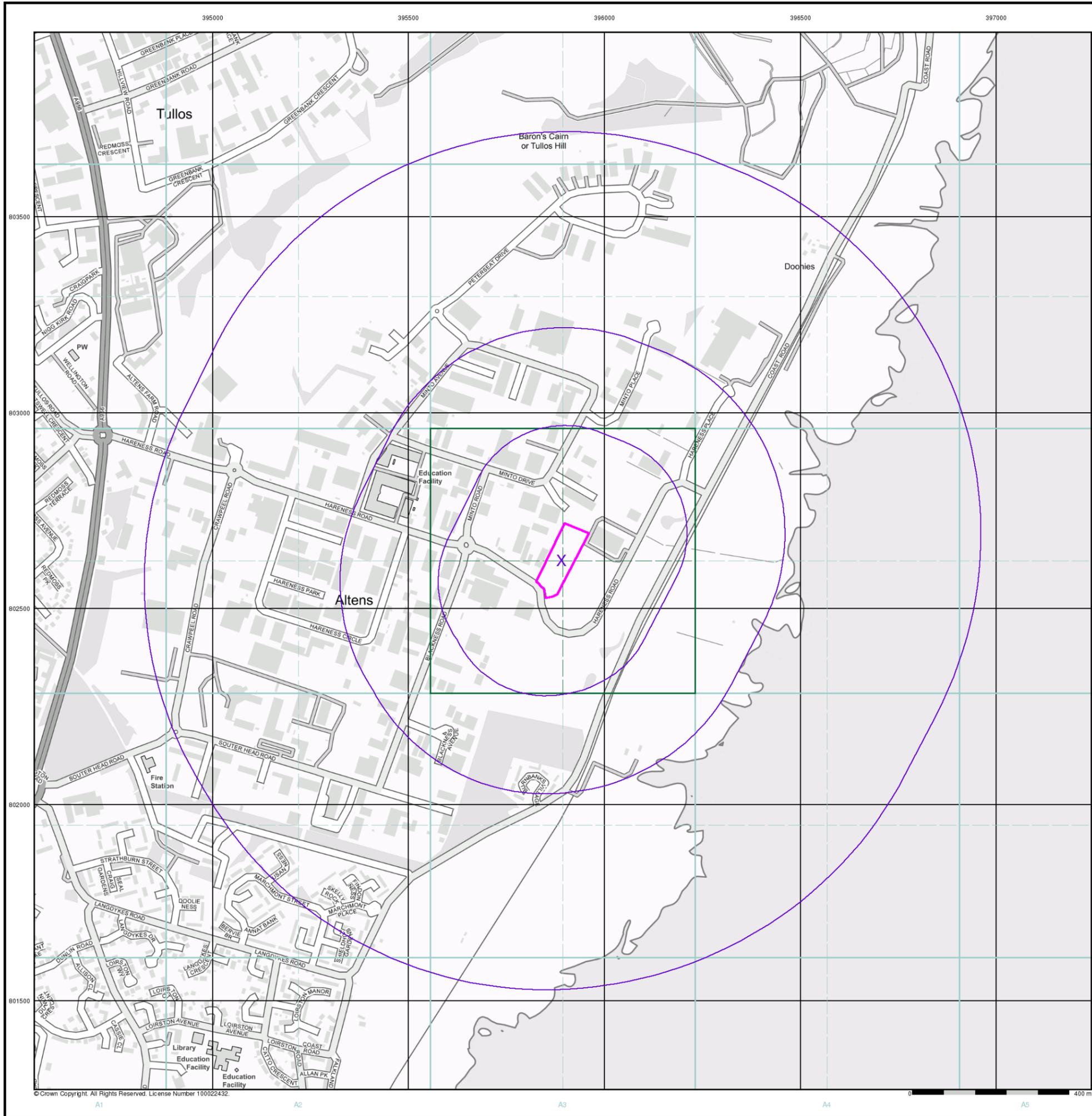


Order Details

Order Number: 328169547_1_1
 Customer Ref: P23-336 AP
 National Grid Reference: 395890, 802620
 Slice: A
 Site Area (Ha): 1.16
 Search Buffer (m): 1000

Site Details

Hareness Road, ABERDEEN, AB12 3LE



General

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

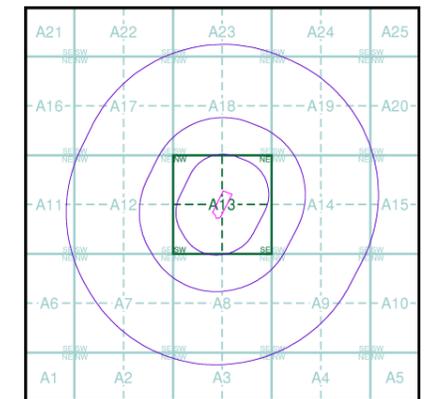
Agency and Hydrological (Boreholes)

- 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

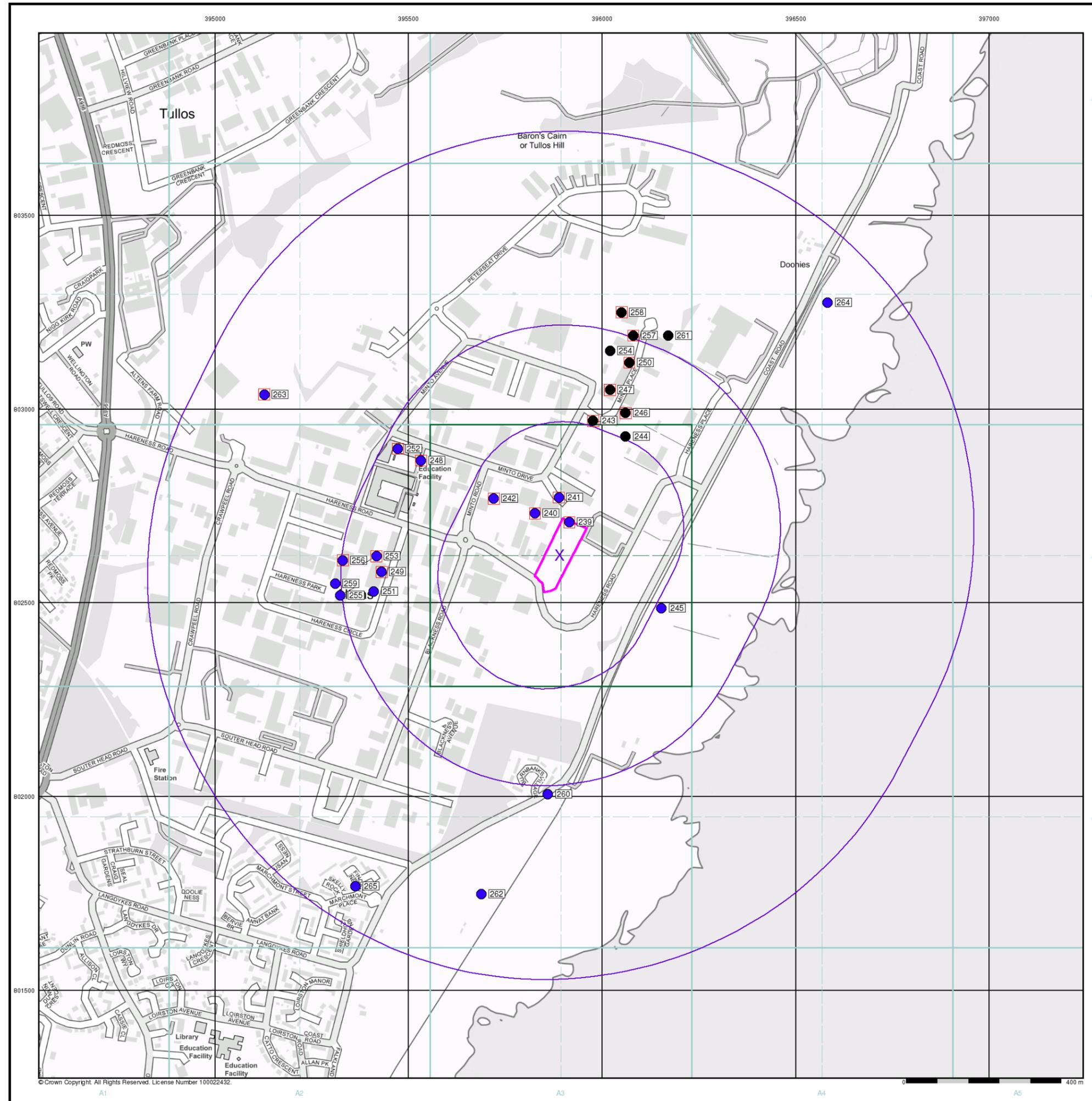


Order Details

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 Customer Ref: P23-336 AP
 National Grid Reference: 395890, 802620
 Slice: A
 Site Area (Ha): 1.16
 Search Buffer (m): 1000

Site Details

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General

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

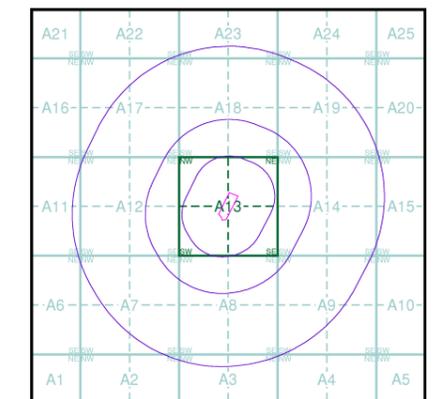
OS Water Network Data

- | | | | |
|--|--------------|--|-------------------------|
| | Canal | | Drain |
| | Reservoir | | Other |
| | Foreshore | | Lake |
| | Marsh | | Transfer |
| | Tidal River | | Lock Or Flight Of Locks |
| | Inland River | | Sea |

Contours (height in meters)

- Standard Contour 105 Mean Low Water Springs
- Master Contour 100 Mean High Water Springs
- Spot Height 167.3

OS Water Network Map - Slice A

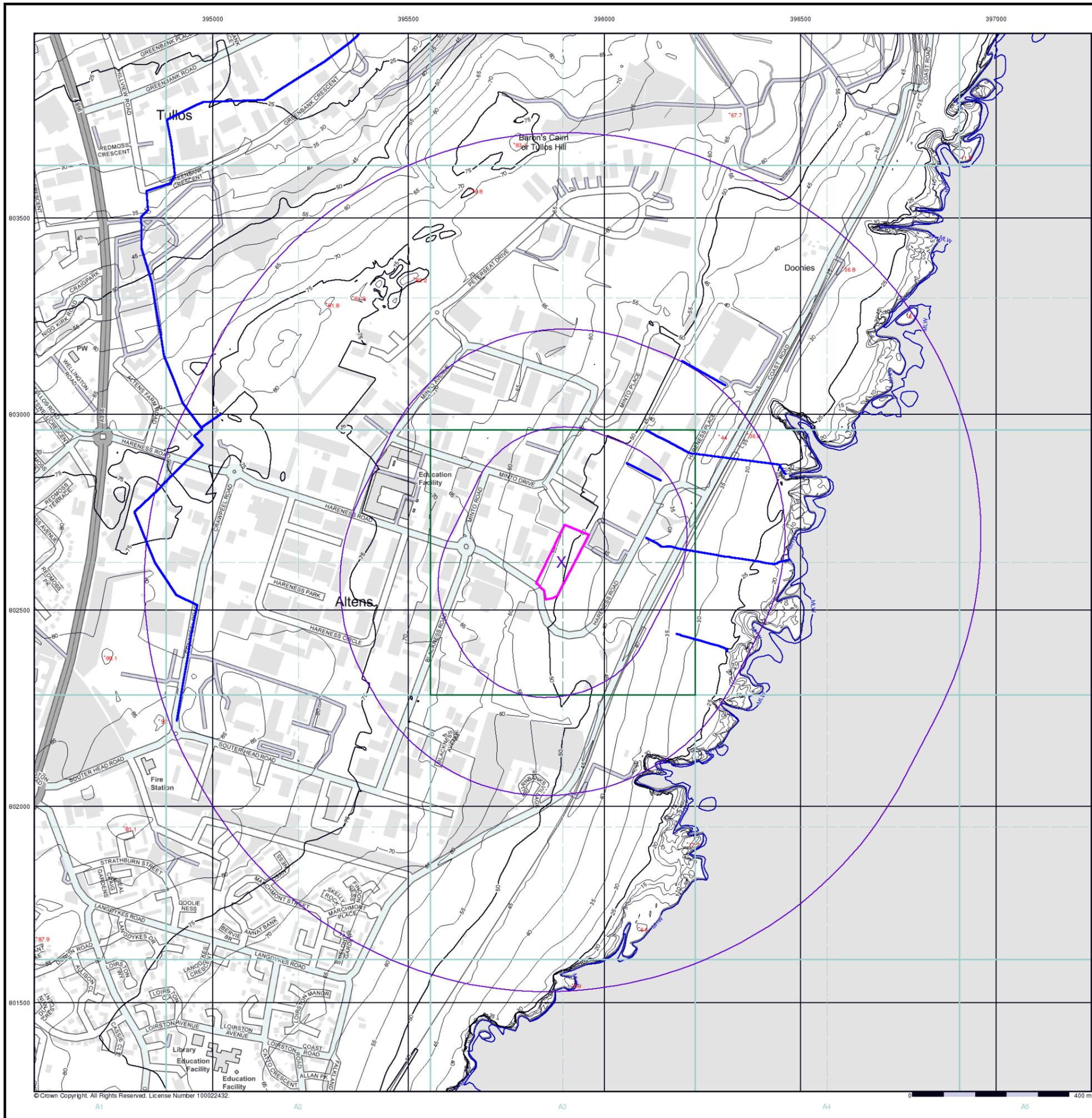


Order Details

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 Site Area (Ha): 1.16
 Search Buffer (m): 1000

Site Details

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General

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

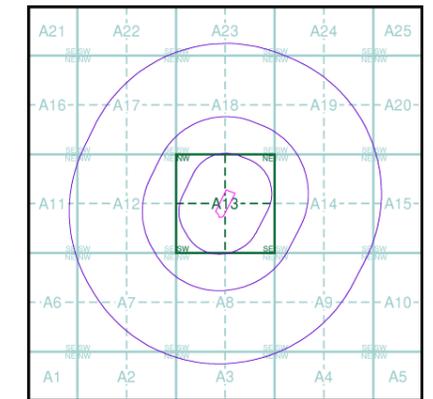
Risk of Flooding from Surface Water

-  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

EANRW Suitability Map - Slice A

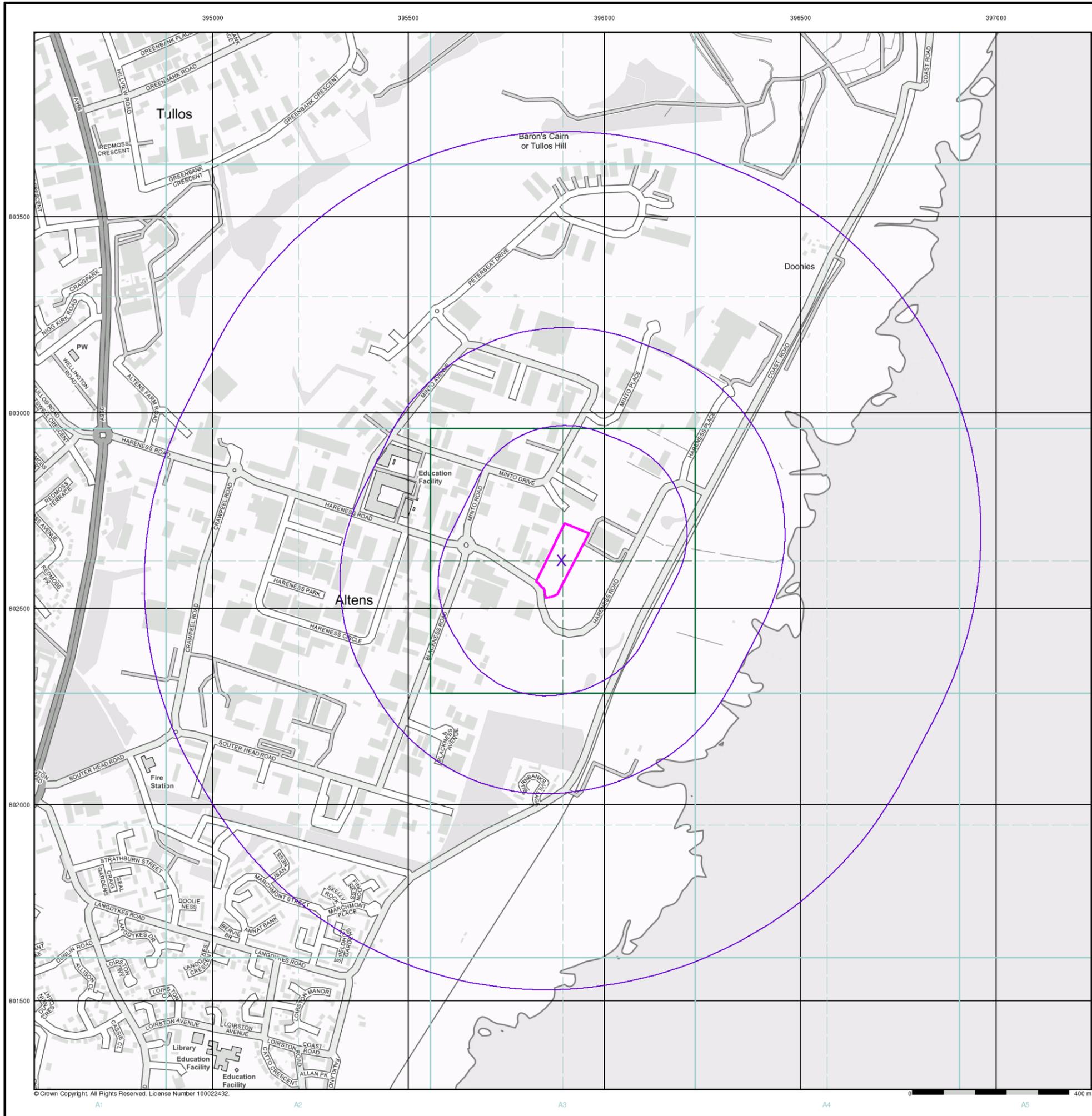


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 Customer Ref: P23-336 AP
 National Grid Reference: 395890, 802620
 Slice: A
 Site Area (Ha): 1.16
 Search Buffer (m): 1000

Site Details

Hareness Road, ABERDEEN, AB12 3LE



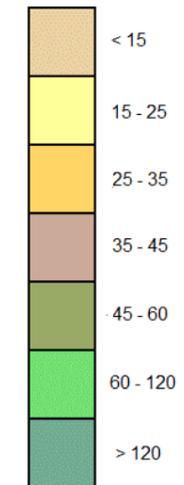
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General

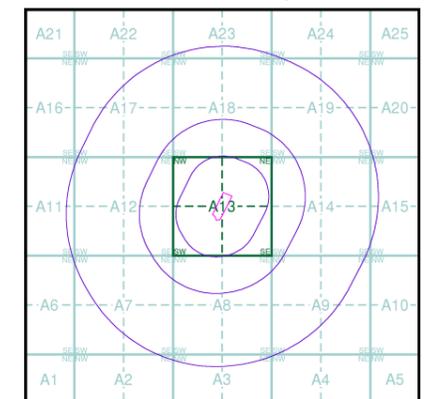
- Specified Site
- Specified Buffer(s)
- X Bearing Reference Point

Estimated Soil Chemistry Arsenic

Arsenic Concentrations mg/kg



Estimated Soil Chemistry Arsenic - Slice A

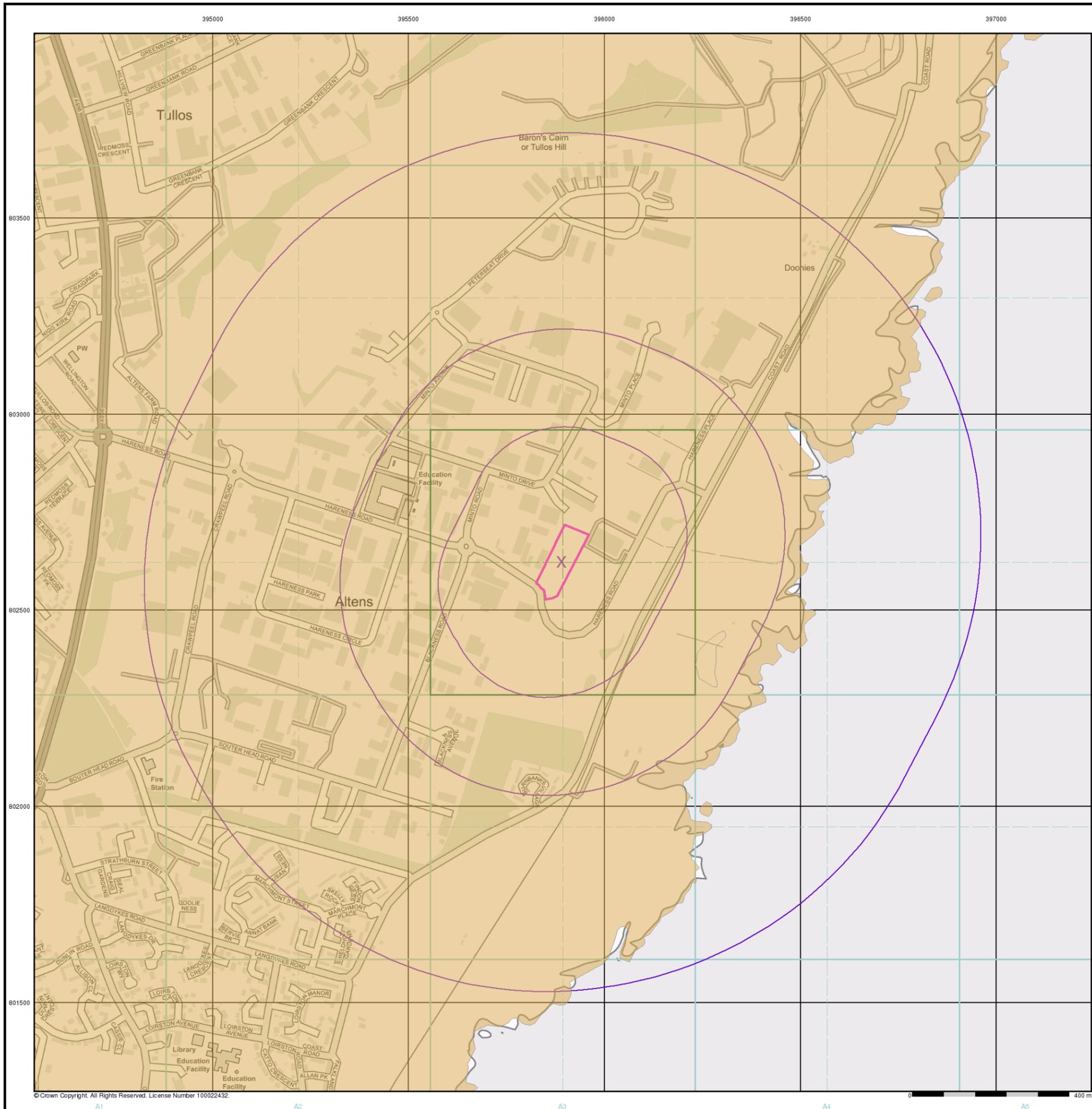


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 Site Area (Ha): 1.16
 Search Buffer (m): 1000

Site Details

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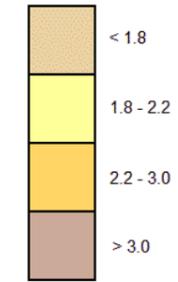
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General

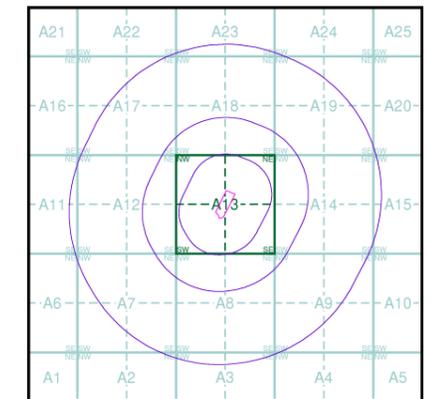
- ✦ Specified Site
- Specified Buffer(s)
- ✕ Bearing Reference Point

Estimated Soil Chemistry Cadmium

Cadmium Concentrations mg/kg



Estimated Soil Chemistry Cadmium - Slice A

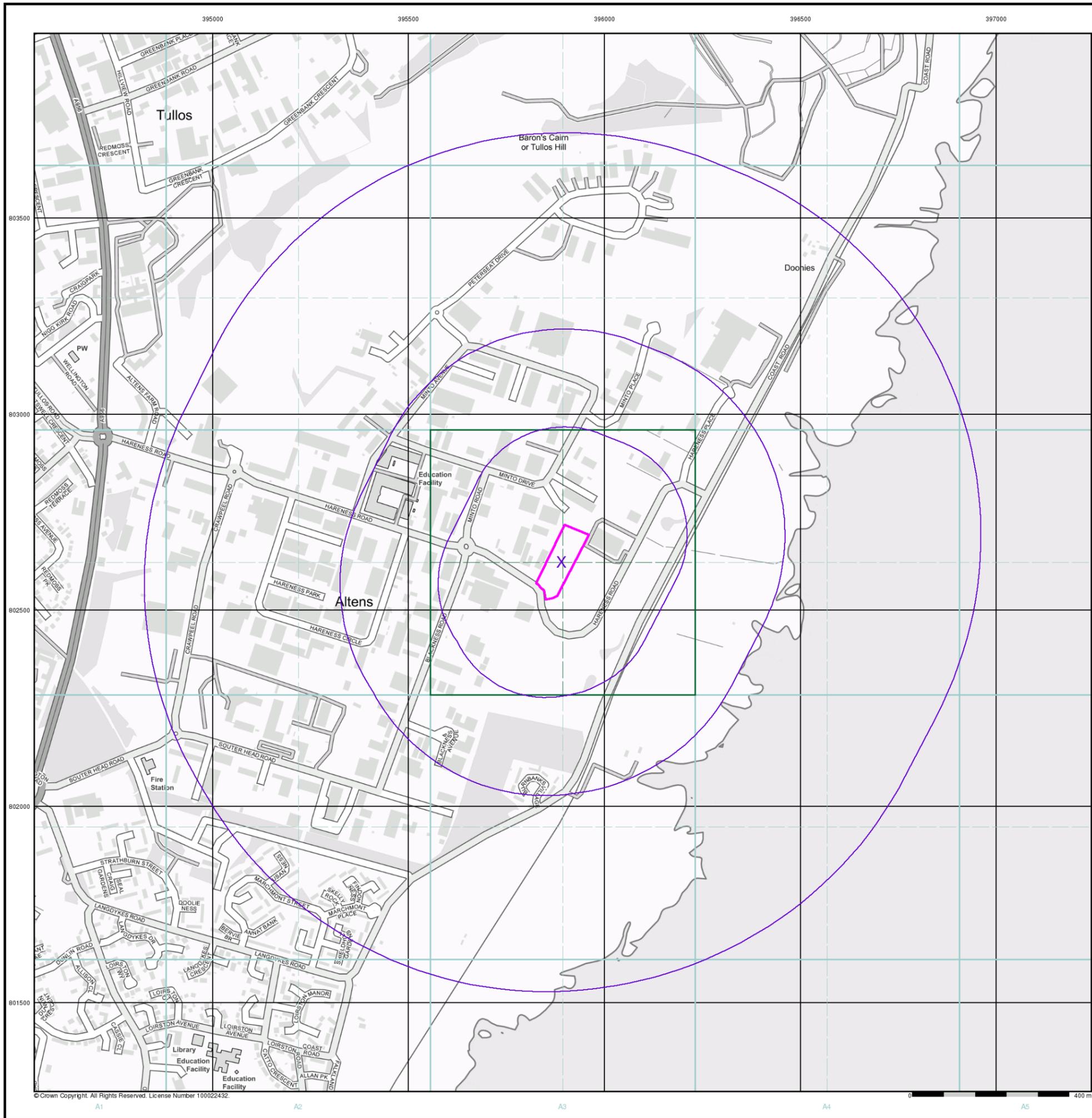


Order Details

Order Details: 328169547_1_1
 Customer Ref: P23-336 AP
 National Grid Reference: 395890, 802620
 Slice: A
 Site Area (Ha): 1.16
 Search Buffer (m): 1000

Site Details

Hareness Road, ABERDEEN, AB12 3LE



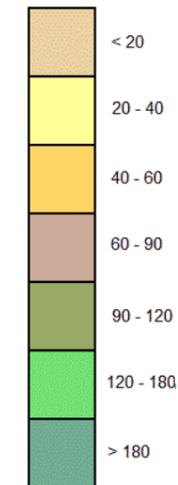
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General

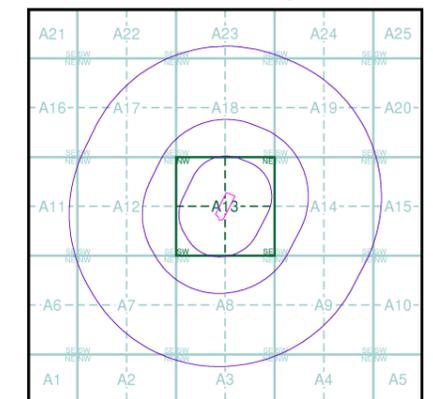
- Specified Site
- Specified Buffer(s)
- X Bearing Reference Point

Estimated Soil Chemistry Chromium

Chromium Concentrations mg/kg



Estimated Soil Chemistry Chromium - Slice A

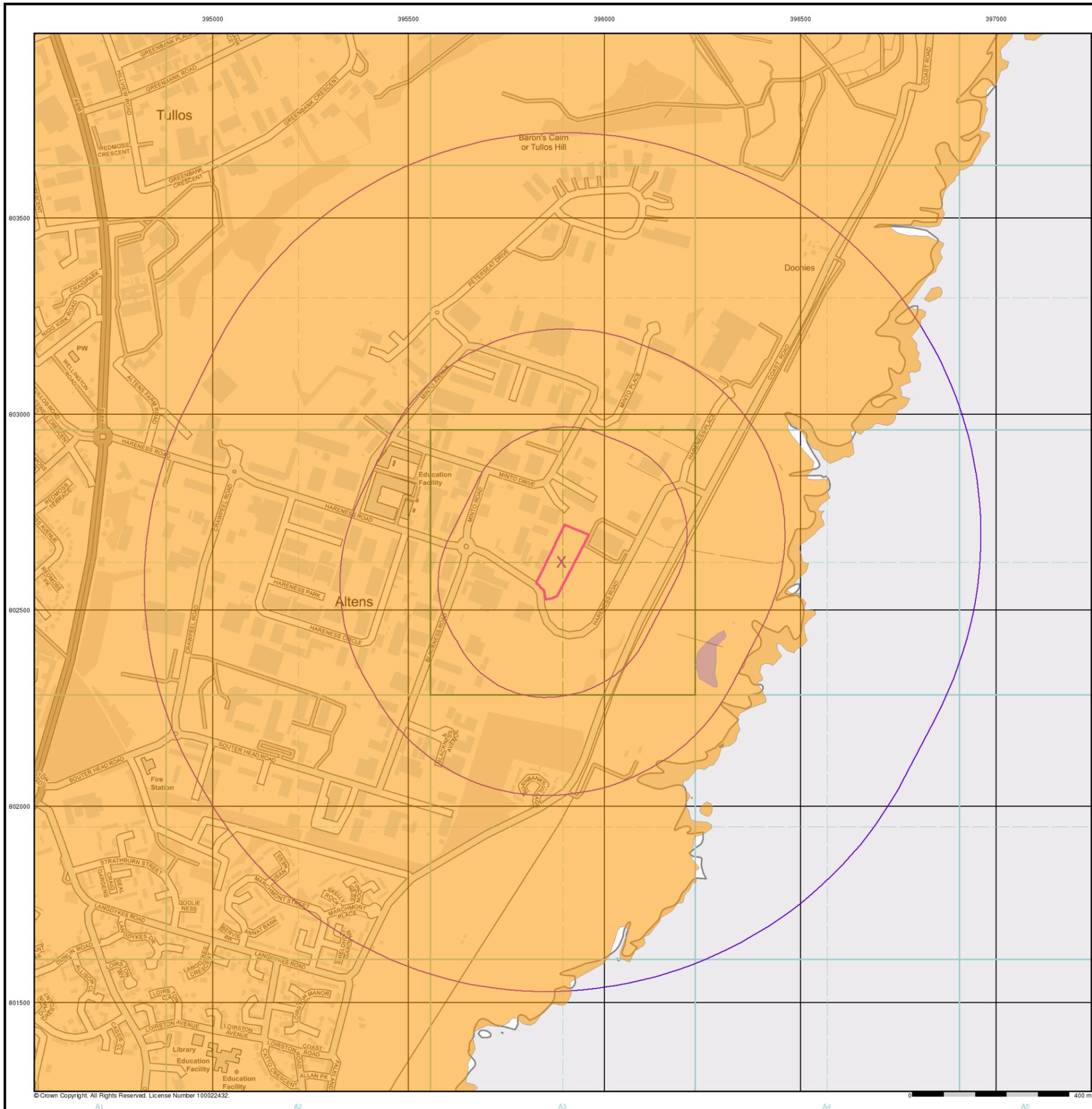


Order Details

Order Details: 328169547_1_1
 Customer Ref: P23-336 AP
 National Grid Reference: 395890, 802620
 Slice: A
 Site Area (Ha): 1.16
 Search Buffer (m): 1000

Site Details

Hareness Road, ABERDEEN, AB12 3LE



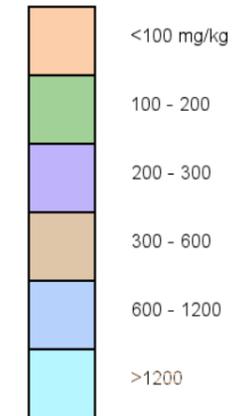
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General

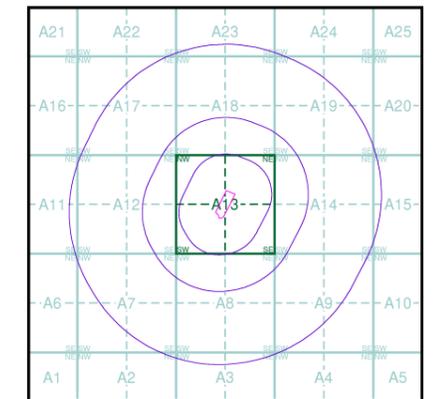
- Specified Site
- Specified Buffer(s)
- X Bearing Reference Point

Estimated Soil Chemistry Lead

Lead Concentrations mg/kg



Estimated Soil Chemistry Lead - Slice A

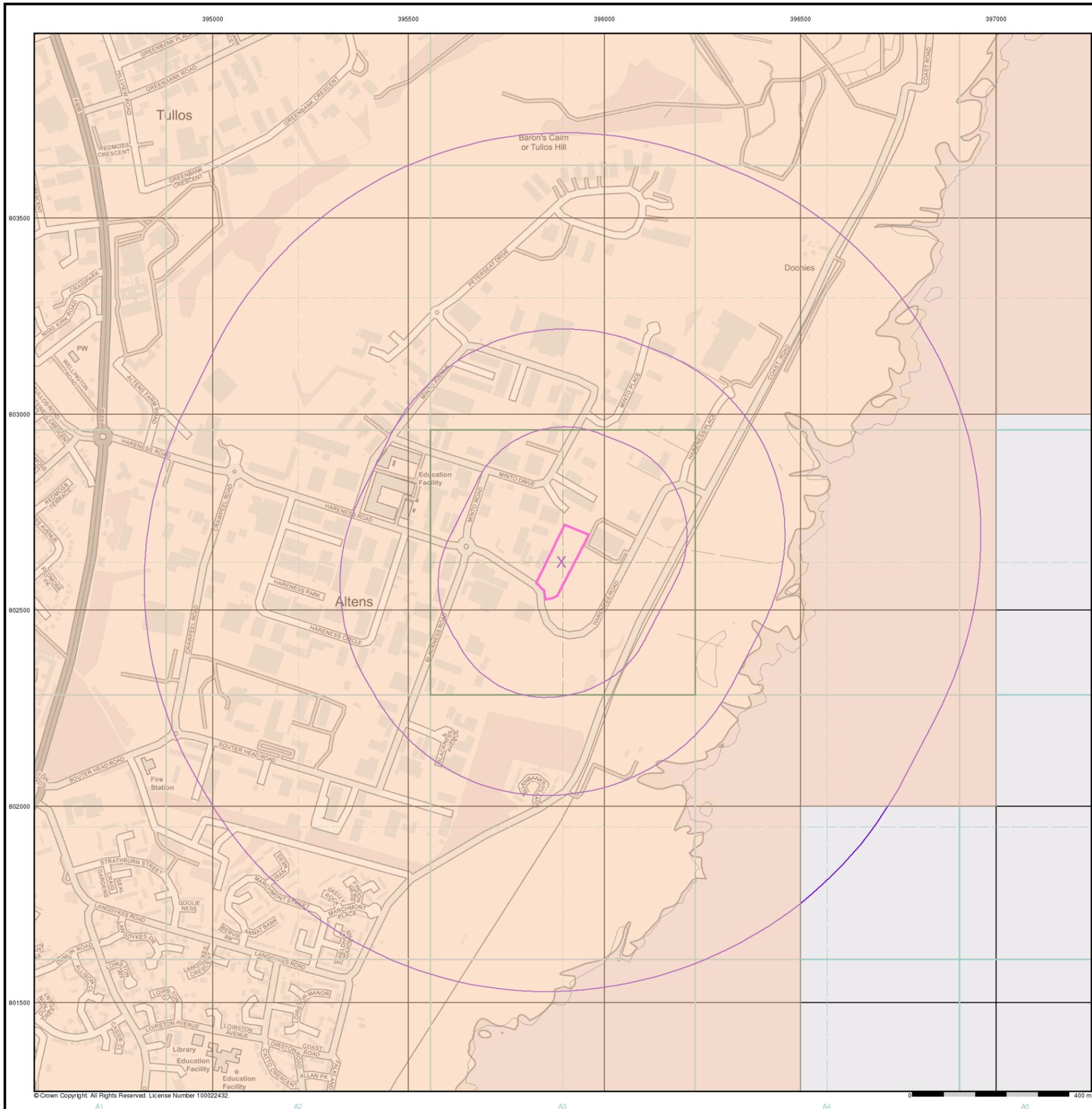


Order Details

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 Slice: A
 Site Area (Ha): 1.16
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Site Details

Hareness Road, ABERDEEN, AB12 3LE



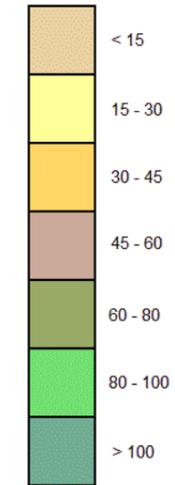
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General

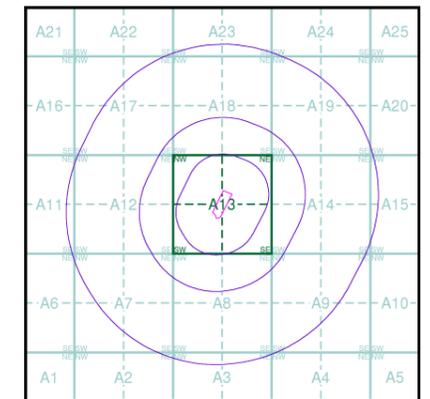
- Specified Site
- Specified Buffer(s)
- X Bearing Reference Point

Estimated Soil Chemistry Nickel

Nickel Concentrations mg/kg



Estimated Soil Chemistry Nickel - Slice A

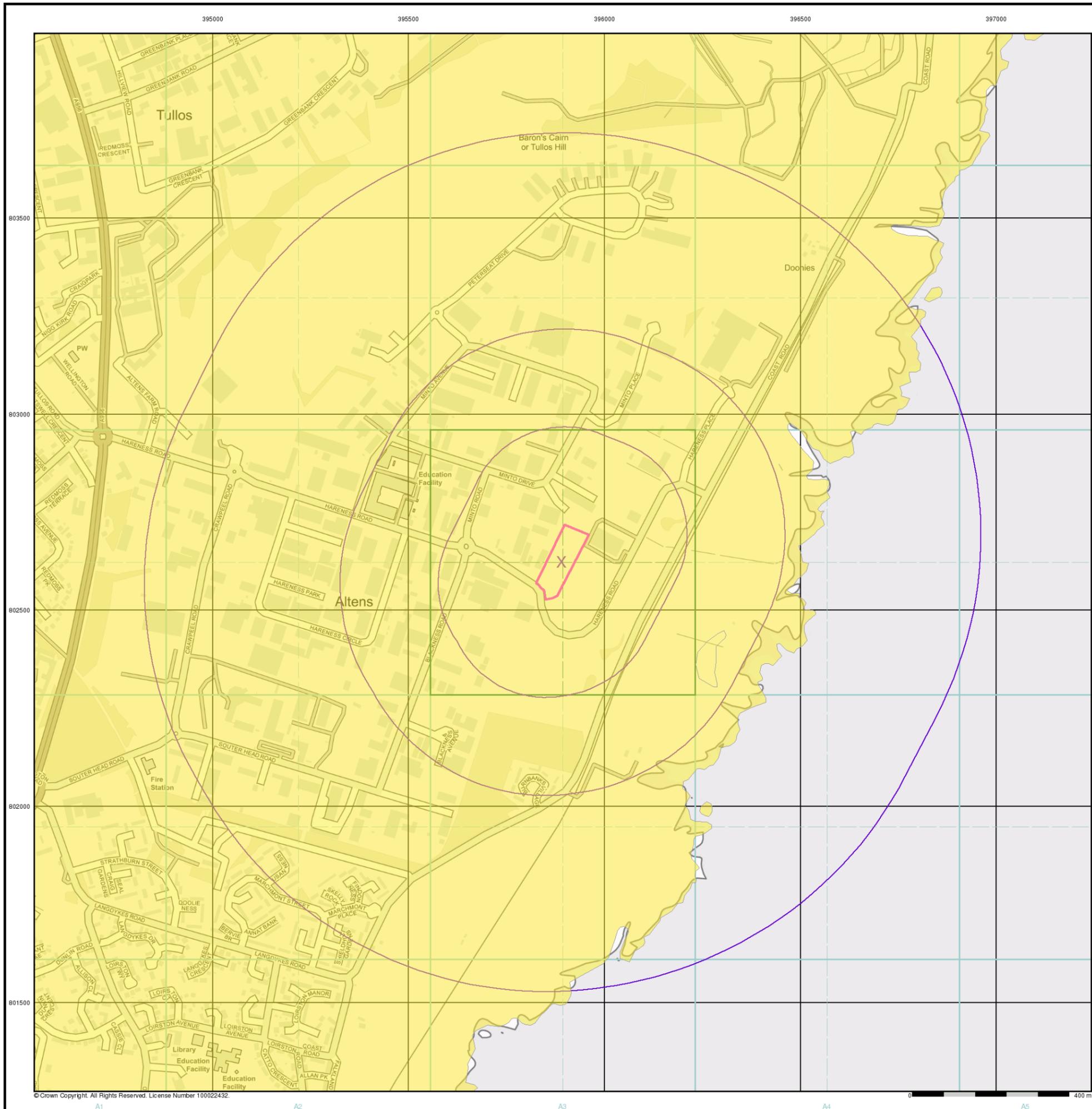


Order Details

Order Details: 328169547_1_1
 Customer Ref: P23-336 AP
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 Slice: A
 Site Area (Ha): 1.16
 Search Buffer (m): 1000

Site Details

Hareness Road, ABERDEEN, AB12 3LE



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Index Map

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

Slice

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

Segment

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

Quadrant

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

A selection of organisations who provide data within this report:



Envirocheck reports are compiled from 136 different sources of data.

Client Details

Ms P Morton, Mason Evans Partnership, The Piazza, 95 Morrison Street, (office side door on Dalentober St), Glasgow, G5 8BE

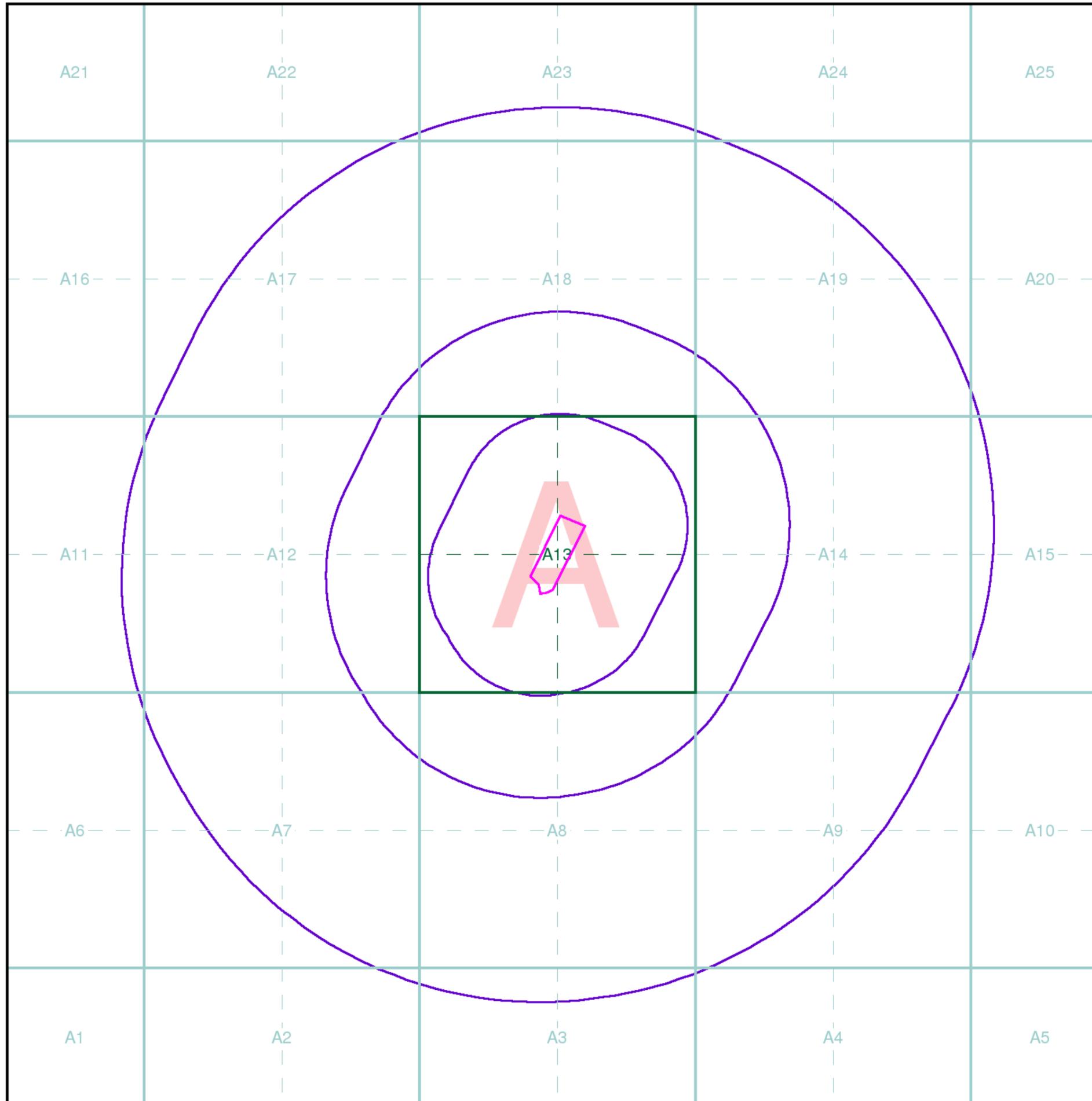
Order Details

Order Number: 328169547_1_1
Customer Ref: P23-336 AP
National Grid Reference: 395890, 802620
Site Area (Ha): 1.16
Search Buffer (m): 1000

Site Details

Hareness Road, ABERDEEN, AB12 3LE

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<http://www.landmarkinfo.co.uk/Terms/Show/515>



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, Site of Antiquities, Pump, Guide Post, Signal 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, County Borough Boundary (England), County Burgh Boundary (Scotland), 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**, **Glasshouse**, **Sloping Masonry**, **Pylon**, **Electricity Transmission Line**, **Pole**, **Cutting**, **Embankment**, **Standard Gauge Multiple Track**, **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**, **Civil Parish**, **BP, BS** Boundary Post or Stone, **Ch** Church, **CH** Club House, **F E Sta** Fire Engine Station, **FB** Foot Bridge, **Fn** Fountain, **GP** Guide Post, **MP** Mile Post, **MS** Mile Stone, **Pol Sta** Police Station, **PO** Post Office, **PC** Public Convenience, **PH** Public House, **SB** Signal Box, **Spr** Spring, **TCB** Telephone Call Box, **TCP** Telephone Call Post, **W** Well

1:10,000 Raster Mapping

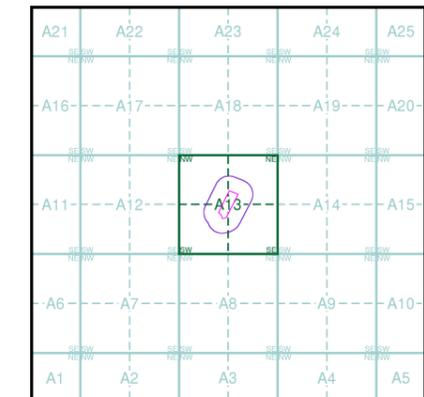
Gravel Pit, **Refuse tip or slag heap**, **Rock**, **Rock (scattered)**, **Boulders**, **Boulders (scattered)**, **Shingle**, **Mud**, **Mud**, **Sand**, **Sand Pit**, **Slopes**, **Top of cliff**, **General detail**, **Underground detail**, **Overhead detail**, **Narrow gauge railway**, **Multi-track 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)**, **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**



Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Kincardineshire	1:10,560	1868	3
Aberdeenshire	1:10,560	1869	4
Aberdeenshire	1:10,560	1902 - 1904	5
Aberdeenshire	1:10,560	1928	6
Aberdeenshire	1:10,560	1938	7
Historical Aerial Photography	1:10,560	1944	8
Historical Aerial Photography	1:10,560	1944	9
Ordnance Survey Plan	1:10,000	1959	10
Ordnance Survey Plan	1:10,000	1967 - 1968	11
Ordnance Survey Plan	1:10,000	1967	12
Ordnance Survey Plan	1:10,000	1974	13
Aberdeen	1:10,000	1981	14
Ordnance Survey Plan	1:10,000	1982 - 1984	15
Ordnance Survey Plan	1:10,000	1989	16
10K Raster Mapping	1:10,000	2000	17
10K Raster Mapping	1:10,000	2006	18
VectorMap Local	1:10,000	2023	19

Historical Map - Slice A



Order Details

Order Number: 328169547_1_1
 Customer Ref: P23-336 AP
 National Grid Reference: 395890, 802620
 Slice: A
 Site Area (Ha): 1.16
 Search Buffer (m): 1000

Site Details

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Russian Military Mapping Legends

1:5,000 and 1:10,000 mapping

a. Not drawn to scale b. Drawn to scale

	Government and Administrative Buildings		Military and Industrial Buildings
	Military and Communication Areas		Subway Entrance
	Fireproof Building		Prominent Fireproof Building
	Non-fireproof Building		Non-fireproof Building (non-dwelling)
	Factory, mill, and flour mill, with chimneys		Factory, mill, and flour mill, without chimneys
	Power Station, drawn to scale		Hydroelectric Power Station
	Radio Station, drawn to scale		Telephone Station, drawn to scale
	Abandoned Open-pit Mine or Quarry		Open-pit Salt Mine
	Pit		Oil Deposit or Well
	Oil Seepage		Natural Gas Tank
	Tailings Pile		Fuel Storage Tanks
	Bench Mark		Drill Hole
	Burial Mound		Triangulation Point on Burial Mound
	Single-track Railroad		Double-track Railroad
	Railroad and Station Building		Small Bridge
	Pipe (Culvert)		Tunnel
	Coniferous Forest		Deciduous Forest
	Mixed Forest		Lawns
	Citrus Orchard		Wet Ground
	Scattered Vegetation		

243,8 Values for prominent elevations
186.0 Numbers for spot elevations, depth soundings, contour lines, etc.
0,2 Velocity of the current, width of river bed, depth of river
180/12 Fractional terms: length and capacity of bridges; depth of fords and condition of the river bottom; height of forest and the diameter of trees

Russian Alphabet (For reference and phonetic interpretation of map text)

А а (A)	З з (Z)	П п (P)	Ч ч (CH)
Б б (B)	И и (I)	Р р (R)	Ш ш (SH)
В в (V)	Й й (Y)	С с (S)	Щ щ (SHCH)
Г г (G)	К к (K)	Т т (T)	Ъ (-)
Д д (D)	Л л (L)	У у (U)	Ы (Y)
Е е (E)	М м (M)	Ф ф (F)	Ь (')
Ё ё (YO)	Н н (N)	Х х (KH)	Э э (E)
Ж ж (ZH)	О о (O)	Ц ц (TS)	Ю ю (YU or IU)
			Я я (YA or IA)

1:25,000 mapping

a. Not drawn to scale b. Drawn to scale

	Government and Administrative Buildings		Military and Industrial Buildings
	Military and Communication Areas		Subway Entrance
	Partly Demolished Buildings		Demolished Buildings
	Built-Up Area with Fireproof Buildings Predominant		Built-Up Area with Non-Fireproof Buildings Predominant
	Individual Fireproof Building		Prominent Industrial Building
	Individual Dwelling, Fireproof		Ruins of an Individual Dwelling
	Factory or Mill Chimney		Factory or Mill with Chimney
	Factory or Mill without Chimney		Mine or Open Pit Mine
	Operating Shaft or Mine		Non-Operating Shaft or Mine
	Salt Mine		Tailings Pile
	Pit		Stone Quarry
	Gas Pump or Service Station		Fuel Storage or Natural Gas Tank
	Oil or Natural Gas Derrick		Small Hydroelectric Power Station
	Power Station		Transformer Station
	Cemetery		Burial Mound (height in metres)
	Triangulation Point on Burial Mound		Triangulation Point
	Bench Mark		Telegraph Office
	Telephone Station		Radio Station
	Radio Tower		Airfield or Seaplane Base
	Landing Strip		Cut
	Fill		Km Post
	Plantings		Width of Road
	Steep Grade		Highway under Construction
	Improved Dirt Road (former truck road)		Small Bridge
	Pipe (Culvert)		Tunnel
	Dismantled Railroad		Double-track Railroad with First Class Station
	Railroad Under Construction		Shore Embankment
	River or Ditch with Embankment		Water Gauge
	Direction and velocity of current		Water Level Mark
	Well		Spring
	Water Reservoir or Rain Water Pit		Isobath with value
	Heavy (Index) Contour Line		Half Contour Line
	Contour Line and Value		Spot Elevation Value
	Coniferous		Deciduous
	Mixed		Scrub

Key to Numbers on Mapping

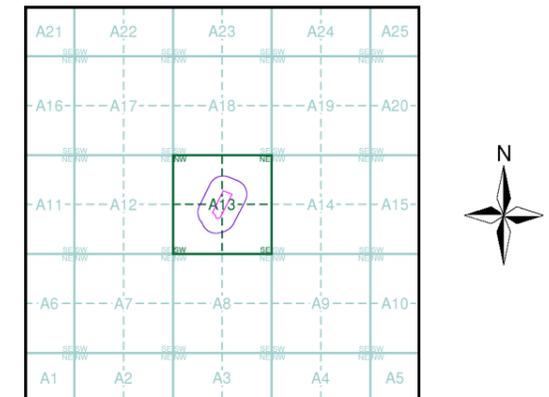
NJ90SE_Aberdeen

No.	Description
41	Industrial Building (Use Unknown)

Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Kincardineshire	1:10,560	1868	3
Aberdeenshire	1:10,560	1869	4
Aberdeenshire	1:10,560	1902 - 1904	5
Aberdeenshire	1:10,560	1928	6
Aberdeenshire	1:10,560	1938	7
Historical Aerial Photography	1:10,560	1944	8
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10K Raster Mapping	1:10,000	2000	17
10K Raster Mapping	1:10,000	2006	18
VectorMap Local	1:10,000	2023	19

Russian Map - Slice A



Order Details

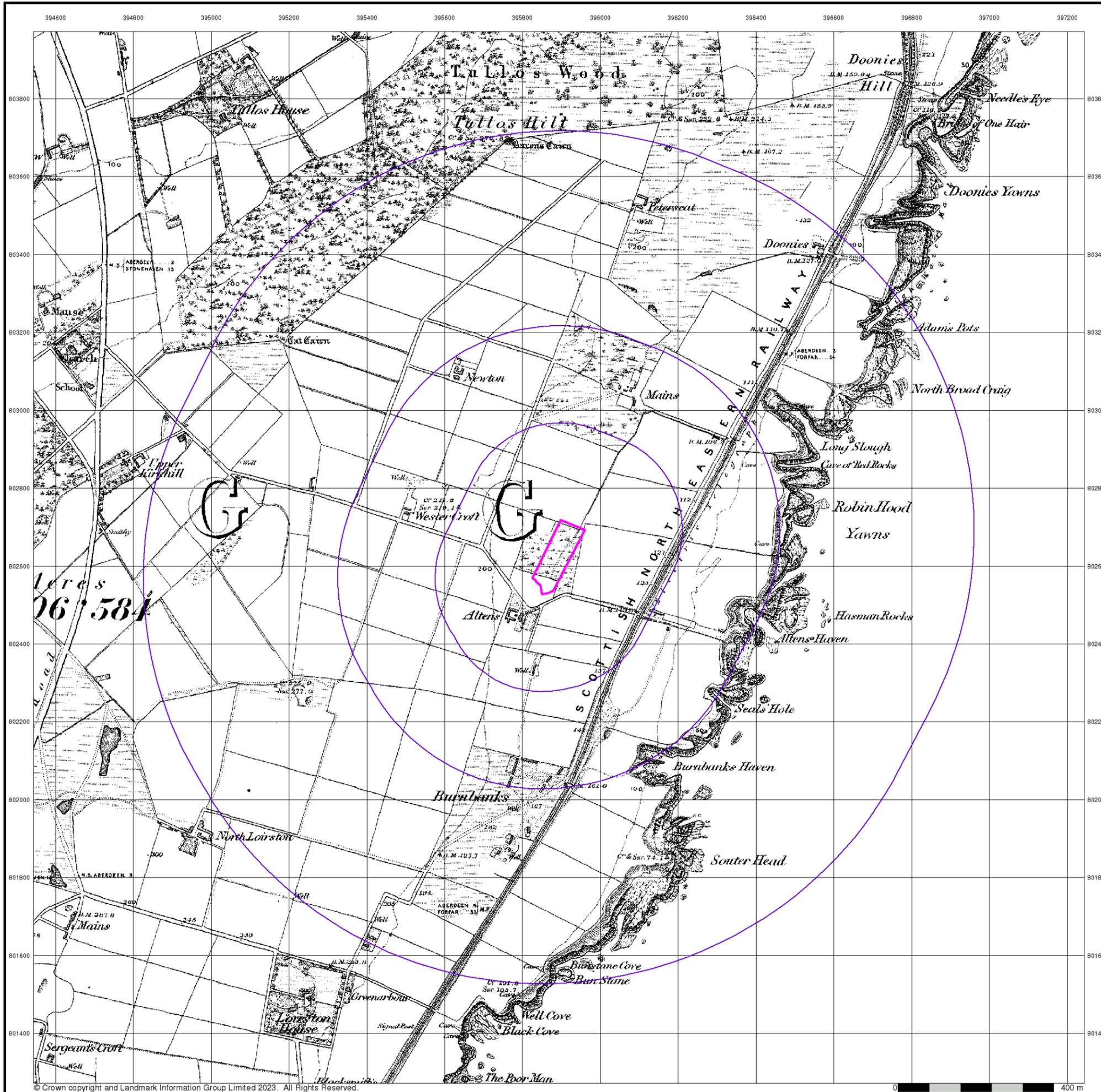
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 Customer Ref: P23-336 AP
 National Grid Reference: 395890, 802620
 Slice: A
 Site Area (Ha): 1.16
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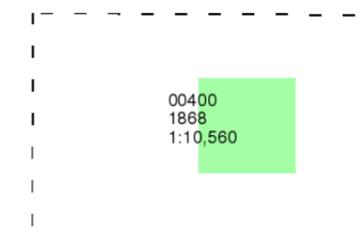
Kincardineshire

