EAST YORKSHIRE SOLAR FARM

East Yorkshire Solar Farm EN010143

Environmental Statement

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East Yorkshire Solar Farm Limited

Prepared by:

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Executive Summary

- ES₁ The Phase 1 Preliminary Risk Assessment (PRA) presented in this Appendix was prepared in May 2023 and was included in the Preliminary Environmental Information Report (PEI Report). The Site Boundary considered in the Phase 1 PRA and associated mapping therefore differs from the Order limits adopted in the Environmental Statement (ES). The boundary changes between the PEI Report (as reflected in the Phase 1 PRA) and the ES are further discussed in Chapter 3: Alternatives and Design Evolution, ES Volume 1 [EN010143/APP/6.1] and shown in Figure 3-6, ES Volume 3 [EN010143/APP/6.3]. Land has been both added to and removed from the Site since the Phase 1 PRA was prepared, however the additional areas of land take are sufficiently covered by the buffer applied in the Phase 1 PRA. Therefore, the Phase 1 PRA presented in this Appendix is considered to cover all relevant land within the Order limits and remains a robust baseline on which to base the assessment presented in section 16.4 (Ground Conditions) of Chapter 16: Other Environmental Topics, ES Volume 1 [EN10143/APP/6.1].
- ES2 A Stage 1, Tier 1 Preliminary Risk Assessment (PRA) (as defined by the Government guidance titled 'Land Contamination Risk Management') of the proposed East Yorkshire Solar Farm Site has been undertaken by AECOM Limited to support the Development Consent Order Application.
- ES3 The Scheme comprises the installation of solar photovoltaic (PV) generating panels, associated electrical equipment, cabling and on-site energy storage facilities across a proposed site which lies between Selby and East Riding of Yorkshire together with grid connection infrastructure. The Scheme would allow for an anticipated export of approximately 400 megawatts (MW) electrical capacity.
- ES4 The purpose of this report is to determine whether potentially contaminative land uses have taken place within, or in close proximity to the Site which could have led to the contamination of underlying soils or groundwater.
- ES5 The Site consists of fields mainly under arable production, interspersed with individual trees and hedgerows; and wooded areas. Several farm buildings are located on-site. Four surface Water Framework Directive (WFD) water courses run within or in the proximity of the Site, these being the River Ouse, River Derwent, Fleet Dike and River Foulness.
- ES6 The anticipated geology includes Quaternary deposits over sedimentary bedrock of mudstone and sandstone formations. The Solar PV Site is mostly directly underlain by Unproductive Strata associated with Quaternary deposits; whilst the Grid Connection Corridor is generally underlain by Secondary A Aquifers. The solid geology of the Sherwood Sandstone Group, which extends at depth across the western extent of the Site, is classified as a Principal Aquifer; and the Mercia Mudstone Group, at depth across the eastern part of the Site, is classified as a Secondary B Aquifer.
- ES7 Based on a review of historical maps, the Site was undeveloped land/agricultural fields since the earliest available historical maps (late

- 1800's). Potential contaminative sources identified locally on-site may be associated with former small ponds which may have been filled with a variety of (potentially unlicensed) waste materials. Infilled land may be also associated with the land adjacent to the west of the River Foulness, given that this watercourse originally meandered across the Site, until its course was modified between 1910 and the early 1950s. Farmland, including current and former farm buildings and yards with fuel and agricultural materials storage, are also shown at various locations within the Site.
- ES8 The land uses surrounding the Site (relevant to contaminated land) include (inter alia) current and former railway lines, former landfill sites, former Breighton Airfield, current and former waste management facilities, current Drax Power Station and a former filling station.
- ES9 The potential risks identified have been assessed by the preliminary risk assessment as being very low to moderate, with the highest risks associated with the former Breighton Airfield, the historical landfill sites and Drax Power Station. Limited intrusive site investigation and further risk assessment is recommended in the areas of potential contamination to confirm the results of this PRA. Discarded materials and any hazardous materials potentially present at the Site will require treatment, reuse or removal from the Site to an appropriate facility prior to construction.
- ES10 The information collected as part of this PRA suggests that there are no significant constraints with regards to contamination of soil and groundwater that would limit the development of the Site as a solar farm.
- ES11 The regional unexploded bomb (UXB) mapping published by Zetica shows that the Site lies within a zone that experiences a low risk of UXB. However, the Site lies adjacent to areas formerly occupied by the Breighton Airfield, which is considered a wartime site of interest. The commissioning of a detailed Unexploded Ordnance (UXO) Assessment should be considered, prior to the commencement of any intrusive works to assess and potentially zone the UXO hazard level at the Site.
- ES12 Active gas pipelines have been identified across the Site. Full plans to map out the exact route of the pipelines and information on appropriate clearances should be obtained prior to any intrusive works.
- ES13 Parts of the Site are located within a Coal Mining Reporting Area. For these locations, it is recommended that a coal mining report from the Coal Authority is commissioned.

1. Introduction

1.1 Terms of Appointment

- 1.1.1 The Phase 1 Preliminary Risk Assessment (PRA) presented in this Appendix was prepared in May 2023 and was included in the Preliminary Environmental Information Report (PEI Report). The Site Boundary considered in the Phase 1 PRA and associated mapping therefore differs from the Order limits adopted in the Environmental Statement (ES). The boundary changes between the PEI Report (as reflected in the Phase 1 PRA) and the ES are further discussed in Chapter 3: Alternatives and Design Evolution, ES Volume 1 [EN010143/APP/6.1] and shown in Figure 3-6, ES Volume 3 [EN010143/APP/6.3]. Land has been both added to and removed from the Site since the Phase 1 PRA was prepared, however the additional areas of land take are sufficiently covered by the buffer applied in the Phase 1 PRA. Therefore, the Phase 1 PRA presented in this Appendix is considered to cover all relevant land within the Order limits and remains a robust baseline on which to base the assessment presented in section 16.4 (Ground Conditions) of Chapter 16: Other Environmental Topics, ES Volume 1 [EN10143/APP/6.1].
- 1.1.2 On the instructions of East Yorkshire Solar Farm Limited (hereafter referred to as 'the Applicant'), AECOM Limited (AECOM) has undertaken a Stage 1, Tier 1 Preliminary Risk Assessment (PRA) (as defined by Government guidance titled 'Land Contamination Risk Management') of the East Yorkshire Solar Farm (hereafter referred to as the 'Scheme').
- 1.1.3 The Scheme comprises the construction, operation and maintenance, and decommissioning of a solar photovoltaic (PV) generating panels, associated electrical equipment, cabling and on-site energy storage facilities across a proposed site which lies between Selby and East Riding of Yorkshire (hereafter referred to as the 'Solar PV Site') together with grid connection infrastructure (hereafter referred to as the 'Grid Connection Corridor'). Underground interconnecting cables (hereafter referred to as 'Interconnecting Cable Corridor') connect Solar PV Areas to the Grid Connection Corridor. The Scheme would allow for an anticipated export of approximately 400 megawatts (MW) electrical capacity. Collectively, the Solar PV Site and the Grid Connection Corridor are referred to as 'the Site'.
- 1.1.4 Due to its proposed generating capacity, the Scheme is classified as a Nationally Significant Infrastructure Project (NSIP) and will therefore require consent via a Development Consent Order (DCO) under the Planning Act 2008 (Ref. 1).
- 1.1.5 **Figure 16-2-1** shows the maximum area of land potentially required for the construction, operation and maintenance of the Scheme and includes land required for permanent and temporary purposes. The Solar PV Site boundary represents the current maximum extent of land being considered and may be further refined; some of this land will also be used for landscaping and habitat enhancement rather than solar PV infrastructure.
- 1.1.6 The Solar PV Site will be fenced and protected via security measures such as closed circuit television (CCTV) and emergency lighting. Internal access

- tracks, habitat management and drainage will also be provided within the fenced areas on the Solar PV Site.
- 1.1.7 Refer to Chapter 2: The Scheme, ES Volume 1 [EN10143/APP/6.1] for further details.

1.2 Report Objectives

- 1.2.1 The primary objective of this report is to determine whether potentially contaminative land uses have taken place within, or in close proximity to, the Site, which could have led to the contamination of underlying soils or groundwater. This report aims to identify and evaluate potential land quality risks and development constraints associated with the Scheme and to construct an initial conceptual site model (CSM) that can be used to inform future decision making and the design of future ground investigation (if needed).
- 1.2.2 This report is prepared to support a DCO Application under the requirements of the Planning Act 2008 (as amended) (Ref. 1), the National Planning Policy Framework (2021) (Ref. 2), and considers the potential implications of Part 2A of the Environmental Protection Act 1990 (Part 2A) (Ref. 3) and the associated Contaminated Land (England) Regulations 2006 (as amended) (Ref. 4). Relevant legislation is described in **Appendix 16-1, ES Volume 2** [EN10143/APP/6.2].
- 1.2.3 The planning policies from relevant National Policy Statements (NPS) that have been considered in this assessment include:
 - a. Overarching NPS for Energy (NPS EN-1) (Ref. 5), with particular reference to sections 5.3 Biodiversity and Geological Conservation and 5.15 Water Quality and Resources; and
 - b. NPS for Electricity Networks Infrastructure (NPS EN-5), (Ref. 6), with particular reference to impact of electricity networks on soils and geological conservation.
- 1.2.4 This report has been prepared in general accordance with the technical guidance and procedures described in the UK Government guidance titled Land Contamination Risk Management (2020) (Ref. 7); British Standard (BS) 5930:2015+A1:2020 Code of Practice for Ground Investigations (BSI) (Ref. 8) and BS 10175:2011+A2:2017 Investigation of Potentially Contaminated Sites Code of Practice (BSI) (Ref. 9) to:
 - a. Describe the geology, hydrogeology and shallow mining potential across the Site:
 - b. Describe the environmental setting/sensitivity and current/historical land use of the Site and surrounding area;
 - c. Describe the findings of a site reconnaissance visit;
 - d. Summarise the findings of any historical ground investigation work (if available);
 - e. Provide an initial CSM for the prevailing ground conditions; and
 - f. Using the source-pathway-receptor model present a qualitative PRA of potential land contamination risks to human (chronic), environmental,

and controlled water receptors from contamination sources on, or in the vicinity of, the Site.

1.3 Sources of Information

- 1.3.1 This report has been prepared using a combination of published records (e.g. British Geological Survey (BGS), Environment Agency (EA) and Department for Environment, Food & Rural Affairs (Defra)). These include statutory records and historical mapping supplied within a Landmark Information Group Envirocheck Report (January 2023) (Ref. 10), published geological and hydrogeological mapping, historical borehole records, and observations made during the site reconnaissance, completed on the 16th and 17th January 2023. The site reconnaissance included a visual inspection (non-intrusive survey) of the Site to identify the range of activities undertaken on the Site and any obvious potential sources of ground contamination present at the time of the visit.
- 1.3.2 Contaminated Land and Flood Risk reports (Ref. 11 to Ref. 23) provided by the Applicant have also been reviewed.
- 1.3.3 The Selby District Council website and the East Riding of Yorkshire Council websites (Ref. 24 and Ref. 25) have been also reviewed for any 'contaminated land' as defined under the Environmental Protection Act 1990, Part 2A, within the Site and surrounding areas.
- 1.3.4 An Unexploded Bomb (UXB) Risk Map from Zetica (Ref. 26) has been obtained and included as Annex D.
- 1.3.5 Specific information sources are referenced throughout the document and a bibliography is included in section 16 of this report.

2. Site Setting

2.1 Location

2.1.1 The Site is located within the administrative areas of Selby District Council and East Riding of Yorkshire Council, approximately 1 km north of Howden. The Solar PV Site is approximately centred on National Grid Reference (NGR) SE756330. The National Grid Drax Substation is located at the Drax Power Station and is approximately 6.2km south-west of the Solar PV Site.

2.2 Description and Setting

2.2.1 The Site is defined by the red line boundary shown in Figure 16-2-1 in Annex A. The red line boundary shows the expected area of land required for the construction, operation and maintenance of the Scheme, and the Grid Connection Corridor to the National Grid Drax Substation. It includes land required for temporary and permanent uses. It is important to note that this may be subject to change as the design and environmental impact assessment (EIA) progress and comments from stakeholders and the public during the statutory consultation are taken into account.

Solar PVC Site

- 2.2.2 The Solar PV Site has been split into a number of different land parcels, Area 1a to 1h, Area 2a to 2g and Area 3a to 3c (as shown in **Figure 16-2-2**).
- 2.2.3 The Solar PV Site consists of agricultural fields mainly under arable production, interspersed with individual trees and hedgerows; and wooded areas. Where there are hedgerows, these generally form the boundaries of fields as they adjoin roads. The fields are separated by a few minor roads and tracks. Farm buildings (Johnson's Farm and Manor Farm) are located at the end of Ings Lane in Area 1e and in Area 1h, respectively. A moat is shown 150m east of Manor Farm, in Area 1h (refer to Envirocheck Report 306409120_1_1 / 60683115_EC_G_Context). A tower antenna is located within Area 2b (refer to Photo 7 in Annex A / Area 2a-2d). Overhead lines running in a north-eastern direction cross Area 3a; Area 1a; and the Interconnection Cable Corridor between Areas 2a and 2c (Ref. 27).
- 2.2.4 The Solar PV Site is mainly surrounded by agricultural fields and wooded areas. Agricultural buildings and dwellings, and small villages are adjacent the Solar PV Site. A golf course (Boothferry Golf Course and Spaldington Golf Range) is located between Area 2d and 2e. A railway (North Eastern Railway) cuts through the south-western extent of the Solar PV Site, between Area 3c and Area 3b. Some wind turbines are located within 250m of the Solar PV Site, to the north of the Boothferry Golf Course and Spaldington Golf Range and north of Spaldington (Ref. 27).
- 2.2.5 The River Foulness borders the Solar PV Site to the east for approximately 2.3km. The Fleet Dike runs along the eastern boundary of Area 2a. Additionally, there are various dikes, drains and small ponds across the Solar PV Area.

- 2.2.6 The topography of the Solar PV Site is relatively flat, with existing ground levels generally between 5m and 10m Above Ordnance Datum (AOD) according to online Ordnance Survey (OS) (Ref. 28).
- 2.2.7 Relevant features immediately surrounding (within 250m) the Solar PV Site are summarised in **Table 1**, sourced from Google Earth (Ref. 40) and the Envirocheck Report (Ref. 10).

Table 1. Features Surrounding the Solar PVC Sites

Alta	Direction	Summary
1a	North	Bubwith and Harlthorpe Drain borders to the north, with agricultural land beyond.
	South	Agricultural land.
	East	Agricultural land.
	West	Agricultural land. Several farms, including Elder Farm and Poplar Farm, are located from 100m west on Willitoft Road.
1b	North	Sewer Dike borders the north-eastern part of Area 1b, with agricultural land beyond.
	South	Agricultural land. An agricultural dwelling and associated yard are located adjacent to the south.
	East	Gribthorpe village is located adjacent to the south-east.
	West	Agricultural land.
1c	North	Tottering Lane, with agricultural land beyond.
	South	Agricultural land.
	East	Agricultural land. A wind turbine is approximately 50m east.
	West	Agricultural land.
1d	North	Tottering Lane, with agricultural land beyond. Residential dwellings with gardens are located adjacent to the north.
	South	Lake View House and Winfield Lakes (fishing lake) are adjacent to the south.
	East	Agricultural land.
	West	Agricultural land.
1e	North	Gribthorpe village is located approximately 100m north of the western extent. Agricultural dwellings and yards are located approximately 100m north of the western extent.
	South	A farm building and a residential property are located approximately 80m south of the western extent. Warham Plantation and a pond are located adjacent to the south-east.
	East	River Foulness borders to the east, with agricultural land beyond.

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	West	Agricultural land. Cottage Farm is located adjacent to the west. Fox Covert Clay Pit (currently occupied by a pond) is located 50m west (refer to Table 6).
1f	North	Ings Lane, with agricultural land beyond.
	South	Agricultural land.
	East	Agricultural land.
	West	Unnamed Drain, with agricultural land beyond.
1g	North	Sewer Drain (to the north-west) and Seller Dike (to the north-east), with agricultural land beyond. Lakes are located from approximately 140m to the north-west and 80m to the north.
	South	Agricultural land.
	East	Agricultural land.
	West	Agricultural land.
1h	North	Seller Dike, with agricultural land beyond. Lakes are located from approximately 70m north.
	South	A drain borders the southern boundary with agricultural land beyond.
	East	The River Foulness borders the eastern boundary with Agricultural land beyond.
	West	Agricultural land.
2a	North	Areas associated with the former Breighton Airfield extend from adjacent to the north. Some of the areas historically occupied by the airfield (from approximately 250m north-west of Area 2a) currently include industrial and commercial sites (refer to section 4.2). A registered historical landfill site, which extends from adjacent to the north of Area 2a, extends across areas historically occupied by
		the Breighton Airfield (Envirocheck Report 306409121_1_1 / 60683115_EC_I_SiteSenSlice10000) (refer to section 6.3).
	South	Fleet Dike borders to the south, with agricultural land beyond.
	East	Agricultural land. Waterloo Farm is located 120m east.
	West	Agricultural land and wooded areas.
2b	North	Agricultural land. Residential buildings are located from approximately 80m north.
	South	A residential property and a pond are adjacent to the south-west. A wind turbine is adjacent to the south-east. Farm buildings are approximately 30m south. Thompson's Plantation borders to the south.

	East	Agricultural land.
	West	Wood Lane borders to the north-west, with agricultural land beyond. Residential dwellings are adjacent to the west.
2c	North	A residential property and farm (Newsholme House) are located adjacent to the north.
	South	Agricultural land.
	East	The B128 Street Lane borders the site with agricultural land beyond. Farm buildings are located 160m east. A licenced waste management facility (physical treatment facility) (Changing Waste Ltd), is located from 220m east (refer to Table 12).
	West	Agricultural land.
2d	North	An industrial area is located from adjacent to the north of Area 2d. This area includes:
		 a. a licenced waste management facility (physical treatment facility) (Changing Waste Ltd), adjacent to the north-east (refer to Table 12);
		 b. Bunn Fertiliser Limited, 170m north-east, at the location of a former transport & storage company (Inglis Transport & Storage & Inglis Farming Ltd) (refer to Table 12); and c. a green energy supplier (R100 Energy Limited), 270m north-east.
	South	A local road borders Area 2d to the south-east, with agricultural land beyond.
	East	The Great Committee Drain borders to the north-east, with agricultural land beyond. Boothferry Golf Course and Spaldington Golf Range is adjacent to the east.
	West	The B1228 borders to the west, with agricultural land beyond.
2e	North	Residential properties of Spaldington are located to the north-east.
	South	Warehouses (Filstorage National Distribution Centre) are adjacent to the south.
	East	Hall Dyke borders the northern part of the Area 2e to the east, with agricultural land and Spaldington beyond. Residential properties and farm buildings are located adjacent to the east of the central part of Area 2e. A local road borders the southern part of Area 2e to the east, with agricultural land beyond.
	West	Agricultural land and the Boothferry Golf Course and Spaldington Golf Range, with a wind turbine 50m to the west.

		· · · · · · · · · · · · · · · · · · ·
2f	North	A road with farm buildings and a field and garden machinery repair workshop. Warehouses (Filstorage National Distribution Centre) are 50m north.
	South	Commonend Drain or Feathered Drain border to the south, with agricultural land beyond.
	East	Agricultural land. Old Rush Farm and a poultry unit are located 170m to the east.
	West	New Drain borders Area 2f to the west, with agricultural land beyond.
2g	North	Commonend Drain (or Feathered Drain) borders to the north, with agricultural land, wooded areas and grazing areas, beyond.
	South	Bordered by Drain Lane to the south-west and the A614 Thorpe Road to the south-east, with agricultural land beyond. North Eastern Railway is located 100m south. Caville Hall Farmhouse is located immediately adjacent.
	East	Agricultural land and isolated dwellings and agricultural yards.
	West	Agricultural land.
3a	North	Agricultural land.
	South	Local road with agricultural land and woodland (Intake Plantation) beyond.
	East	Wood Lane to the east, with agricultural land beyond.
	West	Agricultural land.
3b	North	Brind Land to the north-east, with agricultural land beyond. Wood Farm is adjacent north.
	South	North Eastern Railway runs along the southern boundary.
	East	Brind Lane and Brind with residential properties beyond.
	West	Rowlandhall Lane and Wood Lane, with agricultural land beyond. Damson Cottage is located adjacent south-west. Wressle Brickyard Farm is located 160m west.
3c	North	North Eastern Railway runs along the northern boundary. A recycling centre (Higgings Recycling) is located approximately 250m north-east.
	South	Agricultural land and wooded areas. Residential properties are adjacent to the south of the western part of Area 3c on Rowlandhall Lane.
	East	Agricultural land and area of dense vegetation.
	West	Agricultural land and Rowland Hall Farm with above ground tanks.

Grid Connection Corridor

- 2.2.8 The Grid Connection Corridor consists of agricultural fields mainly under arable production, interspersed with individual trees, hedgerows, and farm access tracks. Where there are hedgerows, these generally form the boundaries of fields as they adjoin roads. The fields are separated by some minor roads and tracks. Some adjacent agricultural buildings and dwellings are present.
- 2.2.9 Proceeding from north-east to south-west, the Grid Connection Corridor borders the North Eastern Railway at its north-eastern most point for approximately 1 km; then it proceeds along Wood Lane to the south-west. The Grid Connection Corridor then crosses the River Derwent north of the A63 Hull Road and proceeds to the west across the countryside and along the A63 Hull Road. Proceeding to the south, the Grid Connection Corridor runs along the western bank of the River Derwent for approximately 3km, until its confluence into the River Ouse. The River Ouse is crossed by the Grid Connection Corridor to the west of Barmby on the Marsh. The Grid Connection Corridor proceeds to the south-west, to the Drax Power Station, which borders the Grid Connection Corridor to the west for approximately 1.2km.
- 2.2.10 The topography of the area is relatively flat, with existing ground levels generally between 2m and 6m AOD (Ref. 28).
- 2.2.11 Relevant features immediately surrounding the Site are summarised in **Table 2**.

Table 2. Features Surrounding the Grid Connection Corridor

Area	Summary	
Northern extent of the Grid Connection Corridor (from the	North- west	North Eastern Railway borders to the north. A cottage (Damson Cottage) is adjacent to the north, adjacent to the south-west of Area 3b. Agricultural land. Tithe Farm is adjacent to the west on Station Road.
North Eastern Railway to A63 Hull Road)	South- east	Agricultural land
Central extent of the	North- west	Agricultural land and pasture ('Barmby Pasture').
Grid Connection Corridor (from A 63 Hull Road to River Ouse)	South- east	Brackenholme Business Park adjacent to the south of the A63 Hull Road. The Envirocheck Report indicates that the following commercial activities are currently active within 100m of the Grid Connection Corridor, at A63 Hull Road: - Oil N R G – oil fuel distributors: 50m south.

Area	Direction Summary		
		 G F Foods York Ltd – food products - manufacturers: 60m south. River Derwent borders the Grid Connection Corridor to the south-east, with the village of Barmby on the Marsh and agricultural land beyond. Water treatment works 100m east of the Grid Connection Corridor, to the east of River Derwent. 	
Southern	South	Fields.	
extent of the Grid Connection	East	Agricultural land and wooded areas. A pond is 100m east.	
Corridor (from River Ouse to Drax Power Station)	West	A Pumping Station (associated with Drax Power Station) is adjacent to the west. Drax Abbey Farm and a pond are located adjacent. An historical landfill (New Road Landfill Site) (Refer to Table 12) is adjacent to the west of the Grid Connection Corridor, to the north of the Drax Power Station. Drax Power Station is located adjacent to the Grid Connection Corridor in its southern portion.	

3. Geological and Environmental Setting

3.1 Introduction

- 3.1.1 The environmental setting including the topography, geology, hydrogeology and hydrology are the key factors that influence the way in which contaminants in the soil or groundwater can be transported on-site or off-site, and also the way in which contamination can affect applicable receptors including controlled waters and users of the Site and surrounding areas.
- 3.1.2 The environmental setting of the Site has been assessed by making reference to the information sources detailed in section 1.3.

3.2 Geology and Soils

Published Geology & Exploratory Hole Records

- 3.2.1 AECOM has reviewed publicly available information. The published 1:50,000 scale geological map of the area produced by the BGS (Ref. 29) and the BGS Geoindex Onshore online geological mapping (accessed January 2023) (Ref. 30) indicates that the Site is underlain by the geological succession summarised in **Table 3**. Areas of artificial ground are indicated at the location of Boothferry Golf Course and Spaldington Golf Range (adjacent east of Area 2d and adjacent west of Area 2e); at Lake View House and Winfield Lakes (adjacent to the south of Area 1d); and at the area of the registered historical landfill site (adjacent to the north of Area 2a).
- 3.2.2 Several faults are shown across the Solar PV Site, to the south of Spaldington, south of Willitoft and Gribthorpe, and south of Highfield (Ref. 29).
- 3.2.3 The BGS maintains an archive of historical exploratory borehole records throughout the UK. AECOM has searched the database and those which are considered to provide useful information on the ground profile at the Site have been considered as part of the Preliminary Ground Model in section 8. Copies of these exploratory hole records are included as Annex C. The location of the boreholes is included in the Envirocheck Report (Ref. 10).

Table 3. Geology encountered across the Site

Age	Group or Parent	Geological Stratum	Description	Anticipated Thickness (m) (approximate)	Location
Superficial de	eposits				
120,000 and 10,000 years ago	North Pennine Glacigenic Subgroup	Hemingbrough Glaciolacustrine Formation	Clay, silty.	Up to 30m	Across most of the Solar PV Site; and across the eastern part and south-western edge of the Grid Connection Corridor.
120,000 and 10,000 years ago	Yorkshire Catchments Subgroup	Breighton Sand Formation	Sand	Average 1m to 2m but can exceed 6m in some cases.	Patchy across most of the Solar PV Site; and across the Grid Connection Corridor south of Hemingbrough and at the southwestern edge of Grid Connection Corridor.
2.58 million years ago to present	Fluvial Deposits	Alluvium	Clay, silt, sand and gravel	Variable.	Located in proximity to the River Ouse, River Derwent and River Foulness, within or bordering the Site.
11,700 years ago to present	NA	Warp	Clay and silt. Warp is artificially induced alluvium.	Variable	Located in the south-west of the Site, within areas of the Grid Connection Corridor, adjacent to the west of River Ouse. Located off-site, adjacent to the west of the Grid Connection Corridor, west of Newsholme.
Bedrock (from	n west to east)				
252.2 million years to 241.5 million years ago.	New Red Sandstone Supergroup	Sherwood Sandstone Group	Sandstone	Variable, maximum >1500m.	Across the Grid Connection Corridor and across the western half of the Solar PV Site (Area 3a, 3b, 3c and the western part of Area 2a).

Age	Group or Parent	Geological Stratum	Description	Anticipated Thickness (m) (approximate)	Location
241.5 million years ago to 201.3 million years ago.	New Red Sandstone Supergroup	Mercia Mudstone Group	Mudstone	Thickness variation is considerable, up to 1350m.	Located in the eastern half of the Solar PV Site.

Source: BGS Geoindex Onshore online geological mapping (accessed January 2023).

Soils and Soil Chemistry

- 3.2.4 Natural England (Ref. 31) reports the Agricultural Land Use Classification for the Site to be variable from Grade 1 to 4 (excellent to poor), typically Grade 1 across part of the Grid Connection Corridor and Grade 3 to 4 in the Solar PV Site. However, Natural England maps represent a generalised pattern of land classification grades and are not sufficiently accurate for use in the assessment of individual fields. The maps do not show the subdivisions of Grade 3 which are normally mapped by a more detailed survey.
- 3.2.5 The UK Soil Observatory (UKSO) (Ref. 32) provide indicative information on regional concentrations of five potentially harmful elements: arsenic, cadmium, chromium, nickel and lead in soil. Elevated concentrations of these PHEs can exist because of natural geological conditions or possible anthropogenic contamination. The following estimated soil chemistry levels are attributed to the Site based on the geometric mean concentrations of available data (presented in **Table 4**).

Table 4. Estimated Soil Chemistry

Potentially Harmful Element	Estimated geometric mean concentration (mg/kg)	Location
Arsenic	<15	Across all Site areas
Cadmium	<0.33	Across all Site areas
Chromium	50 - 90	Maximum concentration of 83.00 mg/kg indicated at Gribthorpe (Area 1b)
Lead	40 - 70	Maximum concentration of 69.10 mg/kg across the central part of the Grid Connection Corridor, at Brackenholme.
Nickel	10 - 30	Maximum concentration of 24.48 mg/kg at the south-western edge of the Grid Connection Corridor.

3.3 Ground Stability Records

3.3.1 **Table 5** shows the variable risk of ground stability hazards across the Site, taken from the Envirocheck Report (Ref. 10).

Table 5. Ground Stability Records

Hazard Type	Hazard Potential
Collapsible Hazard	Very low to no hazard
Compressible Hazard	No hazard to moderate and high hazard. High hazard shown in the southern part of Area 2a and the eastern part of Area 1h
Ground Dissolution Hazard	No hazard
Landslide Hazard	Very low
Running Sand Hazard	No hazard to low
Shrinking or Swelling Clay Hazard	Low

Mining and Mineral Extraction

Aggregate/Mineral Quarrying, Mining and Mineral Sites

3.3.2 **Table 6** presents the available information on mining and quarrying operations (Ref. 10), past or present that are known to have taken place onsite and within 250m of the Site.

Table 6. Quarrying (<250m of Site)

National Grid Reference	Distance and Direction	Name	Operator	Status/ Material Quarried
475660 434118	50m west of Area 1e	Fox Covert Clay Pit (opencast)	NA	Ceased/Common clay and shale
473031 435948	230m west of Area 1a	High Field Gravel Pit (opencast)	NA	Ceased/Sand and Gravel

Coal Mining

- 3.3.3 The Coal Authority's Interactive Map Viewer (Ref. 33) and the Envirocheck Report indicate that the northern extent of Area 2a and most of the Grid Connection Corridor (from Wressle to New Road) are located within a Coal Mining Reporting Area¹.
- 3.3.4 For these locations, the Envirocheck Report recommends that a coal mining report is obtained from the Coal Authority.

Radon

3.3.5 The UK Health Security Agency (UKHSA) and BGS interactive map for radon (Ref. 34) indicates that the entire Site is within a low probability radon area (less than 1% of homes are estimated to be above the Action Level).

¹ The Coal Mining Reporting Area, also known as CON29M Coal and Brine Consultation Areas, is the known extent of coal mining activity and is used to determine whether a coal mining report is required for property transactions and the conveyance process.

No radon protective measures are necessary in the construction of new dwellings or extensions.

3.4 Hydrogeology

Aquifer Classification

3.4.1 The Environment Agency's Groundwater Protection Policy adopts aquifer designations that are consistent with the Water Framework Directive. Definitions of the various aquifer types can be found on the Environment Agency section of the gov.uk website (Ref. 36). According to this system, the superficial deposits underlying the Site are classified as Unproductive Strata (Hemingbrough Glaciolacustrine Formation) and Secondary A Aquifers (Breighton Sand Formation, Alluvium and Warp). The solid geology of the Sherwood Sandstone Group is classified as a Principal Aquifer; and the Mercia Mudstone Group as a Secondary B Aquifer.

Groundwater Vulnerability

- 3.4.2 The Environment Agency's Simplified Groundwater Vulnerability Map in Magic (Ref. 37) shows that the Site is located in an area where the groundwater vulnerability to pollution is generally medium-high, along the Grid Connection Corridor. The groundwater vulnerability to pollution is generally low across the Solar PV Site, since most of this area is underlain by the low permeability strata of the Hemingbrough Glaciolacustrine Formation.
- 3.4.3 All associated terminology/definitions can be found on the Environment Agency section of the gov.uk website (Ref. 36).

Source Protection Zones and Drinking Water Safeguarding Zones for Groundwater

- 3.4.4 In terms of identifying the risk of contamination from potentially polluting activities in a given area to groundwater sources (wells, boreholes and springs) used for supplying public drinking water, the Environment Agency identifies Source Protection Zones (SPZ). These show the extent of a groundwater source catchment and are divided into three zones, which can be found on the Environment Agency section of the gov.uk website (Ref. 36).
- 3.4.5 The Solar PV Site does not lie within an SPZ (Ref. 37). There is one SPZ within 1km from the Solar PV Site, consisting of a Zone I (Inner Protection Zone), indicated south of Blackwood Hall Farm, approximately 830m west of Area 1a and 1km north of Area 2a.
- 3.4.6 The south-western edge of the Grid Connection Corridor, by the Drax Power Station, is within a Zone III (Total Catchment) of a SPZ. Additionally, the Grid Connection Corridor runs 140m west of a Zone II (Outer Protection) SPZ, located to the south of the A63 Hull Road. At the same location, the Grid Connection Corridor is approximately 300m west of a Zone I (Inner Protection Zone). There are no other SPZ within 1km of the Site.
- 3.4.7 Much of the Solar PV Site (Areas 2 and 3) lies within a Drinking Water Safeguard Zone for surface water (Ref. 37).

3.4.8 The Site does not lie within any Drinking Water Safeguard Zones (DWSZ) for groundwater. A DWSZ is located approximately 50m south of the Grid Connection Corridor (Ref. 37).

Licensed Groundwater Abstractions

3.4.9 Three licensed groundwater abstractions have been identified on-site and within 250m of the Site. A further six licenced groundwater abstractions have been identified within 500m of the Site, including a potable water supply abstraction located approximately 380m south of the Grid Connection Corridor (Ref. 10). The abstractions are listed in **Table 7**.

Table 7. Licensed Groundwater Abstractions

National Grid Reference	Distance & Direction/ Location	Operator	Source	Use
475800 E 434220 N (multiple records)	On-site (along south-west boundary of Area 1e)	Mr A E Slights	Sherwood Sandstone Group	Aquaculture: make- up or top up water
475100 E 434240 N (multiple records)	50m south of Area 1d	Mr A Sleightholm / Winfield Lakes / Mrs P E Slights	Sherwood Sandstone Group	Aquaculture: make- up or top up water
469767 E 429298 N	210m south of Grid Connection Corridor	C S Backhouse	Sherwood Sandstone Group	General agriculture: spray irrigation - direct
474700 E 433000 N	340m south of Area 2b	George David Strawson	NA	Domestic and agriculture
475640 E 432140 N (multiple records)	410m west of Area 2e	Barry Mowforth Ltd	Sherwood Sandstone Group	General agriculture: spray irrigation – direct / General farming and domestic
475615 E 432185 N	420m west of Area 2e	Barry Mowforth Ltd	Sherwood Sandstone Group	Golf course: spray irrigation – direct
470285 E 429657 N (multiple records)	380m south of Grid Connection Corridor	Yorkshire Water Services Ltd	Sherwood Sandstone Group	Public water supply: potable water supply - storage
469291 E 429892 N	460m north of Grid	The Hambleton Abstraction Partnership	Sherwood Sandstone Group	General agriculture: spray irrigation - direct

National Grid Reference	Distance & Direction/ Location	Operator	Source	Use
(multiple records)	Connection Corridor			
474700 E 433000 N	350m south- east of Area 2c	George David Strawson	Sherwood Sandstone Group	Domestic & agriculture

3.4.10 Following consultation with the Local Authority regarding records of private abstractions, there are two private abstractions within the East Riding of Yorkshire Council area. These abstractions are located approximately 70m south of Area 1d, at Willitoft Fish Farm; and 150m east of the Interconnecting Cable Corridor between Area 2b and Area 2e at Mount Pleasant Farm. There are no abstractions in the Selby District Council area within 1 km of the Site.

Risk of Flooding from Groundwater

- 3.4.11 The Envirocheck Report (Ref. 10) indicates that there is generally no potential for groundwater flooding to occur within most of the Solar PV Site.
- 3.4.12 However, limited potential for groundwater flooding exists, at some locations within the Solar PV Site (i.e. north-western edge of Area 1a and across part of Areas 3c and 2g).
- 3.4.13 The potential for flooding at the surface also exists for small areas (within Areas 2d, 2e and 2g; Areas 1a, 1d, 1e and 1h; and Area 3c), mainly along the site boundaries.
- 3.4.14 The Grid Connection Corridor is generally located in areas characterised by limited potential for groundwater flooding to occur, with small areas of potential for groundwater flooding at property situated below ground level in the south-west, near Drax Power Station.

Surface Water Courses and Drainage

- 3.4.15 The Scheme is located within the Humber River Basin District. The Scheme extends across three Management Catchments, the Wharf and Ouse Lower, Derwent Humber, and Hull and East Riding Management Catchments (Ref. 38).
- 3.4.16 The four surface WFD waterbodies, within the three management catchments, within 1k of the Site, are:
 - a. Wharfe and Ouse Lower / Ouse from R Wharfe to Upper Humber Water Body (GB104027064270);
 - b. Derwent Humber / Derwent from Elvington Beck to River Ouse Water Body (GB104027068311);

- c. Fleet Dike catch (tributary of Ouse) Water Body (GB104027063630); and
- d. Hull and East Riding / Foulness from Black Beck to Market Weighton Canal Water Body (GB104026066690).
- 3.4.17 The River Ouse flows eastwards through the central part of the Grid Connection Corridor, with the River Derwent (Humber) flowing into the River Ouse just north-west of the Drax area. The Fleet Dike runs along the eastern boundary of Area 2a. The River Foulness borders Areas 1h and 1e to the east.
- 3.4.18 The Ouse from River Wharfe to Upper Humber WFD waterbody (Ref. 38) has a moderate ecological potential and a chemical status of failing (classifications 2019). It is classified as a heavily modified waterbody. It is not achieving a good status due to phosphate (moderate status), and failures for mercury and its compounds, Perfluoroctane sulphonate (PFOS) and Polybrominated diphenyl ethers (PBDE).
- 3.4.19 The Derwent from Elvington Beck to River Ouse waterbody (WFD ID: GB104027068311) has a moderate ecological potential and a chemical status of fail. It is classified as being heavily modified (classifications 2019). The objective is for good status by 2027. It is not achieving a good status due to failures for mercury and its compounds, and PBDE.
- 3.4.20 The Fleet Dike catch (tributary of Ouse) Water Body (GB104027063630) drains into the River Derwent north of Wressle, its catchment area extends eastwards from Wressle/Breighton eastwards towards Spaldington. It is designated as an artificial waterbody. It is currently rated at moderate ecological potential, with a failure for chemical status (classifications, 2019). The water body is not achieving a good ecological status due to a failure for invertebrates, and a moderate classification for ammonia, dissolved oxygen and temperature. There are failures for mercury and its compounds and PBDE. The objective is for good by 2027.
- 3.4.21 The Foulness from Black Beck to Market Weighton Canal WFD waterbody (GB104026066690) drains the Spaldington and Market Weighton area. The waterbody is not designated artificial or heavily modified. The waterbody is at moderate ecological status and has a chemical status of fail, with an overall objective of good status by 2027. The waterbody is rated at moderate ecological status due to macrophytes and phytobenthos combined being at moderate status; dissolved oxygen being of poor status, failures for mercury and its compounds, and PBDE.
- 3.4.22 A number of smaller water bodies are present within the study area, including drains, dikes and ponds.

Licensed Surface Water Abstractions

3.4.23 Sixteen licensed surface water abstractions have been identified on-site and within 250m of the Site (Ref. 10). A further seven licenced surface water abstractions have been identified within 500m of the Site, including a public potable water supply abstraction located approximately 280m south of the Grid Connection Corridor. The abstractions are listed below in **Table 8**.

Table 8. Licensed Surface Water Abstractions

Grid Reference (GR)	Distance (metres) & Direction/ Location	Operator	Source	Use
469230 E 429170 N	Adjacent south- east from the Grid Connection Corridor	J Bramley & Sons	River Derwent	General agriculture: spray irrigation - direct
467800 E 428700 N (multiple records)	Adjacent east of the Grid Connection Corridor	Aes Drax Power Ltd	River Ouse	Other industrial/commercial/publi c services: evaporative cooling
469259 E 429185 N (multiple records)	10 m south-east from the Grid Connection Corridor	H Hey & Sons	River Derwent	General agriculture: spray irrigation - direct
468194 E 428757 N (multiple records)	30m south of the Grid Connection Corridor	R H Falkingham & Son	River Derwent	General agriculture: spray irrigation - direct
467580 E 428700 N (multiple records)	30 m west of the Grid Connection Corridor	Drax Power Ltd	River Ouse	Production of energy: boiler feed / general use (medium loss) / process water
469900 E 429550 N	40 south-east from the Grid Connection Corridor	D F Hare; S M Hare & N Hare T/a H C Hare & Son	River Derwent	Spray irrigation
467000 E 428200 N	Adjacent west of the Grid Connection Corridor at New Road	Mr I D Watson	Drax Abbey Fish Pond	General agriculture: spray irrigation – direct
468930 E 429010 N	60 m south-east from the Grid Connection Corridor	Howard Leighton	River Derwent	Spray irrigation
468949 E 429009 N	60 m south-east from the Grid Connection Corridor	R H Falkingham & Son	River Derwent	General agriculture: spray irrigation - direct

Grid Reference (GR)	Distance (metres) & Direction/ Location	Operator	Source	Use
468990 E 429020 N (multiple records)	60 m south-east from the Grid Connection Corridor	Robert Jackson & Judith Jackson	River Derwent	Spray Irrigation
468950 E 429000 N (multiple records)	70 m south-east from the Grid Connection Corridor	R H Falkingham & Son	River Derwent	General Agriculture: Spray Irrigation - Direct
470458 E 430029 N (multiple records)	110 m south- east from the Grid Connection Corridor	R H Falkingham & Son	River Derwent	General Agriculture: Spray Irrigation - Direct
470450 E 430020 N	120 m south- east from the Grid Connection Corridor	R H Falkingham & Son	River Derwent	General Agriculture: Spray Irrigation - Direct
469130 E 429540 N (located by supplier to within 100m)	280m north of the Grid Connection Corridor	Stephen Davison	Un-named drain pump	Spray irrigation
470200 E 429700 N (located by supplier to within 100m) (multiple records)	280m south of the Grid Connection Corridor	Yorkshire Water Services Ltd	River Derwent - Loftsome Bridge	Public water supply: potable water supply – direct / general use (medium loss)
467537 E 428825 N	140 m west from the centre of the Grid Connection Corridor	Canal And River Trust	River Ouse	General agriculture: spray irrigation - direct

Grid Reference (GR)	Distance (metres) & Direction/ Location	Operator	Source	Use
467537 E 428825 N (multiple records)	140 m west from the centre of the Grid Connection Corridor	R H Falkingham & Son	River Ouse	General agriculture: spray irrigation - direct
468100 E 428600 N	180 m southeast from the Grid Connection Corridor (located by supplier to within 100m)	Yorkshire Water Services Ltd	River Derwent	Unclassified (other)
466998 E 428510 N (multiple records)	260 m west from the Grid Connection Corridor	The Hambleton Abstraction Partnership	Water may be abstracted from a river or stream reach, or a row of wellpoints.	General agriculture: spray irrigation – direct / trickle irrigation
468370 E 428470 N	340 m south- east of the Grid Connection Corridor (located by supplier to within 100m)	Robert Andrew Falkingham	River Ouse	Spry irrigation
470670 E 431170 N (multiple records)	410 m north of the Grid Connection Corridor	R H Falkingham & Son	River Derwent	General agriculture: spray irrigation - direct
470674 E 431188 N (multiple records)	420 m north of the Grid Connection Corridor	R H Falkingham & Son	River Derwent	General agriculture: spray irrigation – direct / storage
477500 436600 (multiple records)	430 m north of Ecology Mitigation Area 1g	PM&PM Rhodes	River Foulness	Spray irrigation / storage

Risk of Flooding from Surface Water

3.4.24 The indicative floodplain map (Ref. 39) for the area, published by the Environment Agency, shows that the risk of surface water flooding at the Site is generally very low (annual chance of flooding of less than 0.1%) with isolated patches of low (chance of flooding of between 0.1% and 1%), medium (chance of flooding of between 1% and 3%) and high risk (chance of flooding of greater than 3.3%) generally associated with the agricultural ditches and various dikes.

4. Historical & Planned Development

4.1 Historical Ordnance Survey Mapping and Aerial Photographs

- 4.1.1 Historical OS maps of the Site and the wider environs were provided in the Envirocheck Report (scales 1:2,500, 1:10,560 and 1:10,000) (Ref. 10, Annex B) and from Google Earth Pro (Ref. 40) and these are reviewed in this section.
- 4.1.2 The historical OS maps obtained with the Envirocheck Report date between mid-19 century to present (2022). **Table 9** presents a summary of the main features present on, and within, approximately 250m radius of the Site. It should be noted that only indicative map scales are provided. Where dates are stated, these refer to the dates of maps on which the features are present, have changed use or are no longer annotated, and do not necessarily refer to the exact dates of existence of a particular feature. Development that may have occurred between map editions is recorded as occurring on the later published map, hence there are some limitations to the accuracy of the date of development unless supplementary evidence is available.

Table 9. Summary of Historical Mapping

Date/s & Maps	Area	Key Features on-site	Key Features off site
pre-1900 1855 – 1:10,560 1854 – 1:10,560 1891 to 1892 – 1:10,560 1889 to 1891 – 1:2,500 1890 – 1:2,500 1890 to 1891 – 1:2,500	1	 a) The Site consists of agricultural fields, with limited parcels of trees, various drains, ponds and dikes, farm access tracks and small country lanes. Farm buildings (Johnsons Farm, GR 477600E, 434500N) are located in Area 1e (Envirocheck Report 306409112_1_1 / 60683115_EC_D14_HistSeg2500 and 60683115_EC_D15_HistSeg2500). b) The River Foulness runs along the eastern Site boundary, and meanders into the Site, in Area 1e and 1h (Envirocheck Report 306409112_1_1 / 60683115_EC_G_HistSeg2500; 60683115_EC_G3_HistSeg2500). c) A moat is present in Area 1g (GR 476500E, 435700N) (Envirocheck Report 306409112_1_1 / 60683115_EC_G_HistSlice10000; 60683115_EC_D_HistSlice10000; 60683115_EC_D_HistSlice10	is a contract of the contract of the contract of
	2	a) Area 2 consists of agricultural fields, with limited parcels of trees, various drains, ponds and dikes, farm access tracks and small country lanes.b) Caville Wood extends in the central part of Area 2g.	a) The Site is surrounded by agricultural fields, with a few farm buildings and yards adjacent to the Site.

Date/s & Maps	Area	Key Features on-site	Key Features off site
		 c) Sandpit Wood extends in the central part of Area 2e (Envirocheck Report 306409112_1_1 / 60683115_EC_D1_HistSeg2500). d) Two small unspecified buildings and a well are indicated across the southern part of Area 2g (Envirocheck Report 306409112_1_1 / 60683115_EC_B5_HistSeg2500). e) Owlet Hall is located along the north-eastern boundary of Area 2g (Envirocheck Report 306409112_1_1 / 60683115_EC_B14_HistSeg2500). f) An unspecified building is along the north-eastern boundary of Area 2e (Envirocheck Report 306409112_1_1 / 60683115_EC_C8_HistSeg2500). g) A small unspecified building and a well are located along the eastern boundary of Area 2e (Envirocheck Report 306409112_1_1 / 60683115_EC_D5_HistSeg2500). h) Brindcommon Farm is located along the western boundary of Area 2d (GR 4748000E 432000N). (Envirocheck 306409114_1_1 / 60683115_EC_G6_HistSeg2500). i) A pump is located along the eastern boundary of Area 2b (Envirocheck 306409114_1_1 / 	 b) Woodland plantations area adjacent to Area 2. c) The village of Spaldington and Caville are located approximately 100m east and immediately adjacent of Area 2g, respectively. d) A railway line is located 100m south of Area 2g.
	3	 a) The Site consists of agricultural fields, with limited parcels of trees, various drains, ponds and dikes, farm access tracks and small country lanes. a) North Eastern Railway runs east-west between Area 3c and Area 3b (but excluded from the Site Boundary) (Envirocheck 306409114_1_1 / 60683115_EC_D_HistSlice10000). 	 a) The Site is surrounded by agricultural fields, with a few farm buildings and yards adjacent to the Site. b) Woodland plantations extend to adjacent to the Site at some locations.

Date/s & Maps	Area	Key Features on-site	Key Features off site
		 b) Prickett Hill House is located in the south-centre of the site Area 3c (Envirocheck 306409114_1_1 /60683115_EC_D12_HistSeg2500). c) A small unspecified building is located at the south-western edge of Area 3c (Envirocheck 306409114_1_1 / 60683115_EC_D6_HistSeg2500). d) A well is indicated in the central extent of Area 3b (Envirocheck 306409114_1_1 / 60683115_EC_D15_HistSeg2500). e) A pump is indicated along the northern boundary of Area 3c (Envirocheck 306409114_1_1 / 60683115_EC_D15_HistSeg2500). 	adjacent to the Site in the south. e) Wressle brick & tile works (disused) and a smithy are located 120m west of Area 3b (GR 472400E 431400N). (Envirocheck 306409114_1_1 /
	Grid Connection Corridor	 a) The Site consists of agricultural fields, with limited parcels of trees, various drains, ponds and dikes, farm access tracks and small country lanes. b) Marshland is shown in the southern part of the Site, adjacent east of Drax Abbey Farm (Envirocheck 306409114_1_1 / 60683115_EC_A15_HistSeg2500). a) The Site crosses the River Ouse in the south. (Envirocheck 306409114_1_1 / 60683115_EC_B4_HistSeg2500). b) The Site is bordered to the south by the River Derwent in the central extent. Envirocheck 306409114_1_1 / 60683115_EC_C1_HistSeg2500; 60683115_EC_C2_HistSeg2500). c) River Derwent crosses the Site to the north of A63 Hull Road. (Envirocheck 306409114_1_1 / 60683115_EC_C16_HistSeg2500). 	 a) The Site is surrounded by agricultural fields, ponds, houses, farm buildings and yards. b) North Eastern Railway borders the Site in the north (Envirocheck 306409114_1_1 / 60683115_EC_D_HistSlice10000) c) A railway (Hull Barnsley & West Riding Junction Railway) runs approximately 150m south-east of the southern edge of the Site, along with Drax Station. A goods shed is present 150m south of the Site (Envirocheck 306409114_1_1 / 60683115_EC_A_HistSlice10000;

Date/s & Maps	Area	Key Features on-site	Key Features off site
		d) A pump is located on-site, in the eastern extent of the Site (Envirocheck 306409114_1_1 / 60683115_EC_D14_HistSeg2500).	60683115_EC_A6_HistSeg2500; 60683115_EC_A7_HistSeg2500). d) The village of Barmby on the Marsh is approximately 100m east of the Site. e) Brackenholme village is immediately adjacent to the Site, in the north.
1900 to 1910 1910 – 1:10,560 1907 to 1910 – 1:10,560 1908 to 1909	1	 a) The eastern extent of Area 1e, along the River Foulness, is noted to be 'liable to floods' (Envirocheck Report 306409112_1_1 / 60683115_EC_G3_HistSeg2500). b) A pump/well is indicated in the north-west edge of Area 1e (Envirocheck Report 306409112_1_1 / 60683115_EC_F4_HistSeg2500). 	In the Willitoft village/farm area, a tank is indicated 200m west of the Site, as well as a smithy (250m) and several wells.
- 1:10,560 1908 - 1:10,560	2	A small unspecified building is indicated along the eastern boundary of Area 1f (Envirocheck Report 306409112_1_1 / 60683115_EC_D10_HistSeg2500).	No significant change since previous map.
1907 – 1:2,500 1907 to 1909	3	No significant change since previous map.	No significant change since previous map.
- 1:2,500 1909 - 1:2,500	Grid Connection Corridor	The pump, previously located on-site, in the eastern extent of the Site, is no longer shown on the map (Envirocheck 306409114_1_1 / 60683115_EC_D14_HistSeg2500).	No significant change since previous map.
1950-1970 1952 to 1953 – 1:10,560	1	The River Foulness is no longer within the site boundary in Area 1e and 1h (Envirocheck Report 306409112_1_1 / 60683115_EC_G_HistSlice10000; 60683115_EC_G3_HistSeg2500; 60683115_EC_G6_HistSeg2500).	a) The River Foulness now borders the Site, without running within the Site Boundary in Areas 1e and 1h. (Envirocheck Report 306409112_1_1 /

Date/s & Maps	Area	Key Features on-site	Key Features off site
1958 – 1:10,000 1938 to 1953 – 1:10,560 1958 – 1:10,000 1938 – 1:2,500 1965 – 1:2,500			60683115_EC_G_HistSlice10000; 60683115_EC_G3_HistSeg2500; 60683115_EC_G6_HistSeg2500). b) The railway line (80m north of Area 1a) is indicated as dismantled (Envirocheck 306409114_1_1 / 60683115_EC_D_HistSlice10000). c) The smithy at Willitoft is no longer indicated on historical mapping. d) Bubwith Airfield (later indicated as Breighton airfield) is indicated 250m west of Area 1a in historical map dated 1953. The airfield is indicated as 'disused' in the historical map dated 1958 (Envirocheck Report 306409112_1_1 / 60683115_EC_E_HistSlice10000).
	2	Brindcommon Farm, previously located along the western boundary of Area 2d, is no longer shown on the map (GR 4748000E 432000N). (Envirocheck 306409114_1_1 / 60683115_EC_G6_HistSeg2500).	 a) Bubwith Airfield (later indicated as Breighton airfield) is indicated extending adjacent north and northwest of Area 2b in the historical map dated 1953. The airfield is shown as disused in the historical map dated 1958 (Envirocheck 306409114_1_1 / 60683115_EC_H_HistSlice10000; 60683115_EC_H3_HistSeg2500). b) Development west of the Site Boundary, approximately 150 m.

Date/s & Maps	Area	Key Features on-site	Key Features off site
			c) A camp site with what appears to be circular tanks is located 200 m from Area 2b (GR 474700E 433100N). (Envirocheck Report 306409112_1_1 / 60683115_EC_C6_HistSeg2500).
	3	No significant change since previous map.	No significant change since previous map.
	Grid Connection	Development of a main road through the Site (Hull Ro	pad). a) Tank noted in Brackenholme (NGR 430000E 470000N).
	Corridor		 b) Development of a main road and bridge over the River Derwent near Brackenholme.
1970 to 1977 1974 to 1977 - 1:10,000 1975 to 1977 - 1:10,000 1975 - 1:10,000 1974 to 1975 - 1:10,000	1	 a) Some of the small ponds previously indicated across are no longer shown on the maps (Envirocheck Repo 306409112_1_1 / 60683115_EC_E8_HistSeg2500; 60683115_EC_F3_HistSeg2500; 60683115_EC_F6_HistSeg2500; 60683115_EC_F7_HistSeg2500; 60683115_EC_F9_HistSeg2500; 60683115_EC_F10_HistSeg2500). b) A pylon is located in the north-eastern part of Area 1a (Envirocheck Report 306409112 1 1 / 	rt indicated on historical mapping.
1974 – 1:10,000		60683115_EC_F10_HistSeg2500).	
1972 – 1:2,500	2	 a) Some of the small ponds previously indicated across are no longer shown on the map (Envirocheck Report 306409112_1_1 / 60683115_EC_A12_HistSeg2500; 	,

Date/s & Area Maps	Key Features on-site	Key Features off site
1973 – 1:2,500 1974 – 1:2,500 1976 – 1:2,500 1972 to 1973 – 1:2,500 1965 to 1972 – 1:2,500	60683115_EC_B9_HistSeg2500; 60683115_EC_B10_HistSeg2500; 60683115_EC_B13_HistSeg2500; 60683115_EC_B14_HistSeg2500; 60683115_EC_B15_HistSeg2500; 60683115_EC_C10_HistSeg2500; 60683115_EC_D1_HistSeg2500; 60683115_EC_D1_HistSeg2500; 60683115_EC_D16_HistSeg2500; 60683115_EC_D16_HistSeg2500; 60683115_EC_D16_HistSeg2500; 60683115_EC_B16_HistSeg2500; 60683115_EC_B5_HistSeg2500). b) The small unspecified buildings and the well previously indicated across the southern part of Area 2g are no longer shown on the map (Envirocheck Report 306409112_1_1 / 60683115_EC_B5_HistSeg2500). c) The small unspecified building and the well, previously located along the eastern boundary of Area 2e, are no longer shown on the map (Envirocheck Report 306409112_1_1 / 60683115_EC_D5_HistSeg2500). d) Caville Wood, previously across the central part of Area 2g, is no longer shown on the map (Envirocheck Report 306409112_1_1 / 60683115_EC_B13_HistSeg2500). e) Owlet Hall, previously located along the north-eastern boundary of Area 2g, is no longer shown in the map (Envirocheck Report 306409112_1_1 / 60683115_EC_B14_HistSeg2500). f) The unspecified building, previously located along the north-eastern boundary of Area 2e, is no longer shown in the map ((Envirocheck Report 306409112_1_1 / 60683115_EC_B14_HistSeg2500).	00000170 <u>1</u> 0_01.110.009

Date/s & Maps	Area	Key Features on-site	Key Features off site
		 g) Pylons are located across the west of the Site. h) The small unspecified building, previously indicated along the eastern boundary of Area 1f, is no longer shown in the map (Envirocheck Report 306409112_1_1 / 60683115_EC_D10_HistSeg2500). i) Brindcommon Farm, formerly located along the western boundary of Area 2d, is no longer shown on the map (Envirocheck 306409114_1_1 / 60683115_EC_G6_HistSeg2500). 	
	3	 a) Some of the small ponds previously indicated across Area 3 are no longer shown on the map (Envirocheck 306409114_1_1 / 60683115_EC_F7_HistSeg2500). b) Pylons are located in Area 3a. Envirocheck 306409114_1_1 / 60683115_EC_F7_HistSeg2500). c) The well, previously indicated in the central extent of Area 3b, is no longer shown on the map (Envirocheck 306409114_1_1 / 60683115_EC_D15_HistSeg2500). d) The pump, previously indicated along the northern boundary of Area 3c, is no longer shown on the map (Envirocheck 306409114_1_1 / 60683115_EC_D15_HistSeg2500). 	(disused) and the smithy, previously located 120m west of Area 3b, are
	Grid Connection Corridor	a) Some of the small ponds previously indicated across the Grid Connection Corridor are no longer shown on the map. (Envirocheck 306409114_1_1 / 60683115_EC_D13_HistSeg2500).	 a) A pump house is indicated 100m east of the Site Boundary (GR 470600E 430100N). b) A pump house is located adjacent west to the Site, south of River Ouse (GR 429200E 469250N).

Date/s & Maps	Area	Key Features on-site	Key Features off site
		 b) Site has been relandscaped along the west boundary of the south of the Site to accommodate a new road and drain for the construction of Drax Power Station. c) A caravan site is located on-site in the south of the Site (GR 466800E 427000N) (Envirocheck 306409114_1_1 / 60683115_EC_A_HistSlice10000; 60683115_EC_A6_HistSeg2500). d) Infrastructure associated with Drax Power Station is in the south-west of the Site (GR 426800E 466600N) (Envirocheck 306409114_1_1 / 60683115_EC_A6_HistSeg2500) e) Marshland is shown in the southern part of the Site, adjacent east of Drax Abbey Farm (Envirocheck 306409114_1_1 / 60683115_EC_A15_HistSeg2500). 	60683115_EC_B4_HistSeg2500). c) The railway, located 150m south-
1978 to 1989 1984 1:10,000) 1984 to 1989 (1:10,000)	1	Pylons are located on the Site in the south (Envirocheck 306409114_1_1 / 60683115_EC_A11_HistSeg2500).	No significant change since previous map.
	2	No significant change since previous map.	No significant change since previous map.
	3	No significant change since previous map.	No significant change since previous map.

Date/s & Maps	Area	Key Features on-site	Key Features off site
1982 to 1987 (1:2,500 1981 to 1984 - 1:2,500 1982 - 1:2,500 1979 to 1984 - 1:2,500	Connection Corridor	a) The caravan site, previously located across the southern part of the Site, is no longer shown on the map. This area is occupied by woodland. (GR 466800E 427000N) Envirocheck 306409114_1_1 / 60683115_EC_A_HistSlice10000; 60683115_EC_A6_HistSeg2500).	 a) Water treatment works have been developed 100m south-east of the central extent of the Site. This area includes filter beds (GR 470200E 429600N) (Envirocheck 306409114_1_1 / 60683115_EC_C7_HistSeg2500). b) Mouth of the River Derwent where it enters the River Ouse has been developed with a lock/sluices. The Barmby Tidal Barrage is located by the lock. c) Further development of Drax Power Station including the construction of cooling towers.
1990 – 2000 1999 – 1:10,000 1993 – 1:2,500	1	No significant change since previous map.	Winfield Lakes (fishing lake) are adjacent south of Area 1d (Envirocheck Report 306409112_1_1 / 60683115_EC_C15_HistSeg2500).
1994 – 1:2,500 1995 – 1:2,500 1996 – 1:2,500	2	 a) Small unspecified structures/features (likely associated with a farm located off-site – Caville Hall) are shown on-site along the southern boundary of Area 2g (Envirocheck Report 306409112_1_1 / 60683115_EC_B5_HistSeg2500 and 60683115_EC_B6_HistSeg2500). b) Some of the small ponds previously indicated across the Area 2 are no longer shown on the map. (Envirocheck 306409114_1_1 / 60683115_EC_E9_HistSeg2500). 	 a) A golf course is adjacent to the east of Area 2d and adjacent to the west of Area 2e (Envirocheck Report 306409112_1_1 / 60683115_EC_C3_HistSeg2500). b) A mast is 230m east of the Site (GR 478300E 431900N).

Date/s & Maps	Area	Key Features on-site	Key Features off site
1994 to 1995 - 1:2,500 1999 – Arial Photograph 1990 to 1994 - 1:2,500			c) A depot is adjacent to the north-east of Area 2d, with silos shown 200m north-east of Area 2d (Envirocheck 306409114_1_1 / 60683115_EC_G10_HistSeg2500).
	3	 a) Prickett Hall House is no longer present in Area 3c. Potentially discarded material is shown in the 1999 Aerial Photograph, across the central part of Area 3C (Envirocheck 306409114_1_1 /60683115_EC_D12_HistSeg2500). b) The small unspecified building, previously located at the south-western edge of Area 3c, is no longer shown on the map (Envirocheck 306409114_1_1 / 60683115_EC_D6_HistSeg2500). 	No significant change since previous map.
	Grid Connection Corridor	No significant change since previous map.	 a) Further pylons constructed on-site in the south near the Drax Power Station. b) Further development around the
2006 2006 – 1:10,000	1	No significant change since previous map.	Drax Power Station. Ponds and lakes located approximately 100m to the northeast.
	2	No significant change since previous map.	The area adjacent north of Area 2a, previously occupied by the Bubwith Airfield, is indicated as infilled. This area is currently identified as registered historical landfill site

Date/s & Maps	Area	Key Features on-site	Key Features off site	
			(Envirocheck 306409114_1_1 / 60683115_EC_H_HistSlice10000).	
	3	No significant change since previous map.	No significant change since previous map.	
	Grid Connection Corridor	No significant change since previous map.	Development around Brackenholme village.	
2022 2022 – 1:10,000 2019 to 2022 – Google Earth Imagery	1	No significant change since previous map.	Wind turbine has been constructed off Tottering Lane (GR 475500E 434800N).	
	2	No significant change since previous map.	Three wind turbines constructed south and west of the Site Boundary (GR 475400 E 432900 N; 475100 E 433300 N; 474800 E 433400 N).	
	3	No significant change since previous map.	No significant change since previous map.	
	Grid Connection Corridor	No significant change since previous map.	 a) Development of Brackenholme Business Park, adjacent to the south of the Grid Connection Corridor at A63 Hull Road. 	
			 b) A pumping station to the north of the Site boundary in the north of the Site (GR 470600E 430700N). 	

4.2 Planning Authority Records

District of Selby

4.2.1 A search of planning application records on, and within, 250m of the Site has been undertaken using the search facility on the Selby District Council website (Ref. 41). There were no applications (relevant to the Site) where potential impact to the ground may have occurred in the records dating back to 1986. The search included Drax, Long Drax, Barmby-on-the-Marsh and Brackenholme.

District of East Riding of Yorkshire

4.2.2 A search of planning application records on and within 250m of the Site has been undertaken using the search facility on the East Riding of Yorkshire District Council website (Ref. 25). **Table 10** summarises the most relevant applications (where potential impact to the ground may have occurred) in the records dating back to 1986. The search included Wressle, Newsholme, North Howden, Brind, Willitoft, Spaldington and Gribthorpe.

Table 10. Planning Authority Record – East Riding of Yorkshire District Council

Decision date	Application Status (Decision)	Location	Reference	Description
21 October 2020	Unknown (approved)	Off-site, adjacent east of the Grid Connection Corridor in the centre of the Site. Loftsome Bridge Coaching House, Station Road, Wressle, East Riding of Yorkshire, YO8 6EN.	20/01705/PLF	Conversion of existing vacant barn and machinery sheds to provide an additional thirteen rooms in connection with the existing hotel use, and associated works to improve the drainage system for the entire site.
13 September 2002	Unknown (prior approval not required)	Off-site, adjacent east of the Grid Connection Corridor in the north of the Site. Tythe Farm, Station Road, Wressle, East Riding of Yorkshire, YO8 6EN.	02/05029/TELCOM	Erection of Telecommunications monopole and equipment cabin.
04 July 1997	Unknown (approved)	Off-site, 250m north of the Grid Connection Corridor in the north of the Site. Leconfield House, Station Road, Wressle, East Riding of Yorkshire, YO8 6EW.	97/20437/PLF	Erection of a detached dwelling, construction of a vehicular access and installation of a septic tank.
Pending Considerati on	Unknown (Pending Consideration)	Off-site, 270m north-east of Area 2d. R100 Energy Limited Anaerobic Digestion Plant Spaldington Airfield Wood Lane Brind East Riding of Yorkshire DN14 7NG.	22/03606/CM	Installation of oil separation unit, oil separation storage tank, boiler, battery unit, transformer, motor control kiosk, liquified natural gas tank and compound and pressure reduction system within existing anaerobic digestion plant facility.

Decision date	Application Status (Decision)	Location	Reference	Description
03 March 2021	Unknown (approved)		20/04305/CM	Installation of a 'pasteurised soup' holding tank within the existing Anaerobic Digestion Plant facility.
11 October 2019	Unknown (approved)	Off-site, 270m north-east of Area 2d. Land East of Inglis Transport and storage Spaldington Airfield, Wood Lane, Brind, East Riding of Yorkshire DN14 7NG	19/02714/CM	Excavation of a digestate storage lagoon.
24 July 1989	Unknown (approved)	Off-site, adjacent south of Area 2e and adjacent north of Area 2f. Sandwood House, Spaldington, Goole, East Riding of Yorkshire, DN14 7NG.	89/20175/PLF	Change of use of a barn to an industrial unit for the manufacture of cardboard boxes - full planning.
04 August 2020	Unknown (approved)	Off-site, 230m south-west of Area 2c. Approximately 300 m east of an Interconnecting Cable Corridor. Land South-East of Brind Leys, Brindleys Lane, Wressle, East Riding of Yorkshire, DN14 7JY.	20/00881/STPLF	Erection of 2 agricultural buildings for broiler rearing (up to 76,000 birds), 5 grain silos and blender room, control rooms, 3 gas tanks, underground wash out tank, attenuation pond, landscaped bund and associated hardstanding and resurfaced farm tracks.
05 March 2021	Unknown (approved)	Off-site, within the industrial/commercial area which extends from 250m north-	21/00149/PLF	Siting of a container housing a 499kw solid biomass woodchip boiler and external flue.
16 July 2019	Unknown (approved)	west of Area 2a. Service Timber Limited, Breighton Airfield, Street Lane, Bubwith, East Riding of Yorkshire YO8 6DJ.	19/01570/PLF	Siting of a container housing a 199kw solid biomass woodchip boiler with 6.5m high flue and erection of a fuel store shed.
05 October 2018	Unknown (approved)		18/02520/PLF	Erection of a building to house 2 x 250kw wood chip biomass boilers.

Decision date	Application Status (Decision)	Location	Reference	Description
26 August 1997	Unknown (approved)		97/20532/REM	Erection of a timber storage and manufacturing building.
18 February 1992	Unknown (approved)		90/20478/OUT	Erection of buildings for use as business, general industrial & storage purposes (use classes B1,B2 & B8) and installation of a sewage treatment plant.
13 February 2019	Unknown (approved)	Off-site, within the industrial/commercial area which extends from 250 m northwest of Area 2a. Land to the north of Unit 5, Breighton Airfield, Street Lane, Bubwith, East Riding of Yorkshire, YO8 6DJ.	18/03930/PLF	Erection of an electrical substation.
04 February 2013	Unknown (approved)	Off-site, within the industrial/commercial area which extends from 250 m northwest of Area 2a. Unit 9, Breighton Airfield, Street Lane, Bubwith, East Riding of Yorkshire, YO8 6DJ.	12/04516/REM	Erection of 3 No. industrial/warehouse starter units and associated works following demolition of former war-time buildings following outline permission 11/01352/OUT.
16 July 1991	Unknown (approved)	Off-site, within the industrial/commercial area which extends from 250 m northwest of Area 2a. The Brecks Company Ltd, Breighton Airfield, Street Lane, Bubwith, East Riding of Yorkshire, YO8 6DJ	91/20217/PLF	Erection of a processing/storage building for the manufacture of animal creep feed.

Decision date	Application Status (Decision)	Location	Reference	Description
02 July 2003	Unknown (approved)	Off-site, within the industrial/commercial area which extends from 250 m northwest of Area 2a. Midco Waste Management Ltd, Breighton Airfield, Street Lane, Bubwith, East Riding of Yorkshire, YO8 6DJ	03/03273/STPLF	Erection of a building to house tyre shredding plant.
22 January 2018	Unknown (approved)	On-site, central part of Area 2g. Land North of Caville Hall Farm House, Holme Road, Eastrington, East Riding of Yorkshire, DN14 7LX.	18/00069/AGNOT	Erection of circular slurry store.
13 September 1999	Unknown (approved)	Off-site, east of Area 1b. Four Beeches Farm, High Street, Gribthorpe, East Riding of Yorkshire, DN14 7NT.	99/02694/PLF	Conversion of barns to four dwellings, including the installation of a sewage treatment plant.

4.3 Other Relevant Site History

Breighton Airfield

4.3.1 Areas formerly associated with the Breighton Airfield extend adjacent to the north and north-west of Area 2a and 250m west of Area 1a. The currently operative area of Breighton Airfield is located over 900m west of Area 2a. Online sources (Breighton Airfield website (Ref. 42)) indicates that the construction of the airfield started in 1941 and the airfield opened in January 1942. The first occupants were an Australian Bomber Squadron. In June 1943, the airfield was transferred to the Royal Air Force (RAF) and was involved in the support of the Allied landings on the eve of D-day in June 1944. In September 1945, the airfield was placed on Care and Maintenance until 1959 where it became a Thor Intercontinental Missile Base and housed nuclear deterrents. The airfield was vacated by the RAF in the mid-1960s.

4.4 Unexploded Ordnance Risk

Wartime Land-use

4.4.1 Based on a review of historical maps, the Site was open land during wartime Britain and was undeveloped, meaning it was possible for bomb strikes to go unobserved. However it should be noted that mapping detail may have been deliberately omitted during the war years for security. Areas formerly associated with the Breighton Airfield, which is considered a wartime site of interest, extend adjacent to the north and north-west of Area 2a and 250m west of Area 1a.

Post War Development

4.4.2 An analysis of the post war historical map does not show visible changes of the land uses on the Site which could indicate potential aerial bombing. However, due to its rural nature, the chances of unexploded Ordnance (UXO) going unnoticed do exist. An online search has been undertaken for any mention of recent ordnance discovery reported at or around the Site. The search did not identify any records of ordnance in the study area.

Unexploded Ordnance Mapping

4.4.3 The regional UXB mapping published by Zetica (Ref. 26 and Annex D) show that the Site lies within a zone that experiences a low risk of UXB. It is estimated that the bombing density of the area is 15 bombs or less within 1000 acres.

Historical and Planned Development Key Findings:

The Site was undeveloped land/agricultural fields since the earliest available historical maps (late 1800's), with contamination sources limited to potential application of pesticides and fertilisers for agricultural purposes. Potential contaminative sources identified locally on-site may be associated with former small ponds which may have been filled with a variety of (potentially unlicensed) waste materials. Infilled land may be also associated with the land adjacent west of the River Foulness, given that this watercourse originally meandered within the Site (in Areas 1e and 1h) until the 1950s, when its course was modified. Farmland, including farm buildings and yards where fuel and agricultural materials were/are stored, are shown at various locations within the Site (current Johnsons Farm in Area 1e, former Owlet Hall in Area 2g, former Brindcommon Farm in Area 2d, former Prickett Hill House in Area 3c, former Brindcommon Farm in Area 2d) and adjacent to the Site. Small unspecified buildings were/are also shown at few locations across the Site (Area 2g, Area 2e, Area 3c, Area 1f). A caravan site, currently occupied by a wooded area, was located within the Cable Connection Corridor, in the southern extent. Several pumps and wells are/were located across the Site at various locations. Marshland was historically present across the southern part of the Grid Connection Corridor.

The land uses surrounding the Site (relevant to contaminated land) include, in addition to farmland, current and former railway lines (between Area 3c and Area 3b; 80m north of Area 1; 100m south of Area 2g); Drax Power Station (at the southern edge of the Grid Connection Corridor); water treatment works (100m south-east of the central extent of the Grid Connection Corridor); former brick and tile works and former smithy (120m west of Area 3b); a former filling station (adjacent to the east of Area 2g); a depot (adjacent to the north-east of Area 2d); an old clay pit (50m west of Area 1e); pump houses (at few locations within 100m from the Grid Connection Corridor). Areas formerly associated with the Breighton Airfield extend adjacent north and north-west of Area 2a and 250m west of Area 1a; part of these areas are occupied by a registered historical landfill, which extends from adjacent to the north of Area 2a.

The planning records indicate the presence of various commercial/industrial activities and features (agricultural buildings, an industrial unit for the manufacture of cardboard boxes and a green energy supplier (R100 Energy Limited)) in the proximity of the Site.

5. Review of Historical Report

- 5.1.1 Fourteen risk assessment reports (Ref. 11 to Ref. 23) have been produced by Argyll Environmental in November 2022 for fourteen plots of land which include the Solar PV Site. The reports considered contaminated land, flood risk, operational compliance and natural and mining related hazards. The conclusions of the Argyll Environmental reports are generally consistent with the finding of this PRA.
- 5.1.2 The overall risks from contaminated land impacting the sites were generally considered low to moderate, with no action recommended by the assessor (from a contaminated land perspective), except for Plot 13 and Plot 8 (Ref. 43 and Ref. 23).
- 5.1.3 Plot 13 extends off-site, to the west of Area 1a and Plot 8 extends across a wider area, which includes Area 2a. Risk from contaminated land was assessed as up to high in Plots 13 and 8, due the proximity to a former military airfield and a landfill, which were considered likely to have caused contamination. For these plots, a Phase 1 Environmental Assessment was recommended, which is the first step in the phased approach to contaminated land assessments. If potential contaminant linkages are identified, this would likely lead on to a Phase 2 Intrusive Investigation.
- 5.1.4 The reports also identified a moderate to high risk of flooding across the entire area and a Flood Risk Assessment (FRA) was recommended.
- 5.1.5 Potential ground instability issues have also been identified across the entire area. The reports recommend that a local Royal Institution of Chartered Surveyors (RICS) accredited surveyor would be consulted to arrange the most suitable survey for the assessed sites, to assess whether they are affected by ground stability issues.
- 5.1.6 Finally, the reports indicate that Plot 13 (Ref. 43) and Plot 8 (Ref. 23) are located within the Coalfield Consultation Area. As such, these areas were considered at risk of ground stability issues, and some further investigation was required. The reports recommend obtaining a Landmark Information Group Coal report to better understand the nature of coal mining operations at and close to these areas.

6. Regulated Activities & Statutory Consultation

6.1 Introduction

- 6.1.1 The key relevant features that characterise the Site and surrounding area are summarised in this section, along with an indication of the risk to the land quality of the Site.
- 6.1.2 Information on groundwater and surface water abstractions is detailed in paragraphs 3.4.9 and 3.4.23 and is not repeated here.
- 6.1.3 Generally, any regulated activities within 250m of the Site could, depending upon their nature, represent potential off-site sources of contamination. This section indicates the activities present within 250m. The extent of this study area has been developed using professional judgement on the basis that contamination migration beyond this distance is likely to be minimal. This principle has been applied in assessing similar sites.

6.2 Regulated Processes

- 6.2.1 **Table 11** summarises information on regulated processes contained in the Envirocheck Report (Ref. 10). The Envirocheck Report collates data from a variety of sources including the Environment Agency and the BGS.
- 6.2.2 There were no instances of the following data identified within the information sources reviewed:
 - a. Contaminated Land Register Entries and Notices;
 - b. Prosecutions Relating to Controlled Waters;
 - c. Enforcement and Prohibition Notices;
 - d. Integrated Pollution Controls;
 - e. Local Authority Integrated Pollution Prevention and Control;
 - f. Local Authority Pollution Prevention and Control Enforcements;
 - g. Prosecutions Relating to Authorised Processes;
 - Registered Radioactive Substances;
 - Planning Hazardous Substance Enforcements; and
 - j. Explosive Sites.
- 6.2.3 The Selby District Council website (Ref. 41) indicates that there are currently no entries on their public register of "contaminated land" as defined under the Environmental Protection Act 1990, Part 2A. The East Riding of Yorkshire Council website (Ref. 44) indicates that there are currently no entries within 1km of the Site on their public register of "contaminated land" as defined under the Environmental Protection Act 1990, Part 2A.

Table 11. Summary of Regulatory Information

Subject	Number present	Details
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	On site	e 0-250m	
Agency & Hy	drological		
Discharge Consents	NA	44	Seven discharge consents are listed off-site, within 250m of Areas 2e, 1b and 1g, and relate to sewage discharges into freshwater stream/rivers in the Gribthorpe and Spaldington area. (Envirocheck Report 306409120_1_1 / 60683115_EC_C_Datasheet and 60683115_EC_F_Datasheet). 14 discharge consents are listed off-site within 250m of the southern end of the Grid Connection Corridor; and relate to sewage discharges and trade discharges into either land/soakaway or freshwater stream/rivers at the Drax Power Station. (Envirocheck Report 306409121_1_1 / 60683115_EC_A_Datasheet). 11 discharge consents are listed off-site within 250m from the Grid Connection Corridor; and relate to sewage discharges into freshwater stream/rivers in the Barmby-on-the-Marsh and Babthorpe area. (Envirocheck Report 306409121_1_1 / 60683115_EC_B_Datasheet and 60683115_EC_C_Datasheet). 11 discharge consents are listed off-site within 250m of the south-western edge of Area 3c; and relate to sewage discharges into freshwater stream/rivers in the Newsholme area. (Envirocheck Report 306409121_1_1 / 60683115_EC_D_Datasheet). One discharge consent is listed off-site within 250 m of Areas 2f and 2g; and relate to sewage discharges into freshwater stream/rivers in the Howden area. (Envirocheck Report 306409121_1_1 / 60683115_EC_DD_Datasheet).
lista sinata d	NΙΛ	0	60683115_EC_E_Datasheet).
Integrated Pollution Prevention and Control (IPPC)	NA	8	Three IPPC entries are adjacent to the north of Area 2d and relate to a waste management service (Changing Waste Ltd). The most recent of these three entries is listed as effective. (Envirocheck Report 306409121_1_1 / 60683115_EC_H_Datasheet). Three IPPC entry are indicated 150m north of Area 2d and relate to intensive farming (Spaldington Pig and Poultry). This permit is listed as superseded by variation. (Envirocheck Report 306409121_1_1 / 60683115_EC_H_Datasheet).

Subject	Number	present	Details
	On site	0-250m	-
			One IPPC entry is located 170m east of Area 2f, described as 'intensive farming' and associated with the Old Rush Farm poultry unit. The permit is listed as effective. (Envirocheck Report 306409120_1_1 / 60683115_EC_D_Datasheet).
Pollution Incidents to Controlled Waters	NA	12	Six pollution incidents to controlled waters are listed off-site, from adjacent to 200m from the Grid Connection Corridor, where River Derwent meets River Ouse. The pollution incidents relate to pollutants such as oils, tar/bitumen or in some cases an unknown pollutant, spilling into freshwater streams and rivers and they occurred between February 1989 and November 1998. (Envirocheck report 306409121_1_1 / 60683115_EC_B_Datasheet). Three pollution incidents to controlled waters are listed off-site, 25m west from the Grid Connection Corridor, in Woodhall Lane and 140m south of the Grid Connection Corridor in Barmby on the Marsh. The pollution incidents relate to release of sewage from septic tanks, spilling into freshwater and occurred between December 1989 and July 1991. (Envirocheck report 306409121_1_1 / 60683115_EC_C_Datasheet).
			Three pollution incidents to controlled waters are listed off-site, from 50m east to 225m north of the Area 3C. The pollution incidents relate to release of organic waste/slurry or unknown pollutant into freshwater and occurred between December 1991 and March 1995. (Envirocheck report 306409121_1_1 / 60683115_EC_E_Datasheet).
Substantiated Pollution Incident Register	NA	3	Three Substantiated Pollution Incident Registers entries are listed off-site, within 250m of the Site (250m north of Area 3b; and 90m and 130m of Area 2d). Two of the incidents relate to general biodegradable pollutant material and the other relates to agricultural materials and wastes (fertiliser). All three entries have significant water impacts and are either registered as minor or no impact to air and land. The incidents occurred between February 2007 and March 2011. (Envirocheck Report 306409121_1_1 / 60683115_EC_G_Datasheet and 60683115_EC_H_Datasheet)

Subject	Number present		Details
	On site	0-250m	
Hazardous Sub	stances		
Control of Major Accident Hazards Sites (COMAH)	NA	2	Two COMAH sites are listed 170m north-east of Area 2d. The entry associated with ITS Inglis Transport Services Ltd is listed as ceased; and the entry associated with Bunn Fertiliser Limited, is listed as active. Both are listed as 'Lower Tier'. (Envirocheck Report 306409121_1_1 / 60683115_EC_G_Datasheet and 60683115_EC_H_Datasheet)
Notification of Installations Handling Hazardous Substances (NIHHS)	NA	1	The one NIHHS is indicated located 170m north-east of Area 2d, associated with Inglis Transport Services Limited. The status of this entry is not active. (Envirocheck Report 306409121_1_1 / 60683115_EC_G_Datasheet and 60683115_EC_H_Datasheet)
Planning Hazardous Substance Consents	NA	4	Four Planning Hazardous Substance Consents entries are listed off-site, within 250m of the Site. The closest entry relates to 'ammonium nitrate-based fertilisers which conform to the fertilisers' and is associated with Contract Fertiliser and Storage Ltd, located adjacent north-east of Area 2d. Three entries relate to 'ammonium nitrate and ammonium nitrate compounds or aqueous ammonium nitrate solutions' or 'ammonium nitrate-based products', at Inglis Transport & Storage, located 170m north-east of the Area 2d. (Envirocheck Report 306409121_1_1 / 60683115_EC_G_Datasheet and 60683115_EC_H_Datasheet)

6.3 Licensed Waste Management Facilities

- 6.3.1 An attempt has been made to identify any landfilling operations, past and present, that have taken place in the vicinity (within 250m) of the Site.
- 6.3.2 Two historical landfill sites are located within 250m of the Site (Ref. 10).
- 6.3.3 Breighton Landfill site is located adjacent to the north of Area 2a, on land historically occupied by Bubwith Airfield. This landfill was licenced to receive household, commercial and industrial waste, until December 1992. First input date is not provided. The authorised waste included construction and demolition waste, domestic and commercial untreated waste, industrial non-hazardous waste, local authority collected waste and medical, surgical and veterinary waste.
- 6.3.4 New Road Landfill Site, located adjacent west of the southern extent of the Grid Connection Corridor, was licensed to receive inert waste. The landfill was operational between August 1978 and December 1982.
- 6.3.5 A closed household, commercial and industrial transfer station is indicated approximately 50m north of Area 2f. This facility operated until December 2020. A physical treatment facility is indicated 120m north-west of Area 2d. This facility operated until November 2020, when the permit was modified.
- 6.3.6 **Table 12** provides a summary of the identified licensed waste management facilities located within 250m of the Site.

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Table 12. Licensed Waste Management Facilities (<250 m of Site)

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National Grid Reference	Distance and Direction	Name / Category	Operator or licence holder	Status / Dates
472806E 434350N (Envirocheck Report 306409121_1_1 / 60683115_EC_I_ Datasheet)	Adjacent north of Area 2a	Breighton Landfill / historical household, commercial and industrial waste landfill	Integrated Waste Management Ltd and Humberside C.C.	Closure / 7 th December 1992
476648E 432535N (Envirocheck Report 306409120_1_1 / 60683115_EC_D_ Datasheet)	50 m, north of Area 2f	Household, commercial and industrial transfer station	Foster Robert	Surrender ed – 23 rd December 2020.
466800E 427800N (Envirocheck Report Order Number: 306409121_1_1 / 60683115_EC_A_ Datasheet)	Adjacent west of the southern extent of the Grid Connectio n Corridor	New Road Landfill Site / historical registered landfill site. (Deposited waste included inert waste)	Central Electricity Generating Board, (North Eastern Region)	Inactive / First input: 15 th August 1978. Last input: 31 st

National Grid Reference	Distance and Direction	Name / Category	Operator or licence holder	Status / Dates
				December 1982
474434E 432711N (Envirocheck Report 306409121_1_1 / 60683115_EC_H_Datash eet)	Adjacent north-west of Area 2d	Physical treatment facility	Changing Waste Ltd	Modified / November 2020

6.4 Industrial Land Use

6.4.1 There are no active or inactive contemporary trade directory entries on the Site. There are five active and 11 inactive entries within 250m of the Site, as summarised in **Table 13**. Any significant inactive listings thought not to be covered by the historical development review in section 4.1 are also noted if present and/or identified. An obsolete fuel station is indicated adjacent to the east of Area 2g. Active gas pipelines, owned by National Grid, cross Area 2g, Area 3c; and the Grid Connection Corridor south of Babthorpe. Several underground electrical cables are indicated at the southern end of the Grid Connection Corridor, along New Road.

Table 13. Potentially Contaminative Industrial Land Use on and Within 250 m of the Site

Subject	Location	Details
Contemporary Trade Directory Entries	Off-Site	Arthur Johnson Ltd – paper & cardboard products & packaging – manufacturers (inactive): 50m north of Area 2f and 100 m south of Area 2e. Phoenix Engineering – agricultural engineers (inactive): 240m north of Area 2e.
		J G Harrison & Son – coal & smokeless fuel merchants & distributors (active): 30m north of Area 2f
		Alert Logistics – Road Haulage Services (active): 240m south-east of the southern end of the Grid Connection Corridor
		Oil N R G – oil fuel distributors (active): 50m south of the central part of the Grid Connection Corridor.
		Lionverge – railways (inactive): 6m south of the central part of the Grid Connection Corridor.
		API Technologies Corp – electronic component manufacturers & distributors (inactive): 80m south of the central part of the Grid Connection Corridor.
		G F Foods York Ltd – food products - manufacturers (active): 60m south of the central part of the Grid Connection Corridor.

Subject	Location	Details
		Jos Richardson & Sons Ltd – car dealers (inactive): 50m south of the central part of the Grid Connection Corridor.
		Di-Moda – cleaning services (inactive): 80m east of the Grid Connection Corridor.
		Efamol Ltd – pharmaceutical manufacturers and distributions (inactive): 60m south of the central part of the Grid Connection Corridor.
		Dynamic Cleaning Services Ltd – commercial cleaning services (inactive): 60m south of the central part of the Grid Connection Corridor.
		Verdesian – fertilisers (inactive): 40m north of Area 3c.
		Bunn Fertiliser – agricultural merchants (inactive): 170m north-east of Area 2d.
		Clean 6 – waste processing machinery (inactive): 230m north-east of Area 2d.
Fuel Station	Off-site	Greenland obsolete fuel station is indicated adjacent east of Area 2g.
Gas Pipelines	On Site	The active Cawood to Susworth Trent West gas pipeline, owned by National Grid, crosses the Grid Connection Corridor south of Babthorpe. The active Easington to Asselby gas pipeline, owned by National Grid, is indicated across Area 2g and Area 3c
Underground	On Site	Several underground electrical cables are indicated at the southern end of the Grid Connection Corridor, along New Road.
Electrical Cables	Off-Site	Several underground electrical cables are indicated at the southern end of the Grid Connection Corridor, within the Drax Power Station.

6.5 Sensitive Land Uses

- 6.5.1 The Envirocheck Report (Ref. 10) identifies sensitive land use based upon factors such as Sites of Special Scientific Interest (SSSI), Environmentally Sensitive Areas, Areas of Outstanding Natural Beauty, World Heritage Sites, Nature Reserves, National Parks, Nitrate Sensitivity Areas/Vulnerability Zones, Special Areas of Conservation (SAC) and Special Protection Areas.
- 6.5.2 Part of the Site (Area 1) is within a nitrate vulnerable zone. The Grid Connection Corridor borders the River Derwent SSI and SAC to the north, between Barmby on the Marsh and Wressle. The Grid Connection Corridor crosses the River Derwent SSSI and SAC west of Tithe Farm, south of Wressle. There are no other sensitive land uses within 250m of the Site.

6.6 Regulatory Consultation

6.6.1 Liaison have been undertaken with East Riding of Yorkshire Council and Selby District Council to obtain records of private water abstractions within the study area as part of the Water ES Chapter. These entries have been considered in paragraph 3.4.10.

7. Site Reconnaissance

- 7.1.1 An external inspection of the Site was completed by a suitably qualified and experienced AECOM Engineer on the 16 and 17 of January 2023. The aim of the visit was to identify the range of activities carried out on the Site and any obvious potential sources of ground contamination.
- 7.1.2 A photographic record of the visit is included as Annex A. Maps showing the site walkover observations and photo locations are appended as **Figure 16-2-3** (sheets 1-8) and **Figure 16-2-4** (sheets 1-8).
- 7.1.3 The Site consists of agricultural fields used for crops or grazing and some areas of tree plantation. A number of roads, drains and farm buildings are present within the Site. The site reconnaissance identified high-pressure gas main markers across the Site, electrical pylons and a tower antenna. Due to its size, the site walkover took place at several locations spread evenly throughout the Site. Access to some parts of the Site was restricted due to hedgerows, foliage, and fencing. The most relevant observations from the site reconnaissance are listed as follows:
 - a. Area 1, Photo 14 (in Annex A) shows farm buildings (Johnson's Farm) and associated above ground storage tanks (contents unknown), located in Area 1e. Asbestos containing material (ACM) (cement bounded sheets) may potentially be present at this location, associated with the buildings.
 - b. Area 2, Photo 7 (in Annex A) shows a tower antenna, located within Area 2b.
 - c. Area 2, Photo 16 (in Annex A) shows a high-pressure gas main marker in the centre of the Area 2g.
 - d. Area 2, Photo 17 (in Annex A) shows a circular slurry store within Area 2g (this feature is also included in **Table 10**, associated with the planning application 18/00069/AGNOT).
 - e. Area 2, Photo 18 (in Annex A) shows electrical pylons present in Area 2g.
 - f. Area 3, Photos 3 and 21 (in Annex A) show electricity pylons present in Area 3a and Area 3c.
 - g. Area 3, Photos 9 and 17 (in Annex A) show high-pressure gas main markers on the northern boundaries of Area 3b and Area 3c.
 - h. Area 3, Photo 11 (in Annex A;) shows above ground storage tanks, associated with the farm building located off Rowlandhall Lane and south of the rail line, adjacent to the west of Area 3c.
 - i. Area 3, Photo 18 (in Annex A) shows an above ground storage tank, associated with the residential properties on Brind Lane, adjacent to the east of Area 3b and adjacent to the north of Area 3c.
 - j. Area 3, Photo 22 (in Annex A) shows stockpile of granular material in the south-western part of Area 3c.

- k. Area 3, Photo 24 (in Annex A) shows corrugated roof of farm buildings which could be asbestos cement, adjacent to the south-west of Area 3c, off Green Lane.
- I. Grid Connection Corridor, Photos 2, 6, 7, 8, 18 and 22 (in Annex A) show services and electricity pylons at various locations across the Grid Connection Corridor.
- m. Grid Connection Corridor, Photo 3 (in Annex A) shows livestock within fields at the southern end of the Grid Connection Corridor.
- n. Grid Connection Corridor, Photo 3 (in Annex A) shows Drax Abbey Farm, including storage tanks, adjacent to the west of Grid Connection Corridor, south of River Ouse.
- Grid Connection Corridor, Photo 10 (in Annex A) shows unspecified mounds adjacent to the west of the Grid Connection Corridor, south of River Ouse.
- p. Grid Connection Corridor, Photo 12 (in Annex A) shows a Drax Power Station facility adjacent west of the Grid Connection Corridor, south of River Ouse.
- q. Grid Connection Corridor, Photo 21 (in Annex A) shows a surface water abstraction, adjacent to the north of the central section of the Grid Connection Corridor (for further detail refer to **Table 8**).

8. Preliminary Ground Model

8.1.1 Based on the review of published geological and hydrogeological information and a selection of historical borehole records, the ground conditions within the Site are considered to comprise the following sequence presented in **Table 14**.

Table 14: Preliminary Ground Model

Geology	Description	Thickness	Groundwater
Solar PV Site			
Made Ground (Refer to Garforth to Hull Contract 1 L2H-P1- GH01-052_IP IP and Garforth to Hull Contract 1 L2H-P1-GH01-056_IP IP, along the railway line between Area 3b and 3c)	Made Ground is reported along the railway line between Area 3b and 3c. Grey to pinkish grey angular to subangular medium to coarse gravel of igneous rock. Greyish brown slightly sandy silty angular to subrounded fine to coarse gravel of chert igneous rock and mudstone with abundant ash. Sand is fine to coarse.	5.1m to 5.7m	Not reported.
Superficial deposits (Hemingbrough Glaciolacustrine Formation over Breighton Sand Formation) (Refer to SE73SE14, 200m east of Area 2e; and to SE73SW25, adjacent south of Area 1d)	Clay with bands of sand. Gravel. Clay, sand and gravel.	21m to 23m	Not reported.
Mercia Mudstone Group (refer to SE73SE14, 200m east of Area 2e)	Mudstone	37m (full thickness not proven)	Water stuck at 40m and 51m bgl.
Grid Connection Corridor			
Drift (Refer to SE62NE99, located adjacent east of the Grid Connection Corridor at its central extent)	Clay	21.3m	Not reported
Sherwood Sandstone Group (Refer to SE62NE99)	Sandstone	72m (full thickness not proven)	Not reported

8.2 Preliminary Ground Gas Risk Assessment

8.2.1 The CL:AIRE Research Bulletin RB17 A Pragmatic Approach to Ground Gas Risk Assessment 2012 (Ref. 45), describes a method of estimating the potential gas risk of a site based on the site geology and historical use.

Table 15 presents the considerations included in the RB17 methodology together with the likely status for the Site, based upon the data collected and reviewed in the above sections of this report.

Table 15. Consideration of Potential Gas Risk

Considerations from RB17	Applicable information for the Site
If there is a credible source underlying or in the close vicinity of the site.	Historical landfill sites are located adjacent north of Area 2a and adjacent west of the Grid Connection Corridor at its southern extent.
If the site been registered as a landfill (not including general Made Ground) or whether there are mine openings nearby.	No landfill on site. Site is within a Coal Mining Reporting Area.
If the maximum Made Ground depth is greater than 5m or there is an average depth greater than 3m.	Although the presence of Made Ground at the Site is possible, significant thickness is unlikely, based on site development history.
If the Total Organic Carbon (TOC) in Made Ground exceeds 4% or 6% where the Made Ground is greater than 20 years old.	Unknown, but Made Ground likely to be thin and of low significance.
Whether radon protective measures are required.	None required.
If an off-site source is present, is there a credible pathway to the development site based on the distance, the specific ground conditions and topography, or whether there are potential effects such as rising ground water which would have the potential to force large volumes of gas from the ground in a short period.	No significant pathway identified.

9. Initial Conceptual Site Model

9.1 Introduction

9.1.1 This section is aimed at identifying possible risks, if any, arising from substances used or deposited on-site, or from other sources of land contamination. Both past and current potentially contaminative land uses have been considered. It is based on the proposed site development which will comprise the Scheme as identified in section 3. The aim of the initial CSM is to inform future decision making and the design of any future ground investigation (if needed).

9.2 Assessment Framework

- 9.2.1 The Site, in terms of potential land contamination, will be regulated by the Local Planning Authorities (East Riding of Yorkshire Council and Selby District Council) (Ref. 24 and Ref. 25), taking account of the NPPF 2021 (Ref. 2), with the EA, Natural England and Historic England acting as potential statutory consultees.
- 9.2.2 Environmental liabilities can arise through provisions contained within statutory legislation including Part 2A of the Environmental Protection Act 1990 (Ref. 3), the Environmental Damage (Prevention and Remediation) (England) Regulations 2015 (Ref. 46), the Water Resources Act 1991 (Ref. 47), the Environmental Permitting (England and Wales) Regulations 2016 and the Water Act 2003 (Ref. 48).
- 9.2.3 Current industry good practice recommends that the determination of health hazards due to contaminated land is based on the principle of risk assessment, as outlined in the Statutory Guidance to Part 2A (2012) and LCRM (Ref. 7).
- 9.2.4 The "suitable for use" approach is adopted for the assessment of contaminated land where remedial measures are undertaken where unacceptable risks to human health or the environment are realised considering the use (or proposed use) of the land in question and the environmental setting. The proposed end-use for the Site is the installation of PV Panels and on-site energy storage facilities.
- 9.2.5 The risk assessment process for environmental contaminants is based on a source-pathway-receptor analysis. These terms can be defined as follows:
 - Source: hazardous substance that has the potential to cause adverse impacts;
 - b. **Pathway:** route whereby a hazardous substance may come into contact with the receptor: examples include ingestion of contaminated soil and leaching of contaminants from soil into watercourses; and
 - c. **Receptor:** target that may be affected by contamination: examples include human occupants/ users of site, water resources (surface waters or groundwater), or structures.

- 9.2.6 For a risk to be present, there must be a relevant/viable contaminant linkage; i.e. a mechanism whereby a source impacts on a sensitive receptor via a pathway.
- 9.2.7 The following sections detail the initial CSM which has been developed for the Site with a view to assessing the potential risks/liabilities and constraints associated with the Site in its current condition prior to any proposed development. Risks associated with the proposed development have also been assessed based on a future land use scenario as a solar farm, including any potential sources of contamination, potential receptors and potential contaminant pathways identified during this desk-based assessment.

9.3 Sources of Potential Contamination

On Site - Solar PV Site

- 9.3.1 The potential for localised contamination has been identified on the Site. This includes farm buildings and yards where fuel and agricultural materials were/are stored. Farm buildings (Johnson's Farm and Manor Farm) are currently located at the end of Ings Lane in Area 1e and in Area 1h. Above ground storage tanks (contents unknown) and the potential for ACM being present has been identified at Johnson's Farm, during the site reconnaissance. The historical review identified several former buildings (some of them unspecified) across the Site. Unspecified former buildings were identified in Area 2g, Area 2e; Area 3c; Area 1f; and former Owlet Hall was located in Area 2g; former Brindcommon Farm in Area 2d; and former Prickett Hill House in Area 3c.
- 9.3.2 Several pumps and wells are/were located across the Site at various locations.
- 9.3.3 Potential sources of contamination have been also identified locally on-site and consist of historical small ponds scattered across the Site, which may have been filled with a variety of (potentially unlicensed) waste materials. Infilled land may be also associated with the areas to the west of the River Foulness, along the eastern boundary of Solar PV Site (Areas 1e and 1h), as the course of the river was modified in the 1950s. Note that no development is anticipated across this area, which will be a wetland wildlife zone (Ref. 27).
- 9.3.4 Potentially discarded material was identified from the 1999 Aerial Photograph, across the central part of Area 3C. (Envirocheck 306409114_1_1 /60683115_EC_D12_HistSeg2500) (refer to **Table 9**). A circular slurry store is located on-site, in the central part of Area 2g (refer to **Table 10**). During the site reconnaissance, a stockpile of granular material was identified in the south-western part of Area 3c (refer to section 7).
- 9.3.5 Potential contaminants associated with the above sources include metals, semi-metals, asbestos, organic and inorganic compounds. In addition, there is the potential for landfill gases such as methane or carbon dioxide and leachate.

- 9.3.6 The Site is occupied by agricultural land comprising arable fields. It is considered that although chemicals such as pesticides, herbicides and insecticides may have been used on-site and in its proximity, these chemicals typically have a low residency time in soils and they degrade rapidly in compliance with the requirements for crops and grazing prior to products being used for human consumption. Therefore, agricultural uses are not considered a potential significant source of contamination.
- 9.3.7 Pollution Incidents to Controlled Waters identified adjacent to the Site occurred more than 20 years ago and are therefore not considered to be of concern.

On Site – Grid Connection Corridor

- 9.3.8 Historical small ponds have been identified scattered across the Site, which may have been filled with a variety of (potentially unlicensed) waste materials. Marshland was historically present across the southern part of the Grid Connection Corridor (refer to **Table 9** for further details).
- 9.3.9 Potential contaminants associated with the above sources include metals, semi-metals, asbestos, organic and inorganic compounds.

Off Site - Solar PV Site

- 9.3.10 The following potential sources of off-site contamination have been identified as requiring consideration for the Solar PV Site:
 - a. Farm buildings located adjacent to the Site at various locations.
 - b. Current railway lines (North Eastern Railway) (between Area 3c and Area 3b; and adjacent north of the Grid Connection Corridor). North Eastern Railway is also present 100m south of Area 2g. However, no contaminative pathway exists between this railway and Area 2g, given that the railway is predicted to be downgradient of Area 2g.
 - c. Former railway lines (80m north of Area 1a).
 - d. Current industrial area located from adjacent north of Area 2d, including: a licenced waste management facility (physical treatment facility) (Changing Waste Ltd), located adjacent to the north of Area 2d; current Bunn Fertiliser Limited, located 170m north-east of Area 2d; former transport & storage company (Inglis Transport & Storage & Inglis Farming Ltd), located 170m north-east of Area 2d; and current green energy supplier (R100 Energy Limited), located 270m north-east of Area 2d.
 - e. Current warehouses (Filstorage National Distribution Centre) (adjacent to the south of Area 2e and 50m north of Area 2f).
 - f. Current field and garden machinery repair workshop (adjacent to the north of Area 2f).
 - g. Former household, commercial and industrial transfer station (50m north of Area 2f).
 - h. Former brick & tile works and former smithy (120m west of Area 3b).

- i. Former filling station (adjacent to the east of Area 2g).
- j. Former depot (adjacent to the north-east of Area 2d).
- k. Fox Covert Clay Pit (50m west of Area 1e).
- I. Areas formerly associated with the historical airfield (Breighton Airfield) and including a historical landfill site (Breighton Landfill) (adjacent to the north and north-west of Area 2a).
- m. Areas of artificial ground indicated at the location of Boothferry Golf Course & Spaldington Golf Range (adjacent to the east of Area 2d and adjacent west of Area 2e); and at Lake View House and Winfield Lakes (adjacent to the south of Area 1d).
- n. Contemporary trade directory entries including inactive paper and cardboard products and packaging manufacturers (50m north of Area 2f and 100m south of Area 2e); active coal and smokeless fuel merchants and distributors (30m north of Area 2f); inactive fertilisers (40m north of Area 3c); and inactive agricultural merchants (70m northeast of Area 2d).
- 9.3.11 Most of the above sources, including the contemporary trade directory entries, the former brick and tile works, former smithy and Fox Covert Clay Pit are small scale, hence not considered to be a pertinent off-site source. Intensive farming associated with the Old Rush Farm poultry unit (170m east of Area 2f) would be also excluded from the assessment, due to the distance from the Site and since this activity is associated with an IPPC². Potential pathways from contaminant migration to the Site from these locations are also restricted by the low permeability Hemingbrough Glaciolacustrine Formation, which underlies most of the Site.

Off Site - Grid Connection Corridor

- 9.3.12 The following potential sources of off-site contamination have been identified as requiring consideration for the Grid Connection Corridor:
 - a. Current railway lines (North Eastern Railway) (adjacent to the north of the Grid Connection Corridor).
 - b. Several active and inactive commercial activities located in the area from adjacent south of the Grid Connection Corridor, at A63 Hull Road. The trade directory entries include a current oil fuel distributor (50m); a current food products manufacturer (60m south); inactive electronic component manufacturers & distributor (80m south of the central part of the Grid Connection Corridor); inactive car dealer (50m south of the central part of the Grid Connection Corridor); and inactive cleaning services (60m south and 80m east).
 - c. Current water treatment works (100m east of the central extent of the Grid Connection Corridor).

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² This means that for this site the regulators have set permit conditions so as to achieve a high level of protection for the environment, including land and water.

- d. Former pump house (adjacent south of the Grid Connection Corridor, at its central extent).
- e. A pumping station associated with Drax Power Station (adjacent to the west of the Grid Connection Corridor, south of River Ouse).
- f. Historical landfill site (New Road Landfill Site) (adjacent to the west of the Grid Connection Corridor, to the north of Drax Power Station).
- g. Current Drax Power station (at the southern edge of the Grid Connection Corridor).
- h. Former railway (Hull Barnsley & West Riding Junction Railway), former train station and former goods shed (approximately 150m south-east of the southern edge of the Grid Connection Corridor).
- 9.3.13 The commercial activities at A63 Hull Road and the former pump house are small scale and assumed to be downgradient of the Site, hence would not be considered to be pertinent off-site sources. Similarly, the current water treatment works would not be considered further in the assessment, given its location on the southern bank of the of the River Derwent, downgradient from the Grid Connection Corridor.
- 9.3.14 Former railway, train station and goods shed (approximately 150m southeast of the southern edge of the grid Connection Corridor) are also not considered pertinent off-site sources, given the location downgradient from the Site.

9.4 Summary of potential sources

9.4.1 **Table 16** indicates the potential contaminants that may be associated with the current land use.

Table 16. Potential Sources of Contamination

Source Referen	Location Ice	Potential Sources	Associated Contaminants of Potential Concern (CoPC)
Solar P	V Site		
S1	On Site	Current and former farm buildings and yards where fuel and agricultural materials were/are stored. Made Ground (infilled ponds/infilled land). Discarded material and a stockpile of granular material (Area 3c).	Heavy metals and inorganics (including sulphate, nitrate, phosphate, ammoniacal nitrogen, acidic/alkaline pH), total petroleum hydrocarbon (TPH), polyaromatic hydrocarbons (PAH), semivolatile organic compound (SVOCs), Volatile Organic Compound (VOCs), asbestos and asbestos containing materials (ACMs), pesticides and fertilisers.

Source Reference	Location	Potential Sources	Associated Contaminants of Potential Concern (CoPC)
			Ground gases (such as methane or carbon dioxide) and leachate.
S2	Off Site, various locations.	Current and former farm buildings and yards where fuel and agricultural materials were/are stored. Artificial Ground (Boothferry Golf Course & Spaldington Golf Range (adjacent east of Area 2d and adjacent west of Area 2e); and at Lake View House and Winfield Lakes).	Heavy metals and inorganics (including sulphate, nitrate, phosphate, ammoniacal nitrogen, acidic/alkaline pH), TPH, SVOCs, VOCs, asbestos, ACMs, pesticides and fertilisers.
S3	Off Site, between Area 3c and Area 3b; 80m north	Current and former railway lines.	Metals, TPHs, PAHs, ACM, SVOCs, VOCs, sulphate. Glycols – associated with the potential use of antifreeze
	of Area 1a.		liquids on the rail tracks.
			Herbicides – typically associated with rail lines.
			Creosote (includes phenolic compounds) – associated with rail lines.
S4	Off Site, adjacent to Area 2d.	Current industrial area located adjacent north of Area 2d, including: a licenced physical treatment facility; current Bunn Fertiliser Limited, former transport & storage; and current green energy supplier.	Heavy metals and inorganics (including acidic/alkaline pH, cyanide complex), oil/fuel hydrocarbons, aromatic hydrocarbons, chlorinated aliphatic hydrocarbons, PCBs, PFAS. Ammonium nitrate-based fertilisers.
S5	Off Site, between Area	Current warehouses (Filstorage National Distribution Centre).	Heavy metals and inorganics (including acidic/alkaline pH, cyanide complex), oil/fuel
	2e and Area 2f.	Current field and garden machinery repair workshop.	hydrocarbons, aromatic hydrocarbons, chlorinated aliphatic hydrocarbons.

Source Reference	Location	Potential Sources	Associated Contaminants of Potential Concern (CoPC)
		Former household, commercial and industrial transfer station.	
S6	Off Site, adjacent east of Area 2g.	Former filling station.	Metals, TPH, PAH, VOCs, methyl tertiary-butyl ether (MTBE)
S7	Off Site, adjacent north and north-west of Area 2a.	Areas formerly occupied by the Breighton Airfield and historical landfill site (Breighton Landfill Site).	(including acidic/alkaline pH,
			Ground gases (such as methane or carbon dioxide) and leachate.
Grid Conn	ection Corridor	,	
S8	On Site, various locations.	Made Ground (infilled pond) and marshland.	Metals, TPHs, PAHs, ACM, SVOCs, VOCs, sulphate.
S9	Off Site, adjacent north and west of	Current railway lines and pumping station.	Metals, TPHs, PAHs, ACM, SVOCs, VOCs, sulphate.
	the Grid Connection Corridor.		Glycols – associated with the potential use of antifreeze liquids on the rail tracks.
			Herbicides – typically associated with rail lines.
			Creosote (includes phenolic compounds) – associated with rail lines.
S10	Off Site, adjacent west of the Grid Connection Corridor, to the north of the Drax Power Station).	Historical landfill site (New Road Landfill Site).	Heavy metals and inorganics (including acidic/alkaline pH, cyanide complex), oil/fuel hydrocarbons, aromatic hydrocarbons, chlorinated aliphatic hydrocarbons, PCBs, PFAS.

Source Reference	Location	Potential Sources	Associated Contaminants of Potential Concern (CoPC)
			Ground gases (such as methane or carbon dioxide) and leachate.
S11	Off Site, southern edge of the Grid Connection Corridor.	Current Drax Power Station.	Metals, PAH, TPH, PCB, inorganic compound (ammonium salts, boron, hydrazine, sulphide, sulphate, phosphate, chloride), sulphuric, hydrochloric, asbestos. (Ref. 49).

9.5 Potential Receptors

On-Site Receptors

- 9.5.1 The principal human receptors on-site are considered to be: current site users, including farmers, site visitors and general public on the Site using the public rights of way (PRoW); construction and maintenance workers; and future site users, including maintenance workers, and general public on the Site using the PRoW, as these will remain following development.
- 9.5.2 The controlled water receptors include groundwater (Secondary A Aquifers of Breighton Sand Formation, Alluvium and Warp; Secondary B Aquifer of the Mercia Mudstone Group and Principal Aquifer of the Sherwood Sandstone Group). Surface water receptors include River Ouse, River Derwent, Fleet Dike, River Foulness, dikes, drains and ponds.
- 9.5.3 Property receptors include existing buildings and future PV mounting structure and cables.
- 9.5.4 There are no sensitive ecological receptors associated with the Solar PV Site. Sensitive ecological receptors associated with the Grid Connection Corridor are the River Derwent SSSI and SAC.

Off-Site Receptors

- 9.5.5 The principal human receptors off-site are considered to be neighbours in residential/commercial properties adjacent to the Site and the general public in the areas adjacent the Site, including users of the Boothferry Golf Course and Spaldington Golf Range.
- 9.5.6 Property receptors include farm buildings.

Summary of Potential Receptors

9.5.7 Potential receptors associated with the Site are shown on **Table 17**.

Table 17. Potential Receptors

Receptor Reference	Receptor	Description
R1	Human Health: Acute ³	Construction and maintenance workers
R2	Human Health	Current Site Users: farmers/site visitors/general public on the Site using the PRoW
R3	Human Health	Future Site Users: farmers/site visitors/trespassers/general public on the Site using the PRoW
R4	Human Health	Adjacent site users during earthworks: neighbours in residential/commercial properties adjacent to the Site and general public in the areas adjacent the Site
R5	Water Environment: Aquifers	Secondary A Aquifers of superficial deposits (Breighton Sand Formation, Alluvium and Warp).
		Secondary B Aquifer of the bedrock (Mercia Mudstone Group)
		Principal Aquifer of the bedrock (Sherwood Sandstone Group).
R6	Water Environment: Surface waters	River Ouse, River Derwent, Fleet Dike, and River Foulness.
		Dikes, drains and ponds
R7	Sensitive ecological receptors	River Derwent SSSI and SAC
R8	Buildings & Infrastructure: Concrete	Future proposed infrastructures (PV Mounting Structure and cables)
R9	Buildings & Infrastructure: Structures	Proposed structures
R10	Buildings & Infrastructure: Services	Potable water supply pipes and other services
R11	Property	Crops and livestock

³ Refer to a considerable exposure to contaminated land in a short period of time (for example during construction activities).

9.6 Potential Pathways

On-Site Pathways

- 9.6.1 The human health exposure pathways that are considered viable based on UK guidance (Environment Agency, Contaminated Land Exposure Model "CLEA UK") (Ref. 50) are listed below:
 - a. Direct contact, dermal absorption or ingestion of soil;
 - b. Ingestion of fruit and vegetables and/or waters;
 - c. Inhalation of soil particulates derived from soils; and
 - d. Migration of hazardous gases/vapours via permeable strata into confined spaces (asphyxiation/ explosion).
- 9.6.2 The evaluation of exposure pathways for controlled waters receptors requires an understanding of geological and hydrogeological pathways beneath the Site. The controlled waters pathways considered viable with respect to the Site are as follows:
 - a. Spillage/loss/run off from surface direct to receiving water;
 - b. Leaching of chemicals and vertical migration via permeable unsaturated strata to shallow groundwater; and
 - c. Lateral migration in groundwater and baseflow into surface waters.
- 9.6.3 The ecosystem pathways (flora and fauna) considered viable with respect to the Site are as follows:
 - Fauna: direct contact, dermal absorption or ingestion of soil/ingestion of fruit and vegetables and/ or waters/inhalation of soil particulates derived from soils; and
 - b. Flora: direct contact with contaminated soils/uptake via root system.
- 9.6.4 The property receptor (crop and livestock) pathways considered viable with respect to the Site are as follows:
 - Direct contact, dermal absorption or ingestion of soil/ingestion of fruit and vegetables and/ or waters/inhalation of soil particulates derived from soils; and
 - b. uptake via root system.
- 9.6.5 The buildings and infrastructure pathways considered viable with respect to the Site are as follows:
 - a. Direct contact of buried concrete (proposed PV Mounting Structure and cables) with contaminated soils (i.e. hydrocarbons) and aggressive ground conditions (pH and sulphate).
 - b. Migration of hazardous gases/vapours via permeable strata into enclosed spaces and service/utility trenches.

Summary of Potential Pathways

9.6.6 Potential pathways associated with the Scheme are shown in **Table 18**.

Table 18. Potential Pathways

Pathway Reference	Receptor	Description			
P1	Human Health / Property: People (Human Health) and animals (Property)	Direct Pathway: direct contact, dermal absorption or ingestion of soil.			
P2	Human Health / Property: People (Human Health) and animals (Property)	Indirect Pathway: inhalation of soil particulates or vapour derived from soils.			
P3	Human Health: People (Human Health)	Indirect Pathway: migration of hazardous gases/vapours via permeable strata into confined spaces (asphyxiation/explosion)			
P4	Water Environment: Surface water	Direct Pathway: spillage/loss/run off from surface direct to receiving water			
P5	Water Environment: Groundwater	Indirect Pathway: leaching of chemicals and vertical migration via permeable unsaturated strata to shallow groundwater			
P6	Water Environment: Surface water / Groundwater	Indirect Pathway: lateral migration in groundwater and baseflow into surface waters			
P7	Ecosystems: Flora and fauna Property: Crops and Livestock	Indirect Pathway: uptake via root system and ingestion			
P8	Buildings and Infrastructure: Concrete	Direct Pathway: direct contact of buried concrete with contaminated soils (i.e. hydrocarbons) and aggressive ground conditions (pH and sulphate).			
P9	Buildings and Infrastructure: Supply pipes	Direct Pathway: direct contact of services and supply pipes with contaminated soils.			
P10	Buildings & Infrastructure: Structures	Indirect Pathway: Migration of hazardous gases/vapours via permeable strata into enclosed spaces and service/utility trenches.			

10. Environmental Risk Assessment

10.1 Risk Assessment Principles

- 10.1.1 Current industry good practice recommends that the determination of hazards due to contaminated land is based on the principle of risk assessment, as outlined in the Environment Agency guidance LCRM (Ref. 7).
- 10.1.2 For a risk to be present, there must be a viable contaminant linkage (at the current site condition and/or during construction and/or when the Scheme is complete and operational); i.e. a mechanism whereby a source impacts on a sensitive receptor via a pathway.
- 10.1.3 Assessments of risks associated with each of these contaminant linkages are discussed in the following sections. The methodology adopted within this PRA does not intend to reflect the EIA Methodology, as described in Chapter 5: Methodology of the Scoping Report (Appendix 1-1, ES Volume 2 [EN010143/APP/6.2]).
- 10.1.4 Using criteria broadly based on those presented in in section 6.3 of the CIRIA Report "Contaminated Land Risk Assessment: A Guide to Good Practice" (CIRIA Report C552) (Ref. 51), the magnitude of the risk associated with potential contamination at the Site has been assessed. To do this an estimate is made of:
 - a. The magnitude of the potential consequence (i.e. severity);
 - b. The magnitude of probability (i.e. likelihood).
- 10.1.5 The severity of the risk is classified according to the criteria in **Table 19**.

10.2 Risk Assessment Framework

Table 19. Description of Severity of Risk

Term	Description
Severe	 Highly elevated concentrations likely to result in significant harm to human health. Catastrophic damage to crops, buildings or property (e.g. by explosion). Equivalent to EA Category 1 pollution incident including persistent and/or extensive effects of water quality. Major damage to aquatic or other ecosystems.
Medium	 Elevated concentrations which could result in significant harm to human health. Significant damage to crops, buildings or property (e.g. damage to building rendering it unsafe). Equivalent to EA Category 2 pollution incident including significant effect on water quality. Significant damage to aquatic or other ecosystems.
Mild	Exposure to human health unlikely to lead to significant harm.

Term	Description
	 Minor damage to crops, buildings or property (e.g. surface spalling to concrete). Equivalent to EA Category 3 pollution incident including minimal or
	short-lived effect on water quality. – Minor or short-lived damage to aquatic or other ecosystems.
Minor	 No measurable effect on humans. Repairable effects of damage to buildings, structures and services. Equivalent to insubstantial pollution incident with no observed effect on water quality of ecosystems.

10.2.1 The probability of the risk occurring is classified according to the criteria in **Table 20**.

Table 20. Likelihood of Risk Occurrence

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

10.2.2 An overall evaluation of the level of risk is gained from a comparison of the severity and probability, as shown in **Table 21**.

Table 21. Risk based on Comparison of Likelihood and Severity

		SEVERE	MEDIUM	MILD	MINOR
po	HIGH	Very High	High	Moderate	Low
Ŏ	LIKELY	High	Moderate	Moderate/Low	Low
Ķe	LOW	Moderate	Moderate/Low	Low	Very Low
Ë	UNLIKELY	Moderate/Low	Low	Very Low	Very Low

Severity

10.3 Preliminary Risk Assessment

10.3.1 A CSM illustrating plausible contaminant linkages has been formulated for the Site. The qualitative preliminary risk assessment of the possible linkages of the above sources (S1 to S11), transport pathways (P1 to P10) and receptors (R1 to R11) is provided in the **Table 22** and **Table 23**.

- 10.3.2 The level of risk is determined based on the current condition of the Site (i.e. the effects of mitigation measures are not included).
- 10.3.3 The preliminary risk assessment undertaken within this section does not consider acute⁴ linkages for construction and maintenance workers. It is anticipated that these acute linkages will be managed by appropriate health and safety measures. As construction workers are protected under existing health and safety legislation, any potential effects are considered to be temporary and will be avoided, prevented and reduced through the implementation of standard mitigation measures to be incorporated into a CEMP. Work will be undertaken in accordance with relevant Construction Design Management (CDM) Regulations 2015 (Ref. 52).

Prepared for: East Yorkshire Solar Farm Limited November 2023

⁴ Refers to a considerable exposure to contaminated land in a short period of time (for example during construction activities).

Table 22. Potential Sources, Pathways and Receptors for the Solar PV Site

Source	Pathway	Receptor	Potential Severity	Likelihood of Occurrence	Potential Risk	Justification
S1: On-site, Current and former farm buildings and yards where fuel and agricultural materials	P1: Direct contact, dermal absorption or ingestion of soil.	R2: Current Site Users	Mild	Unlikely	Very Low	Localised contamination and Made Ground may be associated with current and former farm buildings and yards where fuel and agricultural materials were/are stored. Made ground of unknown quality may be associated with infilling of the former ponds on the Site. The volume of the infill is relatively small and unlikely to represent a significant widespread issue. Infilled land may be also associated with the areas to the west of the River Foulness, along the eastern boundary of the Solar PV Site. However, no development is anticipated across this area, which will be a wetland wildlife zone. Current users are farmers and the general public who might be exposed to soils. Future users include site visitors/trespassers/general public on the Site using the PRoW and who might be exposed to soils. Contaminant linkage may be present but the circumstances under which harm would occur even in the long-term are improbable, given the current use of the Site as a solar farm.
were/are stored. Made Ground (infilled ponds/infilled land) Discarded material and a stockpile of granular material (Area 3c) Heavy metals and inorganics	P1: Direct contact, dermal absorption or ingestion of soil.	R3: Future Site Users	Mild	Unlikely	Very Low	
(including sulphate, nitrate, phosphate,	P2: Inhalation of		Mild	Unlikely	Very Low	Potential for ACM has been identified at Johnson's Farm, during the site reconnaissance and the presence of ACM within Made Ground cannot be discounted.

Source	Pathway	Receptor	Potential Severity	Likelihood of Occurrence	Potential Risk	Justification
ammoniacal nitrogen, acidic/alkaline pH), TPH, PAH, SVOCs, VOCs, asbestos and	soil particulates and vapour derived from soils.	R2: Current Site Users				However, limited potential for ground contamination has been identified at the Site. Limited potential for soil vapour exists at the Site, given the age of the potentially infilled ponds and Made Ground. Therefore, risk of inhalation of soil particulates and vapours is considered to be low to very low.
ACMs, pesticides and fertilisers. Ground gases		R3: Future Site Users	Mild	Unlikely	Very Low	Contaminant linkage may be present but the circumstances under which harm would occur even in the long-term are improbable.
Ground gases (such as methane or carbon dioxide) and leachate.	P3: Migration of hazardous gases/vapour s via permeable strata into confined spaces (asphyxiation / explosion)	R2: Current Site Users	Medium	Unlikely	Low	Ground gas accumulation and potential explosion risk is generally unlikely at the Site, given that limited potential sources of hazardous gases/vapours have been identified. The Site includes current farm buildings. Contaminant linkage may be present but the circumstances under which harm would occur even in the long-term are improbable.
		R3: Future Site Users	Medium	Unlikely	Low	Ground gas accumulation and potential explosion risk is generally unlikely at the Site, given that limited potential sources of hazardous gases/vapours have been identified. The proposed development will include switch housing/control room in terms of structures. Contaminant linkage may be present but the circumstances under which harm would occur even in the long-term are improbable.
	P5: Leaching of chemicals and vertical	R5: Aquifers (Principal /	Medium	Unlikely	Low	Complete pathways may be present but current information suggests a gross contaminant source is unlikely to be present.

Source	Pathway	Receptor	Potential Severity	Likelihood of Occurrence	Potential Risk	Justification
	migration via permeable unsaturated	Secondary A)				Leaching of chemicals and vertical migration via unsaturated strata to shallow groundwater is also restricted by the presence of the low permeability
	strata to shallow groundwater	R5: Aquifers (Secondar y B)	Minor	Unlikely	Very Low	Hemingbrough Glaciolacustrine Formation, which underlies most of the Site. The risk of harm to groundwater from leaching of contaminants is considered between low (for Secondar A Aquifers – superficial deposits of Breighton Sand Formation and Alluvium; and Principal Aquifer – bedroof Sherwood Sandstone Group) and very low (for Secondary B Aquifer – bedrock of the Mercia Mudstone Group).
	P6: Lateral migration in groundwater and baseflow into surface waters	R6: Surface waters	Minor	Unlikely	Very Low	Complete pathways may be present but current information suggests a gross contaminant source is unlikely. The risk of harm to surface waters from lateral migration in groundwater and baseflow into surface waters is very low.
	P7: Uptake via root system and ingestion	R7: Ecological Receptors R11: Property (crops and livestock)	_Minor	Unlikely	Very Low	Complete pathways may be present but current information suggests a gross source is unlikely. Contaminant linkage may be present but the circumstances under which harm would occur even in the long-term are improbable.

Source	Pathway	Receptor	Potential Severity	Likelihood of Occurrence	Potential Risk	Justification
	P8: Direct contact of buried concrete with contaminated soils (i.e. hydrocarbon s) and aggressive ground conditions (pH and sulphate).		Minor	Unlikely	Very Low	Complete pathways may be present but current information suggests a gross contaminant source is unlikely. Contaminant linkage may be present but the circumstances under which harm would occur even in the long-term are improbable. Potential risk from direct contact with contaminated soils for buried concrete and infrastructure (PV Mounting Structure and cables) is considered very low.
	P9: Direct contact of services and supply pipes with contaminated soils.	R10: Buildings and Infrastruct ure: Services (potable water supply pipes and other services)	Minor	Unlikely	Very Low	Complete pathways may be present for water supply pipes at properties located on-site and off-site from onsite sources, but current information suggests a gross contaminant source is unlikely. Contaminant linkage may be present but the circumstances under which harm would occur even in the long-term are improbable.

Source	Pathway	Receptor	Potential Severity	Likelihood of Occurrence	Potential Risk	Justification
	P10: Migration of hazardous gases/vapour s via permeable strata into enclosed spaces and service/utility trenches	R9: Buildings and Infrastruct ure: Structures	Mild	Unlikely	Very Low	Ground gas accumulation and potential explosion risk is generally unlikely at the Site, given that limited potential sources of hazardous gases/vapours have been identified. Contaminant linkage may be present but the circumstances under which harm would occur even in the long-term are improbable.
S2: Off-site Current and former farm buildings and yards where fuel and agricultural materials were/are stored.	ent and er farm ngs and s where fuel agricultural rials /are stored. cial Ground chferry Golf se and dington Golf P5: Leaching of chemicals and vertical migration via permeable unsaturated strata to shallow groundwater R5: Aquifers (Principal Secondal A) R5: Aquifers (Secondal A) R5: Aquifers (Secondal A)	Aquifers (Principal / Secondary		Unlikely	Low	Complete pathways may be present but current information suggests that this is unlikely. The risk of harm to groundwater from leaching of contaminants and migration to the Site is considered between low (for Secondary A Aquifers – superficial deposits of Breighton Sand Formation and Alluvium; and Principal Aquifer – bedrock of Sherwood Sandstone
Artificial Ground (Boothferry Golf Course and Spaldington Golf Range (adjacent		Aquifers (Secondar	l inor	Unlikely	Very Low	Group) and very low (for Secondary B Aquifer – bedrock of the Mercia Mudstone Group).

Source	Pathway	Receptor	Potential Severity	Likelihood of Occurrence	Potential Risk	Justification
east of Area 2d and adjacent west of Area 2e); and at Lake View House and Winfield Lakes)						The risk of harm to surface water from lateral migration in groundwater and baseflow into surface waters is considered to be very low.
Heavy metals and inorganics (including sulphate, nitrate, phosphate, ammoniacal nitrogen, acidic/alkaline pH), TPH, SVOCs, VOCs, asbestos, ACMs, pesticides and fertilisers.	P6: Lateral migration in groundwater and baseflow into surface waters	R6: Surface waters	nor	Unlikely	Very Low	
S3: Off-site Current and former railway lines (between Areas 3b and 3c;	P5: Leaching of chemicals and vertical migration via permeable unsaturated	R5: Aquifers (Principal / Secondary A)		Unlikely	Low	Leaching of chemicals and vertical migration via unsaturated strata to shallow groundwater is restricted by the presence of the low permeability Hemingbrough Glaciolacustrine Formation, which underlies the Site at the locations of the current and former railway lines.

Source	Pathway	Receptor	Potential Severity	Likelihood of Occurrence	Potential Risk	Justification	
and 80m north of Area 1a) Metals, TPHs, PAHs, ACM, SVOCs, VOCs, sulphate.	strata to shallow groundwater	R5: Aquifers (Secondar y B)	Minor	Unlikely	Very Low	Complete pathways may be present but current information suggests this is unlikely. The risk of harm to groundwater from leaching of contaminants and migration to the Site is considered between low (for Secondary A Aquifers – superficial deposits of Breighton Sand Formation and Alluvium; and Principal Aquifer – bedroof of Sherwood Sandstone Group) and very low (for	
Glycols – associated with the potential use of antifreeze liquids on the rail tracks. Herbicides – typically associated with rail lines. Creosote (includes phenolic compounds) – associated with rail lines.	P6: Lateral migration in groundwater and baseflow into surface waters	R6: Surface waters	nor	Unlikely	Very Low	Secondary B Aquifer – bedrock of the Mercia Mudstone Group). The risk of harm to surface water from lateral migration in groundwater and baseflow into surface waters is considered very low.	

Source	Pathway	Receptor	Potential Severity	Likelihood of Occurrence	Potential Risk	Justification
S4: Off-site Current industrial area located adjacent north of Area 2d, including: licenced physical treatment facility; current Bunn Fertiliser Limited, former transport and storage; and current green energy supplier. Heavy metals	P5: Leaching of chemicals and vertical migration via permeable unsaturated	R5: Aquifers (Principal / Secondary A)		Unlikely	Low	Activities in this area (anaerobic digestion facility R100 Energy Limited and waste management service Changing Waste Ltd) are associated with IPPC, meaning that the regulators have set permit conditions to achieve a high level of protection for the environment, including land and water. There is no record of historical incidents at this location. Complete pathways may be present but current information suggests this is unlikely. Leaching of chemicals and vertical migration via unsaturated strata to groundwater (Breighton Sand Formation and further to Mercia Mudstone Group at depth) is also restricted by the presence of the low-permeability Hemingbrough Glaciolacustrine Formation,
and inorganics (including acidic/alkaline pH, cyanide complex), oil/fuel hydrocarbons, aromatic hydrocarbons, chlorinated aliphatic hydrocarbons, PCBs, PFAS.	strata to shallow groundwater	R5: Aquifers (Secondar y B)	l inor	Unlikely	Very Low	which underlies the Site at this location. Complete pathways may be present but current information suggests this is unlikely. The risk of harm to groundwater from leaching of contaminants and migration to the Site is considered between low (for Secondary A Aquifers – superficial deposits of Breighton Sand Formation) and very low (for Secondary B Aquifer – bedrock of the Mercia Mudstone Group).

Source	Pathway	Receptor	Potential Severity	Likelihood of Occurrence	Potential Risk	Justification
Ammonium nitrate based fertilisers						
S5: Off-site, between Areas 2e and 2f. Current warehouses (Filstorage		R5: Aquifers (Principal /	Medium	Unlikely	Low	Warehouses, a field and garden machinery repair workshop and a former household, commercial and industrial transfer station. There is the potential for ground contamination at these off-site locations. There is no record of historical incidents at these locations.
National Distribution Centre). Current field and garden machinery repair workshop.	P5: Leaching of chemicals and vertical migration via permeable	Secondary		Crimicoly		Complete pathways may be present but current information suggests that this is unlikely. Leaching of chemicals and vertical migration via unsaturated strata to groundwater (Breighton Sand Formation and further to Mercia Mudstone Group at
Former household, commercial and industrial transfer station.	unsaturated strata to shallow groundwater	R5:				depth) is also restricted by the presence of the low permeability Hemingbrough Glaciolacustrine Formation, which underlies the Site at these locations. Complete pathways may be present but current information and the interest to the present but current information.
Heavy metals and inorganics (including acidic/alkaline pH, cyanide complex), oil/fuel		Aquifers (Secondar y B)	Minor	Unlikely	Very Low	information suggests this is unlikely. The risk of harm to groundwater from leaching of contaminants and migration to the Site is considered between low (for Secondary A Aquifers – superficial deposits of Breighton Sand Formation) and very low (for Secondary B Aquifer – bedrock of the Mercia Mudstone Group).

Source	Pathway	Receptor	Potential Severity	Likelihood of Occurrence	Potential Risk	Justification
hydrocarbons, aromatic hydrocarbons, chlorinated aliphatic hydrocarbons.						
S6: Off Site, adjacent east of Area 2g	P5: Leaching of chemicals and vertical	R5: Aquifers (Principal / Secondary A)		Unlikely	Low	Leakage from tanks and oil spills during operation cannot be excluded at this location. There is no record of historical incidents at this location. Leaching of chemicals and vertical migration via unsaturated strata to groundwater (Breighton Sand Formation and further to Mercia Mudstone Group at depth) is restricted by the presence of the low
Former filling station Metals, TPH, PAH, VOCs, MTBE	migration via permeable unsaturated strata to shallow groundwater	R5: Aquifers (Secondar y B)	l inor	Unlikely	Very Low	permeability Hemingbrough Glaciolacustrine Formation, which underlies the Site at these locations. Complete pathways may be present but current information suggests this is unlikely. The risk of harm to groundwater from leaching of contaminants and migration to the Site is considered between low (for Secondary A Aquifers – superficial deposits of Breighton Sand Formation) and very low (for Secondary B Aquifer – bedrock of the Mercia Mudstone Group).
S7: Off Site, adjacent north and north-west of Area 2a	P5: Leaching of chemicals and vertical	R5: Aquifers (Principal /	Medium	Likely	Moderate	Area 2a, which extends adjacent to the south and southeast of Breighton Landfill Site/former airfield, is underlain by low permeability Hemingbrough Glaciolacustrine Formation. Secondary A Aquifers associated with the

Source	Pathway	Receptor	Potential Severity	Likelihood of Occurrence	Potential Risk	Justification			
Areas formerly occupied by the Breighton Airfield	cupied by the unsaturated eighton Airfield strata to shallow adfill site groundwater reighton andfill Site).	Secondary A)				superficial deposits of Breighton Sand Formation extended beneath the unproductive strata, with both the Secondar B Aquifer of the Mercia Mudstone Group and the Principal Aquifer of the Sherwood Sandstone Group at			
landfill site (Breighton Landfill Site). Heavy metals		R5: Aquifers (Secondar y B)	Minor	Likely	Low	The risk of harm to groundwater from leaching of contaminants and migration to the Site is considered between Moderate (for Secondary A Aquifers – superficial deposits of Breighton Sand Formation; and Principal			
and inorganics (including acidic/alkaline pH, cyanide complex), oil/fuel hydrocarbons, aromatic hydrocarbons,	P6: Lateral migration in groundwater and baseflow into surface waters	R6: Surface waters	nor	Likely	Low	-Aquifer – bedrock of Sherwood Sandstone Group) and Low (for Secondary B Aquifer – bedrock of the Mercia Mudstone Group). The higher risk is linked to the presence of the Landfill. Drains are shown bordering the landfill and flowing along the eastern and western sides of Area 2a. The risk of harm to surface water from lateral migration in groundwater and baseflow into surface waters is considered Low.			
chlorinated aliphatic hydrocarbons, PCBs, PFAS.	P3: Migration of hazardous gases/vapour s via	R2:	Medium	Low	Moderate / Low	Breighton Landfill Site is adjacent to Area 2a. The potential risk from hazardous gases/vapours has been identified as Moderate / Low.			

Source	Pathway	Receptor	Potential Severity	Likelihood of Occurrence	Potential Risk	Justification
Ground gases (such as methane or carbon dioxide) and leachate.	permeable strata into confined spaces (asphyxiation / explosion)	R3: Future Site Users	Medium	Low	Moderate / Low	The proposed development will include switch housing/control room in terms of structures.
	P10: Migration of hazardous gases/vapour s via permeable strata into enclosed spaces and service/utility trenches	R9: Buildings and Infrastruct ure: Structures	Medium	Low	Moderate / Low	Breighton Landfill Site is adjacent to Area 2a. The proposed development will include switch housing/control room in terms of structures. Contaminant linkage may be present

Table 23. Potential Sources, Pathways and Receptors for the Grid Connection Corridor

Source	Pathway	Receptor		Likelihood of Occurrence	Potential Risk	Justification
S8: Onsite. Made Ground and marshland Metals, TPHs, PAHs, ACM, SVOCs, VOCs, sulphate. Ground gas	P1: Direct contact, dermal absorption, or	R2: Current Site Users	Mild	Unlikely	Very Low	Made ground of unknown quality may be present across the Grid Connection Corridor, associated with the local roads and with potential infilling of the former ponds on the Site. The volume of the infill is relatively small and unlikely to
	ingestion of soil.	R3: Future Site Users	Mild	Unlikely	Very Low	represent a significant widespread issue. Current and future users are general public who might be exposed to soils. Contaminant linkage may be present but the circumstances under which harm would occur even in the longterm are improbable.
	P5: Leaching of chemicals and vertical migration via permeable unsaturated strata to shallow groundwater	R5: Aquifers	Medium	Unlikely	Low	Complete pathways may be present but current information suggests a gross source is unlikely. The risk of harm to groundwater from leaching of contaminants is considered low (for Secondary A Aquifers – superficial deposits of Breighton Sand Formation, Alluvium and Warp; and Principal Aquifer – bedrock of Sherwood Sandstone Group).

Source	Pathway	Receptor		Likelihood of Occurrence	Potential Risk	Justification
	P6: Lateral migration in groundwater and baseflow into surface waters	R6: Surface waters	Minor	Unlikely	Very Low	Complete pathways may be present but current information suggests a gross source is unlikely. The risk of harm to surface waters from lateral migration in groundwater and baseflow into surface waters is very low.
	P7: Uptake via root	R7: Ecological receptors	-Minor	Unlikely	Very Low	Complete pathways may be present but current information suggests a gross contaminant source is unlikely. Contaminant linkage may be present but the circumstances under which harm would occur even in the long-term are improbable.
	system and ingestion	R11: Property (crops and livestock)	-IVIII IOI			
	P9: Direct contact of services and supply pipes with contaminated soils.	R10: Buildings and Infrastructure: Services (potable water supply pipes and other services)	Minor	Unlikely	Very Low	Complete pathways may be present for water supply pipes at properties located off-site from on-site sources, but current information suggests a gross contaminant source is unlikely. Contaminant linkage may be present but the circumstances under which harm would occur even in the long-term are improbable.

Source	Pathway	Receptor		Likelihood of Occurrence	Potential Risk	Justification
S9: Off-site, adjacent north and west. Current railway lines and pumping station. Metals, TPHs, PAHs, ACM, SVOCs, VOCs, sulphate. Glycols Herbicides Creosote (includes phenolic compounds)	P5: Leaching of chemicals and vertical migration via permeable unsaturated strata to shallow groundwater	R5: Aquifers	Medium	Unlikely	Low	Leaching of chemicals and vertical migration via unsaturated strata to shallow groundwater is restricted by the presence of the low permeability Hemingbrough Glaciolacustrine Formation, which underlies the Site at the locations of the current railway lines. Complete pathways may be present but current information suggests this is unlikely. The risk of harm to groundwater from leaching of contaminants and migration to the Site is considered low (for Secondary A Aquifers – superficial deposits of Breighton Sand Formation; and Principal Aquifer – bedrock of Sherwood Sandstone Group).
S10: Off Site, adjacent west of the Grid Connection Corridor. Historical landfill site (New Road Landfill Site)	P5: Leaching of chemicals and vertical migration via permeable unsaturated strata to shallow groundwater	R5: Aquifers	Medium	Likely	Moderate	The Grid Connection Corridor runs to the east of the historical New Road Landfill Site. The risk of harm to groundwater from leaching of contaminants and migration to the Site is considered to be Moderate (for Secondary A Aquifers – superficial deposits of Breighton Sand Formation; and

Source	Pathway	Receptor		Likelihood of Occurrence	Potential Risk	Justification
Heavy metals and inorganics (including						Principal Aquifer – bedrock of Sherwood Sandstone Group).
acidic/alkaline pH, cyanide complex), oil/fuel hydrocarbons, aromatic hydrocarbons, chlorinated aliphatic hydrocarbons, PCBs, PFAS. Ground gases (such as methane or carbon dioxide) and leachate.	P3: Migration of hazardous gases/vapours via permeable strata into confined spaces (asphyxiation/	R3: Future Site Users	Medium	Unlikely	Low	Historical New Road landfill site is adjacent to the Grid Connection Corridor. The potential risk from hazardous gases/vapours has been identified as
	explosion) P10: Migration of hazardous gases/vapours via permeable strata into enclosed spaces and service/utility trenches	R9: Buildings and Infrastructure: Structures	Medium	Unlikely	Low	The proposed development will include switch housing/control room in terms of structures.
S11: Off Site, southern edge of the Grid Connection Corridor	P5: Leaching of chemicals and vertical migration via permeable unsaturated strata to	R5: Aquifers	Medium	Likely	Moderate	The Grid Connection Corridor runs to the east of the Drax Power Station. At this location the Grid Connection Corridor is within a Zone III (Total Catchment) of a SPZ. The risk of harm to groundwater from
Current Drax Power Station	unsaturated strata to shallow groundwater					The risk of harm to groundy leaching of contaminants at migration to the Site is conside Moderate (for Secondar

Pathway	Receptor	Potential Likelihood of Severity Occurrence	Potential Risk	Justification
				Aquifers – superficial deposits of Breighton Sand Formation; and Principal Aquifer – bedrock of Sherwood Sandstone Group).
	Pathway	Pathway Receptor	,	Severity Occurrence

11. Environmental Design and Management

- 11.1.1 A number of environmental mitigation measures are expected to be employed as standard to minimise impacts to both human health and controlled waters from the Scheme. The mitigation measures are anticipated to be implemented in order to avoid, prevent, reduce, or offset the following potential impacts:
 - a. Human exposure through direct contact/inhalation/dermal uptake of contaminants;
 - b. Creation of preferential pathways and mobilisation of contamination;
 - c. Contamination of natural soils, driving of contamination into an aquifer during piling, contamination of groundwater with concrete, paste or grout;
 - d. Pollution and degradation of water quality of any underlying aquifer;
 - e. Infiltration and/or run off into the local drainage/sewerage network pollution of drainage and sewerage network and any adjacent surface water features;
 - f. Run-off and infiltration of contaminants from material stockpiles;
 - g. Contamination of drainage and sewerage network and/or groundwater; and
 - h. Spread of nuisance dusts and soils to the wider environment and local roads.
- 11.1.2 A Framework Construction Environmental Management Plan (CEMP) will be developed as part of the PEI Report for the Scheme. A detailed CEMP will be produced for the Scheme following the appointment of the contractor in accordance with a Requirement of the DCO, prior to commencing construction.
- 11.1.3 **Table 24** lists the standard or tertiary mitigation measures which will be included in the framework CEMP. These mitigation measures, defined by IEMA (Ref. 53) are considered to be standard measures that form part of the general environmental management of the Scheme.
- 11.1.4 The assessment of potential effects set out in the following sections takes into account that these measures will be implemented.

Table 24. Construction Standard or Tertiary Environmental Mitigation Measures

Mitigation / Enhancement Measure

Potential for risks to human health associated with waste generation, land contamination, airborne contamination, and groundwater contamination. The discovery of ground contamination during groundworks. Levelling of the Site including the possible

Potential Impact

Ground investigation works (if required) will be undertaken prior to commencing construction. Results would be reviewed by the appointed contractor, including any additional investigation or mitigation measures beyond the impact avoidance measures stated here.

Best practice avoidance and mitigation measures proposed include:

 All workers would be required to wear Personal Protective Equipment (PPE) such as dust masks as applicable;

Potential Impact

Mitigation / Enhancement Measure

introduction of new fill materials.

- b. Containment measures would be implemented, including drip trays, bunding or double-skinned tanks of fuels and oils; all chemicals would be stored in accordance with their COSHH guidelines, whilst spill kits would be provided in areas of fuel/oil storage;
- c. All plant and machinery would be kept away from surface water bodies wherever possible, checked regularly and, where necessary, the use of drip trays would be employed. Refuelling and delivery areas would be located away from surface water drains;
- d. An emergency spillage action plan will be produced, which staff would have read and understood, and provisions made to contain any leak/spill;
- e. Should any potentially contaminated ground, including isolated 'hotspots' of contamination and/or potential deposits of asbestos containing materials (ACM), be encountered, the contractor would be required to investigate the areas and assess the need for containment or disposal of the material. The contractor would also be required to assess whether any additional health and safety measures are required;
- f. To further minimise the risks of contaminants being transferred and contaminating other soils or water, construction workers would be briefed as to the possibility of the presence of such materials;
- g. In the event that contamination is identified, appropriate remediation measures would be taken to protect construction workers, future site users, water resources, structures, and services;
- h. The contractor would be required to place arisings and temporary stockpiles away from watercourses and drainage systems, whilst surface water would be directed away from stockpiles to prevent erosion;
- i. The risk to surface water and groundwater from run-off from any contaminated stockpiles during construction works would be reduced by implementing suitable measures to minimise rainwater infiltration and/or capture runoff and leachates, through use of bunding and/or temporary drainage

Potential Impact

Mitigation / Enhancement Measure

- systems. These mitigation measures would be designed in line with current good practice, follow appropriate guidelines and all relevant licences/permits;
- j. The contractor would ensure that all material is suitable for its proposed use and would not result in an increase in contamination-related risks on identified receptors, including any landscaped areas and underlying groundwater;
- k. Any waters removed from excavations by dewatering would be discharged appropriately, subject to the relevant permits being obtained from the Environment Agency;
- The contractor will implement a dust suppression/management system in order to control the potential risk from airborne contamination migrating off-site to adjacent sites; and
- m. Piling design and construction works will be completed following the preparation of a piling risk assessment

12. Discussion of Acute Risk to Future Construction Workers & Off-Site Receptors.

- 12.1.1 The proposed works will be undertaken in compliance with Construction Design and Management (CDM) 2015 Regulations (Ref. 52).
- 12.1.2 Prior to work commencing, a health and safety risk assessment should be undertaken by the appointed principal contractor and developed in accordance with current health and safety regulations. This assessment should cover potential risks to construction staff, permanent site staff and the local population. Based on the findings of this risk assessment, appropriate mitigation measures should be implemented during the construction period. These mitigation measures, defined by IEMA (Ref. 53) are considered to be standard measures that form part of the general environmental management of the Scheme, and are integrated within the CEMP (refer to **Table 24**).
- 12.1.3 The greatest potential for generation of dust will be during the construction phase. Dust generation should be kept to a minimum in accordance with general industry good practice, as outlined in, for example, 'Environmental Good Practice on Site Guide', CIRIA Publication C741 (Ref. 54) (refer to **Table 24**).
- 12.1.4 The risk to construction workers during the site preparation and construction phases in terms of potential exposure to high concentrations of contaminants is considered to be low given the historic and current land uses identified at the Site. Should gross contamination be identified during the construction phase, then this may pose a potential acute risk to construction works. It is likely that the risks to construction workers can be effectively managed through good health and safety practices and protocols. Adoption of appropriate dust suppression techniques would also mitigate the degree of potential particulate migration off-site; these will be included within the CEMP for the Scheme.

13. Decommissioning

- 13.1.1 Potential impacts from the decommissioning of the Site are similar in nature to those during construction, as some ground works would be required to remove infrastructure installed. A detailed Decommissioning Environmental Management Plan will be prepared to identify required measures to prevent pollution during this phase of the development, based on the detailed decommissioning plan.
- 13.1.2 As a result, it is considered the decommissioning impacts and effects would mirror those of the construction phase. Standard mitigation measures (refer to **Table 24**) are expected to be applied during decommissioning.

14. Conclusions

- 14.1.1 The potential risks that have been identified from potential contaminated land have been assessed by the PRA as being very low to moderate. The highest risks have been identified in the areas surrounding the former Breighton Airfield, historical landfill sites and current Drax Power Station.
- 14.1.2 A number of environmental design and management measures will be employed as standard best practice to minimise impacts to both human health and controlled waters during the construction and decommissioning phases of the Scheme. These will be incorporated into the Framework CEMP which will be provided alongside the ES as part of the DCO application.
- 14.1.3 The information collected as part of this PRA suggests that there are no significant constraints with regards to contamination of soil and groundwater that would limit the development of the Site for a solar PV project.