Published 1868

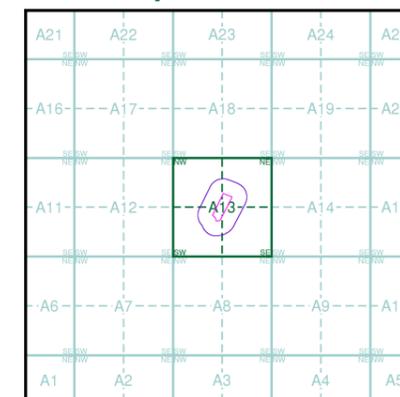
Source map scale - 1:10,560

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)



Historical Map - Slice A



Order Details

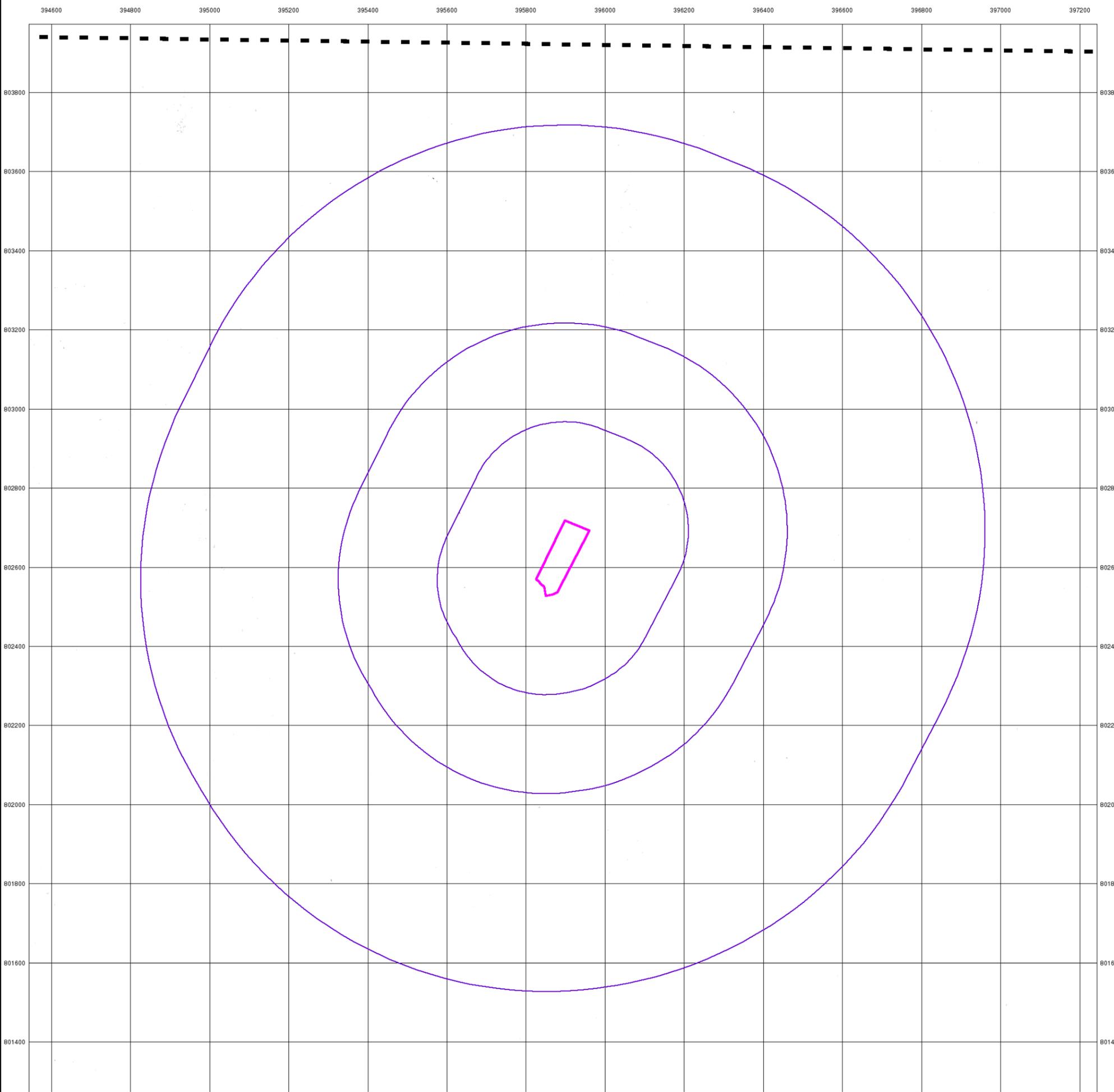
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 Site Area (Ha): 1.16
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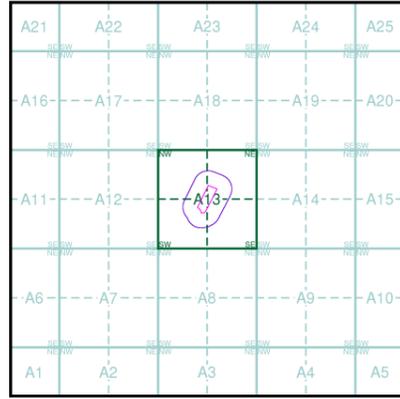
Aberdeenshire
Published 1869
Source map scale - 1:10,560

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)

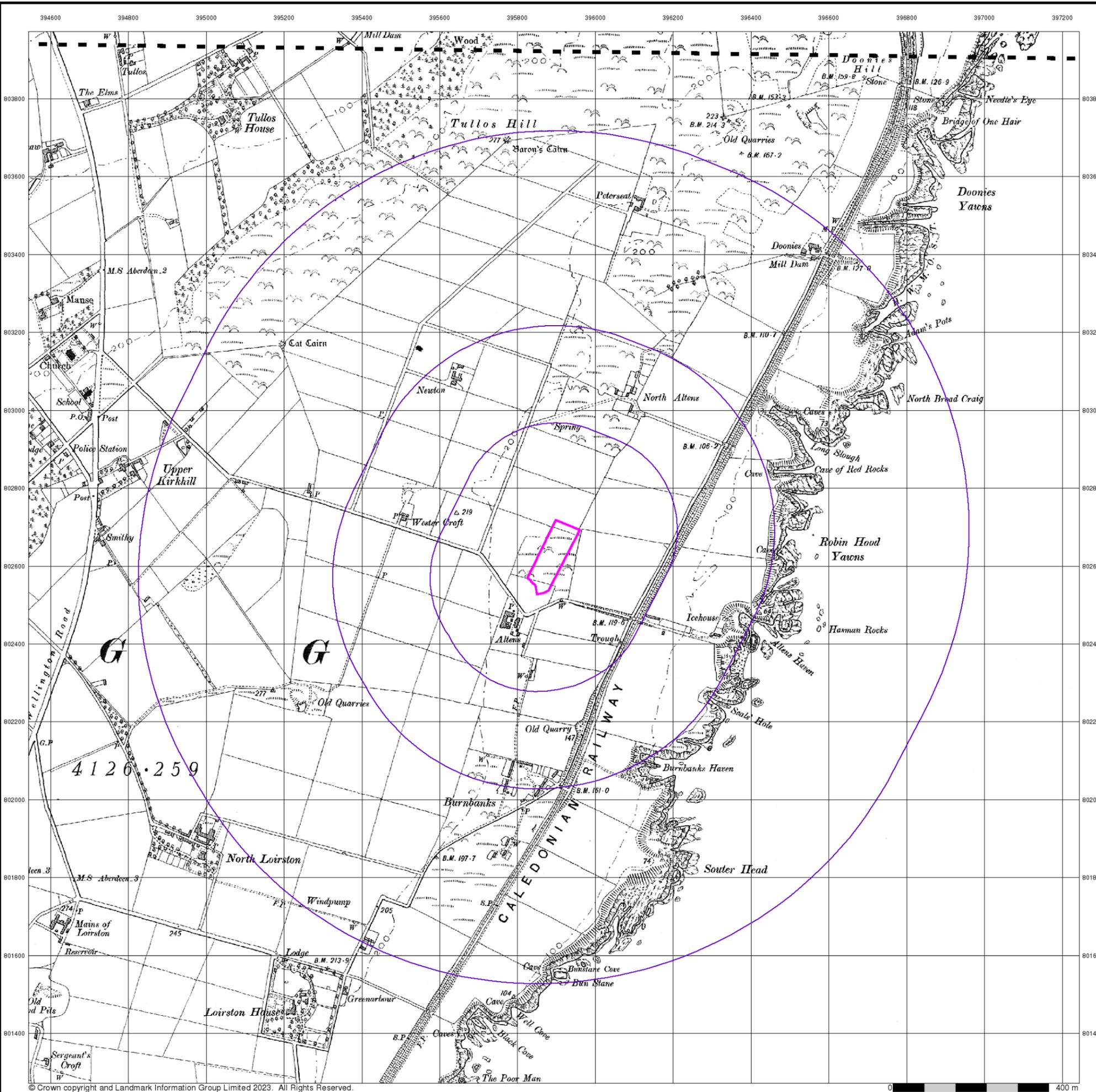
07500	1869	1:10,560
08600	1869	1:10,560

Historical Map - Slice A



Order Details
 Order Number: 328169547_1_1
 Customer Ref: P23-336 AP
 National Grid Reference: 395890, 802620
 Slice: A
 Site Area (Ha): 1.16
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Aberdeenshire

Published 1902 - 1904

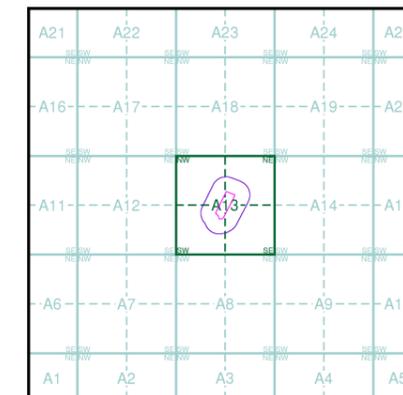
Source map scale - 1:10,560

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)

075SE 1902 1:10,560
086NE 1904 1:10,560

Historical Map - Slice A



Order Details

Order Number: 328169547_1_1
 Customer Ref: P23-336 AP
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 Site Area (Ha): 1.16
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Aberdeenshire

Published 1928

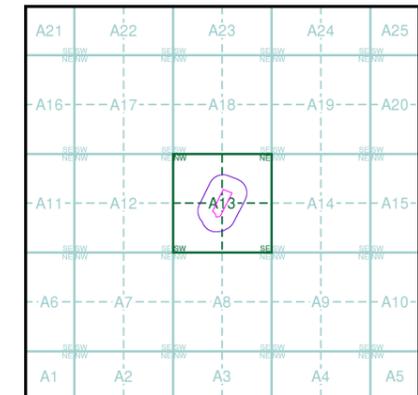
Source map scale - 1:10,560

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)

075SE 1928 1:10,560
086NE 1928 1:10,560

Historical Map - Slice A

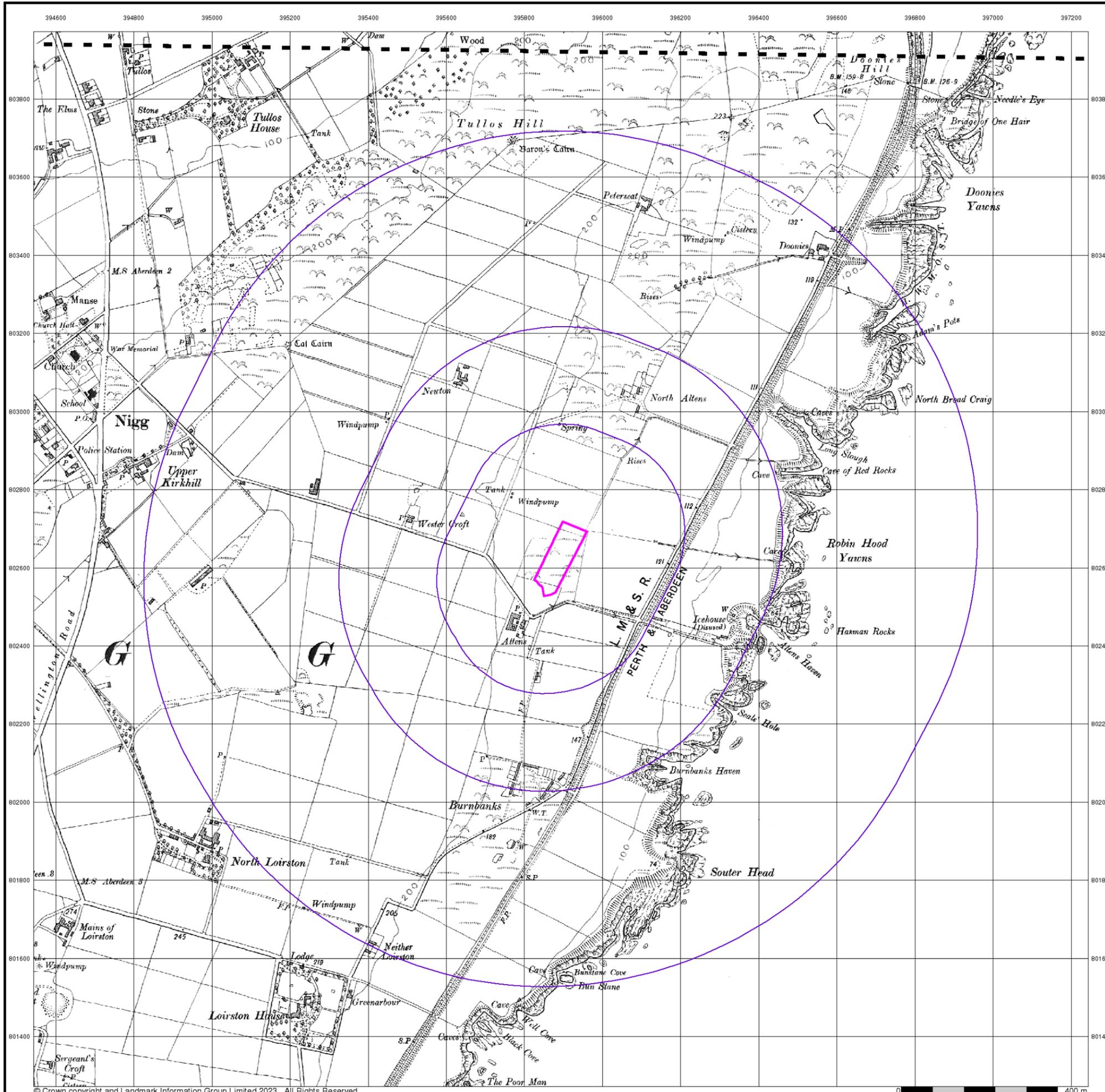


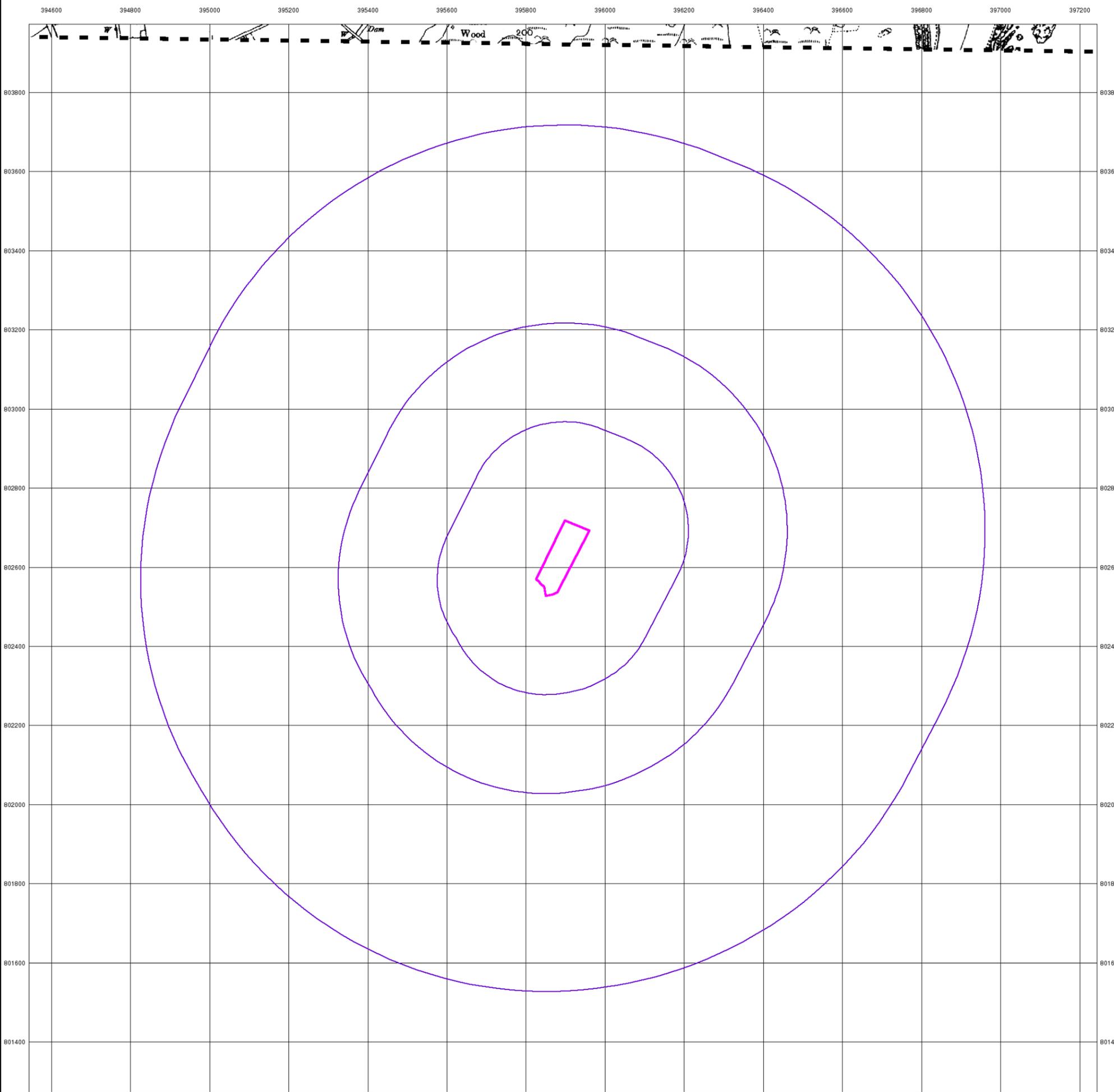
Order Details

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 Customer Ref: P23-336 AP
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 Search Buffer (m): 1000

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Aberdeenshire
Published 1938
Source map scale - 1:10,560

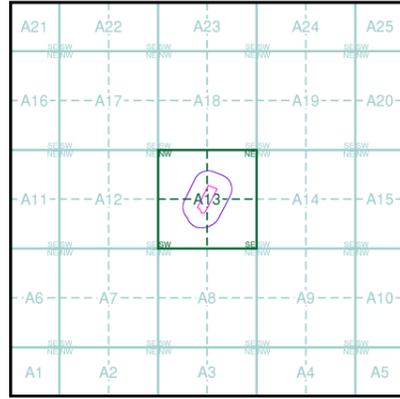
The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)

075SE
 1938
 1:10,560



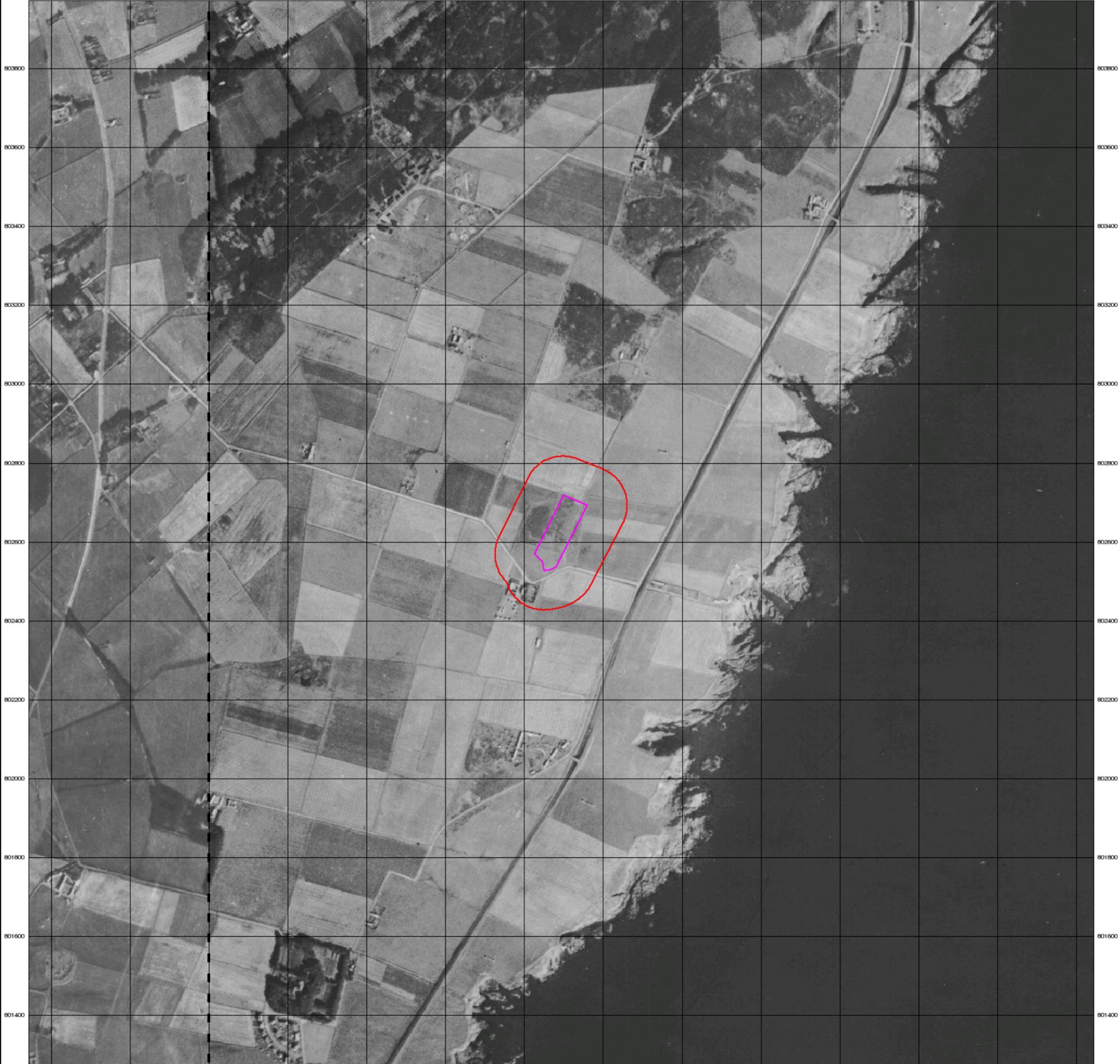
Historical Map - Slice A



Order Details
 Order Number: 328169547_1_1
 Customer Ref: P23-336 AP
 National Grid Reference: 395890, 802620
 Slice: A
 Site Area (Ha): 1.16
 Search Buffer (m): 1000

Site Details
 Hareness Road, ABERDEEN, AB12 3LE

394600 394800 395000 395200 395400 395600 395800 396000 396200 396400 396600 396800 397000 397200



Historical Aerial Photography

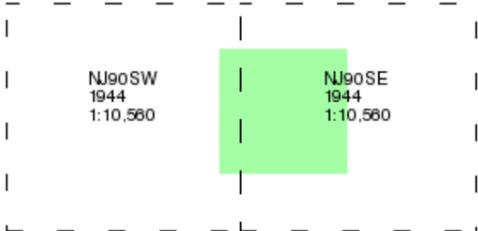
Published 1944

Source map scale - 1:10,560

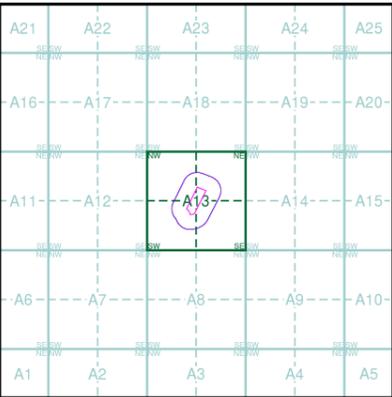
The Historical Aerial Photos were produced by the Ordnance Survey at a scale of 1:1,250 and 1:10,560 from Air Force photography. They were produced between 1944 and 1951 as an interim measure, pending preparation of conventional mapping, due to post war resource shortages. New security measures in the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

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Map Name(s) and Date(s)



Historical Aerial Photography - Slice A



Order Details

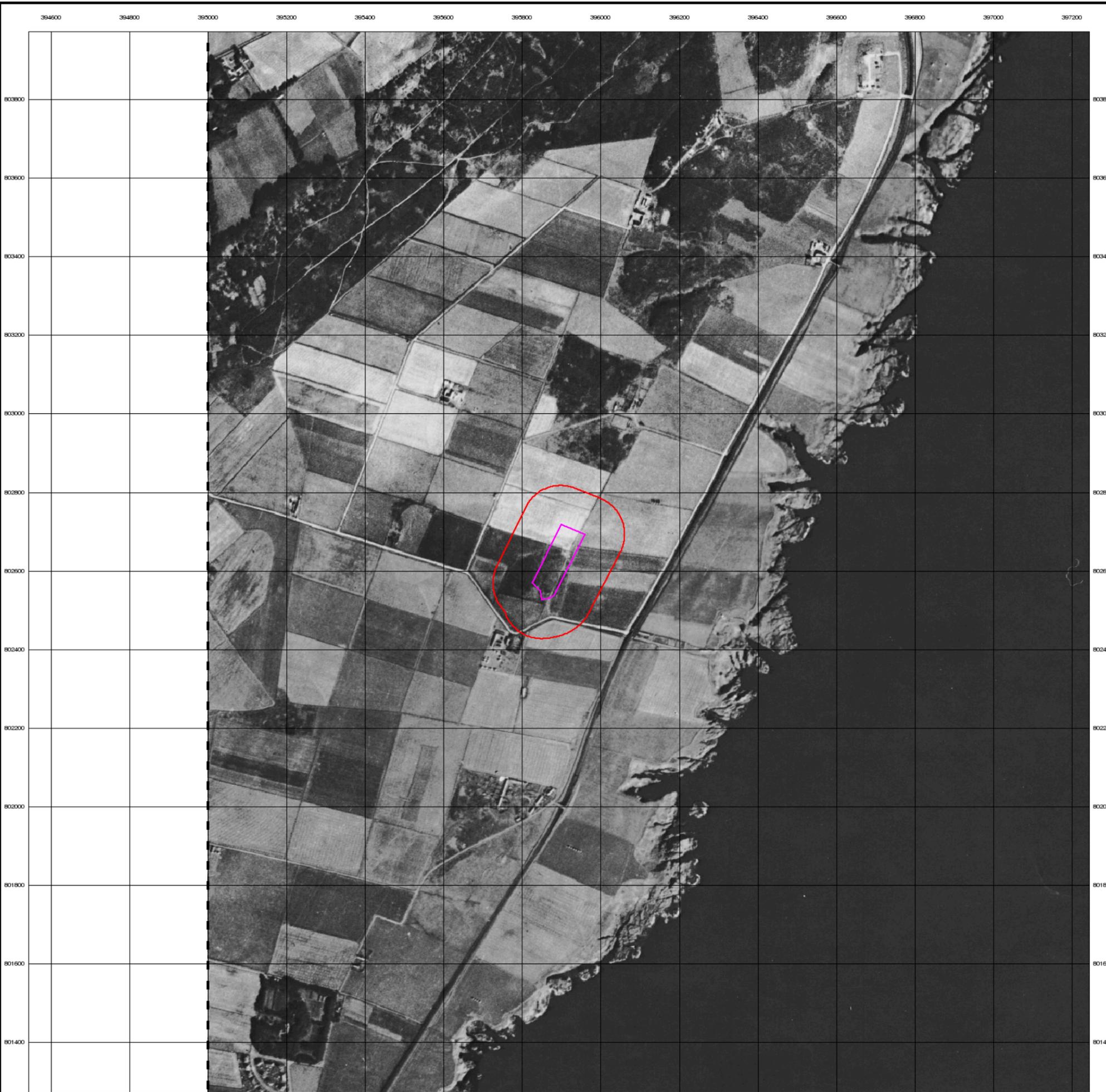
Order Number: 328169547_1_1
Customer Ref: P23-336 AP
National Grid Reference: 395890, 802620
Slice: A
Site Area (Ha): 1.16
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Historical Aerial Photography

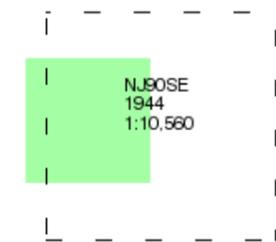
Published 1944

Source map scale - 1:10,560

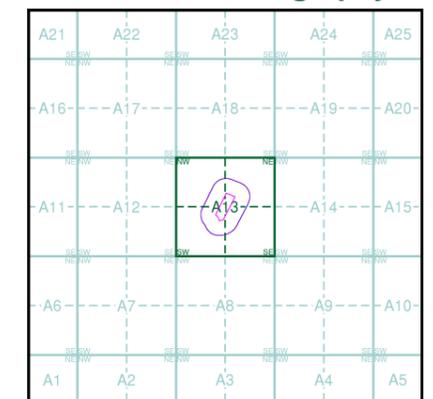
The Historical Aerial Photos were produced by the Ordnance Survey at a scale of 1:1,250 and 1:10,560 from Air Force photography. They were produced between 1944 and 1951 as an interim measure, pending preparation of conventional mapping, due to post war resource shortages. New security measures in the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

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Map Name(s) and Date(s)



Historical Aerial Photography - Slice A



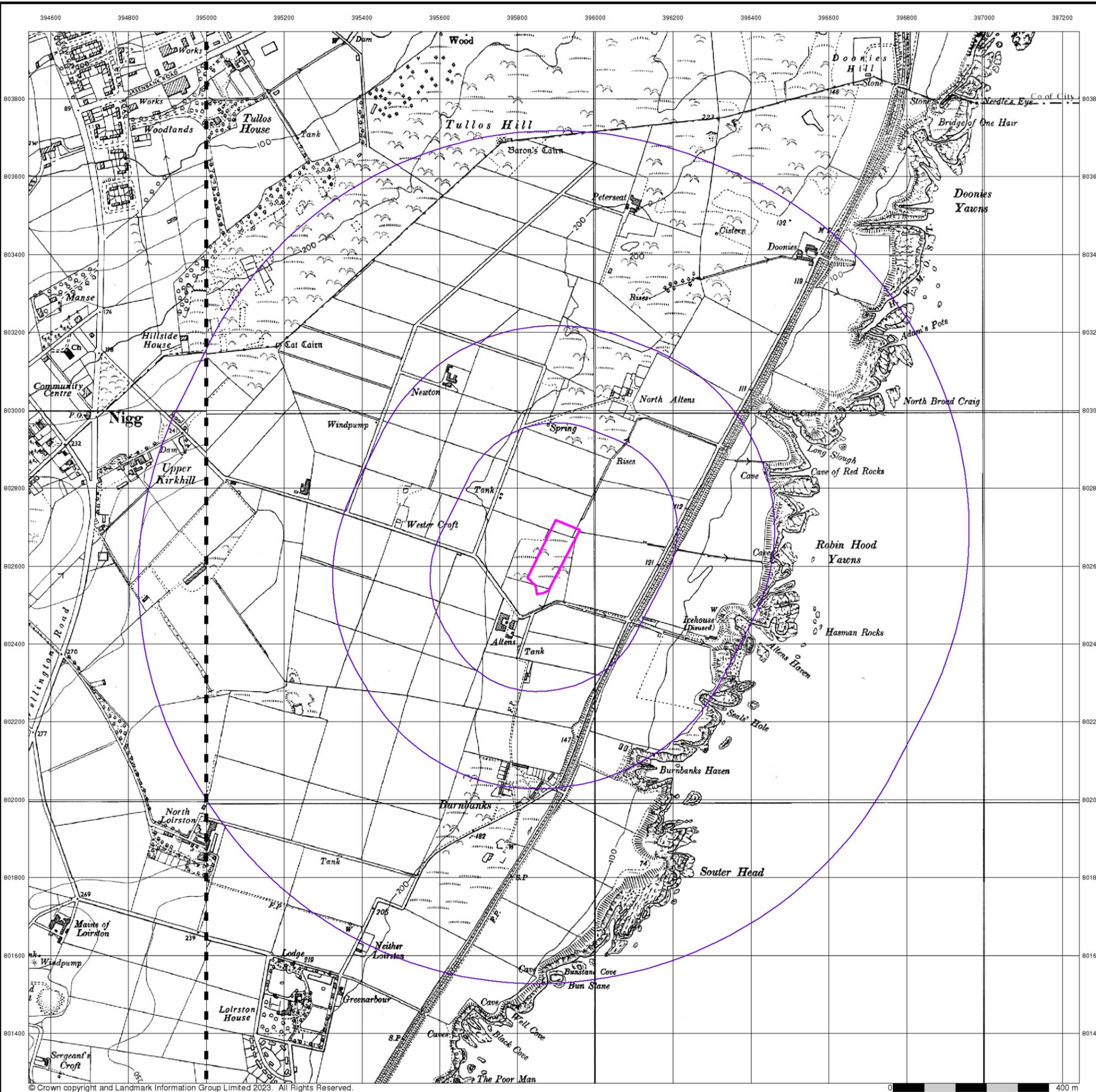
LIBRARY
HSILIRB

Order Details

Order Number: 328169547_1_1
 Customer Ref: P23-336 AP
 National Grid Reference: 395890, 802620
 Slice: A
 Site Area (Ha): 1.16
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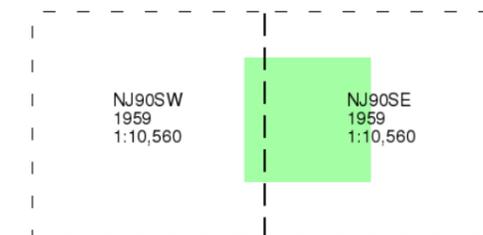
Ordnance Survey Plan

Published 1959

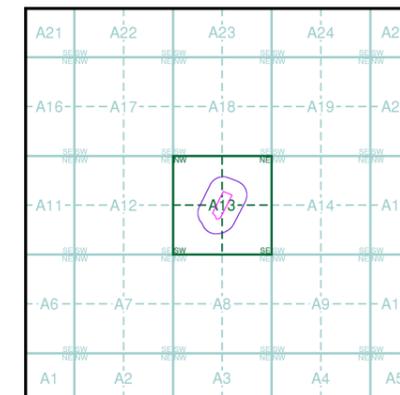
Source map scale - 1:10,000

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)



Historical Map - Slice A



Order Details

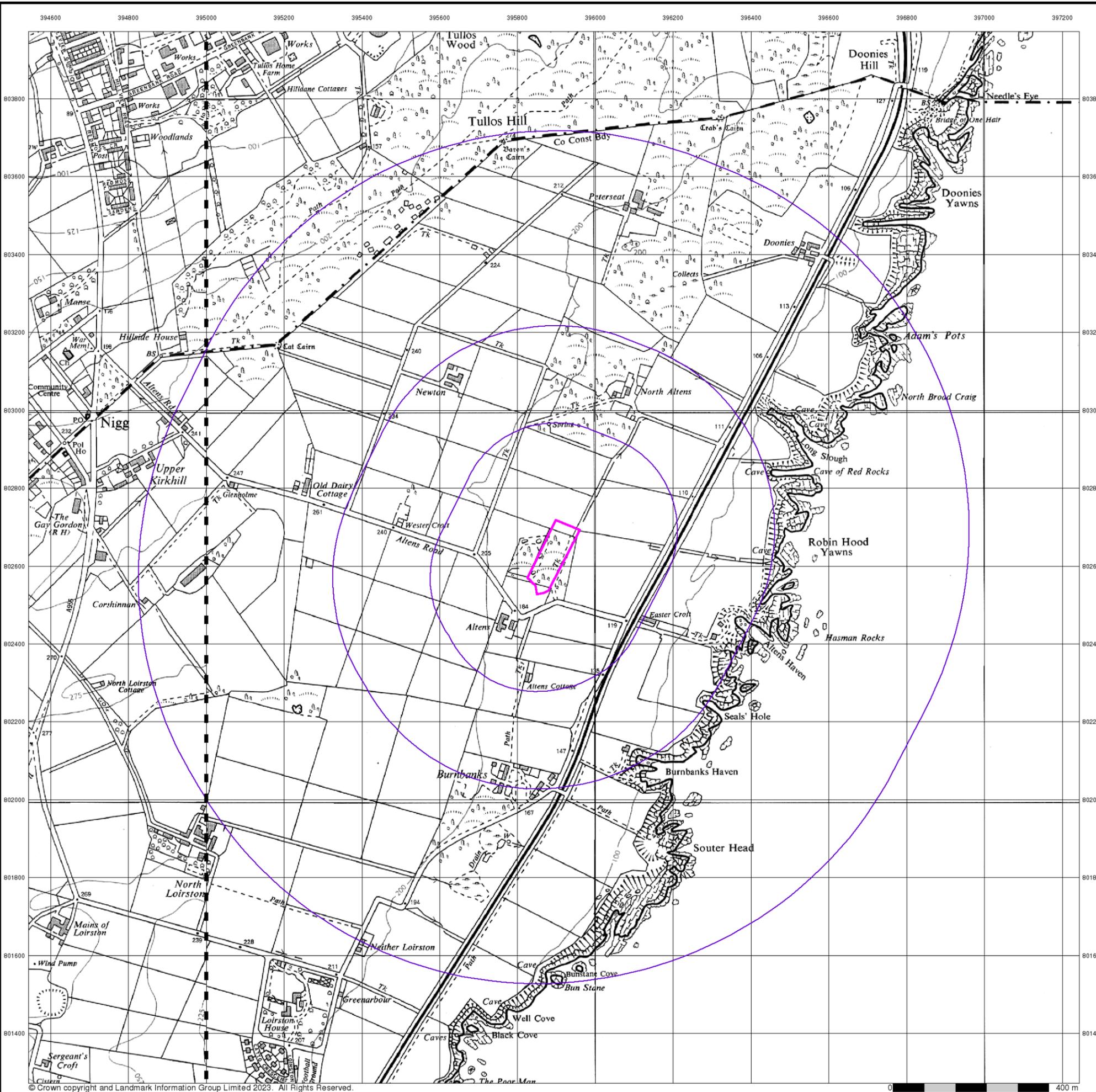
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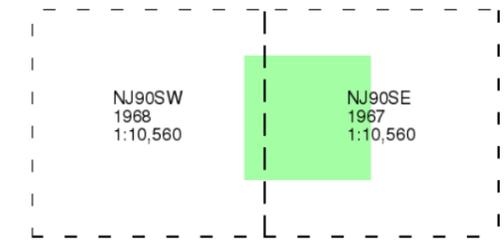
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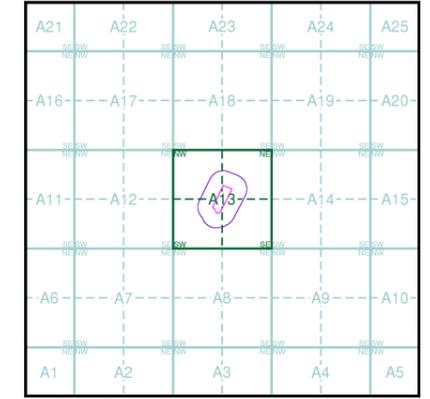
Ordnance Survey Plan Published 1967 - 1968 Source map scale - 1:10,000

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)



Historical Map - Slice A



Order Details

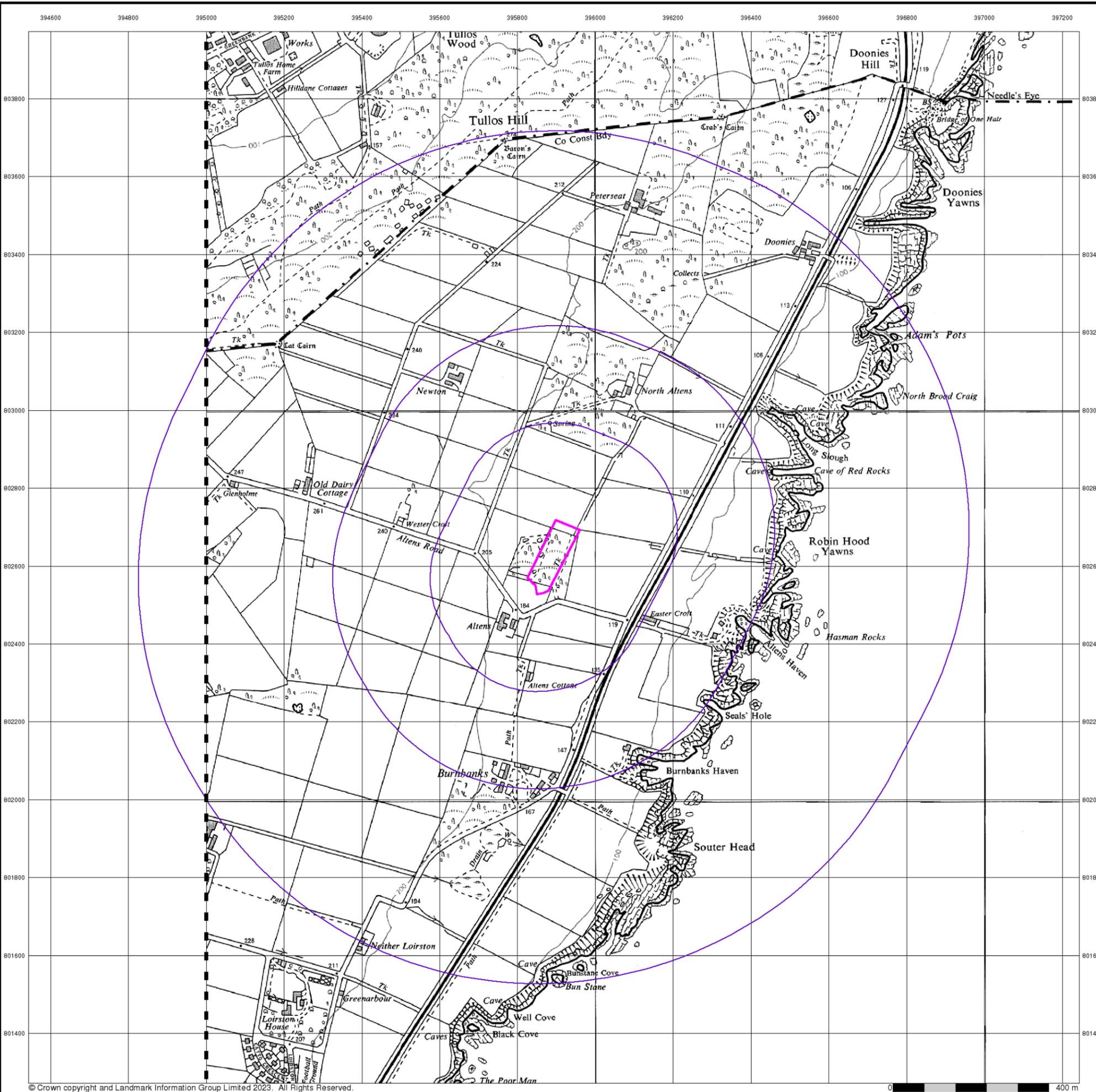
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 Customer Ref: P23-336 AP
 National Grid Reference: 395890, 802620
 Slice: A
 Site Area (Ha): 1.16
 Search Buffer (m): 1000

Site Details

Hareness Road, ABERDEEN, AB12 3LE



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 Fax: 0844 844 9951
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0 400 m



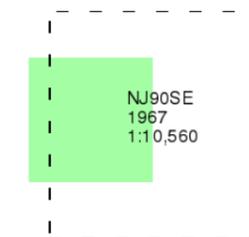
Ordnance Survey Plan

Published 1967

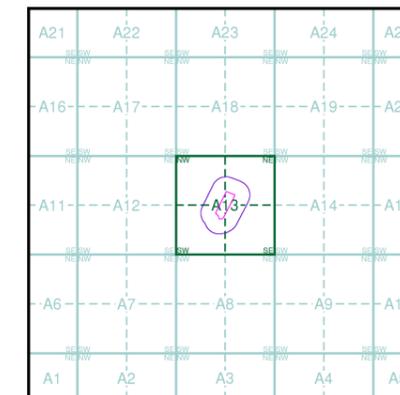
Source map scale - 1:10,000

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)



Historical Map - Slice A



Order Details

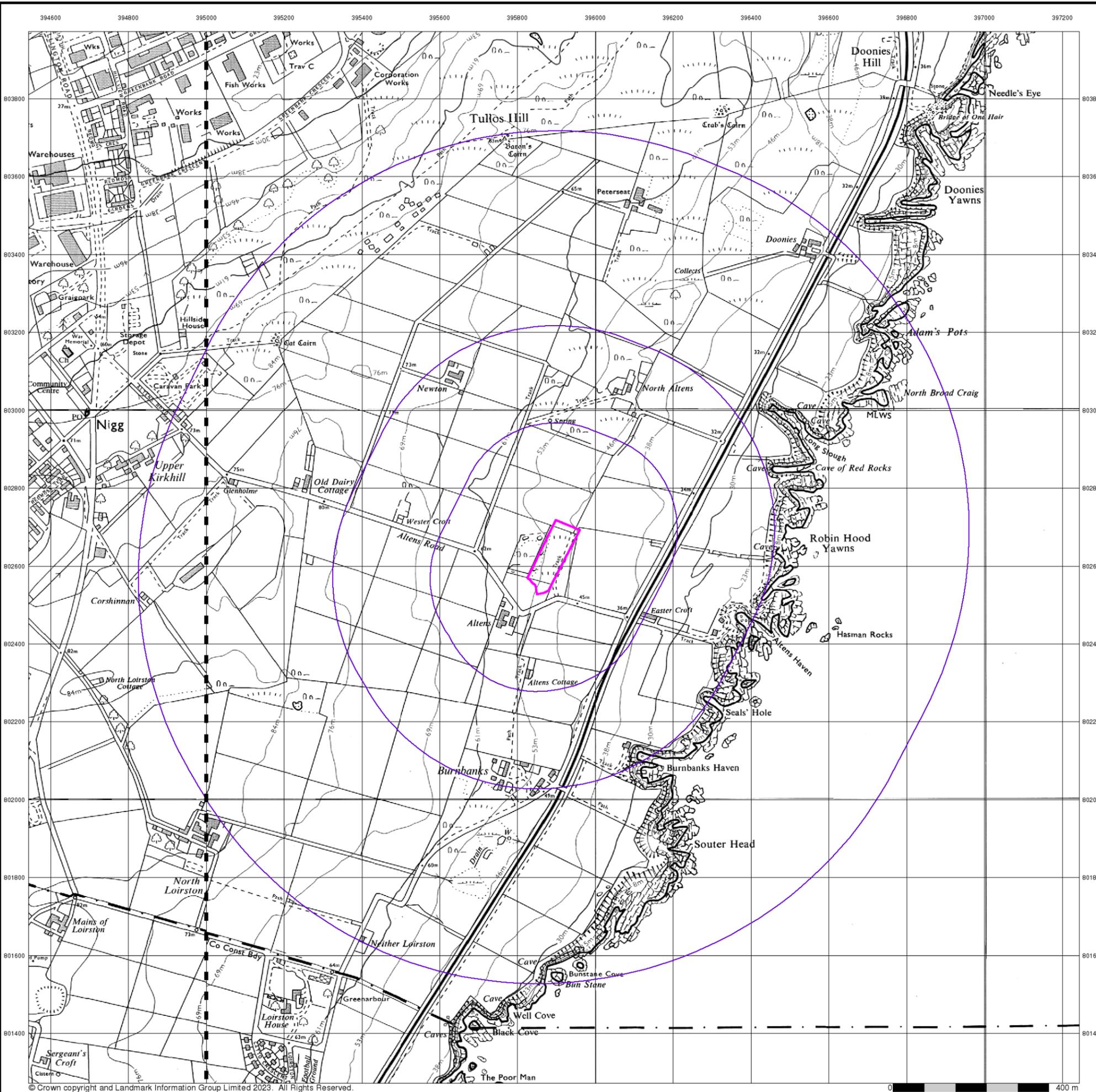
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 Site Area (Ha): 1.16
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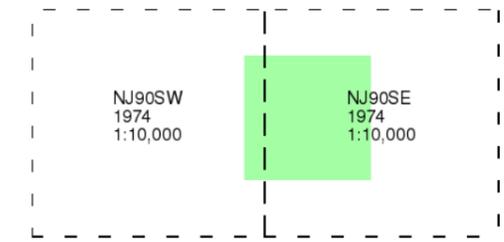
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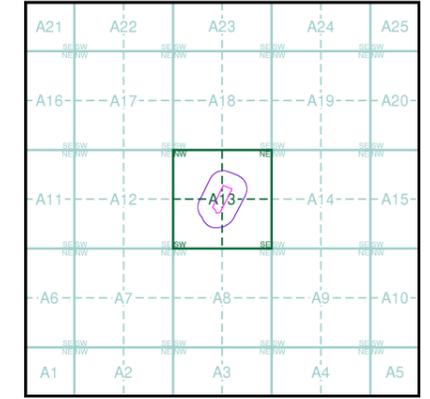
Ordnance Survey Plan Published 1974 Source map scale - 1:10,000

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)



Historical Map - Slice A



Order Details

Order Number: 328169547_1_1
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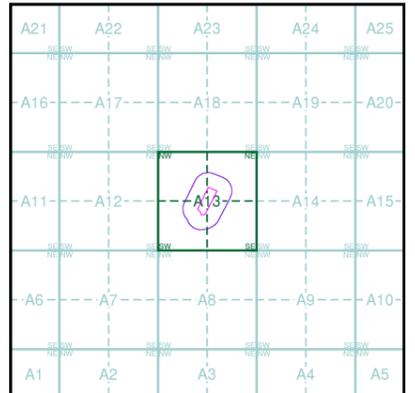
Aberdeen
Published 1981
Source map scale - 1:10,000

These maps were produced by the Russian military during the Cold War between 1950 and 1997, and cover 103 towns and cities throughout the U.K. The maps are produced at 1:25,000, 1:10,000 and 1:5,000 scale, and show detailed land use, with colour-coded areas for development, green areas, and non-developed areas. Buildings are coloured black and important building uses (such as hospitals, post offices, factories etc.) are numbered, with a numbered key describing their use. They were produced by the Russians for the benefit of navigation, as well as strategic military sites and transport hubs, for use if they were to have invaded the U.K. The detailed information provided indicates that the areas were surveyed using land-based personnel, on the ground, in the cities that are mapped.

Map Name(s) and Date(s)

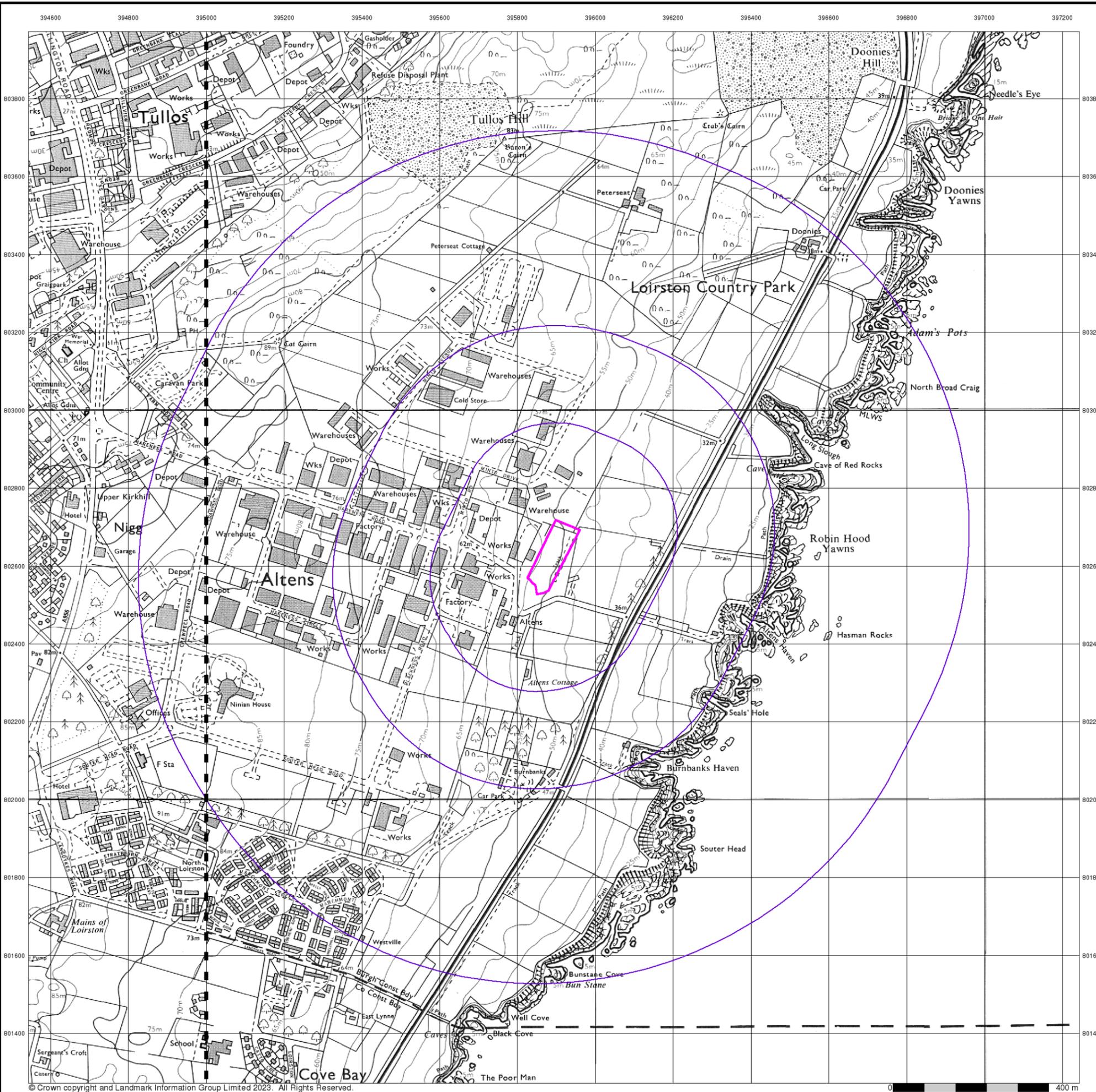
NJ90SW 1981 1:10,000	NJ90SE 1981 1:10,000
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Russian Map - Slice A



Order Details
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Site Details
 Hareness Road, ABERDEEN, AB12 3LE



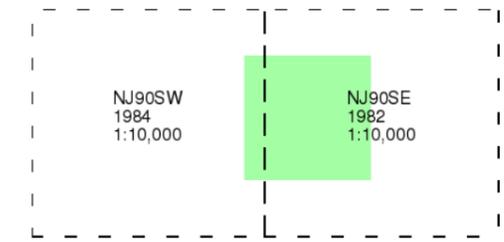
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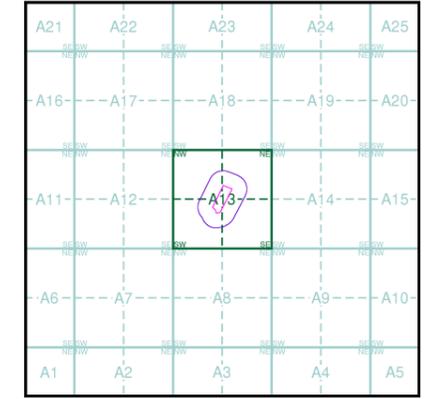
Ordnance Survey Plan
Published 1982 - 1984
Source map scale - 1:10,000

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)



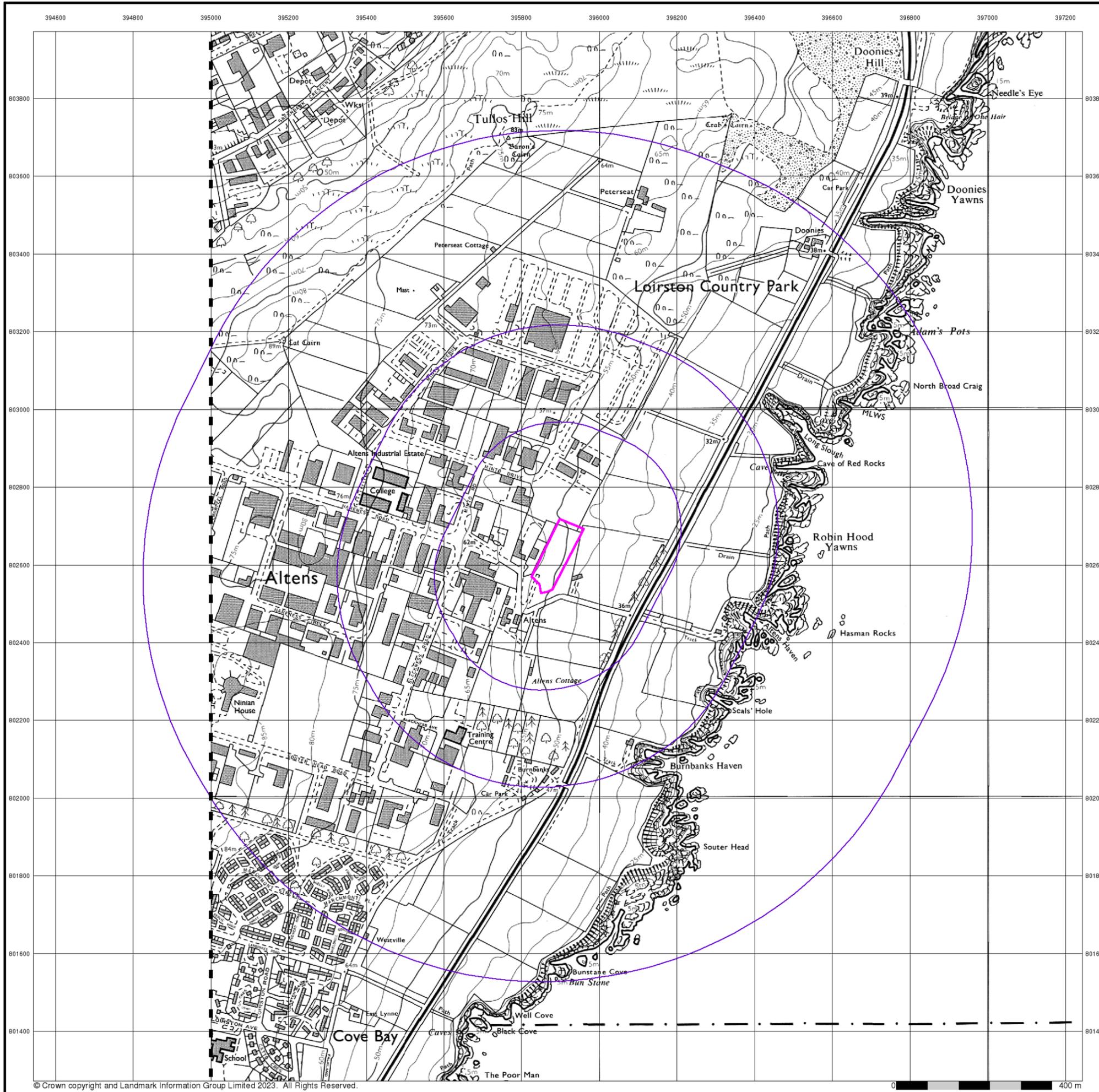
Historical Map - Slice A



Order Details
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Site Details
 Hareness Road, ABERDEEN, AB12 3LE

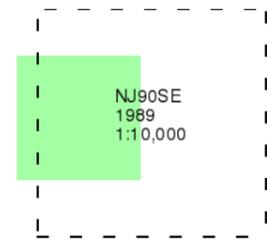
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 Web: www.envirocheck.co.uk



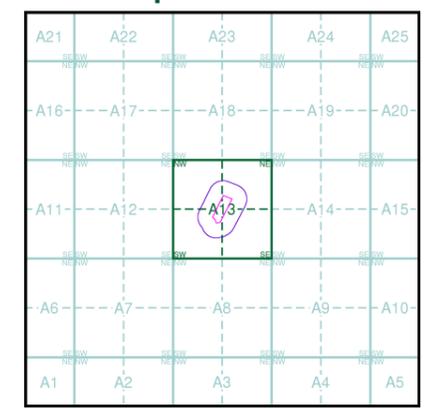
Ordnance Survey Plan
Published 1989
Source map scale - 1:10,000

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)



Historical Map - Slice A



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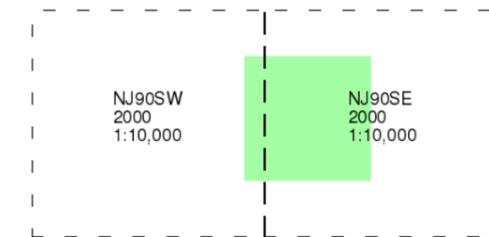
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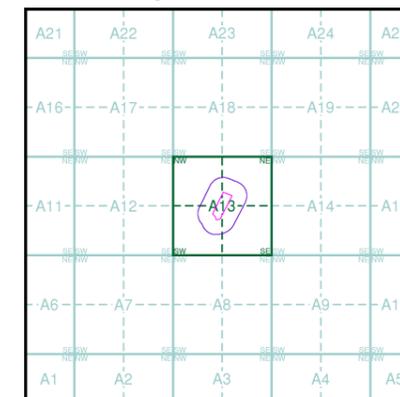
10k Raster Mapping
Published 2000
Source map scale - 1:10,000

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



Order Details

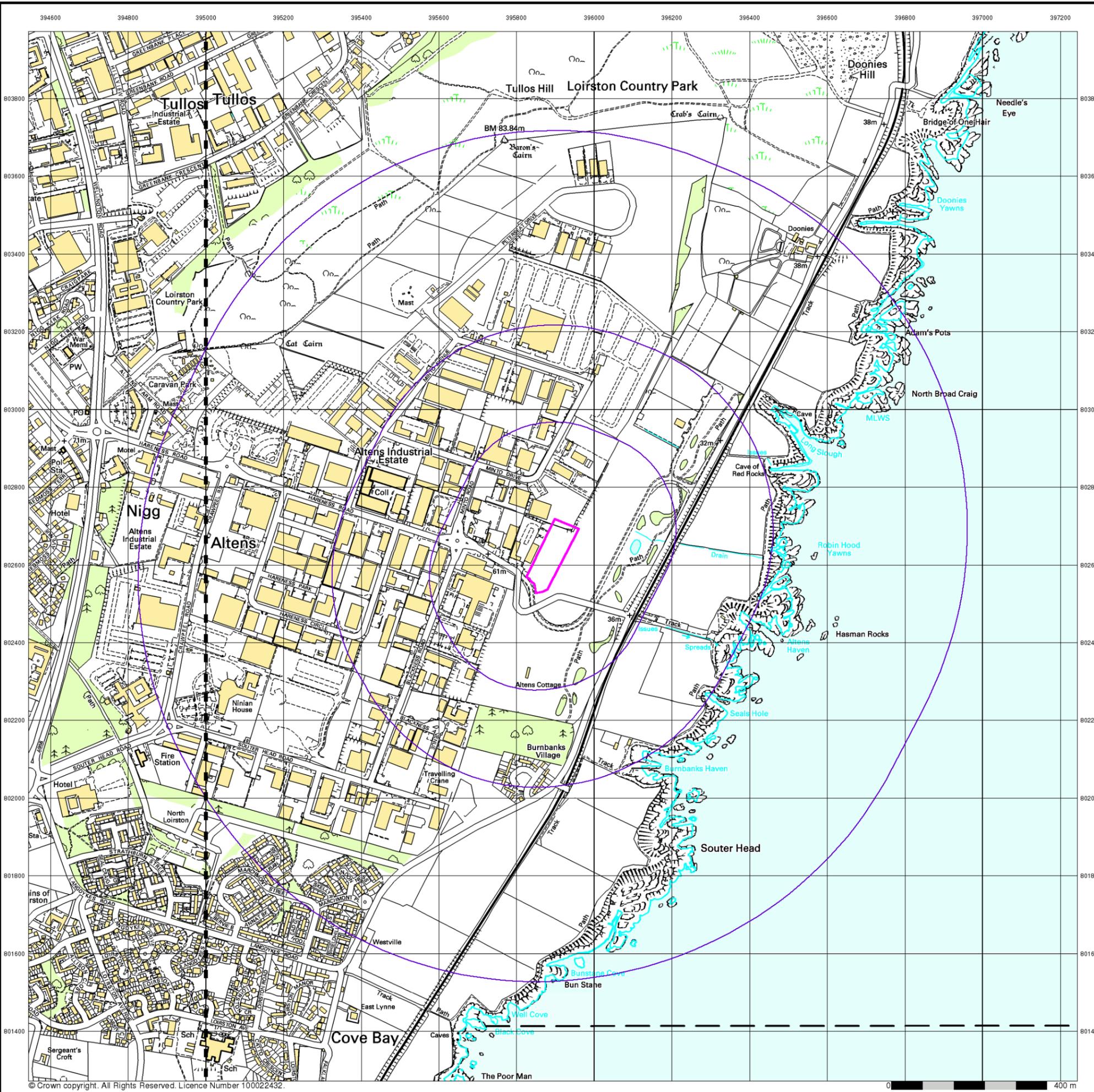
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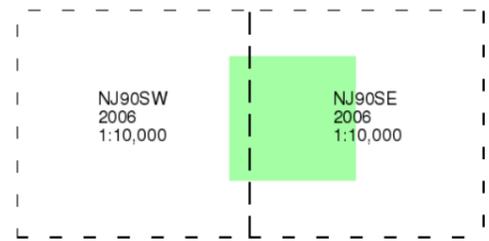
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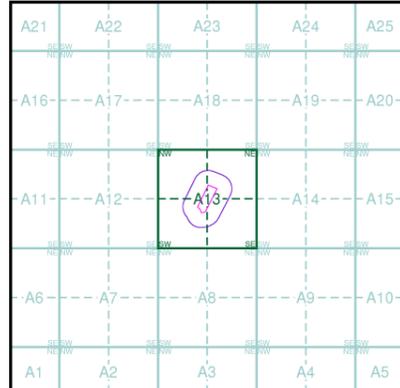
10k Raster Mapping
Published 2006
Source map scale - 1:10,000

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

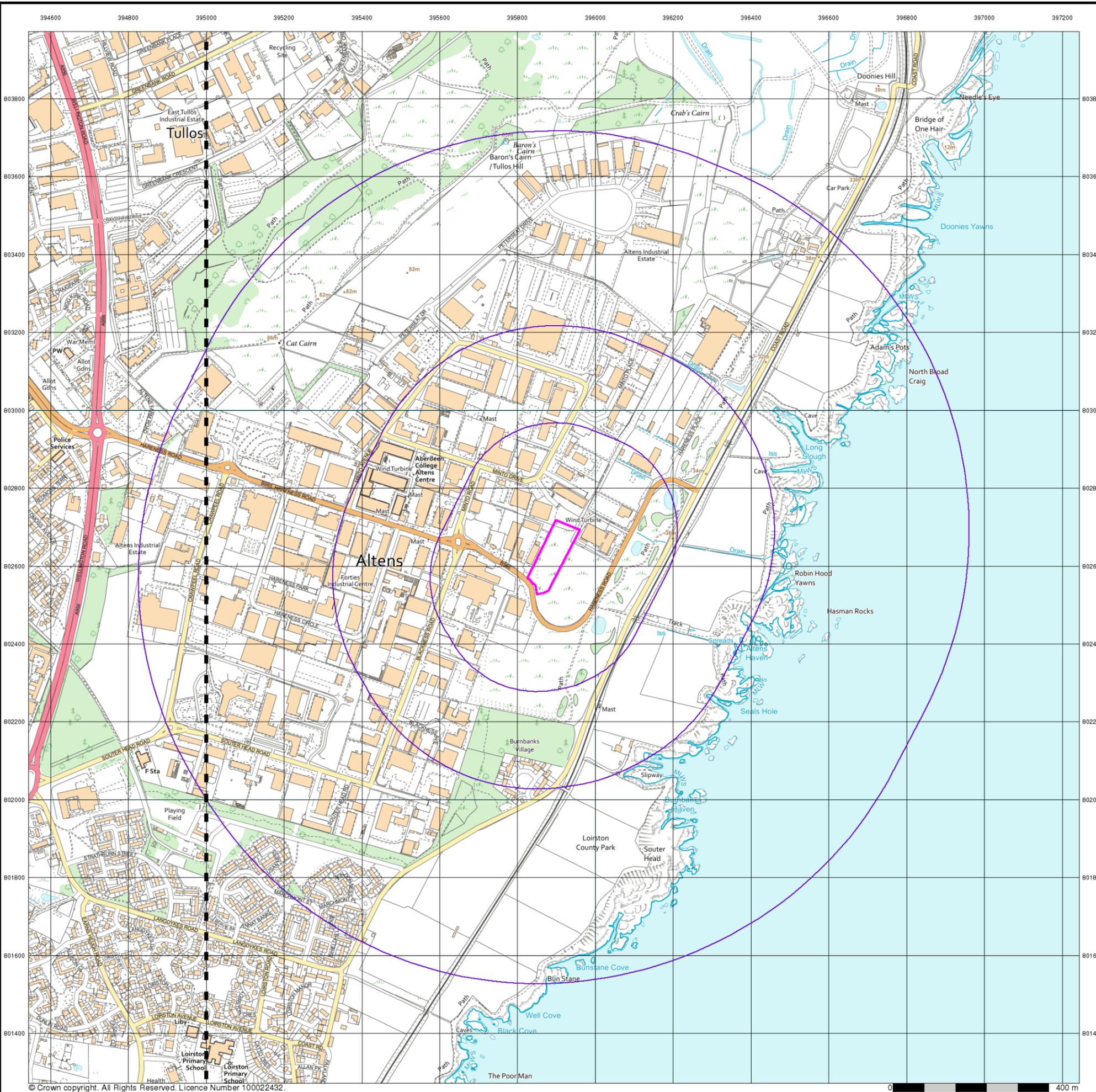


Order Details
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 Customer Ref: P23-336 AP
 National Grid Reference: 395890, 802620
 Slice: A
 Site Area (Ha): 1.16
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Site Details
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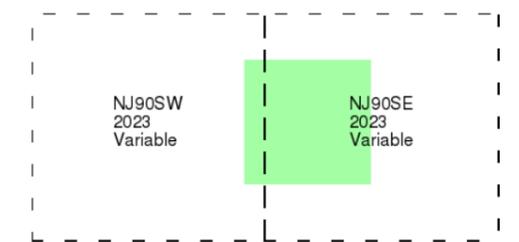
VectorMap Local

Published 2023

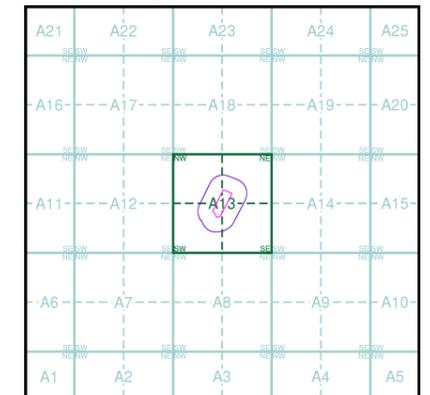
Source map scale - 1:10,000

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



Order Details

Order Number: 328169547_1_1
 Customer Ref: P23-336 AP
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Historical Mapping Legends

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

Quarry **Gravel Pit** **Sand Pit**
Clay Pit **Shingle** **Refuse Heap**
Sloping Masonry **Flat Rock**
Marsh **Reeds** **Osiers**
Rough Pasture **Furze** **Wood**
Mixed Wood **Brushwood** **Orchard**
Fir **Ford** **Stepping Stones**
Ferry **Waterfall** **Lock**
Trig. Station **Altitude at Trig. Station**
B.M. 325.9 **Bench Mark** **Surface Level**
Arrow denotes flow of water **Antiquities (site of)**
Cutting **Embankment**
Railway crossing Road **Level Crossing** **Road crossing Railway**
Railway crossing River or Canal **Road over single stream** **Road over River or Canal**
County Boundary (Geographical)
County & Civil Parish Boundary
Administrative County & Civil Parish Boundary
County Borough Boundary (England)
Co. Boro. Bdy.
County Burgh Boundary (Scotland)
Co. Burgh Bdy.
BP BS 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 **Sl** 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

Inactive Quarry, Chalk Pit or Clay Pit **Active Quarry, Chalk Pit or Clay Pit**
Rock **Boulders**
Cliff **Slopes** **Top**
Roofed Building **Glazed Roof Building**
Sloping Masonry **Archway**
Non-Coniferous Tree (surveyed) **Coniferous Tree (surveyed)**
Non-Coniferous Trees (not surveyed) **Coniferous Trees (not surveyed)**
Orchard Tree **Scrub** **Bracken**
Coppice, Osier **Reeds** **Marsh, Saltings**
Rough Grassland **Heath** **Culvert**
Direction of water flow **Bench Mark** **Antiquity (site of)**
Cave Entrance **Triangulation Station** **Electricity Pylon**
Electricity Transmission Line
County Boundary (Geographical)
County & Civil Parish Boundary
Civil Parish Boundary
Admin. County or County Bor. Boundary
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
EI 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

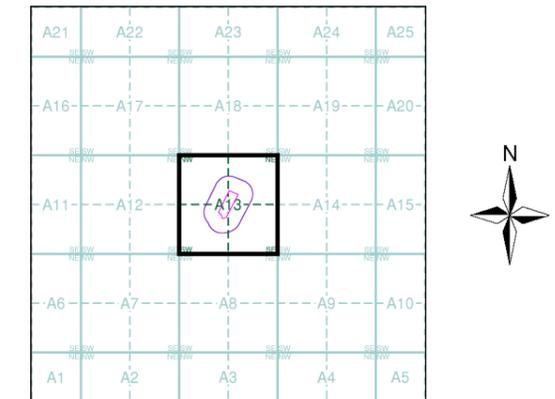
Cliff **Slopes** **Top**
Rock **Rock (scattered)**
Boulders **Boulders (scattered)**
Positioned Boulder **Scree**
Non-Coniferous Tree (surveyed) **Coniferous Tree (surveyed)**
Non-Coniferous Trees (not surveyed) **Coniferous Trees (not surveyed)**
Orchard Tree **Scrub** **Bracken**
Coppice, Osier **Reeds** **Marsh, Saltings**
Rough Grassland **Heath** **Culvert**
Direction of water flow **Triangulation Station** **Antiquity (site of)**
Electricity Transmission Line **Electricity Pylon**
B.M. 231.60m Bench Mark **Buildings with Building Seed**
Roofed Building **Glazed Roof Building**
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
EI Gen Sta Electricity Generating Station **Sewage Ppg Sta** Sewage Pumping Station
EI P Electricity Pole, Pillar **SB, S Br** Signal Box or Bridge
EI 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 Governor **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



Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Kincardineshire	1:2,500	1867	2
Kincardineshire	1:2,500	1903	3
Kincardineshire	1:2,500	1925	4
Ordnance Survey Plan	1:2,500	1963 - 1964	5
Ordnance Survey Plan	1:1,250	1982 - 1987	6
Ordnance Survey Plan	1:2,500	1982	7
Additional SIMs	1:1,250	1987	8
Large-Scale National Grid Data	1:1,250	1993	9
Large-Scale National Grid Data	1:2,500	1993	10
Historical Aerial Photography	1:2,500	2001	11

Historical Map - Segment A13



Order Details

Order Number: 328169547_1_1
 Customer Ref: P23-336 AP
 National Grid Reference: 395890, 802620
 Slice: A
 Site Area (Ha): 1.16
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Site Details

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Kincardineshire

Published 1867

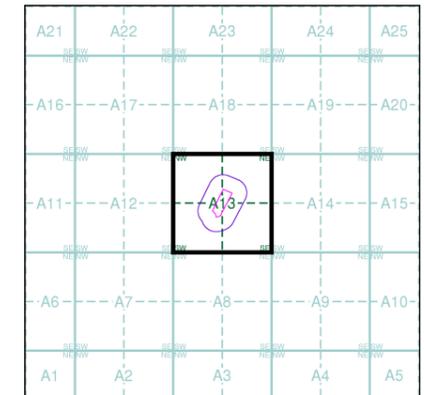
Source map scale - 1:2,500

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)

004_07
1867
1:2,500
004_11
1867
1:2,500

Historical Map - Segment A13

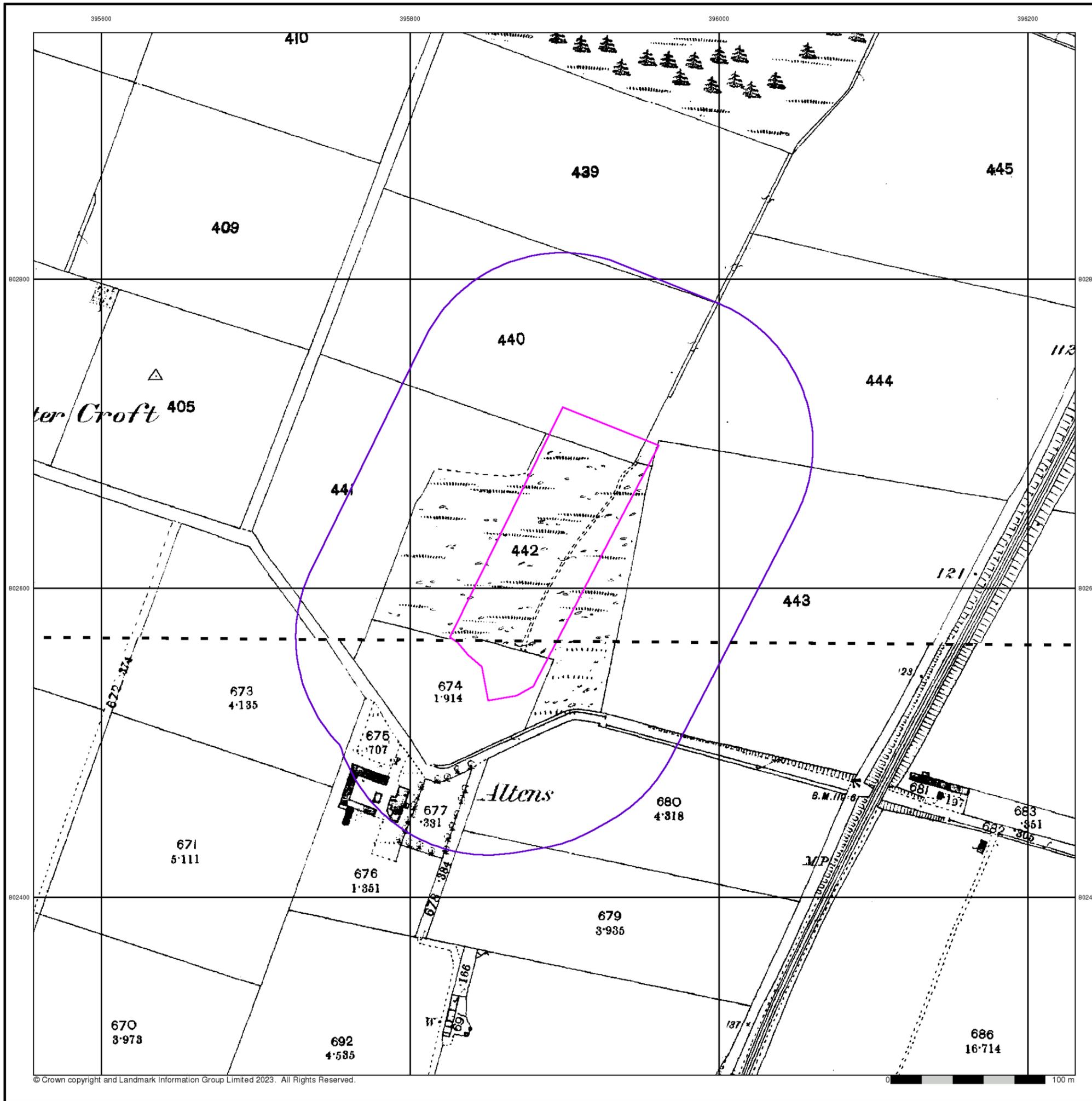


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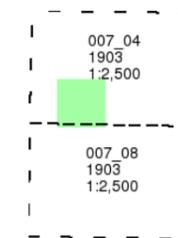
Kincardineshire

Published 1903

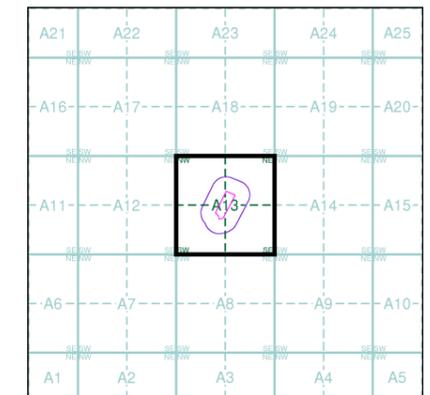
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The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered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

Map Name(s) and Date(s)



Historical Map - Segment A13

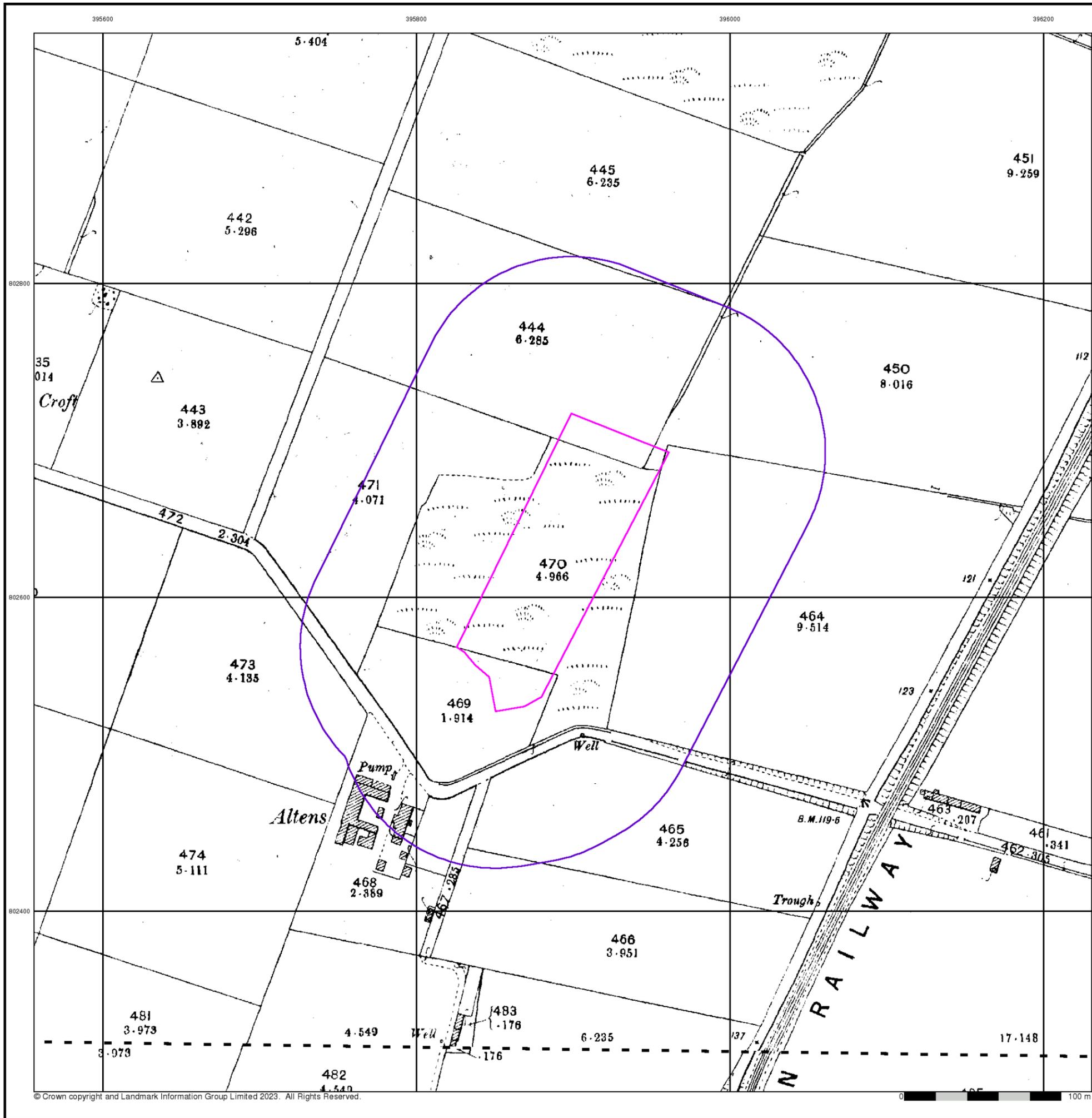


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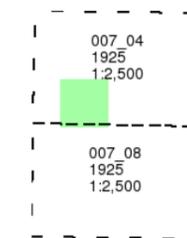
Kincardineshire

Published 1925

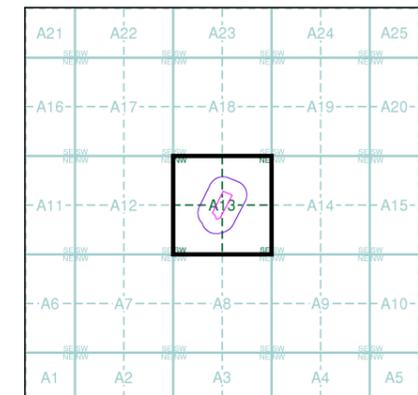
Source map scale - 1:2,500

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

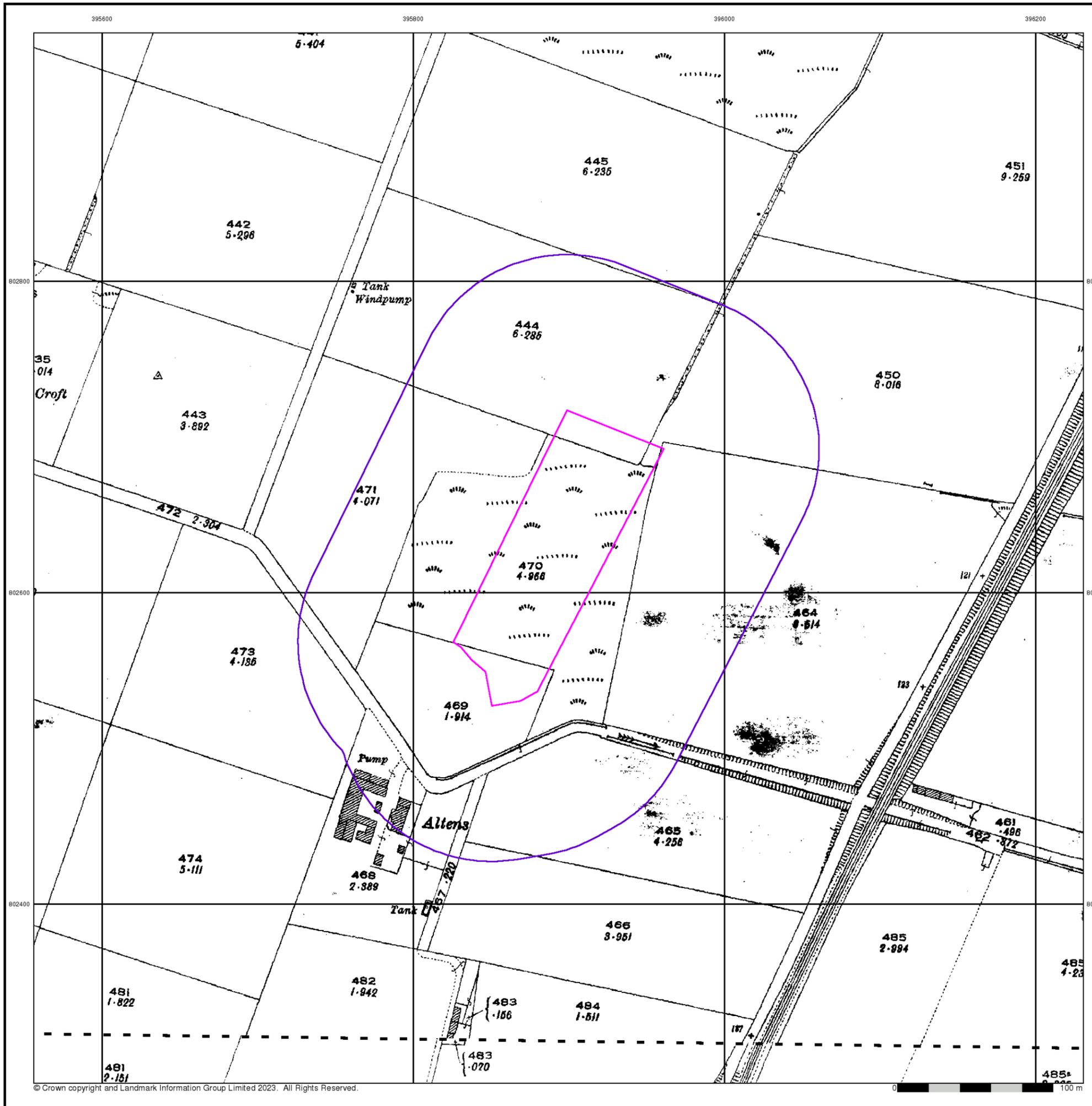


Order Details

Order Number: 328169547_1_1
 Customer Ref: P23-336 AP
 National Grid Reference: 395890, 802620
 Slice: A
 Site Area (Ha): 1.16
 Search Buffer (m): 100

Site Details

Hareness Road, ABERDEEN, AB12 3LE



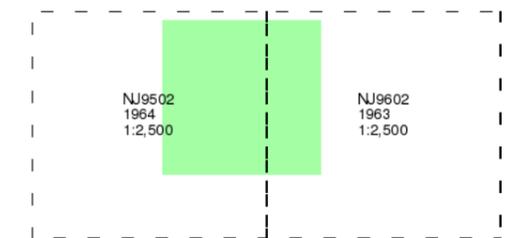
Ordnance Survey Plan

Published 1963 - 1964

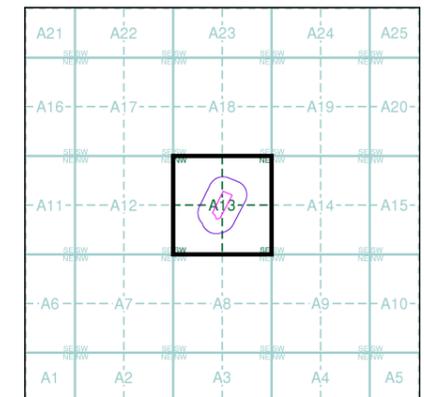
Source map scale - 1:2,500

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

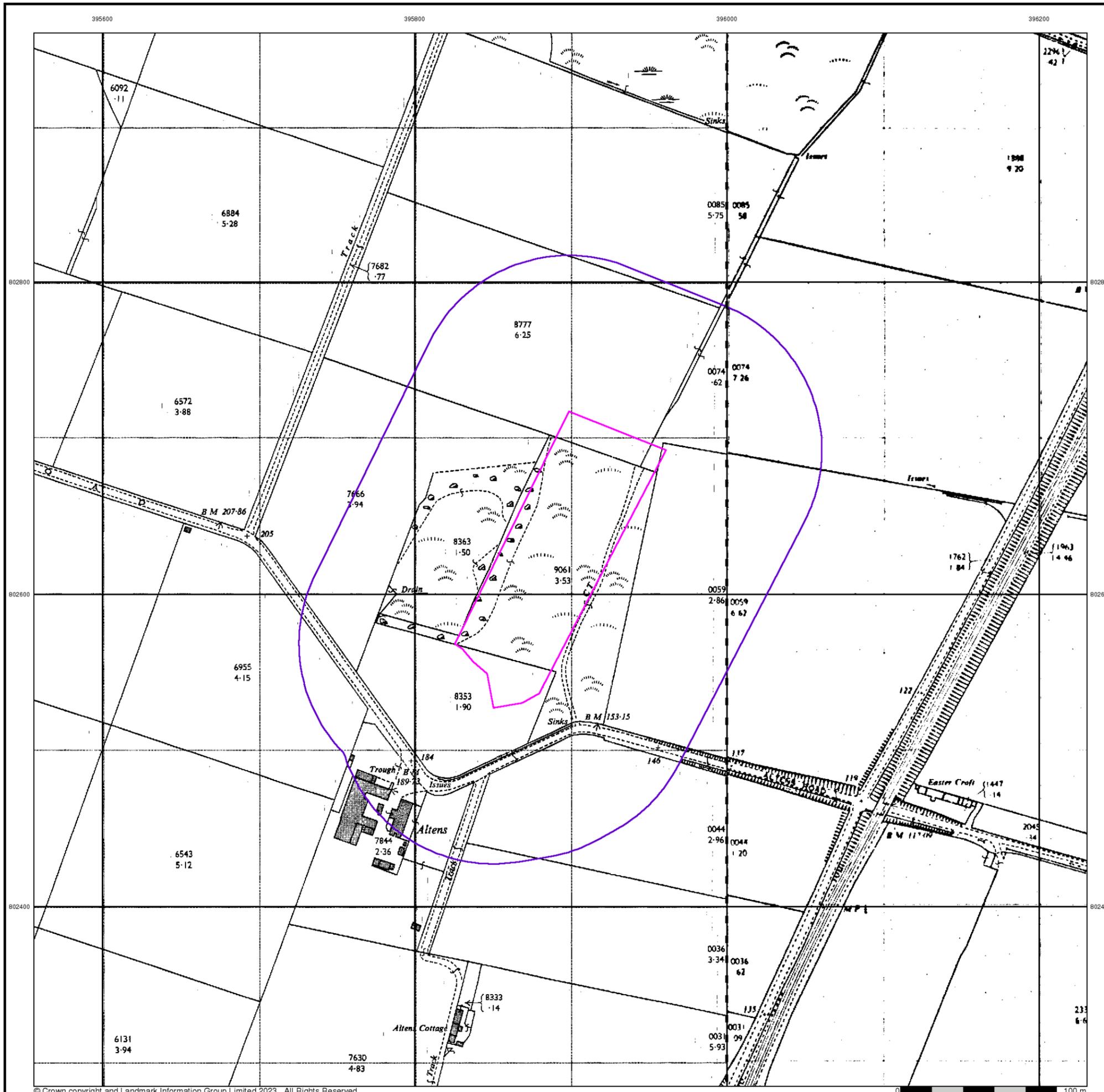


Order Details

Order Number: 328169547_1_1
 Customer Ref: P23-336 AP
 National Grid Reference: 395890, 802620
 Slice: A
 Site Area (Ha): 1.16
 Search Buffer (m): 100

Site Details

Hareness Road, ABERDEEN, AB12 3LE



Ordnance Survey Plan

Published 1982 - 1987

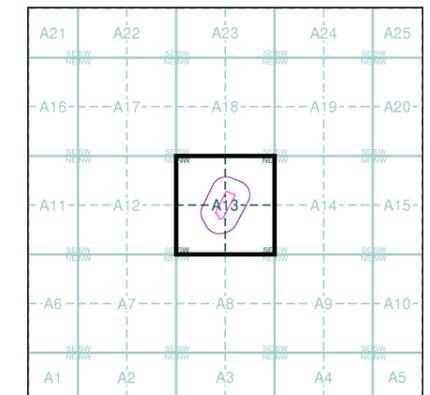
Source map scale - 1:1,250

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

Map Name(s) and Date(s)

NJ9502NE	1982	1:1,250
NJ9502SE	1987	1:1,250

Historical Map - Segment A13

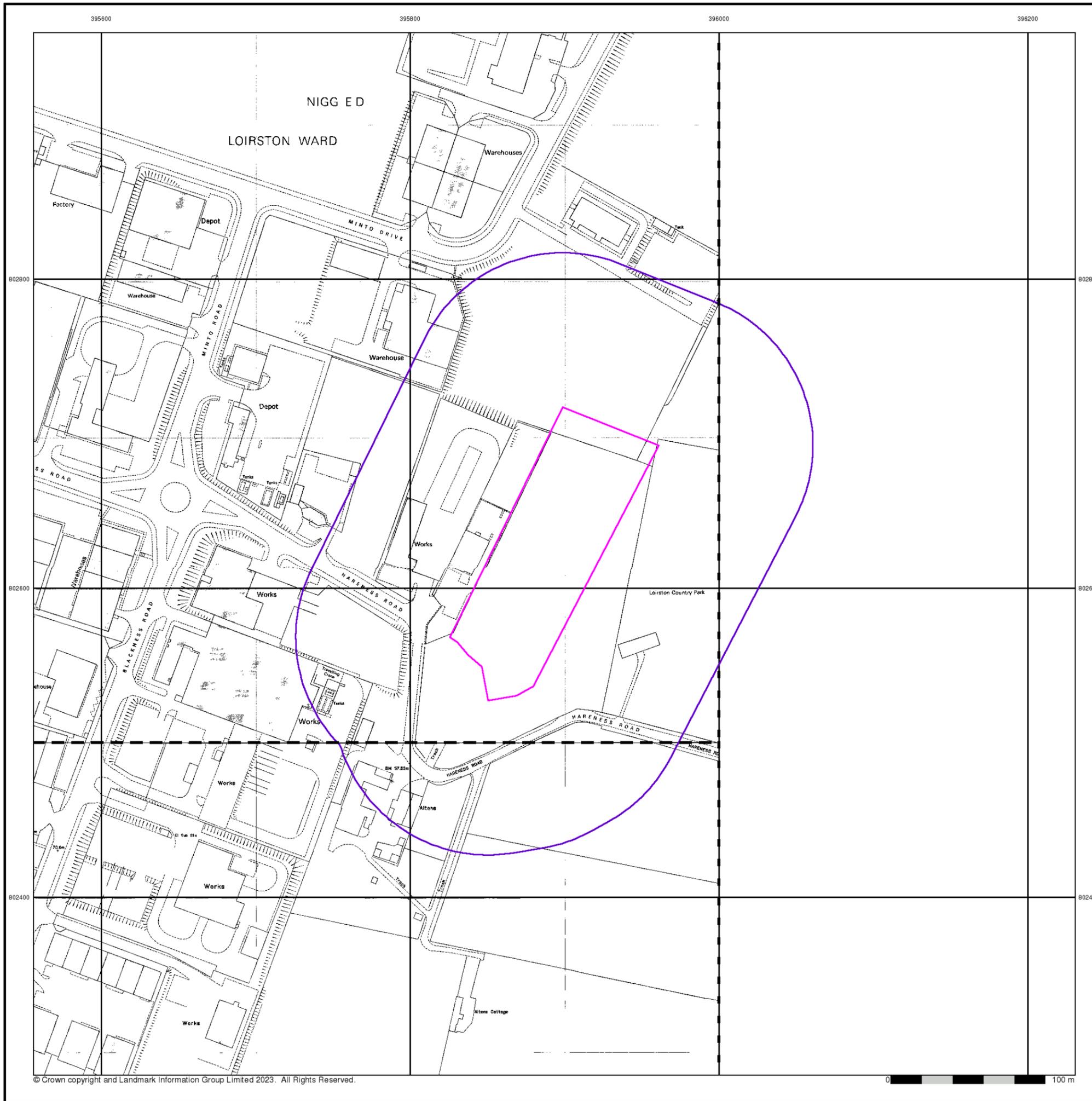


Order Details

Order Number: 328169547_1_1
 Customer Ref: P23-336 AP
 National Grid Reference: 395890, 802620
 Slice: A
 Site Area (Ha): 1.16
 Search Buffer (m): 100

Site Details

Hareness Road, ABERDEEN, AB12 3LE



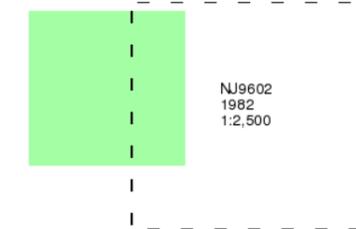
Ordnance Survey Plan

Published 1982

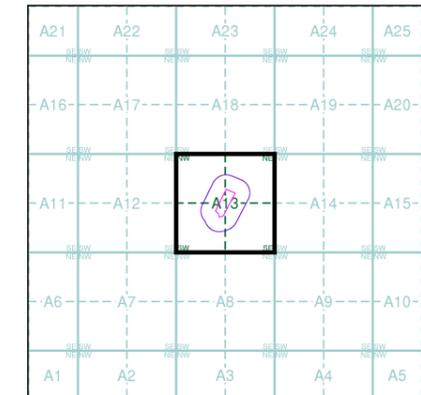
Source map scale - 1:2,500

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

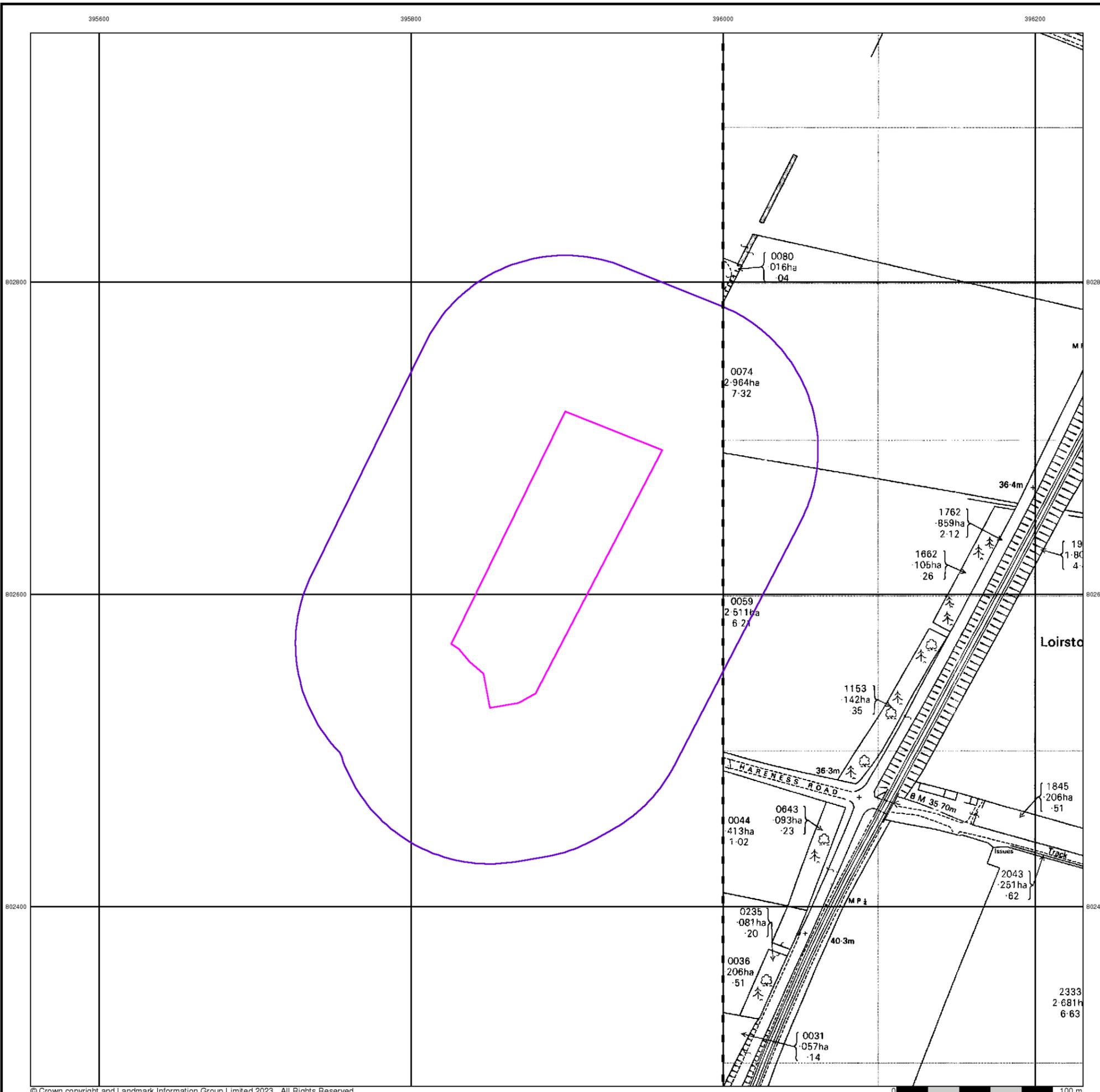


Order Details

Order Number: 328169547_1_1
 Customer Ref: P23-336 AP
 National Grid Reference: 395890, 802620
 Slice: A
 Site Area (Ha): 1.16
 Search Buffer (m): 100

Site Details

Hareness Road, ABERDEEN, AB12 3LE



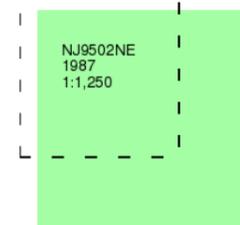
Additional SIMs

Published 1987

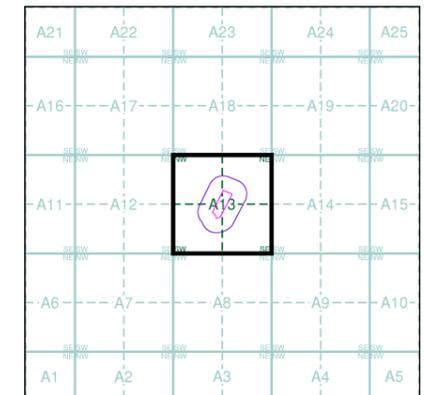
Source map scale - 1:1,250

The SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') are further, minor editions of mapping which were produced and published in between the main editions as an area was updated. They date from 1947 to 1994, and contain detailed information on buildings, roads and land-use. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)



Historical Map - Segment A13

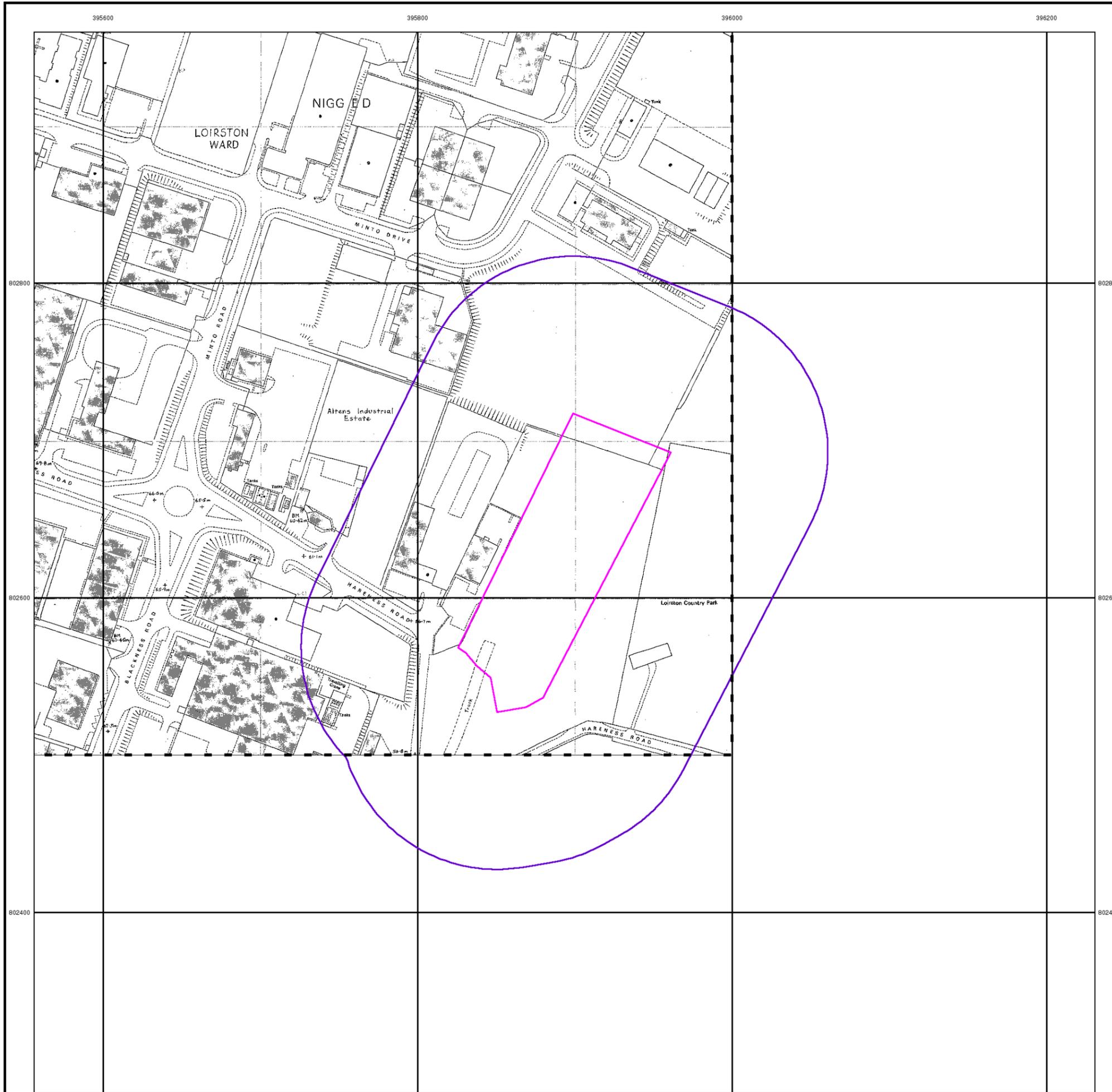


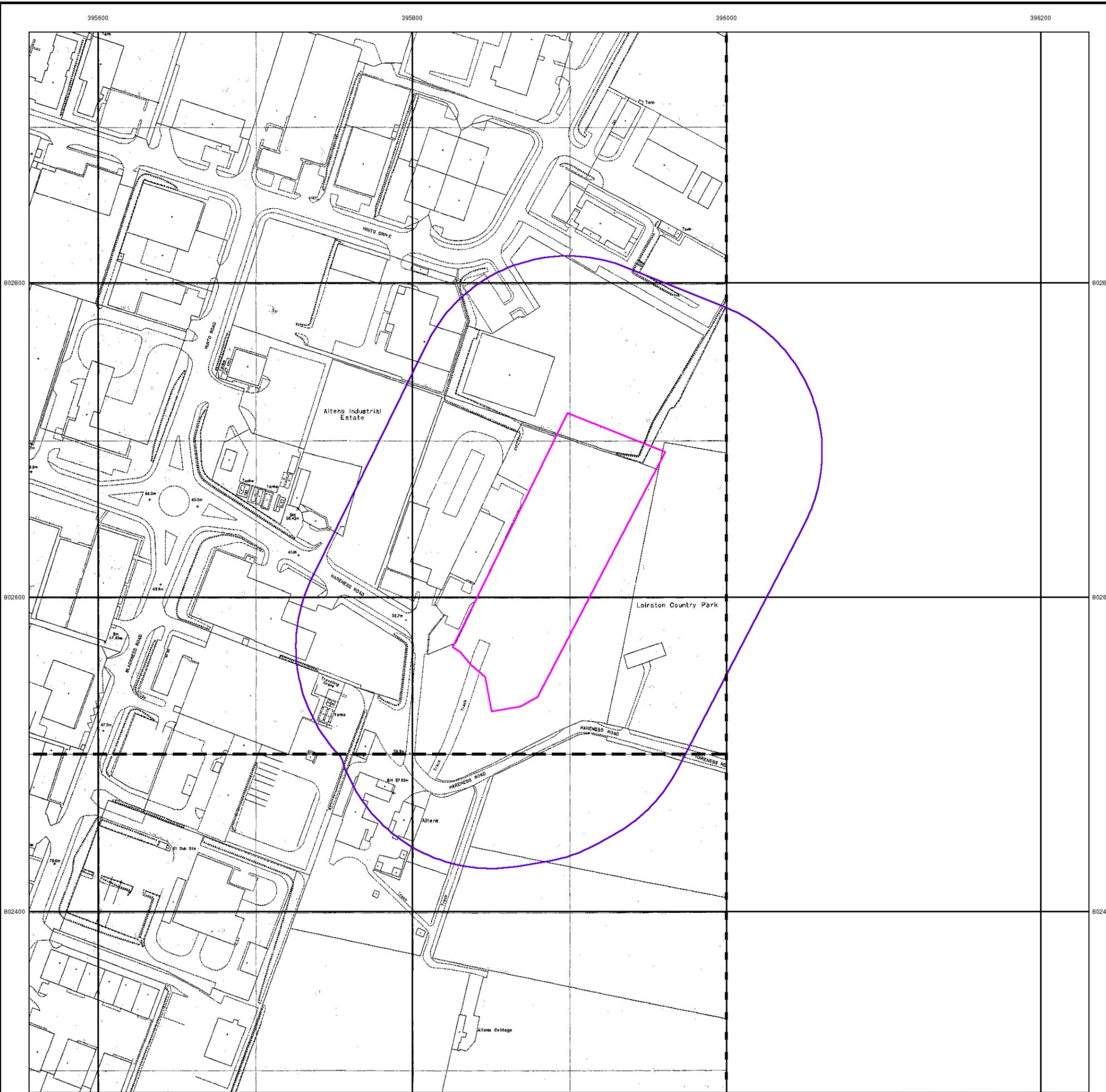
Order Details

Order Number: 328169547_1_1
 Customer Ref: P23-336 AP
 National Grid Reference: 395890, 802620
 Slice: A
 Site Area (Ha): 1.16
 Search Buffer (m): 100

Site Details

Hareness Road, ABERDEEN, AB12 3LE





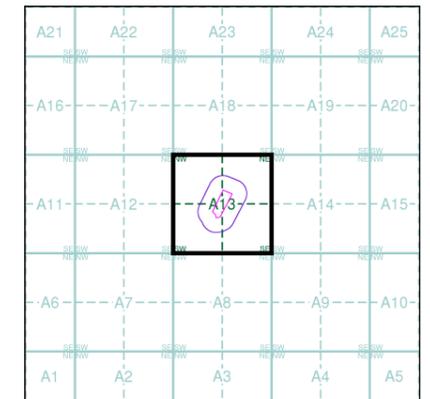
Large-Scale National Grid Data
Published 1993
Source map scale - 1:1,250

'Large Scale National Grid Data' superseded SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') in 1992, and continued to be produced until 1999. These maps were the fore-runners of digital mapping and so provide detailed information on houses and roads, but tend to show less topographic features such as vegetation. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)

NJ9502NE	1993	1:1,250
NJ9502SE	1993	1:1,250

Historical Map - Segment A13



Order Details
 Order Number: 328169547_1_1
 Customer Ref: P23-336 AP
 National Grid Reference: 395890, 802620
 Slice: A
 Site Area (Ha): 1.16
 Search Buffer (m): 100

Site Details
 Hareness Road, ABERDEEN, AB12 3LE

395600

395800

396000

396200



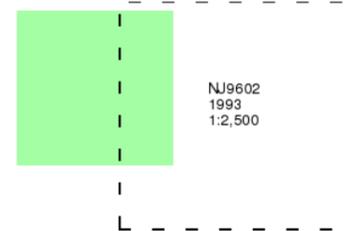
Large-Scale National Grid Data

Published 1993

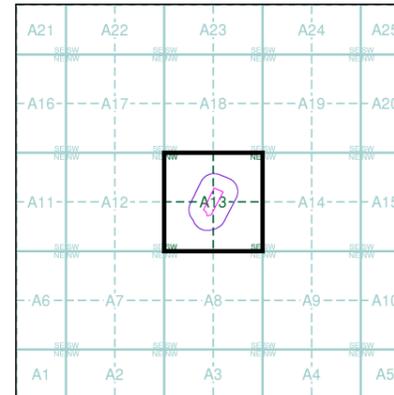
Source map scale - 1:2,500

'Large Scale National Grid Data' superseded SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') in 1992, and continued to be produced until 1999. These maps were the fore-runners of digital mapping and so provide detailed information on houses and roads, but tend to show less topographic features such as vegetation. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)



Historical Map - Segment A13



Order Details

Order Number: 328169547_1_1
 Customer Ref: P23-336 AP
 National Grid Reference: 395890, 802620
 Slice: A
 Site Area (Ha): 1.16
 Search Buffer (m): 100

Site Details

Hareness Road, ABERDEEN, AB12 3LE



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

395600

395800

396000

396200



802800

802800

802600

802600

802400

802400

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0 100 m

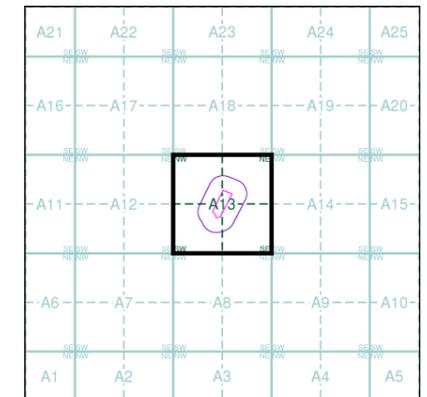


Historical Aerial Photography

Published 2001

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



Order Details

Order Number: 328169547_1_1
 Customer Ref: P23-336 AP
 National Grid Reference: 395890, 802620
 Slice: A
 Site Area (Ha): 1.16
 Search Buffer (m): 100

Site Details

Hareness Road, ABERDEEN, AB12 3LE



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

Appendix B
Publicly Available Database

P23-336 Proposed Cable Test Rig Site, Hareness Road, Aberdeen
 Record of Publicly Available Information



©Crown Copyright. SEPA
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 (2015).