15. Recommendations

- 15.1.1 A detailed unexploded ordnance (UXO) assessment should be considered prior to the commencement of any intrusive works. While it is acknowledged that the UXB mapping published by Zetica shows that the Site is characterised by a low risk of UXB, part of the Site (Area 2a) lies adjacent to land formerly occupied by the Breighton Airfield, which is considered a wartime site of interest.
- 15.1.2 Limited intrusive Site Investigation and Generic Quantitative Risk Assessment (GQRA) is recommended in the selected areas of potential contamination. **Figure 16-2-2** shows the location of the areas of potential contamination relevant for the Site. Where features are off-site, the investigation locations will be on-site but adjacent or around the feature.
- 15.1.3 Areas recommended to be included within the site investigation related to the Solar PV Site are:
 - a. Around discarded material and a stockpile of granular material (Area 3c);
 - b. Near current and former farm buildings (on-site);
 - c. Near artificial ground (Boothferry Golf Course and Spaldington Golf Range (adjacent east of Area 2d and adjacent west of Area 2e); and at Lake View House and Winfield Lakes);
 - d. Near current and former railway lines (off-site, adjacent to Area 3b and Area 3c);
 - e. Near current industrial area located adjacent to the north of Area 2d, including: a licenced physical treatment facility; current Bunn Fertiliser Limited; former transport and storage; and current green energy supplier;
 - f. Near current commercial area located between area 2e and Area 2f, including: current warehouses (Filstorage National Distribution Centre); current field and garden machinery repair workshop; and former household, commercial and industrial transfer station;
 - g. Near former filling station (adjacent to the east of Area 2g); and
 - h. Near areas formerly occupied by the Breighton Airfield and historical landfill site (Breighton Landfill Site) (adjacent to the north and north-west of Area 2a).
- 15.1.4 Areas recommended to be included within the site investigation related to the Grid Connection Corridor are:
 - a. Near the current railway lines (off-site, adjacent north of the Grid Connection Corridor);
 - b. Near the pumping station associated with Drax Power Station (off-site, adjacent to the west of the Grid Connection Corridor, south of River Ouse);
 - Near the historical landfill site (New Road Landfill Site) (off-site, adjacent to the west of the Grid Connection Corridor, to the north of the Drax Power Station);
 and
 - d. Near the current Drax Power Station (off-site, southern edge of the Grid Connection Corridor).

- 15.1.5 The results of the investigation can be used to refine the findings of this PRA, allow for any recommendations for further works, and allow for appropriate re-use (following CL:AIRE Definition of Waste: Code of Practice (DoW:CoP) 2011) (Ref. 55), or treatment and disposal of the discarded materials in Area 3c (and any associated contaminated soils) to an appropriate facility, prior to construction.
- 15.1.6 Active gas pipelines have been identified in the Envirocheck Report and/or site reconnaissance across the Solar PV Site (Areas 2g, 3c and 3b) and across the Cable Run Corridor, south of Babthorpe. Detailed plans to show the exact route of the pipelines and information on appropriate clearances should be obtained prior to any intrusive works.
- 15.1.7 The northern extent of Area 2a and most of the Grid Connection Corridor (from Wressle to New Road) are located within a Coal Mining Reporting Area. Obtaining a coal mining report from the Coal Authority is recommended for these locations.
- 15.1.8 Ground stability issues have been identified at some areas of the Site which may need further assessment. The consultation with a local RICS accredited surveyor is recommended to arrange the most suitable survey for the Site, to assess whether it is affected by ground stability issues.

16. References

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17. Abbreviations

Abbreviation	Definition
ACM	Asbestos Containing Material
AOD	Above Ordnance Datum
BGS	British Geological Survey
BS	British Standard
CEMP	Construction Environmental Management Plan
COMAH	Control of Major Accident Hazards Sites
COSHH	Control of Substances Hazardous to Health
CSM	Conceptual Site Model
DCO	Development Consent Order
DEFRA	Department of Environment, Food and Rural Affairs
DWSZ	Drinking Water Safeguard Zone
EA	Environment Agency
EIA	Environmental Impact Assessment
ES	Environmental Statement
GR	Grid Reference
IEMA	Institute of Environmental Management
IPPC	Integrated Pollution Prevention and Control
NGR	National Grid Reference
NIHHS	Notification of Installation Handling Hazardous Substances
NPPF	National Planning Policy Framework
NPS	National Policy Statement
OS	Ordnance Survey
PEI	Preliminary Environmental Information
PRA	Preliminary Risk Assessment
PV	Photovoltaic
RAF	Royal Air Force
RICS	Royal Institute of Chartered Surveyors
SAC	Special Areas of Conservation
SPZ	Source Protection Zones
SSSI	Sites of Special Scientific Interest
UKHSA	UK Health Security Agency
UXB	Unexploded Bomb
UXO	Unexploded Ordnance
WFD	Water Framework Directive

Annex A Figures and Photographic Record

AECOM

PHOTOGRAPHIC LOG

Client Name: East Yorkshire Solar Farm Limited

East Yorkshire Solar Farm - Solar PV Areas 1a - 1f

Project No.60683115

Photo No. 1 **Date:** 17/01/202

Direction Photo Taken:

A – North

B - North

C - North-west

D – East

Description:

Agricultural fields in Area 1a, surrounded by hedgerows, mature trees and drainage systems.



Photo No. 2 **Date:** 17/01/202

Direction Photo Taken:

A – East

B - South-west

C – North

D – East

Description:

Open surface drainage around field edges.
Culverted under Tottering Lane.



PHOTOGRAPHIC LOG

Client Name: East Yorkshire Solar Farm Limited

East Yorkshire Solar Farm - Solar PV Areas 1a - 1f

Project No.60683115

Photo No. 3 **Date:** 17/01/202

Direction Photo Taken: West

Description:
Public right of way located on the perimeter of the Area 1a.



Photo No. 4 **Date:** 17/01/202 3

Direction Photo Taken:

A – North-east B – South-east

Description:Electricity pylons in Area 1a.



PHOTOGRAPHIC LOG

Client Name: East Yorkshire Solar Farm Limited

East Yorkshire Solar Farm - Solar PV Areas 1a - 1f

Project No.60683115

Photo No. 5 **Date:** 17/01/202

Direction Photo Taken: East

Description:

Utilities marker and manhole located on the south-western corner of Area 1b, (alongside culvert shown in photo 2a above).



Photo No. 6 **Date:** 17/01/202 3

Direction Photo Taken:

A - North-east

B - North-west

C - North-east

D - North-east

Description:

Cultivated fields within Area 1b, With hedgerows and open surface drainage channels.



PHOTOGRAPHIC LOG

Client Name: East Yorkshire Solar Farm Limited

East Yorkshire Solar Farm – Solar PV Areas 1a - 1f

Project No.60683115

Photo No. 7

Date: 17/01/202

Direction Photo Taken: North

Description:

Hay barn, located offsite adjacent to the east of Area 1b.



Photo **No**. 8

Date: 17/01/202

Direction Photo Taken:

A - North-east B – East

Description:

Cultivated fields within Area 1c, surrounded by hedgerows and mature trees.



PHOTOGRAPHIC LOG

Client Name: East Yorkshire Solar Farm Limited

East Yorkshire Solar Farm - Solar PV Areas 1a - 1f

Project No.60683115

Photo No. 9 **Date:** 17/01/202

Direction Photo Taken:

A – South-west

B - South-west

C – South

D - South

Description:

Cultivated fields within Area 1d, surrounded by hedgerows, mature trees and drainage channels.



Photo No. 10 **Date:** 17/01/202

Direction Photo Taken:

A – South-west

B – East

C – South-east

D - South-west

Description:

Cultivated fields within Area 1b. Hedgerows and open surface drainage systems.



PHOTOGRAPHIC LOG

Client Name: East Yorkshire Solar Farm Limited

East Yorkshire Solar Farm - Solar PV Areas 1a - 1f

Project No.60683115

Photo No. 11 **Date:** 17/01/202

Direction Photo

Taken:

A – West B – West

Description:

Wind turbine to the west of Area 1b and to the east of Area 1c.



Photo No. 12 **Date:** 17/01/202

Direction Photo Taken:

A – South-west

B – East

C – West

D - North

Description:

Cultivated fields within Area 1e. Hedgerows and open surface drainage channels.



PHOTOGRAPHIC LOG

Client Name: East Yorkshire Solar Farm Limited

East Yorkshire Solar Farm - Solar PV Areas 1a - 1f

Project No.60683115

Photo No. 13 **Date:** 17/01/202

Direction Photo Taken: West

Description:

Broken cover for underground drainage system to the west of the track accessing Johnson's Farm in Area 1e.



Photo No. 14 **Date:** 17/01/202 3

Direction Photo Taken:

A – North

B - North-east

C - East

D - West

Description:

Johnson's Farm in Area 1e, with brick buildings (including what appears top be the former farmhouse) in disrepair, above ground storage tanks (contents unknown), and modern barns. Suspected asbestos cement bounded sheets lying in the brick buildings to the west.



PHOTOGRAPHIC LOG

Client Name: East Yorkshire Solar Farm Limited

East Yorkshire Solar Farm - Solar PV Areas 1a - 1f

Project No.60683115

Photo No. 15 **Date:** 17/01/202

Direction Photo Taken:

A – East

B - East

C - East

Description:

Surface water drainage around Area 1e, flowing to the east and into the River Foulness.





Photo No. 16 **Date:** 17/01/202

Direction Photo

Taken:

A – North

B - North

Description:

Track to Johnson's Farm in Area 1e.





PHOTOGRAPHIC LOG

Client Name: East Yorkshire Solar Farm Limited

East Yorkshire Solar Farm - Solar PV Areas 1a - 1f

Project No.60683115

Photo No. 17 **Date:** 17/01/202

Direction Photo Taken: South-east

Description:

Cultivated fields within Area 1e surrounded by hedgerows. Electricity pylons at distance.



Photo No. 18 **Date:** 17/01/202 3

Direction Photo Taken:

A – South

B – South

Description:

Over and underground drainage observed on the western boundary of Area 1f.



PHOTOGRAPHIC LOG

Client Name: East Yorkshire Solar Farm Limited

East Yorkshire Solar Farm - Solar PV Areas 1a - 1f

Project No.60683115

Photo No. 19 **Date:** 17/01/202

Direction Photo Taken:

A – North-west B – North-east

Description:

Cultivated fields within Area 1g, surrounded by hedgerows, mature trees and drainage channels.



Photo No. 20 **Date:** 17/01/202

Direction Photo Taken:

Description:

Cultivated fields within Area 1h, surrounded by hedgerows, mature trees and drainage channels.



PHOTOGRAPHIC LOG

Client Name: East Yorkshire Solar Farm Limited

East Yorkshire Solar Farm - Solar PV Areas 1a - 1f

Project No.60683115

Photo No. 21 **Date:** 17/01/202 3

Direction Photo Taken: North-west

Description:

Farmyard property (some buildings on site) adjacent to the western boundary of Area 1h.



PHOTOGRAPHIC LOG

Client Name: East Yorkshire Solar Farm Limited

East Yorkshire Solar Farm – Solar PV Areas 2a -

Project No. 60683115

Photo No. 1 **Date:** 17/01/202

Direction Photo Taken: West

Description:

Access gate and track to Area 2a, with electricity pylon.



Photo No. 2 **Date:** 17/01/202

Direction Photo

Taken:

A – South

B – North

PHOTOGRAPHIC LOG

Client Name: East Yorkshire Solar Farm Limited

East Yorkshire Solar Farm – Solar PV **Areas 2a -**

Project No. 60683115

Description:

Open surface drain located on the eastern boundary of Area 2a flowing to the south.



Photo No. 3 **Date:** 17/01/202

Direction Photo Taken:

A – South B – South

Description:

Agricultural fields associated with Area 2a. Waterlogged ground around the cultivated area.



Photo No. 4 **Date:** 17/01/202

PHOTOGRAPHIC LOG

Client Name: East Yorkshire Solar Farm Limited

East Yorkshire Solar Farm – Solar PV **Areas 2a -**

Project No. 60683115

Direction Photo Taken:

A – West

B – North-west

Description:

Middle fields within Area 2a, enclosed and used for livestock (sheep).

Pylons in the background.



Photo No. 5 **Date:** 17/01/202

Direction Photo Taken: North-east

Description:

Small, wooded area of immature trees along the eastern boundary of Area 2a.



Photo No. 6

Date: 17/01/202 3

PHOTOGRAPHIC LOG

Client Name: East Yorkshire Solar Farm Limited

East Yorkshire Solar Farm – Solar PV **Areas 2a -**

Project No. 60683115

Direction Photo Taken:

A - South-west

B – South

C – East

D – North-east

Description:

Field across the Interconnecting Cable Corridor between Areas 2b and 2c. Areas of the field are waterlogged. The area is bounded by hedgerows and wire fences with wooden posts.



Photo No. 7

Date: 17/01/202

Direction Photo Taken:

A - North-east

B - East

C – North

Description:

Cultivated agricultural fields within Area 2b. Tower antenna located within Area 2b, accessed from a track to the southeast.

Wind turbines to the east of the Site Boundary.





PHOTOGRAPHIC LOG

Client Name: East Yorkshire Solar Farm Limited

East Yorkshire Solar Farm – Solar PV Areas 2a -

Project No. 60683115

Photo No. 8 **Date:** 17/01/202

Direction Photo Taken:

A – South

B – South-west

Description:

Agricultural fields within Area 2c, bordered by hedgerow.



Photo No. 9 **Date:** 17/01/202 3

Direction Photo Taken:

A – North-west B – North

Description:

Cultivated fields within Area 2d, bordered by hedgerow. Surface drain along the northern boundary.



PHOTOGRAPHIC LOG

Client Name: East Yorkshire Solar Farm Limited

East Yorkshire Solar Farm – Solar PV Areas 2a -

Project No. 60683115

Photo No. 10 **Date:** 17/01/202

Direction Photo Taken:

A – North

B – North

Description:

Industrial buildings and planting area adjacent north of Area 2d. No access to industrial area.



Photo No. 11 **Date:** 17/01/202 3

Direction Photo Taken:

A – South-west

B – North

C – West

D – North-west

PHOTOGRAPHIC LOG

Client Name: East Yorkshire Solar Farm Limited

East Yorkshire Solar Farm – Solar PV Areas 2a -

Project No. 60683115

Description:

Cultivated fields within Area 2e which are presently land. Hedgerow borders and bisects Area 2e. Wind turbine present on the western boundary adjacent to Area 2e.



Photo No. 12 **Date:** 17/01/202

Direction Photo Taken:

A – South B – West

Description:

Surface water drain by Filstorage warehouse adjacent to the south-east of Area 2e. Joins into Hall Dyke drain flowing south.



PHOTOGRAPHIC LOG

Client Name: East Yorkshire Solar Farm Limited

East Yorkshire Solar Farm – Solar PV Areas 2a -

Project No. 60683115

Photo **No**. 13 Date: 17/01/202

Direction Photo Taken: West

Description:

Entrance to Filstorage National Distribution Centre, south of Area 2e.



Photo **No**. 14

Date: 17/01/202 3

Direction Photo

Taken:

A – East

B - South-east

C – South

D - South-west

PHOTOGRAPHIC LOG

Client Name: East Yorkshire Solar Farm Limited

East Yorkshire Solar Farm – Solar PV Areas 2a -

Project No. 60683115

Description:

Cultivated fields within Area 2f.
Hedgerow borders Area 2f. Pylons are located along the northern boundary of Area 2f.



Photo No. 15 **Date:** 17/01/202 3

Direction Photo Taken:

A – North-west

B – South-west

C – West

D – North-west

Description:

Multiple cultivated fields and farmyard tracks within Area 2g, with hedgerow along the boundaries.



PHOTOGRAPHIC LOG

Client Name: East Yorkshire Solar Farm Limited

East Yorkshire Solar Farm – Solar PV Areas 2a -

Project No. 60683115

Photo No. 16 **Date:** 17/01/202

Direction Photo Taken: West

Description:

High pressure gas main marker in the center of the Area 2g.



Photo No. 17 **Date:** 17/01/202

Direction Photo Taken: North-east

Description:

Circular structure, unlabeled but likely to be a slurry store, located in the center of Area 2g. Content unconfirmed.



PHOTOGRAPHIC LOG

Client Name: East Yorkshire Solar Farm Limited

East Yorkshire Solar Farm – Solar PV Areas 2a -

Project No. 60683115

Photo No. 18 **Date:** 17/01/202

Direction Photo Taken:

A – West B – North

Description:

Electricity pylons in Area 2g.



Photo No. 19 **Date:** 17/01/202

Direction Photo Taken:

A – West B – North

Description:

Surface water drainage in Area 2g, flowing between the fields towards the west.





PHOTOGRAPHIC LOG

Client Name: East Yorkshire Solar Farm Limited

East Yorkshire Solar Farm – Solar PV Areas 2a -

Project No. 60683115

Photo No. 20

2g.

Date: 17/01/202

Direction Photo Taken:

A - South-westB - South

Description: Farm tracks in Area



PHOTOGRAPHIC LOG

Client Name: East Yorkshire Solar Farm Limited

East Yorkshire Solar Farm - Solar PV Areas 3a-3c

Project No. 60683115

Photo No. 1

Date: 16/01/202

Direction Photo Taken:

A – East

B – North

Description:

Rail line (North Eastern Railway) runs between Area 3b and 3c. No overhead power lines observed.

There is private access to farmland on Brind Lane.



Photo No. 2 **Date:** 16/01/202 3

Direction Photo Taken:

A – North-east B – North-west

Description:

Brickwork building located at the crossing on Rowlandhall lane. The property is boarded up.



PHOTOGRAPHIC LOG

Client Name: East Yorkshire Solar Farm Limited

East Yorkshire Solar Farm - Solar PV Areas 3a-3c

Project No. 60683115

Photo No. 3 **Date:** 16/01/202 3

Direction Photo Taken: North

Description:Electricity pylon located within Area

3a.

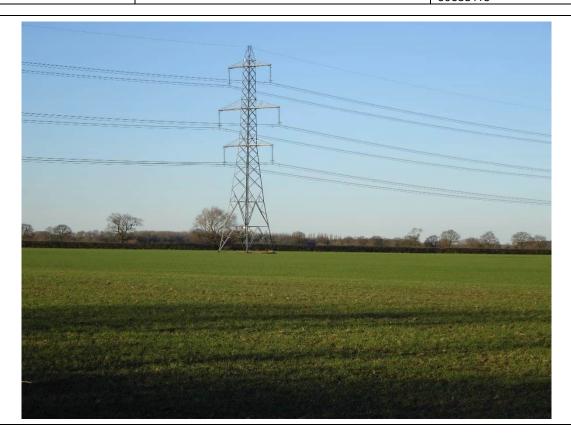


Photo No. 4 **Date:** 16/01/202

Direction Photo Taken:

A – North

B – North-east

Description:

Agricultural field within Area 3a, lined with hedgerow and mature trees.



PHOTOGRAPHIC LOG

Client Name: East Yorkshire Solar Farm Limited

East Yorkshire Solar Farm - Solar PV Areas 3a-3c

Project No. 60683115

Photo No. 5 **Date:** 16/01/202 3

Direction Photo Taken:

A – North-east

B – East

C – West

D – North-west

Description:

Agricultural field within Area 3b, with some farm equipment observed in the fields. Small area of trees and hedgerows.



Photo No. 6 **Date:** 16/01/202

Direction Photo Taken: North-east

Description:

Residential property located adjacent to the north of Area 3b, with several mature trees.



PHOTOGRAPHIC LOG

Client Name: East Yorkshire Solar Farm Limited

East Yorkshire Solar Farm - Solar PV Areas 3a-3c

Project No. 60683115

Photo No. 7 **Date:** 16/01/202 3

Direction Photo Taken: East

Description:

Open drain running along the southern boundary of Area 3b, surrounded by dense vegetation.



Photo No. 8 **Date:** 16/01/202 3

Direction Photo Taken:

A – North-west B – South-west

Description:

Tree line near the northern boundary of Area 3b.



PHOTOGRAPHIC LOG

Client Name: East Yorkshire Solar Farm Limited

East Yorkshire Solar Farm - Solar PV Areas 3a-3c

Project No. 60683115

Photo No. 9 **Date:** 16/01/202 3

Direction Photo Taken:

A – North B – South

Description:

Two signs for high pressure gas mains on the northern and southern side of Brind Lane. Located along the northeastern boundary of Area 3b.



Photo No. 10 **Date:** 16/01/202 3

Direction Photo Taken:

A – South-east B – West

Description:

Small area of tree plantation north of the residential building and alongside the rail line.



PHOTOGRAPHIC LOG

Client Name: East Yorkshire Solar Farm Limited

East Yorkshire Solar Farm - Solar PV Areas 3a-3c

Project No. 60683115

Photo No. 11 **Date:** 16/01/202

Direction Photo Taken:

A – South-east B – West

Description:

Offsite above ground tanks associated with the farmyard off Rowland Hall Farm, Adjacent to the west of Area 3c.

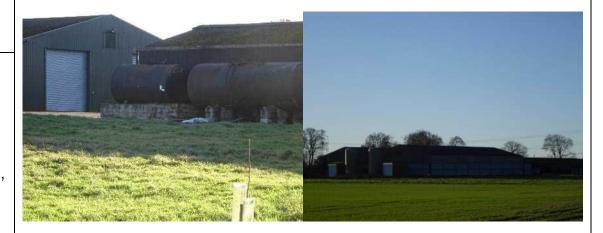


Photo No. 12 **Date:** 16/01/202 3

Direction Photo Taken:

A – East

B - South-east

C – South

Description:

Area 3c, heavily waterlogged with water pooling on the surface.





PHOTOGRAPHIC LOG

Client Name: East Yorkshire Solar Farm Limited

East Yorkshire Solar Farm - Solar PV Areas 3a-3c

Project No. 60683115

Photo No. 13 **Date:** 16/01/202

Direction Photo Taken:

A – East

B – East

Description:

Hedgerow and trees alongside the rail line, on the northern boundary of Area 3c.



Photo No. 14 **Date:** 16/01/202 3

Direction Photo Taken:

A – West

B – South

C - South-west

D – South

Description:

Agricultural field within Area 3c.
Some farm equipment observed in the field. Small area of trees and hedgerows border Area 3c.



PHOTOGRAPHIC LOG

Client Name: East Yorkshire Solar Farm Limited

East Yorkshire Solar Farm - Solar PV Areas 3a-3c

Project No. 60683115

Photo No. 15 **Date:** 16/01/202

Direction Photo Taken:

A – South-west B – South-west

Description:

Farm track south of the rail crossing accessed from Brind Lane (shown in Photo 1b above).



Photo No. 16 **Date:** 16/01/202

Direction Photo Taken:

A – South B – South

Description:

Open drain flowing towards the south of Area 3c.



PHOTOGRAPHIC LOG

Client Name: East Yorkshire Solar Farm Limited

East Yorkshire Solar Farm - Solar PV Areas 3a-3c

Project No. 60683115

Photo No. 17 **Date:** 16/01/202

Direction Photo Taken:

A – East

B – North

Description:

High pressure gas main noted on the northern boundary of Area 3c, adjacent to the rail line.



Photo No. 18 **Date:** 16/01/202 3

Direction Photo Taken: North-east

Description:

Offsite above ground storage tank, (likely to be LPG) associated with the residential properties off Brind Lane, adjacent to the east of Area 3b.



PHOTOGRAPHIC LOG

Client Name: East Yorkshire Solar Farm Limited

East Yorkshire Solar Farm - Solar PV Areas 3a-3c

Project No. 60683115

Photo No. 19 **Date:** 16/01/202 3

Direction Photo Taken: South

Description:

Area of new tree plantation in the eastern part of Area 3c.



Photo No. 20 **Date:** 16/01/202

Direction Photo Taken: South-east

Description:

Agricultural land in the east of Area 3c.



PHOTOGRAPHIC LOG

Client Name: East Yorkshire Solar Farm Limited

East Yorkshire Solar Farm - Solar PV Areas 3a-3c

Project No. 60683115

Photo No. 21 **Date:** 16/01/202 3

Direction Photo Taken: East

Description:

Pylons within the crop (thought to be shrub willow) in the south of Area 3c.



Photo No. 22 **Date:** 16/01/202

Direction Photo Taken: North

Description:

Stockpile of granular material in the south-west of Area 3c.



PHOTOGRAPHIC LOG

Client Name: East Yorkshire Solar Farm Limited

East Yorkshire Solar Farm - Solar PV Areas 3a-3c

Project No. 60683115

Photo No. 23 **Date:** 16/01/202

Direction Photo Taken:

A – North-east B – South

Description:

Crop (thought to be shrub willow) within the south of Area 3c.



Photo No. 24 **Date:** 16/01/202

Direction Photo Taken: West

Description:

Farm buildings offsite adjacent to the south-west of Area 3c, located off Green Lane.

Corrugated roof (on building in the right of the photograph) potentially could be asbestos cement.





PHOTOGRAPHIC LOG

Client Name: East Yorkshire Solar Farm Limited

EYSF – Grid Connection Corridor

Project No. 60683115

Photo No. 1 **Date:** 16/01/202

Direction Photo Taken:

A – South-east B - South

Description:

Standing surface water within the Grid Connection Corridor.



Photo No. 2 **Date:** 16/01/202

Direction Photo Taken:

A – North B – South

Description:

Services running along the eastern side of New Road.





PHOTOGRAPHIC LOG

Client Name: East Yorkshire Solar Farm Limited

EYSF – Grid Connection Corridor

Project No. 60683115

Photo No. 3 **Date:** 16/01/202 3

Direction Photo Taken:

A – East B – South

Description:

Fields with livestock (sheep) across the southern part of the Grid Connection Corridor.



Photo No. 4

Date: 16/01/202 3

Direction Photo Taken:

A – East

B – West

Description:

Surface waterbodies adjacent or near the Grid Connection Corridor.



AECO/

PHOTOGRAPHIC LOG

Client Name: East Yorkshire Solar Farm Limited

EYSF – Grid Connection Corridor

Project No. 60683115

Photo **No**. 5

Date: 16/01/202

Direction Photo Taken:

A – South

B – East

C – North

Description:

Dense vegetation, hedgerows and wooded area along eastern side of New Road.



Date: Photo 16/01/202

No. 6

3

Direction Photo Taken:

A – East

B - North-east

C - North-east

D – North

Description:

Electricity pylons, leading from Drax Power Station.





Client Name: East Yorkshire Solar Farm Limited

EYSF – Grid Connection Corridor

Project No. 60683115

Photo No. 7 **Date:** 16/01/202

Direction Photo Taken:

A – North

B - North-east

C – North

D – East

Description:

Water outfall from Drax power station feeding into local surface water drainage systems to the east.

7D (bottom right) Shows drainage adjacent to the agricultural fields.

Photo No. 8 **Date:** 16/01/202

Direction Photo Taken:

A – East

B - North-east

C – West

Description:

Concrete likely related to underground services between Drax Power Station and the pumping station by the River Ouse.







Client Name: East Yorkshire Solar Farm Limited

EYSF – Grid Connection Corridor

Project No. 60683115

Photo No. 9 **Date:** 16/01/202

Direction Photo Taken:

A – North-west B – North

Description:

Drax Abbey Farm on the corner of New Road and Pear Tree Avenue. Storage tanks and farm buildings observed.



Photo No. 10 **Date:** 16/01/202 3

Direction Photo Taken:

A – South B – North-west

Description:

Mounds of unknown material within the fields, adjacent to the west of the Grid Connection Corridor.



AECO/

PHOTOGRAPHIC LOG

Client Name: East Yorkshire Solar Farm Limited

EYSF – Grid Connection Corridor

Project No. 60683115

Photo No. 11 **Date:** 16/01/202

Direction Photo Taken:

A – East

B - North-east

C - East

D - South-east

Description:

Fields with open surface drainage ditches.



Photo No. 12 **Date:** 16/01/202

Direction Photo Taken:

A - North-east

B – NA

C – East

Description:

Pumping Station associated with **Drax Power Station** on the southern bank of the River Ouse. Likely to be connected to Drax Power Station using the underground services noted in Photos 8. Embankment noted running alongside the river where facility is located and beyond.









Client Name: East Yorkshire Solar Farm Limited

EYSF – Grid Connection Corridor

Project No. 60683115

Photo No. 13 **Date:** 16/01/202

Direction Photo Taken:

A – South

B – North

C - South

D – East

E – North

Description:

Roadway system and local routes adjacent to the Grid Connection Corridor.

Photo No. 14 **Date:** 16/01/202

Direction Photo Taken: South-west

Description:

Lock at the head of the River Derwent joining with the River Ouse.







Client Name: East Yorkshire Solar Farm Limited

EYSF - Grid Connection Corridor

Project No. 60683115

Photo No. 15 **Date:** 16/01/202

Direction Photo Taken:

A - South-east

B - East

C - East

D - South-east

Description:

River Derwent SSSI and SAC, located adjacent to the east and south of the Grid Connection Corridor. Access restricted.



Photo No. 16 **Date:** 16/01/202 3

Direction Photo Taken:

A – North

B - North

C - North-east

D – North

Description:

Agricultural fields on the northern bank of the River Derwent, within the Grid Connection Corridor.





Client Name: East Yorkshire Solar Farm Limited

EYSF – Grid Connection Corridor

Project No. 60683115

Photo No. 17 **Date:** 16/01/202

Direction Photo Taken:

A - North-east

B - North-east

C - North-east

D - North-east

Description:

River Derwent flowing from northeast to south-west, south of the Grid Connection Corridor. Embankment on both banks, which are also public rights of way.

Photo No. 18 **Date:** 16/01/202

Direction Photo Taken:

A – North

B – North

C – North

Description:

Water drainage systems and surface drains within the agricultural fields, culverts present. Ditches link to a larger channel with a brick pumping station (photo 21) adjacent to the River Derwent.









Client Name: East Yorkshire Solar Farm Limited

EYSF - Grid Connection Corridor

Project No. 60683115

Photo No. 19 **Date:** 16/01/202

Direction Photo Taken: North

Description:Wind turbine:

Wind turbine and small breeze block building located adjacent to the north of the Grid Connection Corridor.



Photo No. 20 **Date:** 16/01/202

Direction Photo Taken: North

Description:Standing water observed on fields.





Client Name: East Yorkshire Solar Farm Limited

EYSF – Grid Connection Corridor

Project No. 60683115

Photo No. 21 **Date:** 16/01/202

Direction Photo Taken: North-east

Description:

Pumping Station at the end of a large drainage channel (Photo 18).

Envirocheck Report, associates this with a surface water abstraction for spray irrigation.



Photo No. 22 **Date:** 16/01/202

Direction Photo Taken:

A – North

B - North-east

Description:

Services located

adjacent to the Grid Connection Corridor.
Y.W.A. (Yorkshire Water Authority)
Cable – alongside the southern fence line to the north of the surface water abstraction (Photo 21) Gas pipeline located on the top of the embankment.





Client Name: East Yorkshire Solar Farm Limited

EYSF – Grid Connection Corridor

Project No. 60683115

Photo No. 23 **Date:** 16/01/202

Direction Photo Taken:

A – East

B - North-east

C – East

Description:

Water outflow from the water treatment works on the eastern bank of the River Derwent.





Photo No. 24 **Date:** 16/01/202 3

Direction Photo Taken:

A – East

B - West

C – West

D – South

Description:

Water drainage system north of the A63 bridge. The River Derwent is fed by surface water drainage channels, and ending by a brick pumping station (photo 27). Standing water present within vegetation.



AECO/

PHOTOGRAPHIC LOG

Client Name: East Yorkshire Solar Farm

EYSF – Grid Connection Corridor

Project No. 60683115

Photo No. 25 **Date:** 16/01/202

Direction Photo Taken: North-east

Description:

Embankment on the western bank of the River Derwent with farm track on the inside, accessible to the public.



Photo No. 26 **Date:** 16/01/202 3

Direction Photo Taken:

A – West

B – North

C – South-west

D – West

Description:

Agricultural fields across the Grid Connection Corridor.





Client Name: East Yorkshire Solar Farm Limited

EYSF – Grid Connection Corridor

Project No. 60683115

Photo No. 27 **Date:** 16/01/202

Direction Photo Taken:

A – North B – West

Description:

Brickwork pumping station north of the Grid Connection Corridor at the end of large drainage channel.



Photo No. 28 **Date:** 16/01/202 3

Direction Photo Taken:

A – East B – East

Description:

Fields and farm buildings (DO Hunt / Tithe Farm) on the eastern bank of the River Derwent, adjacent to the west of the Grid Connection Corridor.
Embankment present on both sides of the river.





Client Name: East Yorkshire Solar Farm Limited

EYSF - Grid Connection Corridor

Project No. 60683115

Photo No. 29 **Date:** 16/01/202

Direction Photo Taken:

A – East

B - South

C - South

D - West

Description:

Agricultural fields south of the rail line (photo 30) and to the east of River Derwent. Pylons present in the fields directly south of the rail line.



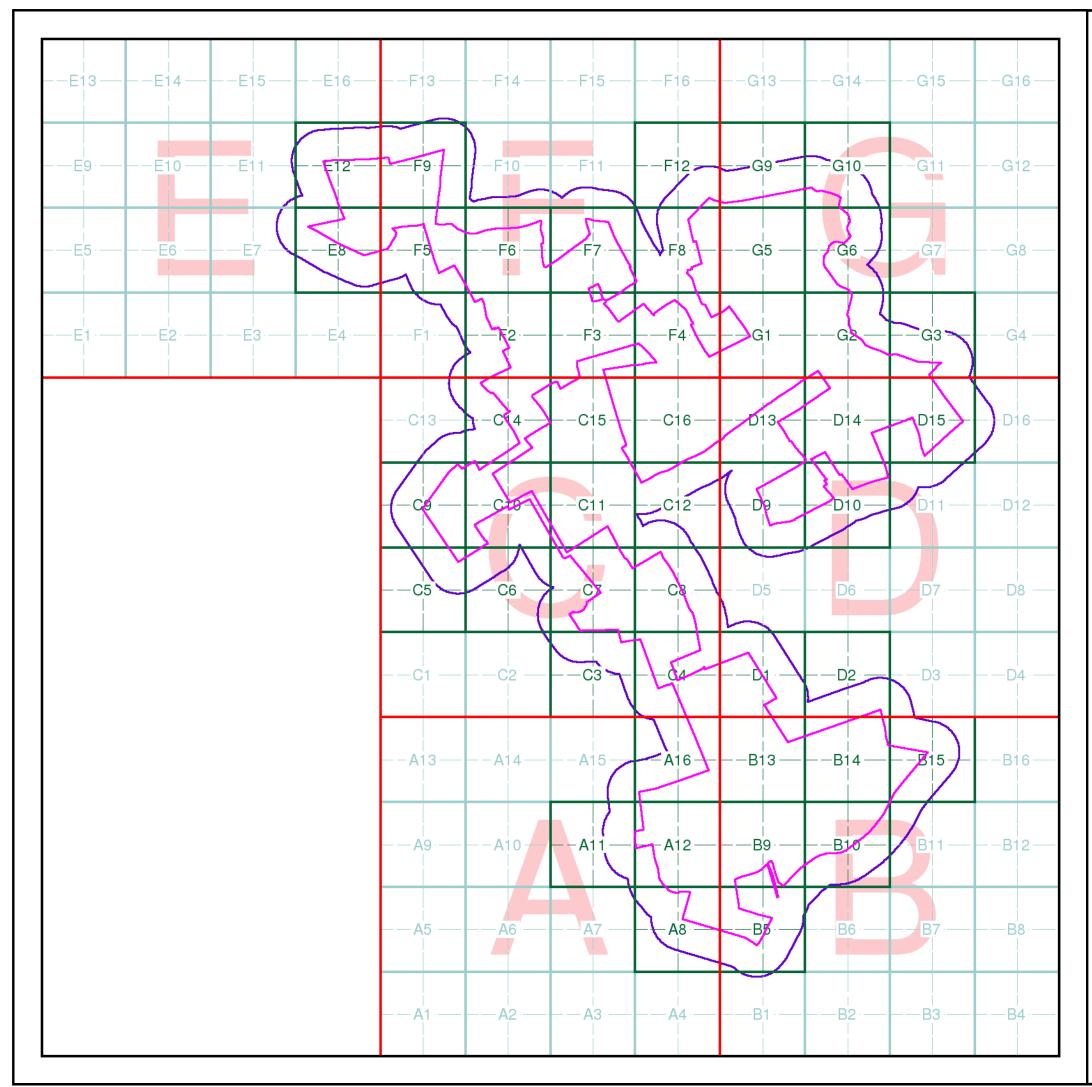
Photo No. 30 **Date:** 16/01/202 3

Direction Photo Taken: East



Annex B Selected Envirocheck Extracts

(Full Envirocheck report available on request)



Envirocheck®

LANDMARK INFORMATION GROUP®

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

MRS K Bruce, Aecom Infrastructure & Environment UK Ltd, 2nd Floor, St Georges House, 5 St Georges Road, London, SW19 4DR

Order Details

Order Number: 306409120_1_1 Customer Ref: 60683115 National Grid Reference: 476270, 433860 Site Area (Ha): 923.18

Search Buffer (m): 923.18

Site Details

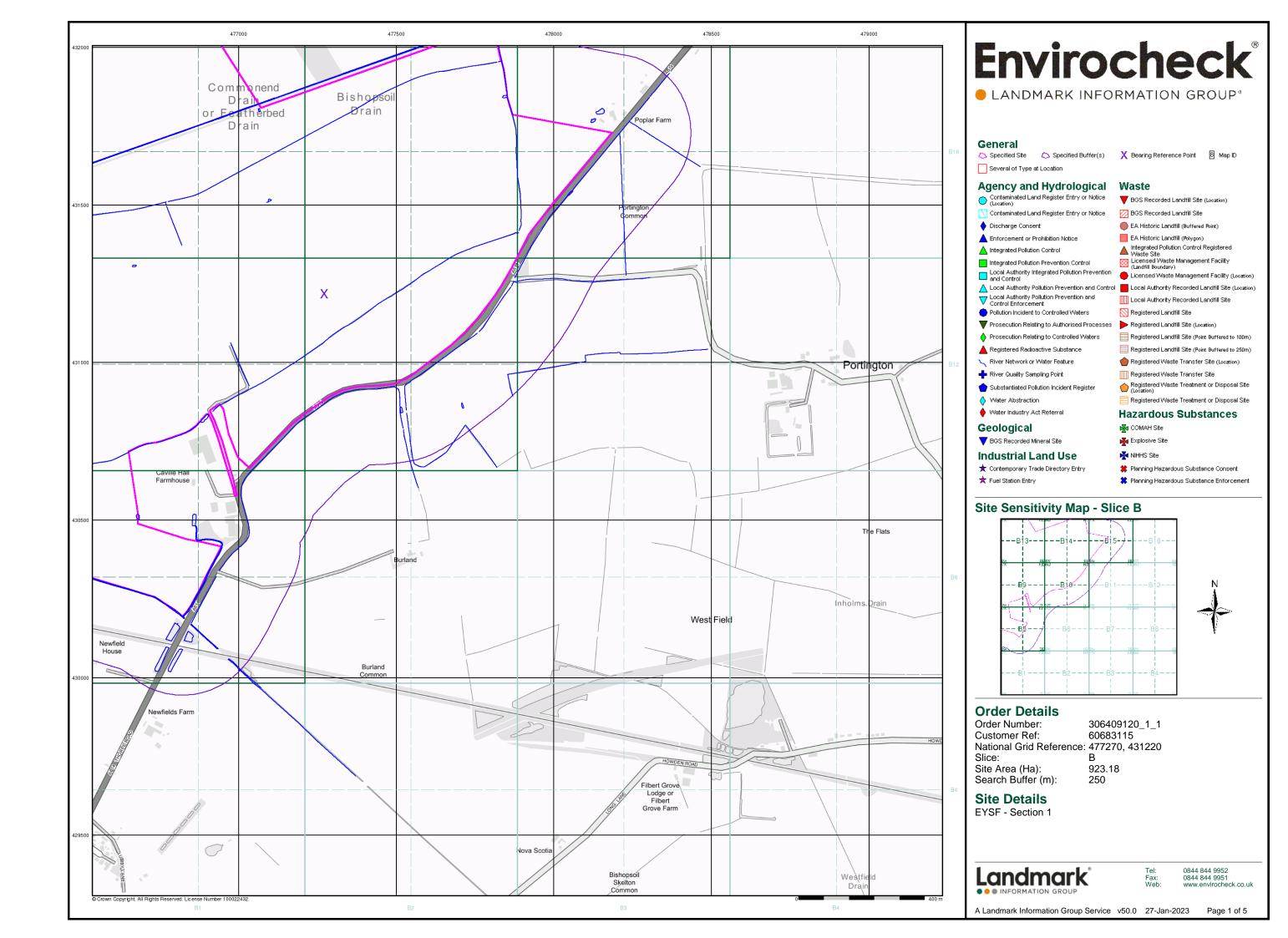
EYSF - Section 1

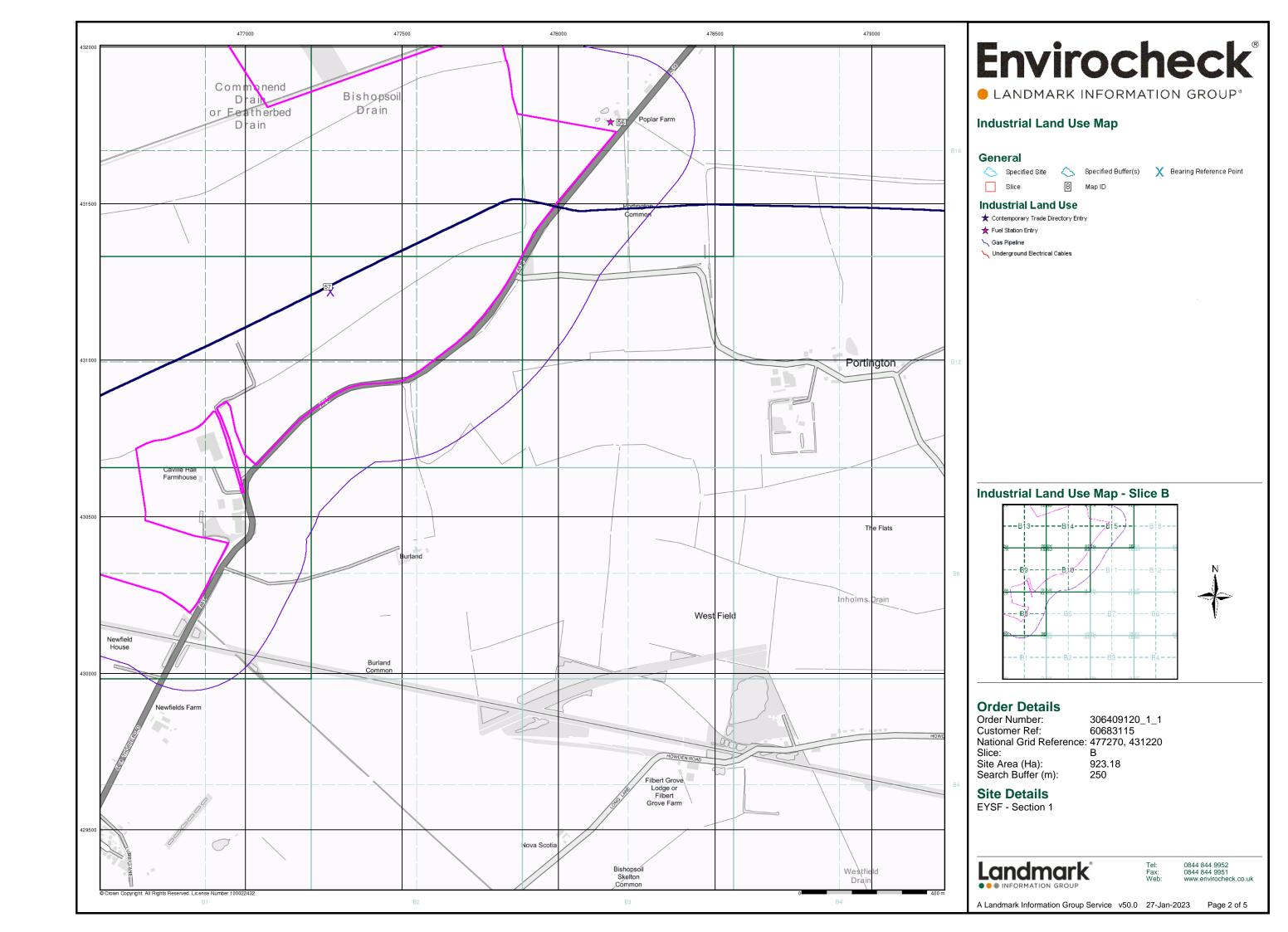
Full Terms and Conditions can be found on the following link: http://www.landmarkinfo.co.uk/Terms/Show/515

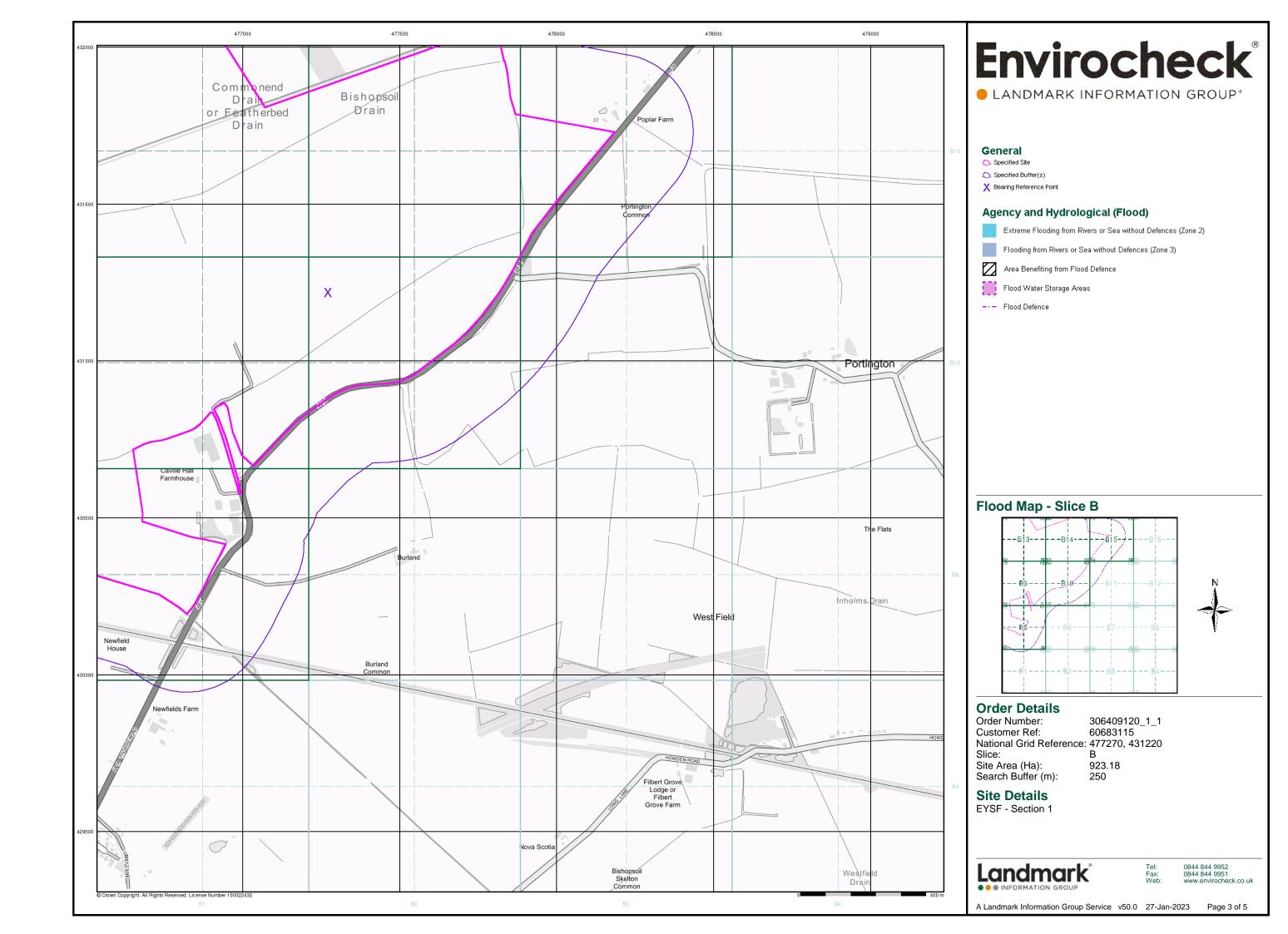


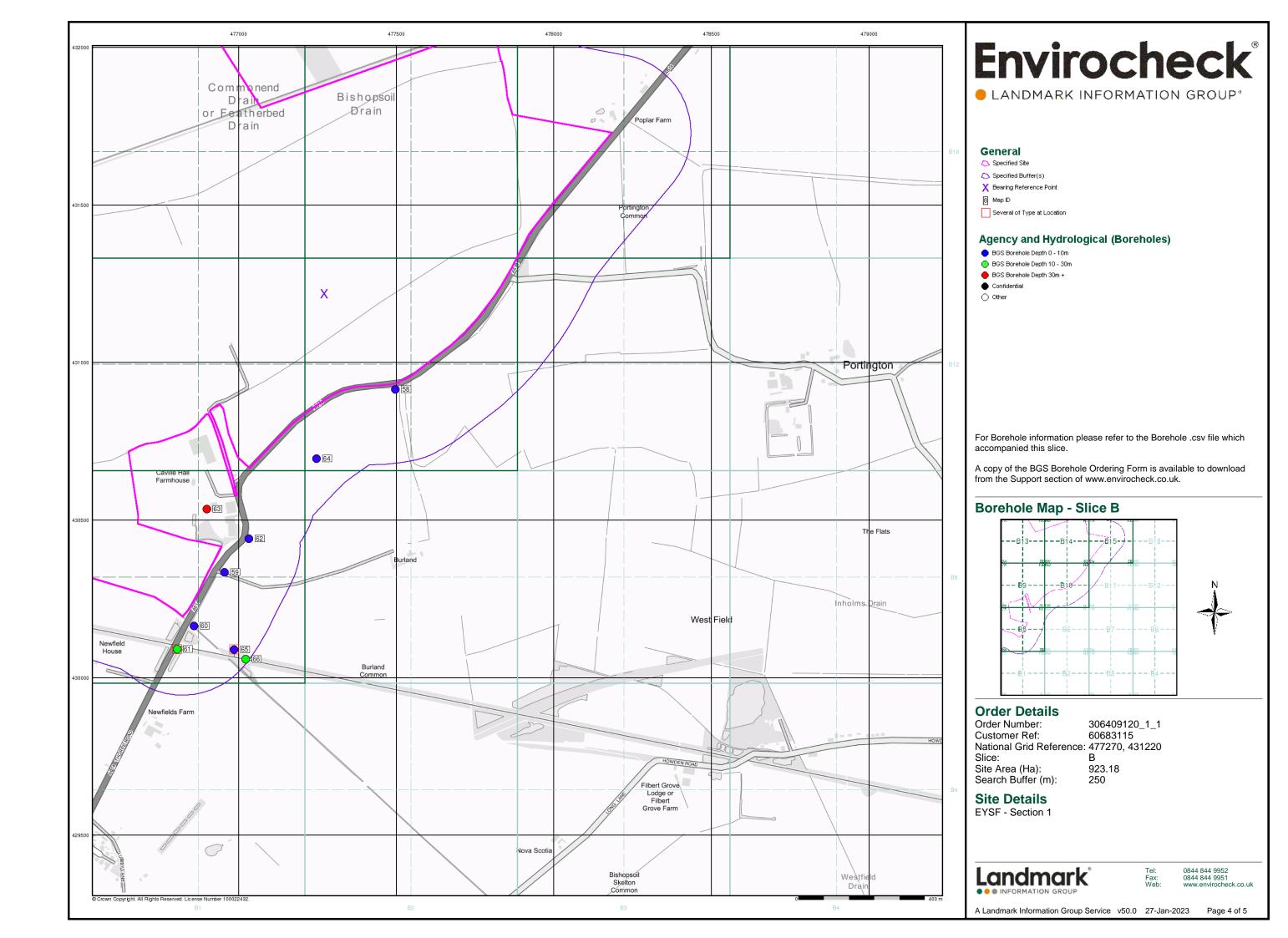
Tel: 0844 844 9952 Fax: 0844 844 9951 Web: www.envirocheck.co.uk

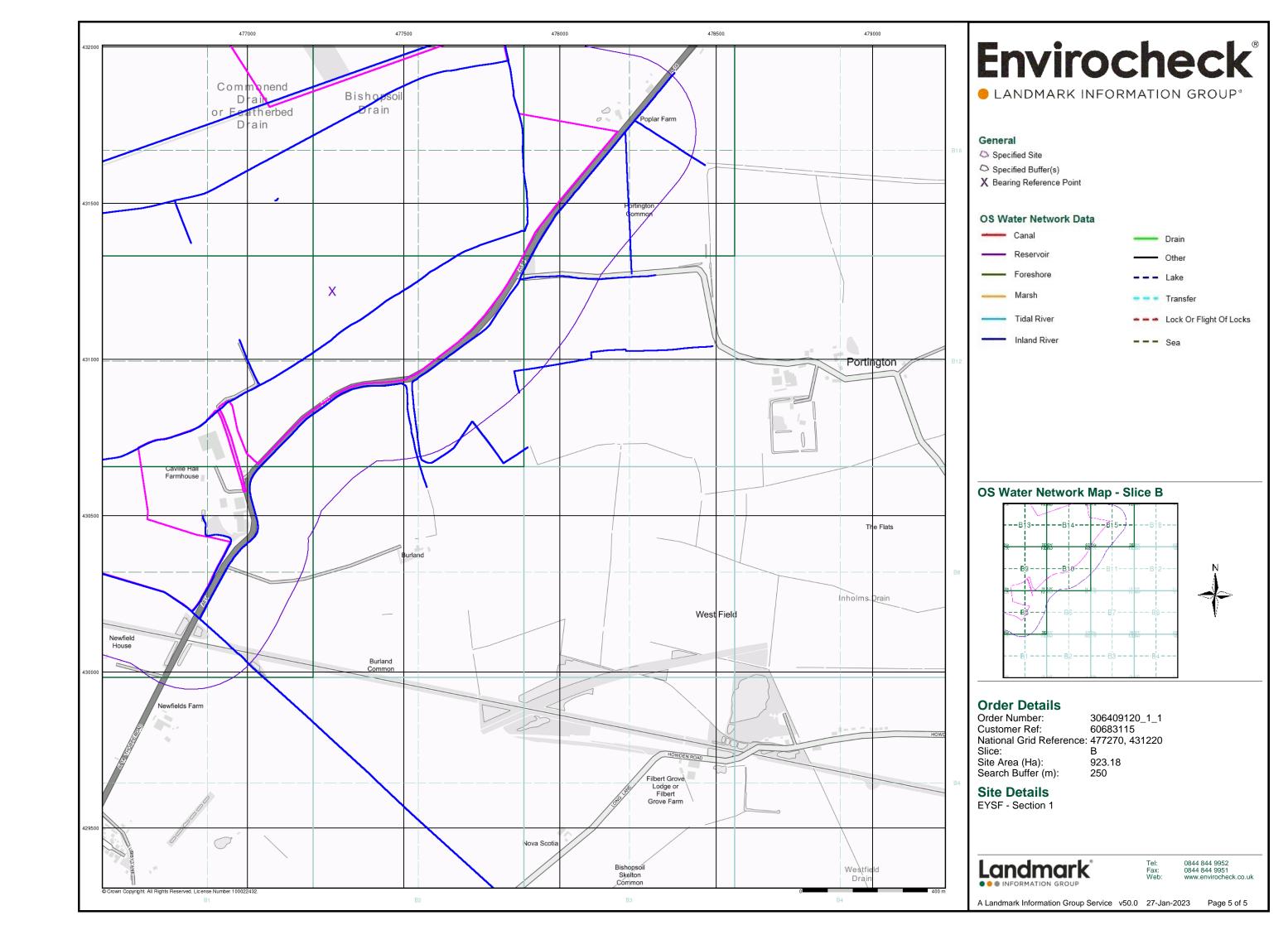
A Landmark Information Group Service v50.0 27-Jan-2023 Page 1 of 1