This map displays bodies of
 surface waters coloured by
 overall status for the latest
 available year

Condition

- High
- Good
- Moderate
- Poor
- Bad

Select a water body from the map to view further details here.

ID and Name	Local Authority	Catchment	Category	
200105: Don Estuary to Souter He...	Aberdeen City	Available for ...	Coastal	Click here to view further details...

P23-336 Proposed Cable Test Rig Site, Hareness Road, Aberdeen

Record of Publicly Available Information

Search information sheets:

[Search](#)

[Return to summary tool](#)

[Tool Guidance](#)

[Terms and Conditions](#)

Don Estuary to Souter Head (Aberdeen) is a coastal water body (ID: 200105), in the Scotland river basin district. It is 50.2 square kilometres in area. The water body has been designated as a heavily modified water body on account of physical alterations that cannot be addressed without a significant impact on navigation and from an increased risk of subsidence or flooding.



Water classification data for selected water body

ID	Name	Parameter	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008	2007
200105	Don Estuary to Souter Head (Aberdeen)	1: Overall status	Good ecologic...	Poor	Good	Good	Good	Good	Good	Good						
		1-1: Pre-HMWB status	Poor	Poor	Good	Good	Good	Good	Good	-						
		1-2: Overall chemistry	-	-	-	-	-	-	-	-	-	Pass	Pass	Pass	Pass	Pass
		1-2-1: Priority substances	-	-	-	-	-	-	-	-	-	Pass	Pass	Pass	Pass	Pass
		1-2-1-7: Cadmium	-	-	-	-	-	-	-	-	-	-	Pass	Pass	Pass	Pass
		1-2-1-13: Lead	-	-	-	-	-	-	-	-	-	Pass	Pass	Pass	Pass	Pass
		1-2-1-36: Mercury	-	-	-	-	-	-	-	-	-	Pass	Pass	Pass	Pass	Pass
		1-3: Overall ecology	Poor	Poor	Good	Good	Good	Good	Good	Good						
		1-3-1: Physico-Chem	-	-	-	-	-	-	-	-	-	High	High	High	High	High
		1-3-1-4: Dissolved Oxygen	-	-	-	-	-	-	-	-	-	High	High	High	High	High
		1-3-2: Biological elements	Good	Good	Good	Good	Good	Good	Good	Good						
		1-3-2-3: Invertebrate animals	Good	Good	Good	Good	Good	Good	Good	Good						
		1-3-2-3-1: Imposex assessment	Good	Good	Good	Good	Good	Good	Good	Good						
		1-3-2-3-4: Benthic invertebrates (IQI)	High	High	Good	Good	Good	Good	-	-						
		1-3-2-9-1: Phytoplankton	High	High	-	-	-	-	-	-						
		1-3-3: Specific pollutants	-	-	-	-	-	-	-	-	-	Pass	Pass	Pass	Pass	Pass
		1-3-3-8: Copper	-	-	-	-	-	-	-	-	-	-	Pass	Pass	Pass	Pass
		1-3-3-9: Zinc	-	-	-	-	-	-	-	-	-	Pass	Pass	Pass	Pass	Pass
		1-3-3-15: Unionised ammonia	-	-	-	-	-	-	-	-	-	Pass	Pass	Pass	Pass	Pass
		1-3-4: Hydromorphology	Poor	Poor	Good	Good	Good	Good	Good	Good						
		1-3-4-1: Morphology	Poor	Poor	Good	Good	Good	Good	Good	Good						
		4-1: Water quality	Good	Good	-	-	-	-	-	-						

P23-336 Proposed Cable Test Rig Site, Hareness Road, Aberdeen Record of Publicly Available Information

Search Map and Data:

Search

[Quick help](#)
[Full help](#)

[Terms and conditions](#)

Navigation Panel

Geographical Filters

Additional Filters

Designation:
Type to search in list

- (All) 0 values
- (Empty)

Water bodies within protected areas:
Type to search in list

- (All) 308 values
- Abbey St Bathans
- Aberdeen
- Aberdeenshire, Banff, Bu...
- Aberlour

Category:

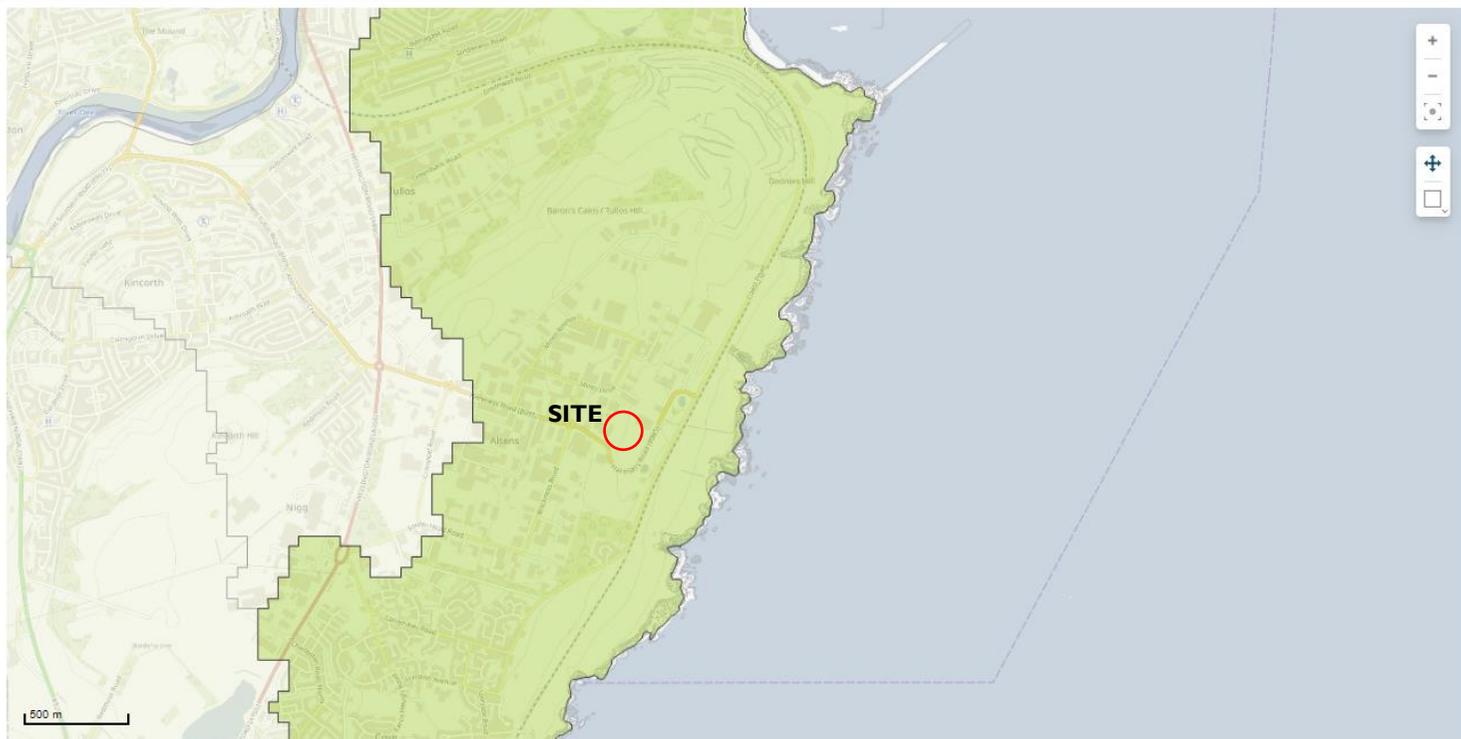
- (All) 1 values
- Groundwater

Less Than Good Condition:

- (All) 2 values
- N
- Y

Horizon description:
 Bedrock
 N/A
 Superficial

[Clear all filters](#)



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(2015).

This map displays bodies of groundwater coloured by overall status for the latest available year

Condition

- Good
- Poor



Select a water body from the map to view further details here.

ID and Name	Local Authority	Catchment	Category	
150625: Portlethen	Aberdeen City,	...	Available for ...	Groundwater Click here to view further details...

Data are displayed for the latest available year: 2020.

P23-336 Proposed Cable Test Rig Site, Hareness Road, Aberdeen

Record of Publicly Available Information

Navigation Panel

Geographical Filters

Additional Filters

Designation:
 Type to search in list
 (All) 0 values
 (Empty)

Water bodies within protected areas:
 Type to search in list
 (All) 111 values
 Aberdeenshire, Banff, Bu...
 Allian Water Valley
 Almond Valley
 Alness Coastal and Peffe...

Category:
 (All) 1 values
 Groundwater

Less Than Good Condition:
 (All) 2 values
 N
 Y

Horizon description:
 Bedrock
 N/A
 Superficial

[Clear all filters](#)



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 (2015).

This map displays bodies of
 groundwaters coloured by
 overall status for the latest
 available year

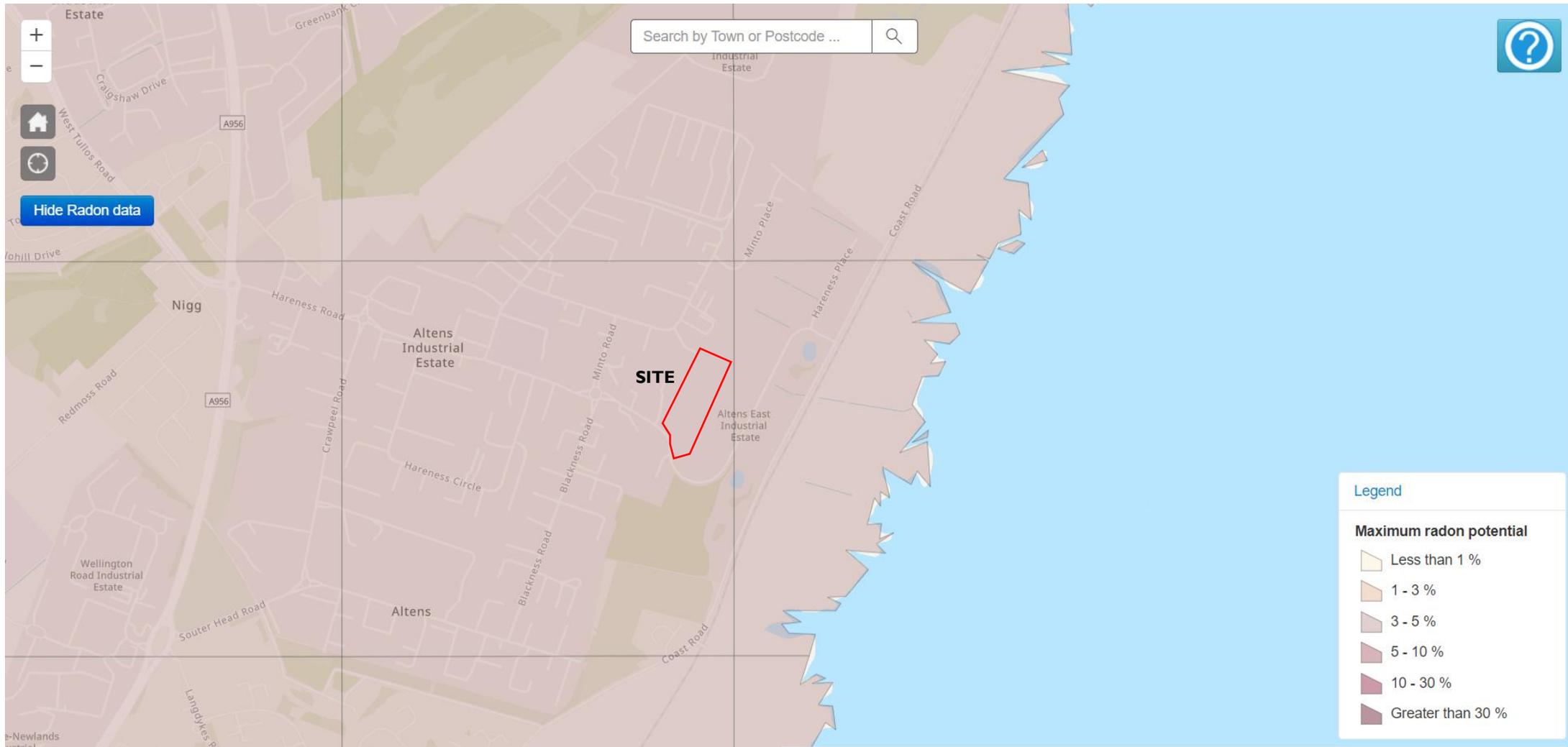
Condition
 ● Good
 ● Poor

Select a water body from the map to view further details here.

ID and Name	Local Authority	Catchment	Category
-------------	-----------------	-----------	----------

Data are displayed for the latest available year: 2020.

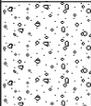
P23-336 Proposed Cable Test Rig Site, Hareness Road, Aberdeen
Record of Publicly Available Information



Appendix C
Records of Exploratory Holes

Rotary Core Log

Project Name: Proposed Test Rig Site		Client: The Mason Evans Partnership		Date: 10/01/2024 - 11/01/2024	
Location: Hareness Road, Aberdeen		Contractor: Clyde Ground Investigation Ltd			
Project No. : Clyde 0209		Crew Name: Ronnie Britton / James Brownlie		Drilling Equipment: Beretta T25	
Borehole Number BH01	Hole Type RC	Level	Logged By Calum Bisset	Scale 1:50	Page Number Sheet 1 of 1

Well	Water	Depth (m)	Type /FI	Coring			Diameter Recovery (SPT)	Depth (m)	Level (m)	Legend	Stratum Description	
				TCR	SCR	RQD						
								0.70			Brown sandy fine to coarse GRAVEL with cobbles. (Drillers description).	
								1.20			Split GRANITE and PSAMMITE. (Drillers description).	1
											Strong dark grey thinly laminated to thinly bedded fine to coarse grained PSAMMITE with occasional quartz micro veins and coarse grained granitic veins. Fresh with very little evidence of weathering. Granite veins become more abundant towards base.	2
												3
												4
												5
												6
								7.20			End of Borehole at 7.200m	7
												8
												9
												10

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation				Drilling Flush					
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation	Depth Top	Depth Base	Type	Colour	Min (%)	Max (%)

Remarks
Hole carried out at Clients proposed location. Gas and groundwater monitoring standpipe installed and finished with upstand cover on completion.

Rotary Core Log

Project Name: Proposed Test Rig Site		Client: The Mason Evans Partnership		Date: 18/12/2023 - 19/12/2023	
Location: Hareness Road, Aberdeen		Contractor: Clyde Ground Investigation Ltd			
Project No. : Clyde 0209		Crew Name: Ronnie Britton / James Brownlie		Drilling Equipment: Beretta T25	
Borehole Number BH03	Hole Type RC	Level	Logged By Calum Bisset	Scale 1:50	Page Number Sheet 1 of 2

Well	Water	Depth (m)	Type /FI	Coring			Diameter Recovery (SPT)	Depth (m)	Level (m)	Legend	Stratum Description	
				TCR	SCR	RQD						
								2.40 2.50			Brown sandy fine to coarse GRAVEL with cobbles and boulders. (Drillers description).	1
											Split GRANITE and PSAMMITE. (Drillers description). Weak locally medium strong dark greyish brown thinly laminated to thinly bedded fine to medium grained PSAMMITE interlaminated with PELITE. Highly weathered with staining and weakened core throughout. Highly fractured.	2 3 4
								6.00			Strong dark purplish grey thinly laminated to thinly bedded fine to coarse grained PSAMMITE with occasional quartz micro veins. Partially weathered with staining throughout.	5 6 7
												8 9 10

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation				Drilling Flush					
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation	Depth Top	Depth Base	Type	Colour	Min (%)	Max (%)

Remarks
Hole carried out at Clients proposed location. Gas and groundwater monitoring standpipe installed and finished with upstand cover on completion.

Rotary Core Log

Project Name: Proposed Test Rig Site		Client: The Mason Evans Partnership		Date: 18/12/2023 - 19/12/2023	
Location: Hareness Road, Aberdeen		Contractor: Clyde Ground Investigation Ltd			
Project No. : Clyde 0209		Crew Name: Ronnie Britton / James Brownlie		Drilling Equipment: Beretta T25	
Borehole Number BH03	Hole Type RC	Level	Logged By Calum Bisset	Scale 1:50	Page Number Sheet 2 of 2

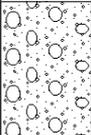
Well	Water	Depth (m)	Type /FI	Coring			Diameter Recovery (SPT)	Depth (m)	Level (m)	Legend	Stratum Description	
				TCR	SCR	RQD						
								10.40			Strong dark purplish grey thinly laminated to thinly bedded fine to coarse grained PSAMMITE with occasional quartz micro veins. Partially weathered with staining throughout. End of Borehole at 10.400m	11
												12
												13
												14
												15
												16
												17
												18
												19
												20

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation				Drilling Flush					
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation	Depth Top	Depth Base	Type	Colour	Min (%)	Max (%)

Remarks
Hole carried out at Clients proposed location. Gas and groundwater monitoring standpipe installed and finished with upstand cover on completion.

Rotary Core Log

Project Name: Proposed Test Rig Site		Client: The Mason Evans Partnership		Date: 12/01/2024 - 15/01/2024	
Location: Hareness Road, Aberdeen		Contractor: Clyde Ground Investigation Ltd			
Project No. : Clyde 0209		Crew Name: Ronnie Britton / James Brownlie		Drilling Equipment: Beretta T25	
Borehole Number BH04	Hole Type RC	Level	Logged By Calum Bisset	Scale 1:50	Page Number Sheet 1 of 1

Well	Water	Depth (m)	Type /FI	Coring			Diameter Recovery (SPT)	Depth (m)	Level (m)	Legend	Stratum Description	
				TCR	SCR	RQD						
								0.90			Brown sandy fine to coarse GRAVEL with cobbles and boulders. (Drillers description).	
								1.20			Split GRANITE and PSAMMITE. (Drillers description).	1
											Strong locally very strong dark grey thinly laminated to medium bedded fine to coarse grained PSAMMITE with occasional quartz micro veins and coarse grained granitic veins. Predominantly fresh with only slight evidence of weathering. Granite veins become more abundant towards base. Highly fractured.	2
												3
												4
												5
												6
								7.20				7
											End of Borehole at 7.200m	8
												9
												10

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation				Drilling Flush					
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation	Depth Top	Depth Base	Type	Colour	Min (%)	Max (%)

Remarks
Hole carried out at Clients proposed location. Gas and groundwater monitoring standpipe installed and finished with upstand cover on completion.



Geo-Environmental Consultants
 t: 0141 420 2025 e: masonevans.co.uk
 The Piazza, 95 Morrison Street, Glasgow, G5 8BE

Site Proposed Cable Test Rig Site, Hareness Road, Aberdeen		Trial Pit No TP01	
Client Energy Transition Zone		Job No P23-336	
Excavation Method 10 Tonne tracked excavator	Trial Pit Dimensions 2m x 0.7m x 0.9m	Ground Level	Date 19-12-23 19-12-23
Contractor Clyde Ground Investigation			Coordinates E. 95918 N. 2676

Depth	Sample/Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	DESCRIPTION	Legend
0.50	ESS1				(0.90) 0.90	Loose to medium dense slightly silty gravelly SAND with frequent cobbles and boulders. Cobbles and boulders were subrounded to angular.	

Remarks 1. Pit was logged visually by on-site engineer only. 2. Strength characteristics assessed by on-site engineer only. 3. Pit stable. 4. No water ingress. 5. Pit terminated at 0.9 mbgl due to refusal at base. Conjectured bedrock or large boulders.	Plan
	All dimensions in metres Scale 1:25

Logged By
AP



Geo-Environmental Consultants
 t: 0141 420 2025 e: masonevans.co.uk
 The Piazza, 95 Morrison Street, Glasgow, G5 8BE

Site Proposed Cable Test Rig Site, Hareness Road, Aberdeen		Trial Pit No TP02	
Client Energy Transition Zone		Job No P23-336	
Excavation Method 10 Tonne tracked excavator	Trial Pit Dimensions 2m x 0.7m x 1.2m	Ground Level	Date 19-12-23 19-12-23
Contractor Clyde Ground Investigation		Coordinates E. 95893 N. 2626	
Sheet 1 of 1			

Depth	Sample/Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	DESCRIPTION	Legend
0.20	ESS1				0.25	Loose dark brown organic TOPSOIL with frequent rootlets	
0.40	ESS2				0.95	Loose to medium dense slightly silty gravelly SAND with frequent cobbles and boulders. Cobbles and boulders were subrounded to angular.	
					1.20		

Remarks 1. Pit was logged visually by on-site engineer only. 2. Strength characteristics assessed by on-site engineer only. 3. Slight collapses in pit walls 4. No water ingress. 5. Pit terminated at 1.2 mbgl due to refusal at base. Conjectured bedrock or large boulders.	Plan
	All dimensions in metres Scale 1:25
	Logged By AP



Geo-Environmental Consultants
 t: 0141 420 2025 e: masonevans.co.uk
 The Piazza, 95 Morrison Street, Glasgow, G5 8BE

Site Proposed Cable Test Rig Site, Hareness Road, Aberdeen		Trial Pit No TP03	
Client Energy Transition Zone		Job No P23-336	
Excavation Method 10 Tonne tracked excavator	Trial Pit Dimensions 2m x 0.7m x 0.7m	Ground Level	Date 19-12-23 19-12-23
Contractor Clyde Ground Investigation		Coordinates E. 95916 N. 2640	
Sheet 1 of 1			

Depth	Sample/Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	DESCRIPTION	Legend
0.20	ESS1				0.25	Loose dark brown organic topsoil with frequent rootlets and occasional cobbles.	
0.50	ESS2				0.70	Loose to medium dense slightly silty gravelly SAND with frequent cobbles and boulders. Cobbles and boulders were subrounded to angular.	

Remarks 1. Pit was logged visually by on-site engineer only. 2. Strength characteristics assessed by on-site engineer only. 3. Pit stable. 4. No water ingress. 5. Pit terminated at 0.7 mbgl due to refusal at base. Conjectured bedrock or large boulders.	Plan
	All dimensions in metres Scale 1:25
	Logged By AP



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The Piazza, 95 Morrison Street, Glasgow, G5 8BE

Site Proposed Cable Test Rig Site, Hareness Road, Aberdeen		Trial Pit No TP04	
Client Energy Transition Zone		Job No P23-336	
Excavation Method 10 Tonne tracked excavator	Trial Pit Dimensions 2m x 0.7m x 1.1m	Ground Level	Date 19-12-23 19-12-23
Contractor Clyde Ground Investigation		Coordinates E. 95858 N. 2580	
Sheet 1 of 1			

Depth	Sample/Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	DESCRIPTION	Legend
0.50	ESS1				(1.10) 1.10	Loose to medium dense slightly silty gravelly SAND with frequent cobbles and boulders. Cobbles and boulders are subangular to angular.	

Remarks 1. Pit was logged visually by on-site engineer only. 2. Strength characteristics assessed by on-site engineer only. 3. Pit stable. 4. Slight water seepage at 0.7 mbgl and at base of pit. 5. Pit terminated at 1.1 mbgl due to refusal at base. Conjectured bedrock or large boulders.	Plan
	All dimensions in metres Scale 1:25



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 The Piazza, 95 Morrison Street, Glasgow, G5 8BE

Site Proposed Cable Test Rig Site, Hareness Road, Aberdeen		Trial Pit No TP05	
Client Energy Transition Zone		Job No P23-336	
Excavation Method 10 Tonne tracked excavator	Trial Pit Dimensions 2m x 0.7m x 1.4m	Ground Level	Date 19-12-23 19-12-23
Contractor Clyde Ground Investigation		Coordinates E. 95881 N. 2598	
Sheet 1 of 1			

Depth	Sample/Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	DESCRIPTION	Legend
0.60	ESS1				(1.40)	Loose to medium dense slightly silty gravelly SAND with frequent cobbles and boulders. Cobbles and boulders are subrounded to angular.	
					1.40		

Remarks 1. Pit was logged visually by on-site engineer only. 2. Strength characteristics assessed by on-site engineer only. 3. Pit stable. 4. No water ingress. 5. Pit terminated at 1.4 mbgl due to refusal at base. Conjectured bedrock or large boulders.	Plan
	All dimensions in metres Scale 1:25
	Logged By AP



Geo-Environmental Consultants
 t: 0141 420 2025 e: masevans.co.uk
 The Piazza, 95 Morrison Street, Glasgow, G5 8BE

Site Proposed Cable Test Rig Site, Hareness Road, Aberdeen		Trial Pit No TP06	
Client Energy Transition Zone		Job No P23-336	
Excavation Method 10 Tonne tracked excavator	Trial Pit Dimensions 2m x 0.7m x 0.9m	Ground Level	Date 19-12-23 19-12-23
Contractor Clyde Ground Investigation		Coordinates E. 95875 N. 2561	
Sheet 1 of 1			

Depth	Sample/Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	DESCRIPTION	Legend
0.60	ESS1				(0.90) 0.90	Loose to medium dense brown to dark brown slightly silty gravelly SAND with frequent cobbles and boulders. Cobbles and boulders were subrounded to angular.	

Remarks 1. Pit was logged visually by on-site engineer only. 2. Strength characteristics assessed by on-site engineer only. 3. Pit stable. 4. No water ingress. 5. Pit terminated at 0.9 mbgl due to refusal at base. Conjectured bedrock or large boulders.	Plan
	All dimensions in metres Scale 1:25
	Logged By AP



Geo-Environmental Consultants
 t: 0141 420 2025 e: maseonevans.co.uk
 The Piazza, 95 Morrison Street, Glasgow, G5 8BE

Site Proposed Cable Test Rig Site, Hareness Road, Aberdeen		Trial Pit No TP07	
Client Energy Transition Zone		Job No P23-336	
Excavation Method 10 Tonne tracked excavator	Trial Pit Dimensions 2m x 0.7m x 1.6m	Ground Level	Date 20-12-23 20-12-23
Contractor Clyde Ground Investigation		Coordinates E. 95903 N. 2627	
Sheet 1 of 1			

Depth	Sample/Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	DESCRIPTION	Legend
0.40	ESS1				0.50	Loose to medium dense brown slightly silty gravelly SAND with frequent cobbles. Cobbles are subrounded to subangular.	
0.70	ESS2				0.75	Loose very dark brown to black sandy GRAVEL with frequent cobbles. Cobbles are subrounded to subangular.	
					1.60	Loose to medium dense light brown slightly silty gravelly SAND with frequent cobbles. Cobbles are subrounded to subangular.	

Remarks 1. Pit was logged visually by on-site engineer only. 2. Strength characteristics assessed by on-site engineer only. 3. Walls unstable. 4. No water ingress. 5. Pit terminated at 1.6 mbgl due to refusal at base. Conjectured bedrock or large boulders.	Plan
	All dimensions in metres Scale 1:25
	Logged By AP



Geo-Environmental Consultants
 t: 0141 420 2025 e: masonevans.co.uk
 The Piazza, 95 Morrison Street, Glasgow, G5 8BE

Site Proposed Cable Test Rig Site, Hareness Road, Aberdeen		Trial Pit No TP08	
Client Energy Transition Zone		Job No P23-336	
Excavation Method 10 Tonne tracked excavator	Trial Pit Dimensions 2m x 0.7m x 1.1m	Ground Level	Date 21-12-23 21-12-23
Contractor Clyde Ground Investigation		Coordinates E. 95875 N. 2592	
Sheet		1 of 1	

Depth	Sample/Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	DESCRIPTION	Legend
0.50	ESS1				(0.90)	Loose to medium dense brown slightly silty gravelly SAND with frequent cobbles and boulders. Cobbles and boulders are subrounded to angular.	
					0.90 (0.20) 1.10	Loose greyish brown slightly sandy GRAVEL with occasional cobbles. Cobbles are subangular to angular.	

Remarks 1. Pit was logged visually by on-site engineer only. 2. Strength characteristics assessed by on-site engineer only. 3. Pit stable. 4. No water ingress. 5. Pit terminated at 1.1 mbgl due to refusal at base. Conjectured bedrock or large boulders.	Plan
	All dimensions in metres Scale 1:25
	Logged By AP

Appendix D
DETS Chemical Analysis Results



DETS

Certificate of Analysis

Certificate Number 24-00162

Issued: 12-Jan-24

Client Mason Evans Partnership
95 Morrison Street
Glasgow
G5 8BE

Our Reference 24-00162

Client Reference P23-336

Order No Aidan Phillips

Contract Title (P23-336) Hareness Road, Aberdeen

Description 8 Soil samples, 5 Leachate prepared by DETS samples.

Date Received 05-Jan-24

Date Started 05-Jan-24

Date Completed 12-Jan-24

Test Procedures Identified by prefix DETSn (details on request).

Notes 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.

Approved By



Kirk Bridgewood
General Manager



2139

Summary of Chemical Analysis

Soil Samples

Our Ref 24-00162

Client Ref P23-336

Contract Title (P23-336) Hareness Road, Aberdeen

Lab No	2283022	2283023	2283024	2283025	2283026	2283027
Sample ID	TP01	TP02	TP03	TP04	TP05	TP06
Depth	0.50	0.40	0.20	0.50	0.60	0.60
Other ID						
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sampling Date	19/12/2023	19/12/2023	19/12/2023	19/12/2023	19/12/2023	19/12/2023
Sampling Time	n/s	n/s	n/s	n/s	n/s	n/s

Test	Method	LOD	Units						
Preparation									
Moisture Content	DETSC 1004	0.1	%	8.7	11	8.0	8.6	8.9	9.4
Metals									
Arsenic	DETSC 2301#	0.2	mg/kg	3.9	4.1	8.2	5.4	4.4	26
Boron, Water Soluble (2.5:1)	DETSC 2311#	0.2	mg/kg	0.3	0.6	0.4	0.4	0.3	0.3
Cadmium	DETSC 2301#	0.1	mg/kg	< 0.1	0.1	< 0.1	0.1	< 0.1	1.8
Chromium	DETSC 2301#	0.15	mg/kg	35	27	29	35	11	24
Chromium, Hexavalent	DETSC 2204*	1	mg/kg	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Copper	DETSC 2301#	0.2	mg/kg	21	16	18	14	15	59
Lead	DETSC 2301#	0.3	mg/kg	7.9	9.7	9.1	8.8	3.4	320
Mercury	DETSC 2325#	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.15
Nickel	DETSC 2301#	1	mg/kg	22	14	19	27	11	15
Selenium	DETSC 2301#	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Zinc	DETSC 2301#	1	mg/kg	63	49	55	69	42	1000
Inorganics									
pH	DETSC 2008#		pH	8.1	7.2	8.1	7.7	7.3	6.3
Cyanide, Total	DETSC 2130#	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Total Organic Carbon	DETSC 2084#	0.5	%	< 0.5	0.6	0.8	< 0.5	< 0.5	0.6
Organic Matter (by calculation)	*	0.1	%	0.5	1.0	1.4	0.4	0.3	1.0
Sulphide	DETSC 2024*	10	mg/kg	44	12	< 10	32	20	< 10
Sulphate as SO ₄ , Total	DETSC 2321#	0.01	%	0.02	0.07	0.03	0.04	0.03	0.05
Petroleum Hydrocarbons									
Aliphatic C5-C6	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic C6-C8	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic C8-C10	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic C10-C12	DETSC 3072#	1.5	mg/kg	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5
Aliphatic C12-C16	DETSC 3072#	1.2	mg/kg	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2
Aliphatic C16-C21	DETSC 3072#	1.5	mg/kg	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5
Aliphatic C16-C35	DETSC 3072#	4.9	mg/kg	< 4.9	< 4.9	7.3	< 4.9	< 4.9	< 4.9
Aliphatic C21-C35	DETSC 3072#	3.4	mg/kg	< 3.4	< 3.4	7.3	< 3.4	< 3.4	< 3.4
Aliphatic C5-C35	DETSC 3072*	10	mg/kg	< 10	< 10	< 10	< 10	< 10	< 10
Aromatic C5-C7	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aromatic C7-C8	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aromatic C8-C10	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aromatic C10-C12	DETSC 3072#	0.9	mg/kg	< 0.9	< 0.9	< 0.9	< 0.9	< 0.9	< 0.9
Aromatic C12-C16	DETSC 3072#	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Aromatic C16-C21	DETSC 3072#	0.6	mg/kg	< 0.6	< 0.6	< 0.6	< 0.6	< 0.6	< 0.6
Aromatic C21-C35	DETSC 3072#	1.4	mg/kg	< 1.4	< 1.4	< 1.4	< 1.4	< 1.4	< 1.4
Aromatic C5-C35	DETSC 3072*	10	mg/kg	< 10	< 10	< 10	< 10	< 10	< 10
TPH Ali/Aro Total C5-C35	DETSC 3072*	10	mg/kg	< 10	< 10	< 10	< 10	< 10	< 10
PAHs									
Naphthalene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1

Summary of Chemical Analysis Soil Samples

Our Ref 24-00162

Client Ref P23-336

Contract Title (P23-336) Hareness Road, Aberdeen

Lab No	2283022	2283023	2283024	2283025	2283026	2283027
Sample ID	TP01	TP02	TP03	TP04	TP05	TP06
Depth	0.50	0.40	0.20	0.50	0.60	0.60
Other ID						
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sampling Date	19/12/2023	19/12/2023	19/12/2023	19/12/2023	19/12/2023	19/12/2023
Sampling Time	n/s	n/s	n/s	n/s	n/s	n/s

Test	Method	LOD	Units						
Acenaphthylene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Fluorene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Phenanthrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Anthracene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Fluoranthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Pyrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(a)anthracene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Chrysene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(b)fluoranthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(k)fluoranthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(a)pyrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Indeno(1,2,3-c,d)pyrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Dibenzo(a,h)anthracene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(g,h,i)perylene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
PAH 16 Total	DETSC 3301	1.6	mg/kg	< 1.6	< 1.6	< 1.6	< 1.6	< 1.6	< 1.6
Phenols									
Phenol - Monohydric	DETSC 2130#	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3

Summary of Chemical Analysis Soil Samples

Our Ref 24-00162

Client Ref P23-336

Contract Title (P23-336) Hareness Road, Aberdeen

Lab No	2283028	2283029
Sample ID	TP07	TP08
Depth	0.40	0.50
Other ID		
Sample Type	SOIL	SOIL
Sampling Date	19/12/2023	19/12/2023
Sampling Time	n/s	n/s

Test	Method	LOD	Units		
Preparation					
Moisture Content	DETSC 1004	0.1	%	8.6	9.2
Metals					
Arsenic	DETSC 2301#	0.2	mg/kg	4.5	6.4
Boron, Water Soluble (2.5:1)	DETSC 2311#	0.2	mg/kg	0.3	0.3
Cadmium	DETSC 2301#	0.1	mg/kg	< 0.1	< 0.1
Chromium	DETSC 2301#	0.15	mg/kg	22	38
Chromium, Hexavalent	DETSC 2204*	1	mg/kg	< 1.0	< 1.0
Copper	DETSC 2301#	0.2	mg/kg	13	16
Lead	DETSC 2301#	0.3	mg/kg	4.3	8.5
Mercury	DETSC 2325#	0.05	mg/kg	< 0.05	< 0.05
Nickel	DETSC 2301#	1	mg/kg	14	30
Selenium	DETSC 2301#	0.5	mg/kg	< 0.5	< 0.5
Zinc	DETSC 2301#	1	mg/kg	35	65
Inorganics					
pH	DETSC 2008#		pH	7.4	7.9
Cyanide, Total	DETSC 2130#	0.1	mg/kg	< 0.1	< 0.1
Total Organic Carbon	DETSC 2084#	0.5	%	0.7	0.7
Organic Matter (by calculation)	*	0.1	%	1.2	1.2
Sulphide	DETSC 2024*	10	mg/kg	32	16
Sulphate as SO ₄ , Total	DETSC 2321#	0.01	%	0.03	0.03
Petroleum Hydrocarbons					
Aliphatic C5-C6	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aliphatic C6-C8	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aliphatic C8-C10	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aliphatic C10-C12	DETSC 3072#	1.5	mg/kg	< 1.5	< 1.5
Aliphatic C12-C16	DETSC 3072#	1.2	mg/kg	< 1.2	< 1.2
Aliphatic C16-C21	DETSC 3072#	1.5	mg/kg	< 1.5	< 1.5
Aliphatic C16-C35	DETSC 3072#	4.9	mg/kg	< 4.9	25
Aliphatic C21-C35	DETSC 3072#	3.4	mg/kg	< 3.4	25
Aliphatic C5-C35	DETSC 3072*	10	mg/kg	< 10	25
Aromatic C5-C7	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aromatic C7-C8	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aromatic C8-C10	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aromatic C10-C12	DETSC 3072#	0.9	mg/kg	< 0.9	< 0.9
Aromatic C12-C16	DETSC 3072#	0.5	mg/kg	< 0.5	< 0.5
Aromatic C16-C21	DETSC 3072#	0.6	mg/kg	< 0.6	< 0.6
Aromatic C21-C35	DETSC 3072#	1.4	mg/kg	< 1.4	17
Aromatic C5-C35	DETSC 3072*	10	mg/kg	< 10	17
TPH Ali/Aro Total C5-C35	DETSC 3072*	10	mg/kg	< 10	42
PAHs					
Naphthalene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1

Summary of Chemical Analysis Soil Samples

Our Ref 24-00162

Client Ref P23-336

Contract Title (P23-336) Hareness Road, Aberdeen

Lab No	2283028	2283029
Sample ID	TP07	TP08
Depth	0.40	0.50
Other ID		
Sample Type	SOIL	SOIL
Sampling Date	19/12/2023	19/12/2023
Sampling Time	n/s	n/s

Test	Method	LOD	Units		
Acenaphthylene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1
Acenaphthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1
Fluorene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1
Phenanthrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1
Anthracene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1
Fluoranthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1
Pyrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1
Benzo(a)anthracene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1
Chrysene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1
Benzo(b)fluoranthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1
Benzo(k)fluoranthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1
Benzo(a)pyrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1
Indeno(1,2,3-c,d)pyrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1
Dibenzo(a,h)anthracene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1
Benzo(g,h,i)perylene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1
PAH 16 Total	DETSC 3301	1.6	mg/kg	< 1.6	< 1.6
Phenols					
Phenol - Monohydric	DETSC 2130#	0.3	mg/kg	< 0.3	< 0.3

Summary of Chemical Analysis

Leachate Samples

Our Ref 24-00162

Client Ref P23-336

Contract Title (P23-336) Hareness Road, Aberdeen

Lab No	2283030	2283031	2283032	2283033	2283034
Sample ID	TP01	TP04	TP05	TP06	TP07
Depth	0.50	0.50	0.60	0.60	0.40
Other ID					
Sample Type	LEACHATE	LEACHATE	LEACHATE	LEACHATE	LEACHATE
Sampling Date	19/12/2023	19/12/2023	19/12/2023	19/12/2023	19/12/2023
Sampling Time	n/s	n/s	n/s	n/s	n/s

Test	Method	LOD	Units					
Preparation								
Leachate 2:1 250g Non-WAC	DETSC 1009*			Y	Y	Y	Y	Y
Metals								
Arsenic, Dissolved	DETSC 2306	0.16	ug/l	0.57	0.30	0.26	0.94	0.39
Cadmium, Dissolved	DETSC 2306	0.03	ug/l	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Calcium, Dissolved	DETSC 2306	0.09	mg/l	5.5	2.3	2.3	3.8	3.0
Chromium, Dissolved	DETSC 2306	0.25	ug/l	1.7	0.33	< 0.25	0.76	0.47
Copper, Dissolved	DETSC 2306	0.4	ug/l	1.6	1.7	0.8	2.3	1.5
Lead, Dissolved	DETSC 2306	0.09	ug/l	9.1	1.8	0.68	0.36	0.49
Magnesium, Dissolved	DETSC 2306	0.02	mg/l	0.16	0.11	0.12	0.15	0.13
Mercury, Dissolved (Low Level)	DETSC 2324	0.001	ug/l	< 0.0010	0.0012	0.0014	0.0017	0.0017
Nickel, Dissolved	DETSC 2306	0.5	ug/l	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Selenium, Dissolved	DETSC 2306	0.25	ug/l	0.58	< 0.25	< 0.25	< 0.25	< 0.25
Zinc, Dissolved	DETSC 2306	1.3	ug/l	2.6	< 1.3	< 1.3	< 1.3	< 1.3
Inorganics								
Total Hardness as CaCO3	DETSC 2303	0.1	mg/l	14.5	6.29	6.14	10.1	7.90
Sulphate as SO4	DETSC 2055	0.1	mg/l	38	2.1	2.8	3.6	2.5
Sulphide	DETSC 2208	10	ug/l	< 10	< 10	< 10	< 10	< 10
Phenols								
Total Phenol	DETSC 3451*	0.5	ug/l	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50

Summary of Asbestos Analysis Soil Samples

Our Ref 24-00162

Client Ref P23-336

Contract Title (P23-336) Hareness Road, Aberdeen

Lab No	Sample ID	Material Type	Result	Comment*	Analyst
2283022	TP01 0.50	SOIL	NAD	none	Vicky Convery
2283023	TP02 0.40	SOIL	NAD	none	Vicky Convery
2283024	TP03 0.20	SOIL	NAD	none	Vicky Convery
2283025	TP04 0.50	SOIL	NAD	none	Vicky Convery
2283026	TP05 0.60	SOIL	NAD	none	Vicky Convery
2283027	TP06 0.60	SOIL	NAD	none	Vicky Convery
2283028	TP07 0.40	SOIL	NAD	none	Vicky Convery
2283029	TP08 0.50	SOIL	NAD	none	Vicky Convery

Crocidolite = Blue Asbestos, Amosite = Brown Asbestos, Chrysotile = White Asbestos. Anthophyllite, Actinolite and Tremolite are other forms of Asbestos. Samples are analysed by DETSC 1101 using polarised light microscopy in accordance with HSG248 and documented in-house methods. NAD = No Asbestos Detected. Where a sample is NAD, the result is based on analysis of at least 2 sub-samples and should be taken to mean 'no asbestos detected in sample'. Key: * - not included in laboratory scope of accreditation.

Information in Support of the Analytical Results

Our Ref 24-00162
 Client Ref P23-336
 Contract (P23-336) Hareness Road, Aberdeen

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
2283022	TP01 0.50 SOIL	19/12/23	GJ 250ml, PT 1L	Aliphatics/Aromatics (14 days), BTEX / C5-C10 (14 days), Naphthalene (14 days), PAH FID (14 days), pH + Conductivity (7 days), Cyanide/Mono pHoh (14 days)	BTEX / C5-C10
2283023	TP02 0.40 SOIL	19/12/23	GJ 250ml, PT 1L	Aliphatics/Aromatics (14 days), BTEX / C5-C10 (14 days), Naphthalene (14 days), PAH FID (14 days), pH + Conductivity (7 days), Cyanide/Mono pHoh (14 days)	BTEX / C5-C10
2283024	TP03 0.20 SOIL	19/12/23	GJ 250ml, PT 1L	Aliphatics/Aromatics (14 days), BTEX / C5-C10 (14 days), Naphthalene (14 days), PAH FID (14 days), pH + Conductivity (7 days), Cyanide/Mono pHoh (14 days)	BTEX / C5-C10
2283025	TP04 0.50 SOIL	19/12/23	GJ 250ml, PT 1L	Aliphatics/Aromatics (14 days), BTEX / C5-C10 (14 days), Naphthalene (14 days), PAH FID (14 days), pH + Conductivity (7 days), Cyanide/Mono pHoh (14 days)	BTEX / C5-C10
2283026	TP05 0.60 SOIL	19/12/23	GJ 250ml, PT 1L	Aliphatics/Aromatics (14 days), BTEX / C5-C10 (14 days), Naphthalene (14 days), PAH FID (14 days), pH + Conductivity (7 days), Cyanide/Mono pHoh (14 days)	BTEX / C5-C10
2283027	TP06 0.60 SOIL	19/12/23	GJ 250ml, PT 1L	Aliphatics/Aromatics (14 days), BTEX / C5-C10 (14 days), Naphthalene (14 days), PAH FID (14 days), pH + Conductivity (7 days), Cyanide/Mono pHoh (14 days)	BTEX / C5-C10
2283028	TP07 0.40 SOIL	19/12/23	GJ 250ml, PT 1L	Aliphatics/Aromatics (14 days), BTEX / C5-C10 (14 days), Naphthalene (14 days), PAH FID (14 days), pH + Conductivity (7 days), Cyanide/Mono pHoh (14 days)	BTEX / C5-C10
2283029	TP08 0.50 SOIL	19/12/23	GJ 250ml, PT 1L	Aliphatics/Aromatics (14 days), BTEX / C5-C10 (14 days), Naphthalene (14 days), PAH FID (14 days), pH + Conductivity (7 days), Cyanide/Mono pHoh (14 days)	BTEX / C5-C10
2283030	TP01 0.50 LEACHATE	19/12/23	GJ 250ml, PT 1L		
2283031	TP04 0.50 LEACHATE	19/12/23	GJ 250ml, PT 1L		

Information in Support of the Analytical Results

Our Ref 24-00162
 Client Ref P23-336
 Contract (P23-336) Hareness Road, Aberdeen

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
2283032	TP05 0.60 LEACHATE	19/12/23	GJ 250ml, PT 1L		
2283033	TP06 0.60 LEACHATE	19/12/23	GJ 250ml, PT 1L		
2283034	TP07 0.40 LEACHATE	19/12/23	GJ 250ml, PT 1L		

Key: G-Glass P-Plastic J-Jar T-Tub

DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 425µm sieve, in accordance with BS1377.

Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.

The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-

Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

End of Report



DETS

Certificate of Analysis

Certificate Number 24-03477

Issued: 27-Feb-24

Client Mason Evans Partnership
95 Morrison Street
Glasgow
G5 8BE

Our Reference 24-03477

Client Reference P23-336

Order No Hugh O'Leary

Contract Title (P23-336) Hareness Road, Aberdeen

Description 4 Other Water samples.

Date Received 19-Feb-24

Date Started 19-Feb-24

Date Completed 27-Feb-24

Test Procedures Identified by prefix DETSn (details on request).

Notes 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.

Approved By



Kirk Bridgewood
General Manager



2139

Summary of Chemical Analysis

Water Samples

Our Ref 24-03477

Client Ref P23-336

Contract Title (P23-336) Hareness Road, Aberdeen

Lab No	2301580	2301581	2301582	2301583
Sample ID	BH01	BH02	BH03	BH04
Depth	4.30	4.00	4.20	5.40
Other ID				
Sample Type	WATER OTHER	WATER OTHER	WATER OTHER	WATER OTHER
Sampling Date	15/02/2024	15/02/2024	15/02/2024	15/02/2024
Sampling Time	n/s	n/s	n/s	n/s

Test	Method	LOD	Units				
Metals							
Arsenic, Dissolved	DETSC 2306	0.16	ug/l	1.4	0.21	1.5	0.63
Boron, Dissolved	DETSC 2306*	12	ug/l	130	110	55	75
Cadmium, Dissolved	DETSC 2306	0.03	ug/l	0.12	0.27	< 0.03	0.26
Calcium, Dissolved	DETSC 2306	0.09	mg/l	45	23	59	18
Chromium, Dissolved	DETSC 2306	0.25	ug/l	1.8	1.1	1.1	2.0
Copper, Dissolved	DETSC 2306	0.4	ug/l	4.5	3.1	1.2	5.9
Lead, Dissolved	DETSC 2306	0.09	ug/l	0.21	< 0.09	< 0.09	0.13
Magnesium, Dissolved	DETSC 2306	0.02	mg/l	6.3	8.3	8.0	6.0
Mercury, Dissolved (Low Level)	DETSC 2324	0.001	ug/l	0.0017	0.0010	0.0017	0.0018
Nickel, Dissolved	DETSC 2306	0.5	ug/l	16	13	4.3	5.7
Selenium, Dissolved	DETSC 2306	0.25	ug/l	0.51	0.30	0.32	0.90
Zinc, Dissolved	DETSC 2306	1.3	ug/l	96	85	74	110
Inorganics							
pH	DETSC 2008		pH	6.6	6.1	6.7	6.2
Cyanide, Total Low Level	DETSC 2131	0.1	ug/l	0.7	0.3	0.7	0.7
Dissolved, Oxygen	DETSC 2048*	0.1	mg/l	5.0	9.5	5.2	9.9
Dissolved Organic Carbon	DETSC 2085	2	mg/l	7.6	3.9	8.4	4.2
Total Hardness as CaCO3	DETSC 2303	0.1	mg/l	138	92.1	181	70.2
Sulphate as SO4	DETSC 2055	0.1	mg/l	15	17	18	13
Sulphide	DETSC 2208	10	ug/l	31	25	32	25
Petroleum Hydrocarbons							
Aliphatic C5-C6	DETSC 3322	0.1	ug/l	< 0.1	< 0.1	< 0.1	< 0.1
Aliphatic C6-C8	DETSC 3322	0.1	ug/l	< 0.1	< 0.1	< 0.1	< 0.1
Aliphatic C8-C10	DETSC 3322	0.1	ug/l	< 0.1	< 0.1	< 0.1	< 0.1
Aliphatic C10-C12	DETSC 3072*	1	ug/l	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic C12-C16	DETSC 3072*	1	ug/l	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic C16-C21	DETSC 3072*	1	ug/l	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic C21-C35	DETSC 3072*	1	ug/l	< 1.0	< 1.0	29	< 1.0
Aliphatic C5-C35	DETSC 3072*	10	ug/l	< 10	< 10	29	< 10
Aromatic C5-C7	DETSC 3322	0.1	ug/l	< 0.1	< 0.1	< 0.1	< 0.1
Aromatic C7-C8	DETSC 3322	0.1	ug/l	< 0.1	< 0.1	< 0.1	< 0.1
Aromatic C8-C10	DETSC 3322	0.1	ug/l	< 0.1	< 0.1	< 0.1	< 0.1
Aromatic C10-C12	DETSC 3072*	1	ug/l	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic C12-C16	DETSC 3072*	1	ug/l	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic C16-C21	DETSC 3072*	1	ug/l	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic C21-C35	DETSC 3072*	1	ug/l	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic C5-C35	DETSC 3072*	10	ug/l	< 10	< 10	< 10	< 10
TPH Ali/Aro Total C5-C35	DETSC 3072*	10	ug/l	< 10	< 10	30	< 10
PAHs							
Naphthalene	DETSC 3304	0.05	ug/l	0.23	< 0.05	< 0.05	< 0.05
Acenaphthylene	DETSC 3304	0.01	ug/l	0.01	< 0.01	0.01	< 0.01

Summary of Chemical Analysis

Water Samples

Our Ref 24-03477

Client Ref P23-336

Contract Title (P23-336) Hareness Road, Aberdeen

Lab No	2301580	2301581	2301582	2301583
Sample ID	BH01	BH02	BH03	BH04
Depth	4.30	4.00	4.20	5.40
Other ID				
Sample Type	WATER OTHER	WATER OTHER	WATER OTHER	WATER OTHER
Sampling Date	15/02/2024	15/02/2024	15/02/2024	15/02/2024
Sampling Time	n/s	n/s	n/s	n/s

Test	Method	LOD	Units				
Acenaphthene	DETSC 3304	0.01	ug/l	0.22	0.02	0.03	< 0.01
Fluorene	DETSC 3304	0.01	ug/l	0.10	< 0.01	< 0.01	< 0.01
Phenanthrene	DETSC 3304	0.01	ug/l	0.08	0.02	0.01	< 0.01
Anthracene	DETSC 3304	0.01	ug/l	0.08	0.01	0.02	< 0.01
Fluoranthene	DETSC 3304	0.01	ug/l	0.17	0.09	0.09	0.02
Pyrene	DETSC 3304	0.01	ug/l	0.12	0.07	0.07	0.02
Benzo(a)anthracene	DETSC 3304*	0.01	ug/l	0.04	0.03	0.02	< 0.01
Chrysene	DETSC 3304	0.01	ug/l	0.02	0.02	0.02	< 0.01
Benzo(b)fluoranthene	DETSC 3304	0.01	ug/l	0.03	0.02	0.02	< 0.01
Benzo(k)fluoranthene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01	0.01	< 0.01
Benzo(a)pyrene	DETSC 3304	0.01	ug/l	0.03	0.01	0.02	< 0.01
Indeno(1,2,3-c,d)pyrene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01	0.01	< 0.01
Dibenzo(a,h)anthracene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(g,h,i)perylene	DETSC 3304	0.01	ug/l	0.01	0.01	0.01	< 0.01
PAH Total	DETSC 3304	0.2	ug/l	1.2	0.30	0.34	< 0.20
Phenols							
Total Phenol	DETSC 3451*	0.5	ug/l	< 0.50	< 0.50	< 0.50	< 0.50

2301580, 2301581, 2301582, 2301583 - WATER

OTHER testing is not accredited

Information in Support of the Analytical Results

Our Ref 24-03477
 Client Ref P23-336
 Contract (P23-336) Hareness Road, Aberdeen

Containers Received & Deviating Samples

Lab No	Sample ID	Date		Holding time exceeded for tests	Inappropriate container for tests
		Sampled	Containers Received		
2301580	BH01 4.30 WATER	15/02/24	GB 1L x2, GV, PB 1L		
2301581	BH02 4.00 WATER	15/02/24	GB 1L x2, GV, PB 1L		
2301582	BH03 4.20 WATER	15/02/24	GB 1L x2, GV, PB 1L		
2301583	BH04 5.40 WATER	15/02/24	GB 1L x2, PB 1L		

Key: G-Glass P-Plastic B-Bottle V-Vial

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Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-
 Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

End of Report

Appendix E
P20 Modelling Worksheets and Justification Table



Hydrogeological risk assessment for land contamination Remedial Targets Worksheet , Release 3.2

First released: 2006. Version 3.2: January 2013

This worksheet has been produced in combination with the document 'Remedial Targets Methodology: Hydrogeological risk assessment for land contamination (Environment Agency 2006).

Users of this worksheet should always refer to the User Manual to the Remedial Targets Methodology and to relevant guidance on UK legislation and policy, in order to understand how this procedure should be applied in an appropriate context.

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The calculation of equations in this worksheet has been independently checked by Entec (UK) Ltd on behalf of the Environment Agency.
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IMPORTANT: To enable MS Excel worksheet, click Tools, Add -Ins, Analysis Tool Pak and Analysis Tool Pak-VBA (to calculate error functions).

Details to be completed for each assessment

Site Name:	Hareness Road		
Site Address:	Aberdeen		
Completed by:	AO	Version:	1
Date:	28-Feb-24		
Contaminant	Acenaphthene		
Target Concentration (C_T)	0.00001	mg/l	Origin of C_T: Laboratory Limit of Detection

This worksheet can be used to determine remedial targets for soils (Worksheets Level 1 Soil, Level 2 and Level 3 Soil) or to determine remedial targets for groundwater (Level 3 Groundwater). For Level 3, parameter values must be entered separately dependent on whether the assessment is for soil or groundwater. For soil, remedial targets are calculated as either mg/kg (for comparison with soil measurements) or mg/l (for comparison with leaching tests or pore water concentrations).

Site details entered on this page are automatically copied to Level 1, 2 and 3 Worksheets.

Worksheet options are identified by brown background and employ a pull-down menus. Data entry are identified as blue background.

Data origin / justification should be noted in cells coloured yellow and fully documented in subsequent reports.

Data carried forward from an earlier worksheet are identified by a light green background

It is recommended that a copy of the original worksheet is saved (all data fields in the original copy are blank).

The spreadsheet also includes a porosity calculation worksheet, a soil impact calculation worksheet and a worksheet that performs some simple hydrogeological calculations.

R&D Publication 20 Remedial Targets Worksheet, Release 3.2



Level 3 - Groundwater

See Note

Input Parameters (using pull down menu)

Contaminant	Acenaphthene	from Level 1
Target Concentration	1.00E-05	mg/l from Level 1

Select analytical solution (click on brown cell below, then on pull-down menu)

Domenico - Steady state Equations in HRA publication

Approach for simulating vertical dispersion: Simulate vertical dispersion in 1 direction

Select nature of decay rate (click on brown cell below, then on pull-down menu)

Approach for simulating degradation of pollutants: Apply degradation rate to dissolved pollutants only

Initial contaminant concentration in groundwater at plume core	C ₀	1.10E-04	mg/l	BH01 0.11 µg/l
Half life for degradation of contaminant in water	t _{1/2}	9.99E+99	days	Assumed no decay
Calculated decay rate	λ	6.94E-101	days ⁻¹	
Width of plume in aquifer at source (perpendicular to flow)	Sz	1.82E+02	m	Maximum width of site is 192m
Plume thickness at source	Sy	3.70E-01	m	10% of aquifer thickness
Saturated aquifer thickness	da	3.70E+00	m	Maximum water depth recorded to date
Bulk density of aquifer materials	ρ	2.58E+00	g/cm ³	Scott B. Smithson (1979) Densities of metamorphic rocks
Effective porosity of aquifer	n	5.00E-03	fraction	De Wit (1999) Effective Porosity for Different Aquifer Types
Hydraulic gradient	i	2.50E-02	fraction	Distance from BH01 - BH03
Hydraulic conductivity of aquifer	K	1.00E-11	m/d	Freeze & Cherry (1979)
Distance to compliance point	x	2.50E+02	m	SEPA WAT-PS-1p-01
Distance (lateral) to compliance point perpendicular to flow direction	z		m	
Distance (depth) to compliance point perpendicular to flow direction	y		m	
Time since pollutant entered groundwater	t	1.00E+100	days	time variant options only
Parameters values determined from options				
Partition coefficient	Kd	2.83E+06	l/kg	see options
Longitudinal dispersivity	ax	2.50E+01	m	see options
Transverse dispersivity	ay	2.50E+00	m	see options
Vertical dispersivity	az	2.50E-01	m	see options

Calculated Parameters

Groundwater flow velocity	v	5.00E-11	m/d
Retardation factor	Rf	1.45E+09	fraction
Decay rate used	λ	4.78E-110	d ⁻¹
Rate of contaminant flow due to retardation	u	3.45E-20	m/d
Contaminant concentration at distance x, assuming one-way vertical dispersion	C _{1D}	2.88E-06	mg/l
Attenuation factor (one way vertical dispersion, CO/CED)	AF	3.81E+01	

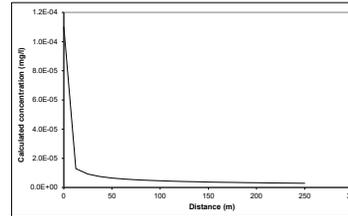
Select Method for deriving Partition Co-efficient (using pull down menu)

User specified value for partition coefficient

Soil water partition coefficient	Kd	2.83E+06	l/kg
Fraction of organic carbon in aquifer	foc		fraction
Organic carbon partition coefficient	Koc		l/kg
Sorption coefficient for related species	K _{oc,rel}		l/kg
pH value	pH		l/kg
acid dissociation constant	pKa		l/kg
Fraction of organic carbon in aquifer	foc		fraction
Soil water partition coefficient	Kd	2.83E+06	l/kg

Define dispersivity (click brown cell and use pull down list)

Dispersivities 10%, 1%, 0.1% of pathway length			
Longitudinal dispersivity	ax	Enter value	Calc value Xu & Eckstein
Transverse dispersivity	ay	0.00E+00	2.50E+01
Vertical dispersivity	az	0.00E+00	2.50E-01
Note values of dispersivity must be > 0			
For calculated value, assumes ax = 0.1 * x, az = 0.01 * x, ay = 0.001 * x			
Xu & Eckstein (1995) report ax = 0.83(log ₁₀ x) ^{2+1.1} ; az = az/10, ay = ax/100 are assumed			



Note graph assumes plume disperses vertically in one direction only. An alternative solution assuming the centre of the plume is located at the mid-depth of the aquifer is presented in the calculation sheets.

Note

This sheet calculates the Level 3 remedial target for groundwater, based on the distance to the receptor or compliance located down hydraulic gradient of the source. Three solution methods are included; the preferred option is Ogata Banks.

By setting a long travel time it will give the steady state solution, which should be used to calculate remedial targets.

The measured groundwater concentration should be compared with the Level 3 remedial target to determine the need for further action.

Note if contaminant is not subject to first order degradation, then set half life as 9.0E+99.

This worksheet should be used if pollutant transport and degradation is best described by a first order reaction. If degradation is best described by an electron limited degradation such as oxidation by O₂, NO₃, SO₄ etc than an alternative solution should be used.

Calculated concentrations for distance-concentration graph

Domenico - Steady state	
From calculation sheet	
Distance	Concentration
	mg/l
0	1.1E-04
12.5	1.29E-06
25.0	9.17E-06
37.5	7.49E-06
50.0	6.49E-06
62.5	5.80E-06
75.0	5.30E-06
87.5	4.91E-06
100.0	4.59E-06
112.5	4.33E-06
125.0	4.11E-06
137.5	3.91E-06
150.0	3.75E-06
162.5	3.60E-06
175.0	3.47E-06
187.5	3.35E-06
200.0	3.24E-06
212.5	3.14E-06
225.0	3.05E-06
237.5	2.96E-06
250.0	2.88E-06

Site being assessed:	Hareness Road
Completed by:	AO
Date:	28/02/2024
Version:	1

Remedial Targets

Remedial Target	3.81E-04	mg/l	For comparison with measured groundwater concentration.
Domenico - Steady state			
Distance to compliance point	250	m	
Concentration of contaminant at compliance point	C _{1D} /C ₀	2.88E-06	mg/l Domenico - Steady state

Care should be used when calculating remedial targets using the time variant options as this may result in an overestimate of the remedial target. The recommended value for time when calculating the remedial target is 9.9E+99.



Hydrogeological risk assessment for land contamination Remedial Targets Worksheet , Release 3.2

First released: 2006. Version 3.2: January 2013

This worksheet has been produced in combination with the document 'Remedial Targets Methodology: Hydrogeological risk assessment for land contamination (Environment Agency 2006).

Users of this worksheet should always refer to the User Manual to the Remedial Targets Methodology and to relevant guidance on UK legislation and policy, in order to understand how this procedure should be applied in an appropriate context.

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IMPORTANT: To enable MS Excel worksheet, click Tools, Add -Ins, Analysis Tool Pak and Analysis Tool Pak-VBA (to calculate error functions).

Details to be completed for each assessment

Site Name:	Hareness Road		
Site Address:	Aberdeen		
Completed by:	AO	Version:	1
Date:	28-Feb-24		
Contaminant	Anthracene		
Target Concentration (C_T)	0.00001	mg/l	Origin of C_T: Laboratory Limit of Detection

This worksheet can be used to determine remedial targets for soils (Worksheets Level 1 Soil, Level 2 and Level 3 Soil) or to determine remedial targets for groundwater (Level 3 Groundwater). For Level 3, parameter values must be entered separately dependent on whether the assessment is for soil or groundwater. For soil, remedial targets are calculated as either mg/kg (for comparison with soil measurements) or mg/l (for comparison with leaching tests or pore water concentrations).

Site details entered on this page are automatically copied to Level 1, 2 and 3 Worksheets.

Worksheet options are identified by brown background and employ a pull-down menus. Data entry are identified as blue background.

Data origin / justification should be noted in cells coloured yellow and fully documented in subsequent reports.

Data carried forward from an earlier worksheet are identified by a light green background

It is recommended that a copy of the original worksheet is saved (all data fields in the original copy are blank).

The spreadsheet also includes a porosity calculation worksheet, a soil impact calculation worksheet and a worksheet that performs some simple hydrogeological calculations.

R&D Publication 20 Remedial Targets Worksheet, Release 3.2



Level 3 - Groundwater

See Note

Input Parameters (using pull down menu)

Contaminant	Anthracene	from Level 1
Target Concentration	1.00E-05	mg/l from Level 1

Select analytical solution (click on brown cell below, then on pull-down menu)

Domenco - Steady state	Equations in HRA publication
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Approach for simulating vertical dispersion:

Simulate vertical dispersion in 1 direction

Select nature of decay rate (click on brown cell below, then on pull-down menu)

Approach for simulating degradation of pollutants:

Apply degradation rate to dissolved pollutants only

Initial contaminant concentration in groundwater at plume core	C ₀	8.00E-05	mg/l	Source of parameter value	BHOT 0.08 µg/l
Half life for degradation of contaminant in water	t _{1/2}	9.95E+99	days		Assumed no decay
Calculated decay rate	λ	6.94E-101	days ⁻¹		
Width of plume in aquifer at source (perpendicular to flow)	Sz	1.92E+02	m		Maximum width of site is 192m
Plume thickness at source	Sy	3.70E-01	m		10% of aquifer thickness
Saturated aquifer thickness	da	3.70E+00	m		Maximum water depth recorded to date
Bulk density of aquifer materials	ρ	2.56E+00	g/cm ³		Scott B. Smithson (1979) Densities of metamorphic rocks
Effective porosity of aquifer	n	5.00E-03	fraction		De Wit (1999) Effective Porosity for Different Aquifer Types.
Hydraulic gradient	i	2.50E-02	fraction		Distance from BH01 - BH03
Hydraulic conductivity of aquifer	K	1.00E-11	m/d		Freeze & Cherry (1979)
Distance to compliance point	x	2.50E+02	m		SEPA WAT-PS-10-01
Distance (lateral) to compliance point perpendicular to flow direction	z		m		
Distance (depth) to compliance point perpendicular to flow direction	y		m		
Time since pollutant entered groundwater	t	1.00E+100	days		time variant options only
Partition coefficient	Kd	4.20E+06	l/kg		see options
Longitudinal dispersivity	ax	2.50E+01	m		see options
Transverse dispersivity	az	2.50E+00	m		see options
Vertical dispersivity	ay	2.50E-01	m		see options

Calculated Parameters

Groundwater flow velocity	v	5.00E-11	m/d
Retardation factor	Rf	2.15E+09	fraction
Decay rate used	λ	3.23E-110	d ⁻¹
Rate of contaminant flow due to retardation	U	2.33E-20	m/d
Contaminant concentration at distance x, assuming one-way vertical dispersion	C _{1D}	2.11E-06	mg/l
Attenuation factor (one way vertical dispersion, COCED)	AF	3.81E+01	

Select Method for deriving Partition Co-efficient (using pull down menu)

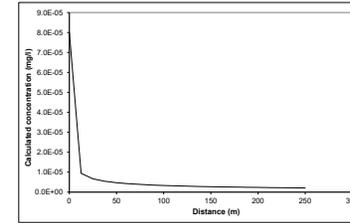
User specified value for partition coefficient

Soil water partition coefficient	Kd	4.20E+06	l/kg
Entry for non-polar organic chemicals (option)	foc		fraction
Fraction of organic carbon in aquifer	foc		fraction
Organic carbon partition coefficient	Koc		l/kg
Entry for ionic organic chemicals (option)	K _{oc,1}		l/kg
Sorption coefficient for related species	K _{oc,2}		l/kg
Sorption coefficient for ionised species	K _{oc,3}		l/kg
pH value	pH		
acid dissociation constant	pKa		fraction
Fraction of organic carbon in aquifer	foc		fraction
Soil water partition coefficient	Kd	4.20E+06	l/kg

Dispersivities 10%, 1%, 0.1% of pathway length

Longitudinal dispersivity	ax	Enter value	Calc value	Xu & Eckstein	m
Transverse dispersivity	az	0.00E+00	2.50E+01	6.86E-01	m
Vertical dispersivity	ay	0.00E+00	2.50E+00	6.86E-01	m

Note values of dispersivity must be > 0
For calculated value, assumes ax = 0.1 * x, az = 0.01 * x, ay = 0.001 * x
Xu & Eckstein (1995) report ax = 0.83(log₁₀x)^{0.14}; az = ax/10, ay = ax/100 are assumed



Note graph assumes plume disperses vertically in one direction only. An alternative solution assuming the centre of the plume is located at the mid-depth of the aquifer is presented in the calculation sheets.

Note

This sheet calculates the Level 3 remedial target for groundwater, based on the distance to the receptor or compliance located down hydraulic gradient of the source. Three solution methods are included, the preferred option is Ogata Banks.

By setting a long travel time it will give the steady state solution, which should be used to calculate remedial targets.

The measured groundwater concentration should be compared with the Level 3 remedial target to determine the need for further action.

Note if contaminant is not subject to first order degradation, then set half life as 9.0E+99.

This worksheet should be used if pollutant transport and degradation is best described by a first order reaction. If degradation is best described by an electron limited degradation such as oxidation by O₂, NO₃, SO₄ etc than an alternative solution should be used

Site being assessed:	Harness Road
Completed by:	AO
Date:	#####
Version:	1

Calculated concentrations for distance-concentration graph

Domenco - Steady state	
From calculation sheet	
Distance	Concentration
	mg/l
0	8.00E-05
12.5	9.41E-06
25.0	6.67E-06
37.5	5.45E-06
50.0	4.72E-06
62.5	4.22E-06
75.0	3.85E-06
87.5	3.57E-06
100.0	3.34E-06
112.5	3.15E-06
125.0	2.99E-06
137.5	2.85E-06
150.0	2.73E-06
162.5	2.62E-06
175.0	2.52E-06
187.5	2.43E-06
200.0	2.36E-06
212.5	2.28E-06
225.0	2.22E-06
237.5	2.15E-06
250.0	2.10E-06

Remedial Targets

Remedial Target	3.81E-04	mg/l	For comparison with measured groundwater concentration.
Domenco - Steady state			
Distance to compliance point	250	m	
Concentration of contaminant at compliance point	C _{1D} /C ₀	2.10E-06	mg/l Domenco - Steady state

Care should be used when calculating remedial targets using the time variant options as this may result in an overestimate of the remedial target. The recommended value for time when calculating the remedial target is 9.9E+99.



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Details to be completed for each assessment

Site Name:	Hareness Road		
Site Address:	Aberdeen		
Completed by:	AO	Version:	1
Date:	28-Feb-24		
Contaminant	Benzo(a)anthracene		
Target Concentration (C_T)	0.00001	mg/l	Origin of C_T: Laboratory Limit of Detection

This worksheet can be used to determine remedial targets for soils (Worksheets Level 1 Soil, Level 2 and Level 3 Soil) or to determine remedial targets for groundwater (Level 3 Groundwater). For Level 3, parameter values must be entered separately dependent on whether the assessment is for soil or groundwater. For soil, remedial targets are calculated as either mg/kg (for comparison with soil measurements) or mg/l (for comparison with leaching tests or pore water concentrations).

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The spreadsheet also includes a porosity calculation worksheet, a soil impact calculation worksheet and a worksheet that performs some simple hydrogeological calculations.

R&D Publication 20 Remedial Targets Worksheet, Release 3.2



Level 3 - Groundwater

See Note

Input Parameters (using pull down menu)

Contaminant	Benzo(a)anthracene	from Level 1
Target Concentration	1.00E-05	mg/l from Level 1

Select analytical solution (click on brown cell below, then on pull-down menu)

Domeric - Steady state	Equations in HRA publication
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Approach for simulating vertical dispersion:

Simulate vertical dispersion in 1 direction

Select nature of decay rate (click on brown cell below, then on pull-down menu)

Approach for simulating degradation of pollutants:

Apply degradation rate to dissolved pollutants only

Initial contaminant concentration in groundwater at plume core	C ₀	4.00E-05	mg/l	Source of parameter value	BH01 0.04 µg/l
Half life for degradation of contaminant in water	t _{1/2}	9.95E+99	days		Assumed no decay
Calculated decay rate	λ	6.94E-101	days ⁻¹		
Width of plume in aquifer at source (perpendicular to flow)	Sz	1.92E+02	m		Maximum width of site is 192m
Plume thickness at source	Sy	3.70E-01	m		10% of aquifer thickness
Saturated aquifer thickness	da	3.70E+00	m		Maximum water depth recorded to date
Bulk density of aquifer materials	ρ	2.55E+00	g/cm ³		Scott B. Smithson (1979) Densities of metamorphic rocks
Effective porosity of aquifer	n	5.00E-03	fraction		De Wit (1999) Effective Porosity for Different Aquifer Types.
Hydraulic gradient	i	2.50E-02	fraction		Distance from BH01 - BH03
Hydraulic conductivity of aquifer	K	1.00E-11	m/d		Freeze & Cherry (1979)
Distance to compliance point	x	2.50E+02	m		SEPA WAT-PS-10-01
Distance (lateral) to compliance point perpendicular to flow direction	z		m		
Distance (depth) to compliance point perpendicular to flow direction	y		m		
Time since pollutant entered groundwater	t	1.00E+100	days		time variant options only
Parameters values determined from options					
Partition coefficient	Kd	6.17E+06	l/kg		see options
Longitudinal dispersivity	ax	2.50E+01	m		see options
Transverse dispersivity	az	2.50E+00	m		see options
Vertical dispersivity	ay	2.50E-01	m		see options

Calculated Parameters

Groundwater flow velocity	v	5.00E-11	m/d
Retardation factor	Rf	3.16E+09	fraction
Decay rate used	λ	2.20E-110	d ⁻¹
Rate of contaminant flow due to retardation	U	1.58E-20	m/d
Contaminant concentration at distance x, assuming one-way vertical dispersion	C _D	1.05E-06	mg/l
Attenuation factor (one way vertical dispersion, COCED)	AF	3.81E+01	

Remedial Targets

Remedial Target	3.81E-04	mg/l	For comparison with measured groundwater concentration.
Domeric - Steady state			
Distance to compliance point	250	m	
Concentration of contaminant at compliance point	C _D /C ₀	1.05E-06	mg/l Domeric - Steady state

Care should be used when calculating remedial targets using the time variant options as this may result in an overestimate of the remedial target. The recommended value for time when calculating the remedial target is 9.9E+99.

Select Method for deriving Partition Co-efficient (using pull down menu)

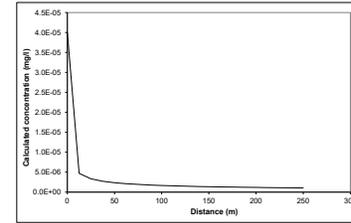
User specified value for partition coefficient

Soil water partition coefficient	Kd	6.17E+06	l/kg
Entry for non-polar organic chemicals (option)	foc		fraction
Fraction of organic carbon in aquifer	foc		fraction
Organic carbon partition coefficient	Koc		l/kg
Entry for ionic organic chemicals (option)	K _{oc,1}		l/kg
Sorption coefficient for related species	K _{oc,2}		l/kg
Sorption coefficient for ionised species	pH		
pH value	pKa		fraction
acid dissociation constant	foc		fraction
Fraction of organic carbon in aquifer	Kd	6.17E+06	l/kg

Define dispersivity (click brown cell and use pull down list)
 Dispersivities 10%, 1%, 0.1% of pathway length

Longitudinal dispersivity	ax	Enter value	Calc value	Xu & Eckstein	m
Transverse dispersivity	az	0.00E+00	2.50E+01	6.86E-01	m
Vertical dispersivity	ay	0.00E+00	2.50E+00	6.86E-01	m

Note values of dispersivity must be > 0
 For calculated value, assumes ax = 0.1 * x, az = 0.01 * x, ay = 0.001 * x
 Xu & Eckstein (1995) report ax = 0.83(log₁₀x)^{0.14}; az = ax/10, ay = ax/100 are assumed



Note graph assumes plume disperses vertically in one direction only. An alternative solution assuming the centre of the plume is located at the mid-depth of the aquifer is presented in the calculation sheets.

Note

This sheet calculates the Level 3 remedial target for groundwater, based on the distance to the receptor or compliance located down hydraulic gradient of the source. Three solution methods are included, the preferred option is Ogata Banks.

By setting a long travel time it will give the steady state solution, which should be used to calculate remedial targets.

The measured groundwater concentration should be compared with the Level 3 remedial target to determine the need for further action. Note if contaminant is not subject to first order degradation, then set half life as 9.0E+99.

This worksheet should be used if pollutant transport and degradation is best described by a first order reaction. If degradation is best described by an electron limited degradation such as oxidation by O₂, NO₃, SO₄ etc than an alternative solution should be used

Site being assessed:	Harness Road
Completed by:	AO
Date:	#####
Version:	1

Calculated concentrations for distance-concentration graph

Domeric - Steady state		mg/l
From calculation sheet		
Distance	Concentration	
0	4.0E-05	
12.5	4.71E-06	
25.0	3.33E-06	
37.5	2.72E-06	
50.0	2.36E-06	
62.5	2.11E-06	
75.0	1.93E-06	
87.5	1.78E-06	
100.0	1.67E-06	
112.5	1.57E-06	
125.0	1.49E-06	
137.5	1.42E-06	
150.0	1.36E-06	
162.5	1.31E-06	
175.0	1.26E-06	
187.5	1.22E-06	
200.0	1.18E-06	
212.5	1.14E-06	
225.0	1.11E-06	
237.5	1.08E-06	
250.0	1.05E-06	



Hydrogeological risk assessment for land contamination Remedial Targets Worksheet , Release 3.2

First released: 2006. Version 3.2: January 2013

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IMPORTANT: To enable MS Excel worksheet, click Tools, Add Ins, Analysis Tool Pak and Analysis Tool Pak-VBA (to calculate error functions).

Details to be completed for each assessment

Site Name:	Hareness Road		
Site Address:	Aberdeen		
Completed by:	AO	Version:	1
Date:	28-Feb-24		
Contaminant	Benzo(a)pyrene		
Target Concentration (C_T)	0.0001	mg/l	Origin of C_T: Laboratory Limit of Detection

This worksheet can be used to determine remedial targets for soils (Worksheets Level 1 Soil, Level 2 and Level 3 Soil) or to determine remedial targets for groundwater (Level 3 Groundwater). For Level 3, parameter values must be entered separately dependent on whether the assessment is for soil or groundwater. For soil, remedial targets are calculated as either mg/kg (for comparison with soil measurements) or mg/l (for comparison with leaching tests or pore water concentrations).

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R&D Publication 20 Remedial Targets Worksheet, Release 3.2



Level 3 - Groundwater

See Note

Input Parameters (using pull down menu)

Contaminant	Benzo(a)pyrene	from Level 1
Target Concentration	1.00E-04	mg/l from Level 1

Select analytical solution (click on brown cell below, then on pull-down menu)

Domenco - Steady state	Equations in HRA publication
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Approach for simulating vertical dispersion:

Simulate vertical dispersion in 1 direction

Select nature of decay rate (click on brown cell below, then on pull-down menu)

Approach for simulating degradation of pollutants:

Apply degradation rate to dissolved pollutants only

Initial contaminant concentration in groundwater at plume core	C ₀	3.00E-05	mg/l	Source of parameter value	BHOT 0.03 µg/l
Half life for degradation of contaminant in water	t _{1/2}	9.95E+99	days		Assumed no decay
Calculated decay rate	λ	6.94E-101	days ⁻¹		
Width of plume in aquifer at source (perpendicular to flow)	Sz	1.92E+02	m		Maximum width of site is 192m
Plume thickness at source	Sy	3.70E-01	m		10% of aquifer thickness
Saturated aquifer thickness	da	3.70E+00	m		Maximum water depth recorded to date
Bulk density of aquifer materials	ρ	2.55E+00	g/cm ³		Scott B. Smithson (1979) Densities of metamorphic rocks
Effective porosity of aquifer	n	5.00E-03	fraction		De Wit (1999) Effective Porosity for Different Aquifer Types.
Hydraulic gradient	i	2.50E-02	fraction		Distance from BH01 - BH03
Hydraulic conductivity of aquifer	K	1.00E-11	m/d		Freeze & Cherry (1979)
Distance to compliance point	x	2.50E+02	m		SEPA WAT-PS-10-01
Distance (lateral) to compliance point perpendicular to flow direction	z		m		
Distance (depth) to compliance point perpendicular to flow direction	y		m		
Time since pollutant entered groundwater	t	1.00E+100	days		time variant options only
Partition coefficient	Kd	6.66E+06	l/kg		see options
Longitudinal dispersivity	ax	2.50E+01	m		see options
Transverse dispersivity	az	2.50E+00	m		see options
Vertical dispersivity	ay	2.50E-01	m		see options

Calculated Parameters

Groundwater flow velocity	v	5.00E-11	m/d
Retardation factor	Rf	3.41E+09	fraction
Decay rate used	λ	2.04E-110	d ⁻¹
Rate of contaminant flow due to retardation	U	1.47E-20	m/d
Contaminant concentration at distance x, assuming one-way vertical dispersion	C _D	7.87E-07	mg/l
Attenuation factor (one way vertical dispersion, COCED)	AF	3.81E+01	

Select Method for deriving Partition Co-efficient (using pull down menu)

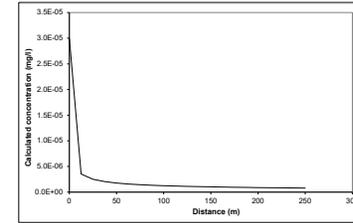
User specified value for partition coefficient

Soil water partition coefficient	Kd	6.66E+06	l/kg
Fraction of organic carbon in aquifer	foc		fraction
Organic carbon partition coefficient	Koc		l/kg
Sorption coefficient for related species	K _{oc,s}		l/kg
Sorption coefficient for ionised species	K _{oc,i}		l/kg
pH value	pH		
acid dissociation constant	pKa		
Fraction of organic carbon in aquifer	foc		fraction
Fraction of organic carbon in aquifer	Kd	6.66E+06	l/kg

Dispersivities 10%, 1%, 0.1% of pathway length

Longitudinal dispersivity	ax	Enter value	Calc value	Xu & Eckstein	m
Transverse dispersivity	az	0.00E+00	2.50E+01	6.86E-01	m
Vertical dispersivity	ay	0.00E+00	2.50E-01	6.86E-02	m

Note values of dispersivity must be > 0
For calculated value, assumes ax = 0.1 * x, az = 0.01 * x, ay = 0.001 * x
Xu & Eckstein (1995) report ax = 0.83(log₁₀x)^{0.14}; az = ax/10, ay = ax/100 are assumed



Note graph assumes plume disperses vertically in one direction only. An alternative solution assuming the centre of the plume is located at the mid-depth of the aquifer is presented in the calculation sheets.

Note

This sheet calculates the Level 3 remedial target for groundwater, based on the distance to the receptor or compliance located down hydraulic gradient of the source. Three solution methods are included, the preferred option is Ogata Banks.

By setting a long travel time it will give the steady state solution, which should be used to calculate remedial targets.

The measured groundwater concentration should be compared with the Level 3 remedial target to determine the need for further action. Note if contaminant is not subject to first order degradation, then set half life as 9.0E+99.

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Site being assessed:	Harness Road
Completed by:	AO
Date:	#####
Version:	1

Calculated concentrations for distance-concentration graph

Domenco - Steady state		
From calculation sheet		
Distance	Concentration	mg/l
0		3.0E-05
12.5		3.53E-06
25.0		2.50E-06
37.5		2.04E-06
50.0		1.77E-06
62.5		1.58E-06
75.0		1.45E-06
87.5		1.34E-06
100.0		1.25E-06
112.5		1.18E-06
125.0		1.12E-06
137.5		1.07E-06
150.0		1.02E-06
162.5		9.82E-07
175.0		9.45E-07
187.5		9.13E-07
200.0		8.83E-07
212.5		8.56E-07
225.0		8.31E-07
237.5		8.09E-07
250.0		7.87E-07

Remedial Targets

Remedial Target	3.81E-03	mg/l	For comparison with measured groundwater concentration.
Domenco - Steady state			
Distance to compliance point	250	m	
Concentration of contaminant at compliance point	C _D /C ₀	7.87E-07	mg/l Domenco - Steady state

Care should be used when calculating remedial targets using the time variant options as this may result in an overestimate of the remedial target. The recommended value for time when calculating the remedial target is 9.9E+99.



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First released: 2006. Version 3.2: January 2013

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IMPORTANT: To enable MS Excel worksheet, click Tools, Add -Ins, Analysis Tool Pak and Analysis Tool Pak-VBA (to calculate error functions).

Details to be completed for each assessment

Site Name:	Hareness Road		
Site Address:	Aberdeen		
Completed by:	AO	Version:	1
Date:	28-Feb-24		
Contaminant	Cadmium		
Target Concentration (C_T)	0.0001	mg/l	Origin of C_T: MRV/RPV

This worksheet can be used to determine remedial targets for soils (Worksheets Level 1 Soil, Level 2 and Level 3 Soil) or to determine remedial targets for groundwater (Level 3 Groundwater). For Level 3, parameter values must be entered separately dependent on whether the assessment is for soil or groundwater. For soil, remedial targets are calculated as either mg/kg (for comparison with soil measurements) or mg/l (for comparison with leaching tests or pore water concentrations).

Site details entered on this page are automatically copied to Level 1, 2 and 3 Worksheets.

Worksheet options are identified by brown background and employ a pull-down menus. Data entry are identified as blue background.

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Data carried forward from an earlier worksheet are identified by a light green background

It is recommended that a copy of the original worksheet is saved (all data fields in the original copy are blank).

The spreadsheet also includes a porosity calculation worksheet, a soil impact calculation worksheet and a worksheet that performs some simple hydrogeological calculations.

R&D Publication 20 Remedial Targets Worksheet, Release 3.2



Level 3 - Groundwater

See Note

Input Parameters (using pull down menu)

Contaminant	Cadmium	from Level 1
Target Concentration	1.00E-04	mg/l from Level 1

Select analytical solution (click on brown cell below, then on pull-down menu)

Domenico - Steady state	Equations in HRA publication
--------------------------------	------------------------------

Approach for simulating vertical dispersion:

Simulate vertical dispersion in 1 direction

Select nature of decay rate (click on brown cell below, then on pull-down menu)

Approach for simulating degradation of pollutants:

Apply degradation rate to dissolved pollutants only

Initial contaminant concentration in groundwater at plume core	C ₀	2.70E-04	mg/l	Source of parameter value	BHQ2 0.27 µg/l
Half life for degradation of contaminant in water	t _{1/2}	9.95E+99	days		Assumed no decay
Calculated decay rate	λ	6.94E-101	days ⁻¹		
Width of plume in aquifer at source (perpendicular to flow)	Sz	1.92E+02	m		Maximum width of site is 192m
Plume thickness at source	Sy	3.70E-01	m		10% of aquifer thickness
Saturated aquifer thickness	da	3.70E+00	m		Maximum water depth recorded to date
Bulk density of aquifer materials	ρ	2.55E+00	g/cm ³		Scott B. Smithson (1979) Densities of metamorphic rocks
Effective porosity of aquifer	n	5.00E-03	fraction		De Wit (1999) Effective Porosity for Different Aquifer Types.
Hydraulic gradient	i	2.50E-02	fraction		Distance from BH01 - BH03
Hydraulic conductivity of aquifer	K	1.00E-11	m/d		Freeze & Cherry (1979)
Distance to compliance point	x	2.50E+02	m		SEPA WAT-PS-10-01
Distance (lateral) to compliance point perpendicular to flow direction	z		m		Vertical dispersivity
Distance (depth) to compliance point perpendicular to flow direction	y		m		Vertical dispersivity
Time since pollutant entered groundwater	t	1.00E+100	days		time variant options only
Partition coefficient	Kd	3.98E+03	l/kg		see options
Longitudinal dispersivity	ax	2.50E+01	m		see options
Transverse dispersivity	az	2.50E+00	m		see options
Vertical dispersivity	ay	2.50E-01	m		see options

Calculated Parameters

Groundwater flow velocity	v	5.00E-11	m/d
Retardation factor	Rf	2.04E+06	fraction
Decay rate used	λ	3.40E-107	d ⁻¹
Rate of contaminant flow due to retardation	u	2.45E-17	m/d
Contaminant concentration at distance x, assuming one-way vertical dispersion	C _D	7.08E-06	mg/l
Attenuation factor (one way vertical dispersion, COCED)	AF	3.81E+01	

Select Method for deriving Partition Co-efficient (using pull down menu)

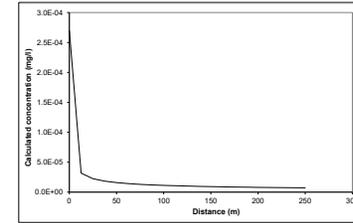
User specified value for partition coefficient

Soil water partition coefficient	Kd	3.98E+03	l/kg
Fraction of organic carbon in aquifer	foc		fraction
Organic carbon partition coefficient	Koc		l/kg
Sorption coefficient for related species	K _{oc,s}		l/kg
Sorption coefficient for ionised species	K _{oc,i}		l/kg
pH value	pH		
acid dissociation constant	pKa		
Fraction of organic carbon in aquifer	foc		fraction
Fraction of organic carbon in aquifer	Kd	3.98E+03	l/kg

Dispersivities 10%, 1%, 0.1% of pathway length

Longitudinal dispersivity	ax	Enter value	Calc value	Xu & Eckstein	m
Transverse dispersivity	az	0.00E+00	2.50E+01	6.86E-01	m
Vertical dispersivity	ay	0.00E+00	2.50E-01	6.86E-02	m

Note values of dispersivity must be > 0
For calculated value, assumes ax = 0.1 * x, az = 0.01 * x, ay = 0.001 * x
Xu & Eckstein (1995) report ax = 0.83(log₁₀x)^{0.14}; az = ax/10, ay = ax/100 are assumed



Note graph assumes plume disperses vertically in one direction only. An alternative solution assuming the centre of the plume is located at the mid-depth of the aquifer is presented in the calculation sheets.

Note

This sheet calculates the Level 3 remedial target for groundwater, based on the distance to the receptor or compliance located down hydraulic gradient of the source. Three solution methods are included, the preferred option is Ogata Banks.

By setting a long travel time it will give the steady state solution, which should be used to calculate remedial targets.

The measured groundwater concentration should be compared with the Level 3 remedial target to determine the need for further action. Note if contaminant is not subject to first order degradation, then set half life as 9.0E+99.

This worksheet should be used if pollutant transport and degradation is best described by a first order reaction. If degradation is best described by an electron limited degradation such as oxidation by O₂, NO₃, SO₄ etc than an alternative solution should be used

Site being assessed:	Harness Road
Completed by:	AO
Date:	#####
Version:	1

Calculated concentrations for distance-concentration graph

Domenico - Steady state		
From calculation sheet		
Distance	Concentration	mg/l
0		2.7E-04
12.5		3.15E-05
25.0		2.25E-05
37.5		1.84E-05
50.0		1.59E-05
62.5		1.42E-05
75.0		1.30E-05
87.5		1.20E-05
100.0		1.13E-05
112.5		1.06E-05
125.0		1.01E-05
137.5		9.61E-06
150.0		9.20E-06
162.5		8.83E-06
175.0		8.51E-06
187.5		8.22E-06
200.0		7.95E-06
212.5		7.71E-06
225.0		7.48E-06
237.5		7.27E-06
250.0		7.08E-06

Remedial Targets

Remedial Target	3.81E-03	mg/l	For comparison with measured groundwater concentration.
Domenico - Steady state			
Distance to compliance point	250	m	
Concentration of contaminant at compliance point	C _D /C ₀	7.08E-06	mg/l Domenico - Steady state

Care should be used when calculating remedial targets using the time variant options as this may result in an overestimate of the remedial target. The recommended value for time when calculating the remedial target is 9.9E+99.



Hydrogeological risk assessment for land contamination Remedial Targets Worksheet , Release 3.2

First released: 2006. Version 3.2: January 2013

This worksheet has been produced in combination with the document 'Remedial Targets Methodology: Hydrogeological risk assessment for land contamination (Environment Agency 2006).

Users of this worksheet should always refer to the User Manual to the Remedial Targets Methodology and to relevant guidance on UK legislation and policy, in order to understand how this procedure should be applied in an appropriate context.

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IMPORTANT: To enable MS Excel worksheet, click Tools, Add -Ins, Analysis Tool Pak and Analysis Tool Pak-VBA (to calculate error functions).

Details to be completed for each assessment

Site Name:	Hareness Road		
Site Address:	Aberdeen		
Completed by:	AO	Version:	1
Date:	28-Feb-24		
Contaminant	Chrysene		
Target Concentration (C_T)	0.00001	mg/l	Origin of C_T: Laboratory Limit of Detection

This worksheet can be used to determine remedial targets for soils (Worksheets Level 1 Soil, Level 2 and Level 3 Soil) or to determine remedial targets for groundwater (Level 3 Groundwater). For Level 3, parameter values must be entered separately dependent on whether the assessment is for soil or groundwater. For soil, remedial targets are calculated as either mg/kg (for comparison with soil measurements) or mg/l (for comparison with leaching tests or pore water concentrations).

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The spreadsheet also includes a porosity calculation worksheet, a soil impact calculation worksheet and a worksheet that performs some simple hydrogeological calculations.

R&D Publication 20 Remedial Targets Worksheet, Release 3.2



Level 3 - Groundwater

See Note

Input Parameters (using pull down menu)

Contaminant	Chrysene	from Level 1
Target Concentration	C _T 1.00E-05	mg/l from Level 1

Select analytical solution (click on brown cell below, then on pull-down menu)

Domeric - Steady state	Equations in HRA publication
------------------------	------------------------------

Approach for simulating vertical dispersion:

Simulate vertical dispersion in 1 direction

Select nature of decay rate (click on brown cell below, then on pull-down menu)

Approach for simulating degradation of pollutants:

Apply degradation rate to dissolved pollutants only

Initial contaminant concentration in groundwater at plume core	C ₀	2.00E-05	mg/l	Source of parameter value	BH01/BH02/BH03 0.02 µg/l
Half life for degradation of contaminant in water	t _{1/2}	9.99E+99	days		Assumed no decay
Calculated decay rate	λ	6.94E-101	days ⁻¹		
Width of plume in aquifer at source (perpendicular to flow)	Sz	1.92E+02	m		Maximum width of site is 192m
Plume thickness at source	Sy	3.70E-01	m		10% of aquifer thickness
Saturated aquifer thickness	da	3.70E+00	m		Maximum water depth recorded to date
Bulk density of aquifer materials	ρ	2.56E+00	g/cm ³		Scott B. Smithson (1979) Densities of metamorphic rocks
Effective porosity of aquifer	n	5.00E-03	fraction		De Wit (1999) Effective Porosity for Different Aquifer Types.
Hydraulic gradient	i	2.50E-02	fraction		Distance from BH01 - BH03
Hydraulic conductivity of aquifer	K	1.00E-11	m/d		Freeze & Cherry (1979)
Distance to compliance point	x	2.50E+02	m		SEPA WAT-PS-10-01
Distance (lateral) to compliance point perpendicular to flow direction	z		m		
Distance (depth) to compliance point perpendicular to flow direction	y		m		
Time since pollutant entered groundwater	t	1.00E+100	days		time variant options only
Partition coefficient	Kd	5.96E+06	l/kg		see options
Longitudinal dispersivity	ax	2.50E+01	m		see options
Transverse dispersivity	az	2.50E+00	m		see options
Vertical dispersivity	ay	2.50E-01	m		see options

Calculated Parameters

Groundwater flow velocity	v	5.00E-11	m/d
Retardation factor	Rf	3.05E+09	fraction
Decay rate used	λ	2.28E-110	d ⁻¹
Rate of contaminant flow due to retardation	U	1.64E-20	m/d
Contaminant concentration at distance x, assuming one-way vertical dispersion	C _D	5.25E-07	mg/l
Attenuation factor (one way vertical dispersion, COCED)	AF	3.81E+01	

Select Method for deriving Partition Co-efficient (using pull down menu)

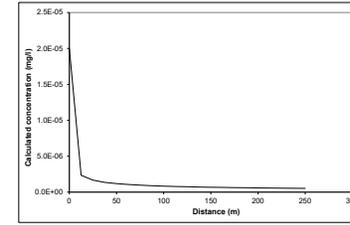
User specified value for partition coefficient

Soil water partition coefficient	Kd	5.96E+06	l/kg
Fraction of organic carbon in aquifer	foc		fraction
Organic carbon partition coefficient	Koc		l/kg
Sorption coefficient for related species	K _{oc,1}		l/kg
Sorption coefficient for ionised species	K _{oc,2}		l/kg
pH value	pH		
acid dissociation constant	pKa		
Fraction of organic carbon in aquifer	foc		fraction
Soil water partition coefficient	Kd	5.96E+06	l/kg

Dispersivities 10%, 1%, 0.1% of pathway length

Longitudinal dispersivity	ax	Enter value	Calc value	Xu & Eckstein	m
Transverse dispersivity	az	0.00E+00	2.50E+01	6.86E+00	m
Vertical dispersivity	ay	0.00E+00	2.50E-01	6.86E-01	m

Note values of dispersivity must be > 0
For calculated value, assumes ax = 0.1 * x, az = 0.01 * x, ay = 0.001 * x
Xu & Eckstein (1995) report ax = 0.83(log₁₀x)^{0.14}; az = ax/10, ay = ax/100 are assumed



Note graph assumes plume disperses vertically in one direction only. An alternative solution assuming the centre of the plume is located at the mid-depth of the aquifer is presented in the calculation sheets.

Note

This sheet calculates the Level 3 remedial target for groundwater, based on the distance to the receptor or compliance located down hydraulic gradient of the source. Three solution methods are included, the preferred option is Ogata Banks.

By setting a long travel time it will give the steady state solution, which should be used to calculate remedial targets.

The measured groundwater concentration should be compared with the Level 3 remedial target to determine the need for further action. Note if contaminant is not subject to first order degradation, then set half life as 9.0E+99.

This worksheet should be used if pollutant transport and degradation is best described by a first order reaction. If degradation is best described by an electron limited degradation such as oxidation by O₂, NO₃, SO₄ etc than an alternative solution should be used

Site being assessed:	Harness Road
Completed by:	AO
Date:	#####
Version:	1

Calculated concentrations for distance-concentration graph

Domeric - Steady state	
From calculation sheet	
Distance	Concentration
	mg/l
0	2.0E-05
12.5	2.35E-06
25.0	1.67E-06
37.5	1.36E-06
50.0	1.18E-06
62.5	1.06E-06
75.0	9.64E-07
87.5	8.92E-07
100.0	8.35E-07
112.5	7.87E-07
125.0	7.46E-07
137.5	7.12E-07
150.0	6.81E-07
162.5	6.54E-07
175.0	6.30E-07
187.5	6.09E-07
200.0	5.89E-07
212.5	5.71E-07
225.0	5.54E-07
237.5	5.39E-07
250.0	5.25E-07

Remedial Targets

Remedial Target	3.81E-04	mg/l	For comparison with measured groundwater concentration.
Domeric - Steady state			
Distance to compliance point	250	m	
Concentration of contaminant at compliance point	C _D /C ₀	5.25E-07	mg/l Domeric - Steady state

Care should be used when calculating remedial targets using the time variant options as this may result in an overestimate of the remedial target. The recommended value for time when calculating the remedial target is 9.9E+99.



Hydrogeological risk assessment for land contamination Remedial Targets Worksheet , Release 3.2

First released: 2006. Version 3.2: January 2013

This worksheet has been produced in combination with the document 'Remedial Targets Methodology: Hydrogeological risk assessment for land contamination (Environment Agency 2006).

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IMPORTANT: To enable MS Excel worksheet, click Tools, Add -Ins, Analysis Tool Pak and Analysis Tool Pak-VBA (to calculate error functions).

Details to be completed for each assessment

Site Name:	Hareness Road		
Site Address:	Aberdeen		
Completed by:	AO	Version:	1
Date:	28-Feb-24		
Contaminant	Fluoranthene		
Target Concentration (C_T)	0.0001	mg/l	Origin of C_T: RPV/MRV

This worksheet can be used to determine remedial targets for soils (Worksheets Level 1 Soil, Level 2 and Level 3 Soil) or to determine remedial targets for groundwater (Level 3 Groundwater). For Level 3, parameter values must be entered separately dependent on whether the assessment is for soil or groundwater. For soil, remedial targets are calculated as either mg/kg (for comparison with soil measurements) or mg/l (for comparison with leaching tests or pore water concentrations).

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The spreadsheet also includes a porosity calculation worksheet, a soil impact calculation worksheet and a worksheet that performs some simple hydrogeological calculations.

R&D Publication 20 Remedial Targets Worksheet, Release 3.2



Level 3 - Groundwater

See Note

Input Parameters (using pull down menu)

Contaminant	Fluoranthene	from Level 1
Target Concentration	1.00E-04	mg/l from Level 1

Select analytical solution (click on brown cell below, then on pull-down menu)

Domenico - Steady state	Equations in HRA publication
--------------------------------	------------------------------

Approach for simulating vertical dispersion:

Simulate vertical dispersion in 1 direction

Select nature of decay rate (click on brown cell below, then on pull-down menu)

Approach for simulating degradation of pollutants:

Apply degradation rate to dissolved pollutants only

Initial contaminant concentration in groundwater at plume core	C ₀	1.70E-04	mg/l	Source of parameter value	BHOT 0.17 µg/l
Half life for degradation of contaminant in water	t _{1/2}	9.95E+99	days		Assumed no decay
Calculated decay rate	λ	6.94E-101	days ⁻¹		
Width of plume in aquifer at source (perpendicular to flow)	Sz	1.92E+02	m		Maximum width of site is 192m
Plume thickness at source	Sy	3.70E-01	m		10% of aquifer thickness
Saturated aquifer thickness	da	3.70E+00	m		Maximum water depth recorded to date
Bulk density of aquifer materials	ρ	2.55E+00	g/cm ³		Scott B. Smithson (1979) Densities of metamorphic rocks
Effective porosity of aquifer	n	5.00E-03	fraction		De Wit (1999) Effective Porosity for Different Aquifer Types.
Hydraulic gradient	i	2.50E-02	fraction		Distance from BH01 - BH03
Hydraulic conductivity of aquifer	K	1.00E-11	m/d		Freeze & Cherry (1979)
Distance to compliance point	x	2.50E+02	m		SEPA WAT-PS-10-01
Distance (lateral) to compliance point perpendicular to flow direction	z		m		
Distance (depth) to compliance point perpendicular to flow direction	y		m		
Time since pollutant entered groundwater	t	1.00E+100	days		time variant options only
Partition coefficient	Kd	1.00E+07	l/kg		see options
Longitudinal dispersivity	ax	2.50E+01	m		see options
Transverse dispersivity	az	2.50E+00	m		see options
Vertical dispersivity	ay	2.50E-01	m		see options

Calculated Parameters

Groundwater flow velocity	v	5.00E-11	m/d
Retardation factor	Rf	5.59E+09	fraction
Decay rate used	λ	1.24E-110	d ⁻¹
Rate of contaminant flow due to retardation	U	8.94E-21	m/d
Contaminant concentration at distance x, assuming one-way vertical dispersion	C _{1D}	4.46E-06	mg/l
Attenuation factor (one way vertical dispersion, COCED)	AF	3.81E+01	

Select Method for deriving Partition Co-efficient (using pull down menu)

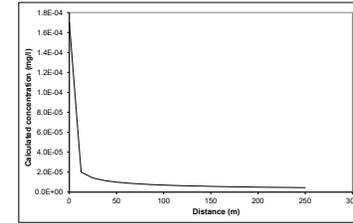
User specified value for partition coefficient

Soil water partition coefficient	Kd	1.00E+07	l/kg
Fraction of organic carbon in aquifer	foc		fraction
Organic carbon partition coefficient	Koc		l/kg
Sorption coefficient for related species	K _{oc,1}		l/kg
Sorption coefficient for ionised species	K _{oc,2}		l/kg
pH value	pH		
acid dissociation constant	pKa		
Fraction of organic carbon in aquifer	foc		fraction
Soil water partition coefficient	Kd	1.00E+07	l/kg

Define dispersivity (click brown cell and use pull down list) Dispersivities 10%, 1%, 0.1% of pathway length

Longitudinal dispersivity	ax	Enter value	Calc value	Xu & Eckstein	m
Transverse dispersivity	az	0.00E+00	2.50E+01	6.86E-01	m
Vertical dispersivity	ay	0.00E+00	2.50E+00	6.86E-01	m

Note values of dispersivity must be > 0
For calculated value, assumes ax = 0.1 * x, az = 0.01 * x, ay = 0.001 * x
Xu & Eckstein (1996) report ax = 0.83(log₁₀x)^{0.14}; az = ax/10, ay = ax/100 are assumed



Note graph assumes plume disperses vertically in one direction only. An alternative solution assuming the centre of the plume is located at the mid-depth of the aquifer is presented in the calculation sheets.

Note

This sheet calculates the Level 3 remedial target for groundwater, based on the distance to the receptor or compliance located down hydraulic gradient of the source. Three solution methods are included, the preferred option is Ogata Banks.

By setting a long travel time it will give the steady state solution, which should be used to calculate remedial targets.

The measured groundwater concentration should be compared with the Level 3 remedial target to determine the need for further action.

Note if contaminant is not subject to first order degradation, then set half life as 9.0E+99.

This worksheet should be used if pollutant transport and degradation is best described by a first order reaction. If degradation is best described by an electron limited degradation such as oxidation by O₂, NO₃, SO₄ etc than an alternative solution should be used

Site being assessed:	Harness Road
Completed by:	AO
Date:	#####
Version:	1

Calculated concentrations for distance-concentration graph

Domenico - Steady state	
From calculation sheet	
Distance	Concentration
	mg/l
0	1.7E-04
12.5	2.00E-05
25.0	1.42E-05
37.5	1.16E-05
50.0	1.00E-05
62.5	8.97E-06
75.0	8.19E-06
87.5	7.58E-06
100.0	7.09E-06
112.5	6.69E-06
125.0	6.35E-06
137.5	6.05E-06
150.0	5.79E-06
162.5	5.56E-06
175.0	5.36E-06
187.5	5.17E-06
200.0	5.01E-06
212.5	4.85E-06
225.0	4.71E-06
237.5	4.58E-06
250.0	4.46E-06

Remedial Targets

Remedial Target	3.81E-03	mg/l	For comparison with measured groundwater concentration.
Domenico - Steady state			
Distance to compliance point	250	m	
Concentration of contaminant at compliance point	C _{1D} /C ₀	4.46E-06	mg/l Domenico - Steady state

Care should be used when calculating remedial targets using the time variant options as this may result in an overestimate of the remedial target. The recommended value for time when calculating the remedial target is 9.9E+99.



Hydrogeological risk assessment for land contamination Remedial Targets Worksheet , Release 3.2

First released: 2006. Version 3.2: January 2013

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IMPORTANT: To enable MS Excel worksheet, click Tools, Add -Ins, Analysis Tool Pak and Analysis Tool Pak-VBA (to calculate error functions).

Details to be completed for each assessment

Site Name:	Hareness Road		
Site Address:	Aberdeen		
Completed by:	AO	Version:	1
Date:	28-Feb-24		
Contaminant	Phenanthrene		
Target Concentration (C_T)	0.00001	mg/l	Origin of C_T: Laboratory Limit of Detection

This worksheet can be used to determine remedial targets for soils (Worksheets Level 1 Soil, Level 2 and Level 3 Soil) or to determine remedial targets for groundwater (Level 3 Groundwater). For Level 3, parameter values must be entered separately dependent on whether the assessment is for soil or groundwater. For soil, remedial targets are calculated as either mg/kg (for comparison with soil measurements) or mg/l (for comparison with leaching tests or pore water concentrations).

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The spreadsheet also includes a porosity calculation worksheet, a soil impact calculation worksheet and a worksheet that performs some simple hydrogeological calculations.

R&D Publication 20 Remedial Targets Worksheet, Release 3.2



Level 3 - Groundwater

See Note

Input Parameters (using pull down menu)

Contaminant	Phenanthrene	from Level 1
Target Concentration	C _T 1.00E-05	mg/l from Level 1

Select analytical solution (click on brown cell below, then on pull-down menu)

Domenico - Steady state	Equations in HRA publication
--------------------------------	------------------------------

Approach for simulating vertical dispersion:

Simulate vertical dispersion in 1 direction

Select nature of decay rate (click on brown cell below, then on pull-down menu)

Approach for simulating degradation of pollutants:

Apply degradation rate to dissolved pollutants only

Initial contaminant concentration in groundwater at plume core	C ₀	8.00E-05	mg/l	Source of parameter value	BHOT 0.08 µg/l
Half life for degradation of contaminant in water	t _{1/2}	9.95E+99	days		Assumed no decay
Calculated decay rate	λ	6.94E-101	days ⁻¹		
Width of plume in aquifer at source (perpendicular to flow)	Sz	1.92E+02	m		Maximum width of site is 192m
Plume thickness at source	Sy	3.70E-01	m		10% of aquifer thickness
Saturated aquifer thickness	da	3.70E+00	m		Maximum water depth recorded to date
Bulk density of aquifer materials	ρ	2.56E+00	g/cm ³		Scott B. Smithson (1979) Densities of metamorphic rocks
Effective porosity of aquifer	n	5.00E-03	fraction		De Wit (1999) Effective Porosity for Different Aquifer Types.
Hydraulic gradient	i	2.50E-02	fraction		Distance from BH01 - BH03
Hydraulic conductivity of aquifer	K	1.00E-11	m/d		Freeze & Cherry (1979)
Distance to compliance point	x	2.50E+02	m		SEPA WAT-PS-10-01
Distance (lateral) to compliance point perpendicular to flow direction	z		m		
Distance (depth) to compliance point perpendicular to flow direction	y		m		
Time since pollutant entered groundwater	t	1.00E+100	days		time variant options only
Partition coefficient	Kd	1.43E+07	l/kg		see options
Longitudinal dispersivity	ax	2.50E+01	m		see options
Transverse dispersivity	az	2.50E+00	m		see options
Vertical dispersivity	ay	2.50E-01	m		see options

Calculated Parameters

Groundwater flow velocity	v	5.00E-11	m/d
Retardation factor	Rf	7.31E+09	fraction
Decay rate used	λ	9.50E-111	d ⁻¹
Rate of contaminant flow due to retardation	U	6.84E-21	m/d
Contaminant concentration at distance x, assuming one-way vertical dispersion	C _D	2.11E-06	mg/l
Attenuation factor (one way vertical dispersion, COCED)	AF	3.81E+01	

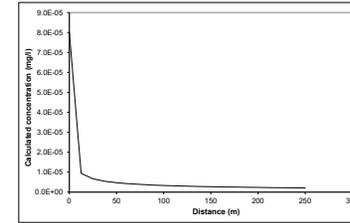
Select Method for deriving Partition Co-efficient (using pull down menu)

User specified value for partition coefficient

Soil water partition coefficient	Kd	1.43E+07	l/kg
Entry for non-polar organic chemicals (option)	foc		fraction
Fraction of organic carbon in aquifer	Koc		l/kg
Organic carbon partition coefficient	K _{oc,1}		l/kg
Entry for ionic organic chemicals (option)	K _{oc,2}		l/kg
Sorption coefficient for related species	pH		fraction
Sorption coefficient for ionised species	pKa		fraction
pH value	foc		fraction
acid dissociation constant	Kd	1.43E+07	l/kg
Fraction of organic carbon in aquifer			
Soil water partition coefficient			

Define dispersivity (click brown cell and use pull down list)

Dispersivities 10%, 1%, 0.1% of pathway length			
Longitudinal dispersivity	ax	Enter value	Calc value Xu & Eckstein m
Transverse dispersivity	az	0.00E+00	2.50E+01 6.86E+00 m
Vertical dispersivity	ay	0.00E+00	2.50E+00 6.86E-01 m
Note values of dispersivity must be > 0			
For calculated value, assumes ax = 0.1 * x, az = 0.01 * x, ay = 0.001 * x			
Xu & Eckstein (1995) report ax = 0.83(log ₁₀ k) ^{0.14} , az = ax/10, ay = ax/100 are assumed			



Note graph assumes plume disperses vertically in one direction only. An alternative solution assuming the centre of the plume is located at the mid-depth of the aquifer is presented in the calculation sheets.

Note

This sheet calculates the Level 3 remedial target for groundwater, based on the distance to the receptor or compliance located down hydraulic gradient of the source. Three solution methods are included, the preferred option is Ogata Banks.

By setting a long travel time it will give the steady state solution, which should be used to calculate remedial targets.

The measured groundwater concentration should be compared with the Level 3 remedial target to determine the need for further action.

Note if contaminant is not subject to first order degradation, then set half life as 9.0E+99.

This worksheet should be used if pollutant transport and degradation is best described by a first order reaction. If degradation is best described by an electron limited degradation such as oxidation by O₂, NO₃, SO₄ etc than an alternative solution should be used

Site being assessed:	Harness Road
Completed by:	AO
Date:	#####
Version:	1

Calculated concentrations for distance-concentration graph

Domenico - Steady state	
From calculation sheet	
Distance	Concentration
	mg/l
0	8.00E-05
12.5	9.41E-06
25.0	6.67E-06
37.5	5.45E-06
50.0	4.72E-06
62.5	4.22E-06
75.0	3.85E-06
87.5	3.57E-06
100.0	3.34E-06
112.5	3.15E-06
125.0	2.99E-06
137.5	2.85E-06
150.0	2.73E-06
162.5	2.62E-06
175.0	2.52E-06
187.5	2.43E-06
200.0	2.36E-06
212.5	2.28E-06
225.0	2.22E-06
237.5	2.16E-06
250.0	2.10E-06

Remedial Targets

Remedial Target	3.81E-04	mg/l	For comparison with measured groundwater concentration.
Domenico - Steady state			
Distance to compliance point	250	m	
Concentration of contaminant at compliance point	C _D /C ₀	2.10E-06	mg/l Domenico - Steady state

Care should be used when calculating remedial targets using the time variant options as this may result in an overestimate of the remedial target. The recommended value for time when calculating the remedial target is 9.9E+99.



Hydrogeological risk assessment for land contamination Remedial Targets Worksheet , Release 3.2

First released: 2006. Version 3.2: January 2013

This worksheet has been produced in combination with the document 'Remedial Targets Methodology: Hydrogeological risk assessment for land contamination (Environment Agency 2006).

Users of this worksheet should always refer to the User Manual to the Remedial Targets Methodology and to relevant guidance on UK legislation and policy, in order to understand how this procedure should be applied in an appropriate context.

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IMPORTANT: To enable MS Excel worksheet, click Tools, Add Ins, Analysis Tool Pak and Analysis Tool Pak-VBA (to calculate error functions).

Details to be completed for each assessment

Site Name:	Hareness Road		
Site Address:	Aberdeen		
Completed by:	AO	Version:	1
Date:	28-Feb-24		
Contaminant	Pyrene		
Target Concentration (C_T)	0.00001	mg/l	Origin of C_T: Laboratory Limit of Detection

This worksheet can be used to determine remedial targets for soils (Worksheets Level 1 Soil, Level 2 and Level 3 Soil) or to determine remedial targets for groundwater (Level 3 Groundwater). For Level 3, parameter values must be entered separately dependent on whether the assessment is for soil or groundwater. For soil, remedial targets are calculated as either mg/kg (for comparison with soil measurements) or mg/l (for comparison with leaching tests or pore water concentrations).

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The spreadsheet also includes a porosity calculation worksheet, a soil impact calculation worksheet and a worksheet that performs some simple hydrogeological calculations.