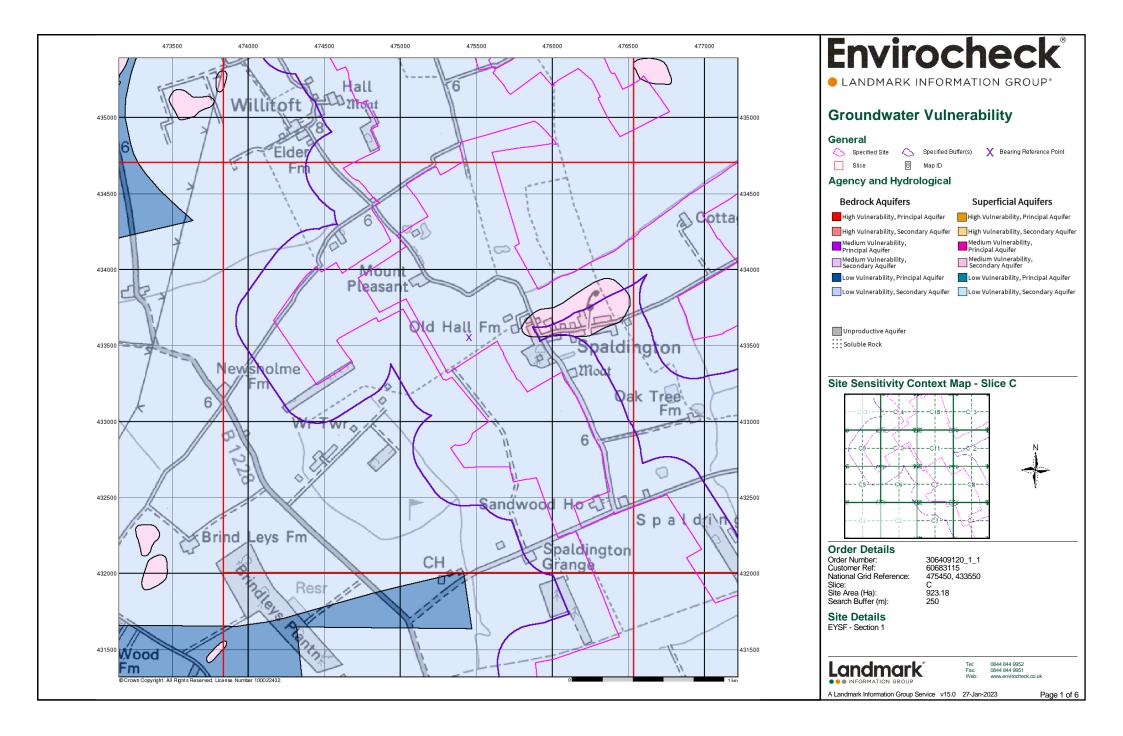


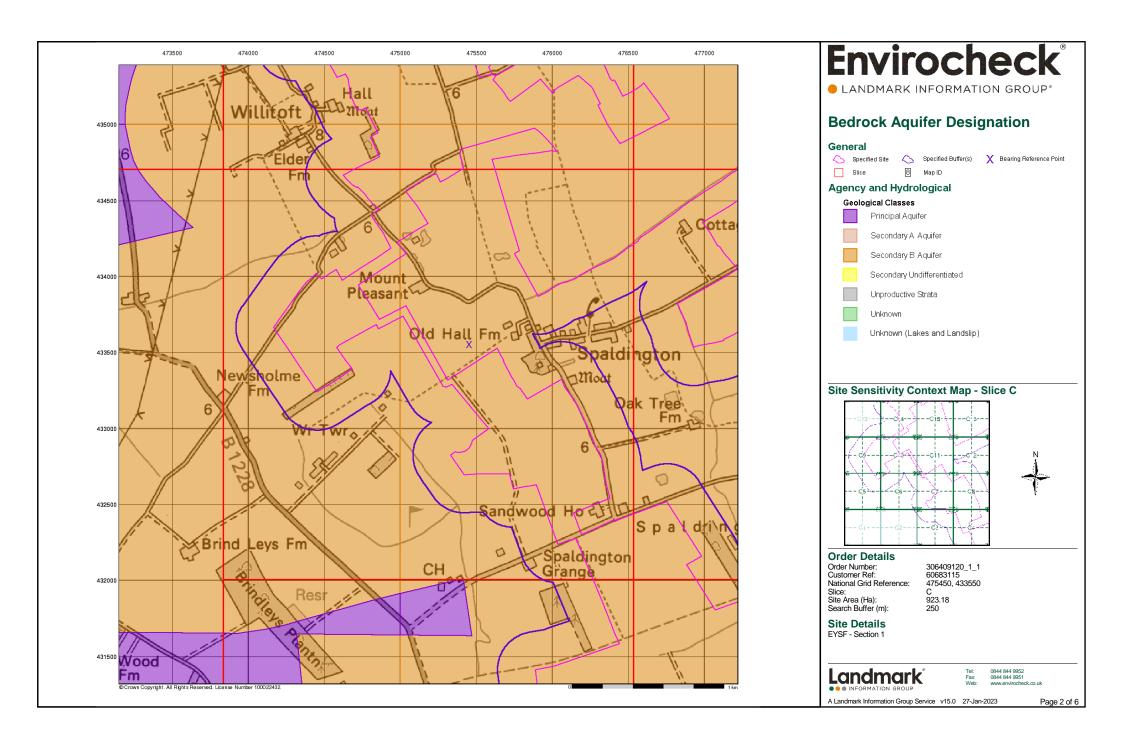


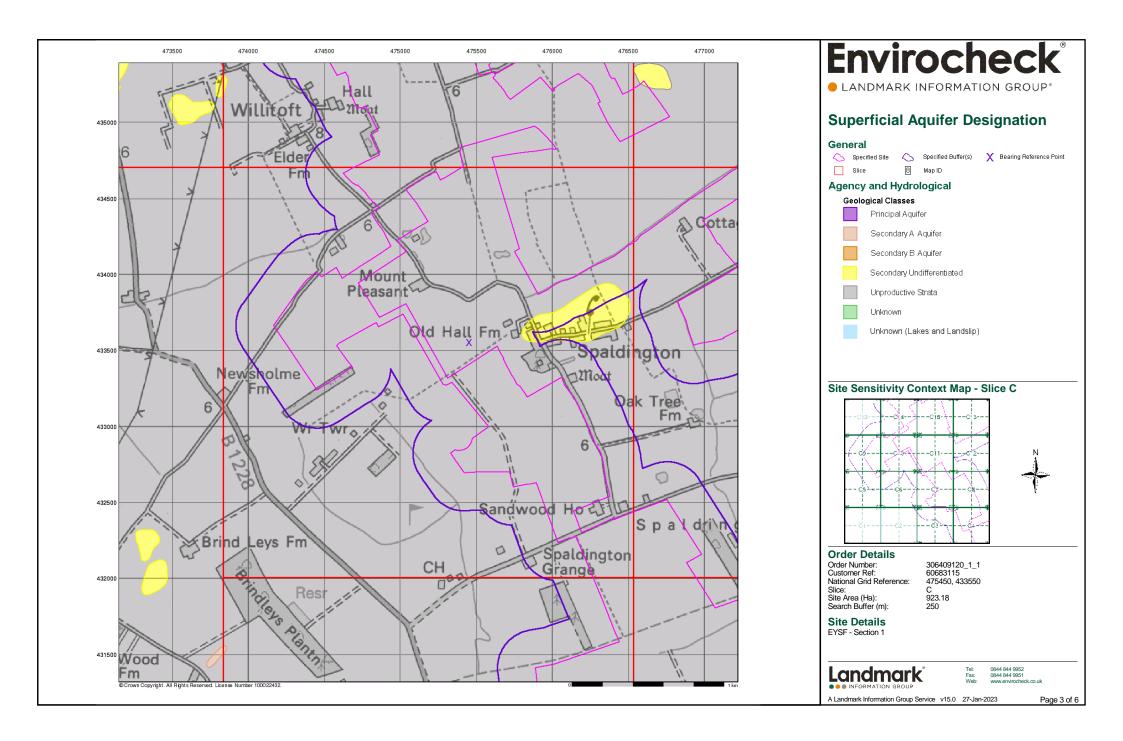


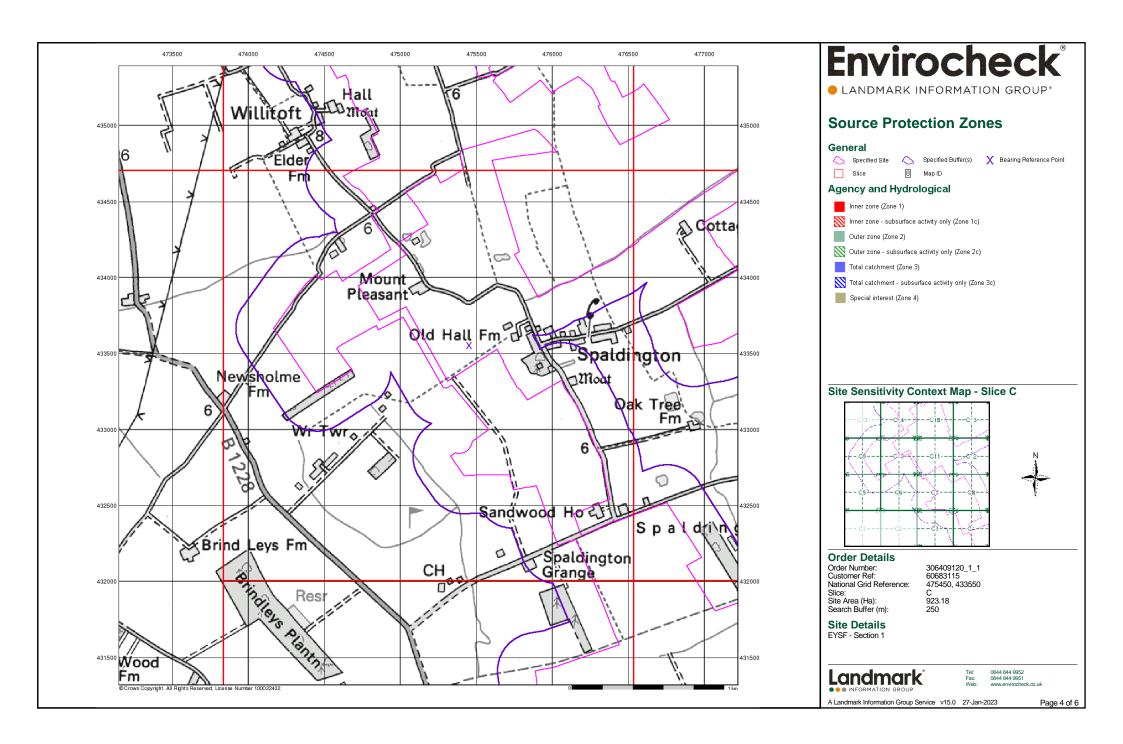


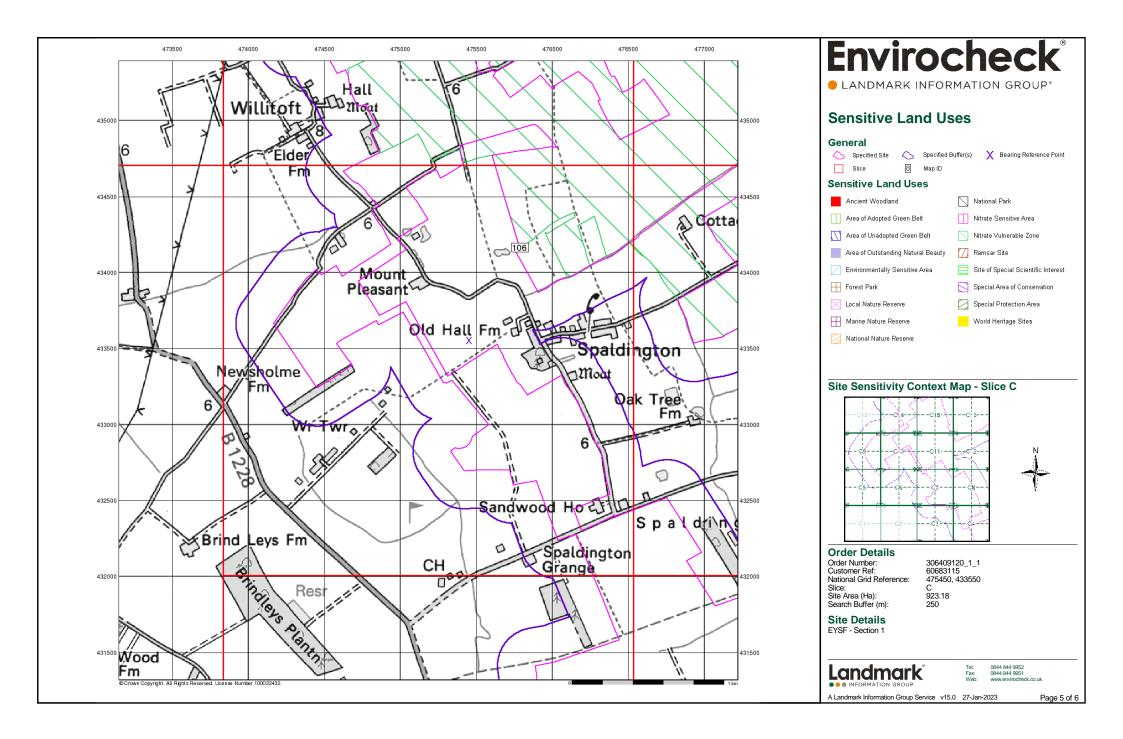


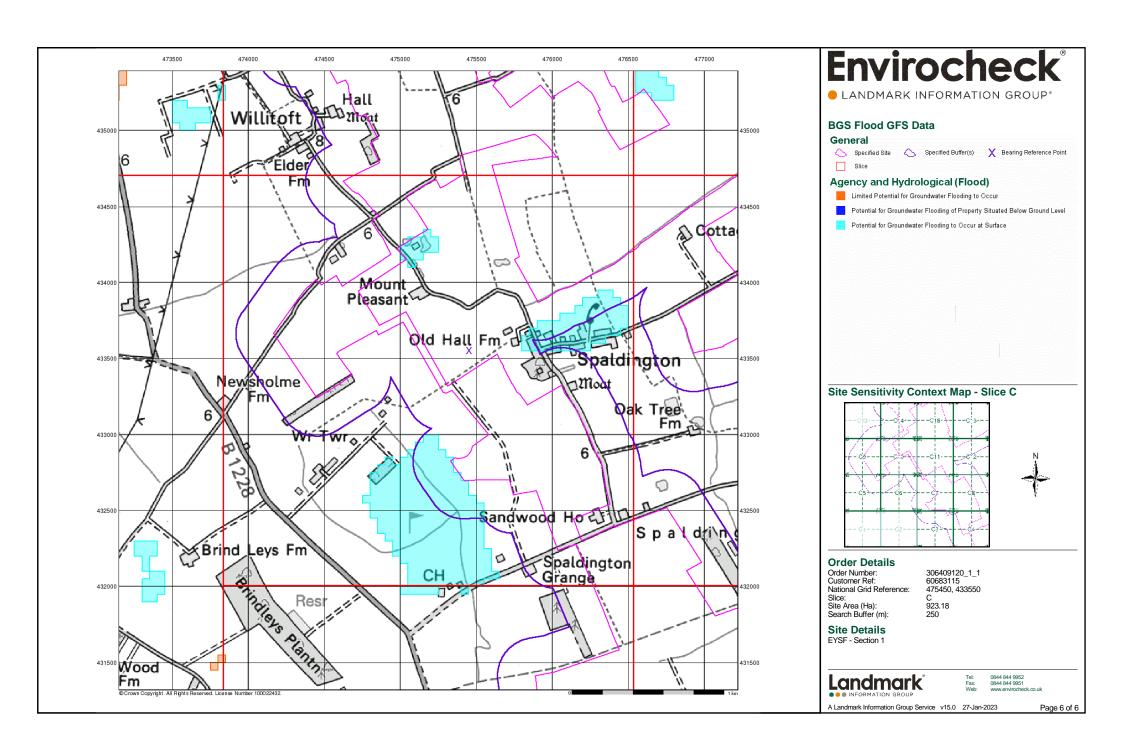


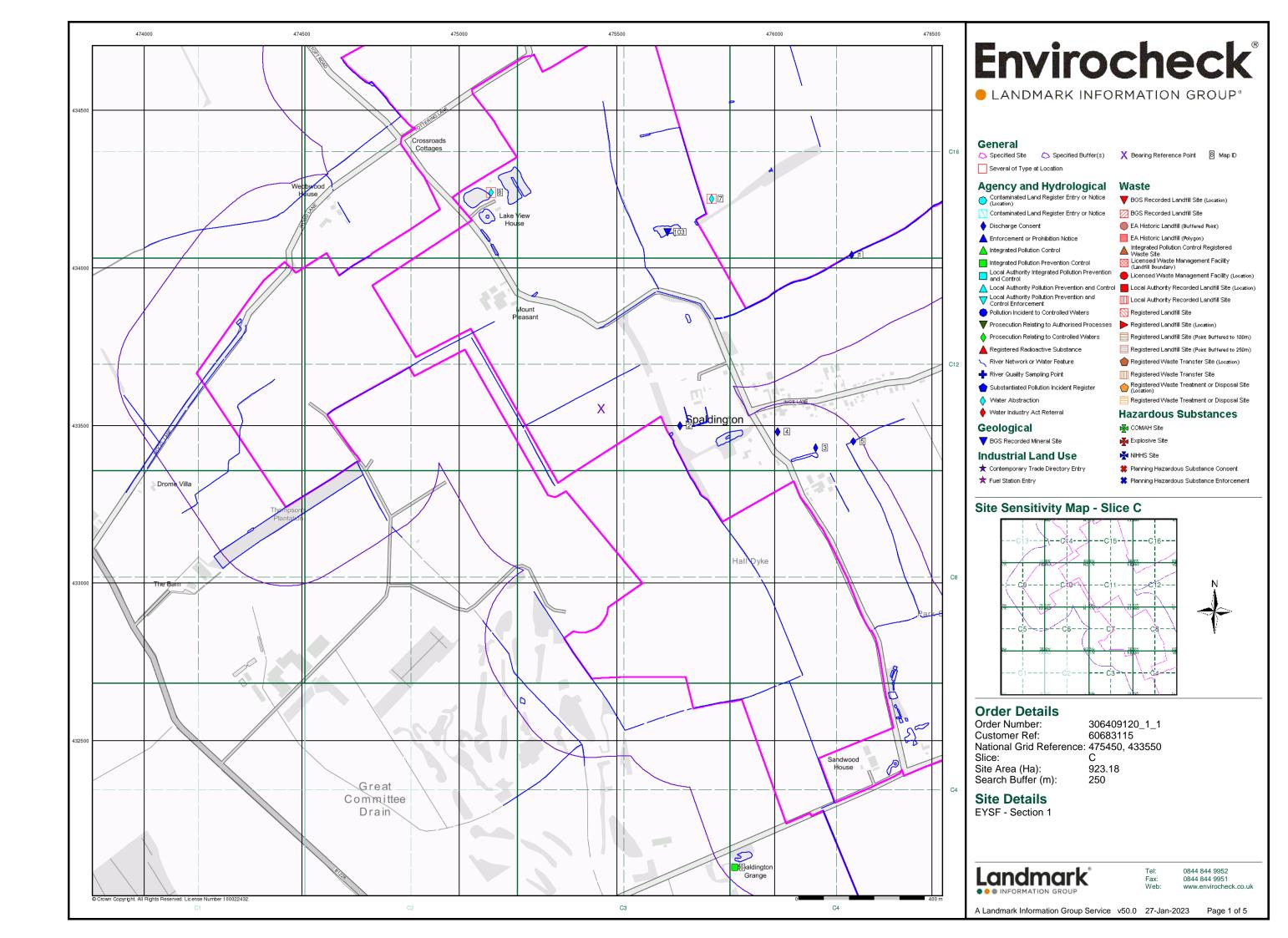


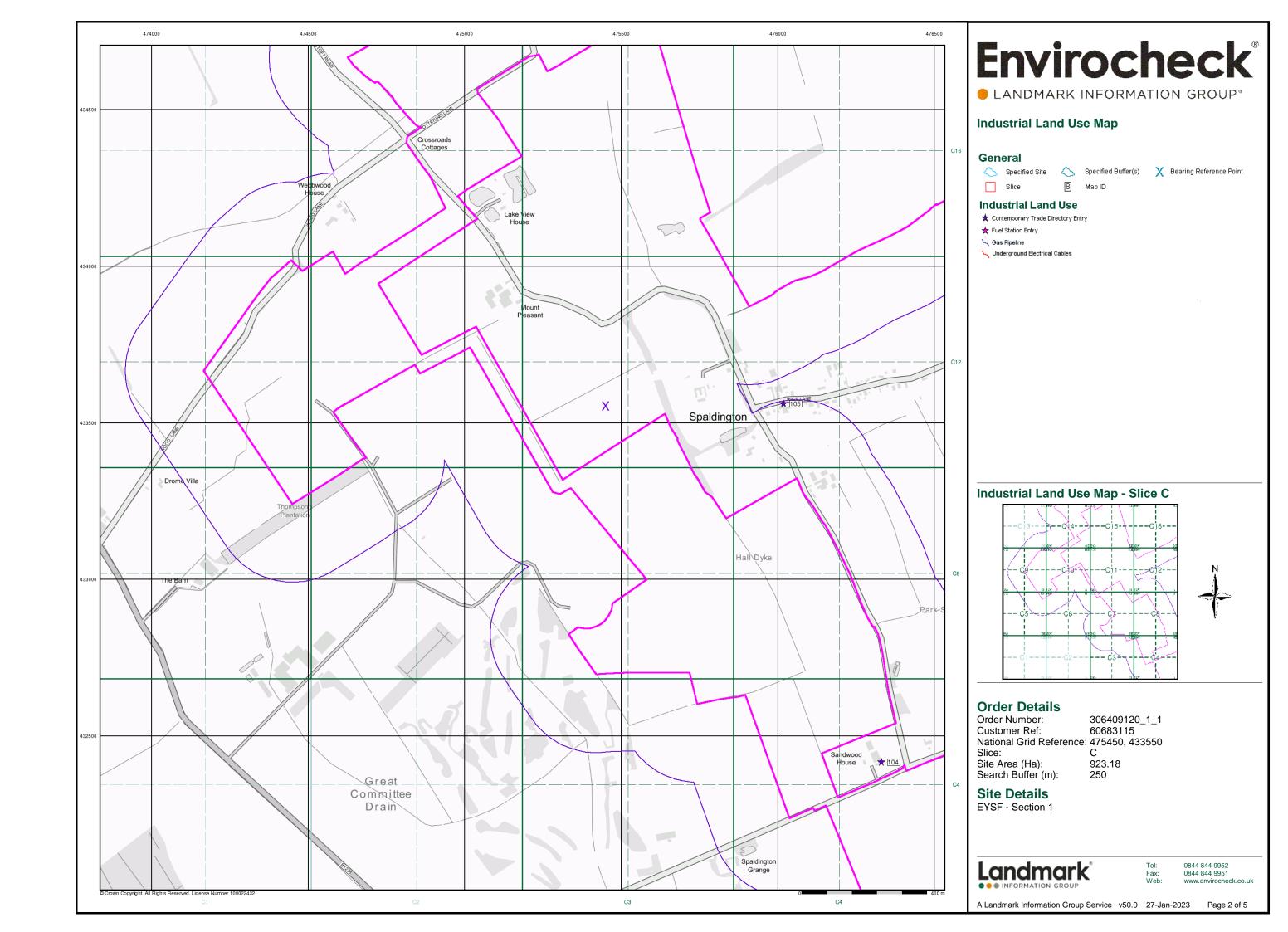


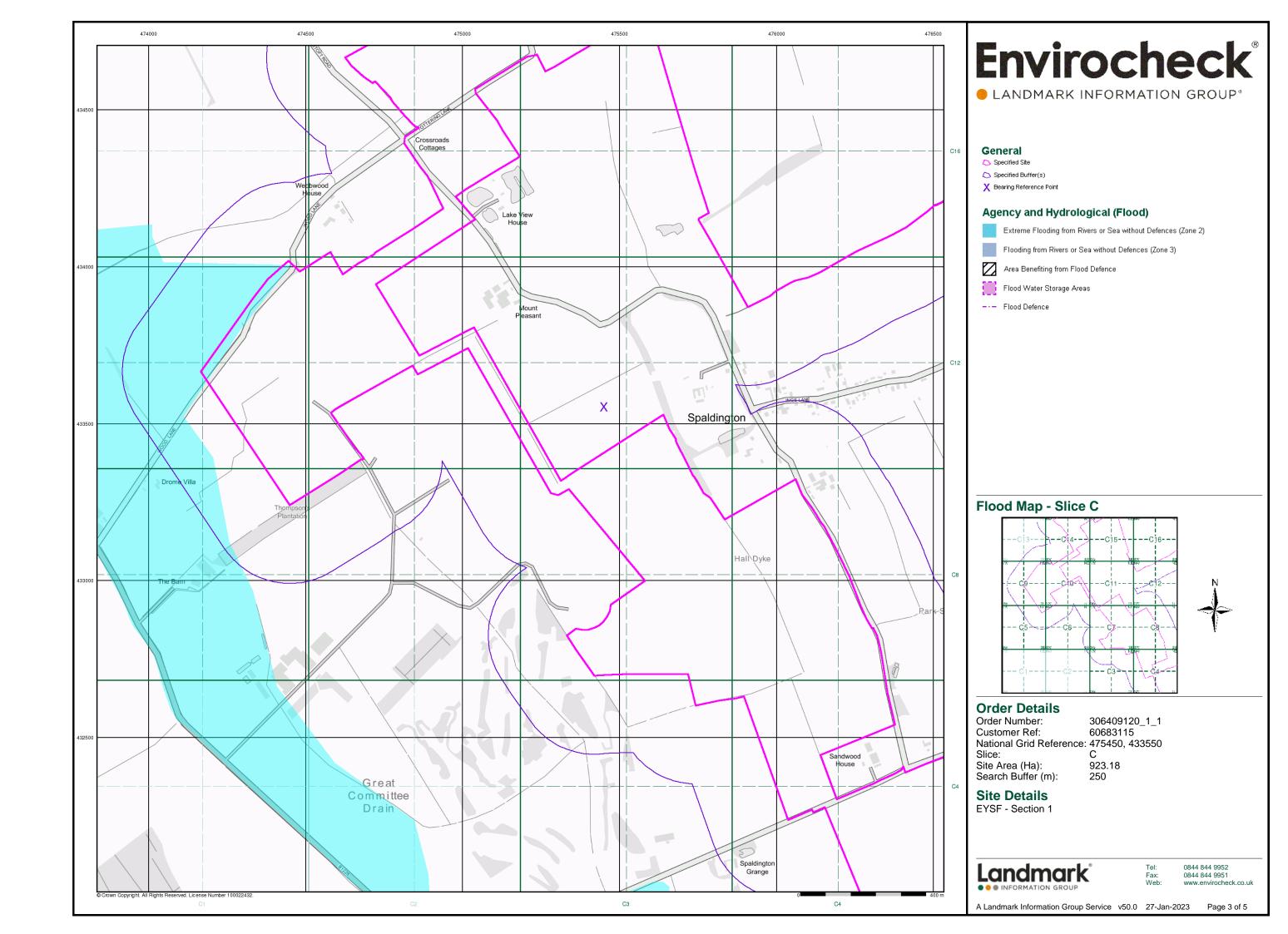


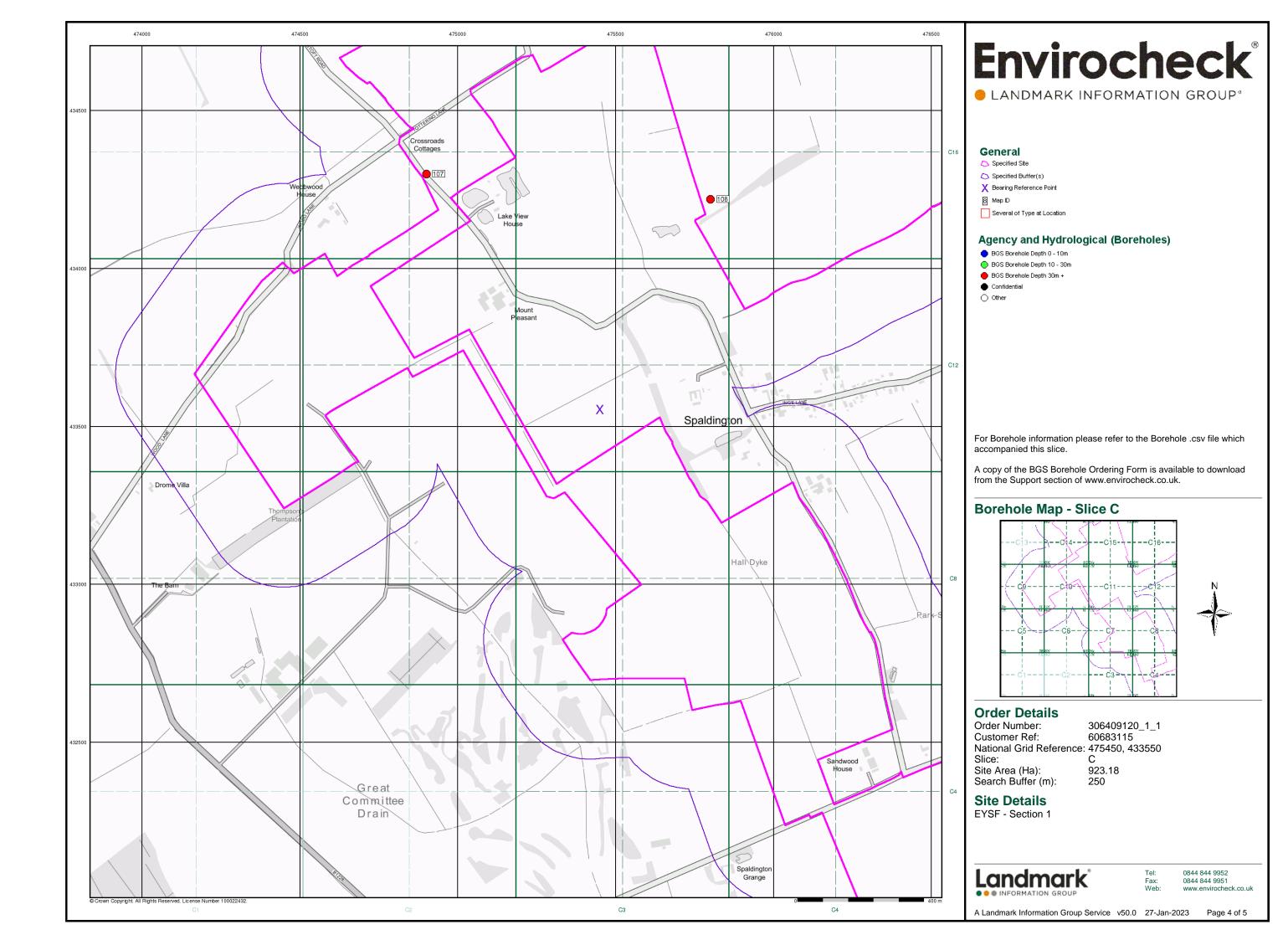


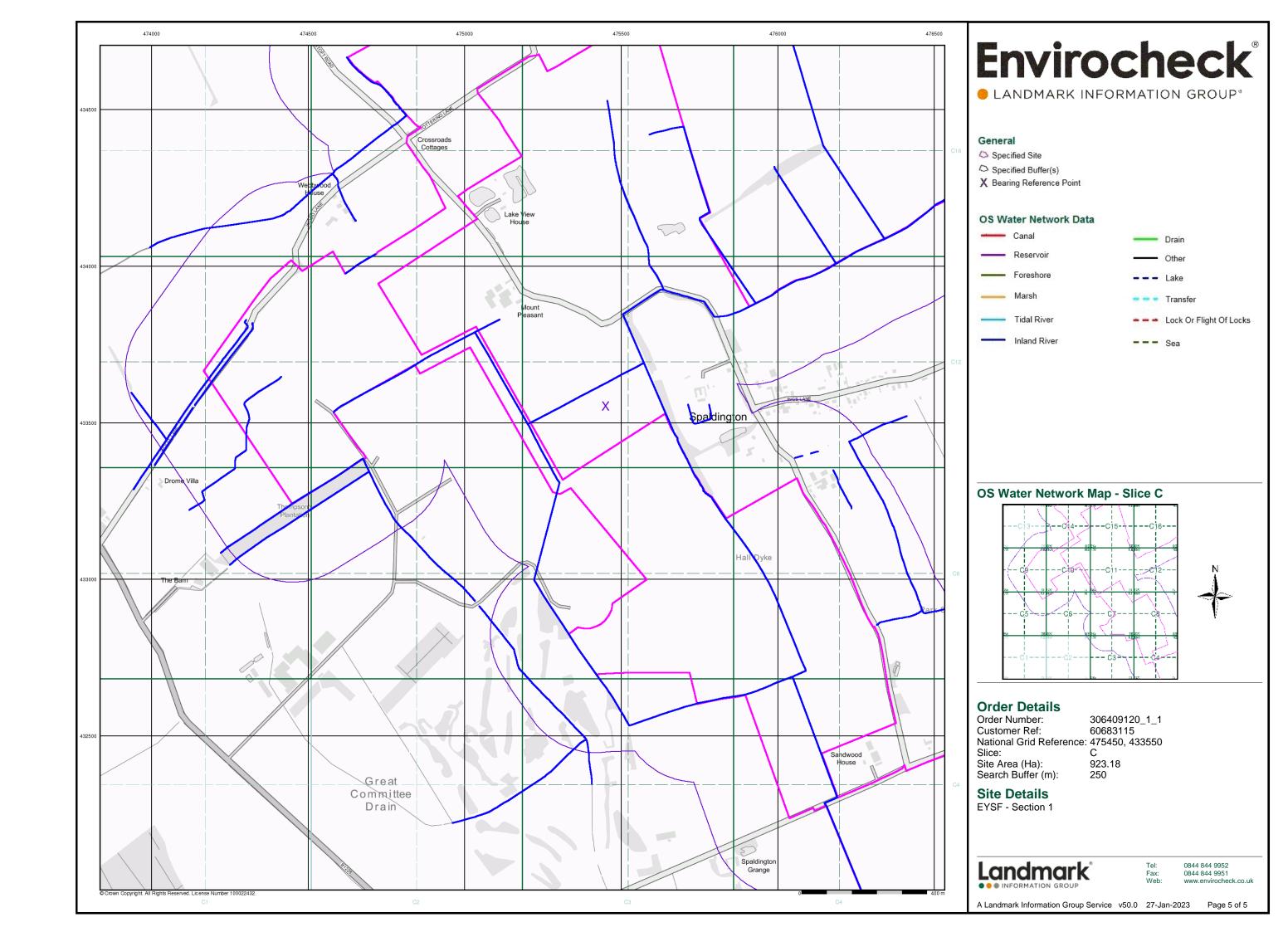


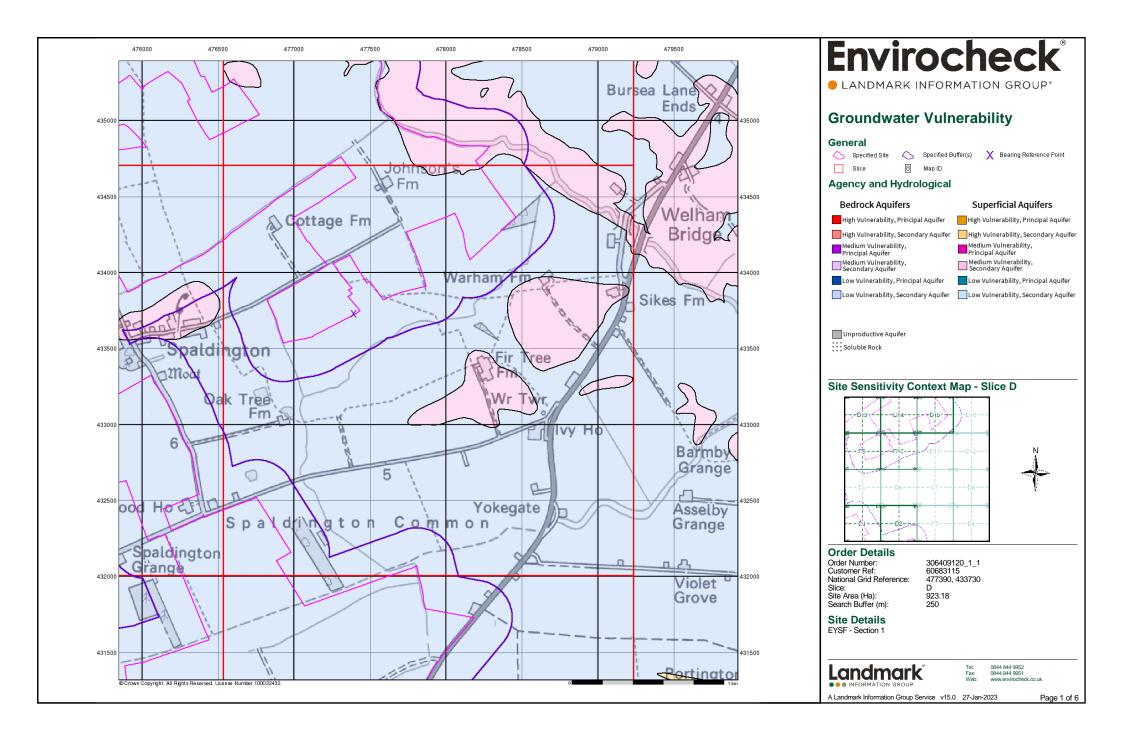


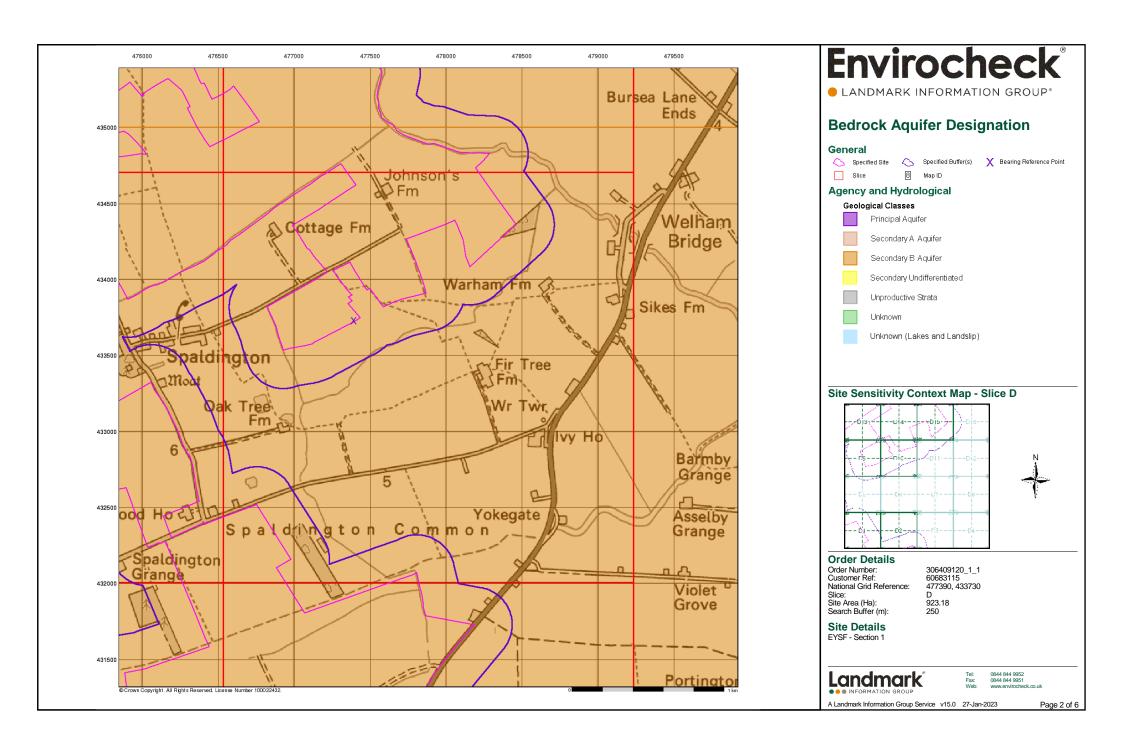


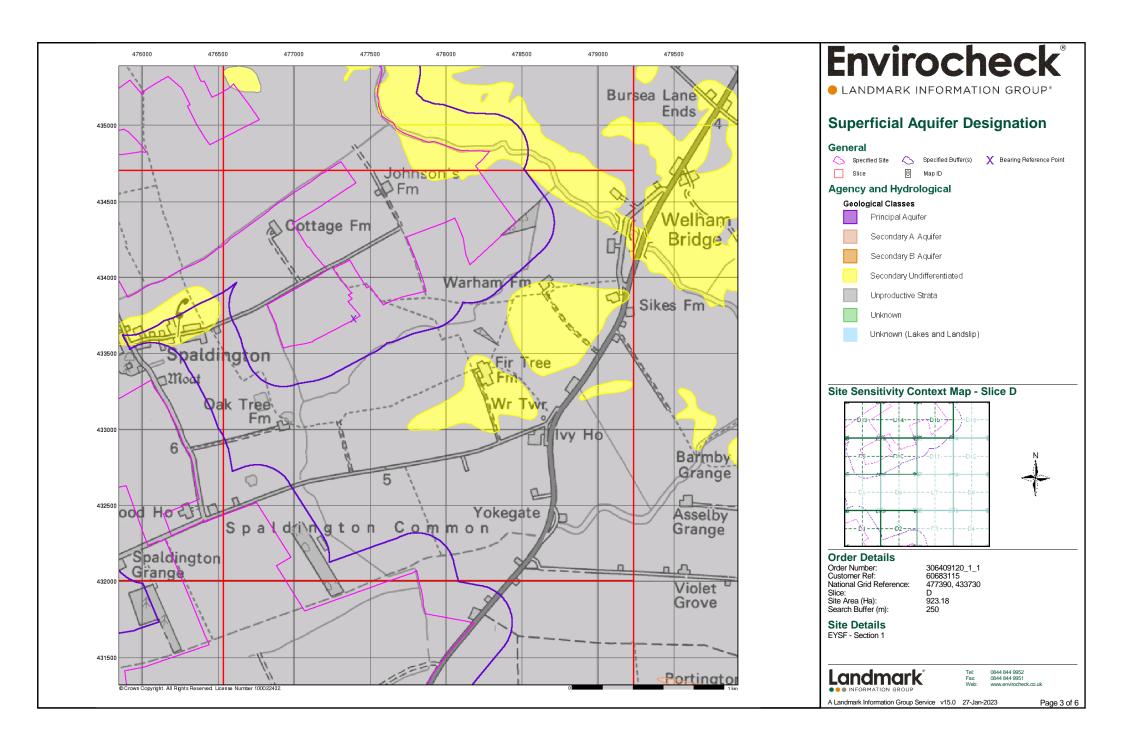


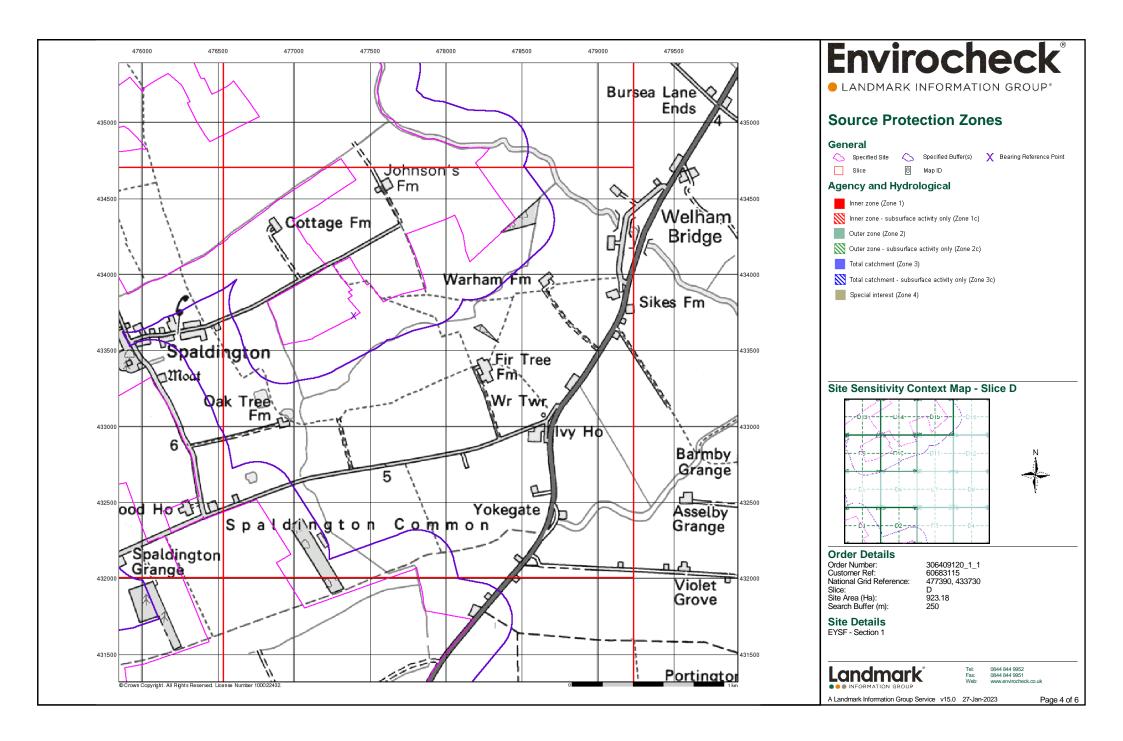


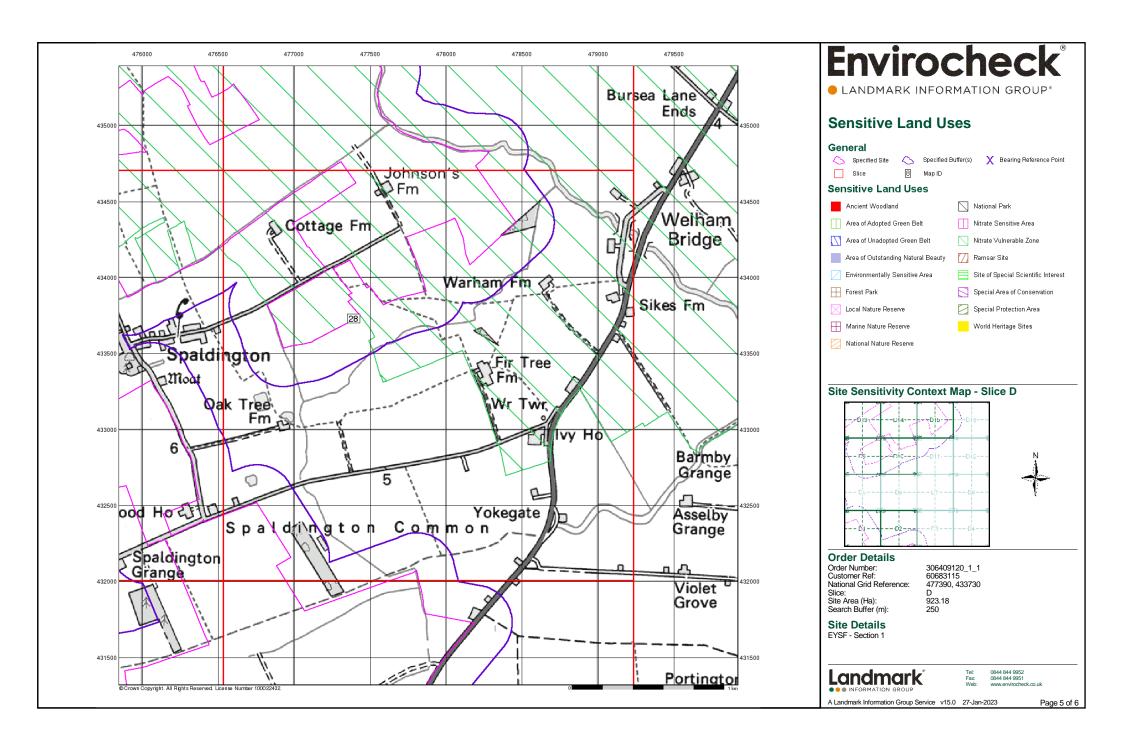


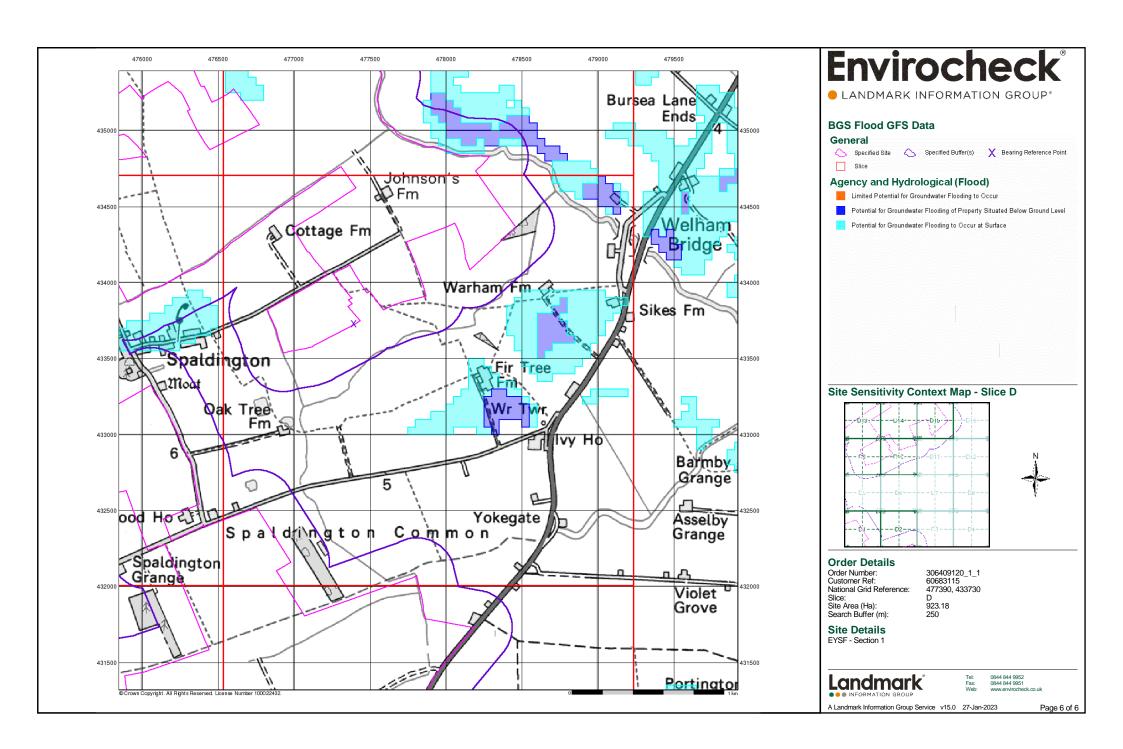


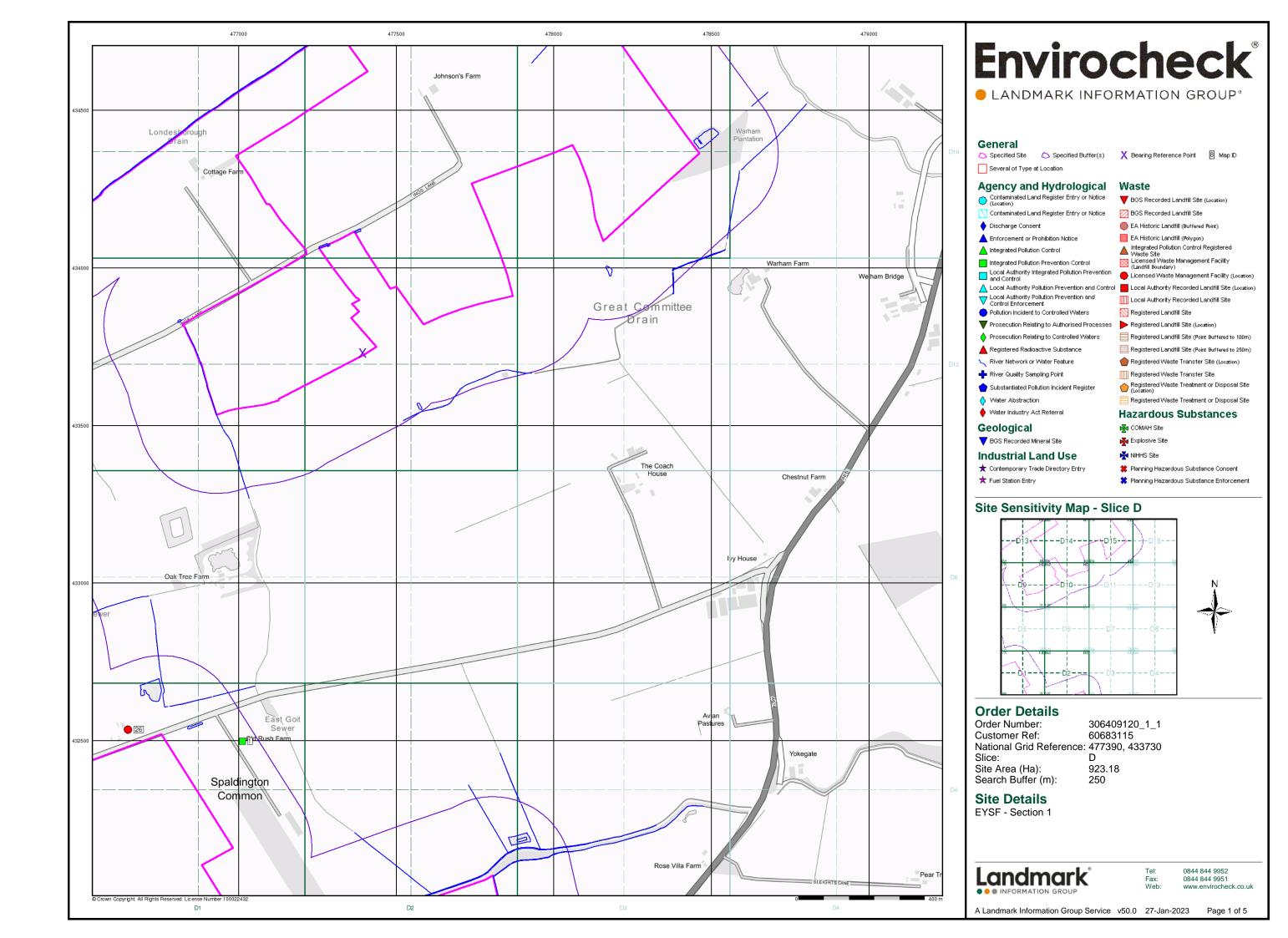


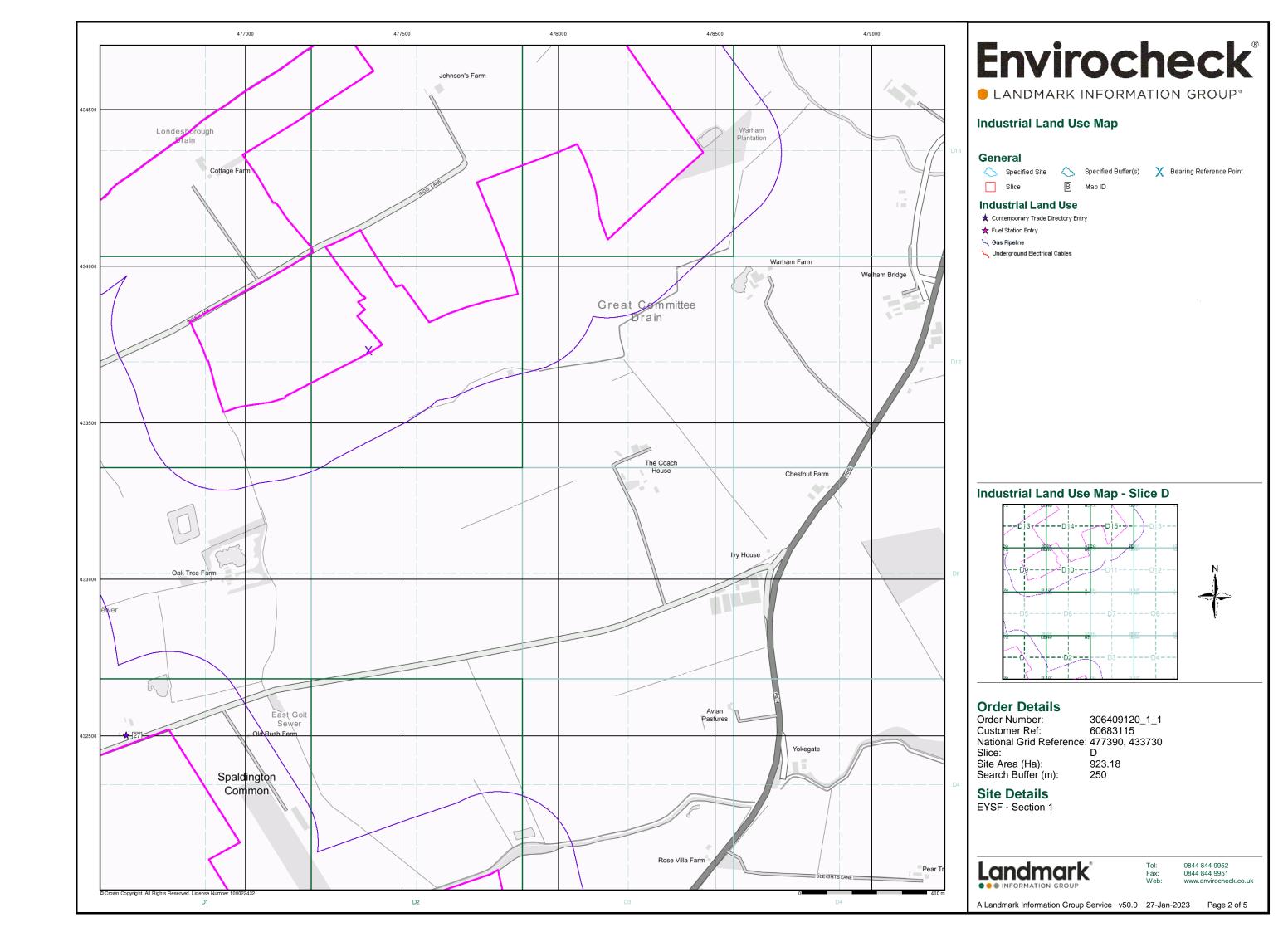


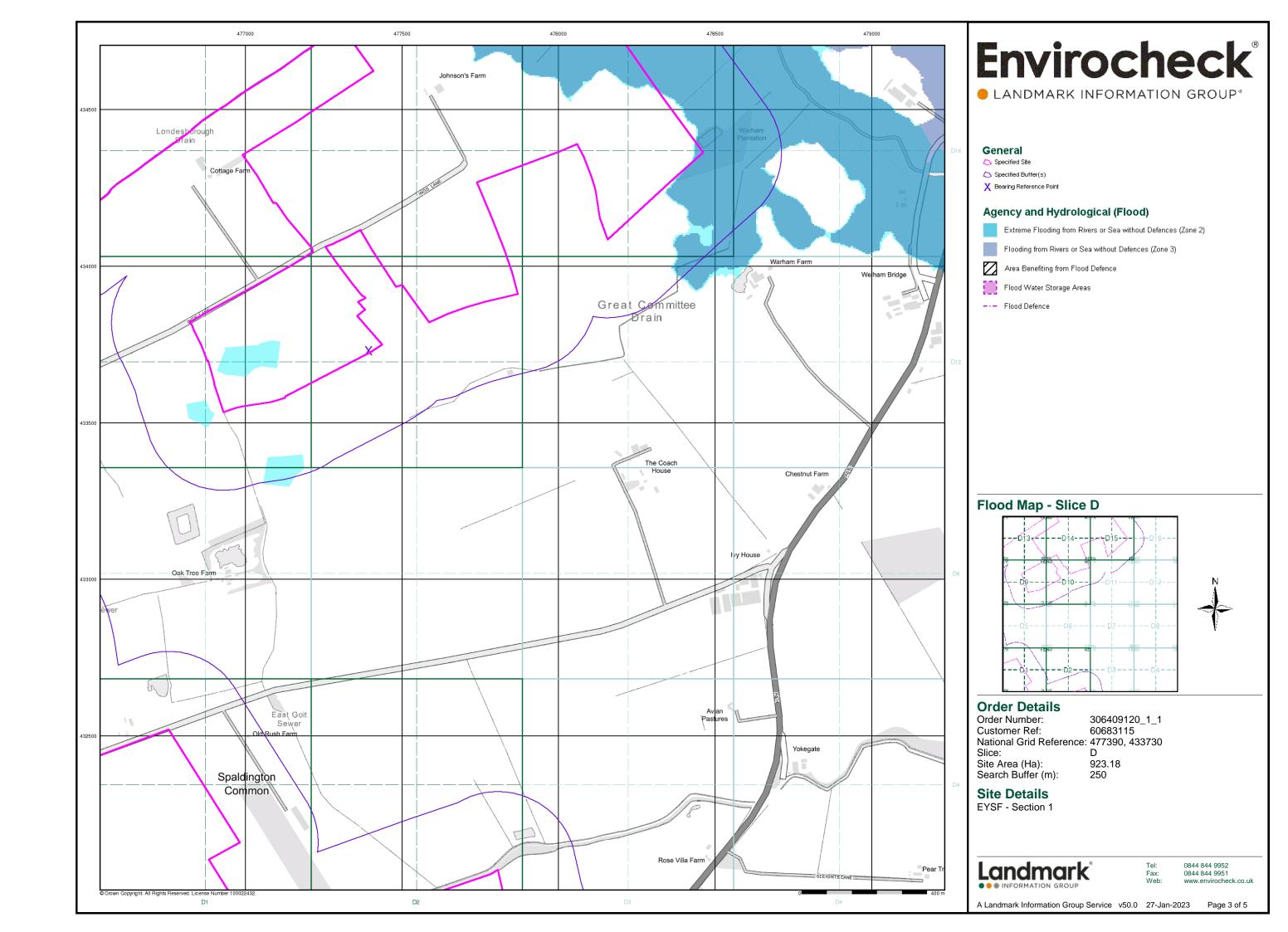


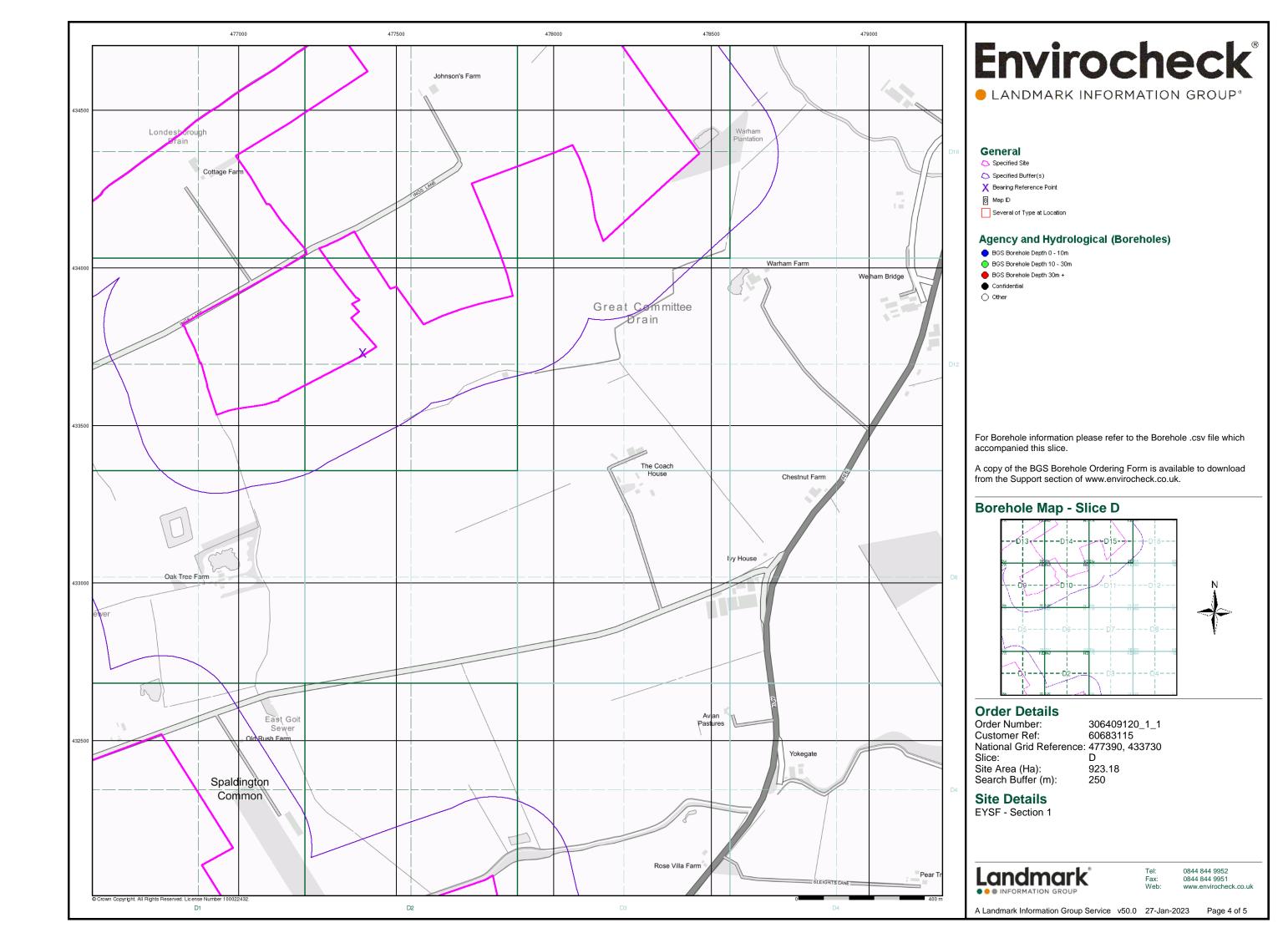


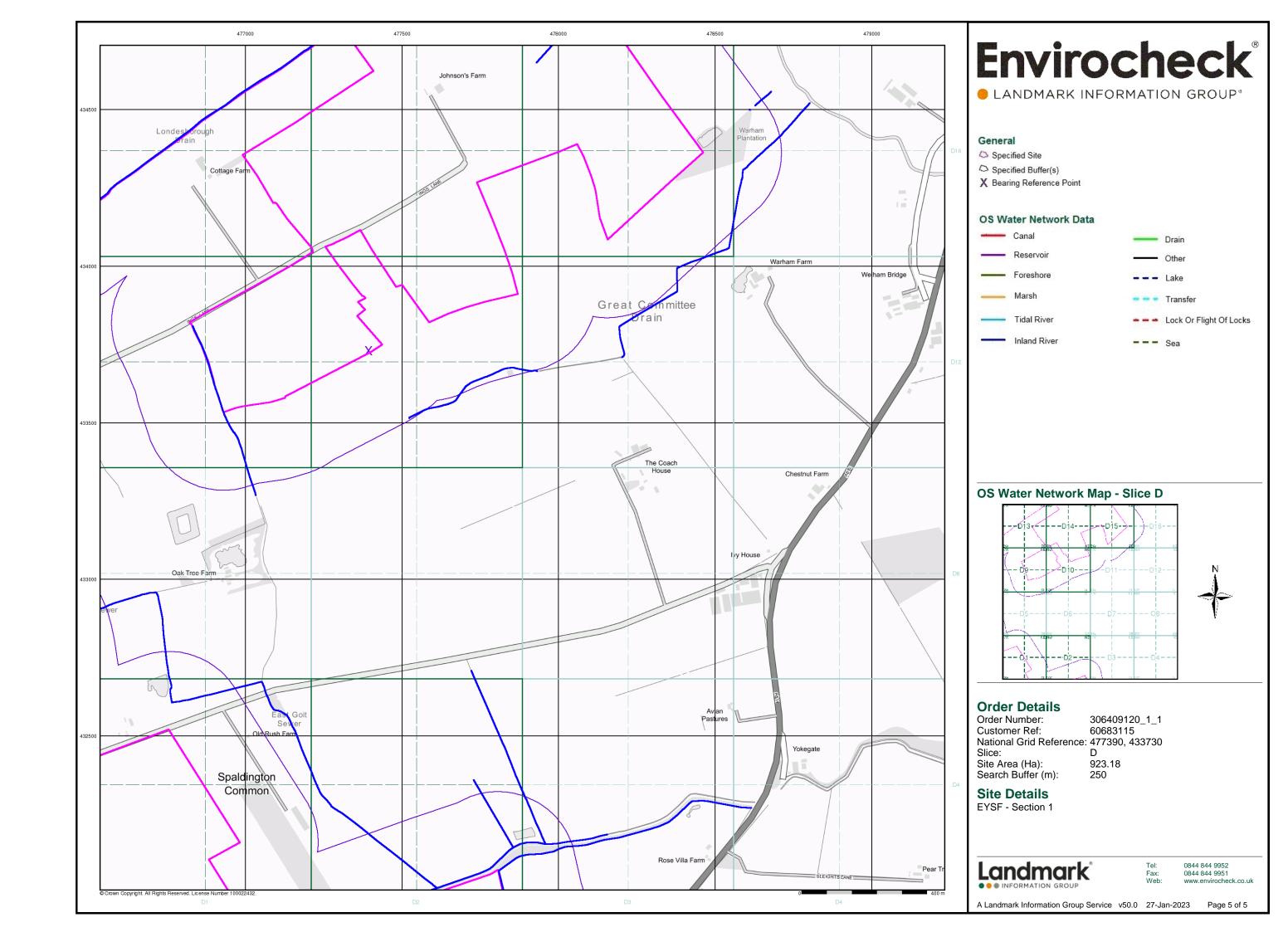


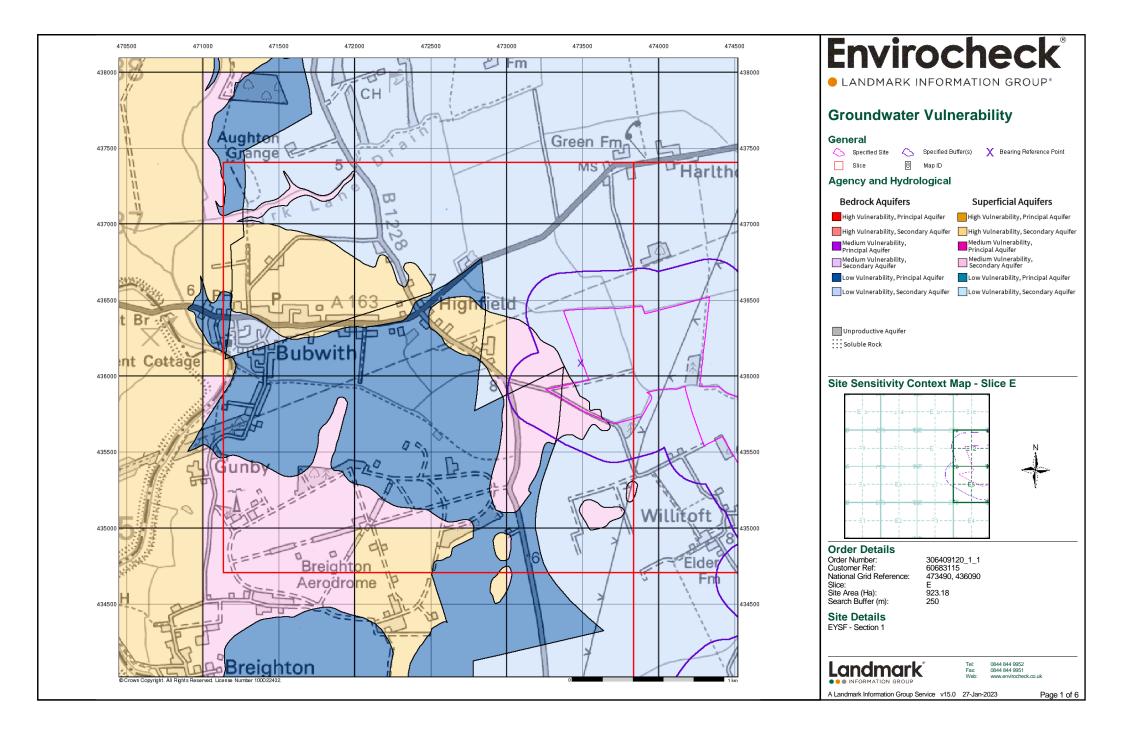


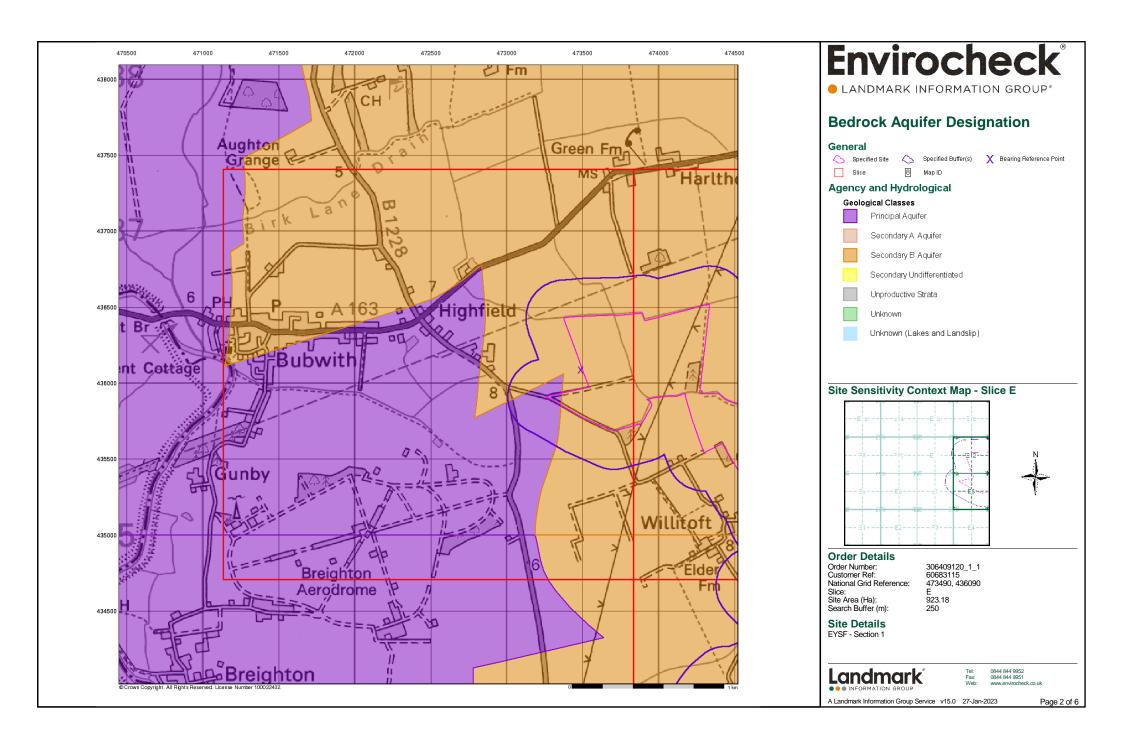


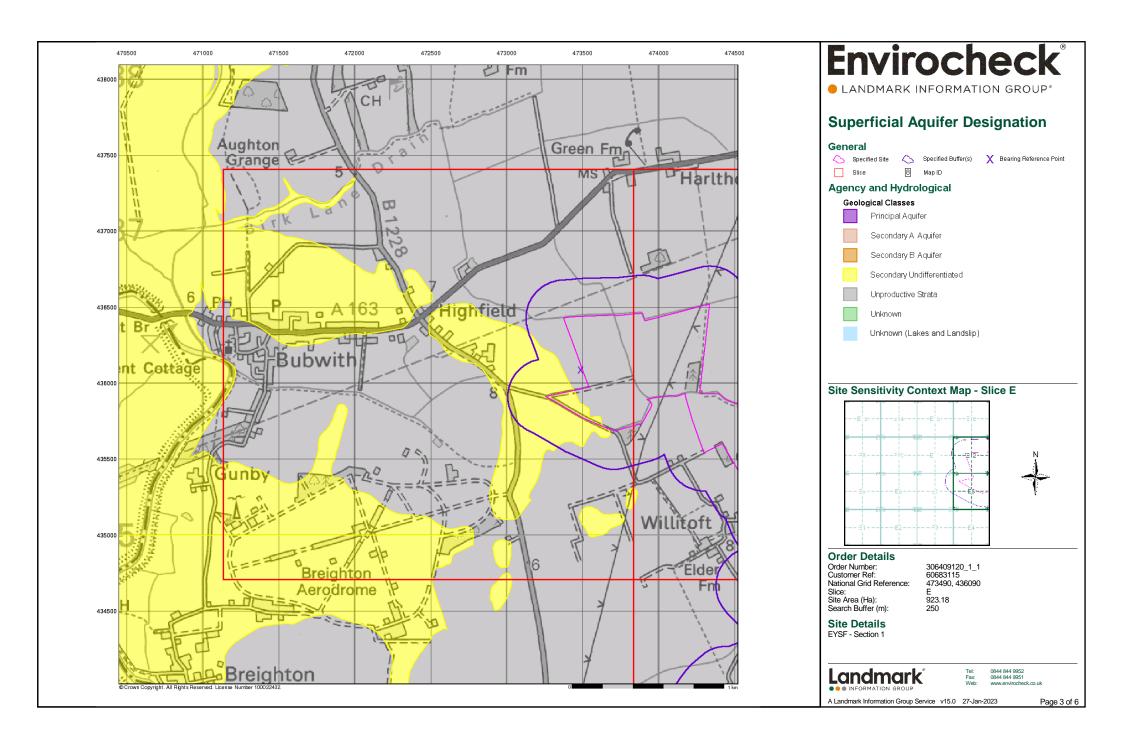


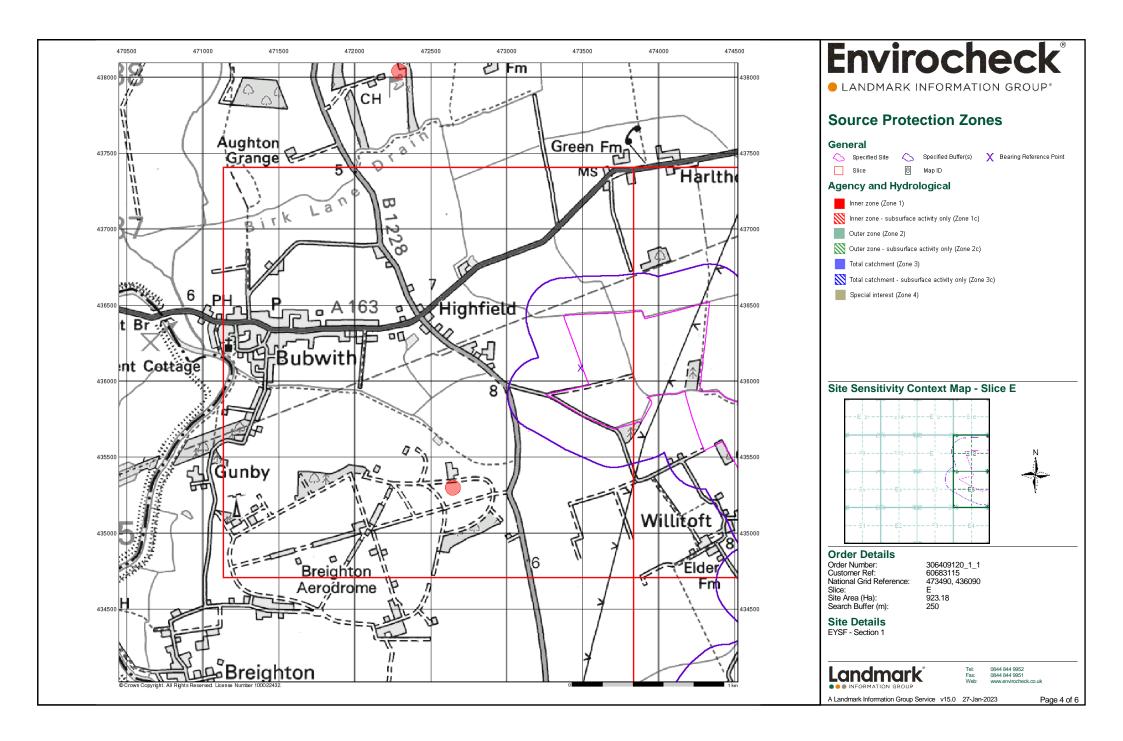


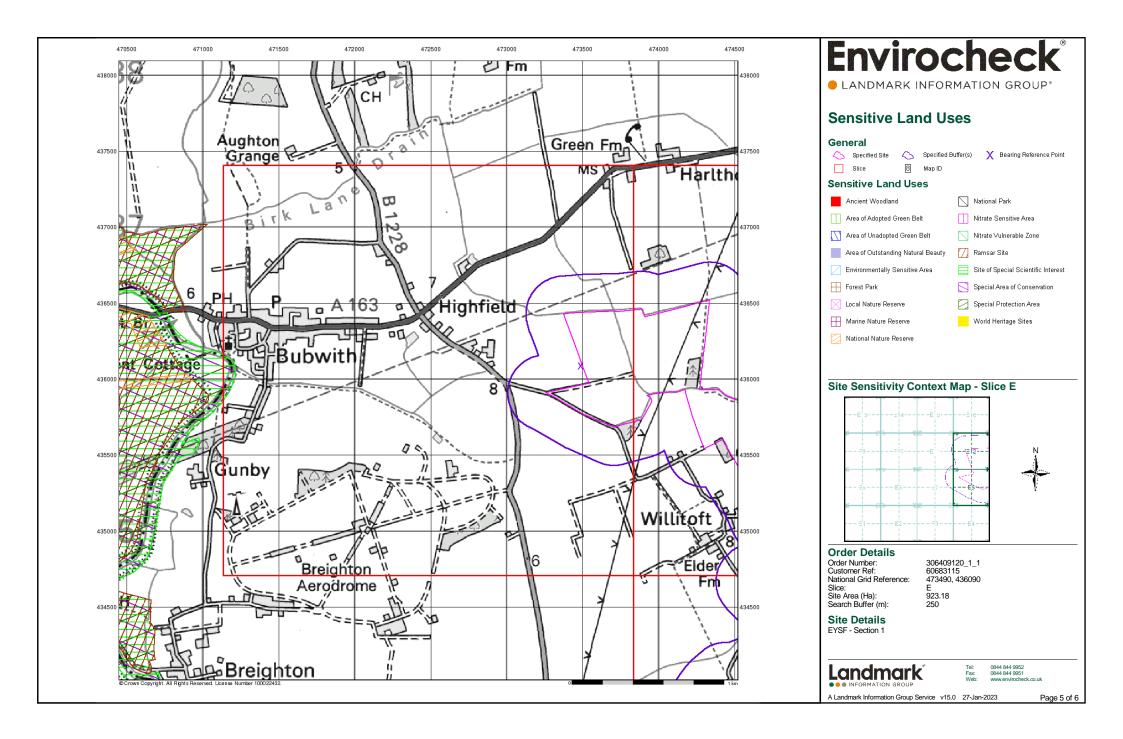


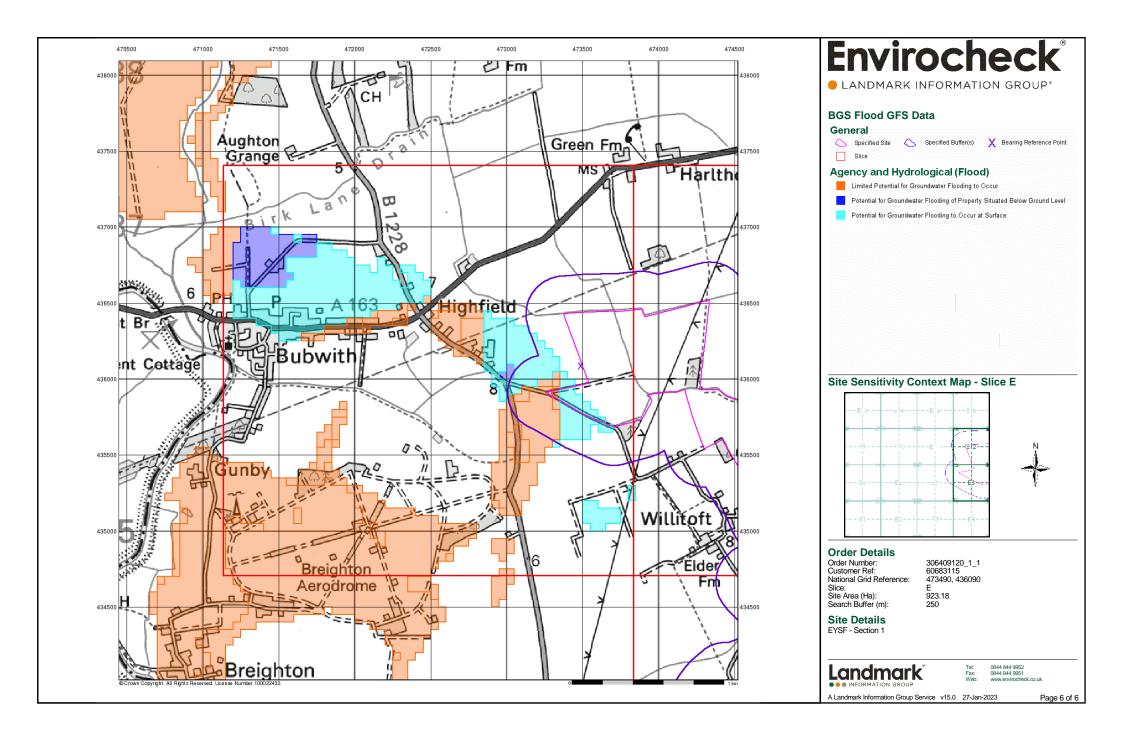


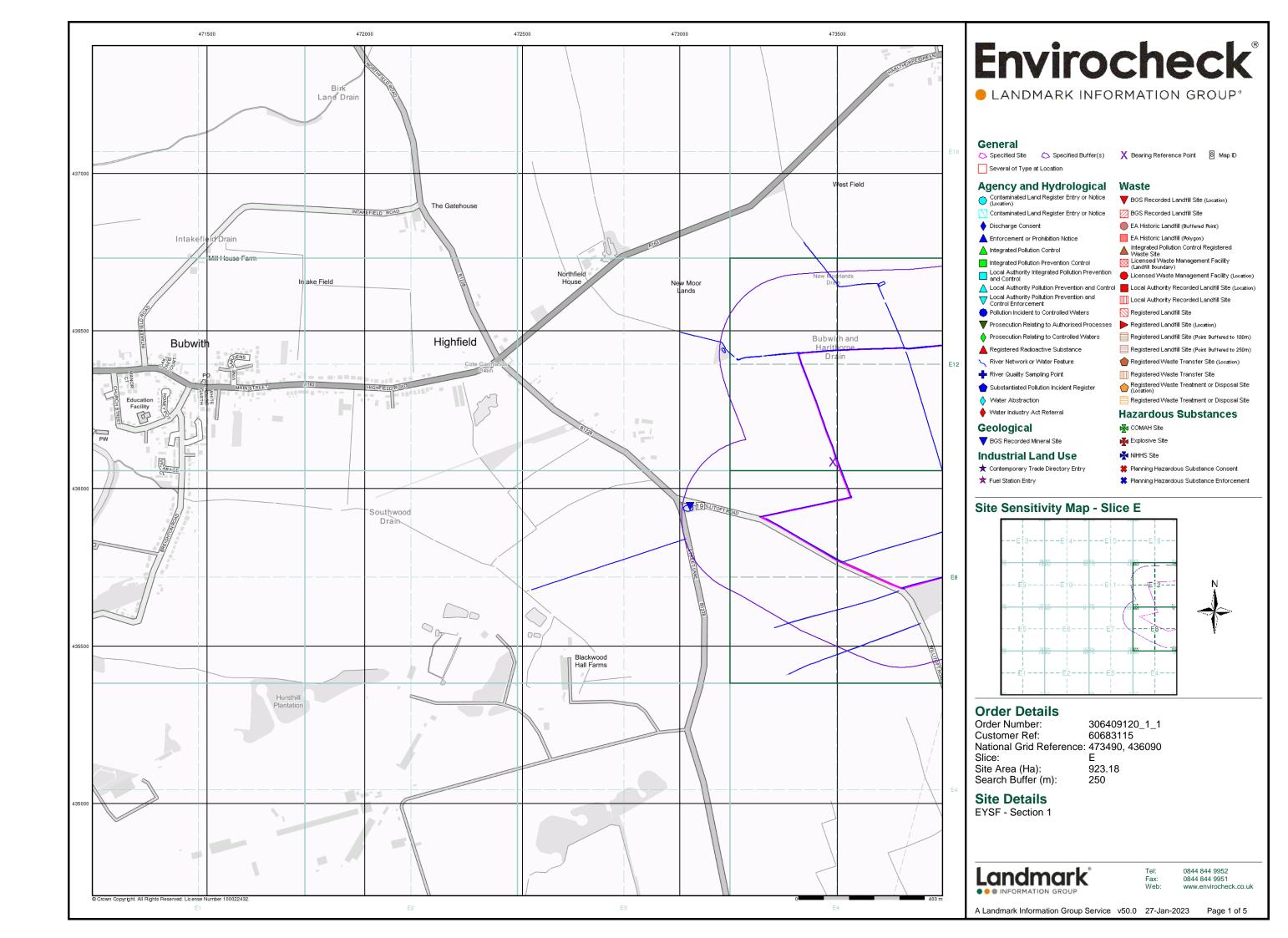


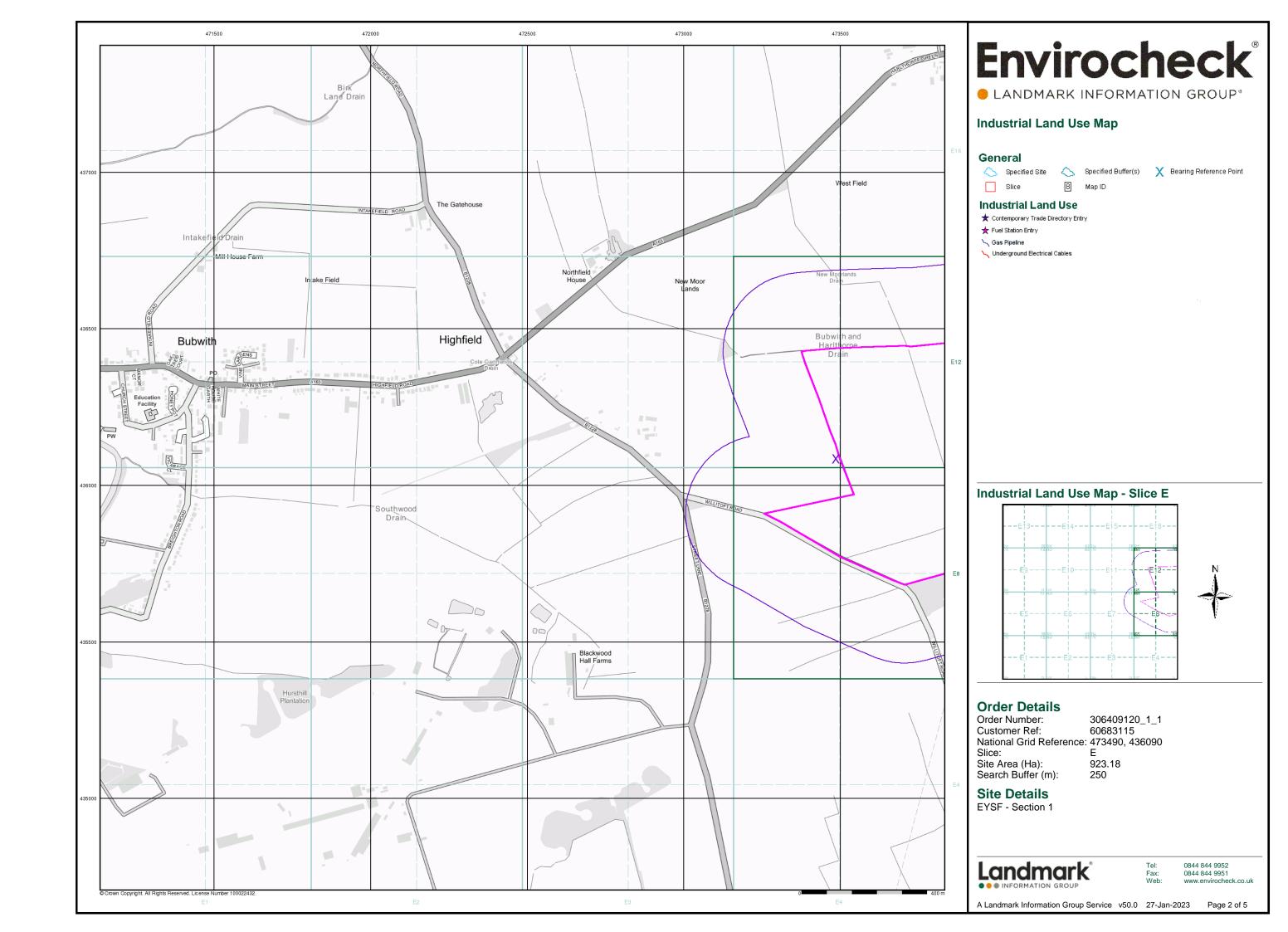


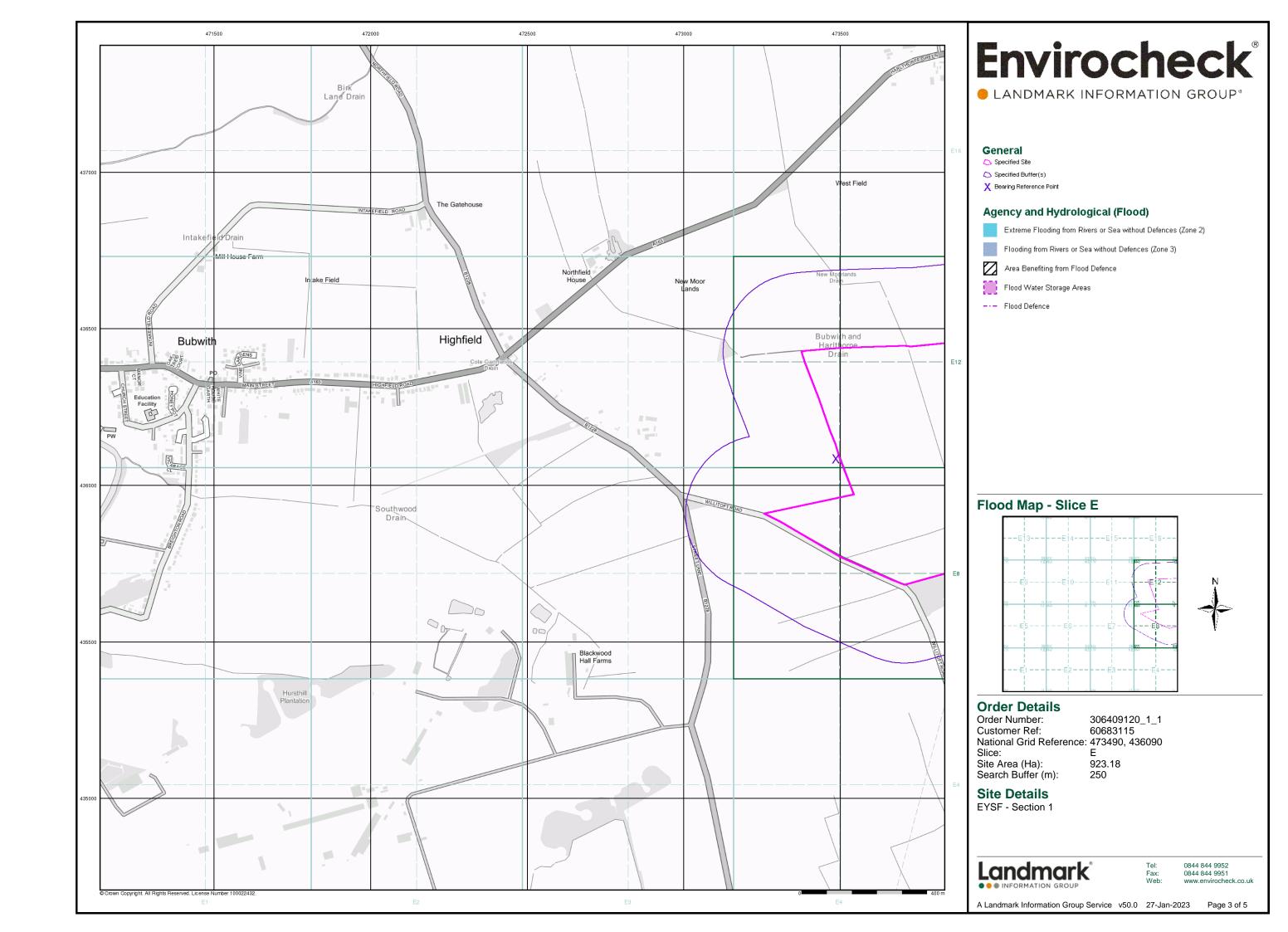


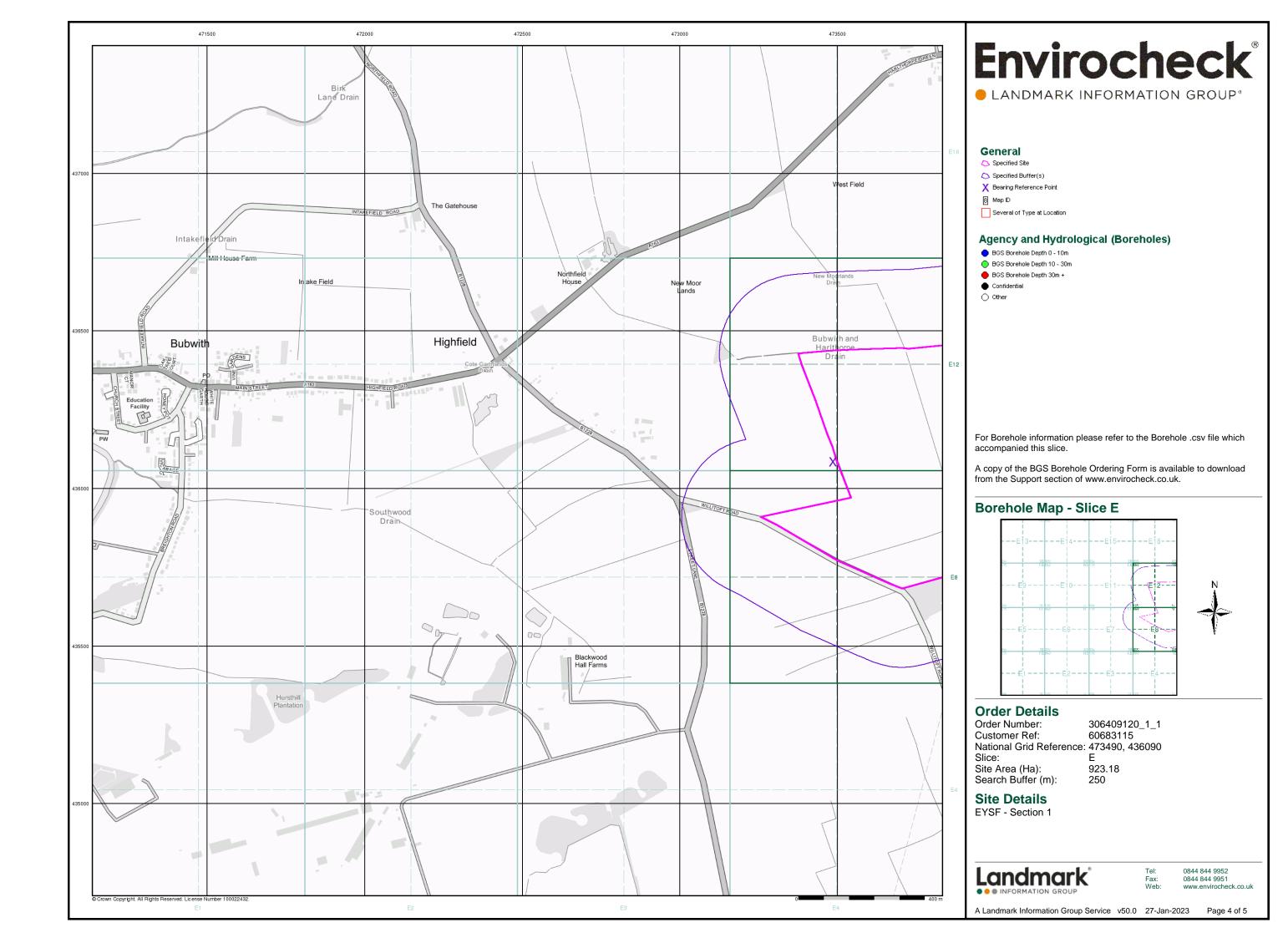


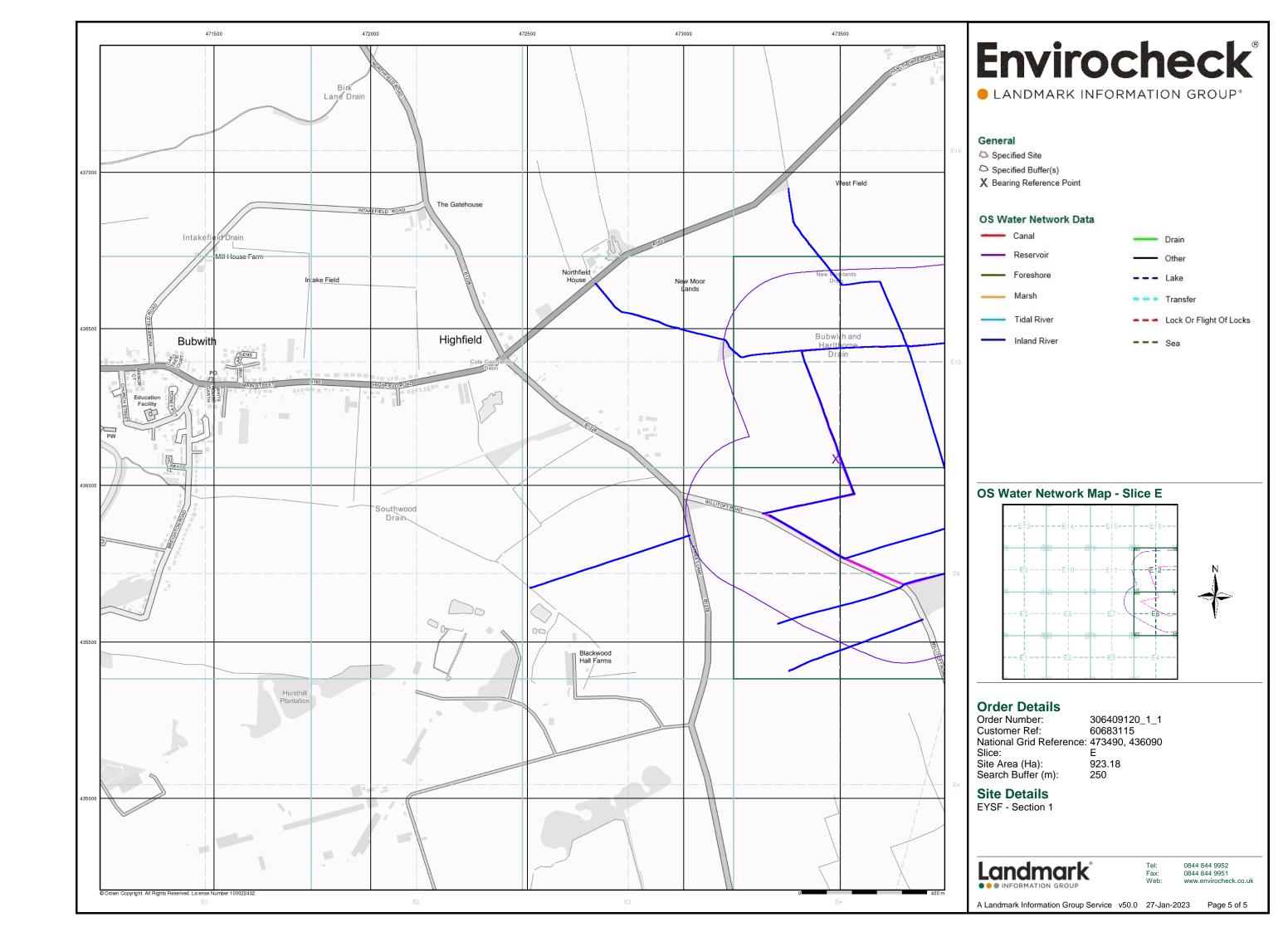


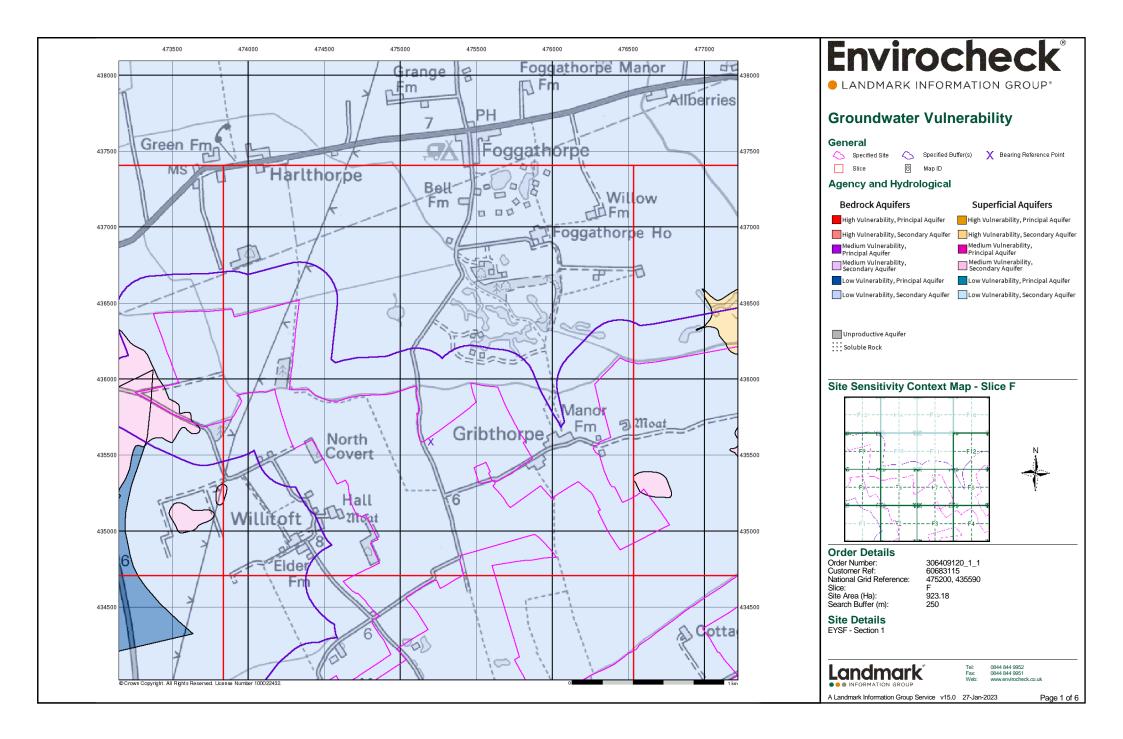


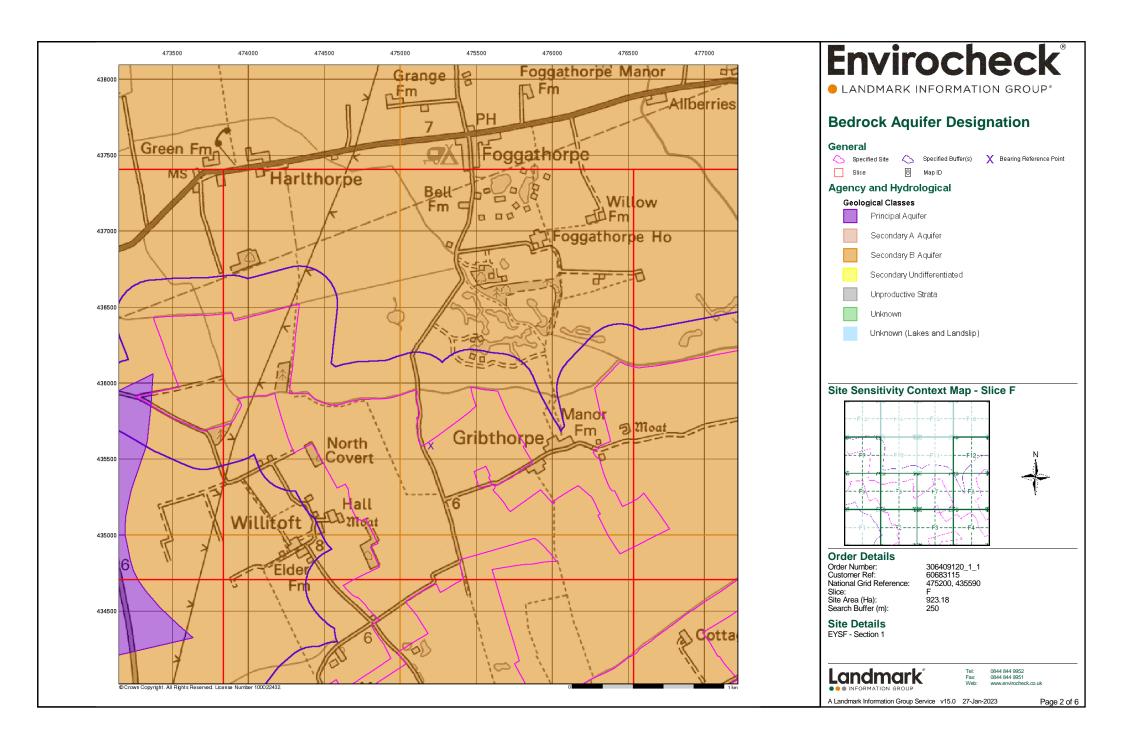


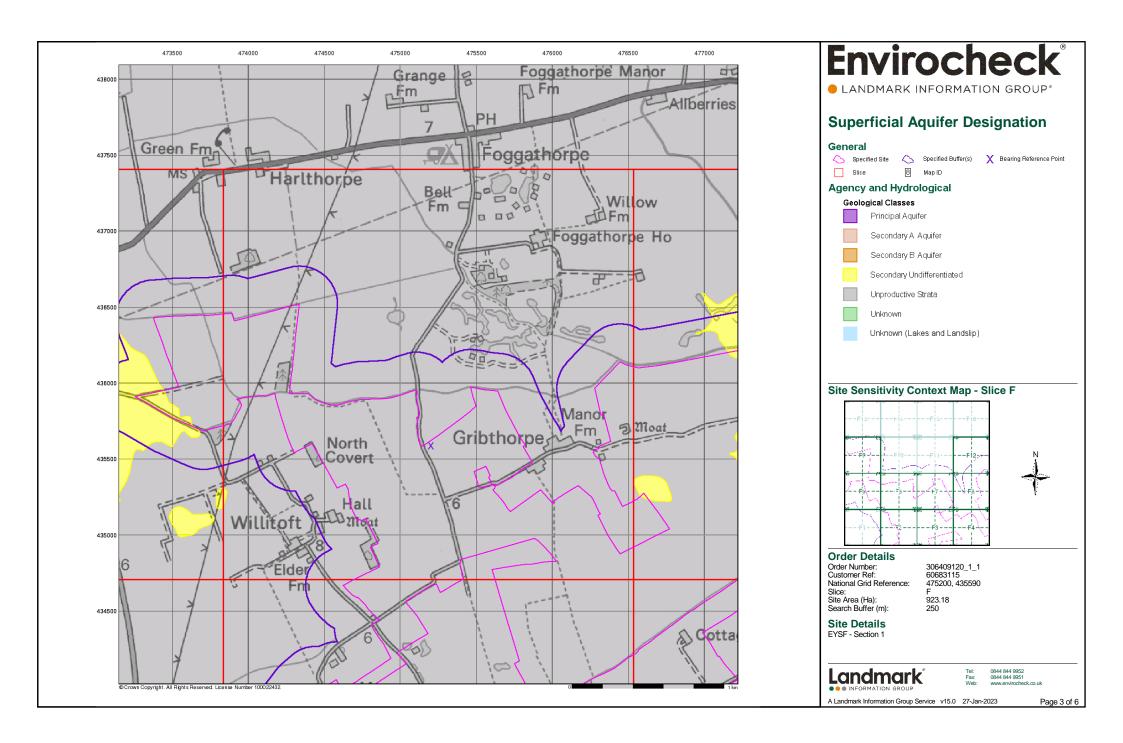


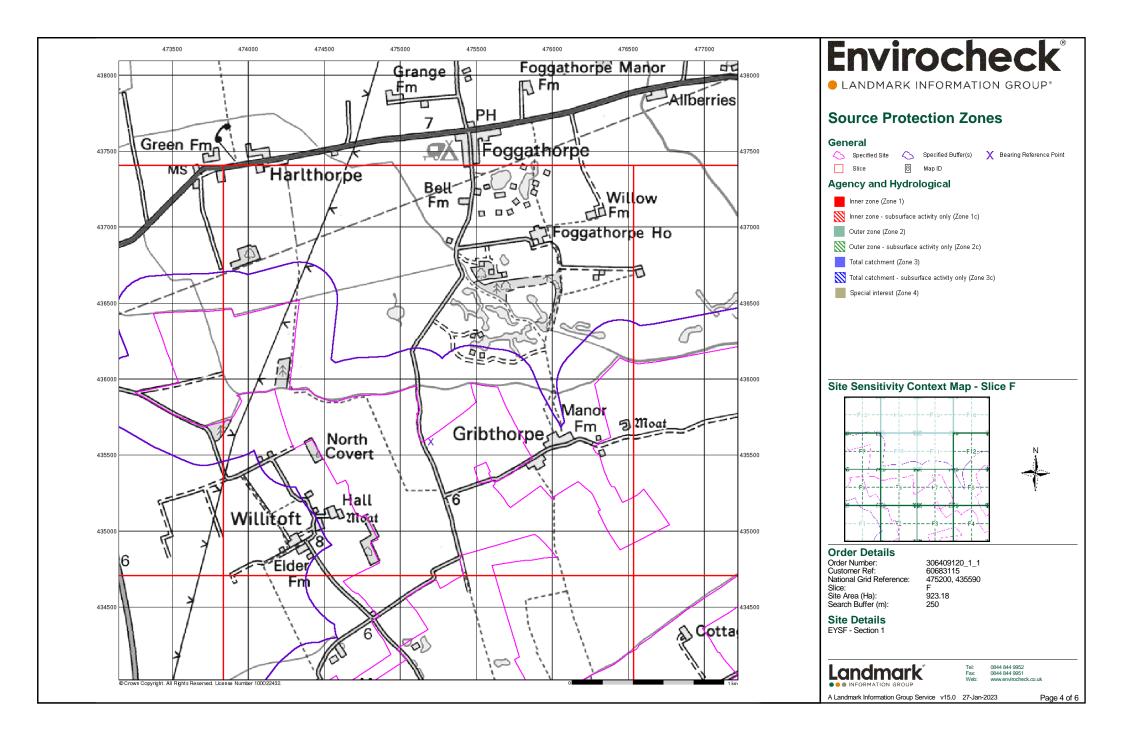


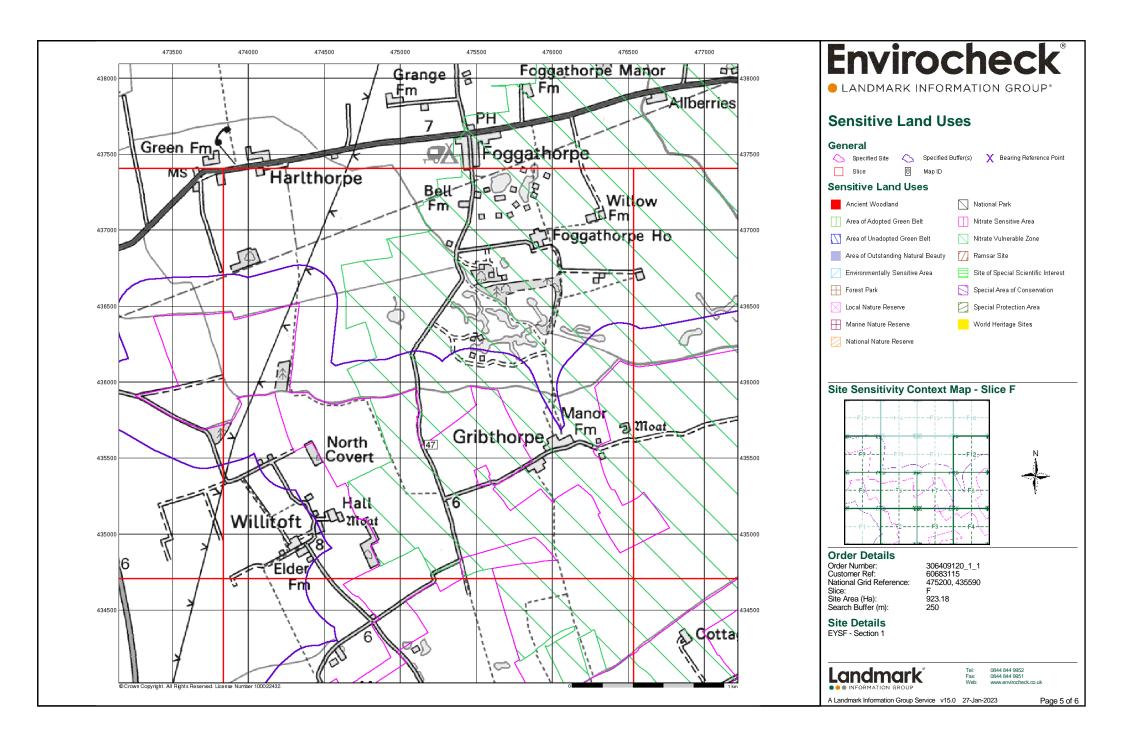


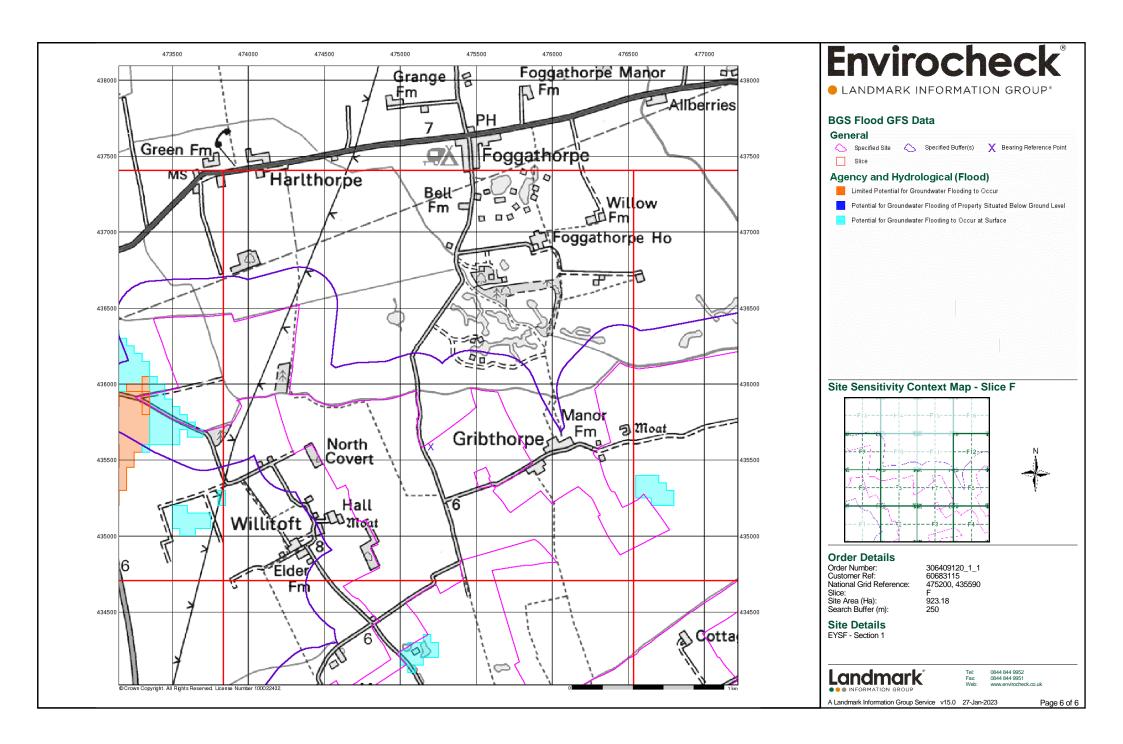


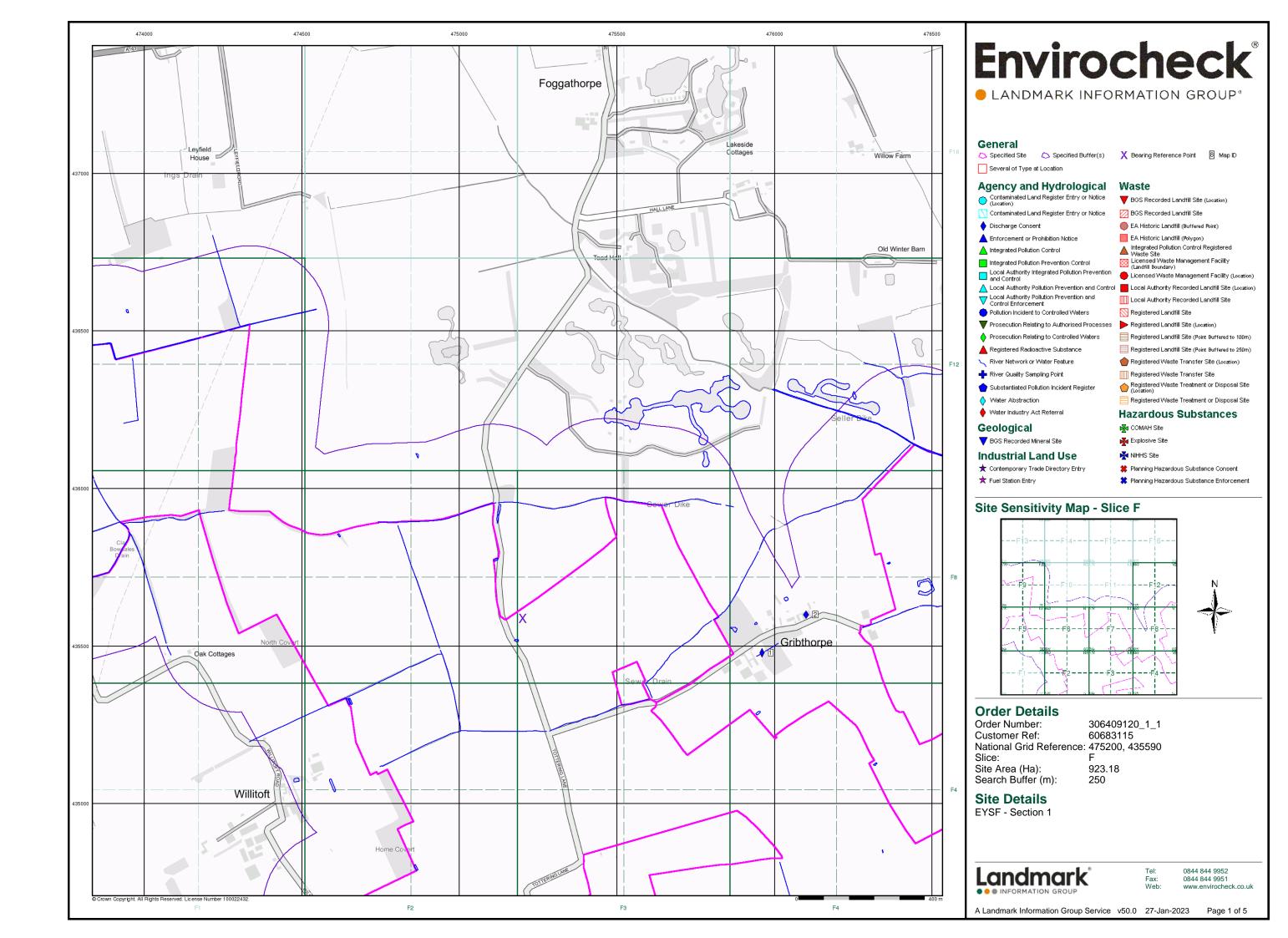


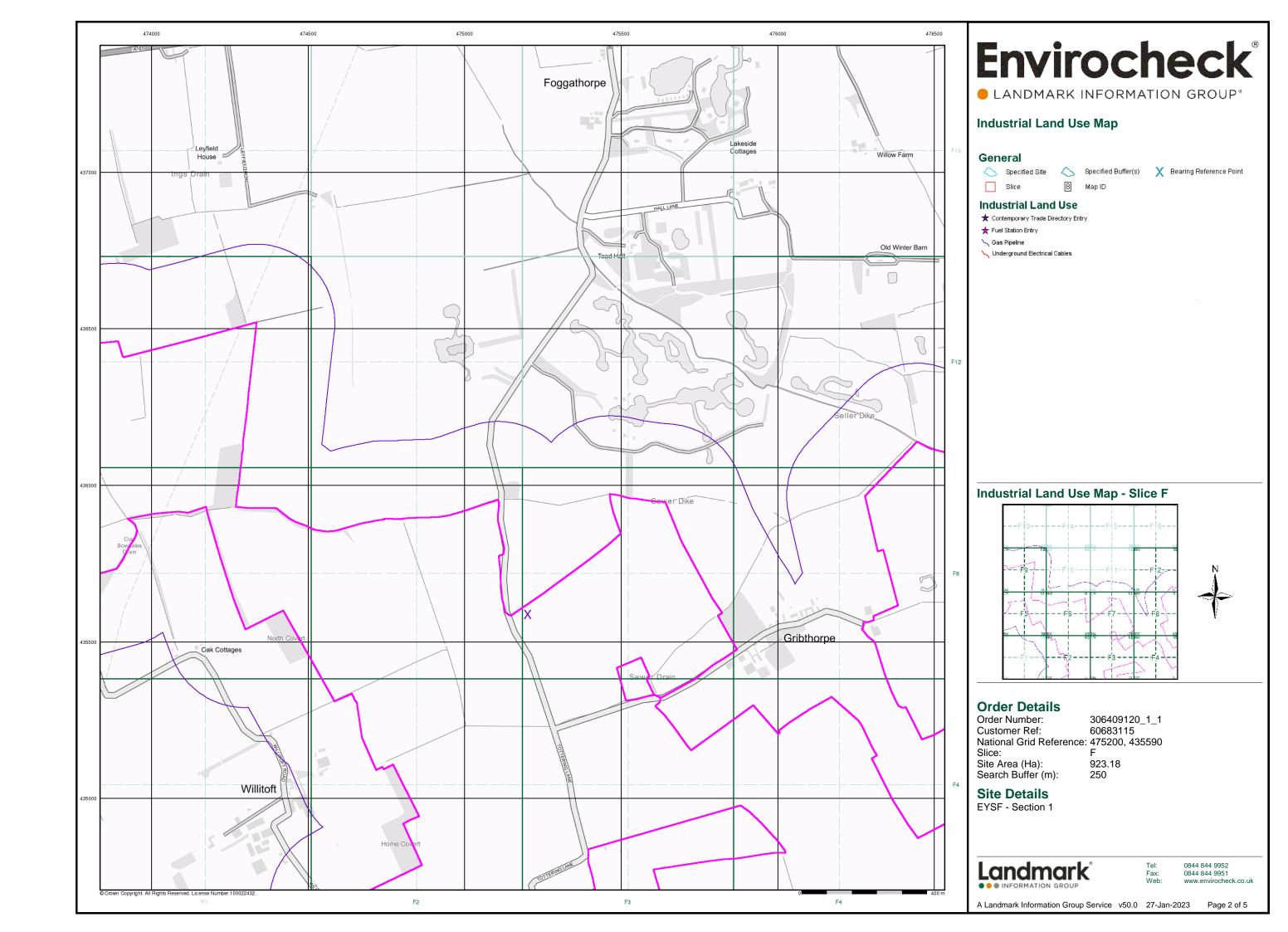


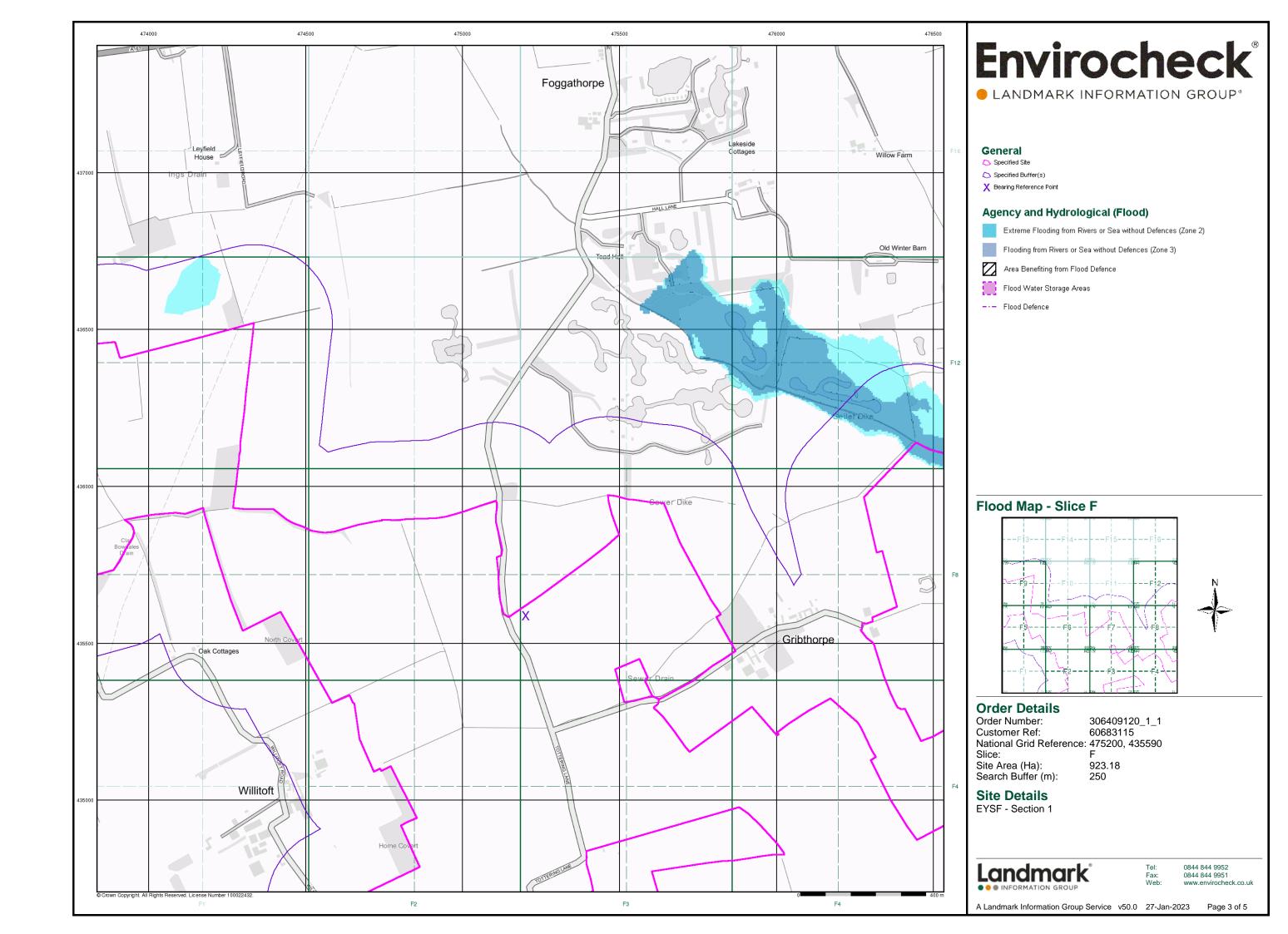


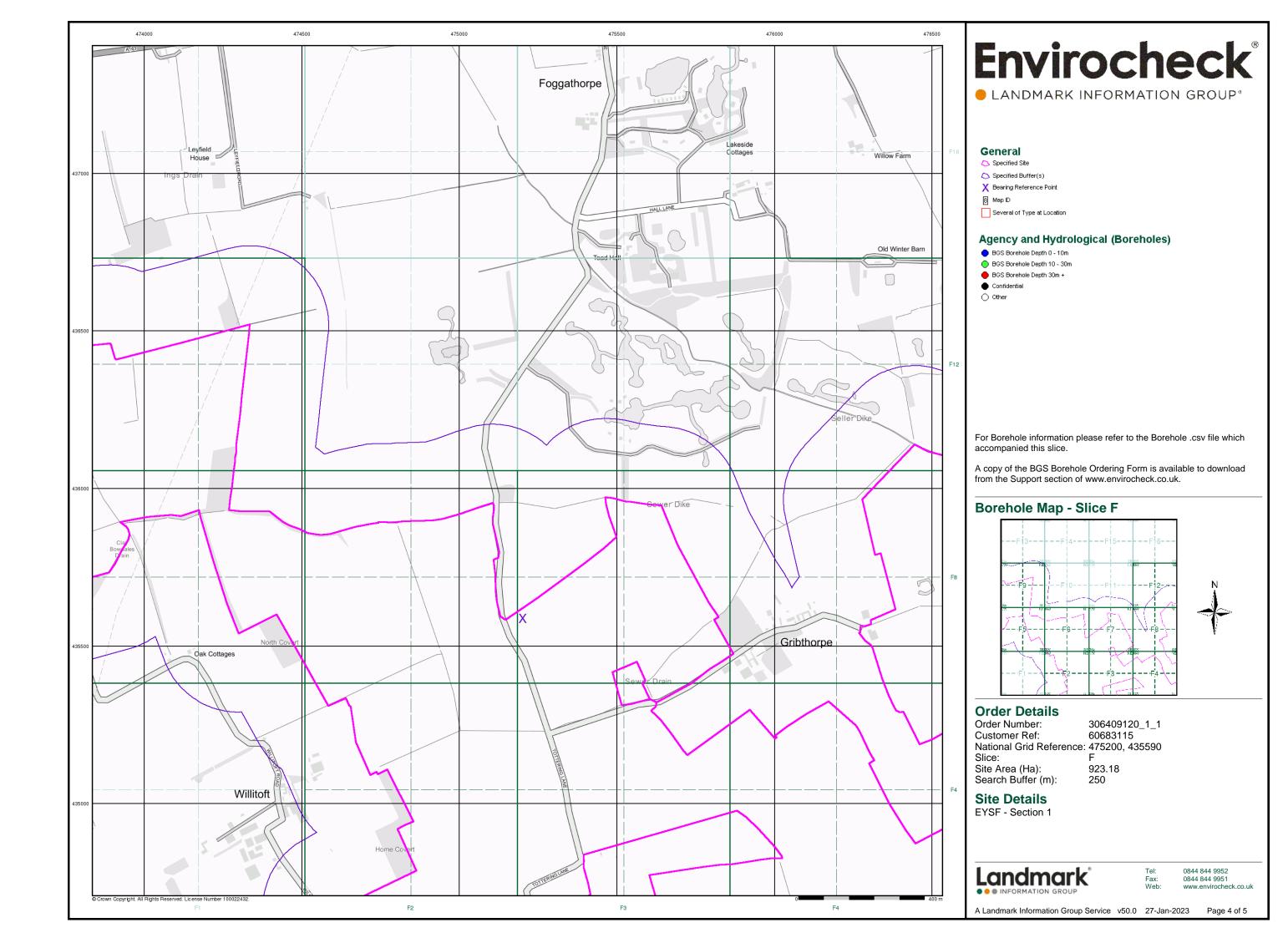


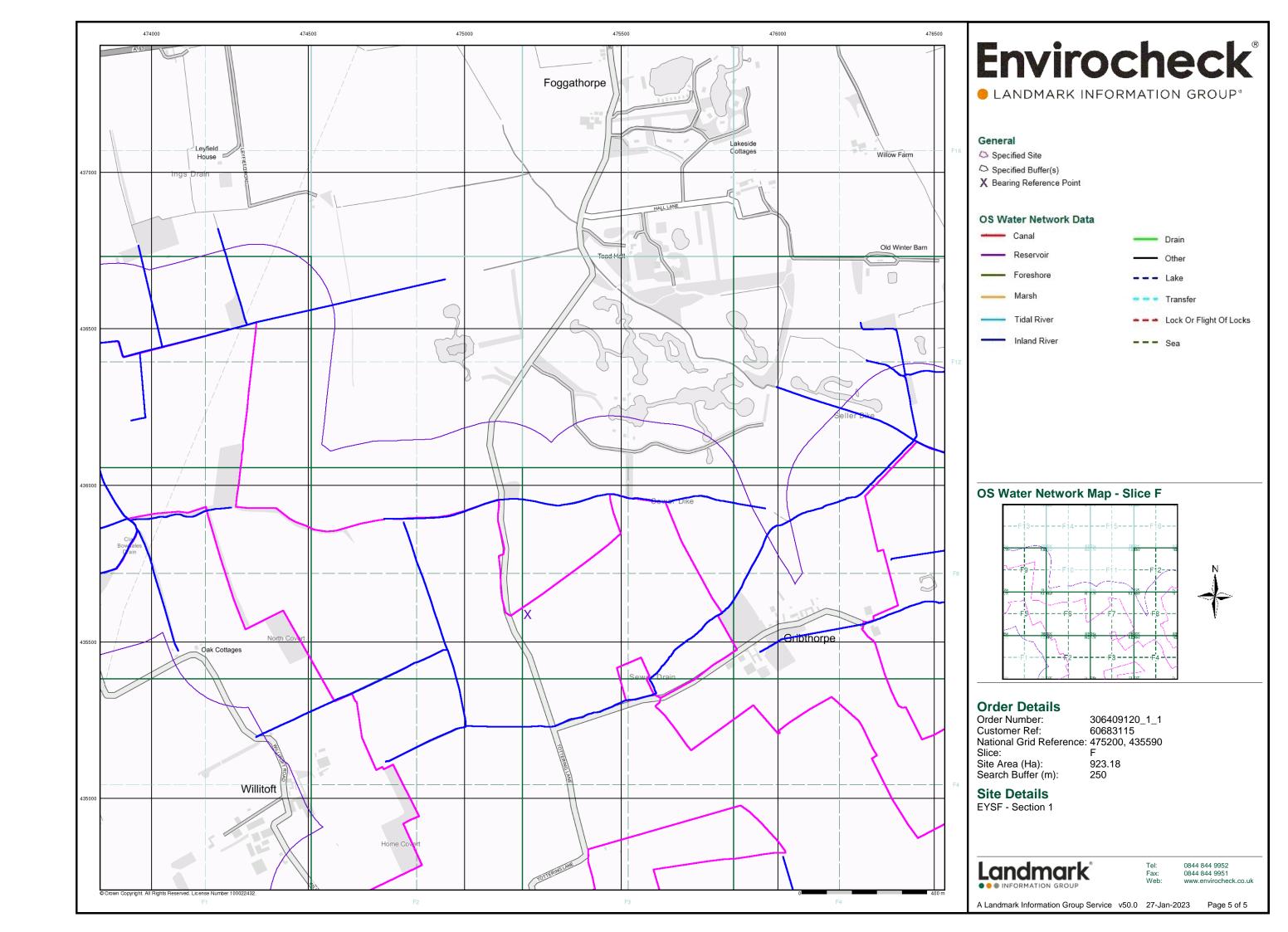


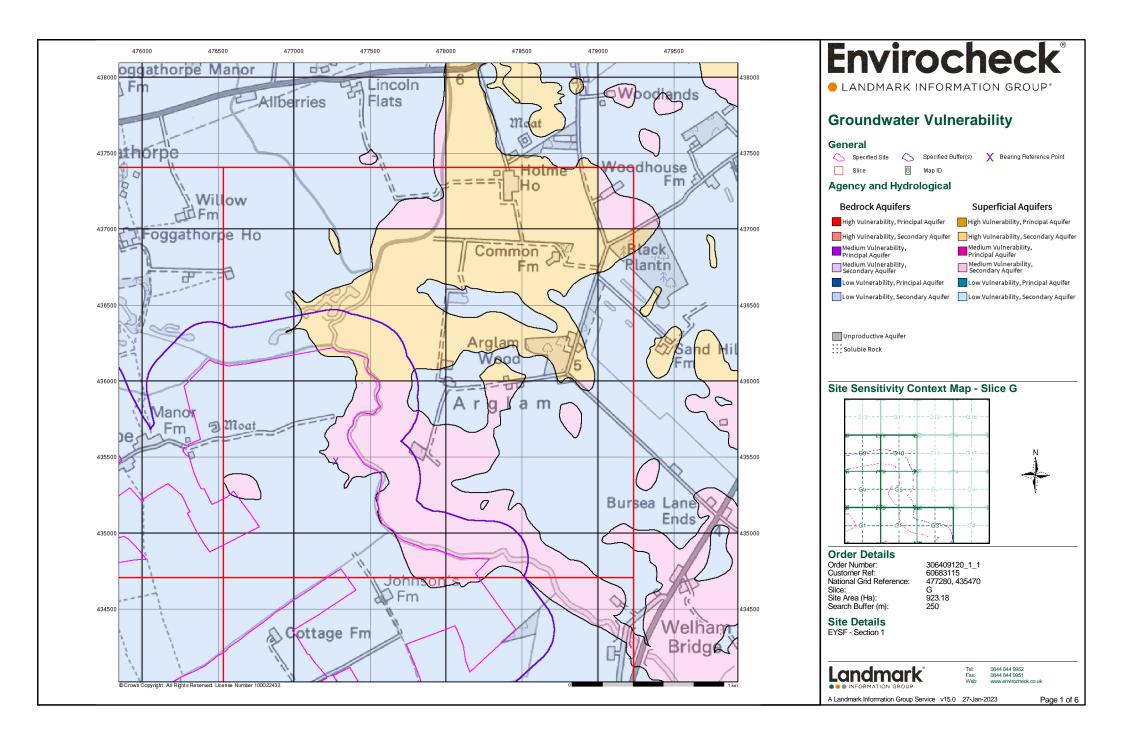


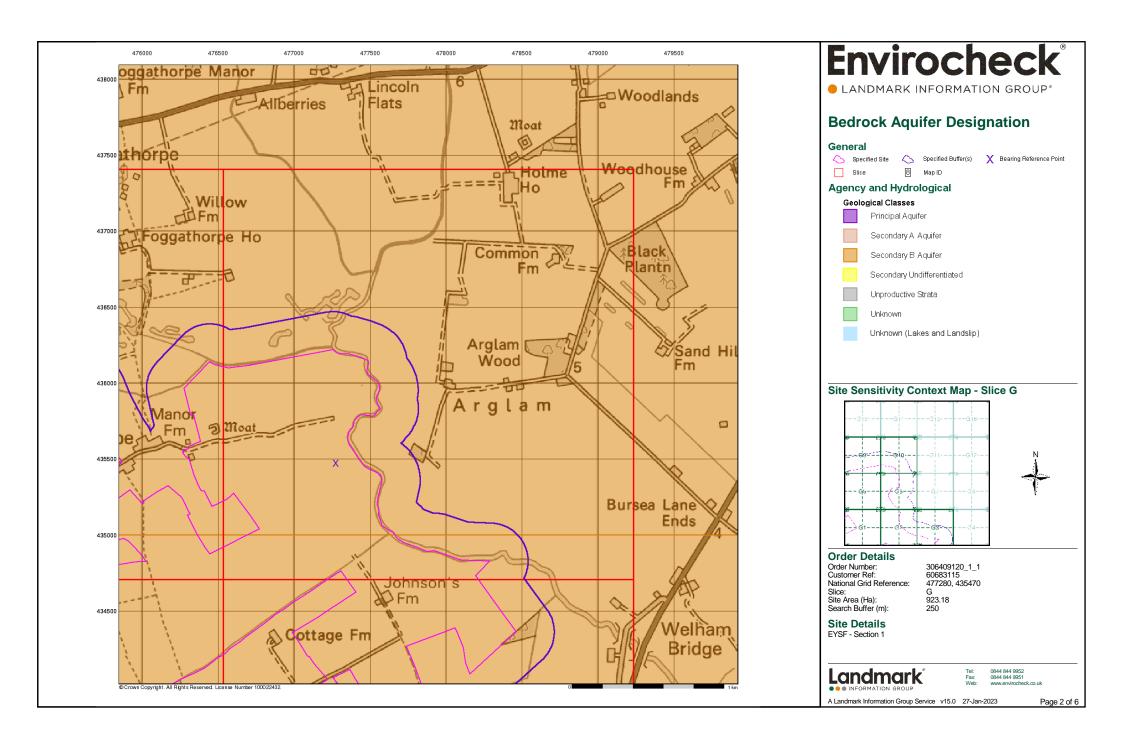


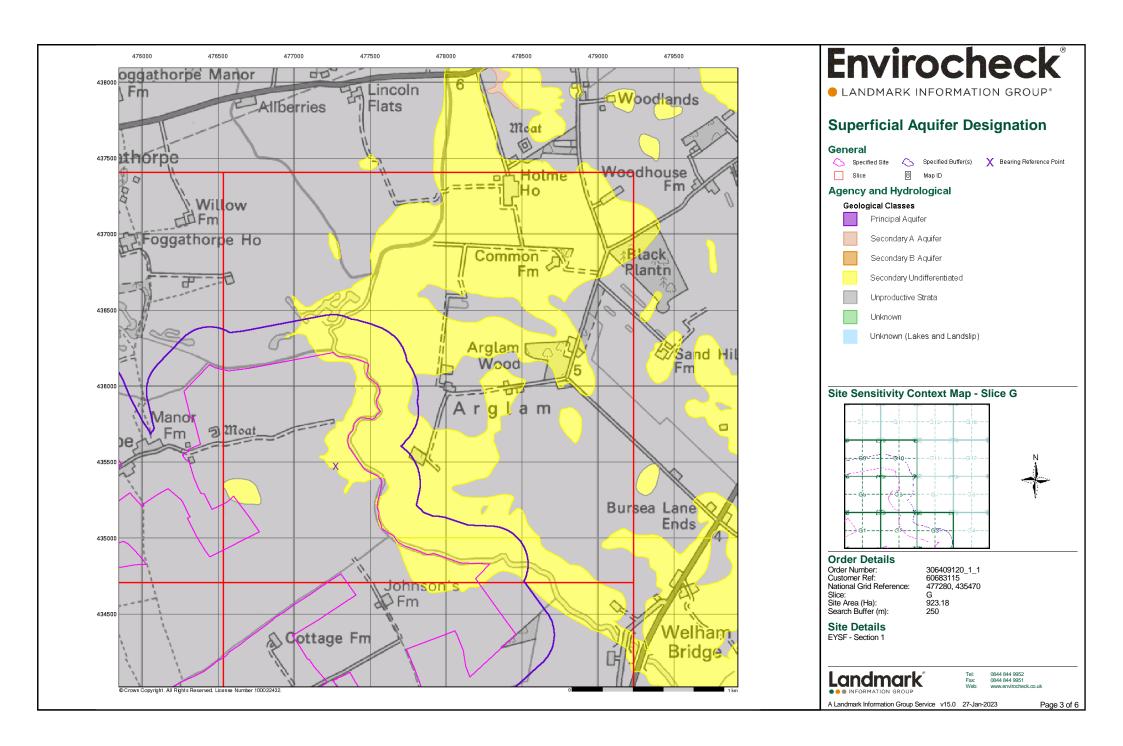


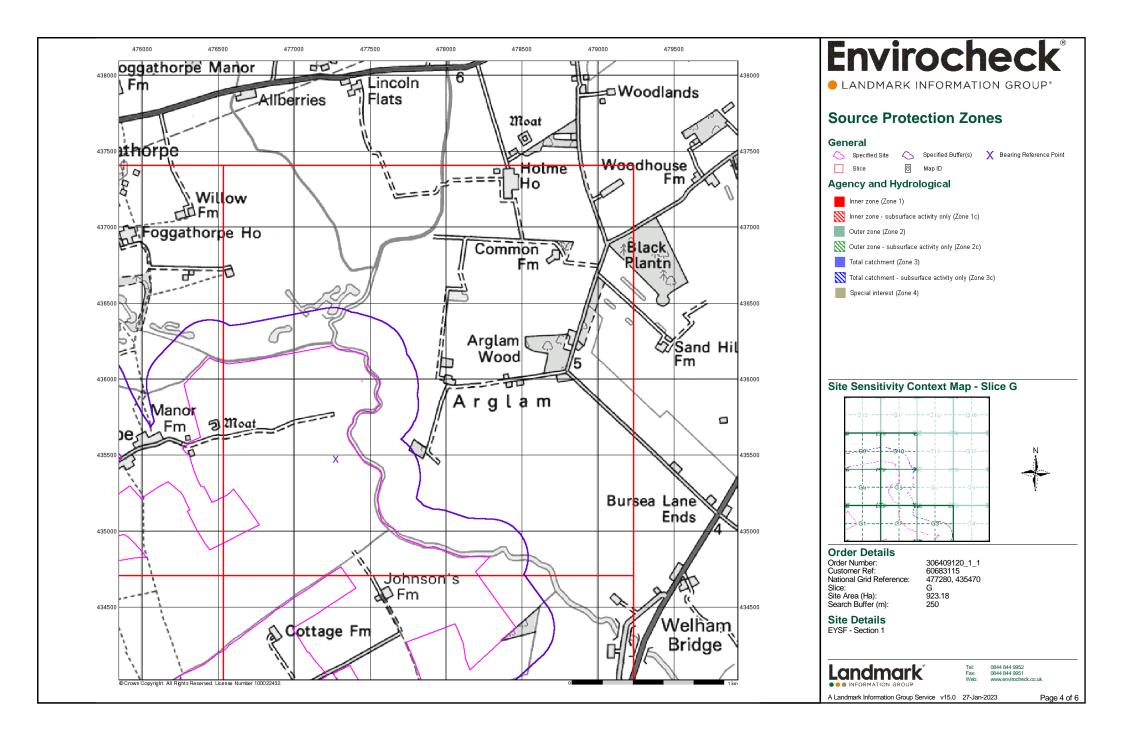


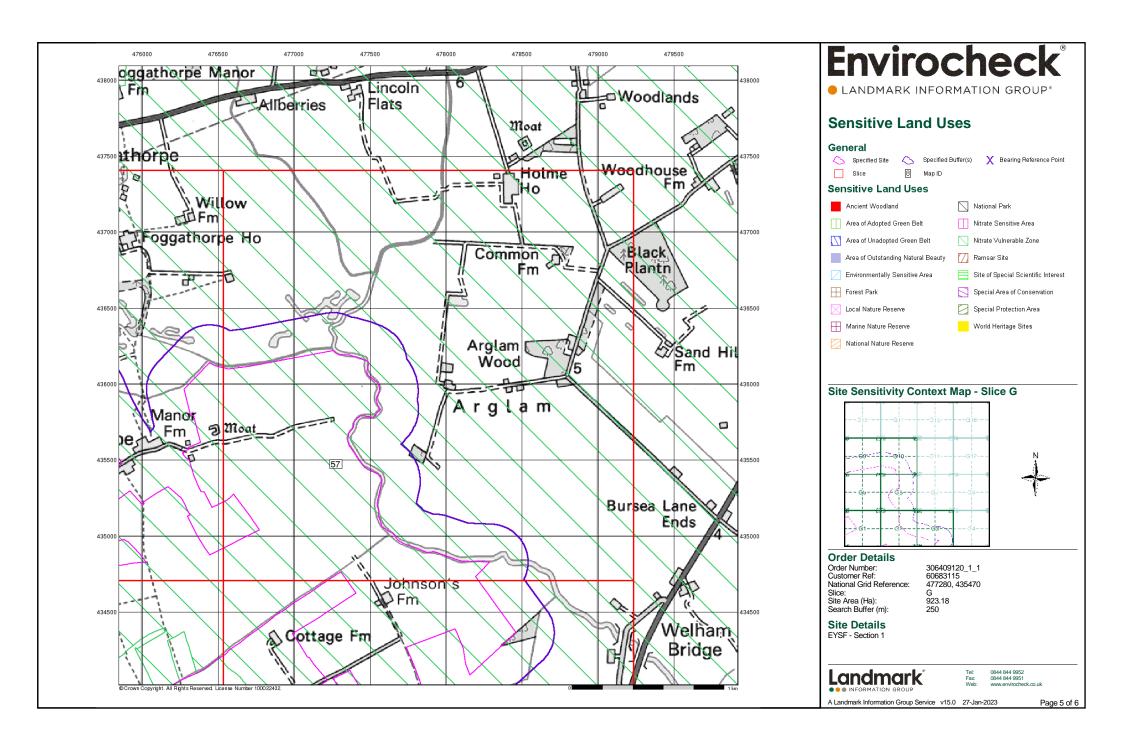


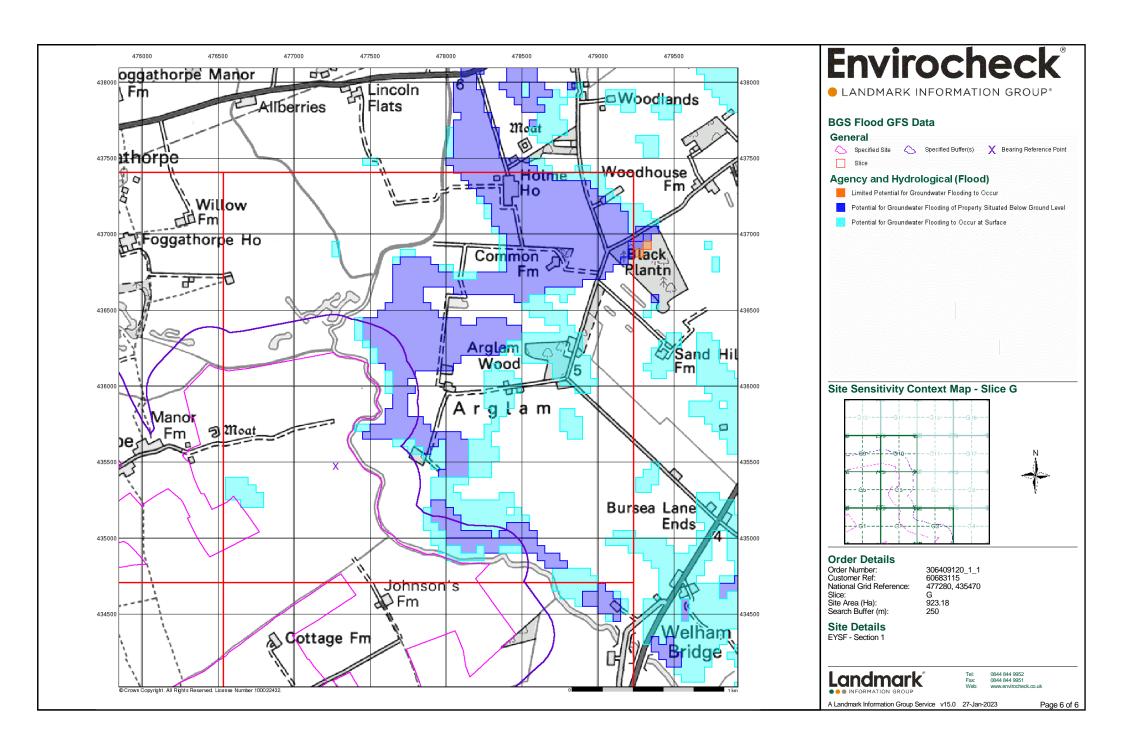


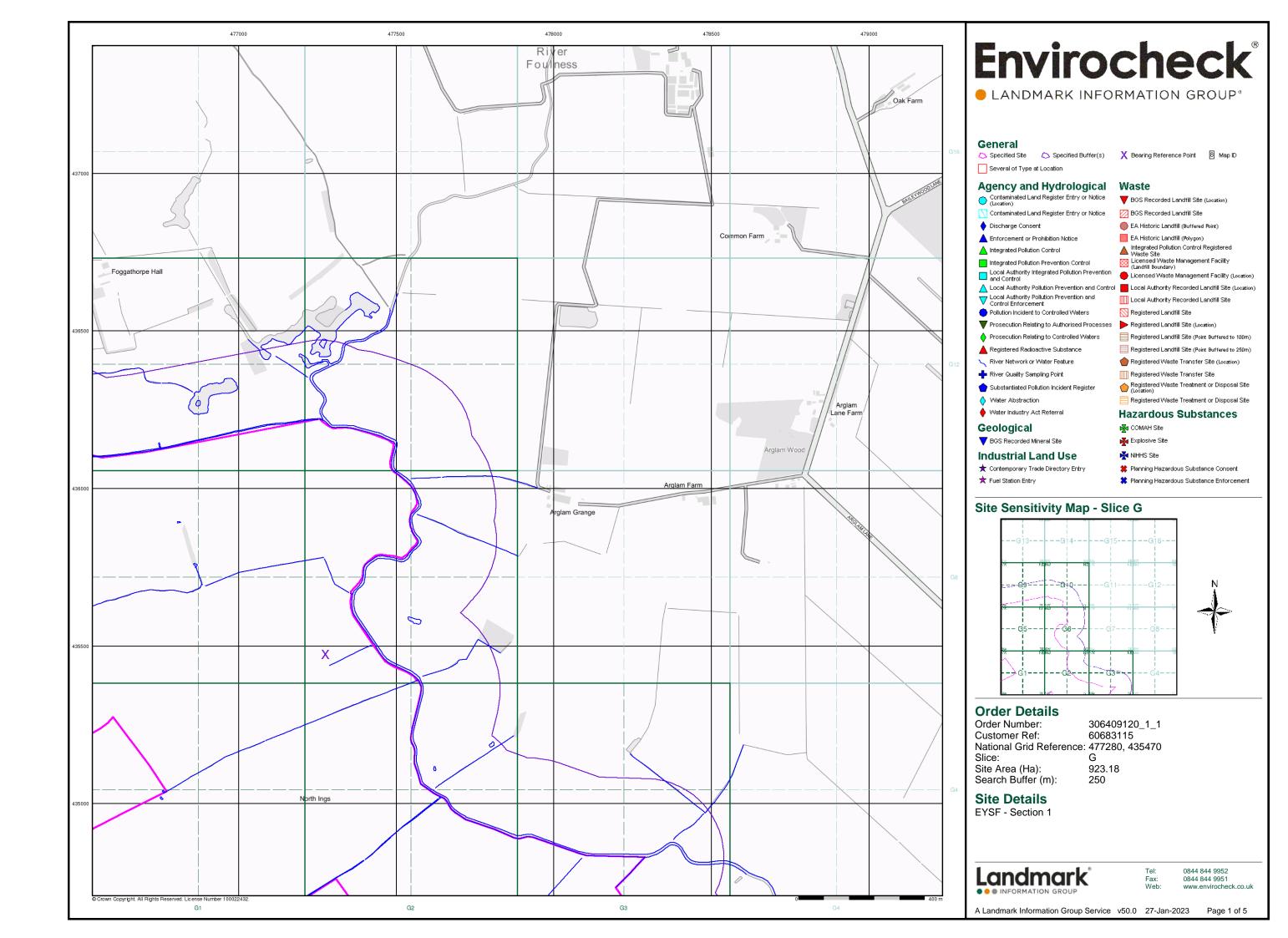


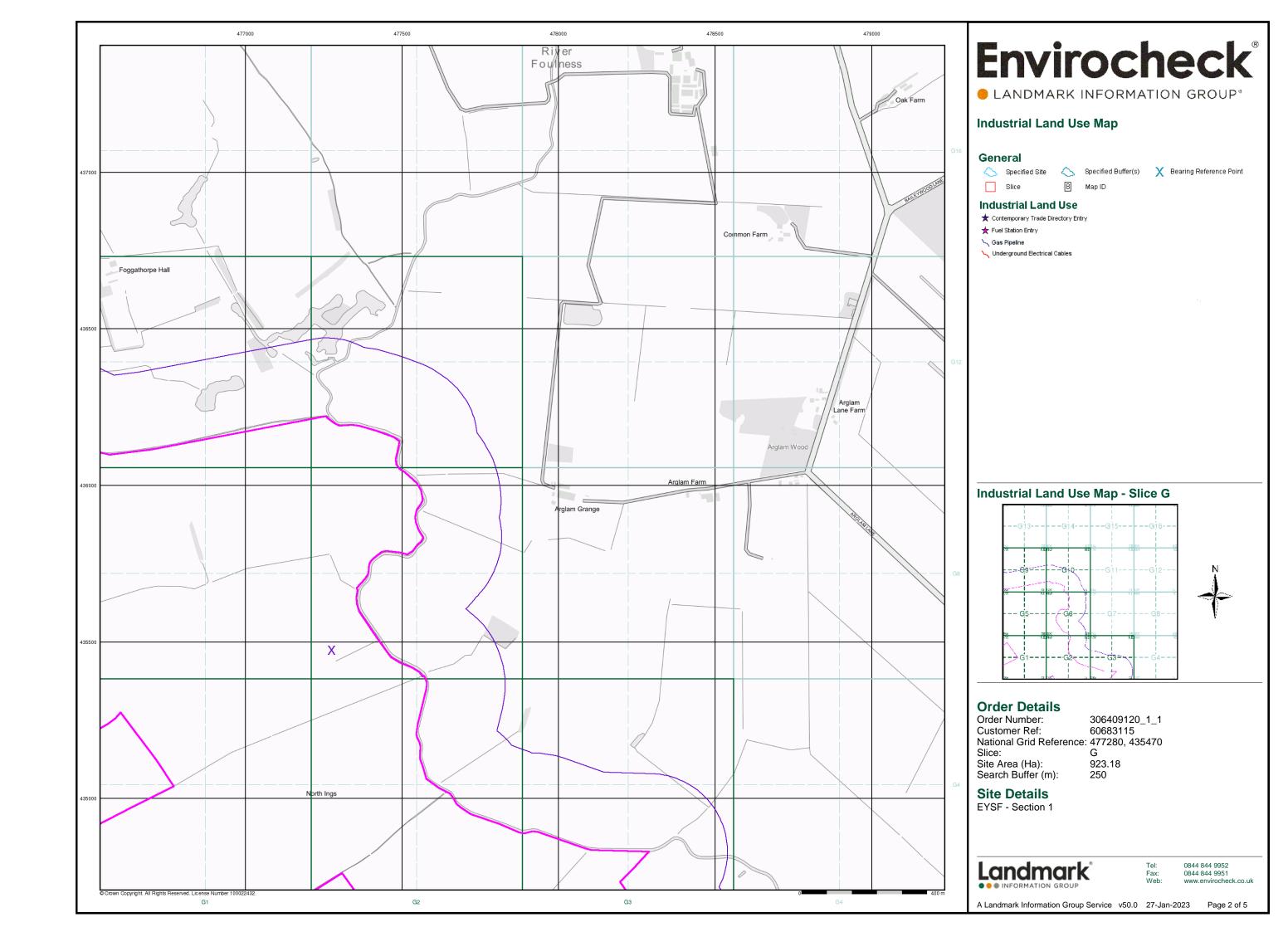


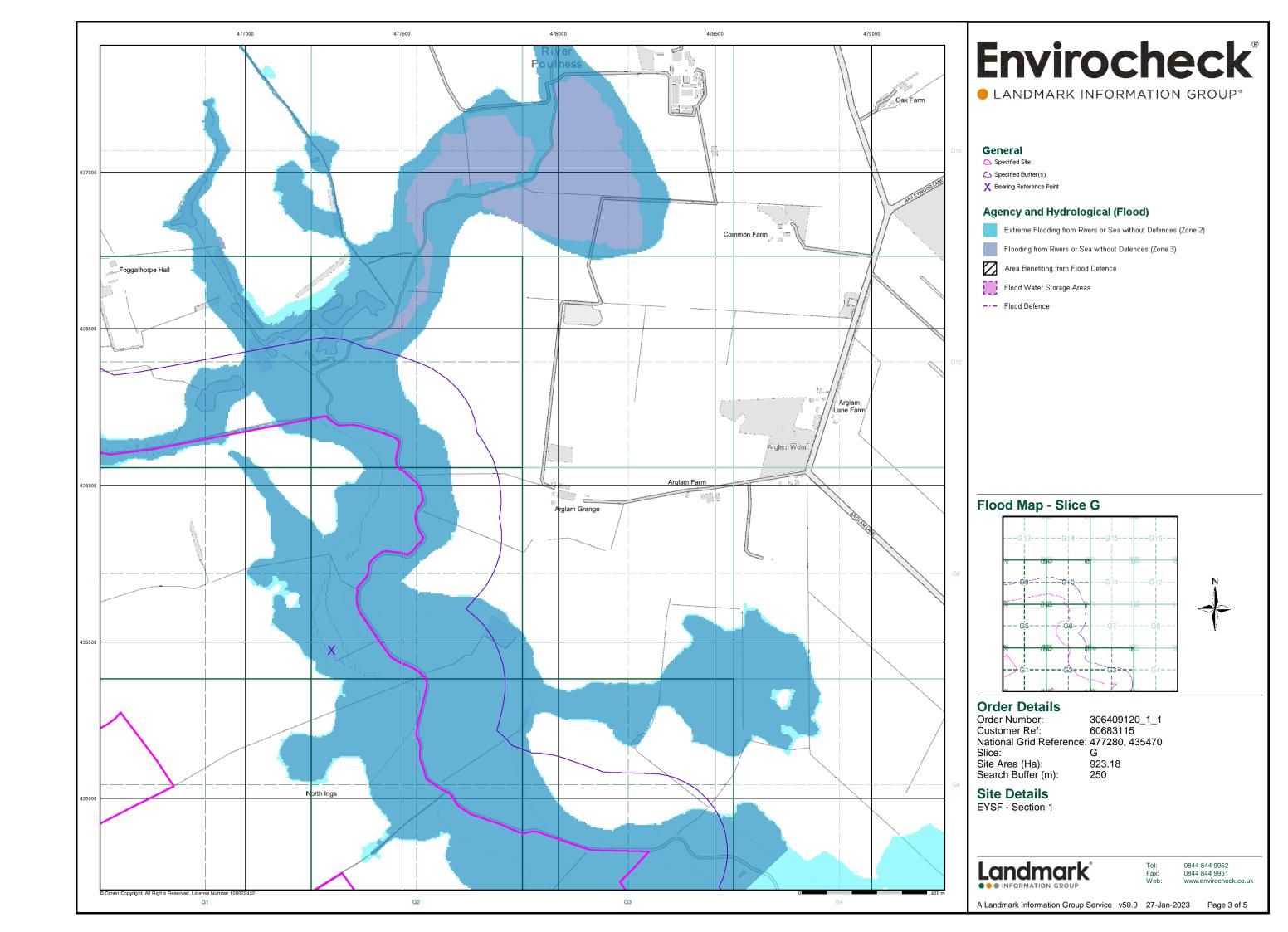


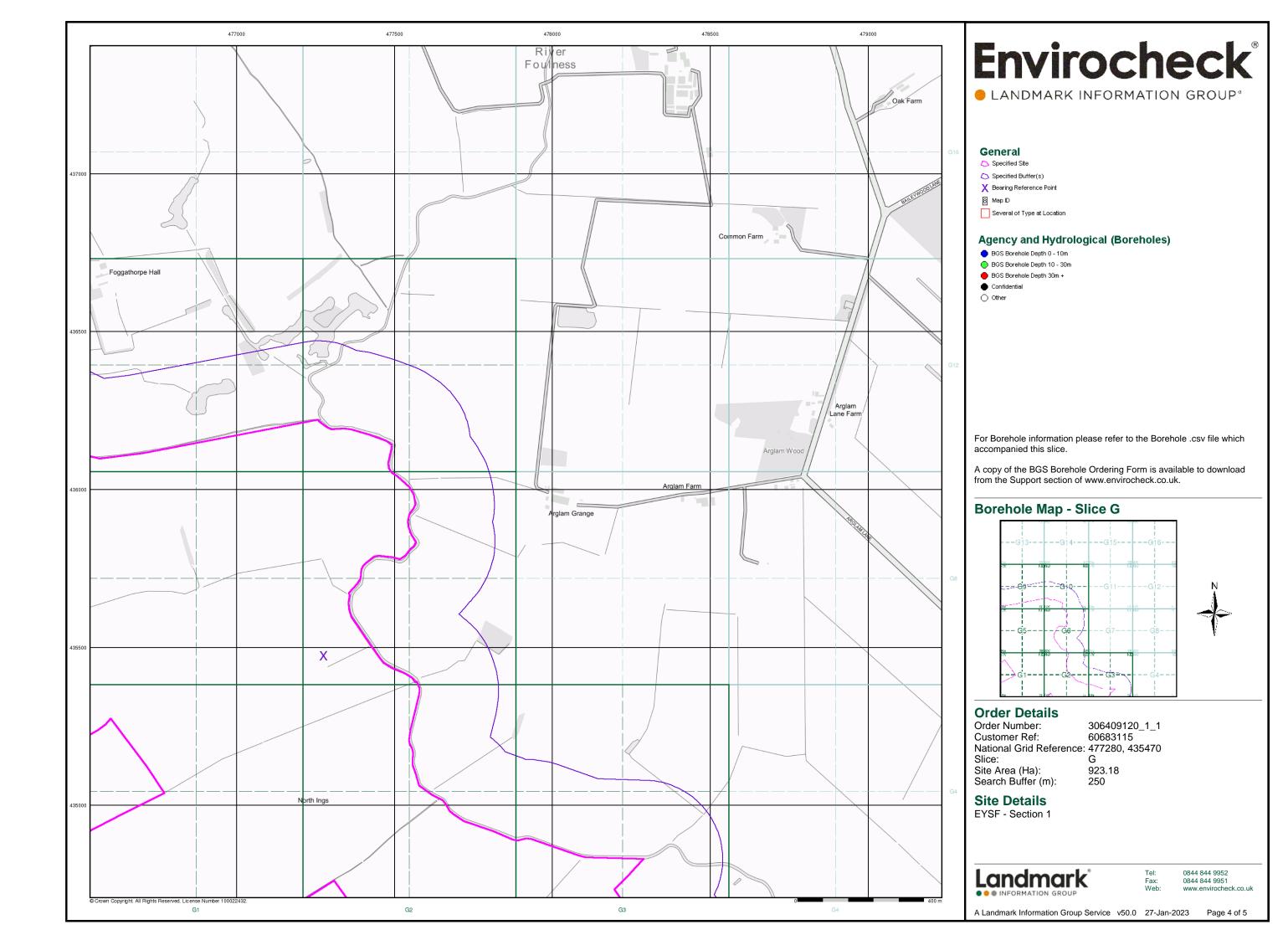


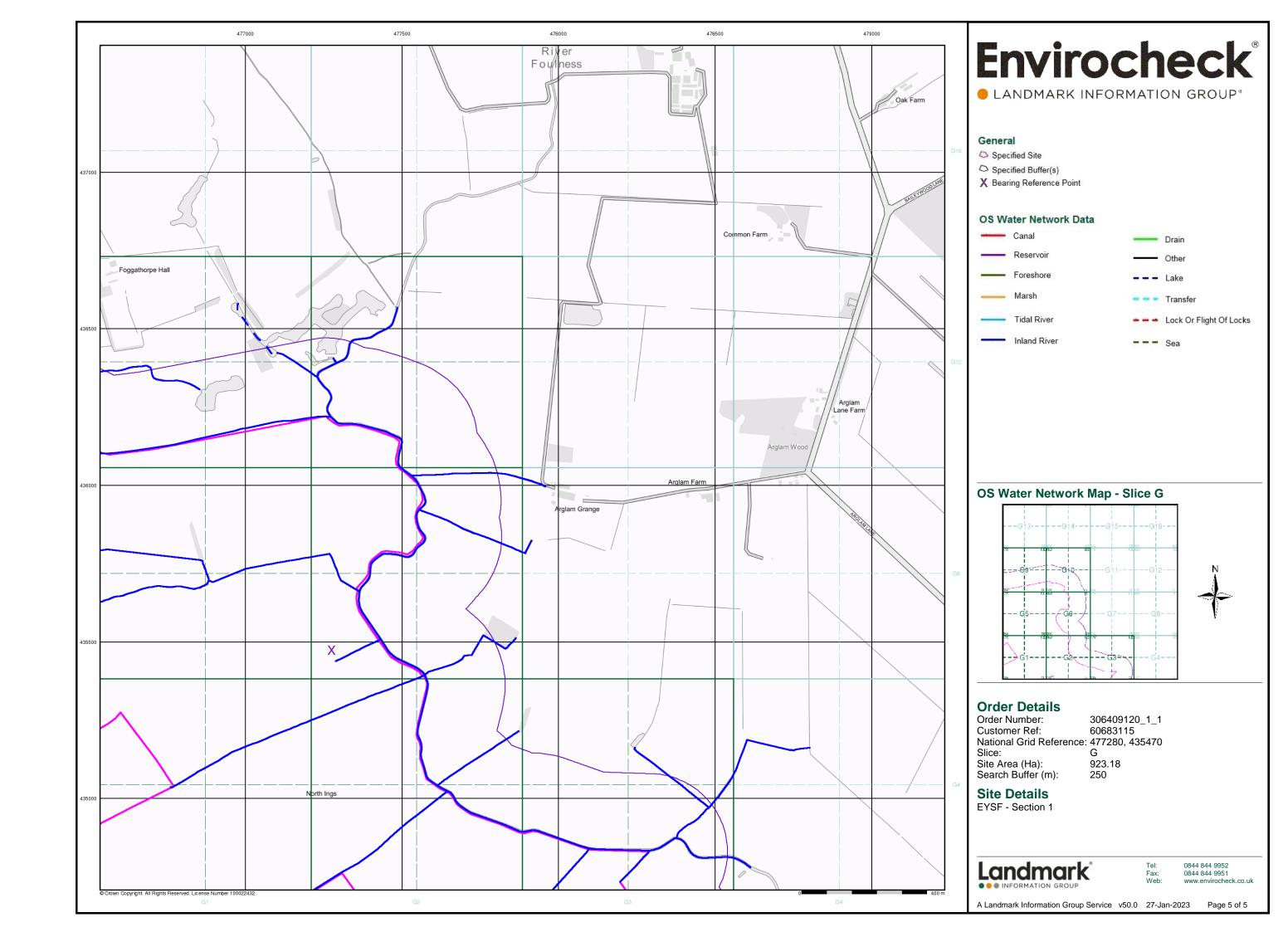


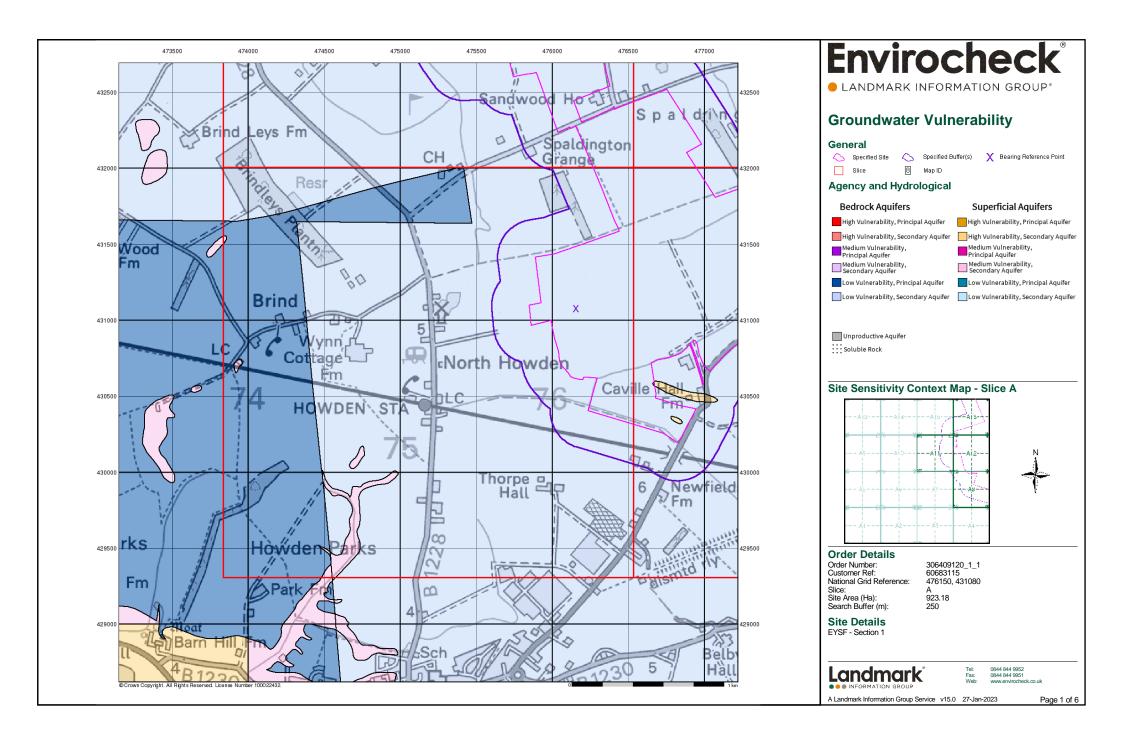


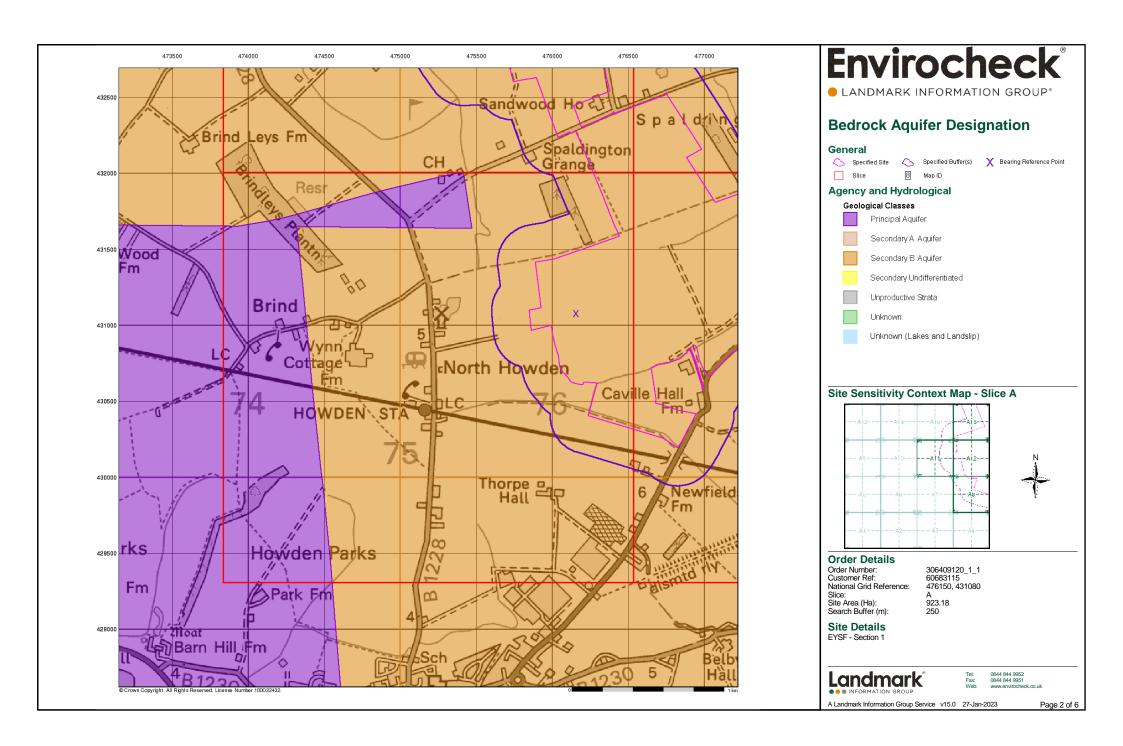


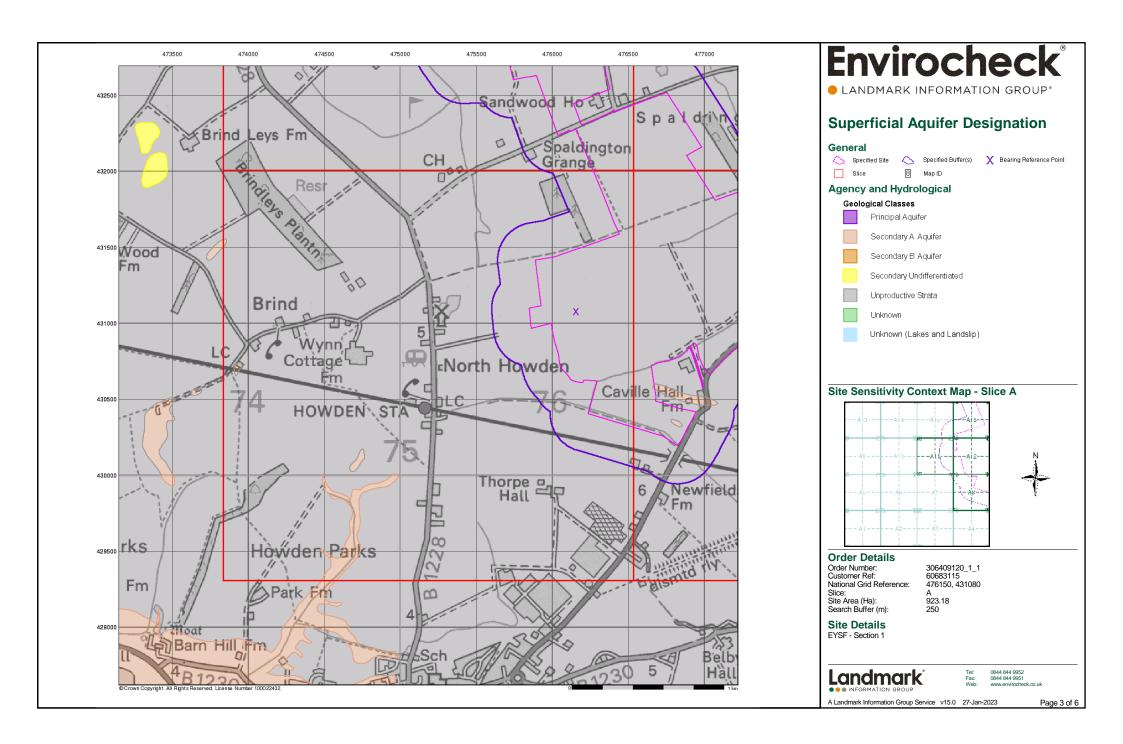


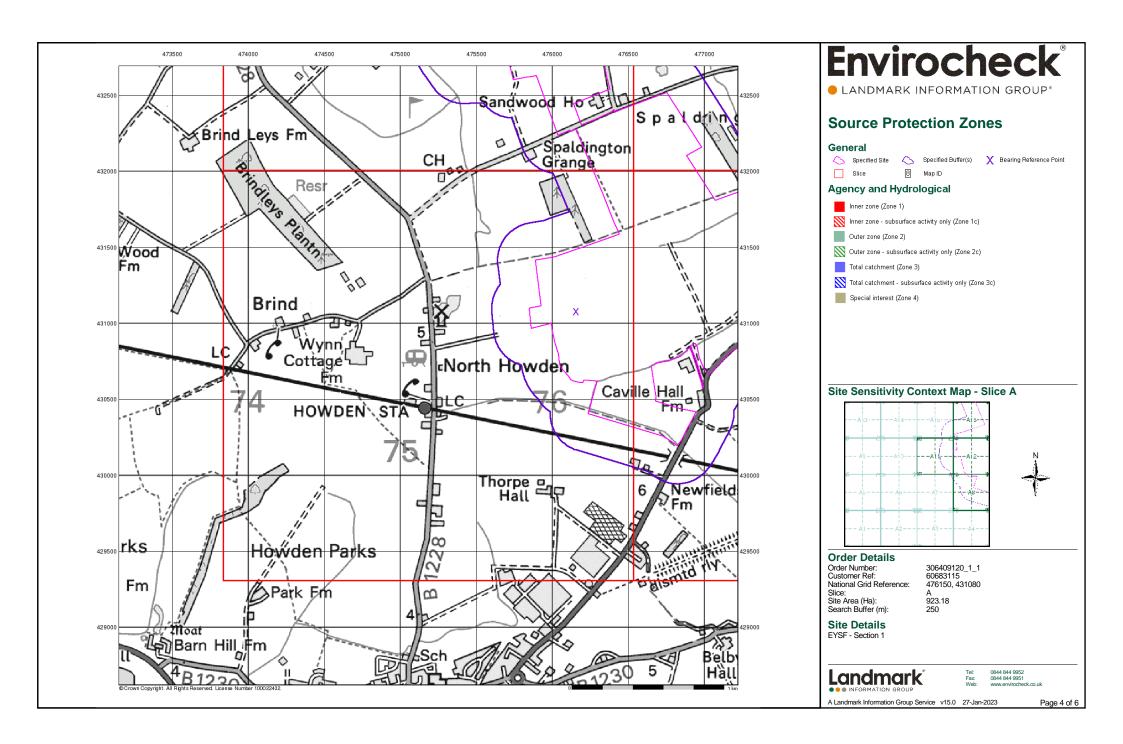


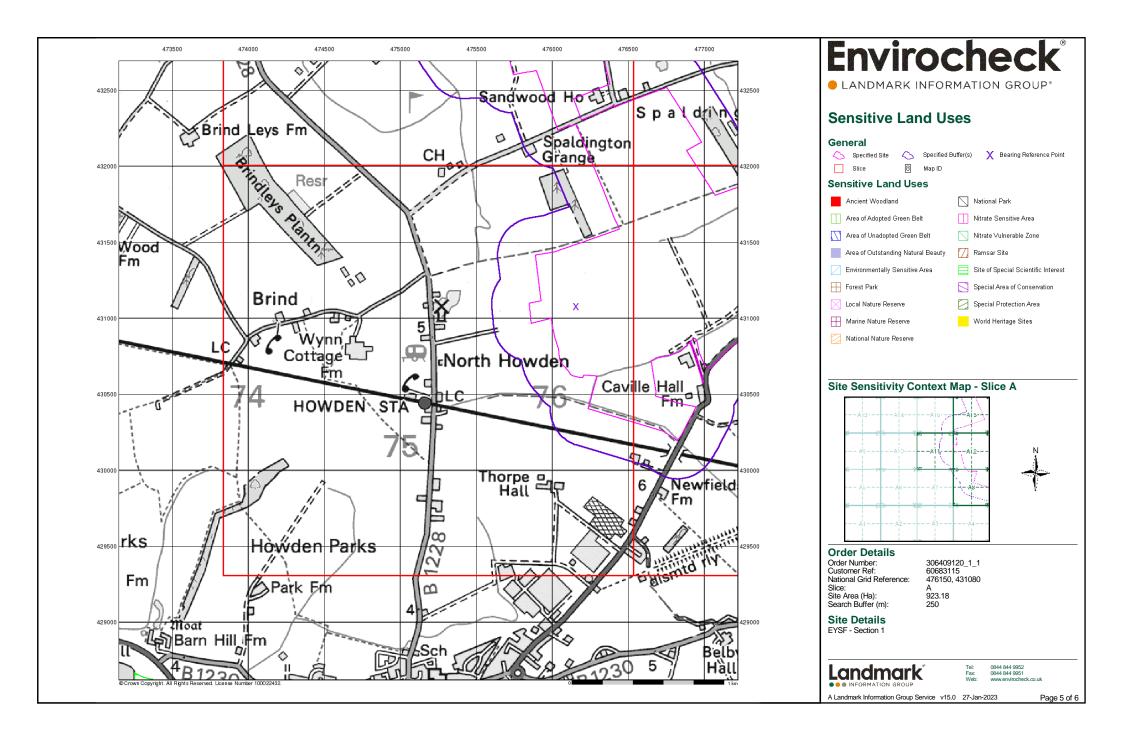


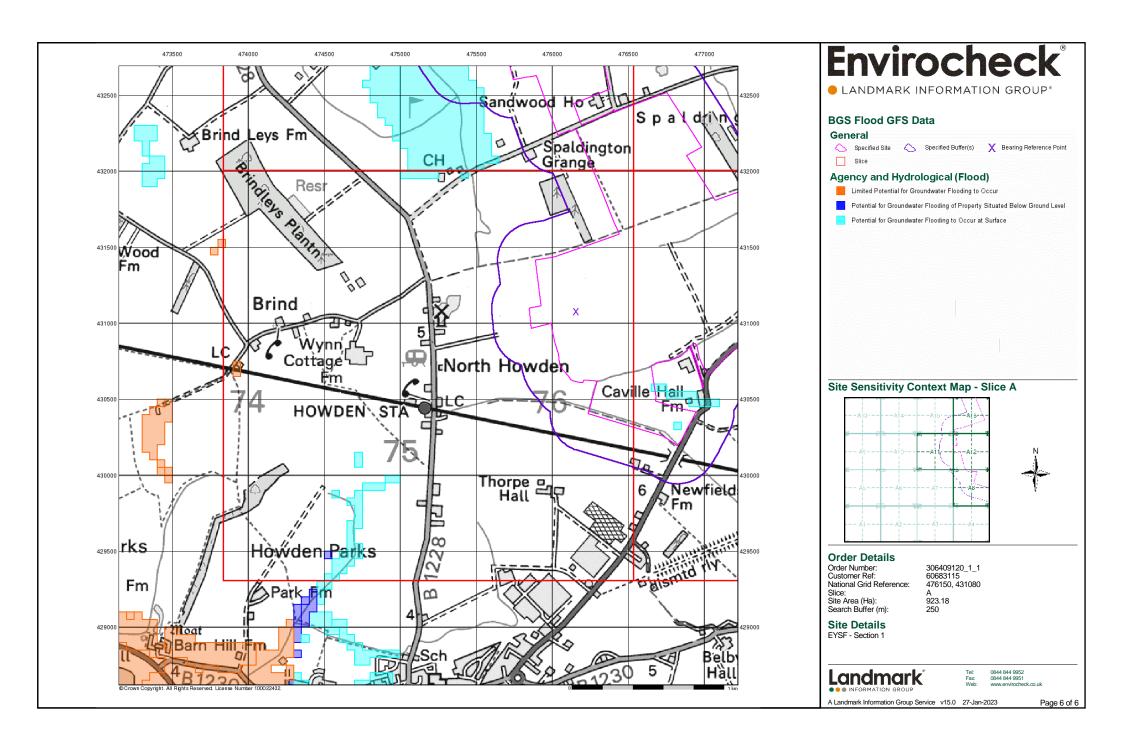