R&D Publication 20 Remedial Targets Worksheet, Release 3.2



Level 3 - Groundwater

See Note

Input Parameters (using pull down menu)

Contaminant	Pyrene	from Level 1
Target Concentration	1.00E-05	mg/l from Level 1

Select analytical solution (click on brown cell below, then on pull-down menu)

Approach for simulating vertical dispersion:	Domencico - Steady state	Equations in HRA publication
--	--------------------------	------------------------------

Approach for simulating vertical dispersion:

Approach for simulating degradation of pollutants:	Simulate vertical dispersion in 1 direction
--	---

Select nature of decay rate (click on brown cell below, then on pull-down menu)

Approach for simulating degradation of pollutants:

Approach for simulating degradation of pollutants:	Apply degradation rate to dissolved pollutants only
--	---

Initial contaminant concentration in groundwater at plume core	C ₀	1.20E-04	mg/l	Source of parameter value	BHOT 0.12 µg/l
Half life for degradation of contaminant in water	t _{1/2}	9.95E+99	days		Assumed no decay
Calculated decay rate	λ	6.94E-101	days ⁻¹		
Width of plume in aquifer at source (perpendicular to flow)	Sz	1.92E+02	m		Maximum width of site is 192m
Plume thickness at source	Sy	3.70E-01	m		10% of aquifer thickness
Saturated aquifer thickness	da	3.70E+00	m		Maximum water depth recorded to date
Bulk density of aquifer materials	ρ	2.55E+00	g/cm ³		Scott B. Smithson (1979) Densities of metamorphic rocks
Effective porosity of aquifer	n	5.00E-03	fraction		De Wit (1999) Effective Porosity for Different Aquifer Types.
Hydraulic gradient	i	2.50E-02	fraction		Distance from BH01 - BH03
Hydraulic conductivity of aquifer	K	1.00E-11	m/d		Freeze & Cherry (1979)
Distance to compliance point	x	2.50E+02	m		SEPA WAT-PS-10-01
Distance (lateral) to compliance point perpendicular to flow direction	z		m		
Distance (depth) to compliance point perpendicular to flow direction	y		m		
Time since pollutant entered groundwater	t	1.00E+100	days		time variant options only
Partition coefficient	Kd	1.36E+07	l/kg		see options
Longitudinal dispersivity	ax	2.50E+01	m		see options
Transverse dispersivity	az	2.50E+00	m		see options
Vertical dispersivity	ay	2.50E-01	m		see options

Calculated Parameters

Groundwater flow velocity	v	5.00E-11	m/d
Retardation factor	Rf	6.95E+09	fraction
Decay rate used	λ	9.98E-111	d ⁻¹
Rate of contaminant flow due to retardation	U	7.19E-21	m/d
Contaminant concentration at distance x, assuming one-way vertical dispersion	C _D	3.15E-06	mg/l
Attenuation factor (one way vertical dispersion, CO/CED)	AF	3.81E+01	

Select Method for deriving Partition Co-efficient (using pull down menu)

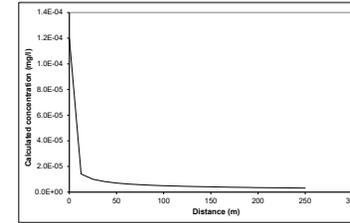
User specified value for partition coefficient

Soil water partition coefficient	Kd	1.36E+07	l/kg
Fraction of organic carbon in aquifer	foc		fraction
Organic carbon partition coefficient	Koc		l/kg
Sorption coefficient for related species	K _{oc,1}		l/kg
Sorption coefficient for ionised species	K _{oc,2}		l/kg
pH value	pH		
acid dissociation constant	pKa		
Fraction of organic carbon in aquifer	foc		fraction
Fraction of organic carbon in aquifer	Kd	1.36E+07	l/kg

Dispersivities 10%, 1%, 0.1% of pathway length

Longitudinal dispersivity	ax	Enter value	Calc value	Xu & Eckstein	m
Transverse dispersivity	az	0.00E+00	2.50E+01	6.86E-01	m
Vertical dispersivity	ay	0.00E+00	2.50E-01	6.86E-02	m

Note values of dispersivity must be > 0
For calculated value, assumes ax = 0.1 * x, az = 0.01 * x, ay = 0.001 * x
Xu & Eckstein (1995) report ax = 0.83(ρg_w)^{0.14}; az = ax/10, ay = ax/100 are assumed



Note graph assumes plume disperses vertically in one direction only. An alternative solution assuming the centre of the plume is located at the mid-depth of the aquifer is presented in the calculation sheets.

Note

This sheet calculates the Level 3 remedial target for groundwater, based on the distance to the receptor or compliance located down hydraulic gradient of the source. Three solution methods are included, the preferred option is Ogata Banks.

By setting a long travel time it will give the steady state solution, which should be used to calculate remedial targets.

The measured groundwater concentration should be compared with the Level 3 remedial target to determine the need for further action. Note if contaminant is not subject to first order degradation, then set half life as 9.0E+99.

This worksheet should be used if pollutant transport and degradation is best described by a first order reaction. If degradation is best described by an electron limited degradation such as oxidation by O₂, NO₃, SO₄ etc than an alternative solution should be used

Site being assessed:	Harness Road
Completed by:	AO
Date:	#####
Version:	1

Calculated concentrations for distance-concentration graph

Domencico - Steady state	
From calculation sheet	
Distance	Concentration
	mg/l
0	1.2E-04
12.5	1.41E-05
25.0	1.00E-05
37.5	8.17E-06
50.0	7.08E-06
62.5	6.33E-06
75.0	5.73E-06
87.5	5.35E-06
100.0	5.01E-06
112.5	4.72E-06
125.0	4.48E-06
137.5	4.27E-06
150.0	4.09E-06
162.5	3.93E-06
175.0	3.78E-06
187.5	3.65E-06
200.0	3.53E-06
212.5	3.43E-06
225.0	3.33E-06
237.5	3.23E-06
250.0	3.15E-06

Remedial Targets

Remedial Target	3.81E-04	mg/l	For comparison with measured groundwater concentration.
Domencico - Steady state			
Distance to compliance point	250	m	
Concentration of contaminant at compliance point	C _D /C ₀	3.15E-06	mg/l Domencico - Steady state

Care should be used when calculating remedial targets using the time variant options as this may result in an overestimate of the remedial target. The recommended value for time when calculating the remedial target is 9.9E+99.



Hydrogeological risk assessment for land contamination Remedial Targets Worksheet , Release 3.2

First released: 2006. Version 3.2: January 2013

This worksheet has been produced in combination with the document 'Remedial Targets Methodology: Hydrogeological risk assessment for land contamination (Environment Agency 2006).

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Details to be completed for each assessment

Site Name:	Hareness Road		
Site Address:	Aberdeen		
Completed by:	AO	Version:	1
Date:	28-Feb-24		
Contaminant	Acenaphthene		
Target Concentration (C_T)	0.00001	mg/l	Origin of C_T: Laboratory Limits of Detection

This worksheet can be used to determine remedial targets for soils (Worksheets Level 1 Soil, Level 2 and Level 3 Soil) or to determine remedial targets for groundwater (Level 3 Groundwater). For Level 3, parameter values must be entered separately dependent on whether the assessment is for soil or groundwater. For soil, remedial targets are calculated as either mg/kg (for comparison with soil measurements) or mg/l (for comparison with leaching tests or pore water concentrations).

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The spreadsheet also includes a porosity calculation worksheet, a soil impact calculation worksheet and a worksheet that performs some simple hydrogeological calculations.

R&D Publication 20 Remedial Targets Worksheet, Release 3.2



Level 3 - Groundwater

See Note

Input Parameters (using pull down menu)

Contaminant	Acenaphthene	from Level 1
Target Concentration	C _T 1.00E-05	mg/l from Level 1

Select analytical solution (click on brown cell below, then on pull-down menu)

Domenico - Steady state Equations in HRA publication

Approach for simulating vertical dispersion:

Simulate vertical dispersion in 1 direction

Select nature of decay rate (click on brown cell below, then on pull-down menu)

Approach for simulating degradation of pollutants:

Apply degradation rate to dissolved pollutants only

Initial contaminant concentration in groundwater at plume core	C ₀	2.20E-04	mg/l	Source of parameter value	BH01 0.22 µg/l
Half life for degradation of contaminant in water	t _{1/2}	9.99E+99	days		Assumed no decay
Calculated decay rate	λ	6.94E-101	days ⁻¹		
Width of plume in aquifer at source (perpendicular to flow)	Sz	1.92E+02	m		Maximum width of site is 192m
Plume thickness at source	Sy	3.70E-01	m		10% of aquifer thickness
Saturated aquifer thickness	da	3.70E+00	m		Maximum water depth recorded to date
Bulk density of aquifer materials	ρ	2.56E+00	g/cm ³		Scott B. Smithson (1979) Densities of metamorphic rocks
Effective porosity of aquifer	n	5.00E-03	fraction		De Wit (1999) Effective Porosity for Different Aquifer Types.
Hydraulic gradient	i	2.50E-02	fraction		Distance from BH01 - BH03
Hydraulic conductivity of aquifer	K	1.00E-11	m/d		Freeze & Cherry (1979)
Distance to compliance point	x	5.00E+02	m		Distance from site to the Don Estuary to S
Distance (lateral) to compliance point perpendicular to flow direction	z		m		
Distance (depth) to compliance point perpendicular to flow direction	y		m		
Time since pollutant entered groundwater	t	1.00E+100	days		time variant options only
Partition coefficient	Kd	2.83E+06	l/kg		see options
Longitudinal dispersivity	ax	5.00E+01	m		see options
Transverse dispersivity	az	5.00E+00	m		see options
Vertical dispersivity	ay	5.00E-01	m		see options

Calculated Parameters

Groundwater flow velocity	v	5.00E-11	m/d
Retardation factor	Rf	1.45E+09	fraction
Decay rate used	λ	4.78E-110	d ⁻¹
Rate of contaminant flow due to retardation	U	3.45E-20	m/d
Contaminant concentration at distance x, assuming one-way vertical dispersion	C _D	2.40E-06	mg/l
Attenuation factor (one way vertical dispersion, CO/CED)	AF	9.18E+01	

Select Method for deriving Partition Co-efficient (using pull down menu)

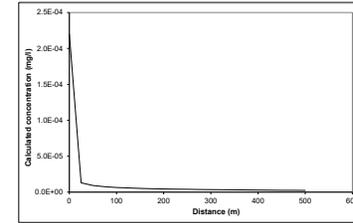
User specified value for partition coefficient

Soil water partition coefficient	Kd	2.83E+06	l/kg
Entry for non-polar organic chemicals (option)	foc		fraction
Fraction of organic carbon in aquifer	Koc		l/kg
Organic carbon partition coefficient	K _{oc,1}		l/kg
Entry for ionic organic chemicals (option)	K _{oc,2}		l/kg
Sorption coefficient for related species	pKa		fraction
Sorption coefficient for ionised species	foc		fraction
Fraction of organic carbon in aquifer	Kd	2.83E+06	l/kg

Dispersivities 10%, 1%, 0.1% of pathway length

Longitudinal dispersivity	ax	Enter value	Calc value	Xu & Eckstein	m
Transverse dispersivity	az	0.00E+00	5.00E+01	5.00E+00	5.13E-01
Vertical dispersivity	ay	0.00E+00	5.00E-01	5.00E-01	5.00E-01

Note values of dispersivity must be > 0
For calculated value, assumes ax = 0.1 * x, az = 0.01 * x, ay = 0.001 * x
Xu & Eckstein (1995) report ax = 0.83(log₁₀x)^{0.14}, az = ax/10, ay = ax/100 are assumed



Note graph assumes plume disperses vertically in one direction only. An alternative solution assuming the centre of the plume is located at the mid-depth of the aquifer is presented in the calculation sheets.

Note

This sheet calculates the Level 3 remedial target for groundwater, based on the distance to the receptor or compliance located down hydraulic gradient of the source. Three solution methods are included, the preferred option is Ogata Banks. By setting a long travel time it will give the steady state solution, which should be used to calculate remedial targets. The measured groundwater concentration should be compared with the Level 3 remedial target to determine the need for further action. Note if contaminant is not subject to first order degradation, then set half life as 9.0E+99.

This worksheet should be used if pollutant transport and degradation is best described by a first order reaction. If degradation is best described by an electron limited degradation such as oxidation by O₂, NO₃, SO₄ etc than an alternative solution should be used

Site being assessed:	Harness Road
Completed by:	AO
Date:	#####
Version:	1

Calculated concentrations for distance-concentration graph

Domenico - Steady state		mg/l
From calculation sheet		
Distance	Concentration	
0	2.2E-04	
25.0	1.30E-05	
50.0	9.18E-06	
75.0	7.49E-06	
100.0	6.48E-06	
125.0	5.77E-06	
150.0	5.23E-06	
175.0	4.80E-06	
200.0	4.45E-06	
225.0	4.14E-06	
250.0	3.88E-06	
275.0	3.65E-06	
300.0	3.45E-06	
325.0	3.27E-06	
350.0	3.11E-06	
375.0	2.96E-06	
400.0	2.83E-06	
425.0	2.71E-06	
450.0	2.59E-06	
475.0	2.49E-06	
500.0	2.40E-06	

Remedial Targets

Remedial Target	9.18E-04	mg/l	For comparison with measured groundwater concentration.
Domenico - Steady state			
Distance to compliance point	500	m	
Concentration of contaminant at compliance point	C _D /C ₀	2.40E-06	mg/l Domenico - Steady state

Care should be used when calculating remedial targets using the time variant options as this may result in an overestimate of the remedial target. The recommended value for time when calculating the remedial target is 9.9E+99.



Hydrogeological risk assessment for land contamination Remedial Targets Worksheet , Release 3.2

First released: 2006. Version 3.2: January 2013

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IMPORTANT: To enable MS Excel worksheet, click Tools, Add -Ins, Analysis Tool Pak and Analysis Tool Pak-VBA (to calculate error functions).

Details to be completed for each assessment

Site Name:	Hareness Road		
Site Address:	Aberdeen		
Completed by:	AO	Version:	1
Date:	28-Feb-24		
Contaminant	C5-35 Aliphatic		
Target Concentration (C_T)	0.01	mg/l	Origin of C_T: Laboratory Limits of Detection

This worksheet can be used to determine remedial targets for soils (Worksheets Level 1 Soil, Level 2 and Level 3 Soil) or to determine remedial targets for groundwater (Level 3 Groundwater). For Level 3, parameter values must be entered separately dependent on whether the assessment is for soil or groundwater. For soil, remedial targets are calculated as either mg/kg (for comparison with soil measurements) or mg/l (for comparison with leaching tests or pore water concentrations).

Site details entered on this page are automatically copied to Level 1, 2 and 3 Worksheets.

Worksheet options are identified by brown background and employ a pull-down menus. Data entry are identified as blue background.

Data origin / justification should be noted in cells coloured yellow and fully documented in subsequent reports.

Data carried forward from an earlier worksheet are identified by a light green background

It is recommended that a copy of the original worksheet is saved (all data fields in the original copy are blank).

The spreadsheet also includes a porosity calculation worksheet, a soil impact calculation worksheet and a worksheet that performs some simple hydrogeological calculations.

R&D Publication 20 Remedial Targets Worksheet, Release 3.2

Level 3 - Groundwater

See Note



Input Parameters (using pull down menu)

Contaminant	C6-35 Aliphatic	from Level 1
Target Concentration	1.00E-02	mg/l from Level 1

Select analytical solution (click on brown cell below, then on pull-down menu)

Domenico - Steady state Equations in HRA publication

Approach for simulating vertical dispersion:

Simulate vertical dispersion in 1 direction

Select nature of decay rate (click on brown cell below, then on pull-down menu)

Approach for simulating degradation of pollutants:

Apply degradation rate to dissolved pollutants only

Initial contaminant concentration in groundwater at plume core	C ₀	2.90E-02	mg/l	Source of parameter value	BH09 29 µg/l
Half life for degradation of contaminant in water	t _{1/2}	9.95E+99	days		Assumed no decay
Calculated decay rate	λ	6.94E-101	days ⁻¹		
Width of plume in aquifer at source (perpendicular to flow)	Sz	1.92E+02	m		Maximum width of site is 192m
Plume thickness at source	Sy	3.70E-01	m		10% of aquifer thickness
Saturated aquifer thickness	da	3.70E+00	m		Maximum water depth recorded to date
Bulk density of aquifer materials	ρ	2.56E+00	g/cm ³		Scott B. Smithson (1979) Densities of metamorphic rocks
Effective porosity of aquifer	n	5.00E-03	fraction		De Wit (1999) Effective Porosity for Different Aquifer Types.
Hydraulic gradient	i	2.50E-02	fraction		Distance from BH01 - BH03
Hydraulic conductivity of aquifer	K	1.00E-11	m/d		Freeze & Cherry (1979)
Distance to compliance point	x	5.00E+02	m		Distance from site to the Don Estuary to S
Distance (lateral) to compliance point perpendicular to flow direction	z		m		
Distance (depth) to compliance point perpendicular to flow direction	y		m		
Time since pollutant entered groundwater	t	1.00E+100	days		time variant options only
Partition coefficient	Kd	3.98E+08	l/kg		see options
Longitudinal dispersivity	ax	5.00E+01	m		see options
Transverse dispersivity	az	5.00E+00	m		see options
Vertical dispersivity	ay	5.00E-01	m		see options

Calculated Parameters

Groundwater flow velocity	v	5.00E-11	m/d
Retardation factor	Rf	2.04E+11	fraction
Decay rate used	λ	3.40E-112	d ⁻¹
Rate of contaminant flow due to retardation	U	2.45E-22	m/d
Contaminant concentration at distance x, assuming one-way vertical dispersion	C _D	3.18E-04	mg/l
Attenuation factor (one way vertical dispersion, CO/CED)	AF	9.18E+01	

Select Method for deriving Partition Co-efficient (using pull down menu)

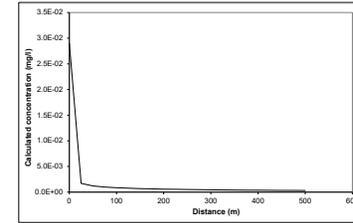
User specified value for partition coefficient

Soil water partition coefficient	Kd	3.98E+08	l/kg
Fraction of organic carbon in aquifer	foc		fraction
Organic carbon partition coefficient	Koc		l/kg
Sorption coefficient for related species	K _{oc,s}		l/kg
Sorption coefficient for ionised species	K _{oc,i}		l/kg
pH value	pH		
acid dissociation constant	pKa		
Fraction of organic carbon in aquifer	foc		fraction
Soil water partition coefficient	Kd	3.98E+08	l/kg

Dispersivities 10%, 1%, 0.1% of pathway length

Longitudinal dispersivity	ax	Enter value	Calc value	Xu & Eckstein	m
Transverse dispersivity	az	0.00E+00	5.00E+01	5.12E+00	m
Vertical dispersivity	ay	0.00E+00	5.00E-01	5.12E-01	m

Note values of dispersivity must be > 0
For calculated value, assumes ax = 0.1 * x, az = 0.01 * x, ay = 0.001 * x
Xu & Eckstein (1995) report ax = 0.83(9guk)^{0.14}; az = ax/10, ay = ax/100 are assumed



Note graph assumes plume disperses vertically in one direction only. An alternative solution assuming the centre of the plume is located at the mid-depth of the aquifer is presented in the calculation sheets.

Note

This sheet calculates the Level 3 remedial target for groundwater, based on the distance to the receptor or compliance located down hydraulic gradient of the source. Three solution methods are included, the preferred option is Ogata Banks.

By setting a long travel time it will give the steady state solution, which should be used to calculate remedial targets.

The measured groundwater concentration should be compared with the Level 3 remedial target to determine the need for further action. Note if contaminant is not subject to first order degradation, then set half life as 9.0E+99.

This worksheet should be used if pollutant transport and degradation is best described by a first order reaction. If degradation is best described by an electron limited degradation such as oxidation by O₂, NO₃, SO₄ etc than an alternative solution should be used

Site being assessed:	Harness Road
Completed by:	AO
Date:	#####
Version:	1

Calculated concentrations for distance-concentration graph

Domenico - Steady state		
From calculation sheet		
Distance	Concentration	mg/l
0		2.9E-02
25.0		1.71E-03
50.0		1.21E-03
75.0		9.88E-04
100.0		8.54E-04
125.0		7.61E-04
150.0		6.90E-04
175.0		6.33E-04
200.0		5.86E-04
225.0		5.46E-04
250.0		5.12E-04
275.0		4.82E-04
300.0		4.56E-04
325.0		4.31E-04
350.0		4.10E-04
375.0		3.90E-04
400.0		3.73E-04
425.0		3.57E-04
450.0		3.42E-04
475.0		3.29E-04
500.0		3.16E-04

Remedial Targets

Remedial Target	9.18E-01	mg/l	For comparison with measured groundwater concentration.
Domenico - Steady state			
Distance to compliance point	500	m	
Concentration of contaminant at compliance point	C _D /C ₀	3.16E-04	mg/l Domenico - Steady state

Care should be used when calculating remedial targets using the time variant options as this may result in an overestimate of the remedial target. The recommended value for time when calculating the remedial target is 9.9E+99.



Hydrogeological risk assessment for land contamination Remedial Targets Worksheet , Release 3.2

First released: 2006. Version 3.2: January 2013

This worksheet has been produced in combination with the document 'Remedial Targets Methodology: Hydrogeological risk assessment for land contamination (Environment Agency 2006).

Users of this worksheet should always refer to the User Manual to the Remedial Targets Methodology and to relevant guidance on UK legislation and policy, in order to understand how this procedure should be applied in an appropriate context.

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IMPORTANT: To enable MS Excel worksheet, click Tools, Add Ins, Analysis Tool Pak and Analysis Tool Pak-VBA (to calculate error functions).

Details to be completed for each assessment

Site Name:	Hareness Road		
Site Address:	Aberdeen		
Completed by:	AO	Version:	1
Date:	28-Feb-24		
Contaminant	C21-35 Aliphatic		
Target Concentration (C_T)	0.001	mg/l	Origin of C_T: Laboratory Limits of Detection

This worksheet can be used to determine remedial targets for soils (Worksheets Level 1 Soil, Level 2 and Level 3 Soil) or to determine remedial targets for groundwater (Level 3 Groundwater). For Level 3, parameter values must be entered separately dependent on whether the assessment is for soil or groundwater. For soil, remedial targets are calculated as either mg/kg (for comparison with soil measurements) or mg/l (for comparison with leaching tests or pore water concentrations).

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The spreadsheet also includes a porosity calculation worksheet, a soil impact calculation worksheet and a worksheet that performs some simple hydrogeological calculations.

R&D Publication 20 Remedial Targets Worksheet, Release 3.2



Level 3 - Groundwater

See Note

Input Parameters (using pull down menu)

Contaminant	C21-35 Aliphatic	from Level 1
Target Concentration	1.00E-03	mg/l from Level 1

Select analytical solution (click on brown cell below, then on pull-down menu)

Domenico - Steady state Equations in HRA publication

Approach for simulating vertical dispersion:

Simulate vertical dispersion in 1 direction

Select nature of decay rate (click on brown cell below, then on pull-down menu)

Approach for simulating degradation of pollutants:

Apply degradation rate to dissolved pollutants only

Initial contaminant concentration in groundwater at plume core	C ₀	2.90E-02	mg/l	Source of parameter value	BH09 29 µg/l
Half life for degradation of contaminant in water	t _{1/2}	9.95E+99	days		Assumed no decay
Calculated decay rate	λ	6.94E-101	days ⁻¹		
Width of plume in aquifer at source (perpendicular to flow)	Sz	1.92E+02	m		Maximum width of site is 192m
Plume thickness at source	Sy	3.70E-01	m		10% of aquifer thickness
Saturated aquifer thickness	da	3.70E+00	m		Maximum water depth recorded to date
Bulk density of aquifer materials	ρ	2.56E+00	g/cm ³		Scott B. Smithson (1979) Densities of metamorphic rocks
Effective porosity of aquifer	n	5.00E-03	fraction		De Wit (1999) Effective Porosity for Different Aquifer Types.
Hydraulic gradient	i	2.50E-02	fraction		Distance from BH01 - BH03
Hydraulic conductivity of aquifer	K	1.00E-11	m/d		Freeze & Cherry (1979)
Distance to compliance point	x	5.00E+02	m		Distance from site to the Don Estuary to S
Distance (lateral) to compliance point perpendicular to flow direction	z		m		
Distance (depth) to compliance point perpendicular to flow direction	y		m		
Time since pollutant entered groundwater	t	1.00E+100	days		time variant options only
Partition coefficient	Kd	3.98E+08	l/kg		see options
Longitudinal dispersivity	ax	5.00E+01	m		see options
Transverse dispersivity	ay	5.00E+00	m		see options
Vertical dispersivity	ay	5.00E-01	m		see options

Calculated Parameters

Groundwater flow velocity	v	5.00E-11	m/d
Retardation factor	Rf	2.04E+11	fraction
Decay rate used	λ	3.40E-112	d ⁻¹
Rate of contaminant flow due to retardation	U	2.45E-22	m/d
Contaminant concentration at distance x, assuming one-way vertical dispersion	C _D	3.18E-04	mg/l
Attenuation factor (one way vertical dispersion, CO/CED)	AF	9.18E+01	

Select Method for deriving Partition Co-efficient (using pull down menu)

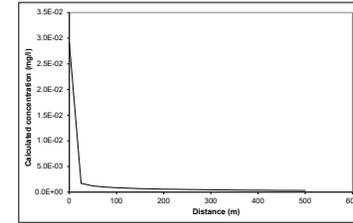
User specified value for partition coefficient

Soil water partition coefficient	Kd	3.98E+08	l/kg
Fraction of organic carbon in aquifer	foc		fraction
Organic carbon partition coefficient	Koc		l/kg
Sorption coefficient for related species	K _{oc,1}		l/kg
Sorption coefficient for ionised species	K _{oc,2}		l/kg
pH value	pH		
acid dissociation constant	pKa		
Fraction of organic carbon in aquifer	foc		fraction
Soil water partition coefficient	Kd	3.98E+08	l/kg

Dispersivities 10%, 1%, 0.1% of pathway length

Longitudinal dispersivity	ax	Enter value	Calc value	Xu & Eckstein	m
Transverse dispersivity	az	0.00E+00	5.00E+01	9.12E+00	m
Vertical dispersivity	ay	0.00E+00	5.00E-01	6.10E-01	m

Note values of dispersivity must be > 0
For calculated value, assumes ax = 0.1 * x, az = 0.01 * x, ay = 0.001 * x
Xu & Eckstein (1995) report ax = 0.83(log₁₀x)^{0.14}; az = ax/10, ay = ax/100 are assumed



Note graph assumes plume disperses vertically in one direction only. An alternative solution assuming the centre of the plume is located at the mid-depth of the aquifer is presented in the calculation sheets.

Note

This sheet calculates the Level 3 remedial target for groundwater, based on the distance to the receptor or compliance located down hydraulic gradient of the source. Three solution methods are included, the preferred option is Ogata Banks.

By setting a long travel time it will give the steady state solution, which should be used to calculate remedial targets.

The measured groundwater concentration should be compared with the Level 3 remedial target to determine the need for further action. Note if contaminant is not subject to first order degradation, then set half life as 9.0E+99.

This worksheet should be used if pollutant transport and degradation is best described by a first order reaction. If degradation is best described by an electron limited degradation such as oxidation by O₂, NO₃, SO₄ etc than an alternative solution should be used

Site being assessed:	Harness Road
Completed by:	AO
Date:	#####
Version:	1

Calculated concentrations for distance-concentration graph

Domenico - Steady state		mg/l
From calculation sheet		
Distance	Concentration	
0	2.9E-02	
25.0	1.71E-03	
50.0	1.21E-03	
75.0	9.88E-04	
100.0	8.54E-04	
125.0	7.61E-04	
150.0	6.90E-04	
175.0	6.33E-04	
200.0	5.86E-04	
225.0	5.46E-04	
250.0	5.12E-04	
275.0	4.82E-04	
300.0	4.56E-04	
325.0	4.31E-04	
350.0	4.10E-04	
375.0	3.90E-04	
400.0	3.73E-04	
425.0	3.57E-04	
450.0	3.42E-04	
475.0	3.29E-04	
500.0	3.16E-04	

Remedial Targets

Remedial Target	9.18E-02	mg/l	For comparison with measured groundwater concentration.
Domenico - Steady state			
Distance to compliance point	500	m	
Concentration of contaminant at compliance point	C _D /C ₀	3.16E-04	mg/l Domenico - Steady state

Care should be used when calculating remedial targets using the time variant options as this may result in an overestimate of the remedial target. The recommended value for time when calculating the remedial target is 9.9E+99.



Hydrogeological risk assessment for land contamination Remedial Targets Worksheet , Release 3.2

First released: 2006. Version 3.2: January 2013

This worksheet has been produced in combination with the document 'Remedial Targets Methodology: Hydrogeological risk assessment for land contamination (Environment Agency 2006).

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IMPORTANT: To enable MS Excel worksheet, click Tools, Add -Ins, Analysis Tool Pak and Analysis Tool Pak-VBA (to calculate error functions).

Details to be completed for each assessment

Site Name:	Hareness Road		
Site Address:	Aberdeen		
Completed by:	AO	Version:	1
Date:	28-Feb-24		
Contaminant	Cadmium		
Target Concentration (C_T)	0.00027	mg/l	Origin of C_T: EQS (Marine)

This worksheet can be used to determine remedial targets for soils (Worksheets Level 1 Soil, Level 2 and Level 3 Soil) or to determine remedial targets for groundwater (Level 3 Groundwater). For Level 3, parameter values must be entered separately dependent on whether the assessment is for soil or groundwater. For soil, remedial targets are calculated as either mg/kg (for comparison with soil measurements) or mg/l (for comparison with leaching tests or pore water concentrations).

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R&D Publication 20 Remedial Targets Worksheet, Release 3.2



Level 3 - Groundwater

See Note

Input Parameters (using pull down menu)

Contaminant	Cadmium	from Level 1
Target Concentration	C _T 2.70E-04	mg/l from Level 1

Select analytical solution (click on brown cell below, then on pull-down menu)

Domenico - Steady state	Equations in HRA publication
--------------------------------	------------------------------

Approach for simulating vertical dispersion:

Simulate vertical dispersion in 1 direction

Select nature of decay rate (click on brown cell below, then on pull-down menu)

Approach for simulating degradation of pollutants:

Apply degradation rate to dissolved pollutants only

Initial contaminant concentration in groundwater at plume core	C ₀	2.70E-04	mg/l	Source of parameter value	BH02 0.27 µg/l
Half life for degradation of contaminant in water	t _{1/2}	9.99E+99	days		Assumed no decay
Calculated decay rate	λ	6.94E-101	days ⁻¹		
Width of plume in aquifer at source (perpendicular to flow)	Sz	1.92E+02	m		Maximum width of site is 192m
Plume thickness at source	Sy	3.70E-01	m		10% of aquifer thickness
Saturated aquifer thickness	da	3.70E+00	m		Maximum water depth recorded to date
Bulk density of aquifer materials	ρ	2.56E+00	g/cm ³		Scott B. Smithson (1979) Densities of metamorphic rocks
Effective porosity of aquifer	n	5.00E-03	fraction		De Wit (1999) Effective Porosity for Different Aquifer Types.
Hydraulic gradient	i	2.50E-02	fraction		Distance from BH01 - BH03
Hydraulic conductivity of aquifer	K	1.00E-11	m/d		Freeze & Cherry (1979)
Distance to compliance point perpendicular to flow direction	x	5.00E+02	m		Distance from site to the Don Estuary to S
Distance (depth) to compliance point perpendicular to flow direction	z		m		Vertical dispersivity
Time since pollutant entered groundwater	t	1.00E+100	days		time variant options only
Partition coefficient	Kd	3.98E+03	l/kg		see options
Longitudinal dispersivity	ax	5.00E+01	m		see options
Transverse dispersivity	ay	5.00E+00	m		see options
Vertical dispersivity	az	5.00E-01	m		see options

Calculated Parameters

Groundwater flow velocity	v	5.00E-11	m/d
Retardation factor	Rf	2.04E+06	fraction
Decay rate used	λ	3.40E-107	d ⁻¹
Rate of contaminant flow due to retardation	U	2.45E-17	m/d
Contaminant concentration at distance x, assuming one-way vertical dispersion	C _D	2.94E-06	mg/l
Attenuation factor (one way vertical dispersion, CO/CED)	AF	9.18E+01	

Select Method for deriving Partition Co-efficient (using pull down menu)

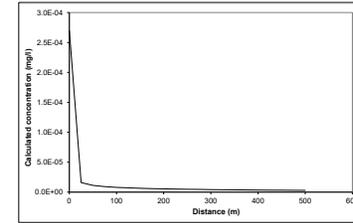
User specified value for partition coefficient

Soil water partition coefficient	Kd	3.98E+03	l/kg
Fraction of organic carbon in aquifer	foc		fraction
Organic carbon partition coefficient	Koc		l/kg
Sorption coefficient for related species	K _{oc,s}		l/kg
Sorption coefficient for ionised species	K _{oc,i}		l/kg
pH value	pH		
acid dissociation constant	pKa		fraction
Fraction of organic carbon in aquifer	foc		fraction
Soil water partition coefficient	Kd	3.98E+03	l/kg

Dispersivities 10%, 1%, 0.1% of pathway length

Longitudinal dispersivity	ax	Enter value	Calc value	Xu & Eckstein	m
Transverse dispersivity	ay	0.00E+00	5.00E+01	9.12E+00	m
Vertical dispersivity	az	0.00E+00	5.00E+00	9.12E-01	m
Vertical dispersivity	ay	0.00E+00	5.00E-01	9.12E-02	m

Note values of dispersivity must be > 0
For calculated value, assumes ax = 0.1 * x, az = 0.01 * x, ay = 0.001 * x
Xu & Eckstein (1995) report ax = 0.83(ρg_w)^{0.14}; az = ax/10, ay = ax/100 are assumed



Note graph assumes plume disperses vertically in one direction only. An alternative solution assuming the centre of the plume is located at the mid-depth of the aquifer is presented in the calculation sheets.

Note

This sheet calculates the Level 3 remedial target for groundwater, based on the distance to the receptor or compliance located down hydraulic gradient of the source. Three solution methods are included, the preferred option is Ogata Banks.

By setting a long travel time it will give the steady state solution, which should be used to calculate remedial targets.

The measured groundwater concentration should be compared with the Level 3 remedial target to determine the need for further action. Note if contaminant is not subject to first order degradation, then set half life as 9.0E+99.

This worksheet should be used if pollutant transport and degradation is best described by a first order reaction. If degradation is best described by an electron limited degradation such as oxidation by O₂, NO₃, SO₄ etc than an alternative solution should be used

Calculated concentrations for distance-concentration graph

Domenico - Steady state		mg/l
From calculation sheet		
Distance	Concentration	
0	2.7E-04	
25.0	1.59E-05	
50.0	1.13E-05	
75.0	9.20E-06	
100.0	7.95E-06	
125.0	7.08E-06	
150.0	6.42E-06	
175.0	5.89E-06	
200.0	5.46E-06	
225.0	5.08E-06	
250.0	4.76E-06	
275.0	4.48E-06	
300.0	4.24E-06	
325.0	4.01E-06	
350.0	3.81E-06	
375.0	3.63E-06	
400.0	3.47E-06	
425.0	3.32E-06	
450.0	3.18E-06	
475.0	3.05E-06	
500.0	2.94E-06	

Site being assessed:	Harness Road
Completed by:	AO
Date:	#####
Version:	1

Remedial Targets

Remedial Target	2.48E-02	mg/l	For comparison with measured groundwater concentration.
Domenico - Steady state			
Distance to compliance point	500	m	
Concentration of contaminant at compliance point	C _D /C ₀	2.94E-06	mg/l Domenico - Steady state

Care should be used when calculating remedial targets using the time variant options as this may result in an overestimate of the remedial target. The recommended value for time when calculating the remedial target is 9.9E+99.



Hydrogeological risk assessment for land contamination Remedial Targets Worksheet , Release 3.2

First released: 2006. Version 3.2: January 2013

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IMPORTANT: To enable MS Excel worksheet, click Tools, Add -Ins, Analysis Tool Pak and Analysis Tool Pak-VBA (to calculate error functions).

Details to be completed for each assessment

Site Name:	Hareness Road		
Site Address:	Aberdeen		
Completed by:	AO	Version:	1
Date:	28-Feb-24		
Contaminant	Chromium		
Target Concentration (C_T)	0.0006	mg/l	Origin of C_T: EQS (Marine)

This worksheet can be used to determine remedial targets for soils (Worksheets Level 1 Soil, Level 2 and Level 3 Soil) or to determine remedial targets for groundwater (Level 3 Groundwater). For Level 3, parameter values must be entered separately dependent on whether the assessment is for soil or groundwater. For soil, remedial targets are calculated as either mg/kg (for comparison with soil measurements) or mg/l (for comparison with leaching tests or pore water concentrations).

Site details entered on this page are automatically copied to Level 1, 2 and 3 Worksheets.

Worksheet options are identified by brown background and employ a pull-down menus. Data entry are identified as blue background.

Data origin / justification should be noted in cells coloured yellow and fully documented in subsequent reports.

Data carried forward from an earlier worksheet are identified by a light green background

It is recommended that a copy of the original worksheet is saved (all data fields in the original copy are blank).

The spreadsheet also includes a porosity calculation worksheet, a soil impact calculation worksheet and a worksheet that performs some simple hydrogeological calculations.

R&D Publication 20 Remedial Targets Worksheet, Release 3.2



Level 3 - Groundwater

See Note

Input Parameters (using pull down menu)

Contaminant	Chromium	from Level 1
Target Concentration	C _T 6.00E-04	mg/l from Level 1

Select analytical solution (click on brown cell below, then on pull-down menu)

Approach for simulating vertical dispersion:	Domencico - Steady state	Equations in HRA publication
--	--------------------------	------------------------------

Approach for simulating degradation of pollutants:

Approach for simulating vertical dispersion:	Simulate vertical dispersion in 1 direction
--	---

Select nature of decay rate (click on brown cell below, then on pull-down menu)

Approach for simulating degradation of pollutants:

Approach for simulating degradation of pollutants:	Apply degradation rate to dissolved pollutants only
--	---

Initial contaminant concentration in groundwater at plume core	C ₀	2.00E-03	mg/l	Source of parameter value	BH04 2.0 µg/l
Half life for degradation of contaminant in water	t _{1/2}	9.99E+99	days		Assumed no decay
Calculated decay rate	λ	6.94E-101	days ⁻¹		
Width of plume in aquifer at source (perpendicular to flow)	Sz	1.92E+02	m		Maximum width of site is 192m
Plume thickness at source	Sy	3.70E-01	m		10% of aquifer thickness
Saturated aquifer thickness	da	3.70E+00	m		Maximum water depth recorded to date
Bulk density of aquifer materials	ρ	2.56E+00	g/cm ³		Scott B. Smithson (1979) Densities of metamorphic rocks
Effective porosity of aquifer	n	5.00E-03	fraction		De Wit (1999) Effective Porosity for Different Aquifer Types.
Hydraulic gradient	i	2.50E-02	fraction		Distance from BH01 - BH03
Hydraulic conductivity of aquifer	K	1.00E-11	m/d		Freeze & Cherry (1979)
Distance to compliance point	x	5.00E+02	m		Distance from site to the Don Estuary to S
Distance (lateral) to compliance point perpendicular to flow direction	z		m		
Distance (depth) to compliance point perpendicular to flow direction	y		m		
Time since pollutant entered groundwater	t	1.00E+100	days		time variant options only
Partition coefficient	Kd	1.63E+04	l/kg		see options
Longitudinal dispersivity	ax	5.00E+01	m		see options
Transverse dispersivity	az	5.00E+00	m		see options
Vertical dispersivity	ay	5.00E-01	m		see options

Calculated Parameters

Groundwater flow velocity	v	5.00E-11	m/d
Retardation factor	Rf	8.32E+06	fraction
Decay rate used	λ	8.34E-108	d ⁻¹
Rate of contaminant flow due to retardation	U	6.01E-18	m/d
Contaminant concentration at distance x, assuming one-way vertical dispersion	C _D	2.18E-05	mg/l
Attenuation factor (one way vertical dispersion, CO/CED)	AF	9.18E+01	

Select Method for deriving Partition Co-efficient (using pull down menu)

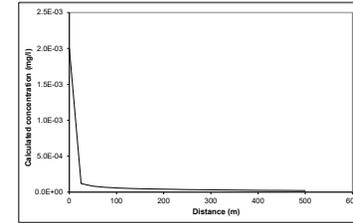
User specified value for partition coefficient

Soil water partition coefficient	Kd	1.63E+04	l/kg
Fraction of organic carbon in aquifer	foc		fraction
Organic carbon partition coefficient	Koc		l/kg
Sorption coefficient for related species	K _{oc,s}		l/kg
Sorption coefficient for ionised species	K _{oc,i}		l/kg
pH value	pH		
acid dissociation constant	pKa		
Fraction of organic carbon in aquifer	foc		fraction
Soil water partition coefficient	Kd	1.63E+04	l/kg

Define dispersivity (click brown cell and use pull down list)

Dispersivities 10%, 1%, 0.1% of pathway length			
Enter value	Calc value	Xu & Eckstein	m
ax	5.00E+01	5.00E+01	5.00E+01
az	5.00E+00	5.00E+00	5.00E+00
ay	5.00E-01	5.00E-01	5.00E-01

Note values of dispersivity must be > 0
For calculated value, assumes ax = 0.1 * x, az = 0.01 * x, ay = 0.001 * x
Xu & Eckstein (1996) report ax = 0.83(9guk)^{2.14}; az = ax/10, ay = ax/100 are assumed



Note graph assumes plume disperses vertically in one direction only. An alternative solution assuming the centre of the plume is located at the mid-depth of the aquifer is presented in the calculation sheets.

Note

This sheet calculates the Level 3 remedial target for groundwater, based on the distance to the receptor or compliance located down hydraulic gradient of the source. Three solution methods are included, the preferred option is Ogata Banks.

By setting a long travel time it will give the steady state solution, which should be used to calculate remedial targets.

The measured groundwater concentration should be compared with the Level 3 remedial target to determine the need for further action. Note if contaminant is not subject to first order degradation, then set half life as 9.0E+99.

This worksheet should be used if pollutant transport and degradation is best described by a first order reaction. If degradation is best described by an electron limited degradation such as oxidation by O₂, NO₃, SO₄ etc than an alternative solution should be used

Site being assessed:	Harness Road
Completed by:	AO
Date:	#####
Version:	1

Calculated concentrations for distance-concentration graph

Domencico - Steady state		mg/l
From calculation sheet		
Distance	Concentration	
0	2.5E-03	
25.0	1.15E-04	
50.0	8.35E-05	
75.0	6.81E-05	
100.0	5.89E-05	
125.0	5.25E-05	
150.0	4.75E-05	
175.0	4.37E-05	
200.0	4.04E-05	
225.0	3.77E-05	
250.0	3.53E-05	
275.0	3.32E-05	
300.0	3.14E-05	
325.0	2.97E-05	
350.0	2.83E-05	
375.0	2.69E-05	
400.0	2.57E-05	
425.0	2.46E-05	
450.0	2.36E-05	
475.0	2.27E-05	
500.0	2.18E-05	

Remedial Targets

Remedial Target	5.51E-02	mg/l	For comparison with measured groundwater concentration.
Domencico - Steady state			
Distance to compliance point	500	m	
Concentration of contaminant at compliance point	C _D /C ₀	2.18E-05	mg/l Domencico - Steady state

Care should be used when calculating remedial targets using the time variant options as this may result in an overestimate of the remedial target. The recommended value for time when calculating the remedial target is 9.9E+99.



Hydrogeological risk assessment for land contamination Remedial Targets Worksheet , Release 3.2

First released: 2006. Version 3.2: January 2013

This worksheet has been produced in combination with the document 'Remedial Targets Methodology: Hydrogeological risk assessment for land contamination (Environment Agency 2006).

Users of this worksheet should always refer to the User Manual to the Remedial Targets Methodology and to relevant guidance on UK legislation and policy, in order to understand how this procedure should be applied in an appropriate context.

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IMPORTANT: To enable MS Excel worksheet, click Tools, Add -Ins, Analysis Tool Pak and Analysis Tool Pak-VBA (to calculate error functions).

Details to be completed for each assessment

Site Name:	Hareness Road		
Site Address:	Aberdeen		
Completed by:	AO	Version:	1
Date:	28-Feb-24		
Contaminant	Copper		
Target Concentration (C_T)	0.00376	mg/l	Origin of C_T: EQS (Marine)

This worksheet can be used to determine remedial targets for soils (Worksheets Level 1 Soil, Level 2 and Level 3 Soil) or to determine remedial targets for groundwater (Level 3 Groundwater). For Level 3, parameter values must be entered separately dependent on whether the assessment is for soil or groundwater. For soil, remedial targets are calculated as either mg/kg (for comparison with soil measurements) or mg/l (for comparison with leaching tests or pore water concentrations).

Site details entered on this page are automatically copied to Level 1, 2 and 3 Worksheets.

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Data carried forward from an earlier worksheet are identified by a light green background

It is recommended that a copy of the original worksheet is saved (all data fields in the original copy are blank).

The spreadsheet also includes a porosity calculation worksheet, a soil impact calculation worksheet and a worksheet that performs some simple hydrogeological calculations.

R&D Publication 20 Remedial Targets Worksheet, Release 3.2



Level 3 - Groundwater

See Note

Input Parameters (using pull down menu)

Contaminant	Copper	from Level 1
Target Concentration	C _T 3.76E-03	mg/l from Level 1

Select analytical solution (click on brown cell below, then on pull-down menu)

Domenco - Steady state	Equations in HRA publication
------------------------	------------------------------

Approach for simulating vertical dispersion:

Simulate vertical dispersion in 1 direction

Select nature of decay rate (click on brown cell below, then on pull-down menu)

Approach for simulating degradation of pollutants:

Apply degradation rate to dissolved pollutants only

Initial contaminant concentration in groundwater at plume core	C ₀	5.99E-03	mg/l	Source of parameter value	BH02 5.9 µg/l
Half life for degradation of contaminant in water	t _{1/2}	9.95E+99	days		Assumed no decay
Calculated decay rate	λ	6.94E-101	days ⁻¹		
Width of plume in aquifer at source (perpendicular to flow)	Sz	1.92E+02	m		Maximum width of site is 192m
Plume thickness at source	Sy	3.70E-01	m		10% of aquifer thickness
Saturated aquifer thickness	da	3.70E+00	m		Maximum water depth recorded to date
Bulk density of aquifer materials	ρ	2.56E+00	g/cm ³		Scott B. Smithson (1979) Densities of metamorphic rocks
Effective porosity of aquifer	n	5.00E-03	fraction		De Wit (1999) Effective Porosity for Different Aquifer Types.
Hydraulic gradient	i	2.50E-02	fraction		Distance from BH01 - BH03
Hydraulic conductivity of aquifer	K	1.00E-11	m/d		Freeze & Cherry (1979)
Distance to compliance point	x	5.00E+02	m		Distance from site to the Don Estuary to S
Distance (lateral) to compliance point perpendicular to flow direction	z		m		Vertical dispersivity
Distance (depth) to compliance point perpendicular to flow direction	y		m		Vertical dispersivity
Time since pollutant entered groundwater	t	1.00E+100	days		time variant options only

Calculated Parameters

Groundwater flow velocity	v	5.00E-11	m/d
Retardation factor	Rf	2.42E+07	fraction
Decay rate used	λ	2.86E-108	d ⁻¹
Rate of contaminant flow due to retardation	u	2.06E-18	m/d
Contaminant concentration at distance x, assuming one-way vertical dispersion	C _D	6.43E-05	mg/l
Attenuation factor (one way vertical dispersion, CO/CED)	AF	9.18E+01	

Select Method for deriving Partition Co-efficient (using pull down menu)

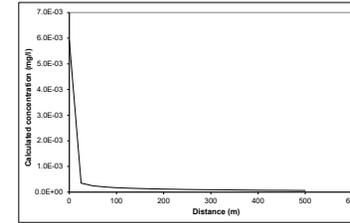
User specified value for partition coefficient

Soil water partition coefficient	Kd	4.74E+04	l/kg
Fraction of organic carbon in aquifer	foc		fraction
Organic carbon partition coefficient	Koc		l/kg
Sorption coefficient for related species	K _{oc,1}		l/kg
Sorption coefficient for ionised species	K _{oc,2}		l/kg
pH value	pH		
acid dissociation constant	pKa		
Fraction of organic carbon in aquifer	foc		fraction
Soil water partition coefficient	Kd	4.74E+04	l/kg

Dispersivities 10%, 1%, 0.1% of pathway length

Longitudinal dispersivity	ax	Enter value	Calc value	Xu & Eckstein	m
Transverse dispersivity	az	0.00E+00	5.00E+01	9.12E+00	m
Vertical dispersivity	ay	0.00E+00	5.00E-01	6.12E-01	m

Note values of dispersivity must be > 0
For calculated value, assumes ax = 0.1 * x, az = 0.01 * x, ay = 0.001 * x
Xu & Eckstein (1995) report ax = 0.83(9guk)^{2.14}; az = ax/10, ay = ax/100 are assumed



Note graph assumes plume disperses vertically in one direction only. An alternative solution assuming the centre of the plume is located at the mid-depth of the aquifer is presented in the calculation sheets.

Note

This sheet calculates the Level 3 remedial target for groundwater, based on the distance to the receptor or compliance located down hydraulic gradient of the source. Three solution methods are included, the preferred option is Ogata Banks.

By setting a long travel time it will give the steady state solution, which should be used to calculate remedial targets.

The measured groundwater concentration should be compared with the Level 3 remedial target to determine the need for further action. Note if contaminant is not subject to first order degradation, then set half life as 9.0E+99.

This worksheet should be used if pollutant transport and degradation is best described by a first order reaction. If degradation is best described by an electron limited degradation such as oxidation by O₂, NO₃, SO₄ etc than an alternative solution should be used

Site being assessed:	Harness Road
Completed by:	AO
Date:	#####
Version:	1

Calculated concentrations for distance-concentration graph

Domenco - Steady state	
From calculation sheet	
Distance	Concentration
	mg/l
0	5.9E-03
25.0	3.45E-04
50.0	2.46E-04
75.0	2.01E-04
100.0	1.74E-04
125.0	1.55E-04
150.0	1.40E-04
175.0	1.29E-04
200.0	1.19E-04
225.0	1.11E-04
250.0	1.04E-04
275.0	9.90E-05
300.0	9.25E-05
325.0	8.77E-05
350.0	8.34E-05
375.0	7.94E-05
400.0	7.58E-05
425.0	7.26E-05
450.0	6.96E-05
475.0	6.65E-05
500.0	6.43E-05

Remedial Targets

Remedial Target	3.45E-01	mg/l	For comparison with measured groundwater concentration.
Domenco - Steady state			
Distance to compliance point	500	m	
Concentration of contaminant at compliance point	C _D /C ₀	6.43E-05	mg/l Domenco - Steady state

Care should be used when calculating remedial targets using the time variant options as this may result in an overestimate of the remedial target. The recommended value for time when calculating the remedial target is 9.9E+99.



Hydrogeological risk assessment for land contamination Remedial Targets Worksheet , Release 3.2

First released: 2006. Version 3.2: January 2013

This worksheet has been produced in combination with the document 'Remedial Targets Methodology: Hydrogeological risk assessment for land contamination (Environment Agency 2006).

Users of this worksheet should always refer to the User Manual to the Remedial Targets Methodology and to relevant guidance on UK legislation and policy, in order to understand how this procedure should be applied in an appropriate context.

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IMPORTANT: To enable MS Excel worksheet, click Tools, Add -Ins, Analysis Tool Pak and Analysis Tool Pak-VBA (to calculate error functions).

Details to be completed for each assessment

Site Name:	Hareness Road		
Site Address:	Aberdeen		
Completed by:	AO	Version:	1
Date:	28-Feb-24		
Contaminant	Fluoranthene		
Target Concentration (C_T)	6.30E-06	mg/l	Origin of C_T: EQS (Marine)

This worksheet can be used to determine remedial targets for soils (Worksheets Level 1 Soil, Level 2 and Level 3 Soil) or to determine remedial targets for groundwater (Level 3 Groundwater). For Level 3, parameter values must be entered separately dependent on whether the assessment is for soil or groundwater. For soil, remedial targets are calculated as either mg/kg (for comparison with soil measurements) or mg/l (for comparison with leaching tests or pore water concentrations).

Site details entered on this page are automatically copied to Level 1, 2 and 3 Worksheets.

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The spreadsheet also includes a porosity calculation worksheet, a soil impact calculation worksheet and a worksheet that performs some simple hydrogeological calculations.

R&D Publication 20 Remedial Targets Worksheet, Release 3.2



Level 3 - Groundwater

See Note

Input Parameters (using pull down menu)

Contaminant	Fluoranthene	from Level 1
Target Concentration	C _T 6.30E-06	mg/l from Level 1

Select analytical solution (click on brown cell below, then on pull-down menu)

Domenico - Steady state	Equations in HRA publication
--------------------------------	------------------------------

Approach for simulating vertical dispersion:

Simulate vertical dispersion in 1 direction

Select nature of decay rate (click on brown cell below, then on pull-down menu)

Approach for simulating degradation of pollutants:

Apply degradation rate to dissolved pollutants only

Initial contaminant concentration in groundwater at plume core	C ₀	1.70E-04	mg/l	Source of parameter value	BHOT 0.17 µg/l
Half life for degradation of contaminant in water	t _{1/2}	9.99E+99	days		Assumed no decay
Calculated decay rate	λ	6.94E-101	days ⁻¹		
Width of plume in aquifer at source (perpendicular to flow)	Sz	1.92E+02	m		Maximum width of site is 192m
Plume thickness at source	Sy	3.70E-01	m		10% of aquifer thickness
Saturated aquifer thickness	da	3.70E+00	m		Maximum water depth recorded to date
Bulk density of aquifer materials	ρ	2.56E+00	g/cm ³		Scott B. Smithson (1979) Densities of metamorphic rocks
Effective porosity of aquifer	n	5.00E-03	fraction		De Wit (1999) Effective Porosity for Different Aquifer Types.
Hydraulic gradient	i	2.50E-02	fraction		Distance from BH01 - BH03
Hydraulic conductivity of aquifer	K	1.00E-11	m/d		Freeze & Cherry (1979)
Distance to compliance point	x	5.00E+02	m		Distance from site to the Don Estuary to S
Distance (lateral) to compliance point perpendicular to flow direction	z		m		
Distance (depth) to compliance point perpendicular to flow direction	y		m		
Time since pollutant entered groundwater	t	1.00E+100	days		time variant options only
Partition coefficient	Kd	1.00E+07	l/kg		
Longitudinal dispersivity	ax	5.00E+01	m		see options
Transverse dispersivity	ay	5.00E+00	m		see options
Vertical dispersivity	ay	5.00E-01	m		see options

Calculated Parameters

Groundwater flow velocity	v	5.00E-11	m/d
Retardation factor	Rf	5.59E+09	fraction
Decay rate used	λ	1.24E-110	d ⁻¹
Rate of contaminant flow due to retardation	U	8.94E-21	m/d
Contaminant concentration at distance x, assuming one-way vertical dispersion	C _D	1.85E-06	mg/l
Attenuation factor (one way vertical dispersion, COCED)	AF	9.18E+01	

Select Method for deriving Partition Co-efficient (using pull down menu)

User specified value for partition coefficient

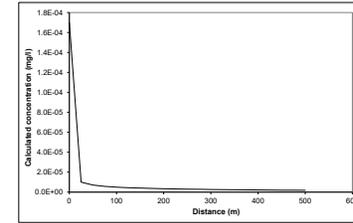
Soil water partition coefficient	Kd	1.00E+07	l/kg
Fraction of organic carbon in aquifer	foc		fraction
Organic carbon partition coefficient	Koc		l/kg
Sorption coefficient for related species	K _{oc,s}		l/kg
Sorption coefficient for ionised species	K _{oc,i}		l/kg
pH value	pH		
acid dissociation constant	pKa		fraction
Fraction of organic carbon in aquifer	foc		fraction
Soil water partition coefficient	Kd	1.00E+07	l/kg

Dispersivities 10%, 1%, 0.1% of pathway length

Longitudinal dispersivity	ax	Enter value	Calc value	Xu & Eckstein	m
Transverse dispersivity	az	0.00E+00	5.00E+01	9.12E+00	m
Vertical dispersivity	ay	0.00E+00	5.00E+00	6.13E-01	m
Vertical dispersivity	ay	0.00E+00	5.00E-01	6.13E-02	m

Note values of dispersivity must be > 0

For calculated value, assumes ax = 0.1 * x, az = 0.01 * x, ay = 0.001 * x
 Xu & Eckstein (1995) report ax = 0.83(9guk)^{0.14}, az = ax/10, ay = ax/100 are assumed



Note graph assumes plume disperses vertically in one direction only. An alternative solution assuming the centre of the plume is located at the mid-depth of the aquifer is presented in the calculation sheets.

Note

This sheet calculates the Level 3 remedial target for groundwater, based on the distance to the receptor or compliance located down hydraulic gradient of the source. Three solution methods are included, the preferred option is Ogata Banks.

By setting a long travel time it will give the steady state solution, which should be used to calculate remedial targets.

The measured groundwater concentration should be compared with the Level 3 remedial target to determine the need for further action. Note if contaminant is not subject to first order degradation, then set half life as 9.0E+99.

This worksheet should be used if pollutant transport and degradation is best described by a first order reaction. If degradation is best described by an electron limited degradation such as oxidation by O₂, NO₃, SO₄ etc than an alternative solution should be used

Site being assessed:	Harness Road
Completed by:	AO
Date:	#####
Version:	1

Calculated concentrations for distance-concentration graph

Domenico - Steady state		
From calculation sheet		
Distance	Concentration	mg/l
		0
25.0		1.7E-04
50.0		1.00E-05
75.0		7.09E-06
100.0		5.01E-06
125.0		4.46E-06
150.0		4.04E-06
175.0		3.71E-06
200.0		3.46E-06
225.0		3.20E-06
250.0		3.00E-06
275.0		2.82E-06
300.0		2.67E-06
325.0		2.53E-06
350.0		2.40E-06
375.0		2.29E-06
400.0		2.19E-06
425.0		2.09E-06
450.0		2.01E-06
475.0		1.93E-06
500.0		1.85E-06



Hydrogeological risk assessment for land contamination Remedial Targets Worksheet , Release 3.2

First released: 2006. Version 3.2: January 2013

This worksheet has been produced in combination with the document 'Remedial Targets Methodology: Hydrogeological risk assessment for land contamination (Environment Agency 2006).