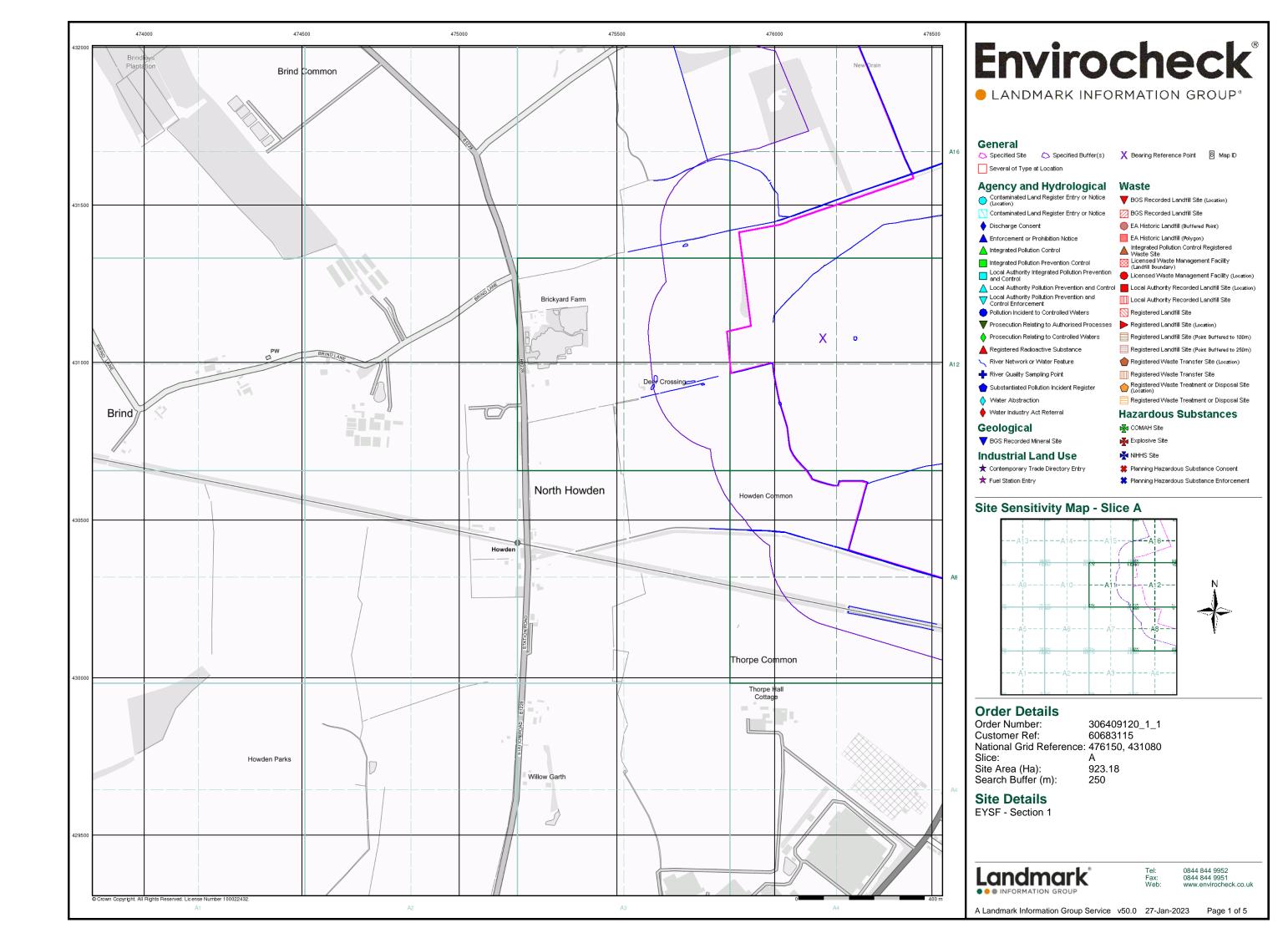


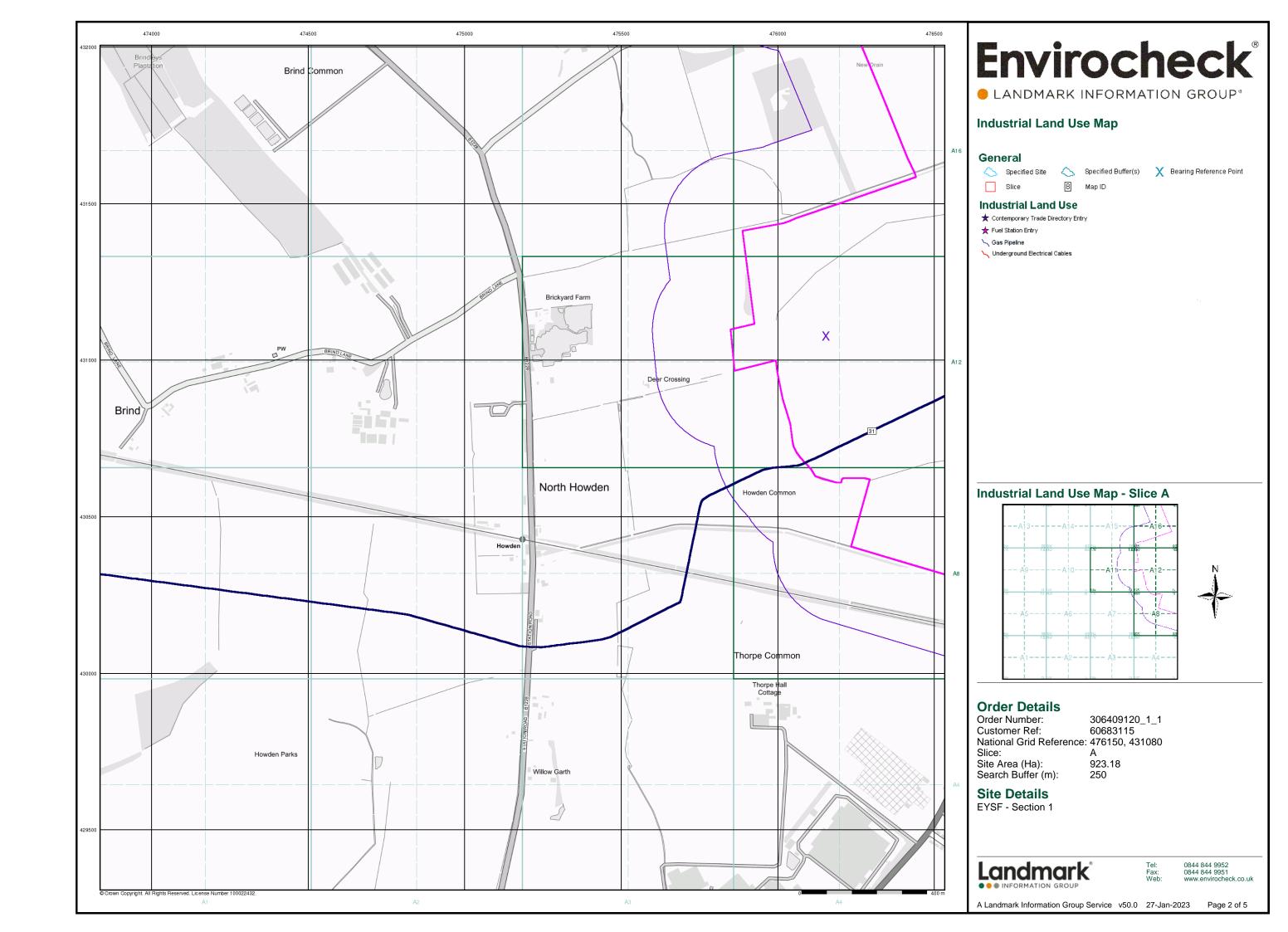


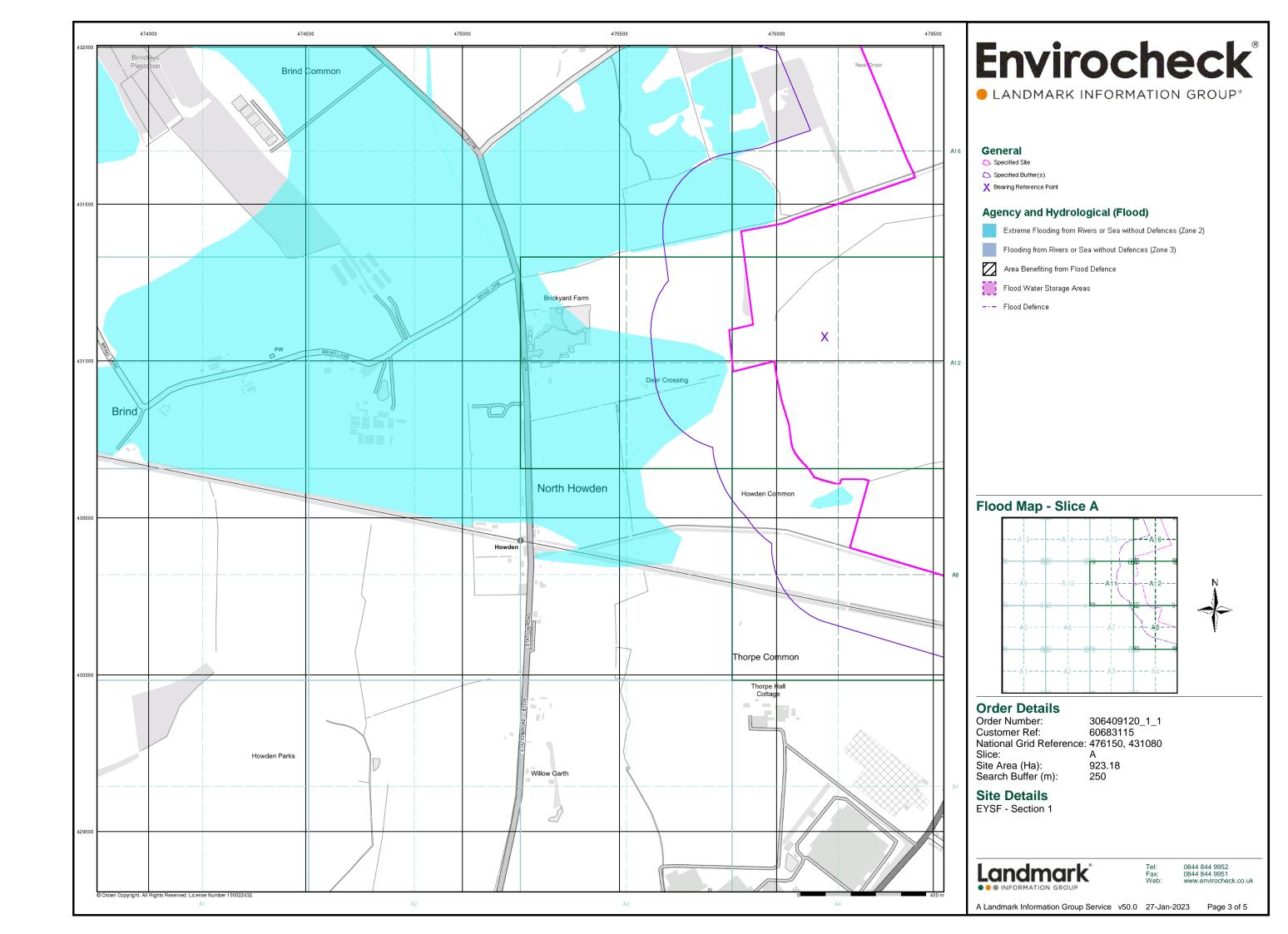


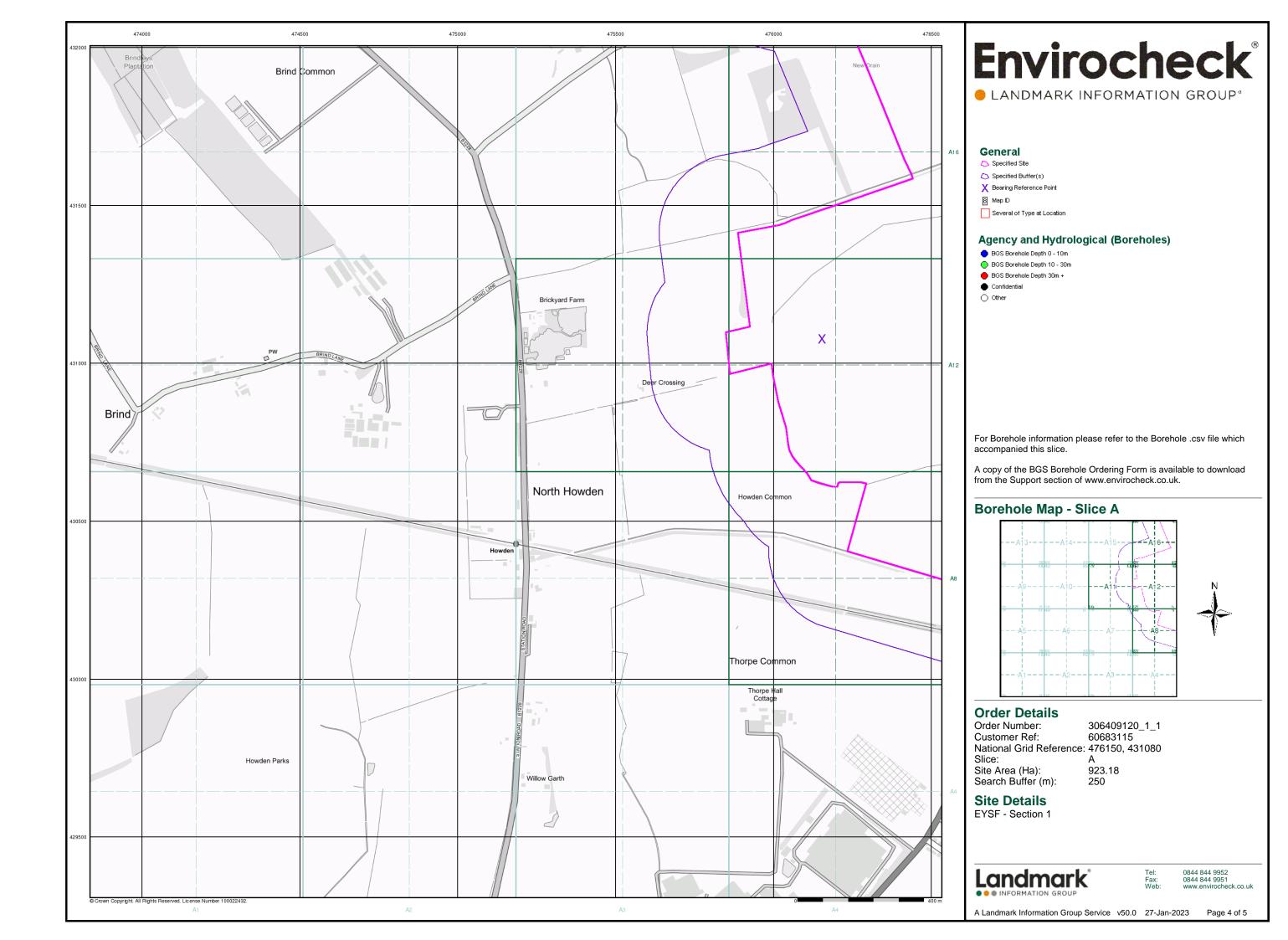


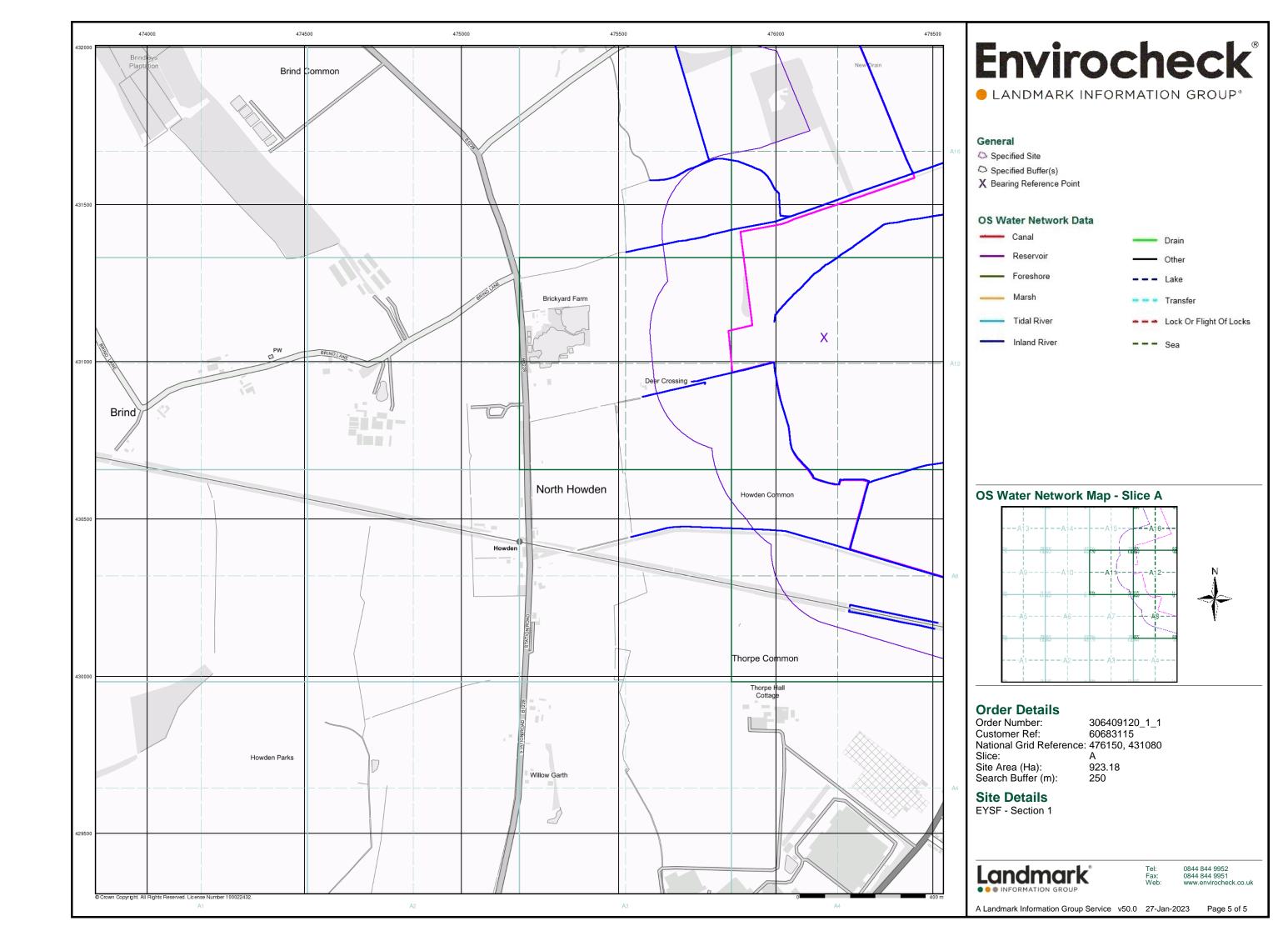


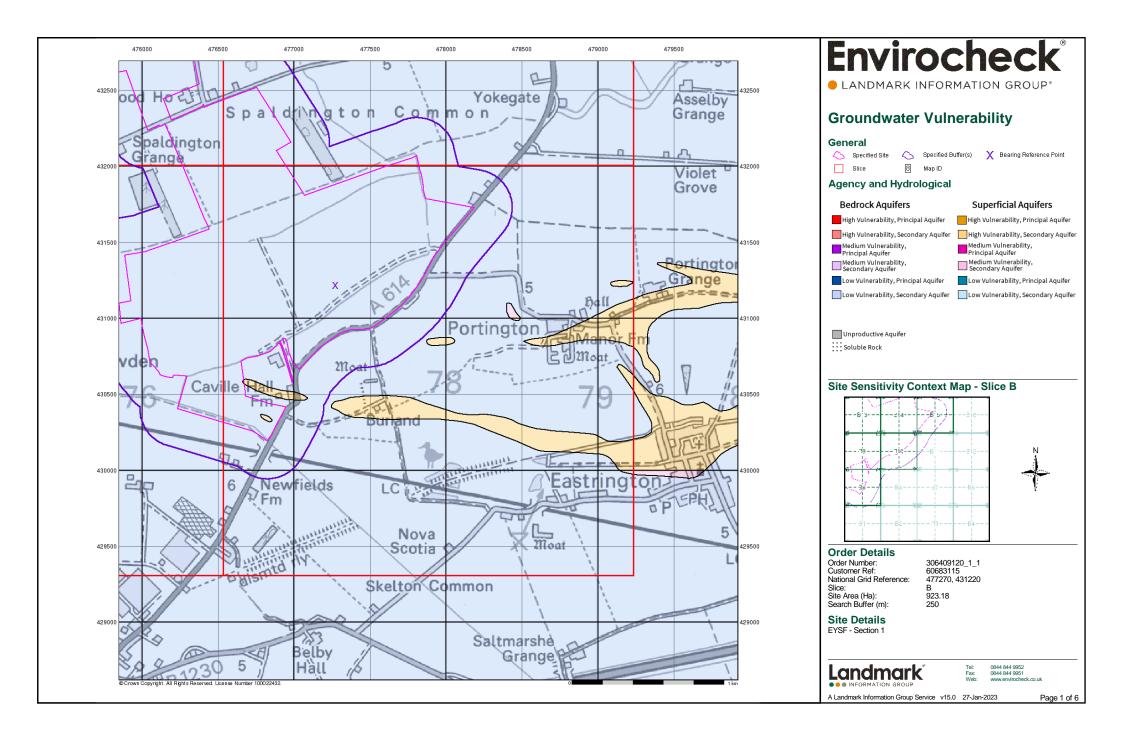


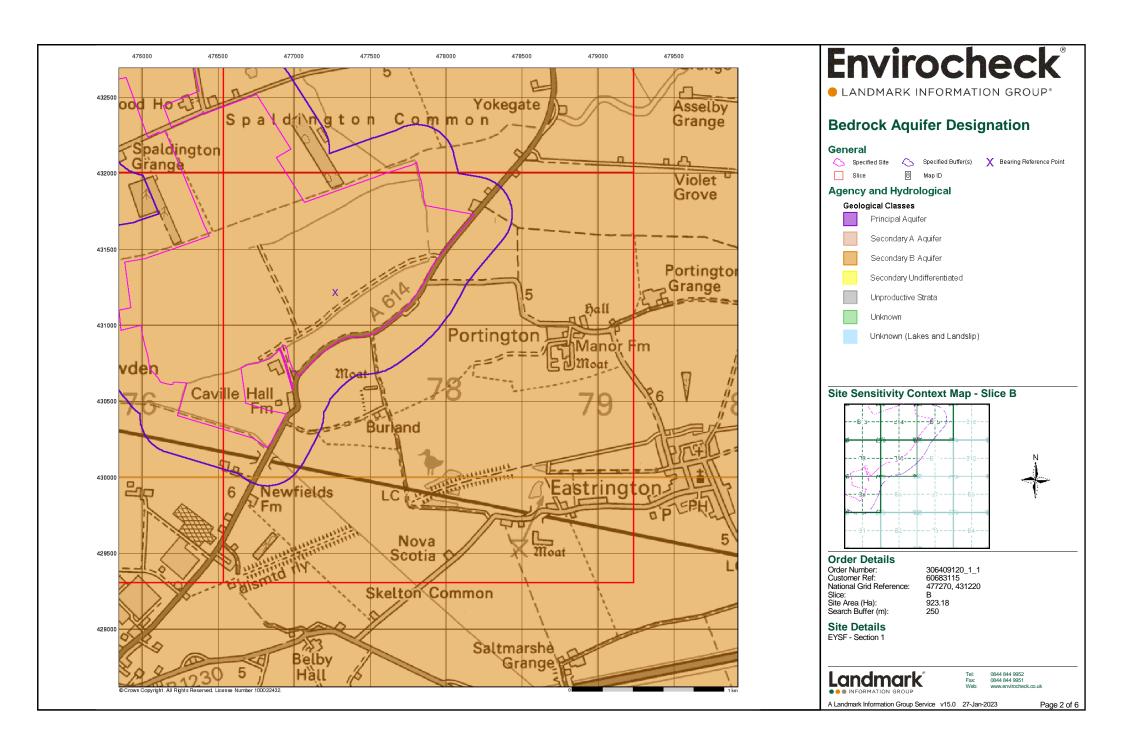


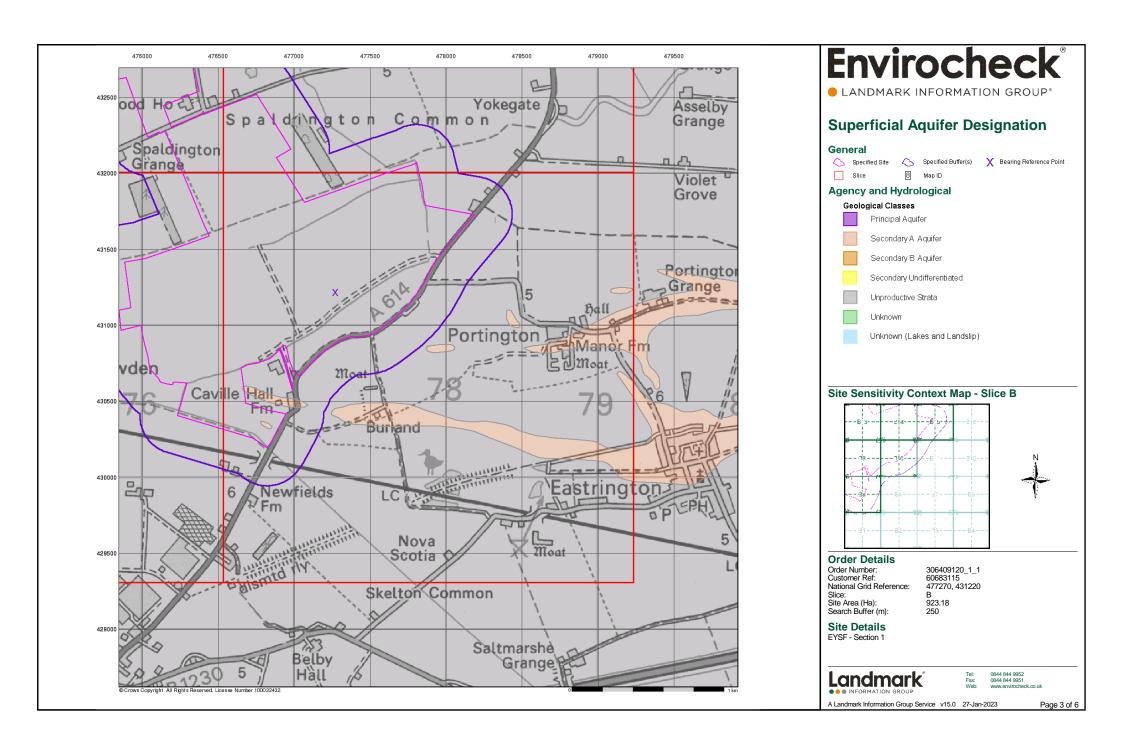


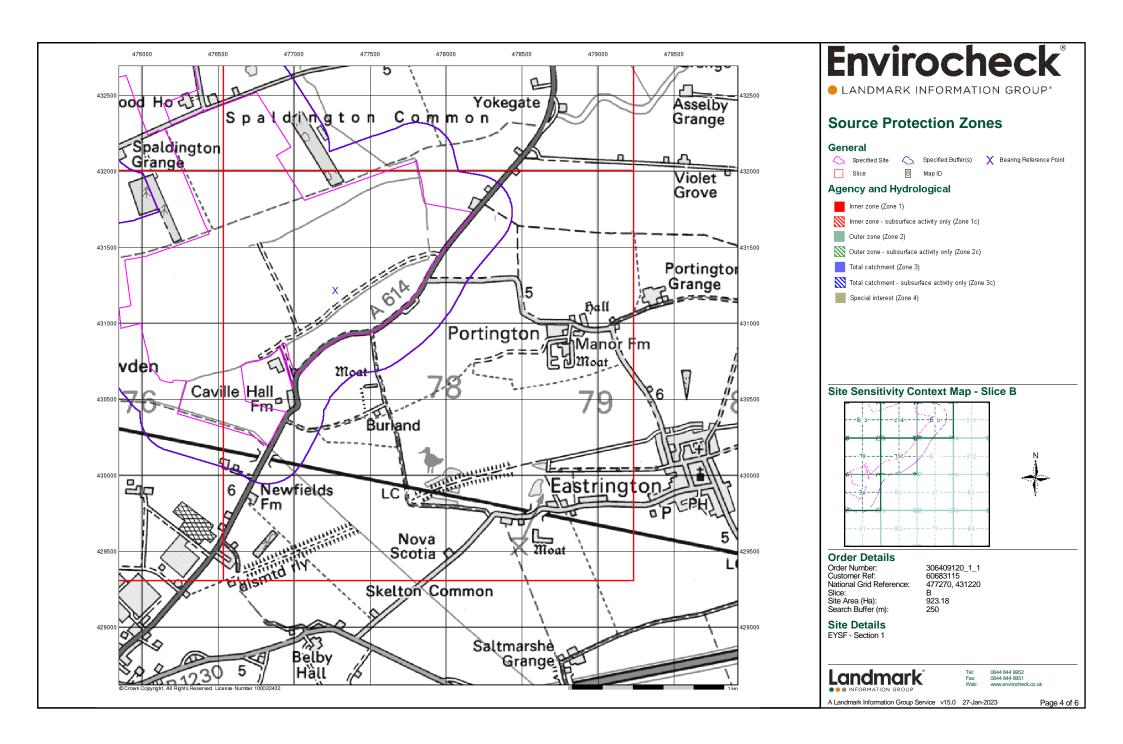


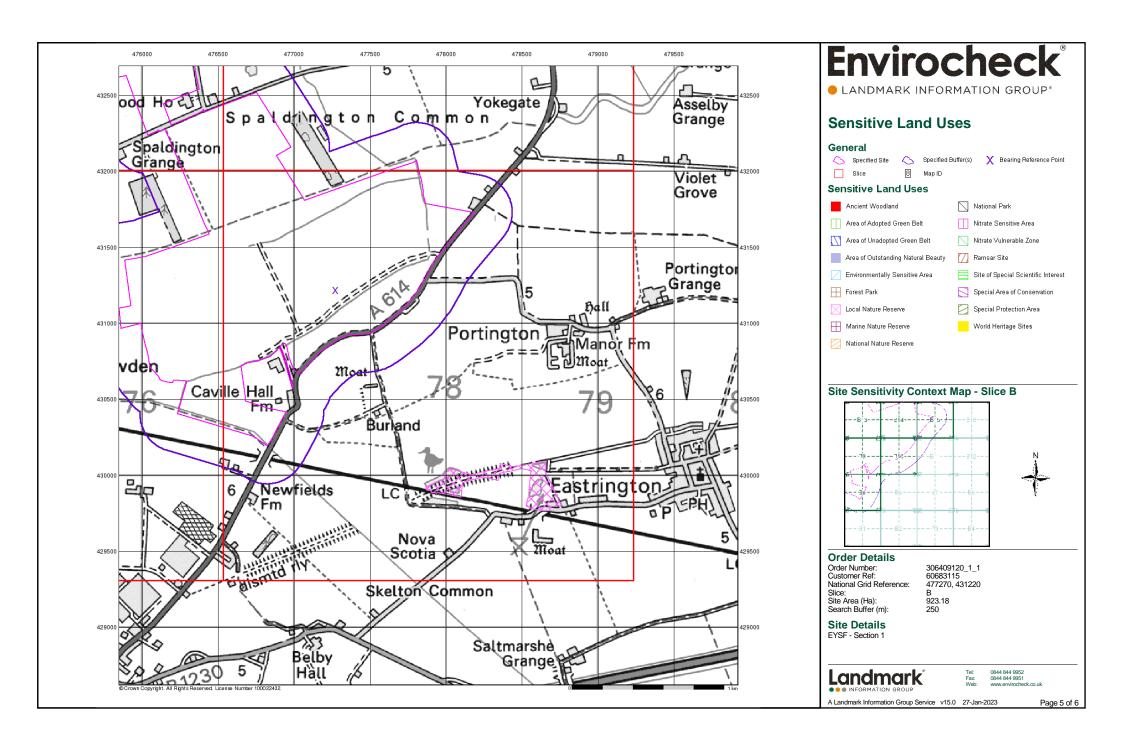


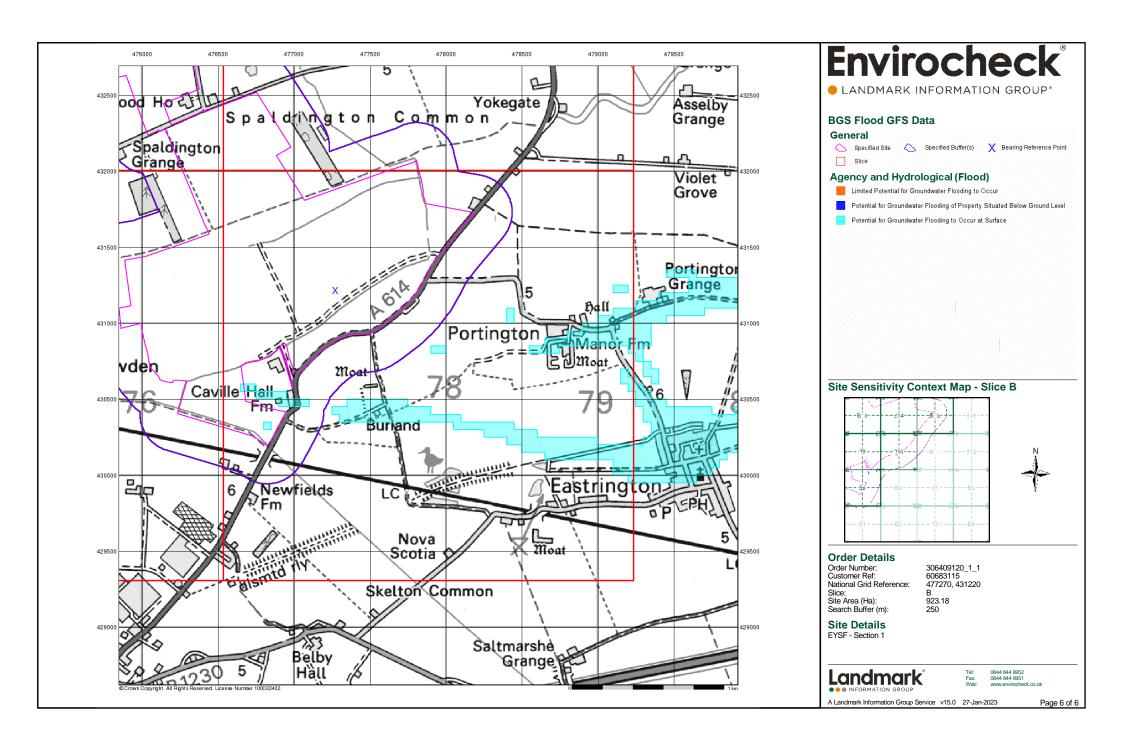


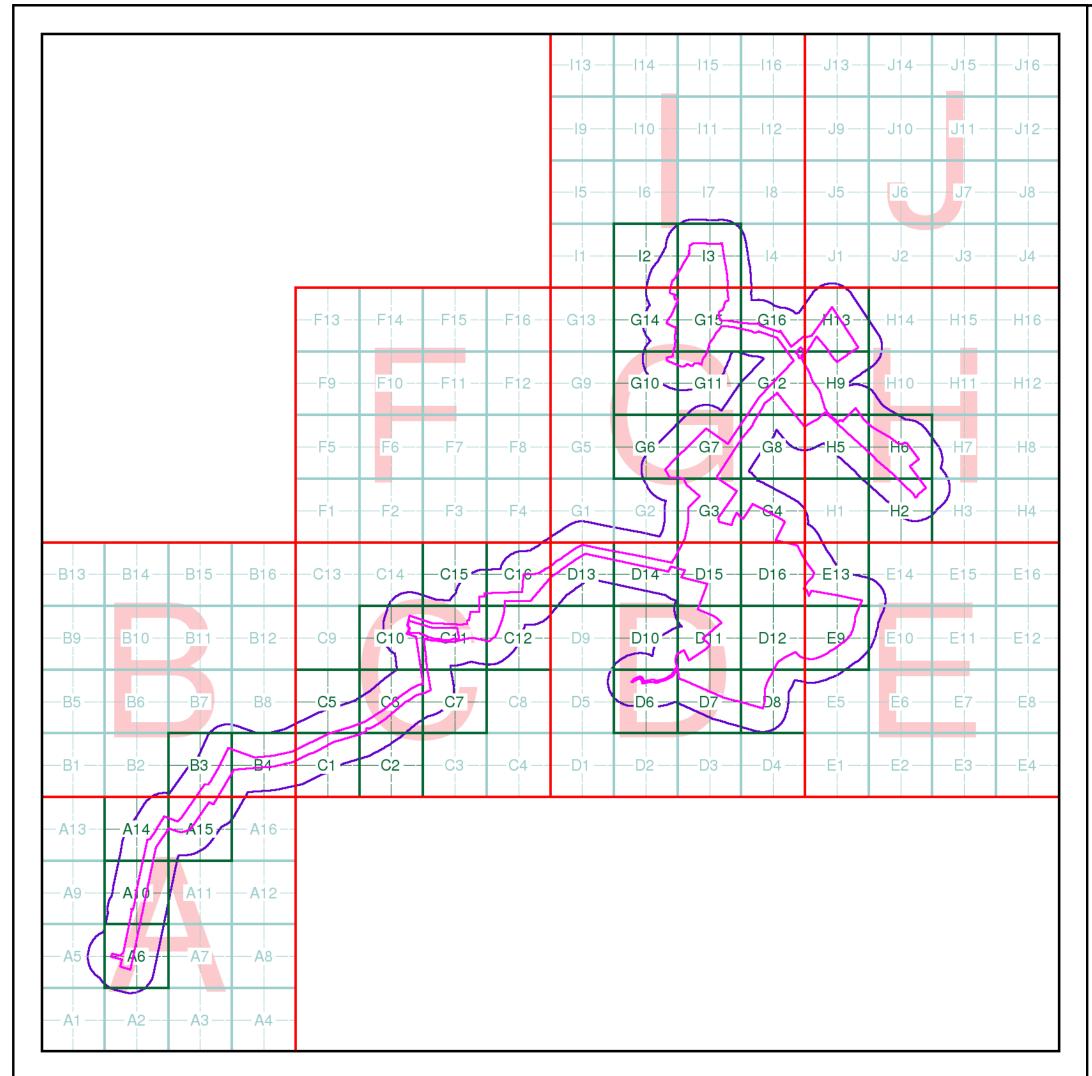












Envirocheck®

LANDMARK INFORMATION GROUP®

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.

Seamen

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

MRS K Bruce, Aecom Infrastructure & Environment UK Ltd, 2nd Floor, St Georges House, 5 St Georges Road, London, SW19 4DR

Order Details

Order Number: 306409121_1_1
Customer Ref: 60683115
National Grid Reference: 472530, 431080

Site Area (Ha): 520.95 Search Buffer (m): 250

Site Details

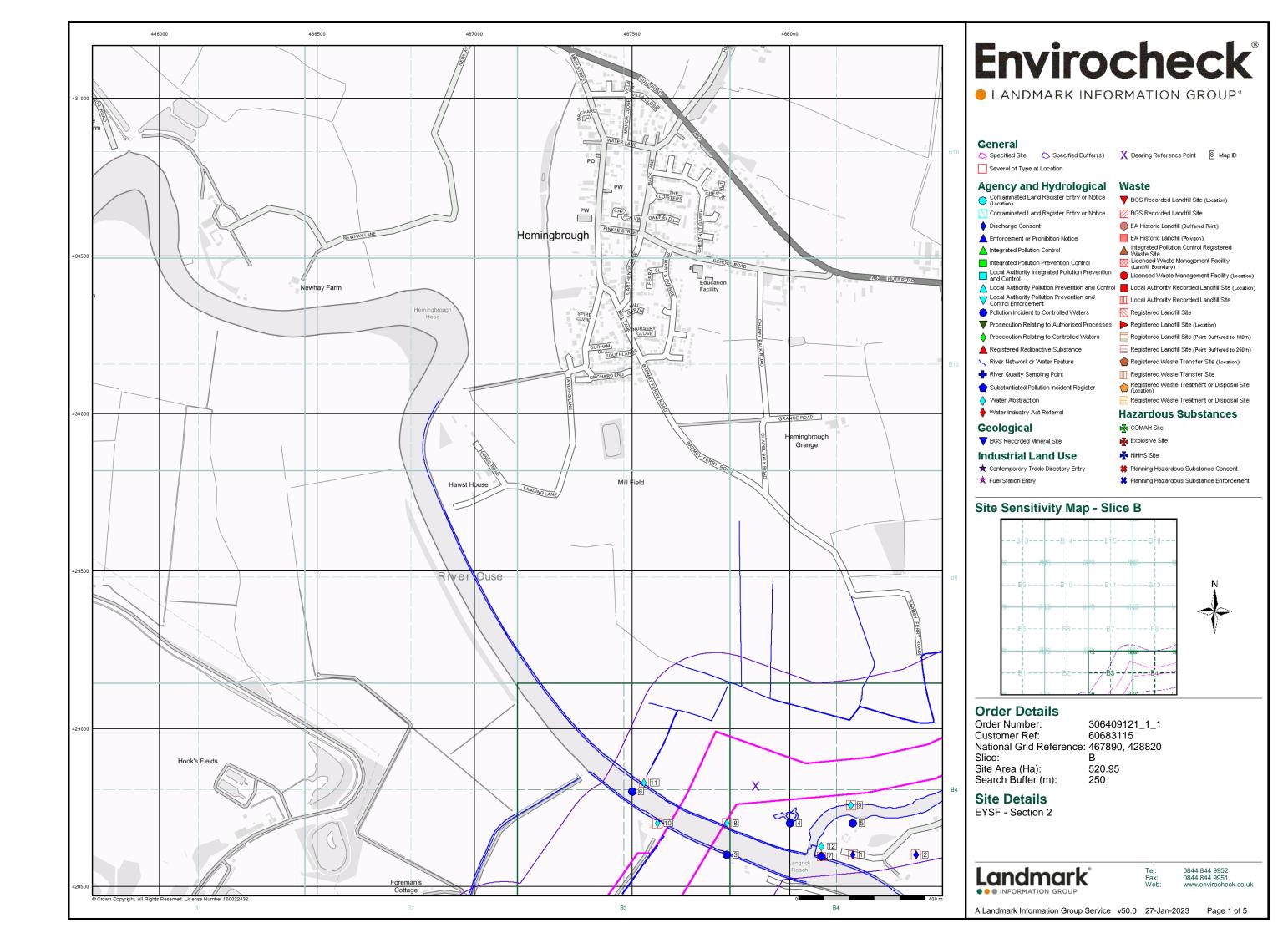
EYSF - Section 2

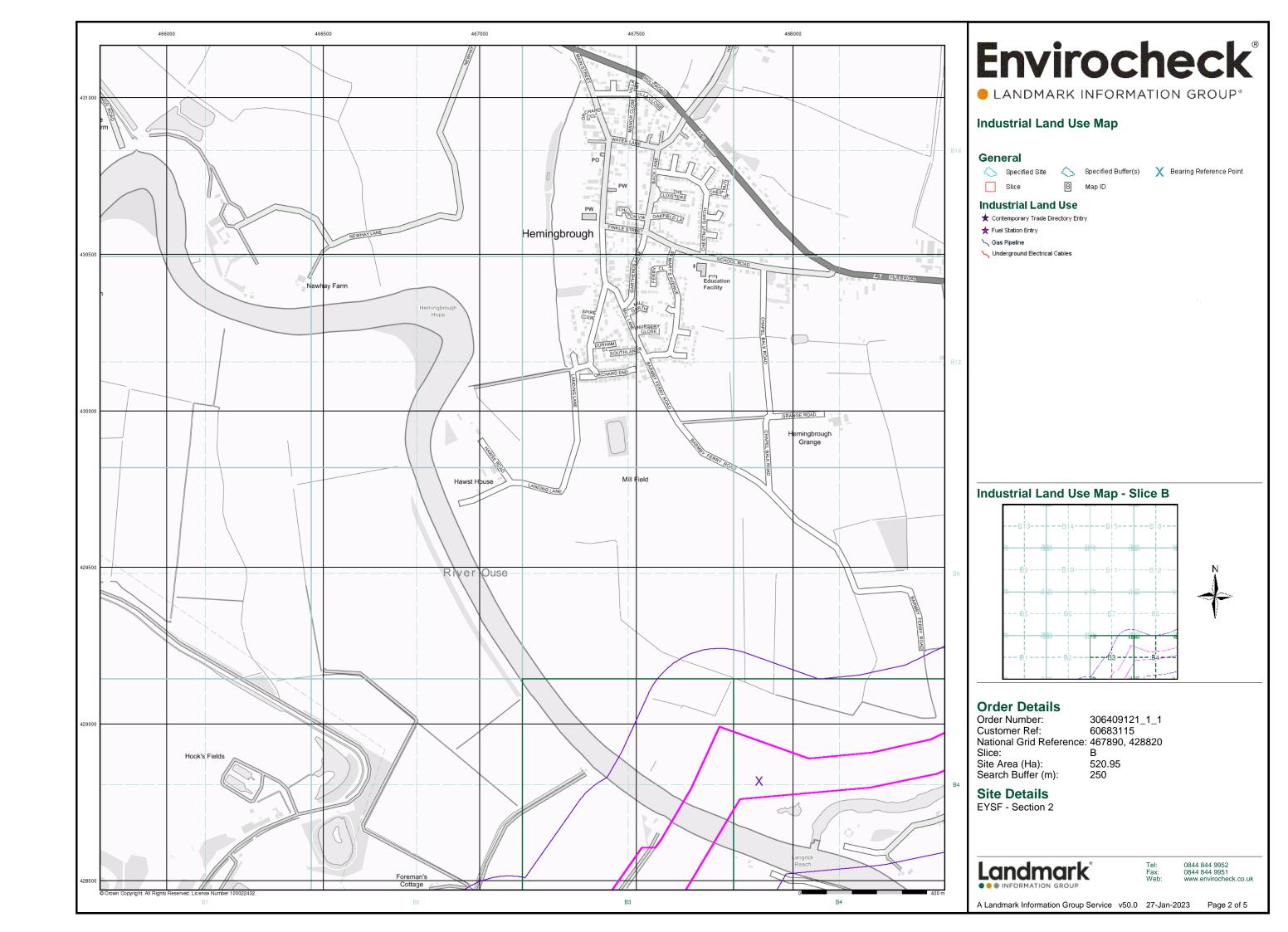
Full Terms and Conditions can be found on the following link: http://www.landmarkinfo.co.uk/Terms/Show/515

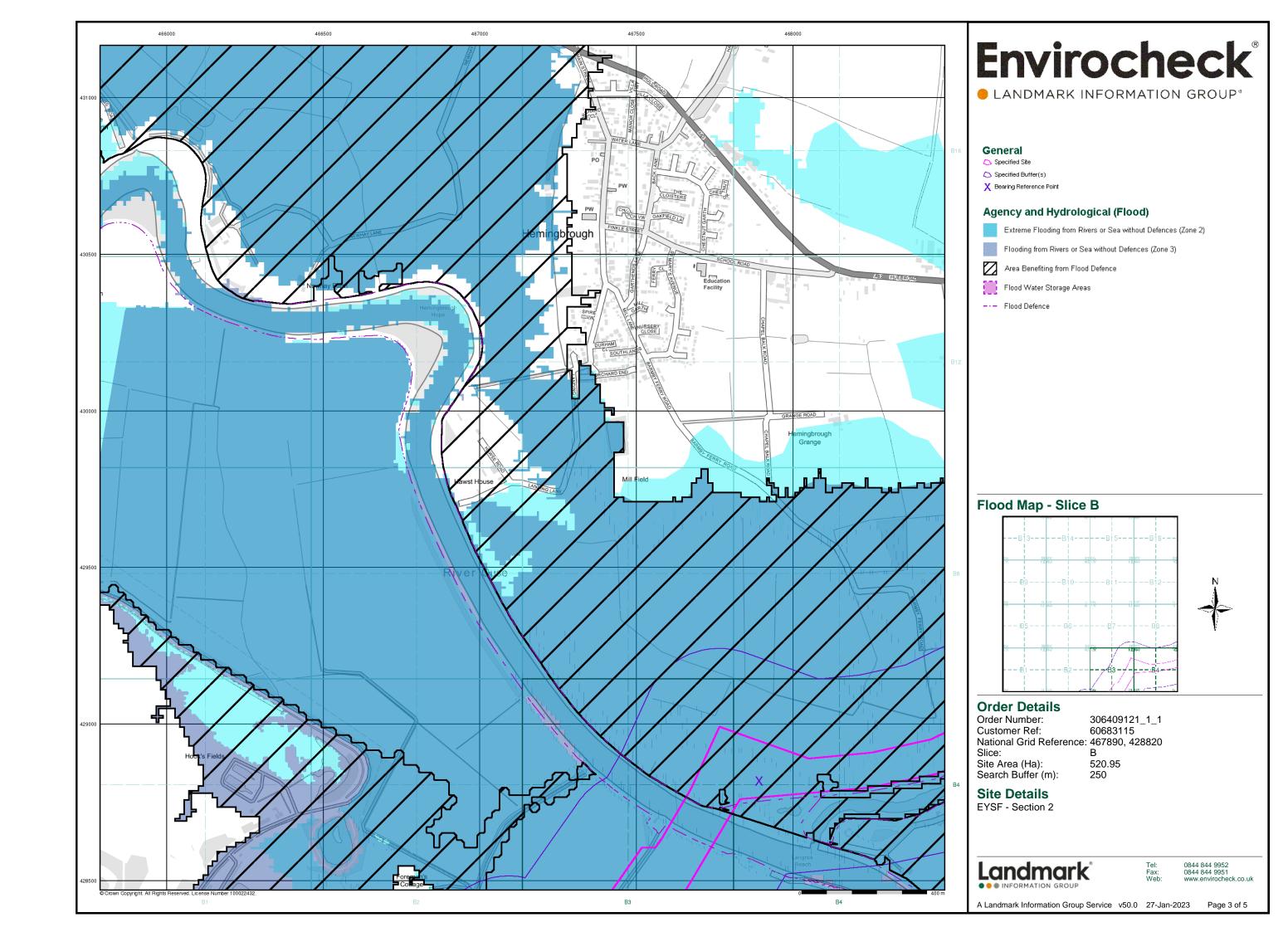


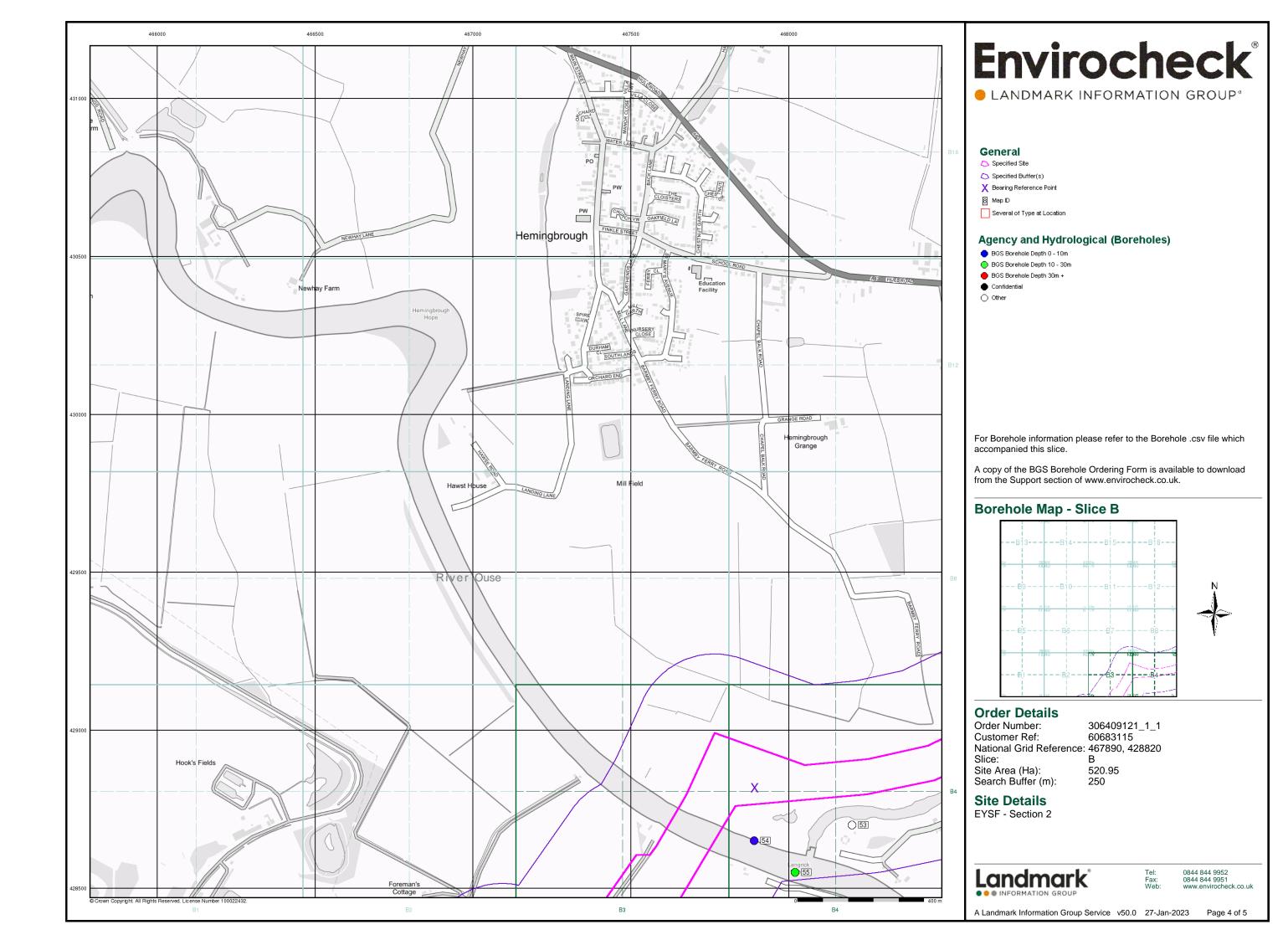
Tel: 0844 844 9952 Fax: 0844 844 9951 Web: www.envirocheck.co

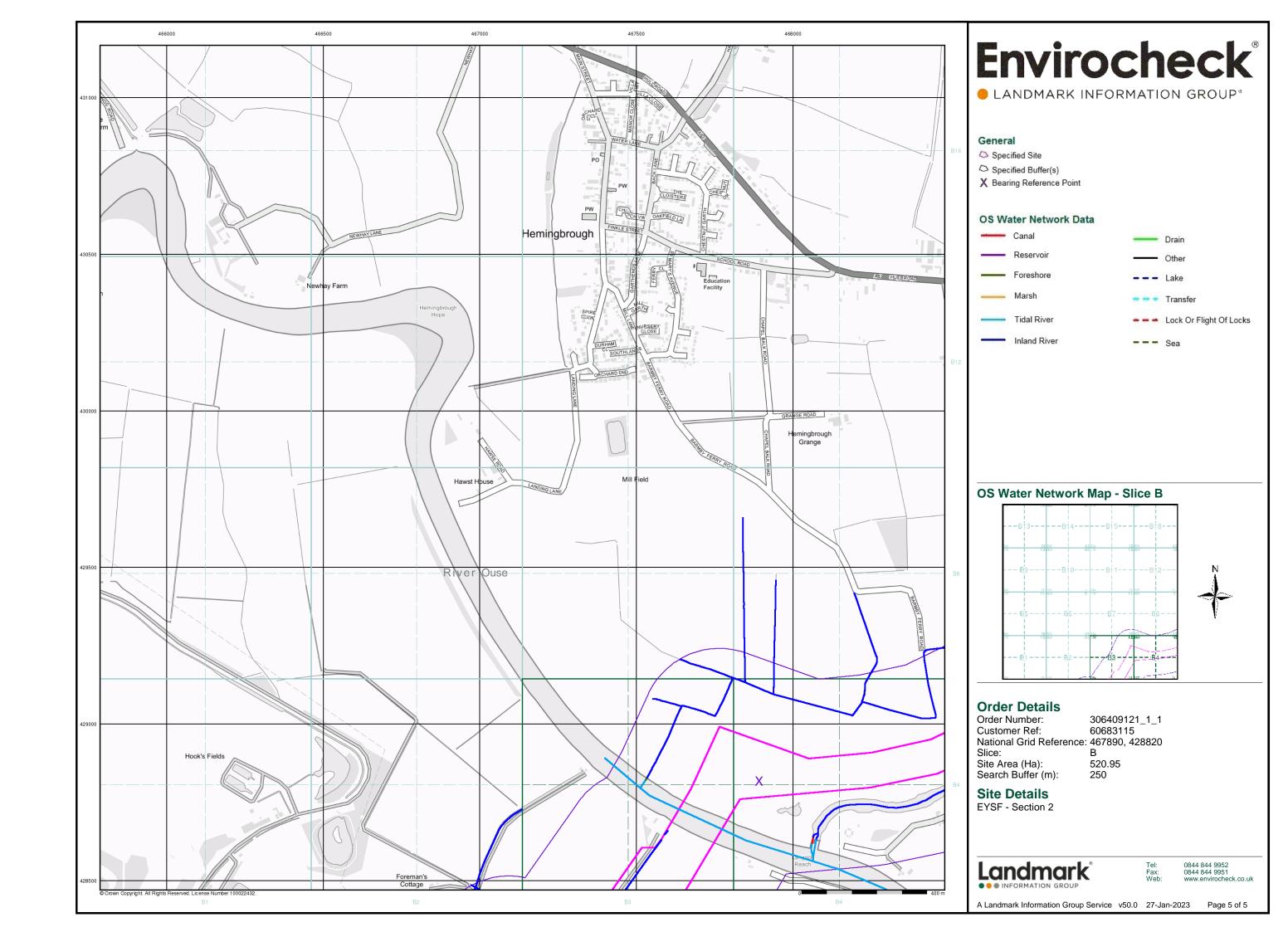
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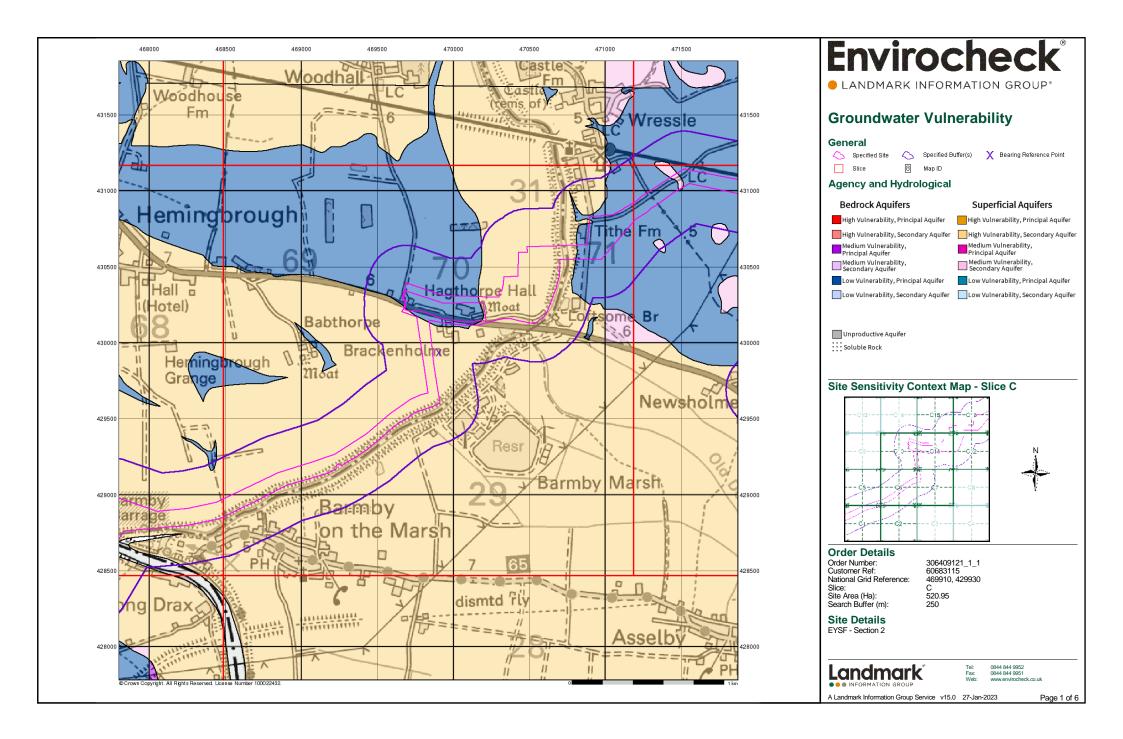