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IMPORTANT: To enable MS Excel worksheet, click Tools, Add -Ins, Analysis Tool Pak and Analysis Tool Pak-VBA (to calculate error functions).

Details to be completed for each assessment

Site Name:	Hareness Road		
Site Address:	Aberdeen		
Completed by:	AO	Version:	1
Date:	28-Feb-24		
Contaminant	Fluorene		
Target Concentration (C_T)	1.00E-05	mg/l	Origin of C_T: Laboratory Limits of Detection

This worksheet can be used to determine remedial targets for soils (Worksheets Level 1 Soil, Level 2 and Level 3 Soil) or to determine remedial targets for groundwater (Level 3 Groundwater). For Level 3, parameter values must be entered separately dependent on whether the assessment is for soil or groundwater. For soil, remedial targets are calculated as either mg/kg (for comparison with soil measurements) or mg/l (for comparison with leaching tests or pore water concentrations).

Site details entered on this page are automatically copied to Level 1, 2 and 3 Worksheets.

Worksheet options are identified by brown background and employ a pull-down menus. Data entry are identified as blue background.

Data origin / justification should be noted in cells coloured yellow and fully documented in subsequent reports.

Data carried forward from an earlier worksheet are identified by a light green background

It is recommended that a copy of the original worksheet is saved (all data fields in the original copy are blank).

The spreadsheet also includes a porosity calculation worksheet, a soil impact calculation worksheet and a worksheet that performs some simple hydrogeological calculations.

R&D Publication 20 Remedial Targets Worksheet, Release 3.2



Level 3 - Groundwater

See Note

Input Parameters (using pull down menu)

Contaminant	Fluorene	from Level 1
Target Concentration	C _T 1.00E-05	mg/l from Level 1

Select analytical solution (click on brown cell below, then on pull-down menu)

Domenico - Steady state	Equations in HRA publication
--------------------------------	------------------------------

Approach for simulating vertical dispersion:

Simulate vertical dispersion in 1 direction

Select nature of decay rate (click on brown cell below, then on pull-down menu)

Approach for simulating degradation of pollutants:

Apply degradation rate to dissolved pollutants only

Initial contaminant concentration in groundwater at plume core	C ₀	1.00E-04	mg/l	Source of parameter value	BHOT 0.10 µg/l
Half life for degradation of contaminant in water	t _{1/2}	9.99E+99	days		Assumed no decay
Calculated decay rate	λ	6.94E-101	days ⁻¹		
Width of plume in aquifer at source (perpendicular to flow)	Sz	1.92E+02	m		Maximum width of site is 192m
Plume thickness at source	Sy	3.70E-01	m		10% of aquifer thickness
Saturated aquifer thickness	da	3.70E+00	m		Maximum water depth recorded to date
Bulk density of aquifer materials	ρ	2.56E+00	g/cm ³		Scott B. Smithson (1979) Densities of metamorphic rocks
Effective porosity of aquifer	n	5.00E-03	fraction		De Wit (1999) Effective Porosity for Different Aquifer Types.
Hydraulic gradient	i	2.50E-02	fraction		Distance from BH01 - BH03
Hydraulic conductivity of aquifer	K	1.00E-11	m/d		Freeze & Cherry (1979)
Distance to compliance point	x	5.00E+02	m		Distance from site to the Don Estuary to S
Distance (lateral) to compliance point perpendicular to flow direction	z		m		
Distance (depth) to compliance point perpendicular to flow direction	y		m		
Time since pollutant entered groundwater	t	1.00E+100	days		time variant options only
Partition coefficient	Kd	1.71E+06	l/kg		see options
Longitudinal dispersivity	ax	5.00E+01	m		see options
Transverse dispersivity	az	5.00E+00	m		see options
Vertical dispersivity	ay	5.00E-01	m		see options

Calculated Parameters

Groundwater flow velocity	v	5.00E-11	m/d
Retardation factor	Rf	8.75E+08	fraction
Decay rate used	λ	7.93E-110	d ⁻¹
Rate of contaminant flow due to retardation	U	5.71E-20	m/d
Contaminant concentration at distance x, assuming one-way vertical dispersion	C _D	1.00E-06	mg/l
Attenuation factor (one way vertical dispersion, COCED)	AF	9.18E+01	

Select Method for deriving Partition Co-efficient (using pull down menu)

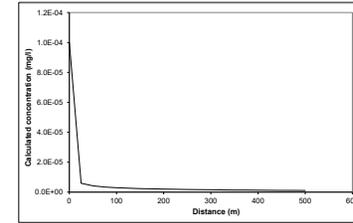
User specified value for partition coefficient

Soil water partition coefficient	Kd	1.71E+06	l/kg
Entry for non-polar organic chemicals (option)	foc		fraction
Entry for ionic organic chemicals (option)	Koc		l/kg
Entry for organic carbon in aquifer	K _{oc,1}		l/kg
Entry for sorption coefficient for related species	K _{oc,2}		l/kg
Entry for sorption coefficient for ionised species	pKa		fraction
Soil water partition coefficient	Kd	1.71E+06	l/kg

Dispersivities 10%, 1%, 0.1% of pathway length

Longitudinal dispersivity	ax	Enter value	Calc value	Xu & Eckstein	m
Transverse dispersivity	az	0.00E+00	5.00E+01	9.12E+00	m
Vertical dispersivity	ay	0.00E+00	5.00E-01	6.10E-01	m

Note values of dispersivity must be > 0
For calculated value, assumes ax = 0.1 * x, az = 0.01 * x, ay = 0.001 * x
Xu & Eckstein (1996) report ax = 0.83(0guk)^{2.14}; az = ax/10, ay = ax/100 are assumed



Note graph assumes plume disperses vertically in one direction only. An alternative solution assuming the centre of the plume is located at the mid-depth of the aquifer is presented in the calculation sheets.

Note

This sheet calculates the Level 3 remedial target for groundwater, based on the distance to the receptor or compliance located down hydraulic gradient of the source. Three solution methods are included, the preferred option is Ogata Banks.

By setting a long travel time it will give the steady state solution, which should be used to calculate remedial targets.

The measured groundwater concentration should be compared with the Level 3 remedial target to determine the need for further action. Note if contaminant is not subject to first order degradation, then set half life as 9.0E+99.

This worksheet should be used if pollutant transport and degradation is best described by a first order reaction. If degradation is best described by an electron limited degradation such as oxidation by O₂, NO₃, SO₄ etc than an alternative solution should be used

Site being assessed:	Harness Road
Completed by:	AO
Date:	#####
Version:	1

Calculated concentrations for distance-concentration graph

Domenico - Steady state		mg/l
From calculation sheet		
Distance	Concentration	
		mg/l
0	1.0E-04	
25.0	5.90E-06	
50.0	4.17E-06	
75.0	3.41E-06	
100.0	2.94E-06	
125.0	2.62E-06	
150.0	2.39E-06	
175.0	2.18E-06	
200.0	2.02E-06	
225.0	1.88E-06	
250.0	1.76E-06	
275.0	1.66E-06	
300.0	1.57E-06	
325.0	1.49E-06	
350.0	1.41E-06	
375.0	1.35E-06	
400.0	1.29E-06	
425.0	1.23E-06	
450.0	1.18E-06	
475.0	1.13E-06	
500.0	1.09E-06	

Remedial Targets

Remedial Target	9.18E-04	mg/l	For comparison with measured groundwater concentration.
Domenico - Steady state			
Distance to compliance point	500	m	
Concentration of contaminant at compliance point	C _D /C ₀	1.09E-06	mg/l Domenico - Steady state

Care should be used when calculating remedial targets using the time variant options as this may result in an overestimate of the remedial target. The recommended value for time when calculating the remedial target is 9.9E+99.



Hydrogeological risk assessment for land contamination Remedial Targets Worksheet , Release 3.2

First released: 2006. Version 3.2: January 2013

This worksheet has been produced in combination with the document 'Remedial Targets Methodology: Hydrogeological risk assessment for land contamination (Environment Agency 2006).

Users of this worksheet should always refer to the User Manual to the Remedial Targets Methodology and to relevant guidance on UK legislation and policy, in order to understand how this procedure should be applied in an appropriate context.

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IMPORTANT: To enable MS Excel worksheet, click Tools, Add -Ins, Analysis Tool Pak and Analysis Tool Pak-VBA (to calculate error functions).

Details to be completed for each assessment

Site Name:	Hareness Road		
Site Address:	Aberdeen		
Completed by:	AO	Version:	1
Date:	28-Feb-24		
Contaminant	Nickel		
Target Concentration (C_T)	0.00086	mg/l	Origin of C_T: EQS (Marine)

This worksheet can be used to determine remedial targets for soils (Worksheets Level 1 Soil, Level 2 and Level 3 Soil) or to determine remedial targets for groundwater (Level 3 Groundwater). For Level 3, parameter values must be entered separately dependent on whether the assessment is for soil or groundwater. For soil, remedial targets are calculated as either mg/kg (for comparison with soil measurements) or mg/l (for comparison with leaching tests or pore water concentrations).

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Data carried forward from an earlier worksheet are identified by a light green background

It is recommended that a copy of the original worksheet is saved (all data fields in the original copy are blank).

The spreadsheet also includes a porosity calculation worksheet, a soil impact calculation worksheet and a worksheet that performs some simple hydrogeological calculations.

R&D Publication 20 Remedial Targets Worksheet, Release 3.2



Level 3 - Groundwater

See Note

Input Parameters (using pull down menu)

Contaminant	Nickel	from Level 1
Target Concentration	8.60E-04	mg/l from Level 1

Select analytical solution (click on brown cell below, then on pull-down menu)

Domencico - Steady state	Equations in HRA publication
--------------------------	------------------------------

Approach for simulating vertical dispersion:

Simulate vertical dispersion in 1 direction

Select nature of decay rate (click on brown cell below, then on pull-down menu)

Approach for simulating degradation of pollutants:

Apply degradation rate to dissolved pollutants only

Initial contaminant concentration in groundwater at plume core	C ₀	1.60E-02	mg/l	Source of parameter value	BH01 T6 µg/l
Half life for degradation of contaminant in water	t _{1/2}	9.95E+99	days		Assumed no decay
Calculated decay rate	λ	6.94E-101	days ⁻¹		
Width of plume in aquifer at source (perpendicular to flow)	Sz	1.92E+02	m		Maximum width of site is 192m
Plume thickness at source	Sy	3.70E-01	m		10% of aquifer thickness
Saturated aquifer thickness	da	3.70E+00	m		Maximum water depth recorded to date
Bulk density of aquifer materials	ρ	2.56E+00	g/cm ³		Scott B. Smithson (1979) Densities of metamorphic rocks
Effective porosity of aquifer	n	5.00E-03	fraction		De Wit (1999) Effective Porosity for Different Aquifer Types.
Hydraulic gradient	i	2.50E-02	fraction		Distance from BH01 - BH03
Hydraulic conductivity of aquifer	K	1.00E-11	m/d		Freeze & Cherry (1979)
Distance to compliance point	x	5.00E+02	m		Distance from site to the Don Estuary to S
Distance (lateral) to compliance point perpendicular to flow direction	z		m		Vertical dispersivity
Distance (depth) to compliance point perpendicular to flow direction	y		m		Note values of dispersivity must be > 0
Time since pollutant entered groundwater	t	1.00E+100	days		time variant options only
Partition coefficient	Kd	3.43E+04	l/kg		see options
Longitudinal dispersivity	ax	5.00E+01	m		see options
Transverse dispersivity	ay	5.00E+00	m		see options
Vertical dispersivity	ay	5.00E-01	m		see options

Calculated Parameters

Groundwater flow velocity	v	5.00E-11	m/d
Retardation factor	Rf	1.76E+07	fraction
Decay rate used	λ	3.95E-108	d ⁻¹
Rate of contaminant flow due to retardation	U	2.84E-18	m/d
Contaminant concentration at distance x, assuming one-way vertical dispersion	C _D	1.74E-04	mg/l
Attenuation factor (one way vertical dispersion, COCED)	AF	9.18E+01	

Select Method for deriving Partition Co-efficient (using pull down menu)

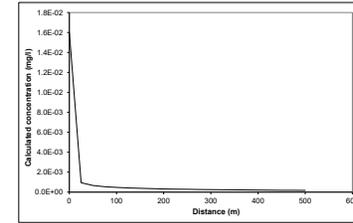
User specified value for partition coefficient

Soil water partition coefficient	Kd	3.43E+04	l/kg
Fraction of organic carbon in aquifer	foc		fraction
Organic carbon partition coefficient	Koc		l/kg
Sorption coefficient for related species	K _{oc,s}		l/kg
Sorption coefficient for ionised species	K _{oc,i}		l/kg
pH value	pH		
acid dissociation constant	pKa		fraction
Fraction of organic carbon in aquifer	foc		fraction
Soil water partition coefficient	Kd	3.43E+04	l/kg

Dispersivities 10%, 1%, 0.1% of pathway length

Longitudinal dispersivity	ax	Enter value	Calc value	Xu & Eckstein	m
Transverse dispersivity	az	0.00E+00	5.00E+01	5.12E+00	m
Vertical dispersivity	ay	0.00E+00	5.00E-01	5.12E-01	m

Note values of dispersivity must be > 0
For calculated value, assumes ax = 0.1 * x, az = 0.01 * x, ay = 0.001 * x
Xu & Eckstein (1995) report ax = 0.83(ρg_w)^{0.14}; az = ax/10, ay = ax/100 are assumed



Note graph assumes plume disperses vertically in one direction only. An alternative solution assuming the centre of the plume is located at the mid-depth of the aquifer is presented in the calculation sheets.

Note

This sheet calculates the Level 3 remedial target for groundwater, based on the distance to the receptor or compliance located down hydraulic gradient of the source. Three solution methods are included, the preferred option is Ogata Banks.

By setting a long travel time it will give the steady state solution, which should be used to calculate remedial targets.

The measured groundwater concentration should be compared with the Level 3 remedial target to determine the need for further action. Note if contaminant is not subject to first order degradation, then set half life as 9.0E+99.

This worksheet should be used if pollutant transport and degradation is best described by a first order reaction. If degradation is best described by an electron limited degradation such as oxidation by O₂, NO₃, SO₄ etc than an alternative solution should be used

Site being assessed:	Harness Road
Completed by:	AO
Date:	#####
Version:	1

Calculated concentrations for distance-concentration graph

Domencico - Steady state	
From calculation sheet	
Distance	Concentration
	mg/l
0	1.6E-02
25.0	9.44E-04
50.0	6.69E-04
75.0	5.45E-04
100.0	4.71E-04
125.0	4.20E-04
150.0	3.81E-04
175.0	3.49E-04
200.0	3.23E-04
225.0	3.01E-04
250.0	2.82E-04
275.0	2.66E-04
300.0	2.51E-04
325.0	2.38E-04
350.0	2.26E-04
375.0	2.15E-04
400.0	2.06E-04
425.0	1.97E-04
450.0	1.89E-04
475.0	1.81E-04
500.0	1.74E-04

Remedial Targets

Remedial Target	7.89E-02	mg/l	For comparison with measured groundwater concentration.
Domencico - Steady state			
Distance to compliance point	500	m	
Concentration of contaminant at compliance point	C _D /C ₀	1.74E-04	mg/l Domencico - Steady state

Care should be used when calculating remedial targets using the time variant options as this may result in an overestimate of the remedial target. The recommended value for time when calculating the remedial target is 9.9E+99.



Hydrogeological risk assessment for land contamination Remedial Targets Worksheet , Release 3.2

First released: 2006. Version 3.2: January 2013

This worksheet has been produced in combination with the document 'Remedial Targets Methodology: Hydrogeological risk assessment for land contamination (Environment Agency 2006).

Users of this worksheet should always refer to the User Manual to the Remedial Targets Methodology and to relevant guidance on UK legislation and policy, in order to understand how this procedure should be applied in an appropriate context.

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IMPORTANT: To enable MS Excel worksheet, click Tools, Add -Ins, Analysis Tool Pak and Analysis Tool Pak-VBA (to calculate error functions).

Details to be completed for each assessment

Site Name:	Hareness Road		
Site Address:	Aberdeen		
Completed by:	AO	Version:	1
Date:	28-Feb-24		
Contaminant	Phenanthrene		
Target Concentration (C_T)	1.00E-05	mg/l	Origin of C_T: Laboratory Limit of Detection

This worksheet can be used to determine remedial targets for soils (Worksheets Level 1 Soil, Level 2 and Level 3 Soil) or to determine remedial targets for groundwater (Level 3 Groundwater). For Level 3, parameter values must be entered separately dependent on whether the assessment is for soil or groundwater. For soil, remedial targets are calculated as either mg/kg (for comparison with soil measurements) or mg/l (for comparison with leaching tests or pore water concentrations).

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It is recommended that a copy of the original worksheet is saved (all data fields in the original copy are blank).

The spreadsheet also includes a porosity calculation worksheet, a soil impact calculation worksheet and a worksheet that performs some simple hydrogeological calculations.

R&D Publication 20 Remedial Targets Worksheet, Release 3.2



Level 3 - Groundwater

See Note

Input Parameters (using pull down menu)

Contaminant	Phenanthrene	from Level 1
Target Concentration	C _T 1.00E-05	mg/l from Level 1

Select analytical solution (click on brown cell below, then on pull-down menu)

Domenico - Steady state	Equations in HRA publication
--------------------------------	------------------------------

Approach for simulating vertical dispersion:

Simulate vertical dispersion in 1 direction

Select nature of decay rate (click on brown cell below, then on pull-down menu)

Approach for simulating degradation of pollutants:

Apply degradation rate to dissolved pollutants only

Initial contaminant concentration in groundwater at plume core	C ₀	8.00E-05	mg/l	Source of parameter value	BH07 0.08 µg/l
Half life for degradation of contaminant in water	t _{1/2}	9.95E+99	days		Assumed no decay
Calculated decay rate	λ	6.94E-101	days ⁻¹		
Width of plume in aquifer at source (perpendicular to flow)	Sz	1.92E+02	m		Maximum width of site is 192m
Plume thickness at source	Sy	3.70E-01	m		10% of aquifer thickness
Saturated aquifer thickness	da	3.70E+00	m		Maximum water depth recorded to date
Bulk density of aquifer materials	ρ	2.56E+00	g/cm ³		Scott B. Smithson (1979) Densities of metamorphic rocks
Effective porosity of aquifer	n	5.00E-03	fraction		De Wit (1999) Effective Porosity for Different Aquifer Types.
Hydraulic gradient	i	2.50E-02	fraction		Distance from BH01 - BH03
Hydraulic conductivity of aquifer	K	1.00E-11	m/d		Freeze & Cherry (1979)
Distance to compliance point	x	5.00E+02	m		Distance from site to the Don Estuary to S
Distance (lateral) to compliance point perpendicular to flow direction	z		m		Vertical dispersivity
Distance (depth) to compliance point perpendicular to flow direction	y		m		Vertical dispersivity
Time since pollutant entered groundwater	t	1.00E+100	days		time variant options only
Partition coefficient	Kd	1.43E+07	l/kg		see options
Longitudinal dispersivity	ax	5.00E+01	m		see options
Transverse dispersivity	az	5.00E+00	m		see options
Vertical dispersivity	ay	5.00E-01	m		see options

Calculated Parameters

Groundwater flow velocity	v	5.00E-11	m/d
Retardation factor	Rf	7.31E+09	fraction
Decay rate used	λ	9.50E-111	d ⁻¹
Rate of contaminant flow due to retardation	U	6.84E-21	m/d
Contaminant concentration at distance x, assuming one-way vertical dispersion	C _D	8.72E-07	mg/l
Attenuation factor (one way vertical dispersion, CO/CED)	AF	9.18E+01	

Select Method for deriving Partition Co-efficient (using pull down menu)

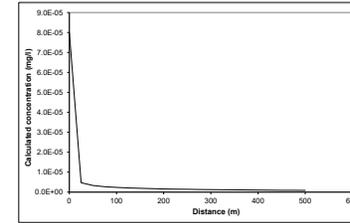
User specified value for partition coefficient

Soil water partition coefficient	Kd	1.43E+07	l/kg
Fraction of organic carbon in aquifer	foc		fraction
Organic carbon partition coefficient	Koc		l/kg
Sorption coefficient for related species	K _{oc,s}		l/kg
Sorption coefficient for ionised species	K _{oc,i}		l/kg
pH value	pH		
acid dissociation constant	pKa		fraction
Fraction of organic carbon in aquifer	foc		fraction
Soil water partition coefficient	Kd	1.43E+07	l/kg

Dispersivities 10%, 1%, 0.1% of pathway length

Longitudinal dispersivity	ax	Enter value	Calc value	Xu & Eckstein	m
Transverse dispersivity	az	0.00E+00	5.00E+01	9.12E+00	m
Vertical dispersivity	ay	0.00E+00	5.00E-01	6.19E-00	m

Note values of dispersivity must be > 0
For calculated value, assumes ax = 0.1 * x, az = 0.01 * x, ay = 0.001 * x
Xu & Eckstein (1995) report ax = 0.83(ρg_w)^{0.14}; az = ax/10, ay = ax/100 are assumed



Note graph assumes plume disperses vertically in one direction only. An alternative solution assuming the centre of the plume is located at the mid-depth of the aquifer is presented in the calculation sheets.

Note

This sheet calculates the Level 3 remedial target for groundwater, based on the distance to the receptor or compliance located down hydraulic gradient of the source. Three solution methods are included, the preferred option is Ogata Banks. By setting a long travel time it will give the steady state solution, which should be used to calculate remedial targets. The measured groundwater concentration should be compared with the Level 3 remedial target to determine the need for further action. Note if contaminant is not subject to first order degradation, then set half life as 9.0E+99.

This worksheet should be used if pollutant transport and degradation is best described by a first order reaction. If degradation is best described by an electron limited degradation such as oxidation by O₂, NO₃, SO₄ etc than an alternative solution should be used

Site being assessed:	Harness Road
Completed by:	AO
Date:	#####
Version:	1

Calculated concentrations for distance-concentration graph

Domenico - Steady state		mg/l
From calculation sheet		
Distance	Concentration	
		mg/l
0	8.0E-05	
25.0	4.72E-06	
50.0	3.34E-06	
75.0	2.73E-06	
100.0	2.36E-06	
125.0	2.10E-06	
150.0	1.90E-06	
175.0	1.75E-06	
200.0	1.62E-06	
225.0	1.51E-06	
250.0	1.41E-06	
275.0	1.33E-06	
300.0	1.26E-06	
325.0	1.19E-06	
350.0	1.13E-06	
375.0	1.08E-06	
400.0	1.03E-06	
425.0	9.84E-07	
450.0	9.44E-07	
475.0	9.05E-07	
500.0	8.72E-07	

Remedial Targets

Remedial Target	9.18E-04	mg/l	For comparison with measured groundwater concentration.
Domenico - Steady state			
Distance to compliance point	500	m	
Concentration of contaminant at compliance point	C _D /C ₀	8.72E-07	mg/l Domenico - Steady state

Care should be used when calculating remedial targets using the time variant options as this may result in an overestimate of the remedial target. The recommended value for time when calculating the remedial target is 9.9E+99.



Hydrogeological risk assessment for land contamination Remedial Targets Worksheet , Release 3.2

First released: 2006. Version 3.2: January 2013

This worksheet has been produced in combination with the document 'Remedial Targets Methodology: Hydrogeological risk assessment for land contamination (Environment Agency 2006).

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IMPORTANT: To enable MS Excel worksheet, click Tools, Add -Ins, Analysis Tool Pak and Analysis Tool Pak-VBA (to calculate error functions).

Details to be completed for each assessment

Site Name:	Hareness Road		
Site Address:	Aberdeen		
Completed by:	AO	Version:	1
Date:	28-Feb-24		
Contaminant	Pyrene		
Target Concentration (C_T)	0.00001	mg/l	Origin of C_T: Laboratory Limit of Detection

This worksheet can be used to determine remedial targets for soils (Worksheets Level 1 Soil, Level 2 and Level 3 Soil) or to determine remedial targets for groundwater (Level 3 Groundwater). For Level 3, parameter values must be entered separately dependent on whether the assessment is for soil or groundwater. For soil, remedial targets are calculated as either mg/kg (for comparison with soil measurements) or mg/l (for comparison with leaching tests or pore water concentrations).

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Data carried forward from an earlier worksheet are identified by a light green background

It is recommended that a copy of the original worksheet is saved (all data fields in the original copy are blank).

The spreadsheet also includes a porosity calculation worksheet, a soil impact calculation worksheet and a worksheet that performs some simple hydrogeological calculations.

R&D Publication 20 Remedial Targets Worksheet, Release 3.2



Level 3 - Groundwater

See Note

Input Parameters (using pull down menu)

Contaminant	Pyrene	from Level 1
Target Concentration	C _T 1.00E-05	mg/l from Level 1

Select analytical solution (click on brown cell below, then on pull-down menu)

Domenico - Steady state	Equations in HRA publication
--------------------------------	------------------------------

Approach for simulating vertical dispersion:

Simulate vertical dispersion in 1 direction

Select nature of decay rate (click on brown cell below, then on pull-down menu)

Approach for simulating degradation of pollutants:

Apply degradation rate to dissolved pollutants only

Initial contaminant concentration in groundwater at plume core	C ₀	1.20E-04	mg/l	Source of parameter value	BHOT 0.12 µg/l
Half life for degradation of contaminant in water	t _{1/2}	9.95E+99	days		Assumed no decay
Calculated decay rate	λ	6.94E-101	days ⁻¹		
Width of plume in aquifer at source (perpendicular to flow)	Sz	1.92E+02	m		Maximum width of site is 192m
Plume thickness at source	Sy	3.70E-01	m		10% of aquifer thickness
Saturated aquifer thickness	da	3.70E+00	m		Maximum water depth recorded to date
Bulk density of aquifer materials	ρ	2.55E+00	g/cm ³		Scott B. Smithson (1979) Densities of metamorphic rocks
Effective porosity of aquifer	n	5.00E-03	fraction		De Wit (1999) Effective Porosity for Different Aquifer Types.
Hydraulic gradient	i	2.50E-02	fraction		Distance from BH01 - BH03
Hydraulic conductivity of aquifer	K	1.00E-11	m/d		Freeze & Cherry (1979)
Distance to compliance point	x	5.00E+01	m		Distance from site to the Don Estuary to S
Distance (lateral) to compliance point perpendicular to flow direction	z		m		Vertical dispersivity
Distance (depth) to compliance point perpendicular to flow direction	y		m		Vertical dispersivity
Time since pollutant entered groundwater	t	1.00E+100	days		time variant options only
Partition coefficient	Kd	1.36E+07	l/kg		see options
Longitudinal dispersivity	ax	5.00E+00	m		see options
Transverse dispersivity	az	5.00E-01	m		see options
Vertical dispersivity	ay	5.00E-02	m		see options

Calculated Parameters

Groundwater flow velocity	v	5.00E-11	m/d
Retardation factor	Rf	6.95E+09	fraction
Decay rate used	λ	9.98E-111	d ⁻¹
Rate of contaminant flow due to retardation	U	7.19E-21	m/d
Contaminant concentration at distance x, assuming one-way vertical dispersion	C _D	1.58E-05	mg/l
Attenuation factor (one way vertical dispersion, COCED)	AF	7.61E+00	

Select Method for deriving Partition Co-efficient (using pull down menu)

User specified value for partition coefficient

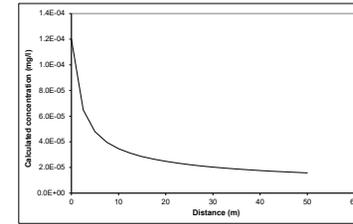
Soil water partition coefficient	Kd	1.36E+07	l/kg
Fraction of organic carbon in aquifer	foc		fraction
Organic carbon partition coefficient	Koc		l/kg
Sorption coefficient for related species	K _{oc,1}		l/kg
Sorption coefficient for ionised species	K _{oc,2}		l/kg
pH value	pH		
acid dissociation constant	pKa		fraction
Fraction of organic carbon in aquifer	foc		fraction
Soil water partition coefficient	Kd	1.36E+07	l/kg

Define dispersivity (click brown cell and use pull down list)

Dispersivities 10%, 1%, 0.1% of pathway length

Longitudinal dispersivity	ax	Enter value	Calc value	Xu & Eckstein	m
Transverse dispersivity	az	0.00E+00	5.00E+00	2.98E+00	m
Vertical dispersivity	ay	0.00E+00	5.00E-01	2.98E-01	m
Vertical dispersivity	ay	0.00E+00	5.00E-02	5.96E-02	m

Note values of dispersivity must be > 0
For calculated value, assumes ax = 0.1 * x, az = 0.01 * x, ay = 0.001 * x
Xu & Eckstein (1995) report ax = 0.83(9guk)^{0.14}; az = ax/10, ay = ax/100 are assumed



Note graph assumes plume disperses vertically in one direction only. An alternative solution assuming the centre of the plume is located at the mid-depth of the aquifer is presented in the calculation sheets.

Note

This sheet calculates the Level 3 remedial target for groundwater, based on the distance to the receptor or compliance located down hydraulic gradient of the source. Three solution methods are included, the preferred option is Ogata Banks.

By setting a long travel time it will give the steady state solution, which should be used to calculate remedial targets.

The measured groundwater concentration should be compared with the Level 3 remedial target to determine the need for further action.

Note if contaminant is not subject to first order degradation, then set half life as 9.0E+99.

This worksheet should be used if pollutant transport and degradation is best described by a first order reaction. If degradation is best described by an electron limited degradation such as oxidation by O₂, NO₃, SO₄ etc than an alternative solution should be used

Site being assessed:	Harness Road
Completed by:	AO
Date:	#####
Version:	1

Calculated concentrations for distance-concentration graph

Domenico - Steady state	
From calculation sheet	
Distance	Concentration
	mg/l
0	1.2E-04
2.5	6.49E-05
5.0	4.79E-05
7.5	3.97E-05
10.0	3.46E-05
12.5	3.11E-05
15.0	2.85E-05
17.5	2.64E-05
20.0	2.48E-05
22.5	2.34E-05
25.0	2.22E-05
27.5	2.12E-05
30.0	2.03E-05
32.5	1.95E-05
35.0	1.88E-05
37.5	1.82E-05
40.0	1.76E-05
42.5	1.71E-05
45.0	1.66E-05
47.5	1.62E-05
50.0	1.58E-05

Remedial Targets

Remedial Target	7.61E-05	mg/l	For comparison with measured groundwater concentration.
Domenico - Steady state			
Distance to compliance point	50	m	
Concentration of contaminant at compliance point	C _D /C ₀	1.58E-05	mg/l Domenico - Steady state

Care should be used when calculating remedial targets using the time variant options as this may result in an overestimate of the remedial target. The recommended value for time when calculating the remedial target is 9.9E+99.



Hydrogeological risk assessment for land contamination Remedial Targets Worksheet , Release 3.2

First released: 2006. Version 3.2: January 2013

This worksheet has been produced in combination with the document 'Remedial Targets Methodology: Hydrogeological risk assessment for land contamination (Environment Agency 2006).

Users of this worksheet should always refer to the User Manual to the Remedial Targets Methodology and to relevant guidance on UK legislation and policy, in order to understand how this procedure should be applied in an appropriate context.

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The calculation of equations in this worksheet has been independently checked by Entec (UK) Ltd on behalf of the Environment Agency.
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Liability: The Environment Agency does not promise that the worksheet will provide any particular facilities or functions. You must ensure that the worksheet meets your needs and you remain solely responsible for the competent use of the worksheet. You are entirely responsible for the consequences of any use of the worksheet and the Agency provides no warranty about the fitness for purpose or performance of any part of the worksheet. We do not promise that the media will always be free from defects, computer viruses, software locks or other similar code or that the operation of the worksheet will be uninterrupted or error free. You should carry out all necessary virus checks prior to installing on your computing system.

IMPORTANT: To enable MS Excel worksheet, click Tools, Add -Ins, Analysis Tool Pak and Analysis Tool Pak-VBA (to calculate error functions).

Details to be completed for each assessment

Site Name:	Hareness Road		
Site Address:	Aberdeen		
Completed by:	AO	Version:	1
Date:	28-Feb-24		
Contaminant	Zinc		
Target Concentration (C _T)	0.0079	mg/l	Origin of C _T : EQS (Marine)

This worksheet can be used to determine remedial targets for soils (Worksheets Level 1 Soil, Level 2 and Level 3 Soil) or to determine remedial targets for groundwater (Level 3 Groundwater). For Level 3, parameter values must be entered separately dependent on whether the assessment is for soil or groundwater. For soil, remedial targets are calculated as either mg/kg (for comparison with soil measurements) or mg/l (for comparison with leaching tests or pore water concentrations).

Site details entered on this page are automatically copied to Level 1, 2 and 3 Worksheets.

Worksheet options are identified by brown background and employ a pull-down menus. Data entry are identified as blue background.

Data origin / justification should be noted in cells coloured yellow and fully documented in subsequent reports.

Data carried forward from an earlier worksheet are identified by a light green background

It is recommended that a copy of the original worksheet is saved (all data fields in the original copy are blank).

The spreadsheet also includes a porosity calculation worksheet, a soil impact calculation worksheet and a worksheet that performs some simple hydrogeological calculations.

R&D Publication 20 Remedial Targets Worksheet, Release 3.2



Level 3 - Groundwater

See Note

Input Parameters (using pull down menu)

Contaminant	Zinc	from Level 1
Target Concentration	7.90E-03	mg/l from Level 1

Select analytical solution (click on brown cell below, then on pull-down menu)

Domenico - Steady state	Equations in HRA publication
--------------------------------	------------------------------

Approach for simulating vertical dispersion:

Simulate vertical dispersion in 1 direction

Select nature of decay rate (click on brown cell below, then on pull-down menu)

Approach for simulating degradation of pollutants:

Apply degradation rate to dissolved pollutants only

Initial contaminant concentration in groundwater at plume core	C ₀	1.10E+01	mg/l	Source of parameter value	BH04 T10 zipf
Half life for degradation of contaminant in water	t _{1/2}	9.99E+99	days		Assumed no decay
Calculated decay rate	λ	6.94E-101	days ⁻¹		
Width of plume in aquifer at source (perpendicular to flow)	Sz	1.92E+02	m		Maximum width of site is 192m
Plume thickness at source	Sy	3.70E-01	m		10% of aquifer thickness
Saturated aquifer thickness	da	3.70E+00	m		Maximum water depth recorded to date
Bulk density of aquifer materials	ρ	2.56E+00	g/cm ³		Scott B. Smithson (1979) Densities of metamorphic rocks
Effective porosity of aquifer	n	5.00E-03	fraction		De Wit (1999) Effective Porosity for Different Aquifer Types.
Hydraulic gradient	i	2.50E-02	fraction		Distance from BH01 - BH03
Hydraulic conductivity of aquifer	K	1.00E-11	m/d		Freeze & Cherry (1979)
Distance to compliance point	x	5.00E+02	m		Distance from site to the Don Estuary to S
Distance (lateral) to compliance point perpendicular to flow direction	z		m		
Distance (depth) to compliance point perpendicular to flow direction	y		m		
Time since pollutant entered groundwater	t	1.00E+100	days		time variant options only
Partition coefficient	Kd	3.07E+04	l/kg		
Longitudinal dispersivity	ax	5.00E+01	m		see options
Transverse dispersivity	ay	5.00E+00	m		see options
Vertical dispersivity	ay	5.00E-01	m		see options

Calculated Parameters

Groundwater flow velocity	v	5.00E-11	m/d
Retardation factor	Rf	1.57E+07	fraction
Decay rate used	λ	4.42E-108	d ⁻¹
Rate of contaminant flow due to retardation	U	3.19E-18	m/d
Contaminant concentration at distance x, assuming one-way vertical dispersion	C _{1D}	1.20E-03	mg/l
Attenuation factor (one way vertical dispersion, CO/CED)	AF	9.18E+01	

Select Method for deriving Partition Co-efficient (using pull down menu)

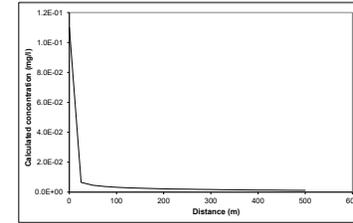
User specified value for partition coefficient

Soil water partition coefficient	Kd	3.07E+04	l/kg
Fraction of organic carbon in aquifer	foc		fraction
Organic carbon partition coefficient	Koc		l/kg
Sorption coefficient for related species	K _{oc,s}		l/kg
Sorption coefficient for ionised species	K _{oc,i}		l/kg
pH value	pH		
acid dissociation constant	pKa		
Fraction of organic carbon in aquifer	foc		fraction
Soil water partition coefficient	Kd	3.07E+04	l/kg

Dispersivities 10%, 1%, 0.1% of pathway length

Longitudinal dispersivity	ax	Enter value	Calc value	Xu & Eckstein	m
Transverse dispersivity	az	0.00E+00	5.00E+01	5.00E+01	5.13E-01
Vertical dispersivity	ay	0.00E+00	5.00E-01	5.00E-01	5.00E-01

Note values of dispersivity must be > 0
For calculated value, assumes ax = 0.1 * x, az = 0.01 * x, ay = 0.001 * x
Xu & Eckstein (1995) report ax = 0.83(0.9guk)^{0.14}; az = ax/10, ay = ax/100 are assumed



Note graph assumes plume disperses vertically in one direction only. An alternative solution assuming the centre of the plume is located at the mid-depth of the aquifer is presented in the calculation sheets.

Note

This sheet calculates the Level 3 remedial target for groundwater, based on the distance to the receptor or compliance located down hydraulic gradient of the source. Three solution methods are included, the preferred option is Ogata Banks.

By setting a long travel time it will give the steady state solution, which should be used to calculate remedial targets.

The measured groundwater concentration should be compared with the Level 3 remedial target to determine the need for further action.

Note if contaminant is not subject to first order degradation, then set half life as 9.0E+99.

This worksheet should be used if pollutant transport and degradation is best described by a first order reaction. If degradation is best described by an electron limited degradation such as oxidation by O₂, NO₃, SO₄ etc than an alternative solution should be used

Site being assessed:	Harness Road
Completed by:	AO
Date:	#####
Version:	1

Calculated concentrations for distance-concentration graph

Domenico - Steady state	
From calculation sheet	
Distance	Concentration
	mg/l
0	1.1E-01
25.0	6.49E-03
50.0	4.59E-03
75.0	3.75E-03
100.0	3.24E-03
125.0	2.88E-03
150.0	2.62E-03
175.0	2.40E-03
200.0	2.22E-03
225.0	2.07E-03
250.0	1.94E-03
275.0	1.83E-03
300.0	1.73E-03
325.0	1.64E-03
350.0	1.55E-03
375.0	1.48E-03
400.0	1.41E-03
425.0	1.35E-03
450.0	1.30E-03
475.0	1.25E-03
500.0	1.20E-03

Remedial Targets

Remedial Target	7.25E-01	mg/l	For comparison with measured groundwater concentration.
Domenico - Steady state			
Distance to compliance point	500	m	
Concentration of contaminant at compliance point	C _{1D} /C ₀	1.20E-03	mg/l Domenico - Steady state

Care should be used when calculating remedial targets using the time variant options as this may result in an overestimate of the remedial target. The recommended value for time when calculating the remedial target is 9.9E+99.

P20 Modelling Parameter Justifications

Criteria	Value Utilised	Justification
Half-life for degradation of contamination in water	9E+99	Given that cadmium is a heavy metal, we have assumed that it is persistent in the Water Environment and does not degrade. Similarly, the PAH contaminants have been observed to degrade at an exceptionally slow rate, and as such the half-life has remained the same as for heavy metals.
Wide of plume in aquifer at source	192 m	We have assumed the width of the plume in the aquifer to be the width of the site in order to represent a worst-case scenario.
Plume thickness at source	0.37 m	Plume thickness has been estimated at 10% saturated aquifer thickness, as most contaminant plumes typically only affect the top half meter of the aquifer, or beyond the top half meter, the contaminant will quickly mix to a lesser concentration.
Saturated aquifer thickness	3.70 m	The saturated aquifer thickness was assumed to be 3.70 m, based on the maximum water thickness encountered in the boreholes during the groundwater monitoring period.
Bulk density of aquifer materials	2.25 g/cm ³	Academic value for sandstone (psammite) has been utilised to again represent a worst-case scenario. We have assumed that any groundwater movement will be restricted to the sandstone aquifer present beneath the site, as psammite was recorded to comprise the majority of the bedrock during the instructive investigations.
Effective porosity of aquifer	0.15 fraction	Freeze and Cherry (1979) guidance document recorded sandstone (psammite) to have a porosity range of 0.15 – 0.45 fraction. In our assessment, we have assumed that groundwater movement would be within this sandstone aquifer and for the purpose of our assessment we have taken 0.15 fraction as an indicative value.
Hydraulic gradient	0.025 fraction	Based on the groundwater levels undertaken at the time of reporting groundwater flow was indicated between BH01 – BH03 due to the greatest difference in water depth on all monitoring occasions. As such, the hydraulic gradient was calculated using the depths of water recorded in these wells (2.2m and 3.7m), and the distance between them (60m).
Hydraulic conductivity of aquifer	0.00000001 m/d	The academic value corresponding to a sandstone (psammite) from Freeze and Cherry (1979). The academic value was noted to range from 0.0000000001 – 0.000001 m/d, and as such the most conservative value has been chosen for this assessment.
Distance to compliance point	250 m / 510 m	Groundwater assessment – This assessment value has been collected from SEPA WAT-PS-10-01 for the depth of bedrock aquifer in an urban area (250m). Surface water assessment – The distance to the Don Estuary to Souter Head surface water body is 510m from the site.
Soil water partition coefficient	Various	EPA (2005).

Appendix F
Groundwater and Gas Monitoring Results



Gas and Groundwater Monitoring Results

Project Number:		P23-336																						
Site:		Hareness Road, Aberdeen																						
Date:		15/02/2024																						
Readings taken by:		F.G																						
Background Data		Weather Conditions																Clear sky						
		Ground Conditions (dry/wet):																Wet						
		Air Temperature (°C)																4						
		Atmospheric Pressure (mB) (start):																995						
		Atmospheric Pressure (mB) (finish):																994						
		O2 (%)																20.7						
		Time (hh:mm)																12:00 pm						
Borehole No.	Interval	Gas												Groundwater		Sampling			PID Results					
		Oxygen O ₂ (%)		Carbon Dioxide CO ₂ (%)		Methane CH ₄ (%)		Hydrogen Sulphide H ₂ S (PPM)		Carbon Monoxide CO (PPM)		Lower Explosive Limit (LEL)	Flow (l/hr)		Wd ² (mBgl)	DoW ⁴ (m)	P ¹	R ⁴		S ⁷				
		P ¹	SS ²	P ¹	SS ²	P ¹	SS ²	P ¹	SS ²	P ¹	SS ²		P ¹	SS ²										
BH01	30	-	17.0	-	1.5	-	0.0	-	0.0	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.2	6.5	Y	Y	Y	
	60	-	16.5	-	1.6	-	0.0	-	0.0	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0						
	90	-	16.4	-	1.6	-	0.0	-	0.0	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0						
	120	-	16.3	-	1.6	-	0.0	-	0.0	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0						
BH02	30	-	N/A	-	N/A	-	0.0	-	0.0	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.2	6.2	Y	Y	Y	
	60	-	N/A	-	N/A	-	0.0	-	0.0	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0						
	90	-	N/A	-	N/A	-	0.0	-	0.0	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0						
	120	-	N/A	-	N/A	-	0.0	-	0.0	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0						
BH03	30	-	19.4	-	0.7	-	0.0	-	0.0	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.7	9.9	Y	Y	Y	
	60	-	19.3	-	0.7	-	0.0	-	0.0	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0						
	90	-	19.3	-	0.7	-	0.0	-	0.0	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0						
	120	-	19.3	-	0.7	-	0.0	-	0.0	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0						
BH04	30	-	18.4	-	1.3	-	0.0	-	0.0	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.4	7.8	Y	Y	Y	
	60	-	18.5	-	1.3	-	0.0	-	0.0	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0						
	90	-	18.5	-	1.4	-	0.0	-	0.0	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0						
	120	-	18.5	-	1.4	-	0.0	-	0.0	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0						
Remarks																								
Borehole Damage Record/ Installation Record		BH02 valve not closed so monitoring not possible														Key: 1 - Peak 2 - Steady state 3 - Groundwater depth 4 - Depth of well		5 - Purged well volumes 6 - Recharge (yes/no) 7 - Sampled (yes/no)						
Borehole Condition Statement																								
Gas Monitor Model:		Serial No:												Recalibration Due:										
PID Model:		Serial No:												Recalibration Due:										
MiniRAE Lite																								
Cal Gas (Isobutylene)		Cal Span		Unit		Low		High		Notes														
MiniRAE Lite		100		ppm		50		100		The instrument is factory calibrated with standard calibration gas and is programmed with default alarm limits.														



Gas and Groundwater Monitoring Results

Project Number:		P23-336																												
Site:		Hareness Road, Aberdeen																												
Date:		04/03/2024																												
Readings taken by:		P.G																												
Background Data	Weather Conditions:		Sunny																											
	Ground Conditions (dry/wet):		Damp																											
	Air Temperature (°C):		7																											
	Atmospheric Pressure (mB) (start):		1001																											
	Atmospheric Pressure (mB) (finish):		1001																											
O2 (%)		20.8																												
Time (hh:mm)																														
Borehole No.	Interval	Gas												Groundwater		Sampling			PID Results											
		Oxygen O ₂ (%)		Carbon Dioxide CO ₂ (%)		Methane CH ₄ (%)		Hydrogen Sulphide H ₂ S (PPM)		Carbon Monoxide CO (PPM)		Lower Explosive Limit (LEL)	Flow (l/hr)		Wd ² (mBgl)	DdW ⁴ (m)	P ¹	R ⁴		S ⁷										
		P ¹	SS ²	P ¹	SS ²	P ¹	SS ²	P ¹	SS ²	P ¹	SS ²		P ¹	SS ²																
BH01	30	-	20.5	-	0.0	-	0.0	-	0.0	-	0.0	0.0	-6.0	-1.5	2.2	6.5	N	N	N											
	60	-	20.4	-	0.0	-	0.0	-	0.0	-	0.0	-6.0	-1.5																	
	90	-	20.3	-	0.0	-	0.0	-	0.0	-	0.0	-6.0	-1.5																	
	120	-	20.4	-	0.0	-	0.0	-	0.0	-	0.0	-6.0	-1.5																	
BH02	30	-	20.5	-	0.0	-	0.0	-	0.0	-	0.0	1.0	0.0	2.45	6.2	N	N	N												
	60	-	20.5	-	0.0	-	0.0	-	0.0	-	0.0	0.0	0.0																	
	90	-	20.5	-	0.0	-	0.0	-	0.0	-	0.0	0.0	0.0																	
	120	-	20.4	-	0.0	-	0.0	-	0.0	-	0.0	0.0	0.0																	
BH03	30	-	20.2	-	0.2	-	0.0	-	0.0	-	0.0	0.0	-0.1	5.35	10.5	N	N	N												
	60	-	20.2	-	0.2	-	0.0	-	0.0	-	0.0	0.0	0.0																	
	90	-	20.3	-	0.2	-	0.0	-	0.0	-	0.0	0.0	0.0																	
	120	-	20.4	-	0.1	-	0.0	-	0.0	-	0.0	0.0	0.0																	
BH04	30	-	20.5	-	0.1	-	0.0	-	0.0	-	0.0	-6.0	-1.5	2.4	7.85	N	N	N												
	60	-	20.4	-	0.0	-	0.0	-	0.0	-	0.0	-6.0	-1.5																	
	90	-	20.4	-	0.0	-	0.0	-	0.0	-	0.0	-6.0	-1.5																	
	120	-	20.3	-	0.0	-	0.0	-	0.0	-	0.0	-6.0	-1.5																	
Remarks																														
Borehole Damage Record/ Installation Record															5 - Purged well volumes 6 - Recharge (yes/no) 7 - Sampled (yes/no)															
Borehole Condition Statement																														
Gas Monitor Model:										Serial No:											Recalibration Due:									
GFM 430 / GFM436																														
PID Model:										Serial No:											Recalibration Due:									
MiniRAE Light																														
Cal Gas (Isobutylene)		Cal Span		Unit		Low		High		Notes																				
MiniRAE Lite		100		ppm		50		100		The instrument is factory calibrated with standard calibration gas and is programmed with default alarm limits.																				



Gas and Groundwater Monitoring Results

Project Number:		P23-436																				
Site:		Hareness Road, Aberdeen																				
Date:		28/03/2024																				
Readings taken by:		LM																				
Background Data	Weather Conditions													Rain								
	Ground Conditions (dry/wet):													Wet								
	Air Temperature (°C)													0								
	Atmospheric Pressure (mB) (start):													981								
	Atmospheric Pressure (mB) (finish):													982								
	O2 (%)													20.6								
Time (hh:mm)															09:00							
Borehole No.	Interval	Gas												Groundwater		Sampling			PID Results			
		Oxygen O ₂ (%)		Carbon Dioxide CO ₂ (%)		Methane CH ₄ (%)		Hydrogen Sulphide H ₂ S (PPM)		Carbon Monoxide CO (PPM)		Lower Explosive Limit (LEL)	Flow (l/hr)		Wd ¹ (mBgl)	DdW ⁴ (m)	P ²	R ⁴		S ⁷		
		P ¹	SS ²	P ¹	SS ²	P ¹	SS ²	P ¹	SS ²	P ¹	SS ²		P ¹	SS ²								
BH01	30	15.9	-	1.7	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0	3.1	0.0	2.15	6.60	N	N	N	N/A
	60	16.3	-	1.8	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0								
	90	16.4	-	1.8	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0								
	120	16.5	-	1.8	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0								
BH02	30	13.2	-	1.1	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0	0.0	0.0	4.60	6.30	N	N	N	N/A
	60	11.7	-	1.2	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0								
	90	11.4	-	1.2	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0								
	120	11.4	-	1.2	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0								
BH03	30	18.8	-	0.8	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0	0.0	0.0	5.45	10.20	N	N	N	N/A
	60	19.2	-	0.7	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0								
	90	19.3	-	0.7	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0								
	120	19.3	-	0.7	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0								
BH04	30	18.1	-	2.4	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0	0.0	0.0	2.30	8.00	N	N	N	N/A
	60	18.2	-	2.4	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0								
	90	18.2	-	2.4	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0								
	120	18.2	-	2.4	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0								
Remarks																						
Borehole Damage Record/ Installation Record																						
Borehole Condition Statement																						
Key: 1 - Peak 2 - Steady state 3 - Groundwater depth 4 - Depth of well																						
5 - Purged well volumes 6 - Recharge (yes/no) 7 - Sampled (yes/no)																						
Gas Monitor Model															Serial No:	Recalibration Due:						
GFM 430 / GFM436															13655	15/06/2024						
PID Model:															Serial No:	Recalibration Due:						
MiniRAE Light																						
Cal Gas (Isobutylene)		Cal Span		Unit		Low		High		Notes												
MiniRAE Lite		100		ppm		50		100		The instrument is factory calibrated with standard calibration gas and is programmed with default alarm limits.												



Gas and Groundwater Monitoring Results

Project Number:		P23-136																				
Site:		HARENESS																				
Date:		17/04/2024																				
Readings taken by:		F GARDEN																				
Background Data	Weather Conditions												CLEAR SKY									
	Ground Conditions (dry/wet):												WET									
	Air Temperature (°C)												10DEGREES									
	Atmospheric Pressure (mB) (start):												1011									
	Atmospheric Pressure (mB) (finish):												1011									
	O2 (%)												20.5									
Time (hh:mm)		14:30PM																				
Borehole No.	Interval	Gas												Groundwater		Sampling			PID Results			
		Oxygen O ₂ (%)		Carbon Dioxide CO ₂ (%)		Methane CH ₄ (%)		Hydrogen Sulphide H ₂ S (PPM)		Carbon Monoxide CO (PPM)		Lower Explosive Limit (LEL)	Flow (l/hr)		Wd ² (mBgl)	DoW ⁴ (m)	P ⁵	R ⁶		S ⁷		
		P ¹	SS ²	P ¹	SS ²	P ¹	SS ²	P ¹	SS ²	P ¹	SS ²		P ¹	SS ²								
BH01	30	-	14.6	-	2.3	-	0.0	-	0.0	-	0.0	0.0	0.0	0.0	0.0	0.0	2.3	6.5	N	N	N	N/A
	60	-	14.5	-	2.3	-	0.0	-	0.0	-	0.0	0.0	0.0	0.0	0.0	0.0						
	90	-	14.4	-	2.4	-	0.0	-	0.0	-	0.0	0.0	0.0	0.0	0.0	0.0						
	120	-	14.2	-	2.4	-	0.0	-	0.0	-	0.0	0.0	0.0	0.0	0.0	0.0						
BH02	30	-	20.5	-	0.1	-	0.0	-	0.0	-	0.0	0.0	0.0	0.0	0.0	0.0	2.25	6.1	N	N	N	N/A
	60	-	20.6	-	0.1	-	0.0	-	0.0	-	0.0	0.0	0.0	0.0	0.0	0.0						
	90	-	20.6	-	0.1	-	0.0	-	0.0	-	0.0	0.0	0.0	0.0	0.0	0.0						
	120	-	20.6	-	0.1	-	0.0	-	0.0	-	0.0	0.0	0.0	0.0	0.0	0.0						
BH03	30	-	18.8	-	1.0	-	0.0	-	0.0	-	0.0	0.0	0.0	0.0	0.0	0.0	5.2	10	N	N	N	N/A
	60	-	18.7	-	1.1	-	0.0	-	0.0	-	0.0	0.0	0.0	0.0	0.0	0.0						
	90	-	18.8	-	1.1	-	0.0	-	0.0	-	0.0	0.0	0.0	0.0	0.0	0.0						
	120	-	18.8	-	1.0	-	0.0	-	0.0	-	0.0	0.0	0.0	0.0	0.0	0.0						
BH04	30	-	17.3	-	2.2	-	0.0	-	0.0	-	0.0	0.0	0.0	0.0	0.0	0.0	2.5	7.8	N	N	N	N/A
	60	-	17.4	-	2.2	-	0.0	-	0.0	-	0.0	0.0	0.0	0.0	0.0	0.0						
	90	-	17.2	-	2.3	-	0.0	-	0.0	-	0.0	0.0	0.0	0.0	0.0	0.0						
	120	-	17.2	-	2.3	-	0.0	-	0.0	-	0.0	0.0	0.0	0.0	0.0	0.0						
Remarks																						
Borehole Damage Record/ Installation Record		BH18 PIPE KINKED														Key: 1 - Peak 2 - Steady state 3 - Groundwater depth 4 - Depth of well			5 - Purged well volumes 6 - Recharge (yes/no) 7 - Sampled (yes/no)			
Borehole Condition Statement																						
Gas Monitor Model:		Serial No:												Recalibration Due:								
GPM 430 / GPM436																						
PID Model:		Serial No:												Recalibration Due:								
MiniRAE Light																						
Cal Gas (Isobutylene)		Cal Span		Unit		Low		High		Notes												
MiniRAE Lite		100		ppm		50		100		The instrument is factory calibrated with standard calibration gas and is programmed with default alarm limits.												



Gas and Groundwater Monitoring Results

Project Number:		P23-136																						
Site:		HARENESS																						
Date:		07/05/2024																						
Readings taken by:		GR																						
Background Data	Weather Conditions												Overcast											
	Ground Conditions (dry/wet):												Dry											
	Air Temperature (°C)												12											
	Atmospheric Pressure (mB) (start):												1009											
	Atmospheric Pressure (mB) (finish):												101											
	O2 (%)												20.6											
Time (hh:mm)												13:00												
Borehole No.	Interval	Gas												Groundwater		Sampling			PID Results					
		Oxygen O ₂ (%)		Carbon Dioxide CO ₂ (%)		Methane CH ₄ (%)		Hydrogen Sulphide H ₂ S (PPM)		Carbon Monoxide CO (PPM)		Lower Explosive Limit (LEL)	Flow (l/hr)		Wd ² (mBgl)	DoW ⁴ (m)	P ¹	R ⁴		S ⁷				
		P ¹	SS ²	P ¹	SS ²	P ¹	SS ²	P ¹	SS ²	P ¹	SS ²		P ¹	SS ²										
BH01	30	-	14.7	-	3.0	-	0.0	-	0.0	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.9	6.6	N	N	N	N/A
	60	-	14.7	-	3.0	-	0.0	-	0.0	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.9	6.6	N	N	N	N/A
	90	-	14.5	-	3.0	-	0.0	-	0.0	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.9	6.6	N	N	N	N/A
	120	-	14.5	-	3.0	-	0.0	-	0.0	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.9	6.6	N	N	N	N/A
BH02	30	-	19.5	-	0.5	-	0.0	-	0.0	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.3	6.1	N	N	N	N/A
	60	-	18.6	-	0.6	-	0.0	-	0.0	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.3	6.1	N	N	N	N/A
	90	-	17.0	-	0.9	-	0.0	-	0.0	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.3	6.1	N	N	N	N/A
	120	-	17.0	-	1.0	-	0.0	-	0.0	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.3	6.1	N	N	N	N/A
BH03	30	-	18.8	-	0.7	-	0.0	-	0.0	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.7	10.2	N	N	N	N/A
	60	-	19.6	-	0.9	-	0.0	-	0.0	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.7	10.2	N	N	N	N/A
	90	-	19.5	-	0.9	-	0.0	-	0.0	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.7	10.2	N	N	N	N/A
	120	-	19.5	-	0.9	-	0.0	-	0.0	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.7	10.2	N	N	N	N/A
BH04	30	-	16.2	-	2.5	-	0.0	-	0.0	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.9	8.0	N	N	N	N/A
	60	-	16.2	-	2.6	-	0.0	-	0.0	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.9	8.0	N	N	N	N/A
	90	-	16.3	-	2.6	-	0.0	-	0.0	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.9	8.0	N	N	N	N/A
	120	-	16.3	-	2.6	-	0.0	-	0.0	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.9	8.0	N	N	N	N/A
Remarks																								
Borehole Damage Record/ Installation Record														Key: 1 - Peak 2 - Steady state 3 - Groundwater depth 4 - Depth of well		5 - Purged well volumes 6 - Recharge (yes/no) 7 - Sampled (yes/no)								
Borehole Condition Statement																								
Gas Monitor Model:		Serial No:												Recalibration Due:										
GPM 430 / GPM436		10209																						
PID Model:		Serial No:												Recalibration Due:										
MiniRAE Light																								
Cal Gas (Isobutylene)		Cal Span		Unit		Low		High		Notes														
MiniRAE Lite		100		ppm		50		100		The instrument is factory calibrated with standard calibration gas and is programmed with default alarm limits.														



Gas and Groundwater Monitoring Results

Project Number:		P23-136																											
Site:		HARENESS																											
Date:		21/05/2024																											
Readings taken by:		LM																											
Background Data	Weather Conditions												Overcast																
	Ground Conditions (dry/wet):												Wet																
	Air Temperature (°C)												13																
	Atmospheric Pressure (mB) (start):												1009																
	Atmospheric Pressure (mB) (finish):												1010																
O2 (%)												20.3																	
Time (hh:mm)												15:30																	
Borehole No.	Interval	Gas												Groundwater		Sampling			PID Results										
		Oxygen O ₂ (%)		Carbon Dioxide CO ₂ (%)		Methane CH ₄ (%)		Hydrogen Sulphide H ₂ S (PPM)		Carbon Monoxide CO (PPM)		Lower Explosive Limit (LEL)	Flow (l/hr)		Wd ¹ (mBgl)	Dw ⁴ (m)	P ³	R ⁴		S ⁷									
		P ¹	SS ²	P ¹	SS ²	P ¹	SS ²	P ¹	SS ²	P ¹	SS ²		P ¹	SS ²															
BH01	30	-	15.3	-	3.3	-	0.0	-	0.0	-	0.0	-	0.0	-	-	-	3.15	6.60	N	N	N	N/A							
	60	-	15.4	-	3.5	-	0.0	-	0.0	-	0.0	-	0.0	-	-	-	-	-	-	-	-	-							
	90	-	15.3	-	3.5	-	0.0	-	0.0	-	0.0	-	0.0	-	-	-	-	-	-	-	-	-							
	120	-	15.3	-	3.5	-	0.0	-	0.0	-	0.0	-	0.0	-	-	-	-	-	-	-	-	-							
BH02	30	-	15.9	-	2.1	-	0.0	-	0.0	-	0.0	-	0.0	-	-	-	4.65	6.20	N	N	N	N/A							
	60	-	14.0	-	2.4	-	0.0	-	0.0	-	0.0	-	0.0	-	-	-	-	-	-	-	-	-							
	90	-	13.9	-	2.4	-	0.0	-	0.0	-	0.0	-	0.0	-	-	-	-	-	-	-	-	-							
	120	-	13.9	-	2.4	-	0.0	-	0.0	-	0.0	-	0.0	-	-	-	-	-	-	-	-	-							
BH03	30	-	19.9	-	1.0	-	0.0	-	0.0	-	0.0	-	0.0	-	-	-	6.90	10.30	N	N	N	N/A							
	60	-	19.8	-	1.2	-	0.0	-	0.0	-	0.0	-	0.0	-	-	-	-	-	-	-	-	-							
	90	-	19.8	-	1.2	-	0.0	-	0.0	-	0.0	-	0.0	-	-	-	-	-	-	-	-	-							
	120	-	19.8	-	1.2	-	0.0	-	0.0	-	0.0	-	0.0	-	-	-	-	-	-	-	-	-							
BH04	30	-	16.7	-	3.4	-	0.0	-	0.0	-	0.0	-	0.0	-	-	-	3.00	5.05	N	N	N	N/A							
	60	-	16.8	-	3.5	-	0.0	-	0.0	-	0.0	-	0.0	-	-	-	-	-	-	-	-	-							
	90	-	16.8	-	3.5	-	0.0	-	0.0	-	0.0	-	0.0	-	-	-	-	-	-	-	-	-							
	120	-	16.8	-	3.5	-	0.0	-	0.0	-	0.0	-	0.0	-	-	-	-	-	-	-	-	-							
Remarks																													
Borehole Damage Record/ Installation Record																Key: 1 – Peak 2 – Steady state 3 – Groundwater depth 4 – Depth of well			5 – Purged well volumes 6 – Recharge (yes/no) 7 – Sampled (yes/no)										
Borehole Condition Statement																													
Gas Monitor Model:		GPM 430 / GPM436																		Serial No:		13182		Recalibration Due:			30/10/2024		
PID Model:		MiniRAE Light																		Serial No:				Recalibration Due:					
Cal Gas (Isobutylene)		Cal Span		Unit		Low		High		Notes																			
MiniRAE Lite		100		ppm		50		100		The instrument is factory calibrated with standard calibration gas and is programmed with default alarm limits.																			

Appendix G
HazWasteOnline Classification Report

Waste Classification Report

HazWasteOnline™ classifies waste as either **hazardous** or **non-hazardous** based on its chemical composition, related legislation and the rules and data defined in the current UK or EU technical guidance (Appendix C) (note that HP 9 Infectious is not assessed). It is the responsibility of the classifier named below to:

- a) understand the origin of the waste
- b) select the correct List of Waste code(s)
- c) confirm that the list of determinands, results and sampling plan are fit for purpose
- d) select and justify the chosen metal species (Appendix B)
- e) correctly apply moisture correction and other available corrections
- f) add the meta data for their user-defined substances (Appendix A)
- g) check that the classification engine is suitable with respect to the national destination of the waste (Appendix C)



54RA4-7L1WM-GJC69

To aid the reviewer, the laboratory results, assumptions and justifications managed by the classifier are highlighted in pale yellow.

Job name

Hareness Road, Aberdeen

Description/Comments

Project

Hareness Road, Aberdeen

Site

Hareness Road, Aberdeen

Classified by

Name: **Ian Cochrane**
 Date: **30 Jan 2024 09:33 GMT**
 Telephone: **0141 420 2025**
 Company: **Mason Evans**
The Piazza
95 Morrison Street
Glasgow
G5 8BE

HazWasteOnline™ provides a two day, hazardous waste classification course that covers the use of the software and both basic and advanced waste classification techniques. Certification has to be renewed every 3 years.

HazWasteOnline™ Certification:	-
Course	Date
Hazardous Waste Classification	-

Purpose of classification

4 - Classification of Waste Products

Address of the waste

Hareness Road, Aberdeen

Post Code AB123LE

SIC for the process giving rise to the waste

41201 Construction of commercial buildings

Description of industry/producer giving rise to the waste

landscaping

Description of the specific process, sub-process and/or activity that created the waste

landscaping

Description of the waste

slightly silty gravelly sand with frequent cobbles and boulders

Job summary

#	Sample name	Depth [m]	Classification Result	Hazard properties	Page
1	TP01	0.50	Non Hazardous		3
2	TP02	0.40	Non Hazardous		5
3	TP03	0.20	Non Hazardous		7
4	TP04	0.50	Non Hazardous		9
5	TP05	0.60	Non Hazardous		11
6	TP06	0.60	Non Hazardous		13
7	TP07	0.40	Non Hazardous		15
8	TP08	0.50	Non Hazardous		17

Related documents

#	Name	Description
1	Glasgow DETS	waste stream template used to create this Job

Report

Created by: Ian Cochrane

Created date: 30 Jan 2024 09:33 GMT

Appendices	Page
Appendix A: Classifier defined and non GB MCL determinands	20
Appendix B: Rationale for selection of metal species	21
Appendix C: Version	22

Classification of sample: TP01

✔ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:	LoW Code:	
TP01	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
0.50 m		
Moisture content:		
8.7%		
(no correction)		

Hazard properties

None identified

Determinands

Moisture content: 8.7% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number									
1	arsenic { arsenic pentoxide } 033-004-00-6 215-116-9 1303-28-2				3.9	mg/kg	1.534	5.982	mg/kg	0.000598 %		
2	boron { boron tribromide } 005-003-00-0 233-657-9 10294-33-4				0.3	mg/kg	23.173	6.952	mg/kg	0.000695 %		
3	cadmium { cadmium sulfate } 048-009-00-9 233-331-6 10124-36-4				<0.1	mg/kg	1.855	<0.185	mg/kg	<0.0000185 %		<LOD
4	chromium in chromium(III) compounds { chromium(III) oxide (worst case) } 215-160-9 1308-38-9				35	mg/kg	1.462	51.154	mg/kg	0.00512 %		
5	chromium in chromium(VI) compounds { chromium(VI) oxide } 024-001-00-0 215-607-8 1333-82-0				<1	mg/kg	1.923	<1.923	mg/kg	<0.000192 %		<LOD
6	copper { copper sulphate pentahydrate } 029-023-00-4 231-847-6 7758-99-8				21	mg/kg	3.929	82.51	mg/kg	0.00825 %		
7	lead { lead chromate } 082-004-00-2 231-846-0 7758-97-6			1	7.9	mg/kg	1.56	12.323	mg/kg	0.00079 %		
8	mercury { mercury dichloride } 080-010-00-X 231-299-8 7487-94-7				<0.05	mg/kg	1.353	<0.0677	mg/kg	<0.00000677 %		<LOD
9	nickel { nickel sulfide } 028-006-00-9 240-841-2 [1] 16812-54-7 [1] 234-349-7 [2] - [3] 11113-75-0 [2] 1314-04-1 [3]				22	mg/kg	1.546	34.019	mg/kg	0.0034 %		
10	selenium { selenium } 034-001-00-2 231-957-4 7782-49-2				<0.5	mg/kg		<0.5	mg/kg	<0.00005 %		<LOD
11	zinc { zinc oxide } 030-013-00-7 215-222-5 1314-13-2				63	mg/kg	1.245	78.417	mg/kg	0.00784 %		
12	pH PH				8.1	pH		8.1	pH	8.1 pH		
13	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex } 006-007-00-5				<0.1	mg/kg	1.884	<0.188	mg/kg	<0.0000188 %		<LOD
14	TPH (C6 to C40) petroleum group TPH				<10	mg/kg		<10	mg/kg	<0.001 %		<LOD

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
15	naphthalene	601-052-00-2	202-049-5	91-20-3	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
16	acenaphthylene	205-917-1	208-96-8		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
17	acenaphthene	201-469-6	83-32-9		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
18	fluorene	201-695-5	86-73-7		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
19	phenanthrene	201-581-5	85-01-8		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
20	anthracene	204-371-1	120-12-7		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
21	fluoranthene	205-912-4	206-44-0		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
22	pyrene	204-927-3	129-00-0		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
23	benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
24	chrysene	601-048-00-0	205-923-4	218-01-9	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
25	benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
26	benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
27	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
28	indeno[123-cd]pyrene	205-893-2	193-39-5		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
29	dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
30	benzo[ghi]perylene	205-883-8	191-24-2		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
31	PAHs (total)				<1.6 mg/kg		<1.6 mg/kg	<0.00016 %		<LOD
32	monohydric phenols		P1186		<0.3 mg/kg		<0.3 mg/kg	<0.00003 %		<LOD
33	asbestos	650-013-00-6	-----	12001-28-4 132207-32-0 12172-73-5 77536-66-4 77536-68-6 77536-67-5 12001-29-5	1.0e-12 mg/kg		1.0e-12 mg/kg	1.0e-16 %		
Total:								0.0283 %		

Key

- User supplied data
- Determinand values ignored for classification, see column 'Conc. Not Used' for reason
- Determinand defined or amended by HazWasteOnline (see Appendix A)
- Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
- <LOD** Below limit of detection
- CLP: Note 1 Only the metal concentration has been used for classification

Classification of sample: TP02

✔ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:	LoW Code:	
TP02	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
0.40 m		
Moisture content:		
11%		
(no correction)		

Hazard properties

None identified

Determinands

Moisture content: 11% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number									
1	arsenic { arsenic pentoxide } 033-004-00-6 215-116-9 1303-28-2				4.1	mg/kg	1.534	6.289	mg/kg	0.000629 %		
2	boron { boron tribromide } 005-003-00-0 233-657-9 10294-33-4				0.6	mg/kg	23.173	13.904	mg/kg	0.00139 %		
3	cadmium { cadmium sulfate } 048-009-00-9 233-331-6 10124-36-4				0.1	mg/kg	1.855	0.185	mg/kg	0.0000185 %		
4	chromium in chromium(III) compounds { chromium(III) oxide (worst case) } 215-160-9 1308-38-9				27	mg/kg	1.462	39.462	mg/kg	0.00395 %		
5	chromium in chromium(VI) compounds { chromium(VI) oxide } 024-001-00-0 215-607-8 1333-82-0				<1	mg/kg	1.923	<1.923	mg/kg	<0.000192 %		<LOD
6	copper { copper sulphate pentahydrate } 029-023-00-4 231-847-6 7758-99-8				16	mg/kg	3.929	62.865	mg/kg	0.00629 %		
7	lead { lead chromate } 082-004-00-2 231-846-0 7758-97-6			1	9.7	mg/kg	1.56	15.13	mg/kg	0.00097 %		
8	mercury { mercury dichloride } 080-010-00-X 231-299-8 7487-94-7				<0.05	mg/kg	1.353	<0.0677	mg/kg	<0.00000677 %		<LOD
9	nickel { nickel sulfide } 028-006-00-9 240-841-2 [1] 16812-54-7 [1] 234-349-7 [2] - [3] 11113-75-0 [2] 1314-04-1 [3]				14	mg/kg	1.546	21.648	mg/kg	0.00216 %		
10	selenium { selenium } 034-001-00-2 231-957-4 7782-49-2				<0.5	mg/kg		<0.5	mg/kg	<0.00005 %		<LOD
11	zinc { zinc oxide } 030-013-00-7 215-222-5 1314-13-2				49	mg/kg	1.245	60.991	mg/kg	0.0061 %		
12	pH PH				7.2	pH		7.2	pH	7.2 pH		
13	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex } 006-007-00-5				<0.1	mg/kg	1.884	<0.188	mg/kg	<0.0000188 %		<LOD
14	TPH (C6 to C40) petroleum group TPH				<10	mg/kg		<10	mg/kg	<0.001 %		<LOD

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
15	naphthalene	601-052-00-2	202-049-5	91-20-3	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
16	acenaphthylene	205-917-1	208-96-8		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
17	acenaphthene	201-469-6	83-32-9		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
18	fluorene	201-695-5	86-73-7		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
19	phenanthrene	201-581-5	85-01-8		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
20	anthracene	204-371-1	120-12-7		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
21	fluoranthene	205-912-4	206-44-0		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
22	pyrene	204-927-3	129-00-0		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
23	benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
24	chrysene	601-048-00-0	205-923-4	218-01-9	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
25	benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
26	benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
27	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
28	indeno[123-cd]pyrene	205-893-2	193-39-5		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
29	dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
30	benzo[ghi]perylene	205-883-8	191-24-2		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
31	PAHs (total)				<1.6 mg/kg		<1.6 mg/kg	<0.00016 %		<LOD
32	monohydric phenols		P1186		<0.3 mg/kg		<0.3 mg/kg	<0.00003 %		<LOD
33	asbestos	650-013-00-6	-----	12001-28-4 132207-32-0 12172-73-5 77536-66-4 77536-68-6 77536-67-5 12001-29-5	1.0e-12 mg/kg		1.0e-12 mg/kg	1.0e-16 %		
Total:								0.0231 %		

Key

- User supplied data
- Determinand values ignored for classification, see column 'Conc. Not Used' for reason
- Determinand defined or amended by HazWasteOnline (see Appendix A)
- Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
- <LOD** Below limit of detection
- CLP: Note 1 Only the metal concentration has been used for classification

Classification of sample: TP03

✔ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:	LoW Code:	
TP03	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
0.20 m		
Moisture content:		
8%		
(no correction)		

Hazard properties

None identified

Determinands

Moisture content: 8% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number									
1	arsenic { arsenic pentoxide } 033-004-00-6 215-116-9 1303-28-2				8.2	mg/kg	1.534	12.578	mg/kg	0.00126 %		
2	boron { boron tribromide } 005-003-00-0 233-657-9 10294-33-4				0.4	mg/kg	23.173	9.269	mg/kg	0.000927 %		
3	cadmium { cadmium sulfate } 048-009-00-9 233-331-6 10124-36-4				<0.1	mg/kg	1.855	<0.185	mg/kg	<0.0000185 %		<LOD
4	chromium in chromium(III) compounds { chromium(III) oxide (worst case) } 215-160-9 1308-38-9				29	mg/kg	1.462	42.385	mg/kg	0.00424 %		
5	chromium in chromium(VI) compounds { chromium(VI) oxide } 024-001-00-0 215-607-8 1333-82-0				<1	mg/kg	1.923	<1.923	mg/kg	<0.000192 %		<LOD
6	copper { copper sulphate pentahydrate } 029-023-00-4 231-847-6 7758-99-8				18	mg/kg	3.929	70.723	mg/kg	0.00707 %		
7	lead { lead chromate } 082-004-00-2 231-846-0 7758-97-6			1	9.1	mg/kg	1.56	14.194	mg/kg	0.00091 %		
8	mercury { mercury dichloride } 080-010-00-X 231-299-8 7487-94-7				<0.05	mg/kg	1.353	<0.0677	mg/kg	<0.00000677 %		<LOD
9	nickel { nickel sulfide } 028-006-00-9 240-841-2 [1] 16812-54-7 [1] 234-349-7 [2] - [3] 11113-75-0 [2] 1314-04-1 [3]				19	mg/kg	1.546	29.38	mg/kg	0.00294 %		
10	selenium { selenium } 034-001-00-2 231-957-4 7782-49-2				<0.5	mg/kg		<0.5	mg/kg	<0.00005 %		<LOD
11	zinc { zinc oxide } 030-013-00-7 215-222-5 1314-13-2				55	mg/kg	1.245	68.459	mg/kg	0.00685 %		
12	pH PH				8.1	pH		8.1	pH	8.1 pH		
13	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex } 006-007-00-5				<0.1	mg/kg	1.884	<0.188	mg/kg	<0.0000188 %		<LOD
14	TPH (C6 to C40) petroleum group TPH				<10	mg/kg		<10	mg/kg	<0.001 %		<LOD

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
15	naphthalene	601-052-00-2	202-049-5	91-20-3	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
16	acenaphthylene	205-917-1	208-96-8		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
17	acenaphthene	201-469-6	83-32-9		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
18	fluorene	201-695-5	86-73-7		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
19	phenanthrene	201-581-5	85-01-8		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
20	anthracene	204-371-1	120-12-7		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
21	fluoranthene	205-912-4	206-44-0		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
22	pyrene	204-927-3	129-00-0		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
23	benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
24	chrysene	601-048-00-0	205-923-4	218-01-9	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
25	benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
26	benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
27	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
28	indeno[123-cd]pyrene	205-893-2	193-39-5		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
29	dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
30	benzo[ghi]perylene	205-883-8	191-24-2		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
31	PAHs (total)				<1.6 mg/kg		<1.6 mg/kg	<0.00016 %		<LOD
32	monohydric phenols		P1186		<0.3 mg/kg		<0.3 mg/kg	<0.00003 %		<LOD
33	asbestos	650-013-00-6	-----	12001-28-4 132207-32-0 12172-73-5 77536-66-4 77536-68-6 77536-67-5 12001-29-5	1.0e-12 mg/kg		1.0e-12 mg/kg	1.0e-16 %		
Total:								0.0258 %		

Key

- User supplied data
- Determinand values ignored for classification, see column 'Conc. Not Used' for reason
- Determinand defined or amended by HazWasteOnline (see Appendix A)
- Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
- <LOD** Below limit of detection
- CLP: Note 1 Only the metal concentration has been used for classification

Classification of sample: TP04

✔ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:	LoW Code:	
TP04	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
0.50 m		
Moisture content:		
8.6%		
(no correction)		

Hazard properties

None identified

Determinands

Moisture content: 8.6% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number									
1	arsenic { arsenic pentoxide } 033-004-00-6 215-116-9 1303-28-2				5.4	mg/kg	1.534	8.283	mg/kg	0.000828 %		
2	boron { boron tribromide } 005-003-00-0 233-657-9 10294-33-4				0.4	mg/kg	23.173	9.269	mg/kg	0.000927 %		
3	cadmium { cadmium sulfate } 048-009-00-9 233-331-6 10124-36-4				0.1	mg/kg	1.855	0.185	mg/kg	0.0000185 %		
4	chromium in chromium(III) compounds { chromium(III) oxide (worst case) } 215-160-9 1308-38-9				35	mg/kg	1.462	51.154	mg/kg	0.00512 %		
5	chromium in chromium(VI) compounds { chromium(VI) oxide } 024-001-00-0 215-607-8 1333-82-0				<1	mg/kg	1.923	<1.923	mg/kg	<0.000192 %		<LOD
6	copper { copper sulphate pentahydrate } 029-023-00-4 231-847-6 7758-99-8				14	mg/kg	3.929	55.007	mg/kg	0.0055 %		
7	lead { lead chromate } 082-004-00-2 231-846-0 7758-97-6			1	8.8	mg/kg	1.56	13.726	mg/kg	0.00088 %		
8	mercury { mercury dichloride } 080-010-00-X 231-299-8 7487-94-7				<0.05	mg/kg	1.353	<0.0677	mg/kg	<0.0000677 %		<LOD
9	nickel { nickel sulfide } 028-006-00-9 240-841-2 [1] 16812-54-7 [1] 234-349-7 [2] - [3] 11113-75-0 [2] 1314-04-1 [3]				27	mg/kg	1.546	41.75	mg/kg	0.00418 %		
10	selenium { selenium } 034-001-00-2 231-957-4 7782-49-2				<0.5	mg/kg		<0.5	mg/kg	<0.00005 %		<LOD
11	zinc { zinc oxide } 030-013-00-7 215-222-5 1314-13-2				69	mg/kg	1.245	85.885	mg/kg	0.00859 %		
12	pH PH				7.7	pH		7.7	pH	7.7 pH		
13	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex } 006-007-00-5				<0.1	mg/kg	1.884	<0.188	mg/kg	<0.0000188 %		<LOD
14	TPH (C6 to C40) petroleum group TPH				<10	mg/kg		<10	mg/kg	<0.001 %		<LOD

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
15	naphthalene	601-052-00-2	202-049-5	91-20-3	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
16	acenaphthylene	205-917-1	208-96-8		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
17	acenaphthene	201-469-6	83-32-9		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
18	fluorene	201-695-5	86-73-7		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
19	phenanthrene	201-581-5	85-01-8		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
20	anthracene	204-371-1	120-12-7		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
21	fluoranthene	205-912-4	206-44-0		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
22	pyrene	204-927-3	129-00-0		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
23	benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
24	chrysene	601-048-00-0	205-923-4	218-01-9	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
25	benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
26	benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
27	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
28	indeno[123-cd]pyrene	205-893-2	193-39-5		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
29	dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
30	benzo[ghi]perylene	205-883-8	191-24-2		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
31	PAHs (total)				<1.6 mg/kg		<1.6 mg/kg	<0.00016 %		<LOD
32	monohydric phenols		P1186		<0.3 mg/kg		<0.3 mg/kg	<0.00003 %		<LOD
33	asbestos	650-013-00-6	-----	12001-28-4 132207-32-0 12172-73-5 77536-66-4 77536-68-6 77536-67-5 12001-29-5	1.0e-12 mg/kg		1.0e-12 mg/kg	1.0e-16 %		
Total:								0.0277 %		

Key

- User supplied data
- Determinand values ignored for classification, see column 'Conc. Not Used' for reason
- Determinand defined or amended by HazWasteOnline (see Appendix A)
- Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
- <LOD** Below limit of detection
- CLP: Note 1 Only the metal concentration has been used for classification

Classification of sample: TP05

✔ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:	LoW Code:	
TP05	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
0.60 m		
Moisture content:		
8.9% (no correction)		

Hazard properties

None identified

Determinands

Moisture content: 8.9% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
1	arsenic { arsenic pentoxide }				4.4 mg/kg	1.534	6.749 mg/kg	0.000675 %		
	033-004-00-6	215-116-9	1303-28-2							
2	boron { boron tribromide }				0.3 mg/kg	23.173	6.952 mg/kg	0.000695 %		
	005-003-00-0	233-657-9	10294-33-4							
3	cadmium { cadmium sulfate }				<0.1 mg/kg	1.855	<0.185 mg/kg	<0.0000185 %		<LOD
	048-009-00-9	233-331-6	10124-36-4							
4	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				11 mg/kg	1.462	16.077 mg/kg	0.00161 %		
		215-160-9	1308-38-9							
5	chromium in chromium(VI) compounds { chromium(VI) oxide }				<1 mg/kg	1.923	<1.923 mg/kg	<0.000192 %		<LOD
	024-001-00-0	215-607-8	1333-82-0							
6	copper { copper sulphate pentahydrate }				15 mg/kg	3.929	58.936 mg/kg	0.00589 %		
	029-023-00-4	231-847-6	7758-99-8							
7	lead { lead chromate }			1	3.4 mg/kg	1.56	5.303 mg/kg	0.00034 %		
	082-004-00-2	231-846-0	7758-97-6							
8	mercury { mercury dichloride }				<0.05 mg/kg	1.353	<0.0677 mg/kg	<0.00000677 %		<LOD
	080-010-00-X	231-299-8	7487-94-7							
9	nickel { nickel sulfide }				11 mg/kg	1.546	17.009 mg/kg	0.0017 %		
	028-006-00-9	240-841-2 [1] 234-349-7 [2] - [3]	16812-54-7 [1] 11113-75-0 [2] 1314-04-1 [3]							
10	selenium { selenium }				<0.5 mg/kg		<0.5 mg/kg	<0.00005 %		<LOD
	034-001-00-2	231-957-4	7782-49-2							
11	zinc { zinc oxide }				42 mg/kg	1.245	52.278 mg/kg	0.00523 %		
	030-013-00-7	215-222-5	1314-13-2							
12	pH				7.3 pH		7.3 pH	7.3 pH		
			PH							
13	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<0.1 mg/kg	1.884	<0.188 mg/kg	<0.0000188 %		<LOD
	006-007-00-5									
14	TPH (C6 to C40) petroleum group				<10 mg/kg		<10 mg/kg	<0.001 %		<LOD
			TPH							

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
15	naphthalene	601-052-00-2	202-049-5	91-20-3	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
16	acenaphthylene	205-917-1	208-96-8		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
17	acenaphthene	201-469-6	83-32-9		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
18	fluorene	201-695-5	86-73-7		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
19	phenanthrene	201-581-5	85-01-8		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
20	anthracene	204-371-1	120-12-7		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
21	fluoranthene	205-912-4	206-44-0		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
22	pyrene	204-927-3	129-00-0		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
23	benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
24	chrysene	601-048-00-0	205-923-4	218-01-9	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
25	benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
26	benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
27	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
28	indeno[123-cd]pyrene	205-893-2	193-39-5		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
29	dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
30	benzo[ghi]perylene	205-883-8	191-24-2		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
31	PAHs (total)				<1.6 mg/kg		<1.6 mg/kg	<0.00016 %		<LOD
32	monohydric phenols		P1186		<0.3 mg/kg		<0.3 mg/kg	<0.00003 %		<LOD
33	asbestos	650-013-00-6	-----	12001-28-4 132207-32-0 12172-73-5 77536-66-4 77536-68-6 77536-67-5 12001-29-5	1.0e-12 mg/kg		1.0e-12 mg/kg	1.0e-16 %		
Total:								0.0178 %		

Key

- User supplied data
- Determinand values ignored for classification, see column 'Conc. Not Used' for reason
- Determinand defined or amended by HazWasteOnline (see Appendix A)
- Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
- <LOD** Below limit of detection
- CLP: Note 1 Only the metal concentration has been used for classification

Classification of sample: TP06

✔ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:	LoW Code:	
TP06	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
0.60 m		
Moisture content:		
9.4% (no correction)		

Hazard properties

None identified

Determinands

Moisture content: 9.4% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number									
1	arsenic { arsenic pentoxide } 033-004-00-6 215-116-9 1303-28-2				26	mg/kg	1.534	39.881	mg/kg	0.00399 %		
2	boron { boron tribromide } 005-003-00-0 233-657-9 10294-33-4				0.3	mg/kg	23.173	6.952	mg/kg	0.000695 %		
3	cadmium { cadmium sulfate } 048-009-00-9 233-331-6 10124-36-4				1.8	mg/kg	1.855	3.338	mg/kg	0.000334 %		
4	chromium in chromium(III) compounds { chromium(III) oxide (worst case) } 215-160-9 1308-38-9				24	mg/kg	1.462	35.077	mg/kg	0.00351 %		
5	chromium in chromium(VI) compounds { chromium(VI) oxide } 024-001-00-0 215-607-8 1333-82-0				<1	mg/kg	1.923	<1.923	mg/kg	<0.000192 %		<LOD
6	copper { copper sulphate pentahydrate } 029-023-00-4 231-847-6 7758-99-8				59	mg/kg	3.929	231.814	mg/kg	0.0232 %		
7	lead { lead chromate } 082-004-00-2 231-846-0 7758-97-6			1	320	mg/kg	1.56	499.141	mg/kg	0.032 %		
8	mercury { mercury dichloride } 080-010-00-X 231-299-8 7487-94-7				0.15	mg/kg	1.353	0.203	mg/kg	0.0000203 %		
9	nickel { nickel sulfide } 028-006-00-9 240-841-2 [1] 16812-54-7 [1] 234-349-7 [2] - [3] 11113-75-0 [2] 1314-04-1 [3]				15	mg/kg	1.546	23.195	mg/kg	0.00232 %		
10	selenium { selenium } 034-001-00-2 231-957-4 7782-49-2				<0.5	mg/kg		<0.5	mg/kg	<0.00005 %		<LOD
11	zinc { zinc oxide } 030-013-00-7 215-222-5 1314-13-2				1000	mg/kg	1.245	1244.714	mg/kg	0.124 %		
12	pH PH				6.3	pH		6.3	pH	6.3 pH		
13	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex } 006-007-00-5				<0.1	mg/kg	1.884	<0.188	mg/kg	<0.0000188 %		<LOD
14	TPH (C6 to C40) petroleum group TPH				<10	mg/kg		<10	mg/kg	<0.001 %		<LOD

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
15	naphthalene	601-052-00-2	202-049-5	91-20-3	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
16	acenaphthylene	205-917-1	208-96-8		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
17	acenaphthene	201-469-6	83-32-9		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
18	fluorene	201-695-5	86-73-7		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
19	phenanthrene	201-581-5	85-01-8		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
20	anthracene	204-371-1	120-12-7		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
21	fluoranthene	205-912-4	206-44-0		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
22	pyrene	204-927-3	129-00-0		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
23	benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
24	chrysene	601-048-00-0	205-923-4	218-01-9	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
25	benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
26	benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
27	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
28	indeno[123-cd]pyrene	205-893-2	193-39-5		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
29	dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
30	benzo[ghi]perylene	205-883-8	191-24-2		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
31	PAHs (total)				<1.6 mg/kg		<1.6 mg/kg	<0.00016 %		<LOD
32	monohydric phenols		P1186		<0.3 mg/kg		<0.3 mg/kg	<0.00003 %		<LOD
33	asbestos	650-013-00-6	-----	12001-28-4 132207-32-0 12172-73-5 77536-66-4 77536-68-6 77536-67-5 12001-29-5	1.0e-12 mg/kg		1.0e-12 mg/kg	1.0e-16 %		
Total:								0.192 %		

Key

- User supplied data
- Determinand values ignored for classification, see column 'Conc. Not Used' for reason
- Determinand defined or amended by HazWasteOnline (see Appendix A)
- Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
- <LOD** Below limit of detection
- CLP: Note 1 Only the metal concentration has been used for classification

Classification of sample: TP07

✔ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:	LoW Code:	
TP07	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
0.40 m		
Moisture content:		
8.6%		
(no correction)		

Hazard properties

None identified

Determinands

Moisture content: 8.6% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
1	arsenic { arsenic pentoxide } 033-004-00-6 215-116-9 1303-28-2				4.5 mg/kg	1.534	6.902 mg/kg	0.00069 %		
2	boron { boron tribromide } 005-003-00-0 233-657-9 10294-33-4				0.3 mg/kg	23.173	6.952 mg/kg	0.000695 %		
3	cadmium { cadmium sulfate } 048-009-00-9 233-331-6 10124-36-4				<0.1 mg/kg	1.855	<0.185 mg/kg	<0.0000185 %		<LOD
4	chromium in chromium(III) compounds { chromium(III) oxide (worst case) } 215-160-9 1308-38-9				22 mg/kg	1.462	32.154 mg/kg	0.00322 %		
5	chromium in chromium(VI) compounds { chromium(VI) oxide } 024-001-00-0 215-607-8 1333-82-0				<1 mg/kg	1.923	<1.923 mg/kg	<0.000192 %		<LOD
6	copper { copper sulphate pentahydrate } 029-023-00-4 231-847-6 7758-99-8				13 mg/kg	3.929	51.078 mg/kg	0.00511 %		
7	lead { lead chromate } 082-004-00-2 231-846-0 7758-97-6			1	4.3 mg/kg	1.56	6.707 mg/kg	0.00043 %		
8	mercury { mercury dichloride } 080-010-00-X 231-299-8 7487-94-7				<0.05 mg/kg	1.353	<0.0677 mg/kg	<0.00000677 %		<LOD
9	nickel { nickel sulfide } 028-006-00-9 240-841-2 [1] 16812-54-7 [1] 234-349-7 [2] - [3] 11113-75-0 [2] 1314-04-1 [3]				14 mg/kg	1.546	21.648 mg/kg	0.00216 %		
10	selenium { selenium } 034-001-00-2 231-957-4 7782-49-2				<0.5 mg/kg		<0.5 mg/kg	<0.00005 %		<LOD
11	zinc { zinc oxide } 030-013-00-7 215-222-5 1314-13-2				35 mg/kg	1.245	43.565 mg/kg	0.00436 %		
12	pH PH				7.4 pH		7.4 pH	7.4 pH		
13	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex } 006-007-00-5				<0.1 mg/kg	1.884	<0.188 mg/kg	<0.0000188 %		<LOD
14	TPH (C6 to C40) petroleum group TPH				<10 mg/kg		<10 mg/kg	<0.001 %		<LOD

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
15	naphthalene	601-052-00-2	202-049-5	91-20-3	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
16	acenaphthylene	205-917-1	208-96-8		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
17	acenaphthene	201-469-6	83-32-9		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
18	fluorene	201-695-5	86-73-7		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
19	phenanthrene	201-581-5	85-01-8		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
20	anthracene	204-371-1	120-12-7		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
21	fluoranthene	205-912-4	206-44-0		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
22	pyrene	204-927-3	129-00-0		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
23	benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
24	chrysene	601-048-00-0	205-923-4	218-01-9	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
25	benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
26	benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
27	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
28	indeno[123-cd]pyrene	205-893-2	193-39-5		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
29	dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
30	benzo[ghi]perylene	205-883-8	191-24-2		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
31	PAHs (total)				<1.6 mg/kg		<1.6 mg/kg	<0.00016 %		<LOD
32	monohydric phenols		P1186		<0.3 mg/kg		<0.3 mg/kg	<0.00003 %		<LOD
33	asbestos	650-013-00-6	-----	12001-28-4 132207-32-0 12172-73-5 77536-66-4 77536-68-6 77536-67-5 12001-29-5	1.0e-12 mg/kg		1.0e-12 mg/kg	1.0e-16 %		
Total:								0.0183 %		

Key

- User supplied data
- Determinand values ignored for classification, see column 'Conc. Not Used' for reason
- Determinand defined or amended by HazWasteOnline (see Appendix A)
- Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
- <LOD** Below limit of detection
- CLP: Note 1 Only the metal concentration has been used for classification

Classification of sample: TP08

✔ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:	LoW Code:	
TP08	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
0.50 m		
Moisture content:		
9.2%		
(no correction)		

Hazard properties

None identified

Determinands

Moisture content: 9.2% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number									
1	arsenic { arsenic pentoxide } 033-004-00-6 215-116-9 1303-28-2				6.4	mg/kg	1.534	9.817	mg/kg	0.000982 %		
2	boron { boron tribromide } 005-003-00-0 233-657-9 10294-33-4				0.3	mg/kg	23.173	6.952	mg/kg	0.000695 %		
3	cadmium { cadmium sulfate } 048-009-00-9 233-331-6 10124-36-4				<0.1	mg/kg	1.855	<0.185	mg/kg	<0.0000185 %		<LOD
4	chromium in chromium(III) compounds { chromium(III) oxide (worst case) } 215-160-9 1308-38-9				38	mg/kg	1.462	55.539	mg/kg	0.00555 %		
5	chromium in chromium(VI) compounds { chromium(VI) oxide } 024-001-00-0 215-607-8 1333-82-0				<1	mg/kg	1.923	<1.923	mg/kg	<0.000192 %		<LOD
6	copper { copper sulphate pentahydrate } 029-023-00-4 231-847-6 7758-99-8				16	mg/kg	3.929	62.865	mg/kg	0.00629 %		
7	lead { lead chromate } 082-004-00-2 231-846-0 7758-97-6			1	8.5	mg/kg	1.56	13.258	mg/kg	0.00085 %		
8	mercury { mercury dichloride } 080-010-00-X 231-299-8 7487-94-7				<0.05	mg/kg	1.353	<0.0677	mg/kg	<0.00000677 %		<LOD
9	nickel { nickel sulfide } 028-006-00-9 240-841-2 [1] 16812-54-7 [1] 234-349-7 [2] - [3] 11113-75-0 [2] 1314-04-1 [3]				30	mg/kg	1.546	46.389	mg/kg	0.00464 %		
10	selenium { selenium } 034-001-00-2 231-957-4 7782-49-2				<0.5	mg/kg		<0.5	mg/kg	<0.00005 %		<LOD
11	zinc { zinc oxide } 030-013-00-7 215-222-5 1314-13-2				65	mg/kg	1.245	80.906	mg/kg	0.00809 %		
12	pH PH				7.9	pH		7.9	pH	7.9 pH		
13	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex } 006-007-00-5				<0.1	mg/kg	1.884	<0.188	mg/kg	<0.0000188 %		<LOD
14	TPH (C6 to C40) petroleum group TPH				42	mg/kg		42	mg/kg	0.0042 %		

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
15	naphthalene 601-052-00-2	202-049-5	91-20-3		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
16	acenaphthylene 205-917-1	208-96-8			<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
17	acenaphthene 201-469-6	83-32-9			<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
18	fluorene 201-695-5	86-73-7			<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
19	phenanthrene 201-581-5	85-01-8			<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
20	anthracene 204-371-1	120-12-7			<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
21	fluoranthene 205-912-4	206-44-0			<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
22	pyrene 204-927-3	129-00-0			<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
23	benzo[a]anthracene 601-033-00-9	200-280-6	56-55-3		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
24	chrysene 601-048-00-0	205-923-4	218-01-9		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
25	benzo[b]fluoranthene 601-034-00-4	205-911-9	205-99-2		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
26	benzo[k]fluoranthene 601-036-00-5	205-916-6	207-08-9		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
27	benzo[a]pyrene; benzo[def]chrysene 601-032-00-3	200-028-5	50-32-8		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
28	indeno[123-cd]pyrene 205-893-2	193-39-5			<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
29	dibenz[a,h]anthracene 601-041-00-2	200-181-8	53-70-3		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
30	benzo[ghi]perylene 205-883-8	191-24-2			<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
31	PAHs (total)				<1.6 mg/kg		<1.6 mg/kg	<0.00016 %		<LOD
32	monohydric phenols P1186				<0.3 mg/kg		<0.3 mg/kg	<0.00003 %		<LOD
33	asbestos 650-013-00-6	-----	12001-28-4 132207-32-0 12172-73-5 77536-66-4 77536-68-6 77536-67-5 12001-29-5		1.0e-12 mg/kg		1.0e-12 mg/kg	1.0e-16 %		
Total:								0.0319 %		

Key

- User supplied data
- Determinand values ignored for classification, see column 'Conc. Not Used' for reason
- Determinand defined or amended by HazWasteOnline (see Appendix A)
- Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
- <LOD Below limit of detection
- CLP: Note 1 Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous property to non hazardous because The 42mg/kg TPH total reported is the total across several aromatic and aliphatic hydrocarbons. We do not consider the concentrations of individual fraction to be flammable

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0042%)

Appendix A: Classifier defined and non GB MCL determinands

chromium(III) oxide (worst case) (EC Number: 215-160-9, CAS Number: 1308-38-9)

Description/Comments: Data from C&L Inventory Database
Data source: <https://echa.europa.eu/information-on-chemicals/cl-inventory-database/-/discli/details/33806>
Data source date: 17 Jul 2015
Hazard Statements: Acute Tox. 4; H332, Acute Tox. 4; H302, Eye Irrit. 2; H319, STOT SE 3; H335, Skin Irrit. 2; H315, Resp. Sens. 1; H334, Skin Sens. 1; H317, Repr. 1B; H360FD, Aquatic Acute 1; H400, Aquatic Chronic 1; H410

pH (CAS Number: PH)

Description/Comments: Appendix C4
Data source: WM3 1st Edition 2015
Data source date: 25 May 2015
Hazard Statements: None.

salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex

GB MCL index number: 006-007-00-5
Description/Comments: Conversion factor based on a worst case compound: sodium cyanide
Additional Hazard Statement(s): EUH032 >= 0.2 %
Reason for additional Hazards Statement(s):
20 Nov 2021 - EUH032 >= 0.2 % hazard statement sourced from: WM3, Table C12.2

TPH (C6 to C40) petroleum group (CAS Number: TPH)

Description/Comments: Hazard statements taken from WM3 1st Edition 2015; Risk phrases: WM2 3rd Edition 2013
Data source: WM3 1st Edition 2015
Data source date: 25 May 2015
Hazard Statements: Flam. Liq. 3; H226, Asp. Tox. 1; H304, STOT RE 2; H373, Muta. 1B; H340, Carc. 1B; H350, Repr. 2; H361d, Aquatic Chronic 2; H411

acenaphthylene (EC Number: 205-917-1, CAS Number: 208-96-8)

Description/Comments: Data from C&L Inventory Database
Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>
Data source date: 17 Jul 2015
Hazard Statements: Acute Tox. 4; H302, Acute Tox. 1; H330, Acute Tox. 1; H310, Eye Irrit. 2; H319, STOT SE 3; H335, Skin Irrit. 2; H315

acenaphthene (EC Number: 201-469-6, CAS Number: 83-32-9)

Description/Comments: Data from C&L Inventory Database
Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>
Data source date: 17 Jul 2015
Hazard Statements: Eye Irrit. 2; H319, STOT SE 3; H335, Skin Irrit. 2; H315, Aquatic Acute 1; H400, Aquatic Chronic 1; H410, Aquatic Chronic 2; H411

fluorene (EC Number: 201-695-5, CAS Number: 86-73-7)

Description/Comments: Data from C&L Inventory Database
Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>
Data source date: 06 Aug 2015
Hazard Statements: Aquatic Acute 1; H400, Aquatic Chronic 1; H410

phenanthrene (EC Number: 201-581-5, CAS Number: 85-01-8)

Description/Comments: Data from C&L Inventory Database
Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>
Data source date: 06 Aug 2015
Hazard Statements: Acute Tox. 4; H302, Eye Irrit. 2; H319, STOT SE 3; H335, Carc. 2; H351, Skin Sens. 1; H317, Aquatic Acute 1; H400, Aquatic Chronic 1; H410, Skin Irrit. 2; H315

anthracene (EC Number: 204-371-1, CAS Number: 120-12-7)

Description/Comments: Data from C&L Inventory Database
Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>
Data source date: 17 Jul 2015
Hazard Statements: Eye Irrit. 2; H319, STOT SE 3; H335, Skin Irrit. 2; H315, Skin Sens. 1; H317, Aquatic Acute 1; H400, Aquatic Chronic 1; H410

fluoranthene (EC Number: 205-912-4, CAS Number: 206-44-0)

Description/Comments: Data from C&L Inventory Database
Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>
Data source date: 21 Aug 2015
Hazard Statements: Acute Tox. 4; H302, Aquatic Acute 1; H400, Aquatic Chronic 1; H410

• **pyrene** (EC Number: 204-927-3, CAS Number: 129-00-0)

Description/Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 2014

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 21 Aug 2015

Hazard Statements: Skin Irrit. 2; H315 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

• **indeno[123-cd]pyrene** (EC Number: 205-893-2, CAS Number: 193-39-5)

Description/Comments: Data from C&L Inventory Database

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 06 Aug 2015

Hazard Statements: Carc. 2; H351

• **benzo[ghi]perylene** (EC Number: 205-883-8, CAS Number: 191-24-2)

Description/Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 28/02/2015

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 23 Jul 2015

Hazard Statements: Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

• **PAHs (total)**

Description/Comments: Worst case scenario combining risk phrases and substance specific thresholds from benzo[a]pyrene (CLP# 601-032-00-3) and benzo[a]anthracene (CLP# 601-033-00-9)

Data source: 2008/1272/EC – Table 3.2 of Annex VI of regulation 1272/2008/EC - Classification, labelling and packaging of substances and mixtures and 2009/790/EC Annex IV – Annex IV of regulation 2009/790/EC - 1st Adaptation to Technical Progress for European Regulation 1272/2008

Data source date: 16 Dec 2008

Hazard Statements: Skin Sens. 1; H317 , Carc. 1B; H350 , Carc. 1B; H350 >= 0.01 % , Muta. 1B; H340 , Aquatic Acute 1; H400 (M=100) , Aquatic Chronic 1; H410 (M=100) , Repr. 1B; H360FD

• **monohydric phenols** (CAS Number: P1186)

Description/Comments: Combined hazards statements from harmonised entries in CLP for phenol, cresols and xylenols (604-001-00-2, 604-004-00-9, 604-006-00-X)

Data source: CLP combined data

Data source date: 26 Mar 2019

Hazard Statements: Muta. 2; H341 , Acute Tox. 3; H331 , Acute Tox. 3; H311 , Acute Tox. 3; H301 , STOT RE 2; H373 , Skin Corr. 1B; H314 , Skin Corr. 1B; H314 >= 3 % , Skin Irrit. 2; H315 1 <= conc. < 3 % , Eye Irrit. 2; H319 1 <= conc. < 3 % , Aquatic Chronic 2; H411

Appendix B: Rationale for selection of metal species

arsenic {arsenic pentoxide}

Worst case species

boron {boron tribromide}

Worst Case Selected

cadmium {cadmium sulfate}

Assumed worst case based on likely contaminants

chromium in chromium(III) compounds {chromium(III) oxide (worst case)}

Worst case species

chromium in chromium(VI) compounds {chromium(VI) oxide}

Worst case species

copper {copper sulphate pentahydrate}

Assumed worst case based on expected contaminants

lead {lead chromate}

Worst case species

mercury {mercury dichloride}

Assumed likely form of mercury compound

nickel {nickel sulfide}

Assumed likely form of contaminant

selenium {selenium}

Worst case species

zinc {zinc oxide}

Worst case species

cyanides {salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex}

Worst Case Selected

Appendix C: Version

HazWasteOnline Classification Engine: **WM3 1st Edition v1.2.GB - Oct 2021**
HazWasteOnline Classification Engine Version: 2024.26.5938.10982 (26 Jan 2024)
HazWasteOnline Database: 2024.26.5938.10982 (26 Jan 2024)

This classification utilises the following guidance and legislation:

WM3 v1.2.GB - Waste Classification - 1st Edition v1.2.GB - Oct 2021
CLP Regulation - Regulation 1272/2008/EC of 16 December 2008
1st ATP - Regulation 790/2009/EC of 10 August 2009
2nd ATP - Regulation 286/2011/EC of 10 March 2011
3rd ATP - Regulation 618/2012/EU of 10 July 2012
4th ATP - Regulation 487/2013/EU of 8 May 2013
Correction to 1st ATP - Regulation 758/2013/EU of 7 August 2013
5th ATP - Regulation 944/2013/EU of 2 October 2013
6th ATP - Regulation 605/2014/EU of 5 June 2014
WFD Annex III replacement - Regulation 1357/2014/EU of 18 December 2014
Revised List of Waste 2014 - Decision 2014/955/EU of 18 December 2014
7th ATP - Regulation 2015/1221/EU of 24 July 2015
8th ATP - Regulation (EU) 2016/918 of 19 May 2016
9th ATP - Regulation (EU) 2016/1179 of 19 July 2016
10th ATP - Regulation (EU) 2017/776 of 4 May 2017
HP14 amendment - Regulation (EU) 2017/997 of 8 June 2017
13th ATP - Regulation (EU) 2018/1480 of 4 October 2018
14th ATP - Regulation (EU) 2020/217 of 4 October 2019
15th ATP - Regulation (EU) 2020/1182 of 19 May 2020
The Chemicals (Health and Safety) and Genetically Modified Organisms (Contained Use)(Amendment etc.) (EU Exit) Regulations 2020 - UK: 2020 No. 1567 of 16th December 2020
The Waste and Environmental Permitting etc. (Legislative Functions and Amendment etc.) (EU Exit) Regulations 2020 - UK: 2020 No. 1540 of 16th December 2020
GB MCL List - version 1.1 of 09 June 2021
GB MCL List v2.0 - version 2.0 of 20th October 2023

Appendix H
Geotechnical Analysis Results

LABORATORY TEST CERTIFICATE

10 Queenslie Point
Queenslie Industrial Estate
120 Stepps Road
Glasgow
G33 3NQ

Certificate No : 24/221 - 01-1
To : Hugh O'Leary
Client : Mason Evans Partnership
1st Floor
100 Brand Street
Glasgow
G51 1DG

Tel: 0141 774 4032

email: info@mattest.org
Website: www.mattest.org

LABORATORY TESTING OF ROCK

Introduction

We refer to samples taken from Hareness Road, Aberdeen and delivered to our laboratory on 21st February 2024.

Material & Source

Sample Reference : See Report Plates
Sampled By : Client
Sampling Certificate : Not Supplied
Location : See Report Plates
Description : Rock Cores
Date Sampled : Not Supplied
Date Tested : 21st February 2024 Onwards
Source : P23/336 - Hareness Road, Aberdeen

Test Results

As Detailed On Page 2 to Page 5 inclusive

Comments

The results contained in this report relate to the sample(s) as received
Opinions and interpretations expressed herein are outside the scope of UKAS accreditation
This report should not be reproduced except in full without the written approval of the laboratory
All remaining samples for this project will be disposed of 28 days after issue of this test certificate

Remarks

Approved for Issue


T McLelland (Director)

Date 01/03/2024



BOREHOLE		BH02	
SAMPLE		C	
DEPTH	m	2.20	
SAMPLE DIAMETER	mm	72.63	
SAMPLE HEIGHT	mm	152.27	
TEST CONDITION		As Received	
RATE OF LOADING	kN/s	1.0	
TEST DURATION	min.sec	5.00	
DATE OF TESTING		01/03/2024	
LOAD FRAME USED		2000kN	
LOAD DIRECTION WITH RESPECT TO LITHOLOGY		Unknown	
FAILURE LOAD	kN	307.6	
UNCONFINED COMPRESSIVE STRENGTH	MPa	74.3	
WATER CONTENT (ISRM Suggested Methods)	%	0.3	
BULK DENSITY (ISRM Suggested Methods)	Mg/m ³	2.77	
DRY DENSITY (ISRM Suggested Methods)	Mg/m ³	2.76	

BOREHOLE		BH02	
SAMPLE		C	
DEPTH	m	2.85	
SAMPLE DIAMETER	mm	72.59	
SAMPLE HEIGHT	mm	152.66	
TEST CONDITION		As Received	
RATE OF LOADING	kN/s	1.1	
TEST DURATION	min.sec	6.52	
DATE OF TESTING		01/03/2024	
LOAD FRAME USED		2000kN	
LOAD DIRECTION WITH RESPECT TO LITHOLOGY		Unknown	
FAILURE LOAD	kN	426.5	
UNCONFINED COMPRESSIVE STRENGTH	MPa	103.1	
WATER CONTENT (ISRM Suggested Methods)	%	0.3	
BULK DENSITY (ISRM Suggested Methods)	Mg/m ³	2.80	
DRY DENSITY (ISRM Suggested Methods)	Mg/m ³	2.79	

BOREHOLE			
SAMPLE			
DEPTH	m		
SAMPLE DIAMETER	mm		
SAMPLE HEIGHT	mm		
TEST CONDITION			
RATE OF LOADING	kN/s		
TEST DURATION	min.sec		
DATE OF TESTING			
LOAD FRAME USED			
LOAD DIRECTION WITH RESPECT TO LITHOLOGY			
FAILURE LOAD	kN		
UNCONFINED COMPRESSIVE STRENGTH	MPa		
WATER CONTENT (ISRM Suggested Methods)	%		
BULK DENSITY (ISRM Suggested Methods)	Mg/m ³		
DRY DENSITY (ISRM Suggested Methods)	Mg/m ³		

Tested in accordance with ASTM D7012 - 23

SUMMARY OF UNCONFINED COMPRESSIVE STRENGTH

BOREHOLE	SAMPLE	DEPTH (m)	MOISTURE CONTENT (%)	TYPE OF TEST * (see below)	CORE DIAMETER (mm)	EQUIVALENT DIAMETER (mm)	PLATEN SEPARATION (mm)	FAILURE LOAD (kN)	Is (MPa)	Is(50) (MPa)
BH01	C	1.20	As Received	D	73.20	73.20	73.20	16.25	3.03	3.60
				A	73.20	61.90	41.11	19.41	5.06	5.58
				A	73.20	54.68	32.08	14.34	4.80	4.99
	C	1.30	As Received	D	72.84	72.84	72.84	11.93	2.25	2.66
				A	72.84	59.37	38.01	13.01	3.69	3.99
				A	72.84	52.83	30.09	10.73	3.84	3.94
	C	1.50	As Received	D	73.19	73.19	73.19	17.61	3.29	3.90
				A	73.19	61.21	40.20	23.08	6.16	6.75
				A	73.19	55.08	32.55	20.22	6.66	6.96
	C	1.60	As Received	D	72.75	72.75	72.75	14.84	2.80	3.32
				A	72.75	59.39	38.08	15.69	4.45	4.81
				A	72.75	53.79	31.23	14.36	4.97	5.13
	C	2.40	As Received	D	73.24	73.24	73.24	7.92	1.48	1.75
				A	73.24	61.11	40.05	15.48	4.14	4.54
				A	73.24	52.21	29.23	13.21	4.85	4.94
	C	2.60	As Received	D	72.41	72.41	72.41	9.59	1.83	2.16
				A	72.41	59.40	38.27	5.01	1.42	1.53
				A	72.41	51.84	29.15	4.00	1.49	1.51
	C	2.90	As Received	D	72.59	72.59	72.59	23.27	4.42	5.22
				A	72.59	60.38	39.44	17.24	4.73	5.15
				A	72.59	50.93	28.06	15.81	6.10	6.15
	C	3.10	As Received	D	73.76	73.76	73.76	13.90	2.56	3.04
				A	73.76	58.23	36.10	16.40	4.84	5.18
				A	73.76	50.87	27.55	14.77	5.71	5.75

NOTE: N/M - Not measured
NOTE: A dash (-) signifies that scale did not register a reading

* I = IRREGULAR TEST
D = DIAMETRICAL TEST
A = AXIAL TEST

Mean Is(50) - Axial tests	4.81
Mean Is(50) - Diametrical tests	3.21
Is(50)	1.50

Tested in accordance with ISRM (2007)

SUMMARY OF POINT LOAD TEST RESULTS

BOREHOLE	SAMPLE	DEPTH (m)	MOISTURE CONTENT (%)	TYPE OF TEST * (see below)	CORE DIAMETER (mm)	EQUIVALENT DIAMETER (mm)	PLATEN SEPARATION (mm)	FAILURE LOAD (kN)	Is (MPa)	Is(50) (MPa)
BH03	C	2.30	As Received	D	73.04	73.04	73.04	2.32	0.43	0.51
				A	73.04	59.88	38.55	5.08	1.42	1.54
				A	73.04	52.06	29.14	3.12	1.15	1.17
	C	5.90	As Received	A	72.16	60.78	40.21	0.53	0.14	0.16
	C	6.20	As Received	A	72.20	61.68	41.39	0.42	0.11	0.12
	C	6.60	As Received	A	71.12	58.52	37.82	0.74	0.22	0.23
	C	6.85	As Received	A	72.34	66.17	47.54	2.32	0.53	0.60
	C	7.40	As Received	A	72.53	62.47	42.26	0.42	0.11	0.12
	C	7.90	As Received	A	72.64	65.26	46.05	0.52	0.12	0.14
	C	8.40	As Received	A	72.15	60.10	39.32	0.50	0.14	0.15

NOTE: N/M - Not measured
NOTE: A dash (-) signifies that scale did not register a reading

* I = IRREGULAR TEST
D = DIAMETRICAL TEST
A = AXIAL TEST

Mean Is(50) - Axial tests	0.47
Mean Is(50) - Diametrical tests	0.51
la(50)	0.91

Tested in accordance with ISRM (2007)

SUMMARY OF POINT LOAD TEST RESULTS

BOREHOLE	SAMPLE	DEPTH (m)	MOISTURE CONTENT (%)	TYPE OF TEST * (see below)	CORE DIAMETER (mm)	EQUIVALENT DIAMETER (mm)	PLATEN SEPARATION (mm)	FAILURE LOAD (kN)	Is (MPa)	Is(50) (MPa)
BH04	C	1.20	As Received	A	72.52	63.30	43.40	8.74	2.18	2.43
				A	73.22	65.61	46.18	5.22	1.21	1.37
				D	72.86	72.86	72.86	1.19	0.22	0.27
	C	2.50	As Received	A	72.86	60.33	39.23	8.50	2.34	2.54
				A	72.86	53.25	30.57	5.21	1.84	1.89
				D	73.03	73.03	73.03	1.08	0.20	0.24
	C	3.00	As Received	A	73.03	67.73	49.34	1.32	0.29	0.33
				A	73.03	55.64	33.29	0.91	0.29	0.31
				D	73.45	73.45	73.45	22.27	4.13	4.91
	C	5.45	As Received	A	73.45	60.63	39.31	13.45	3.66	3.99
				A	73.45	53.53	30.64	17.91	6.25	6.44
				D	72.71	72.71	72.71	13.95	2.64	3.12
	C	6.20	As Received	A	72.71	61.98	41.50	8.12	2.11	2.33
				A	72.71	54.31	31.86	10.51	3.56	3.70
				D	73.42	73.42	73.42	15.49	2.87	3.42
	C	6.60	As Received	A	73.42	60.54	39.21	8.34	2.28	2.48
				A	73.42	48.38	25.04	11.01	4.70	4.63
				D	72.72	72.72	72.72	15.06	2.85	3.37
	C	6.90	As Received	A	72.72	60.96	40.13	12.07	3.25	3.55
				A	72.72	53.82	31.28	13.41	4.63	4.78

NOTE: N/M - Not measured
NOTE: A dash (-) signifies that scale did not register a reading

* I = IRREGULAR TEST
D = DIAMETRICAL TEST
A = AXIAL TEST

Mean Is(50) - Axial tests	2.91
Mean Is(50) - Diametrical tests	2.55
la(50)	1.14

Tested in accordance with ISRM (2007)

SUMMARY OF POINT LOAD TEST RESULTS