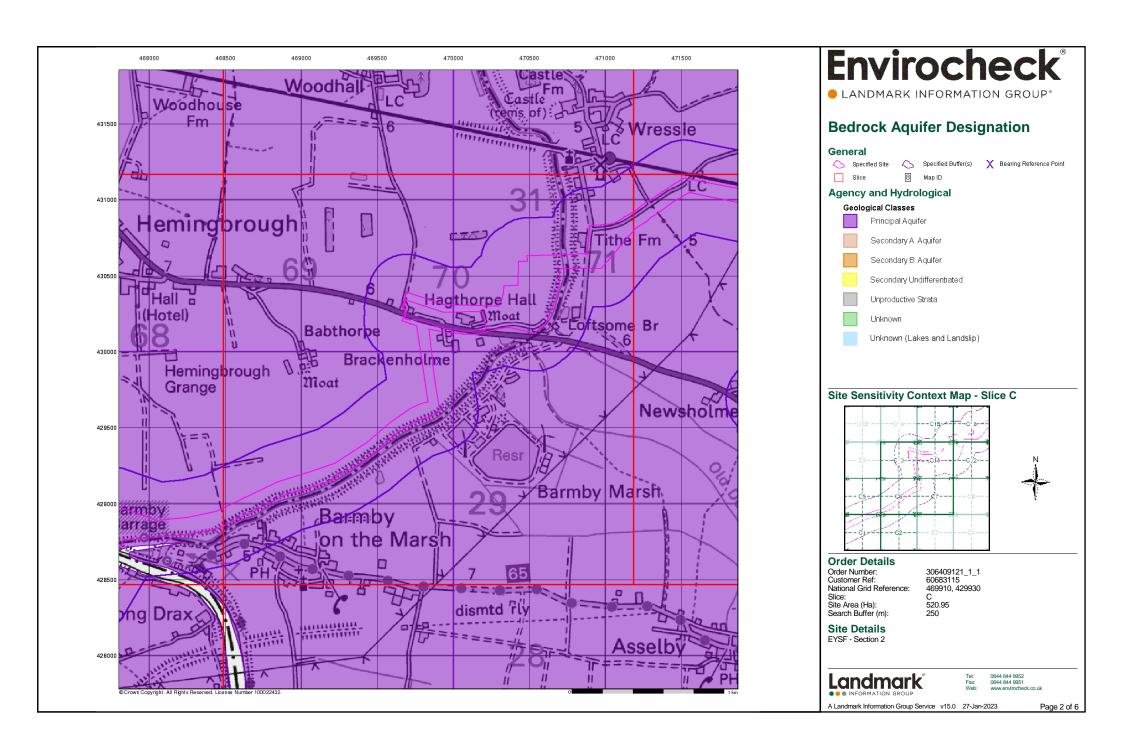


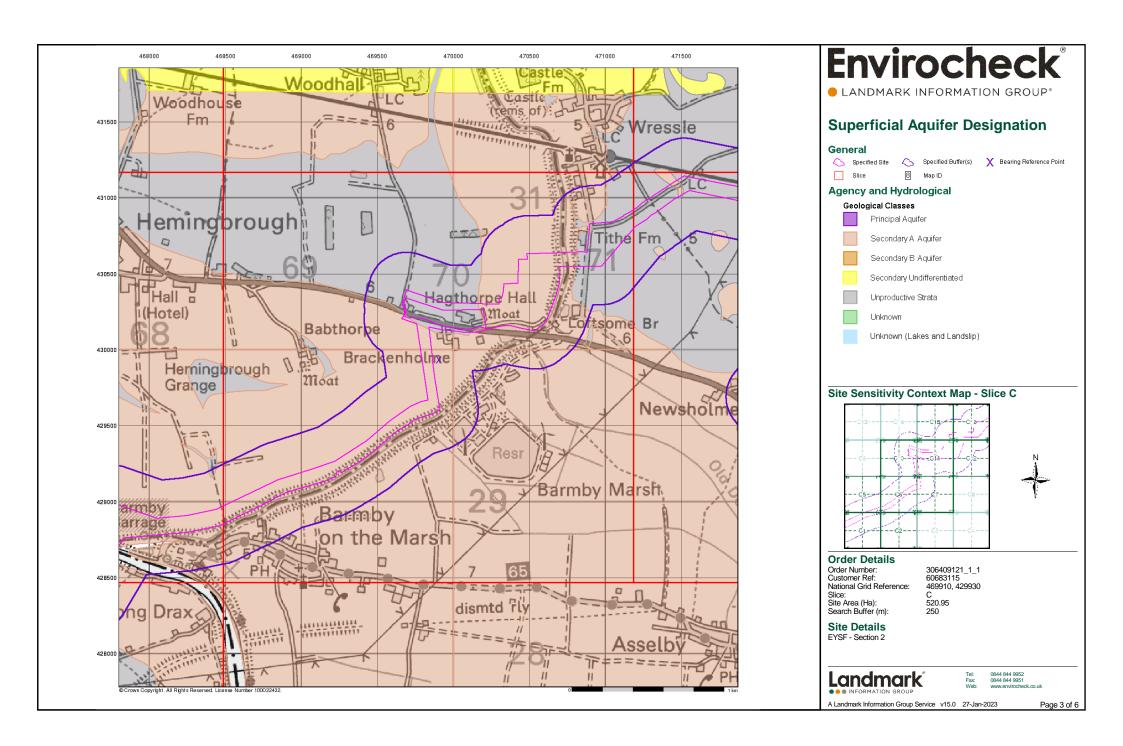


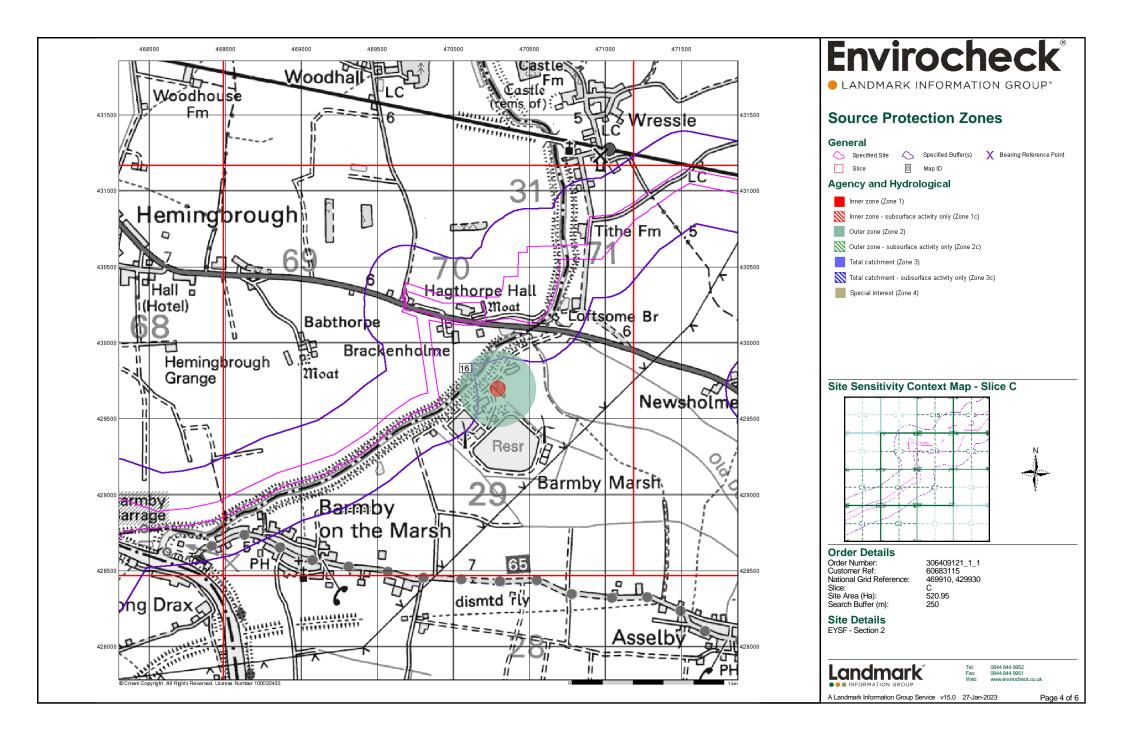


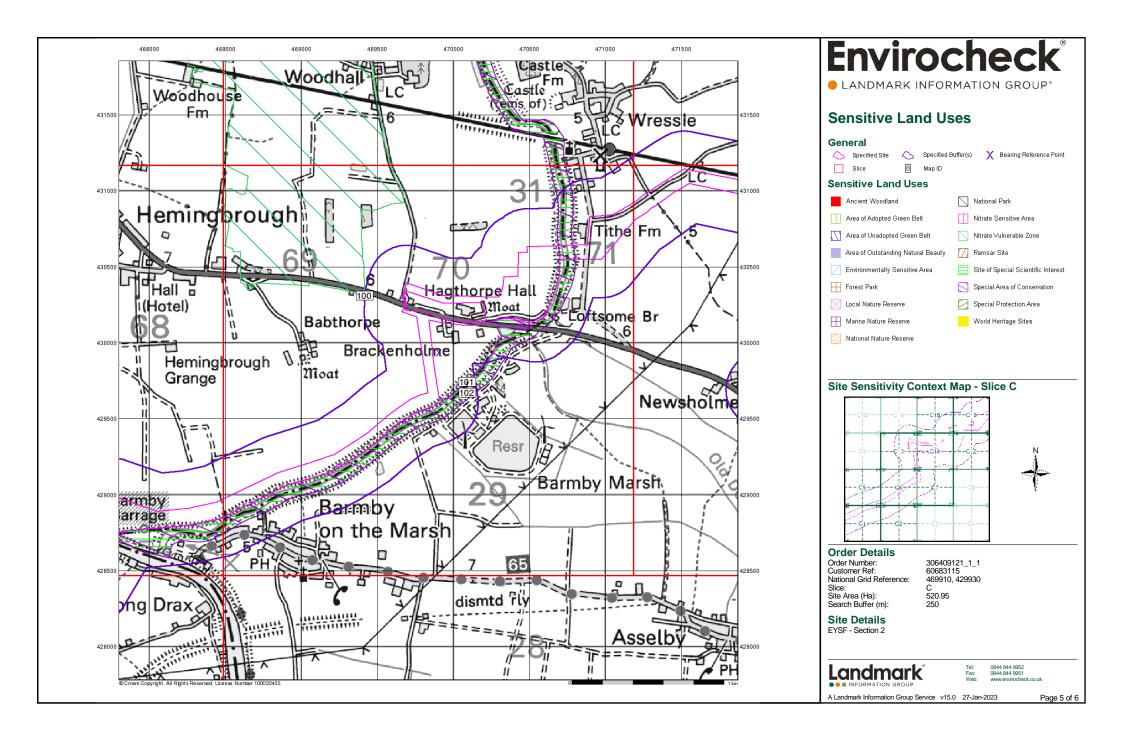


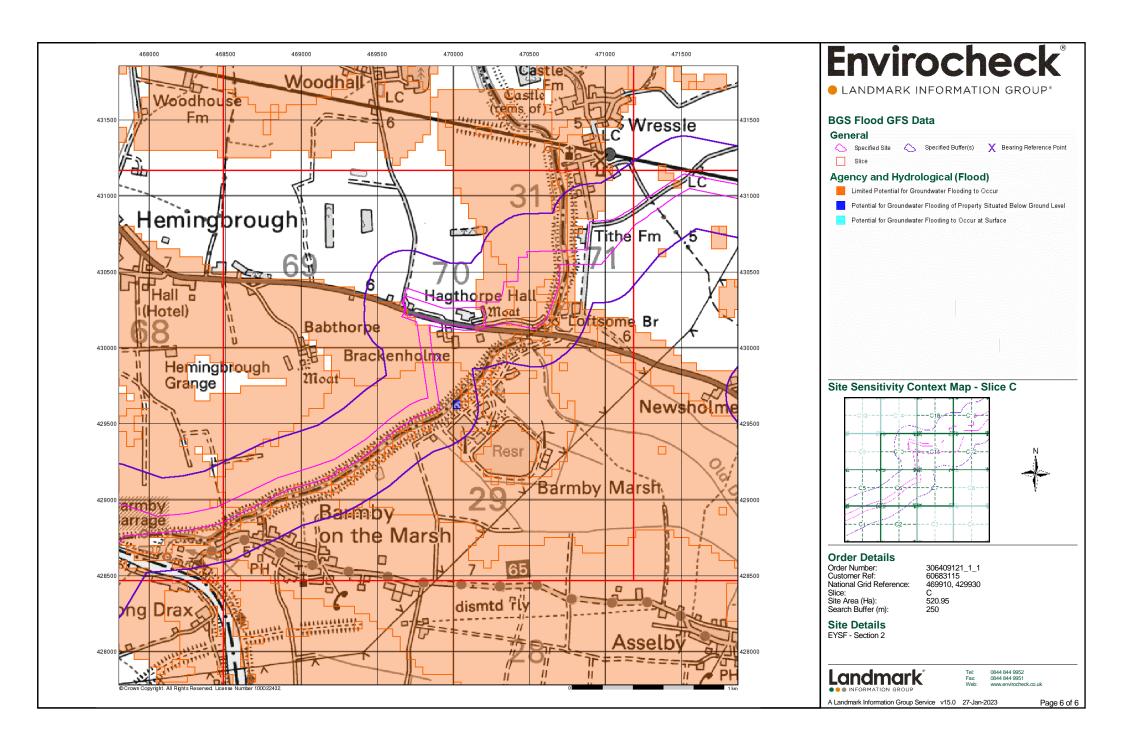


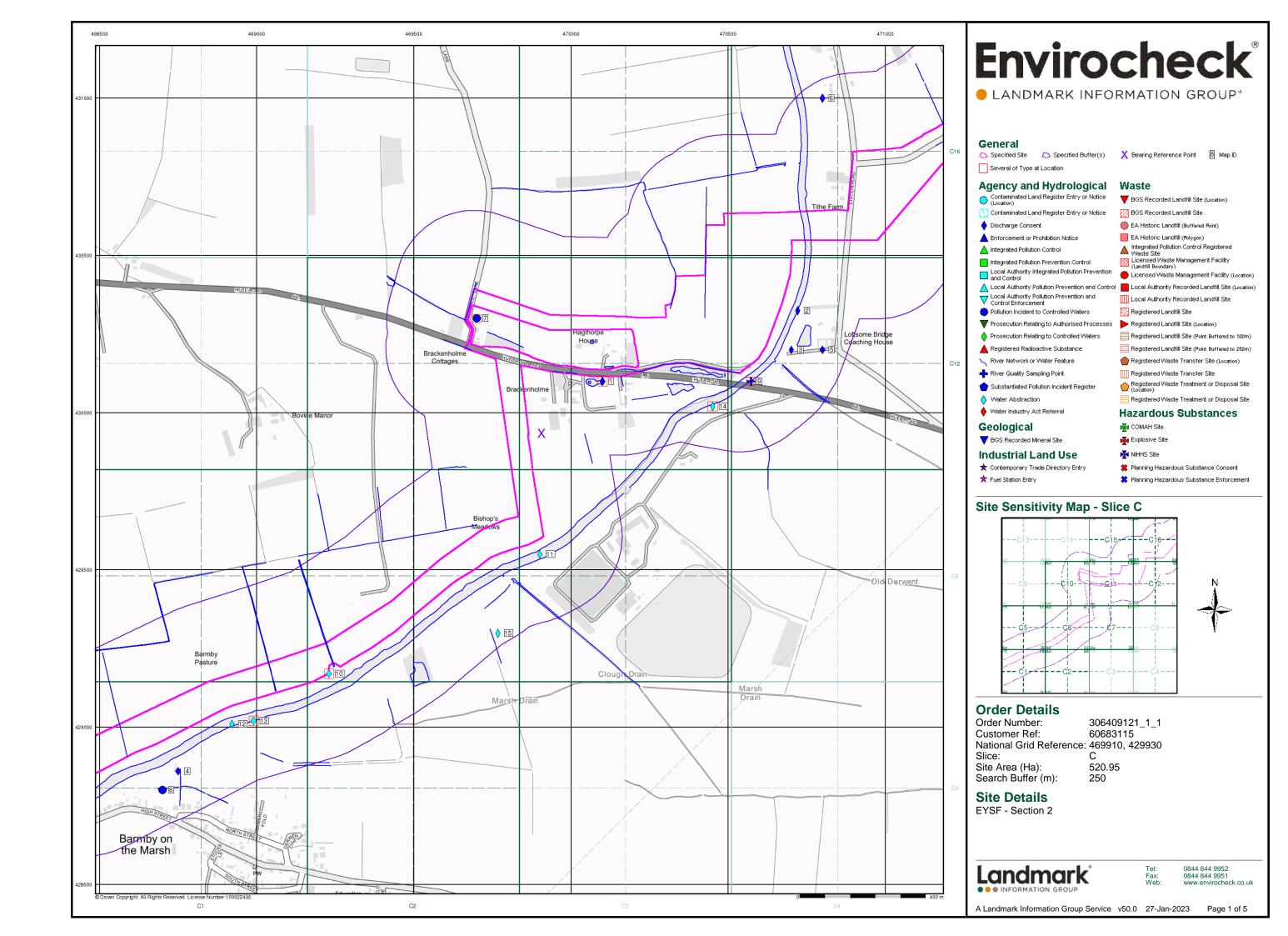


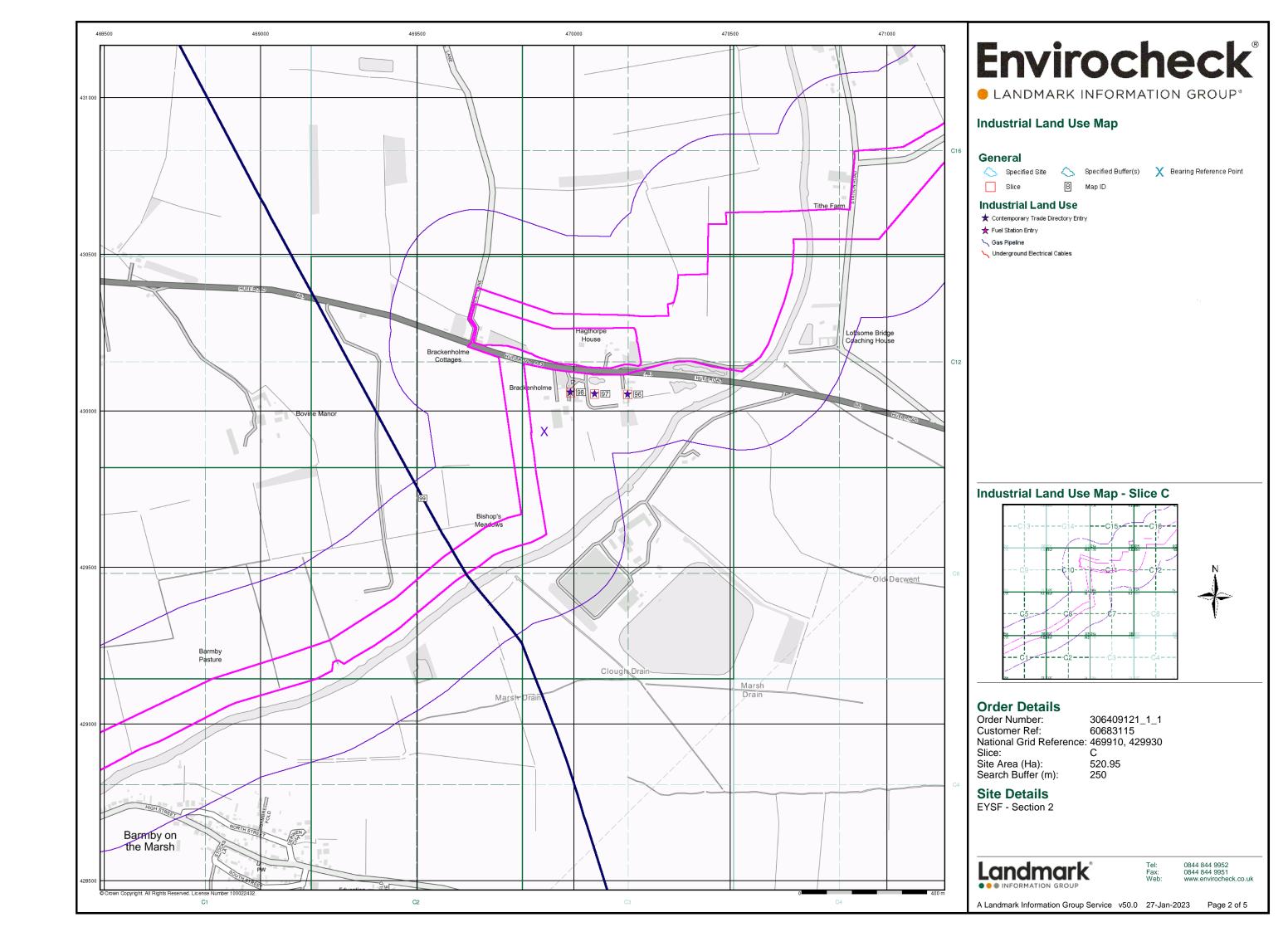


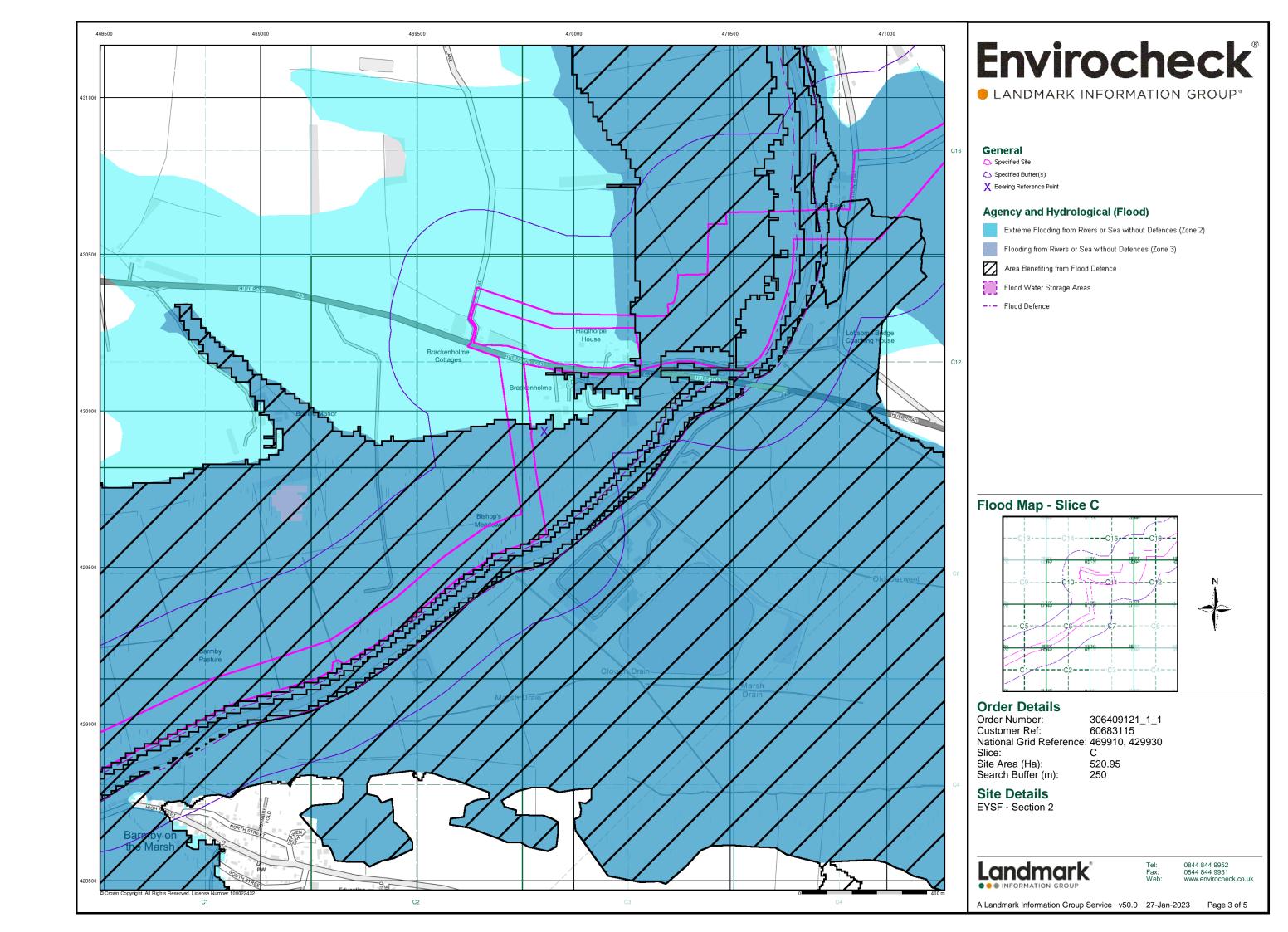


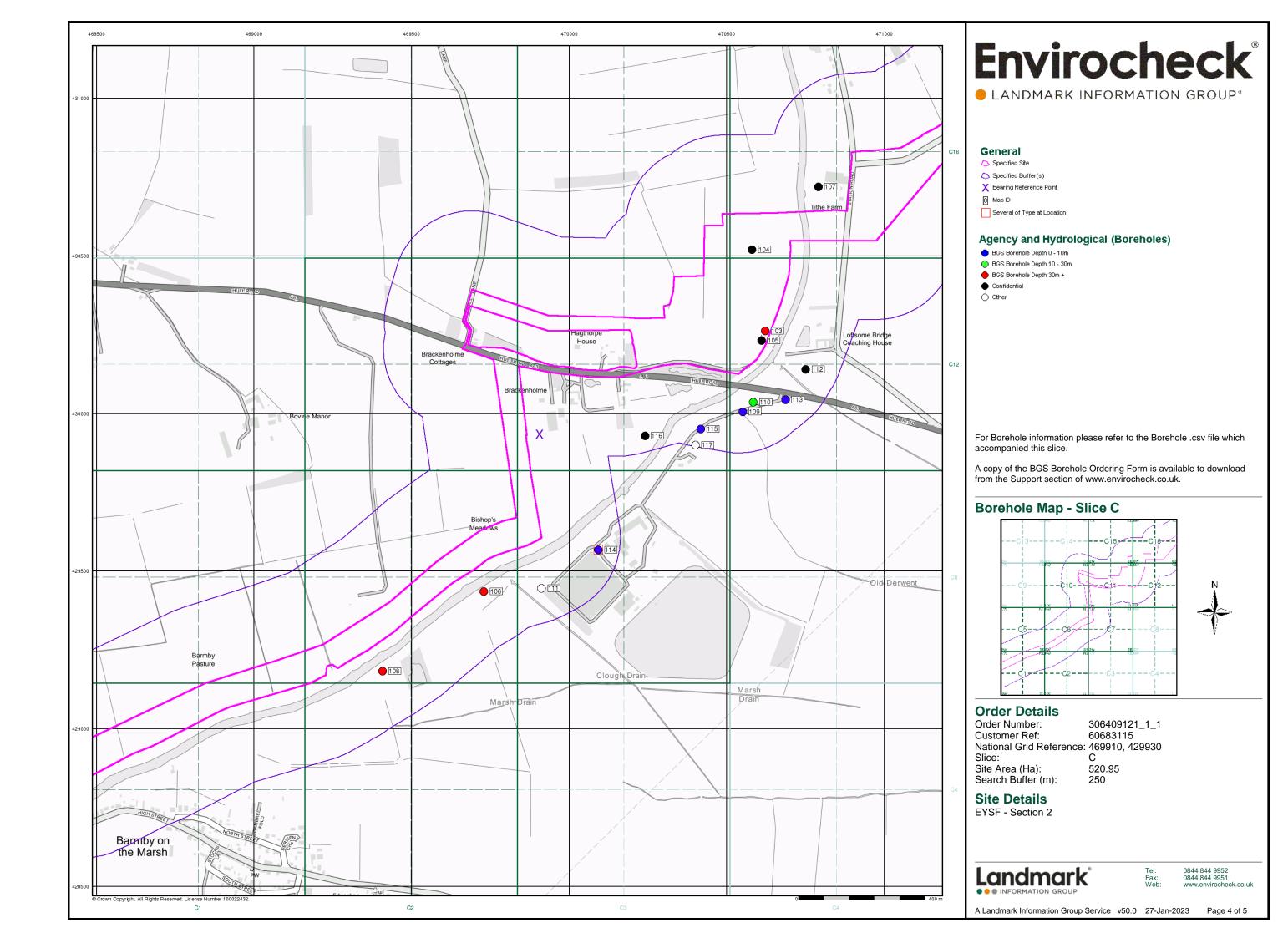


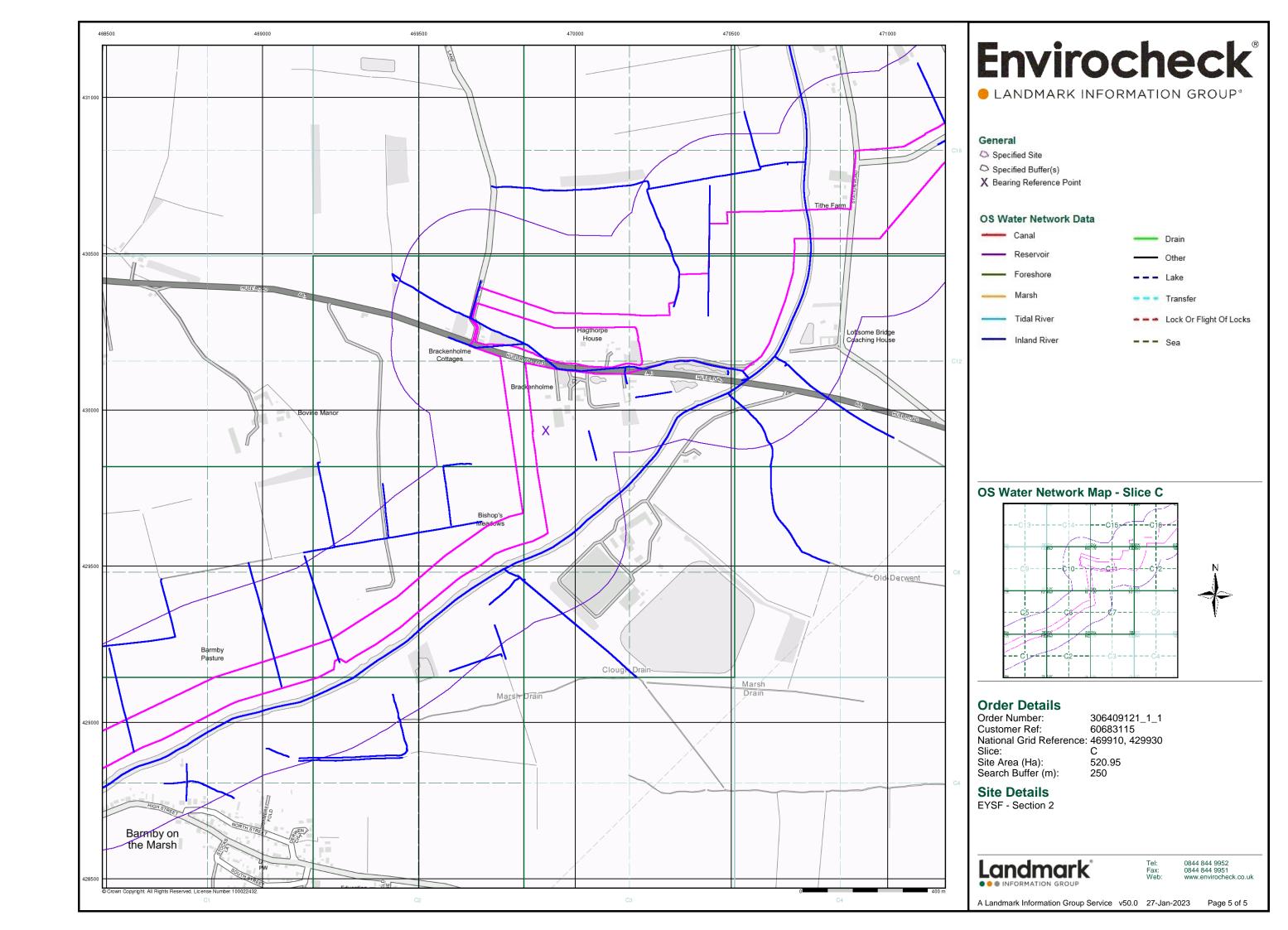


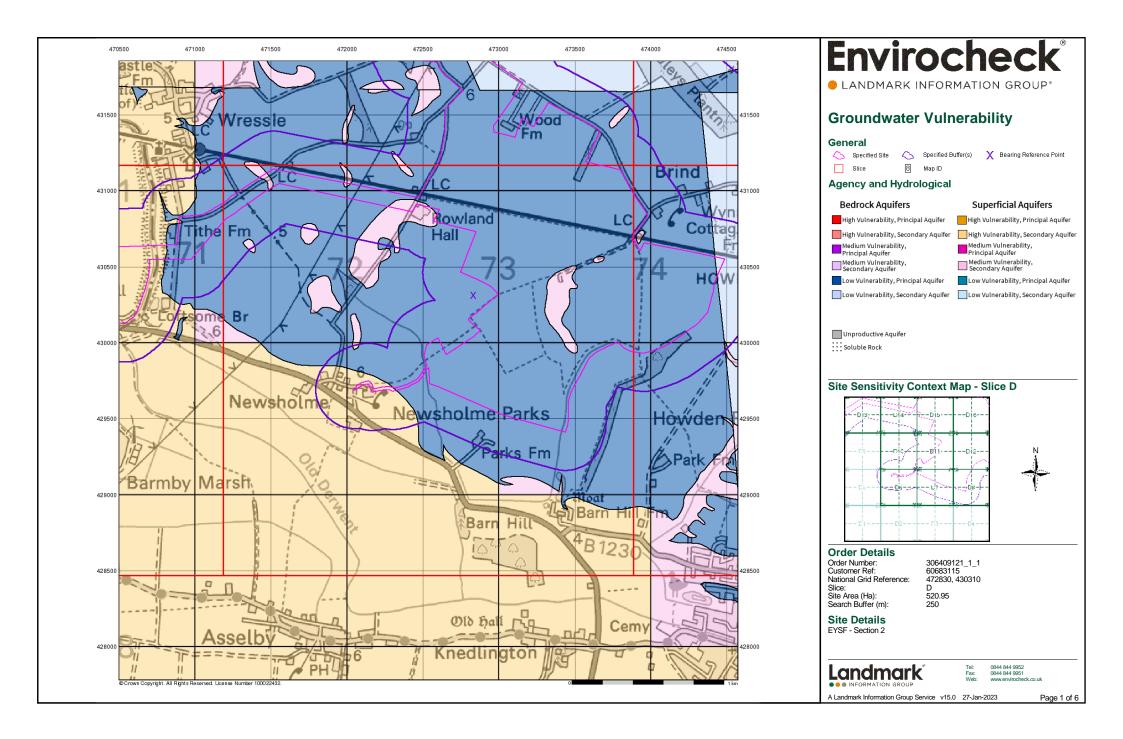


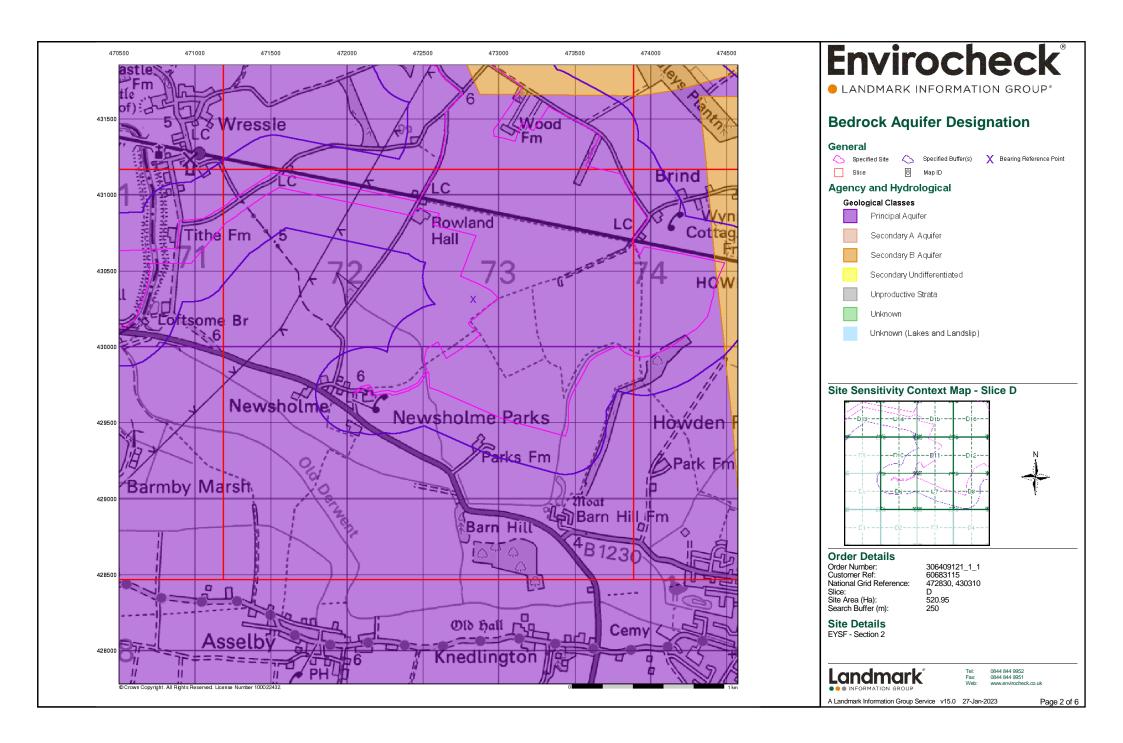


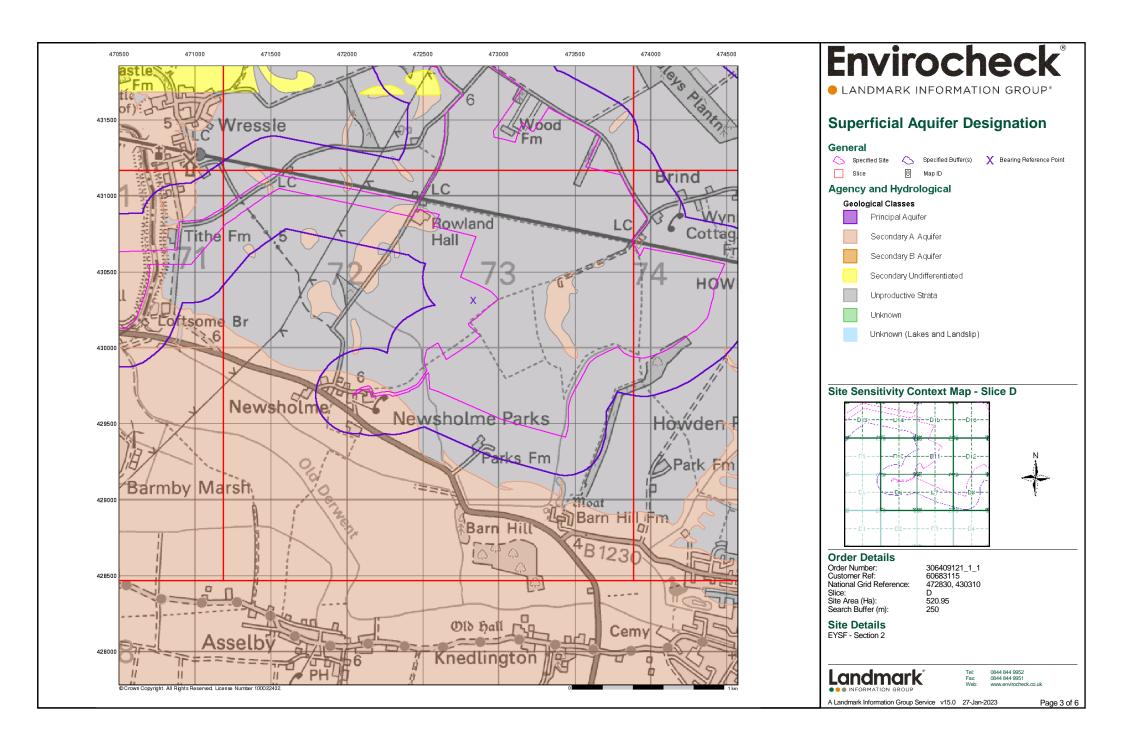


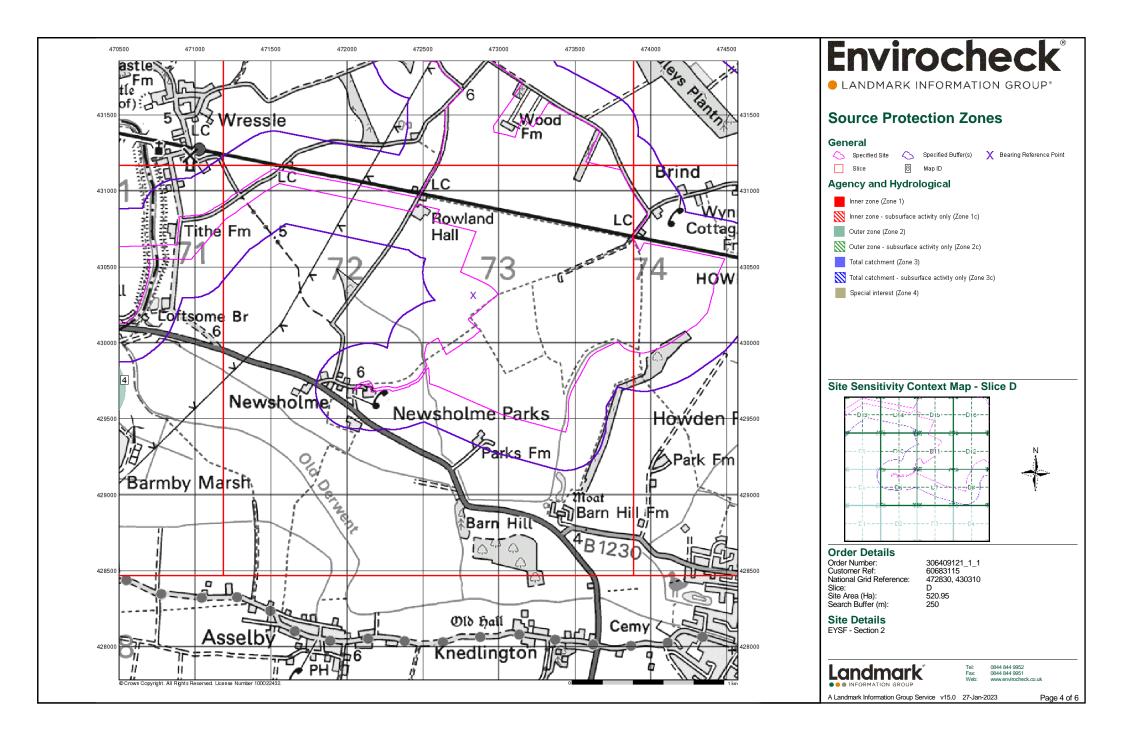


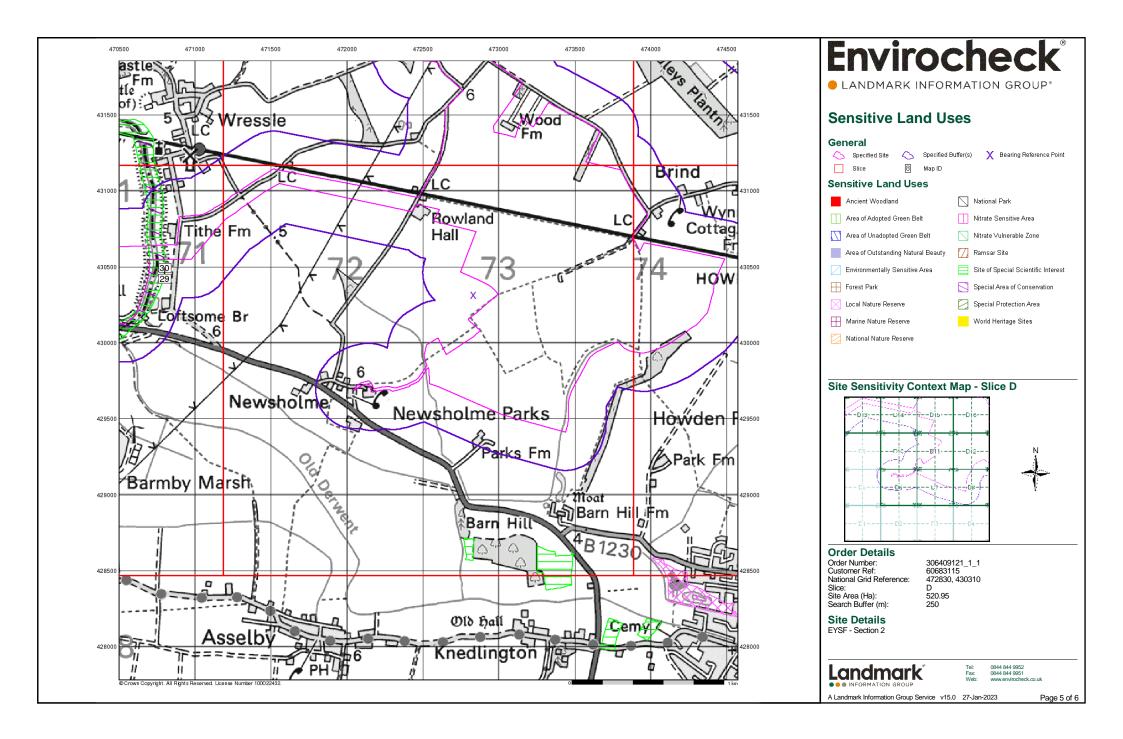


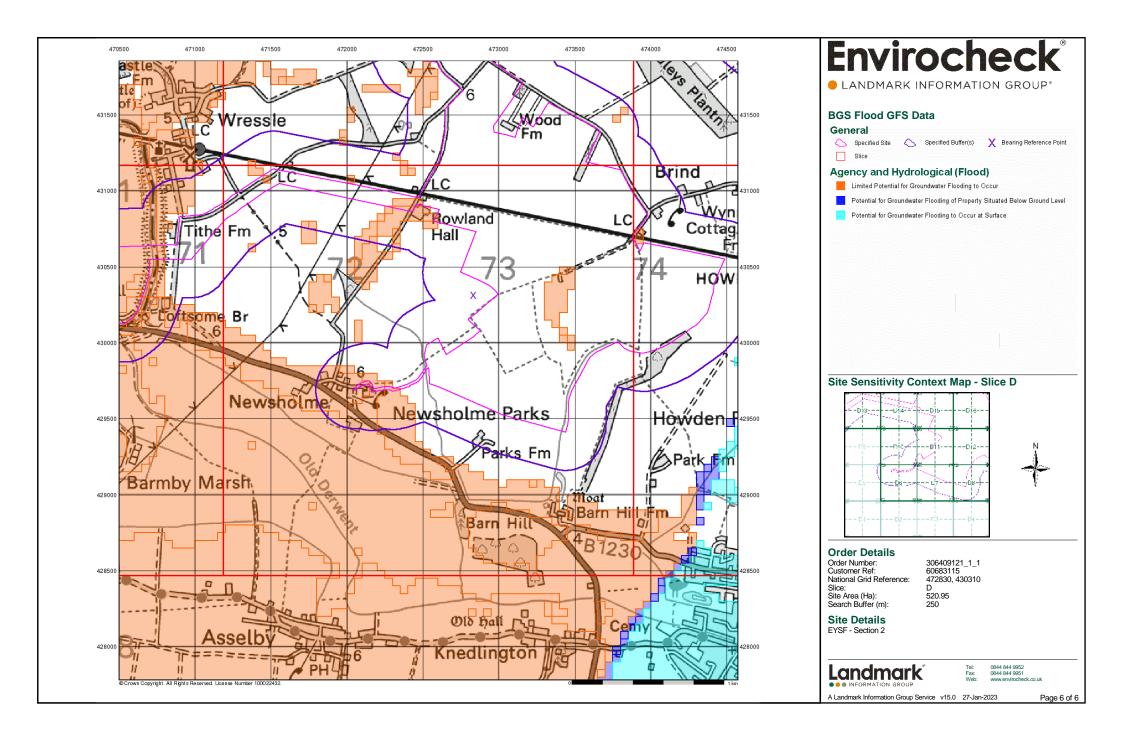


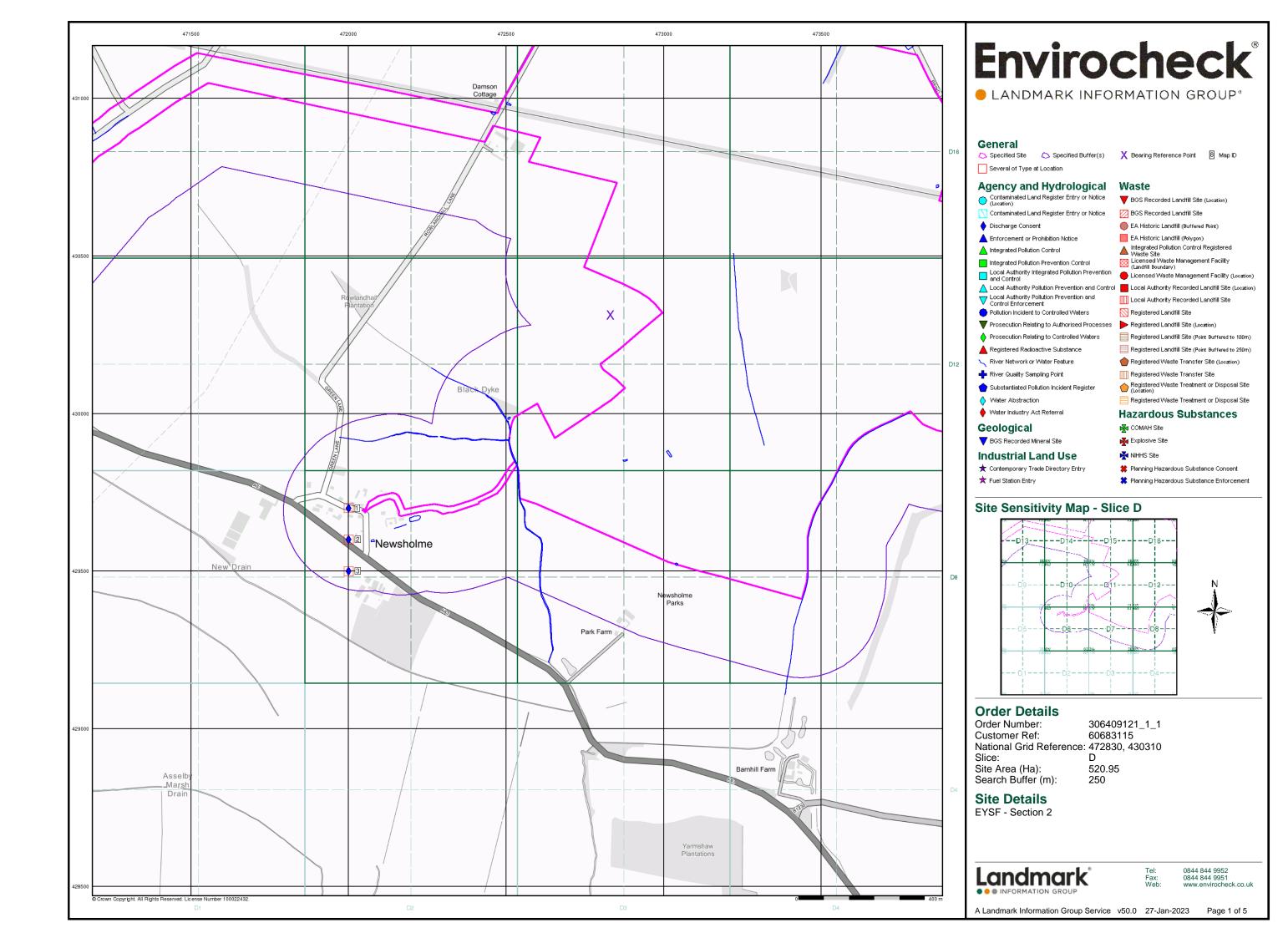


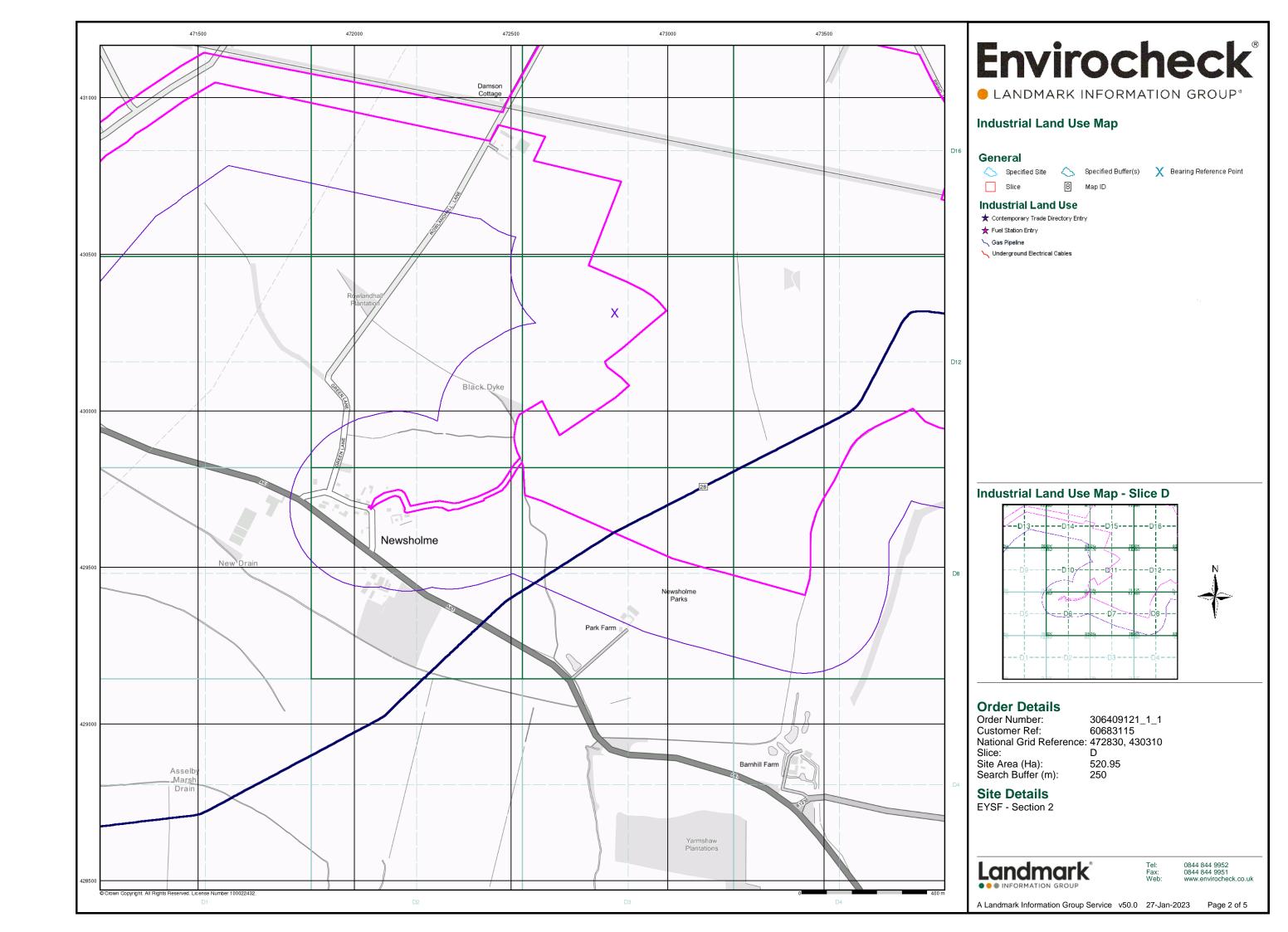


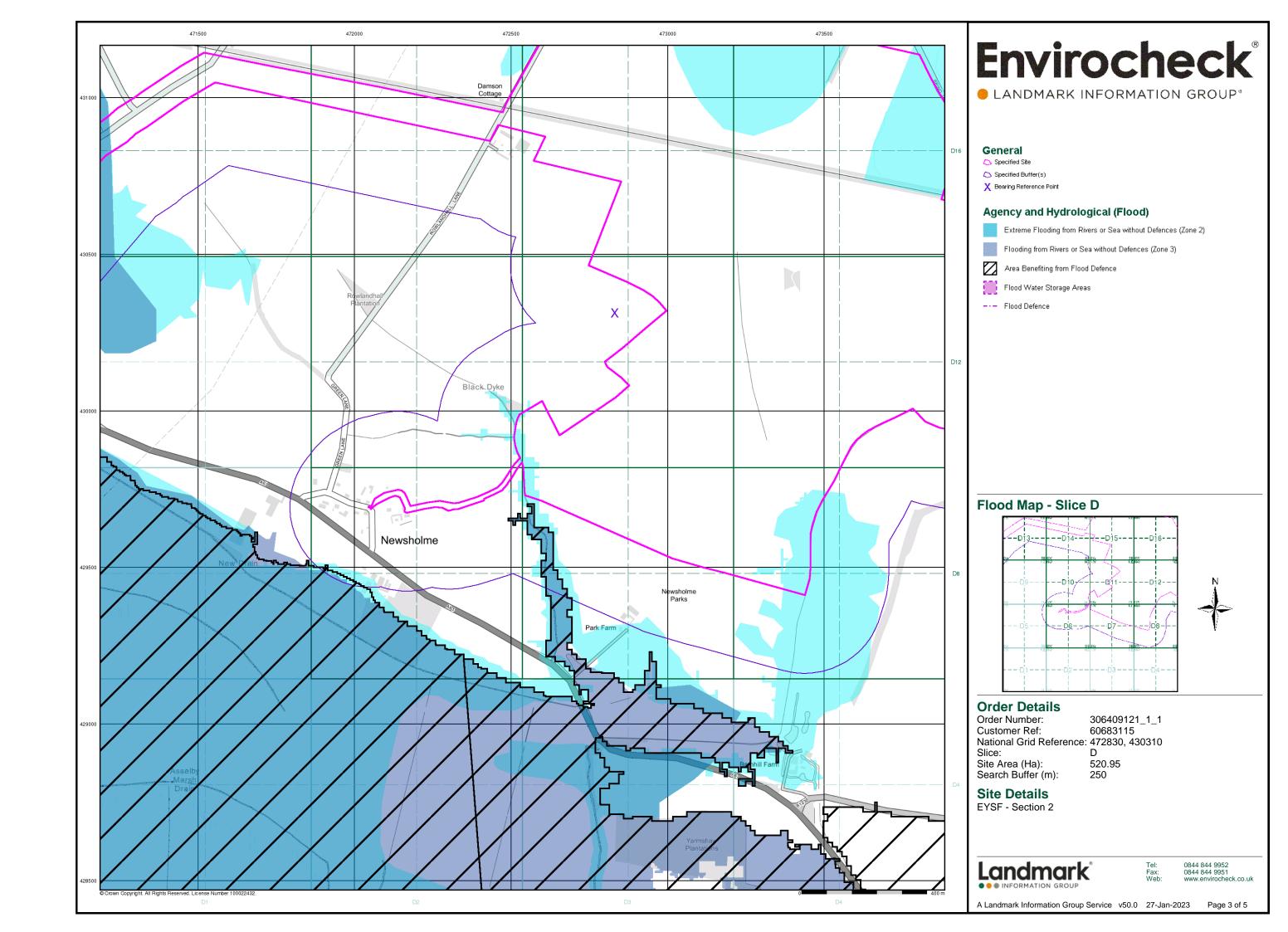


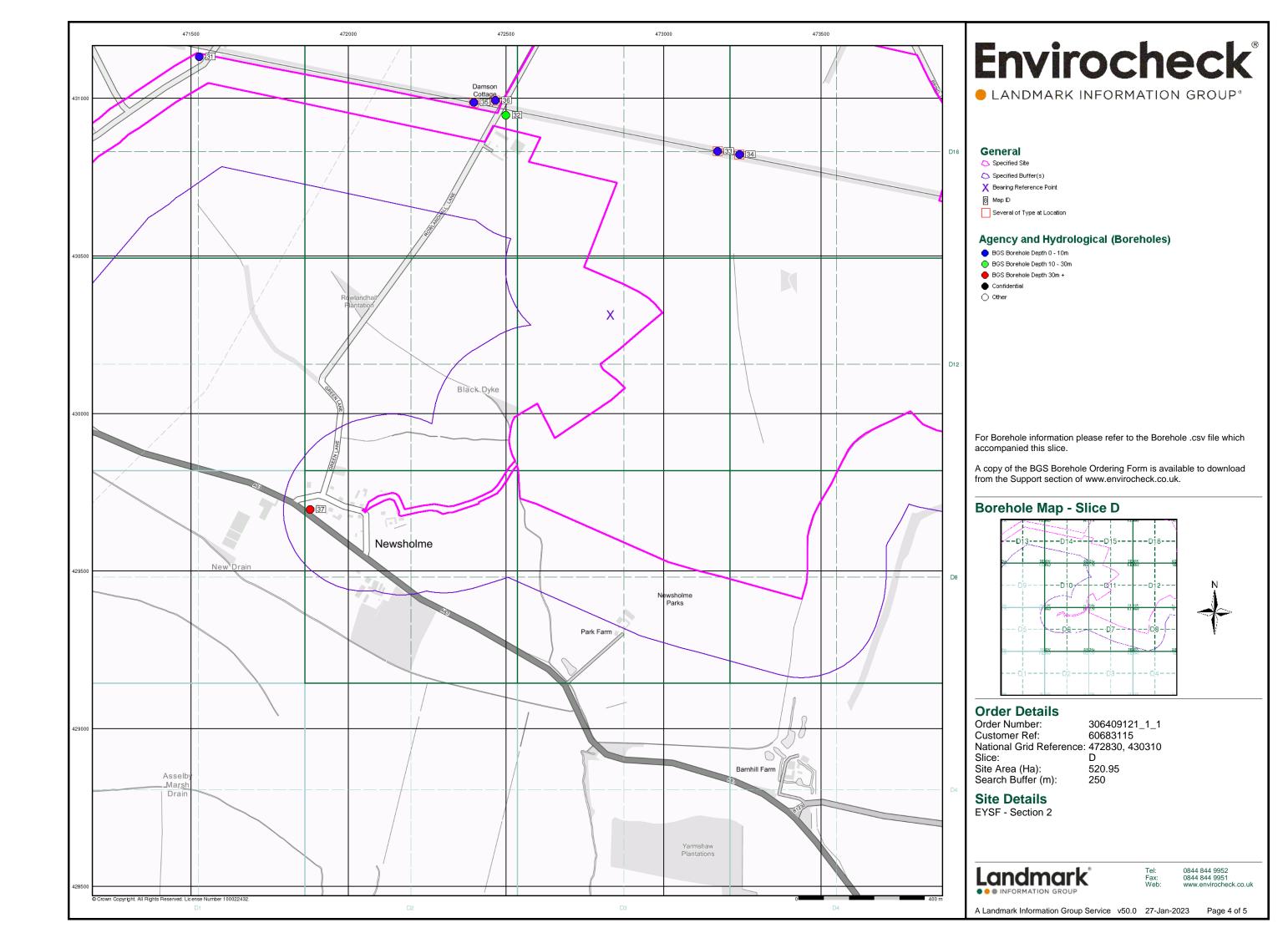


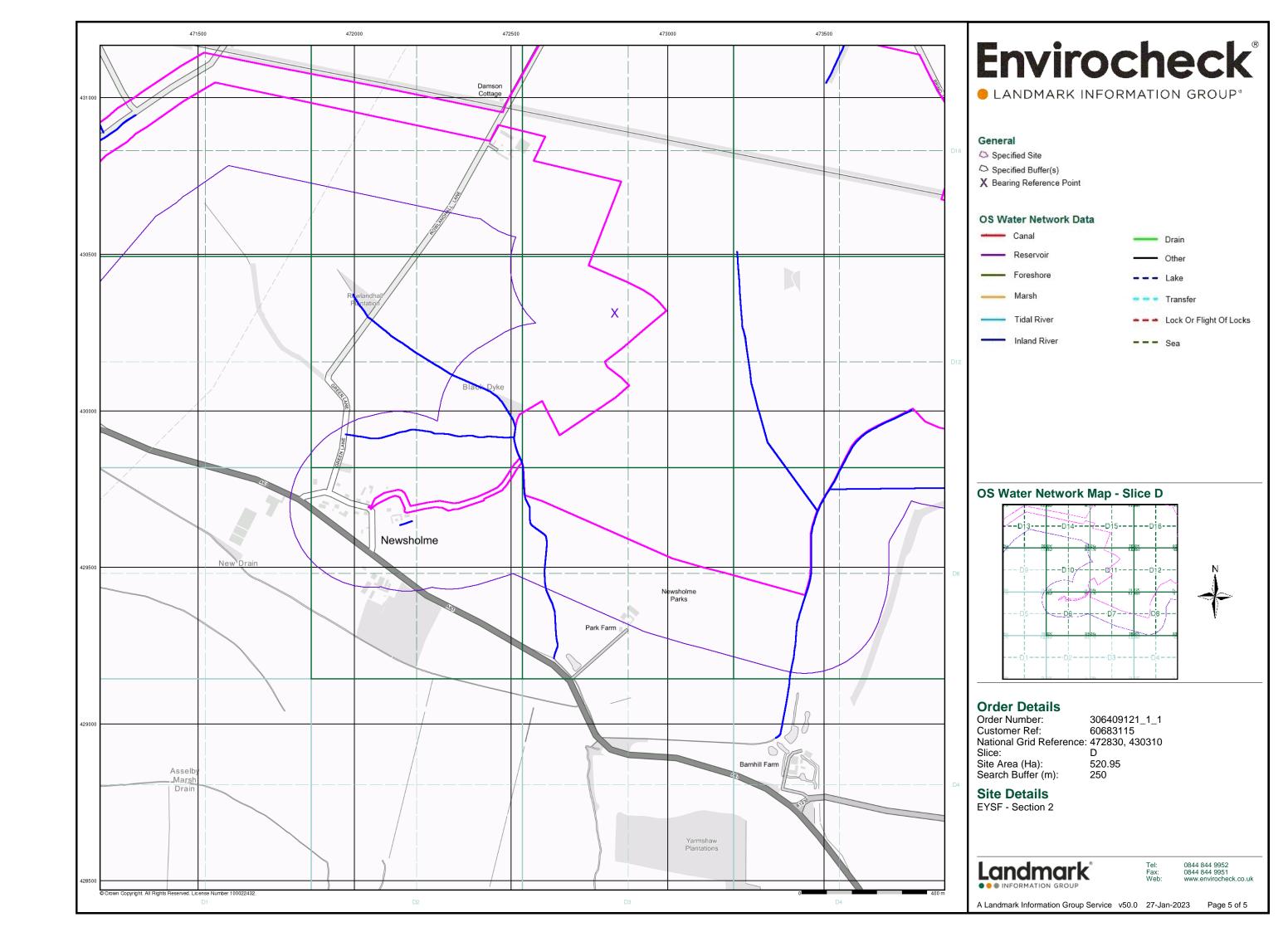


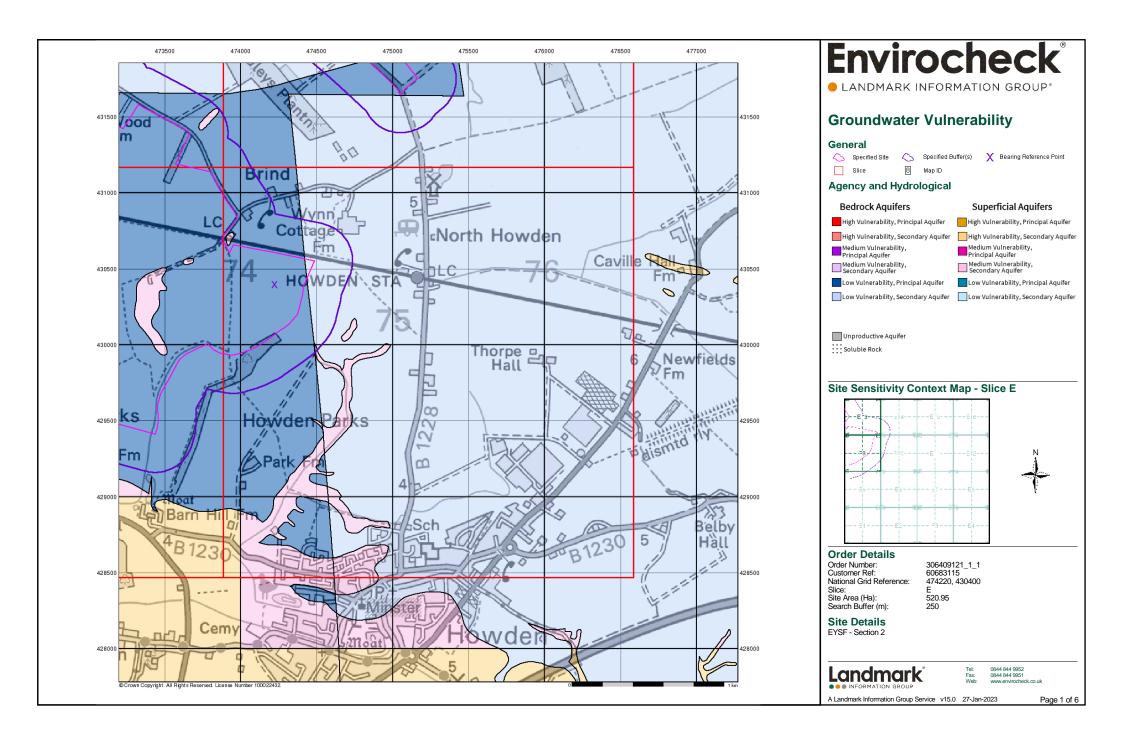


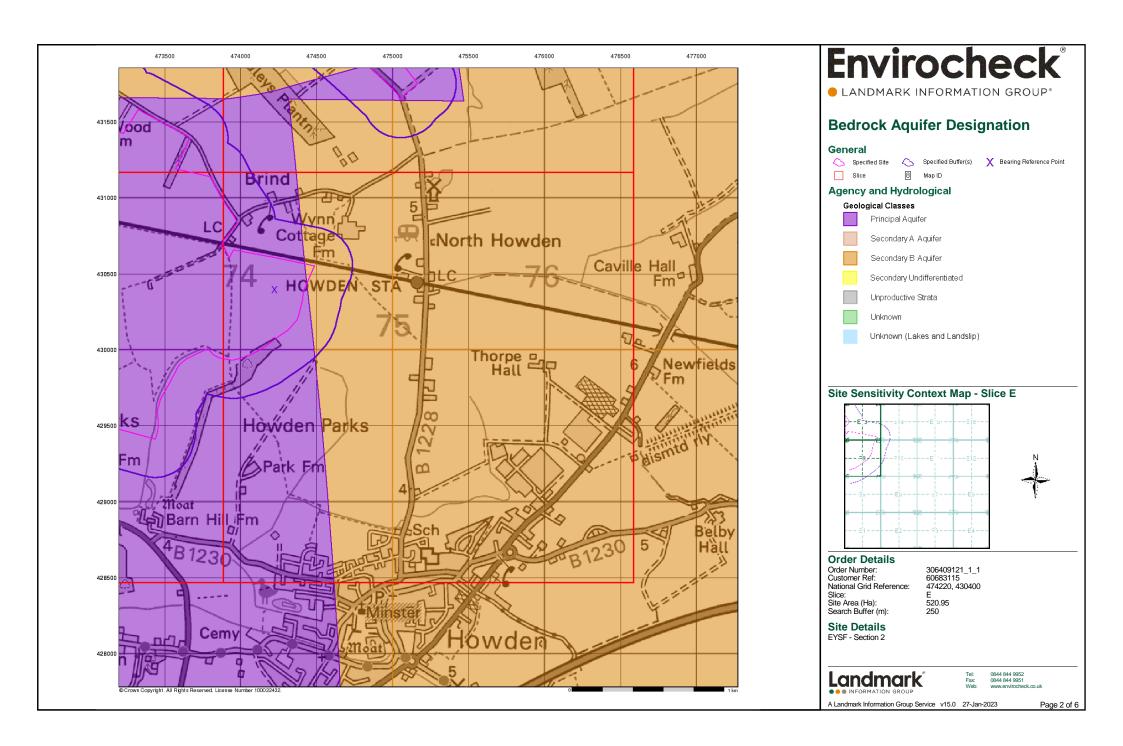


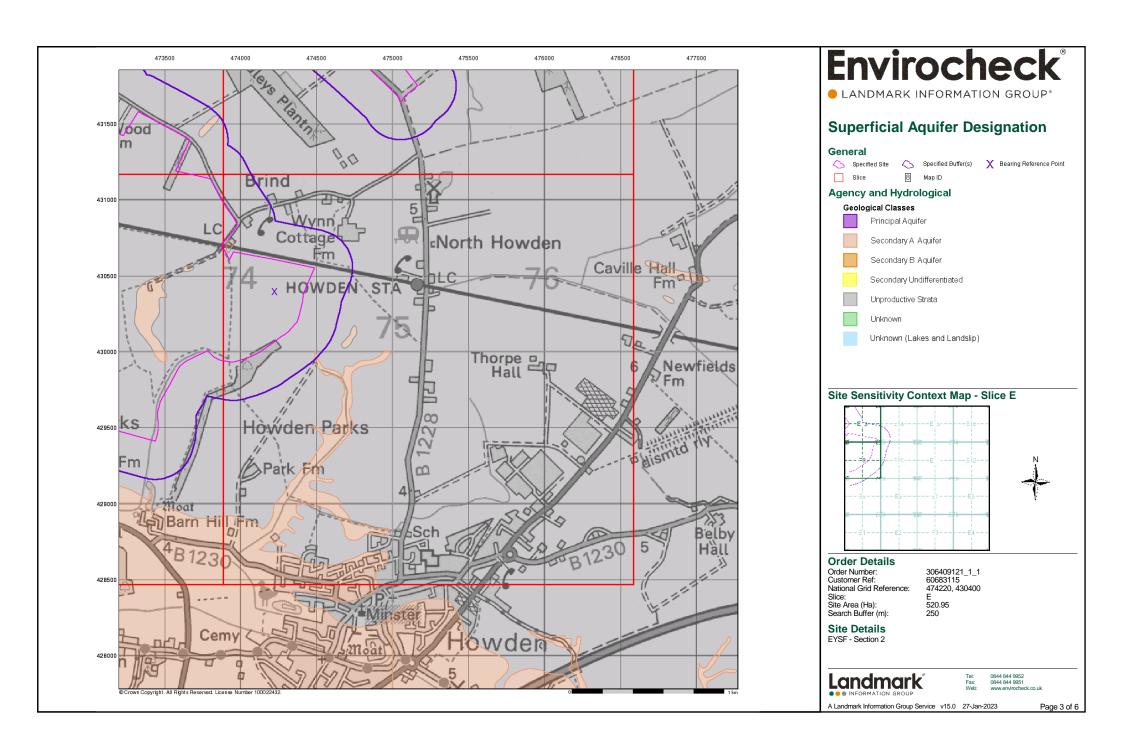


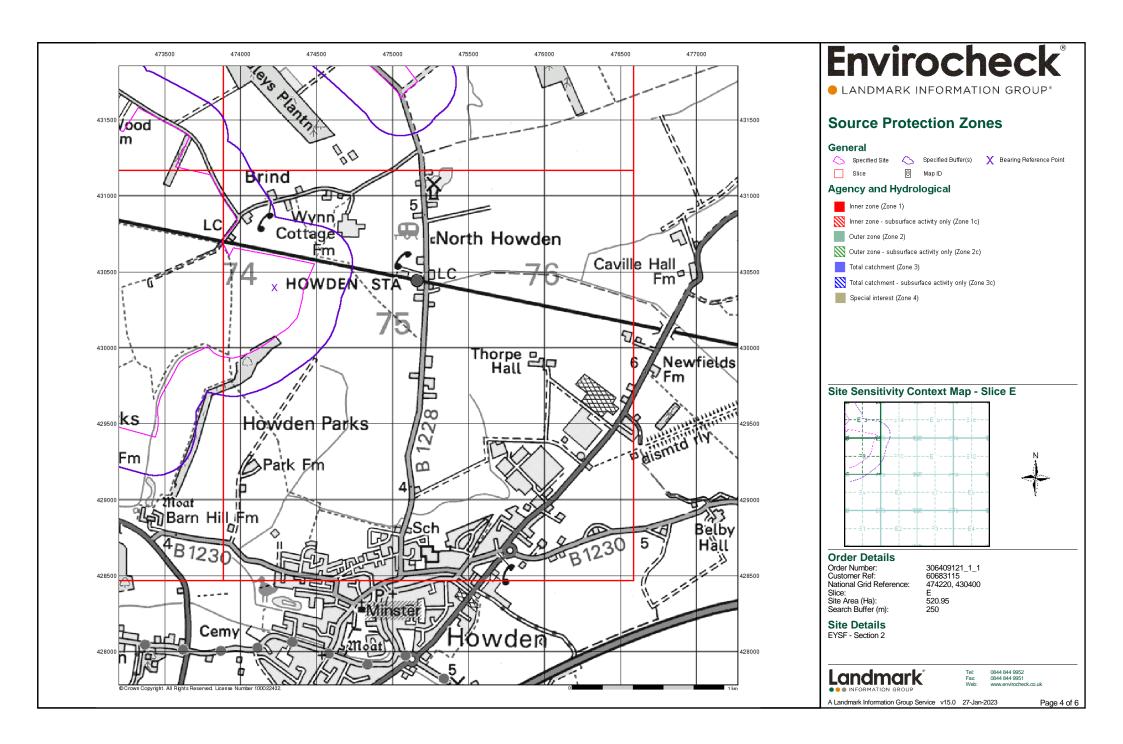


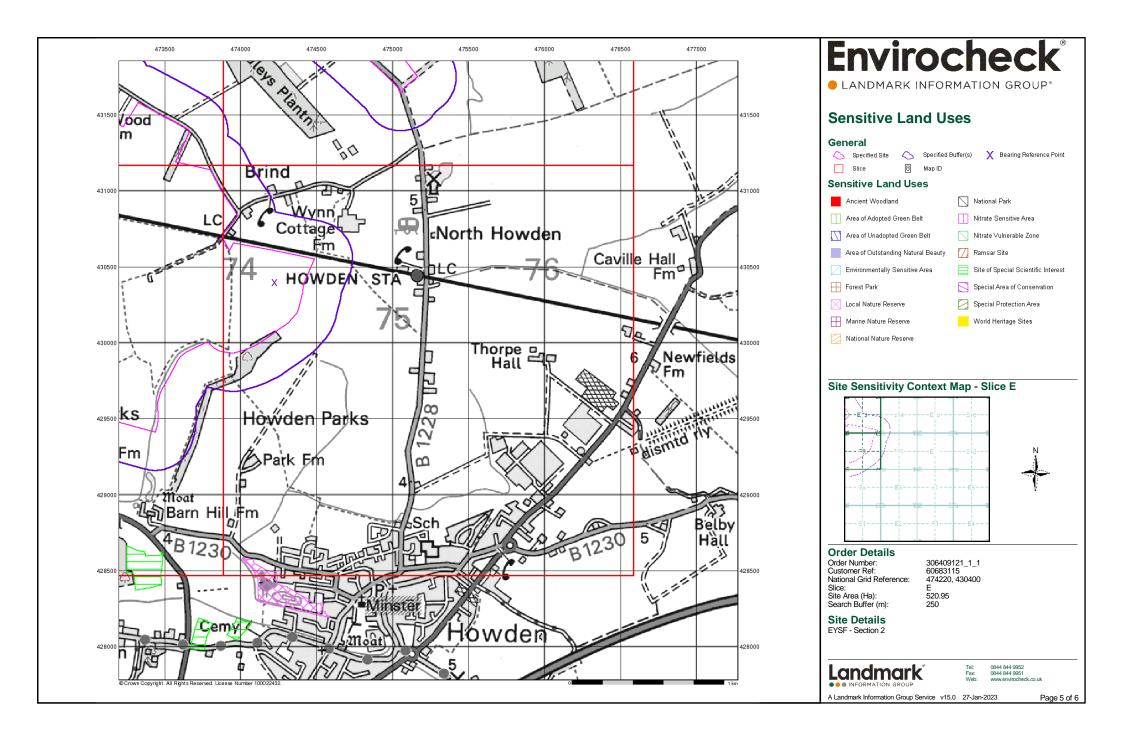


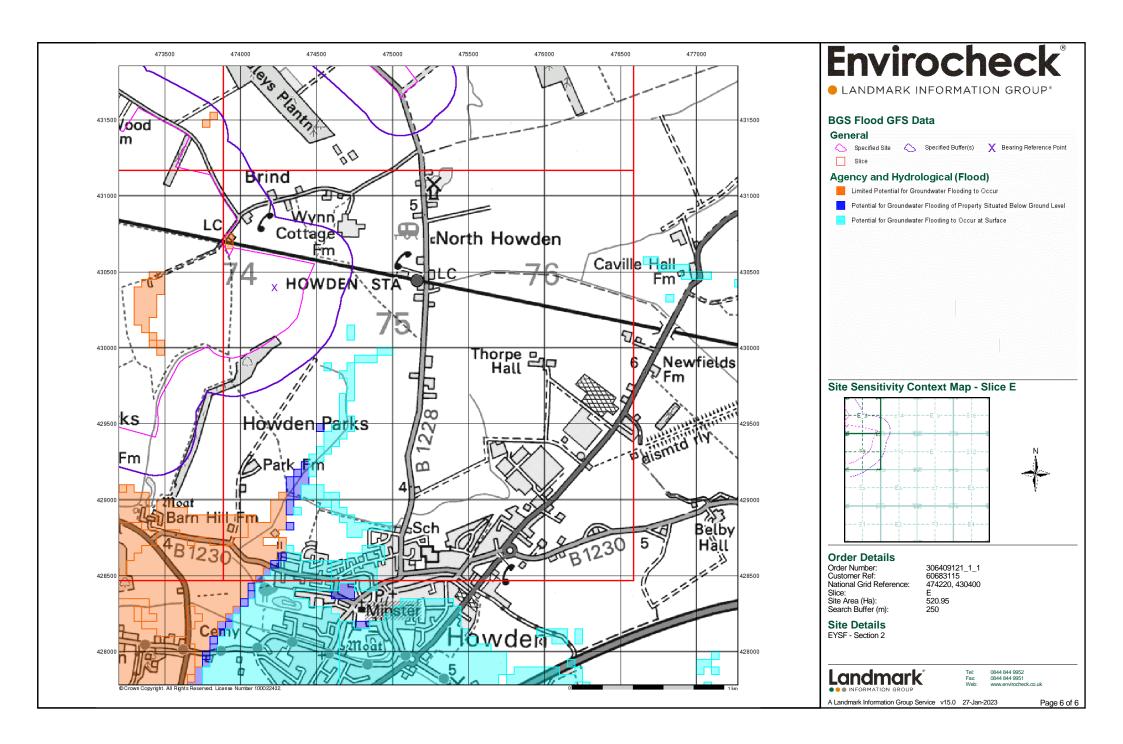


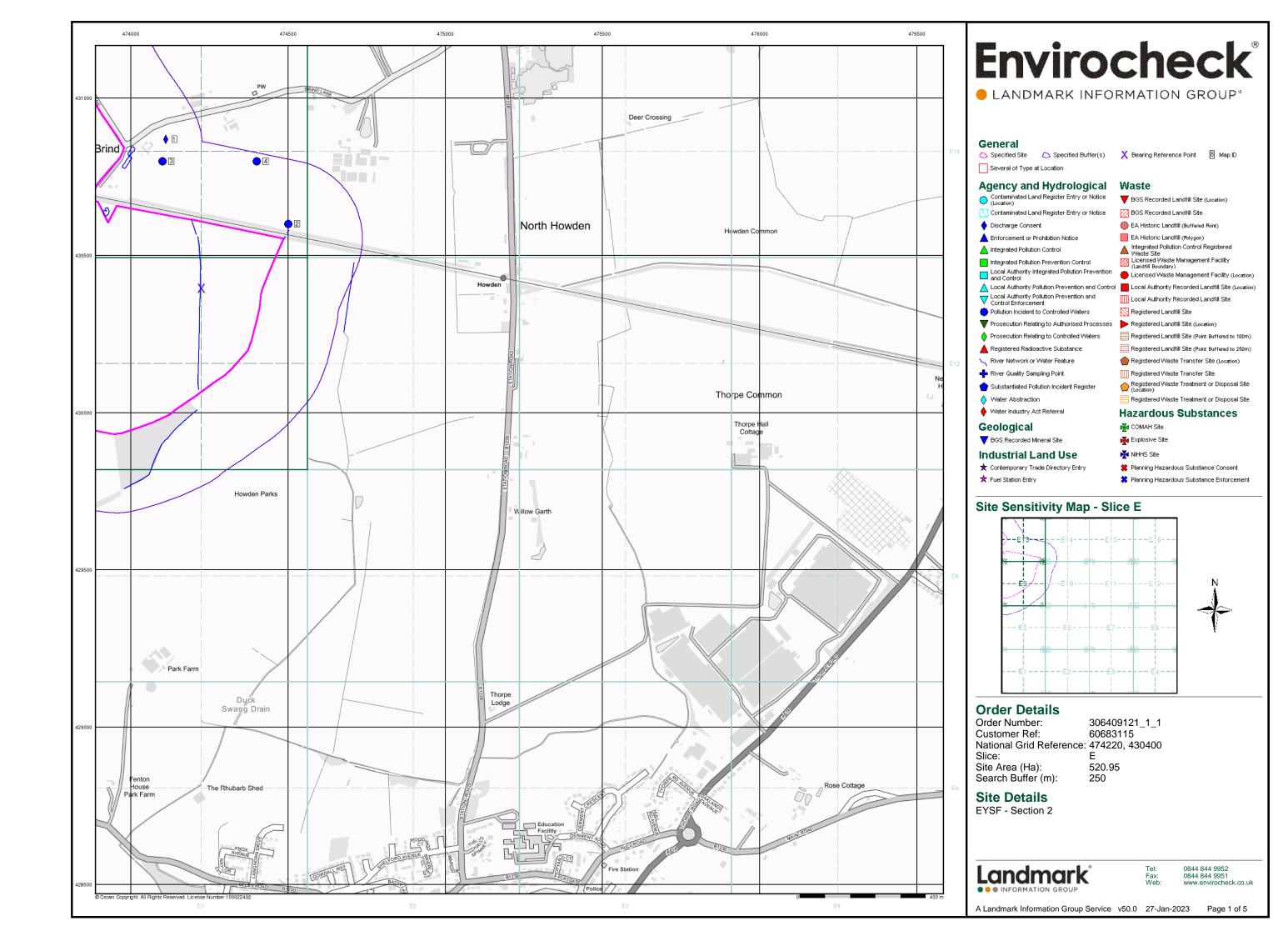


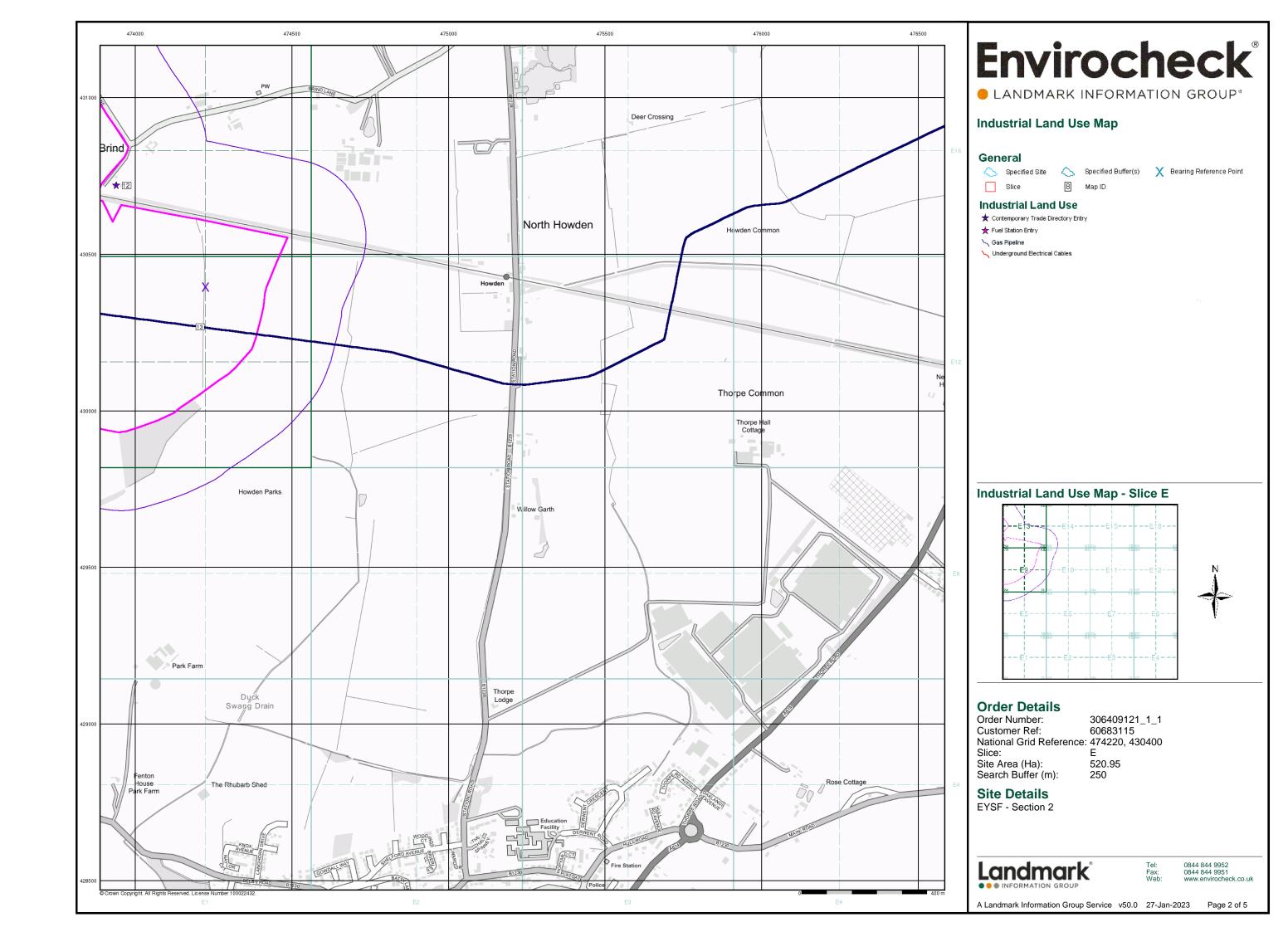


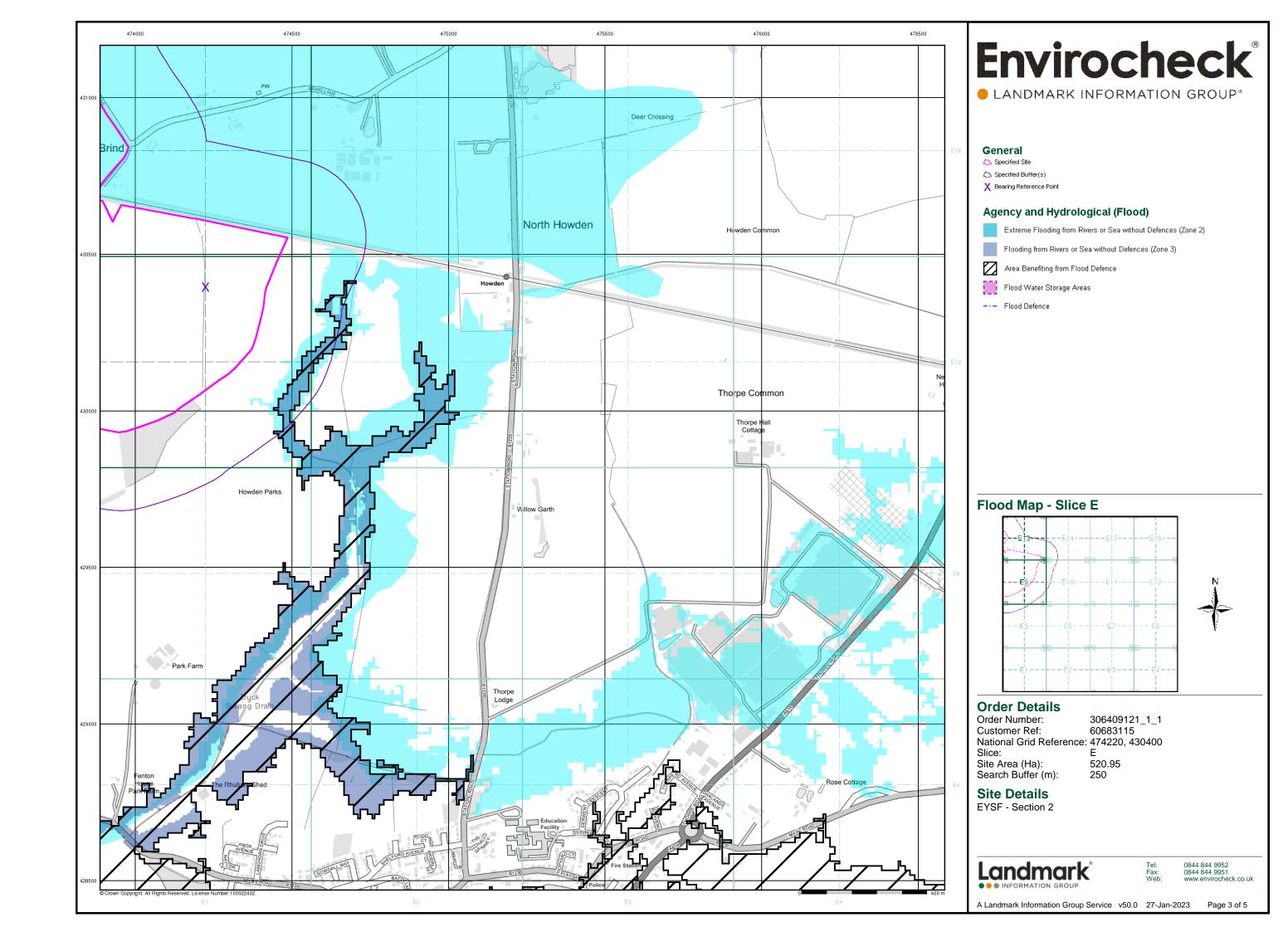


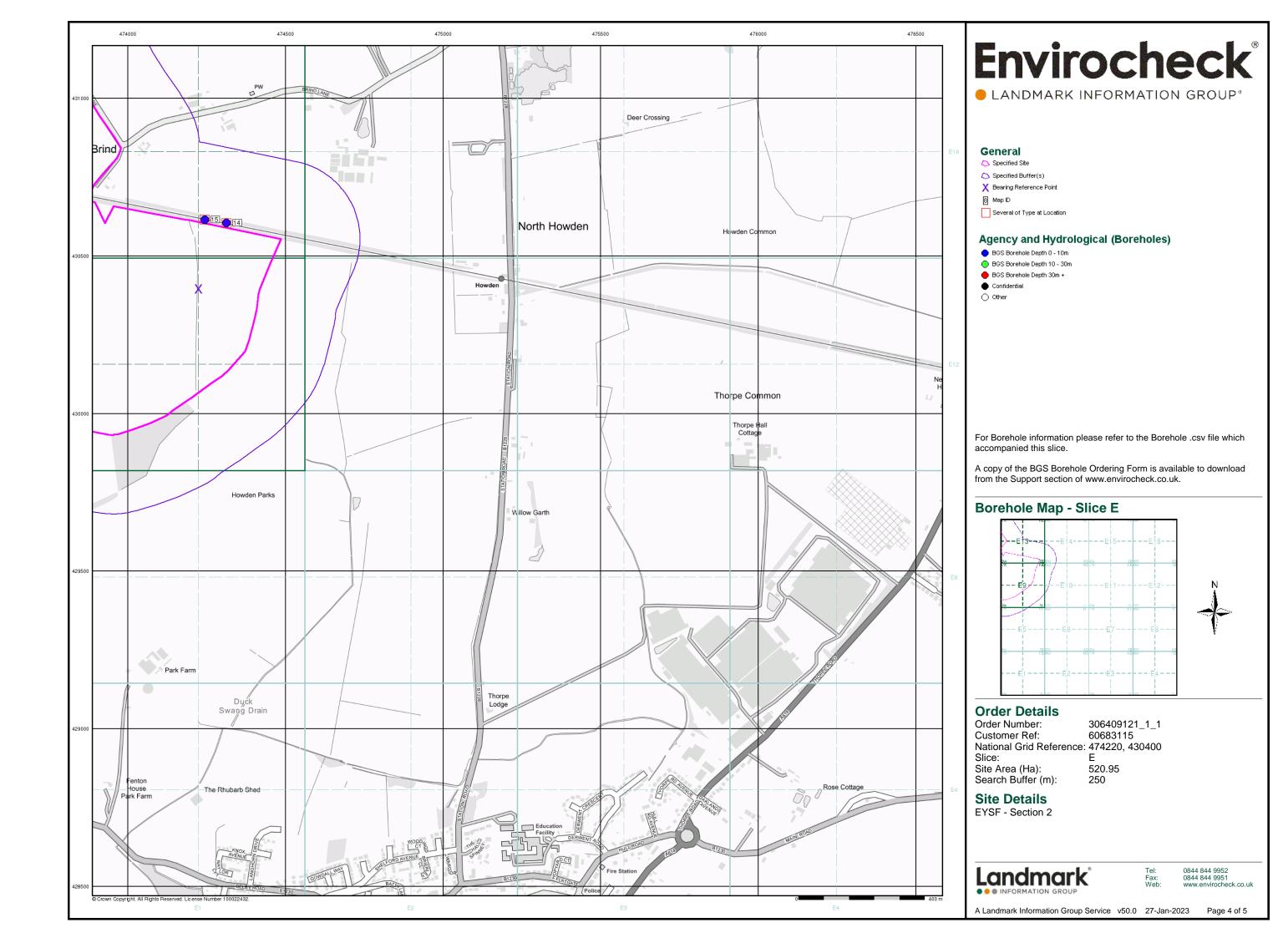


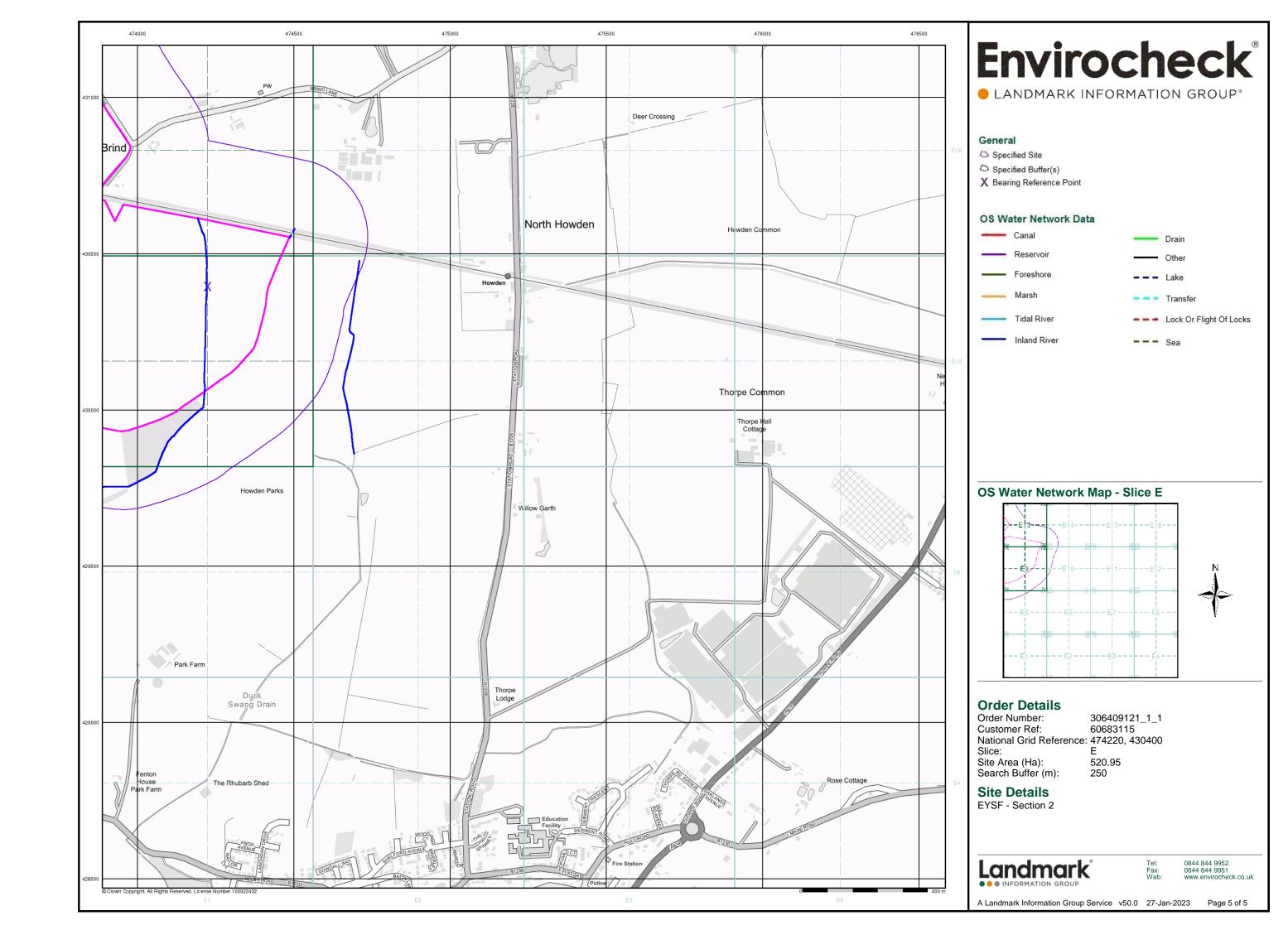


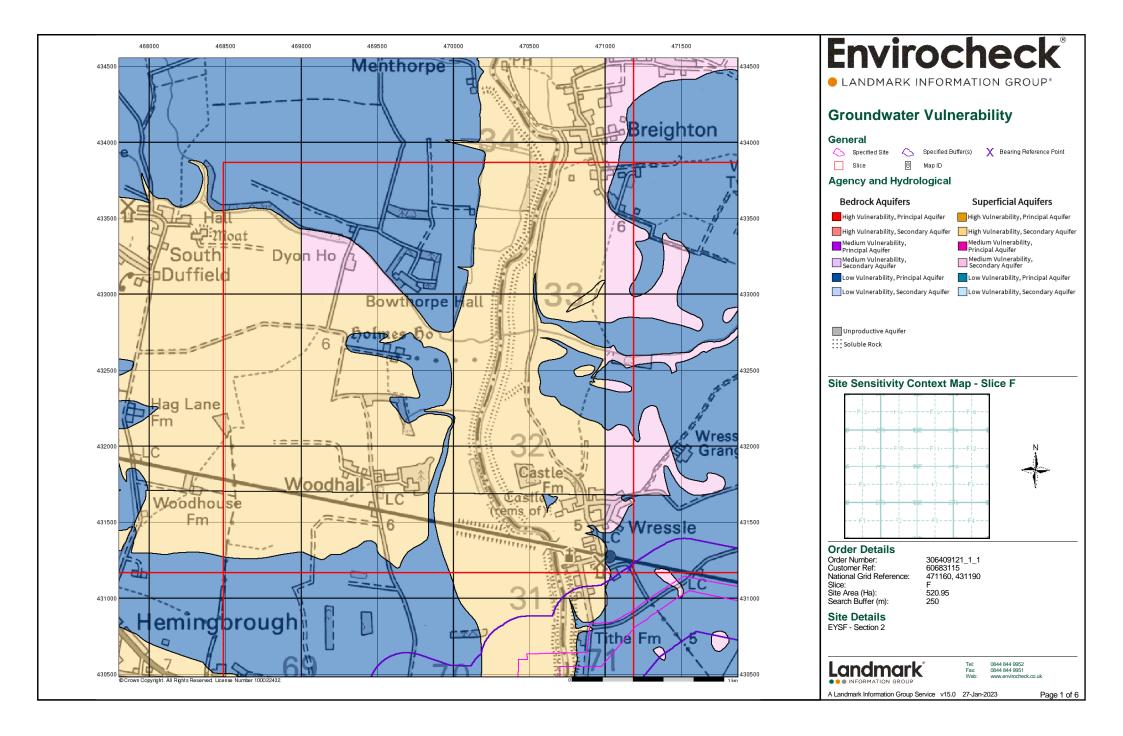


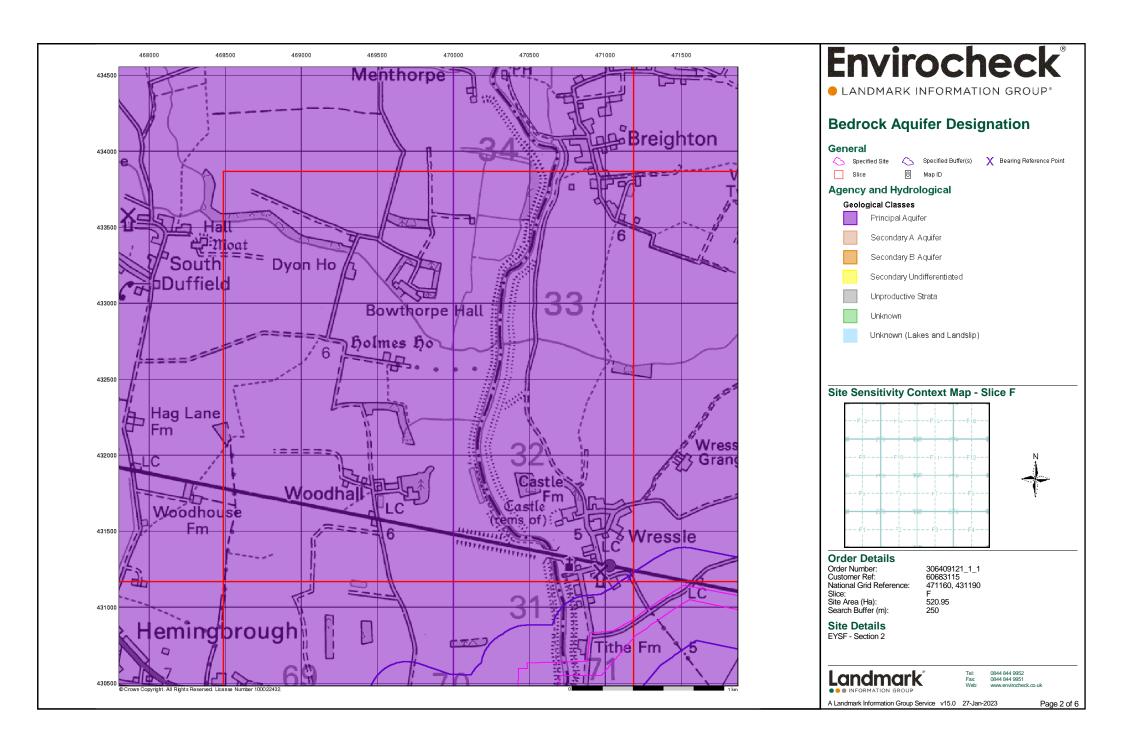


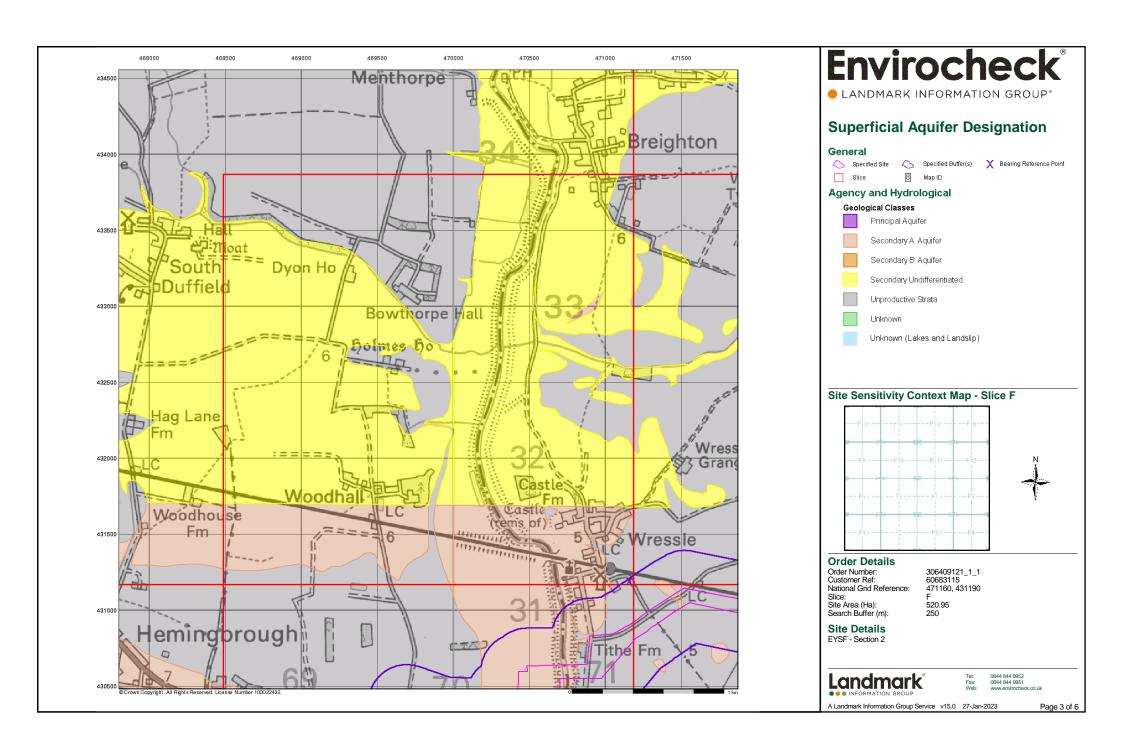


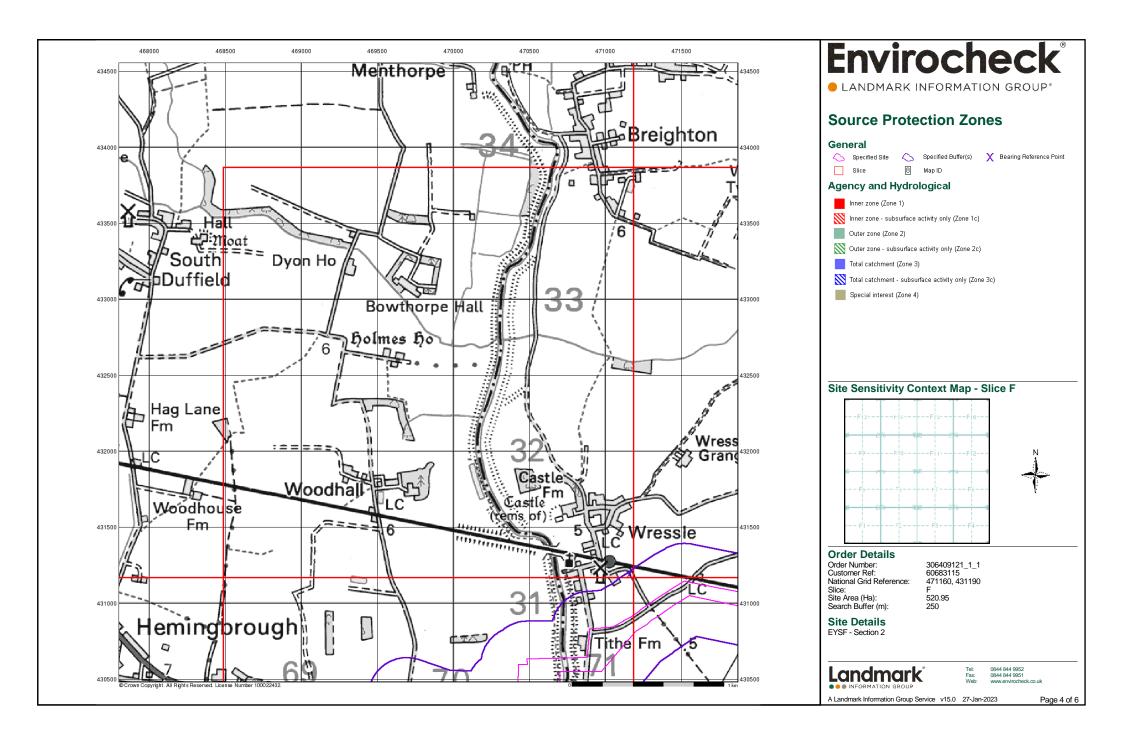


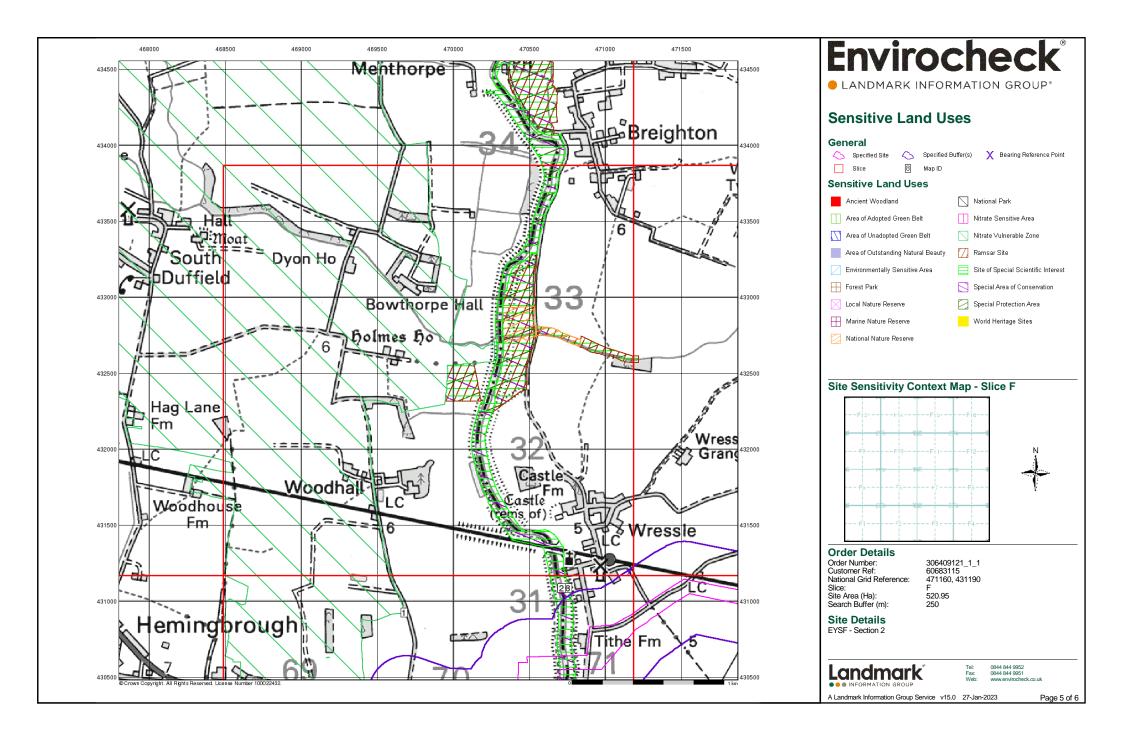


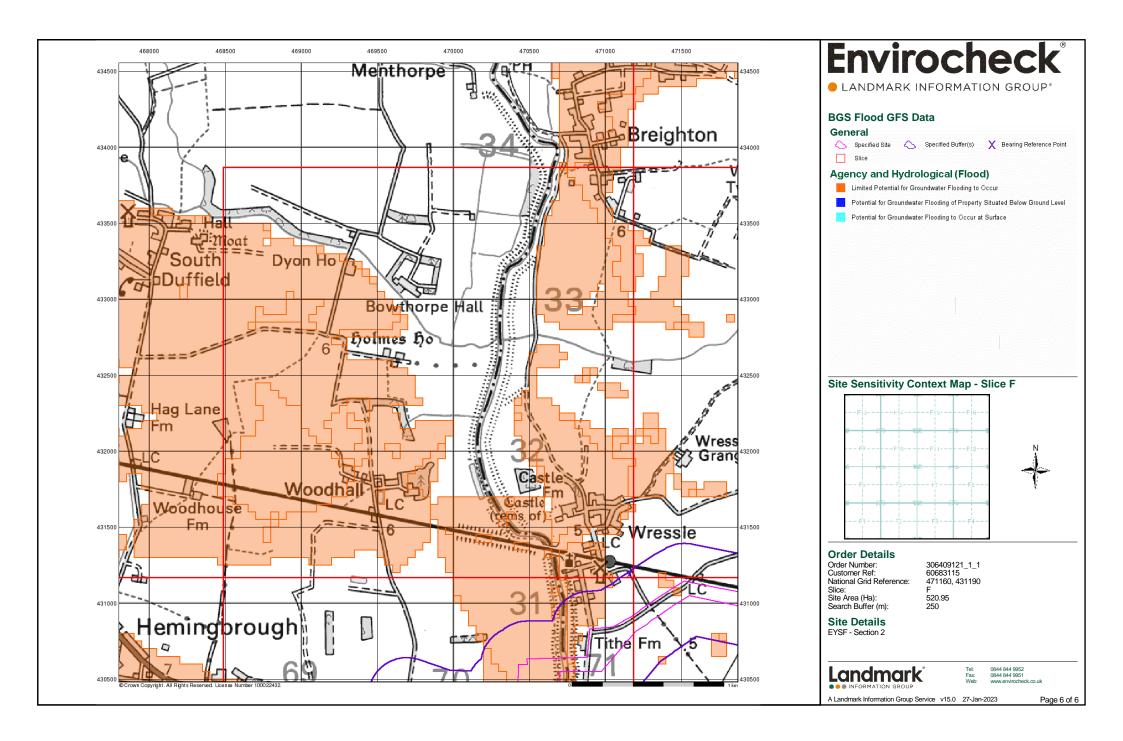


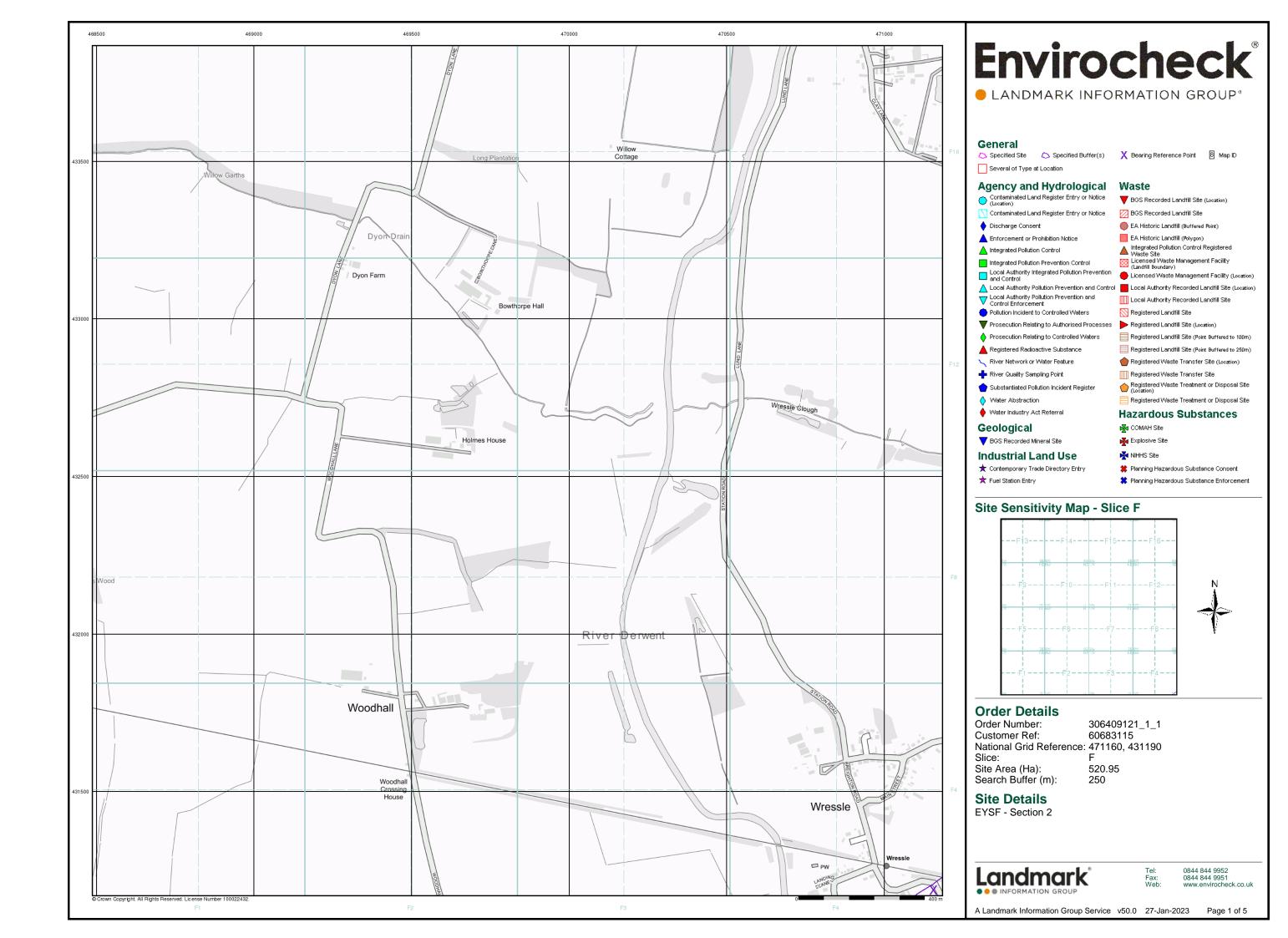


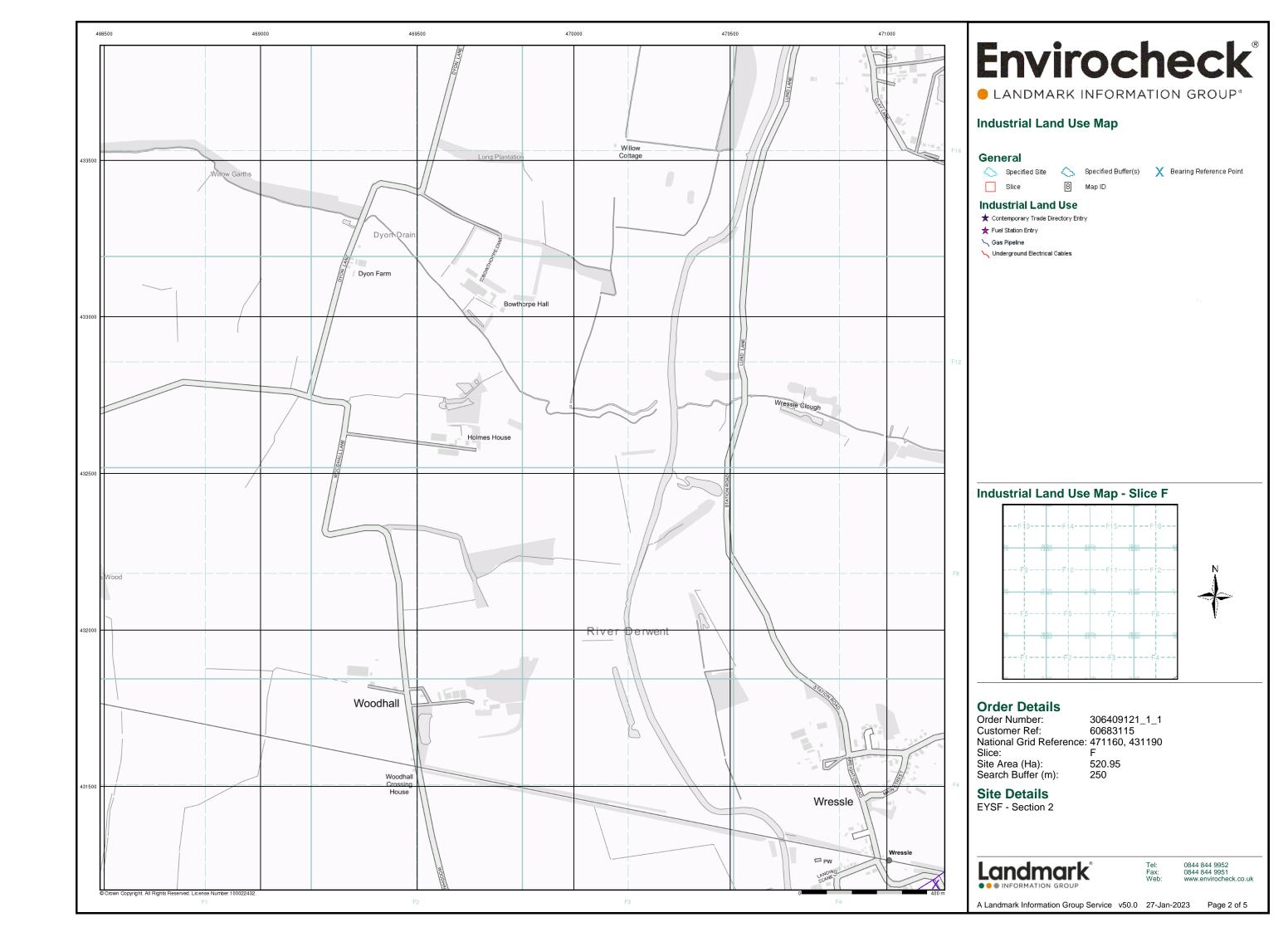


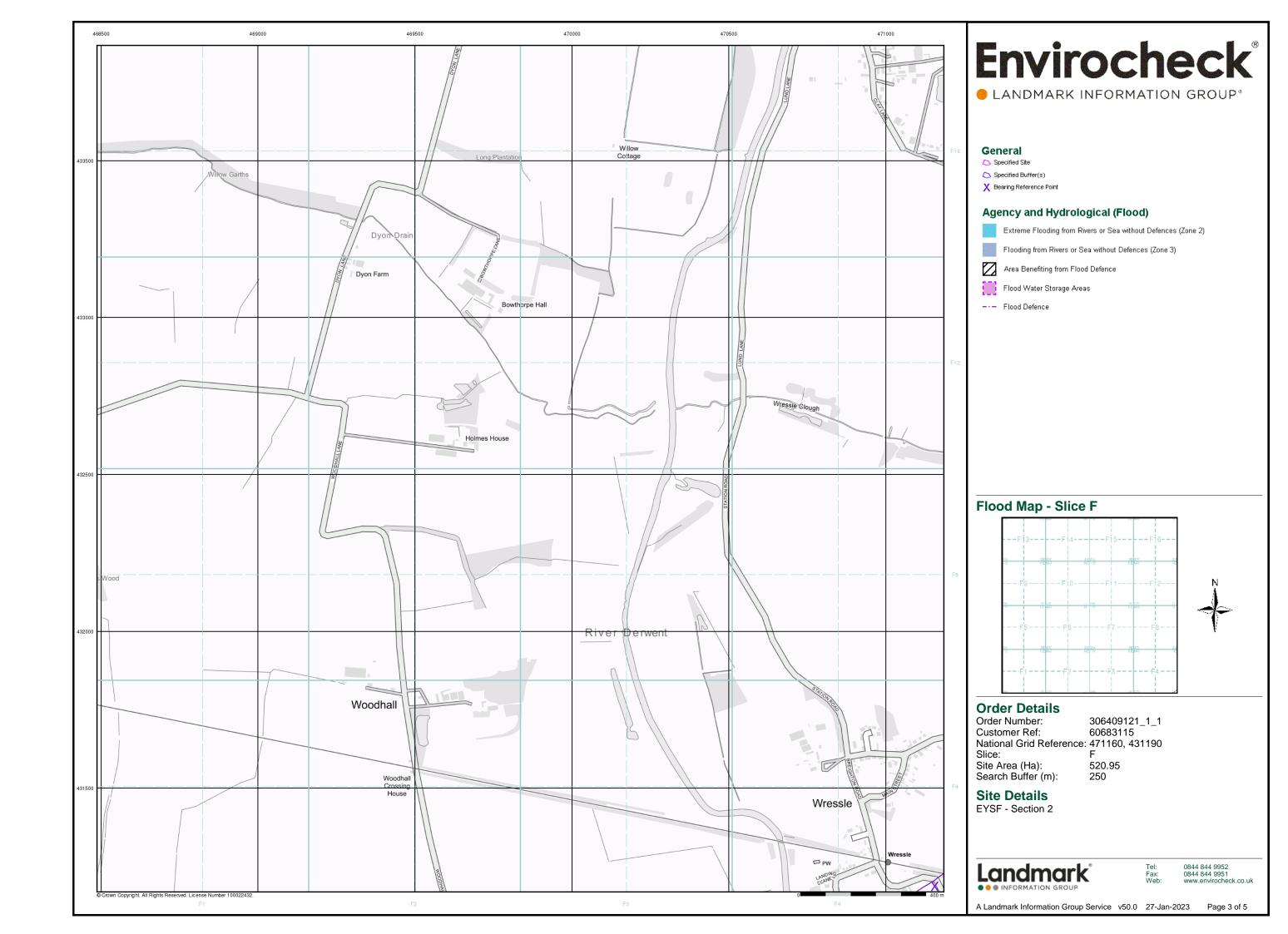


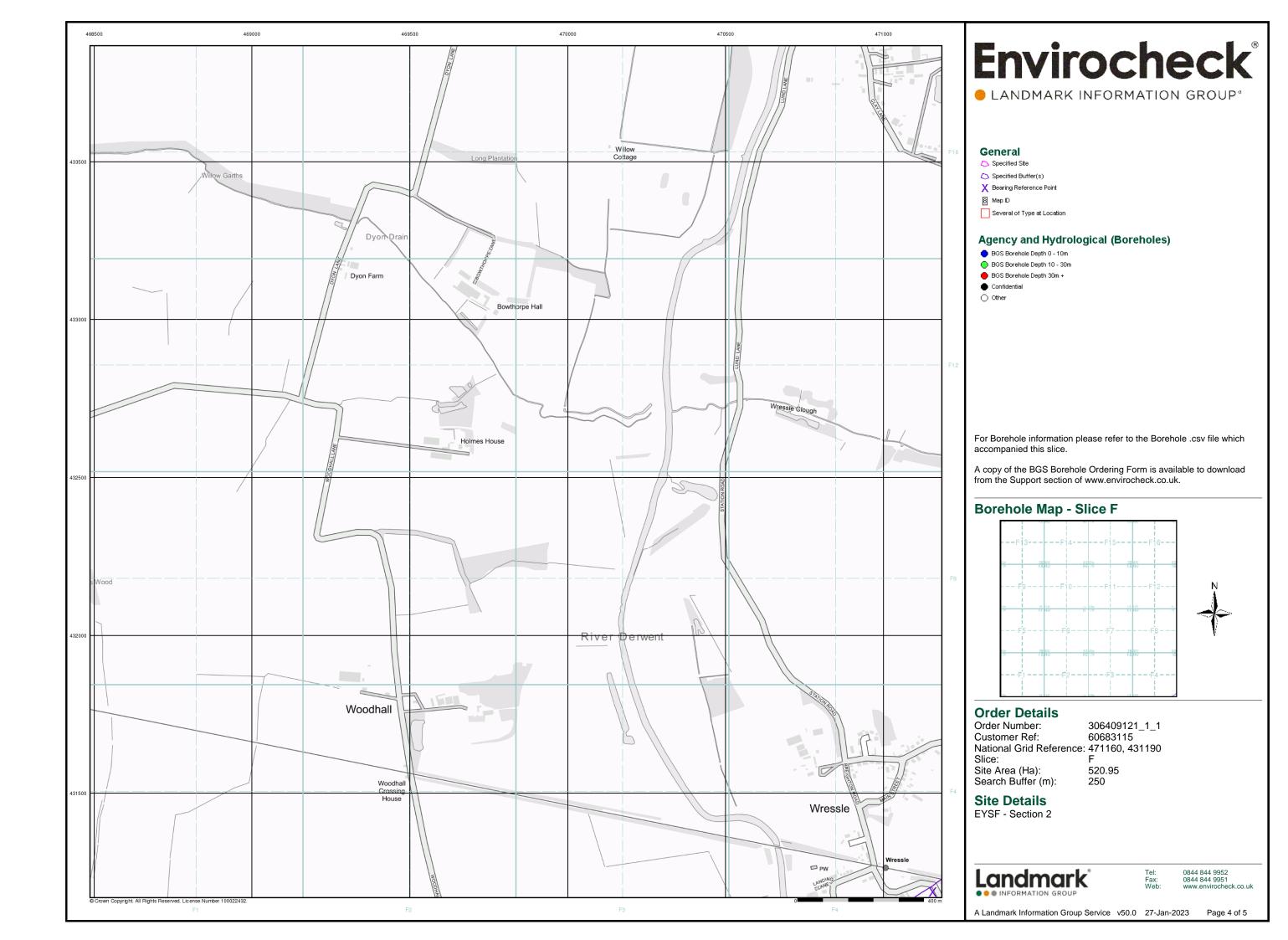


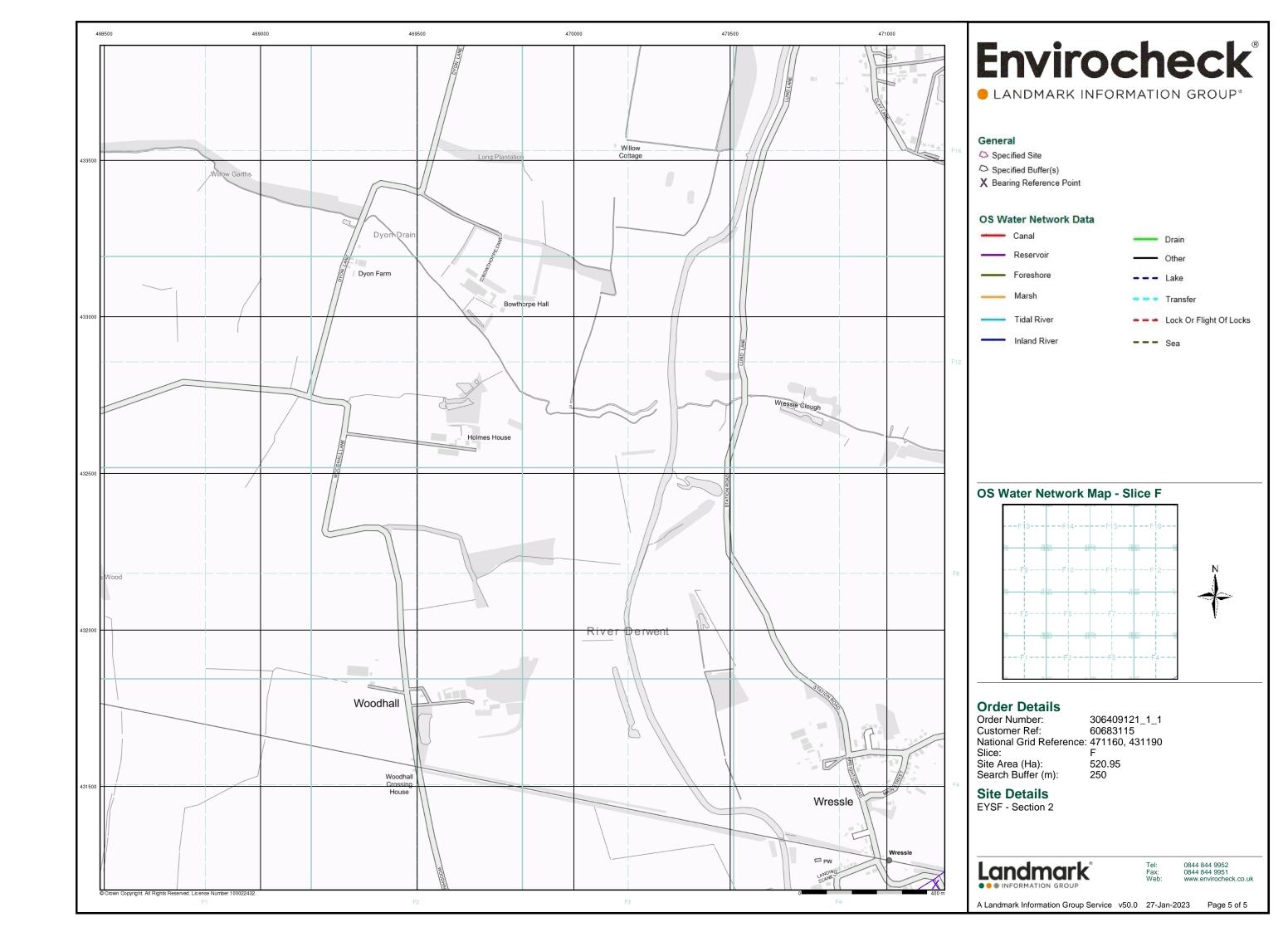


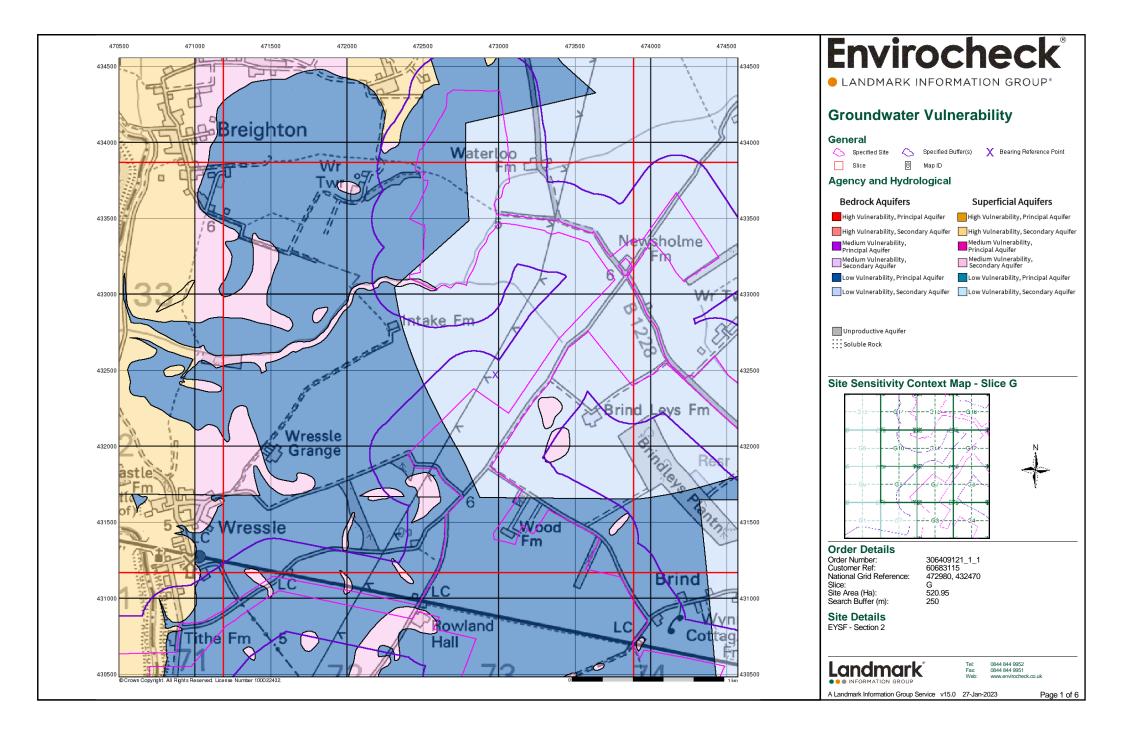


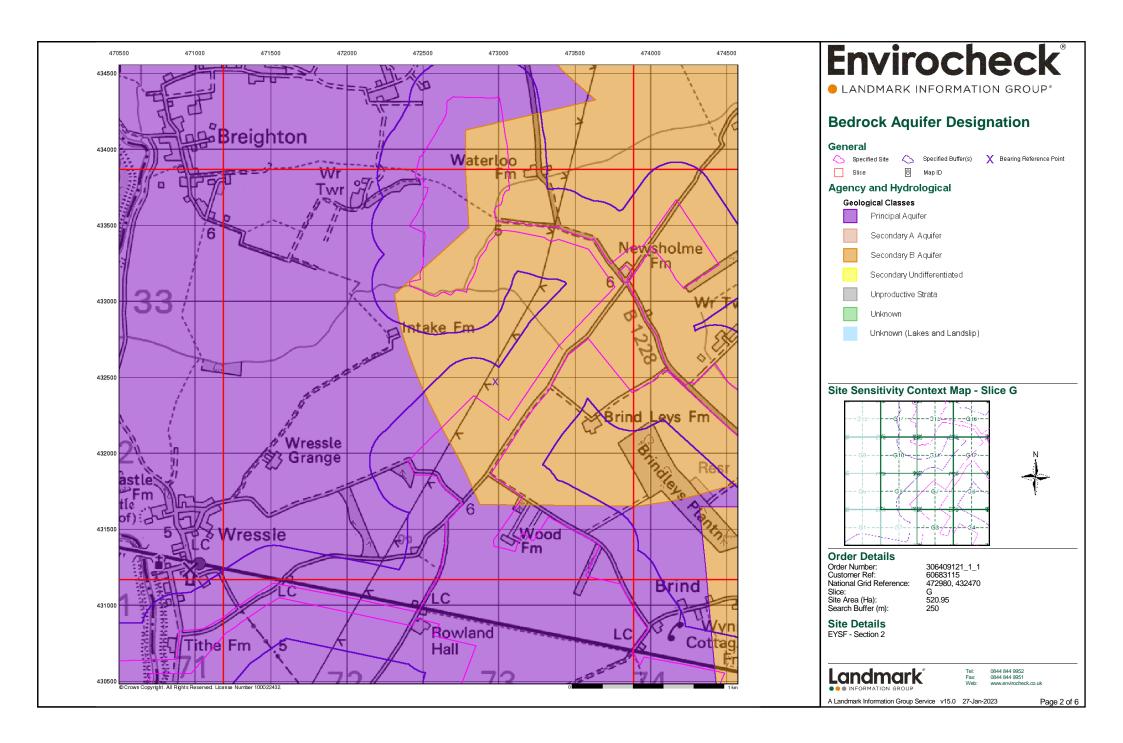


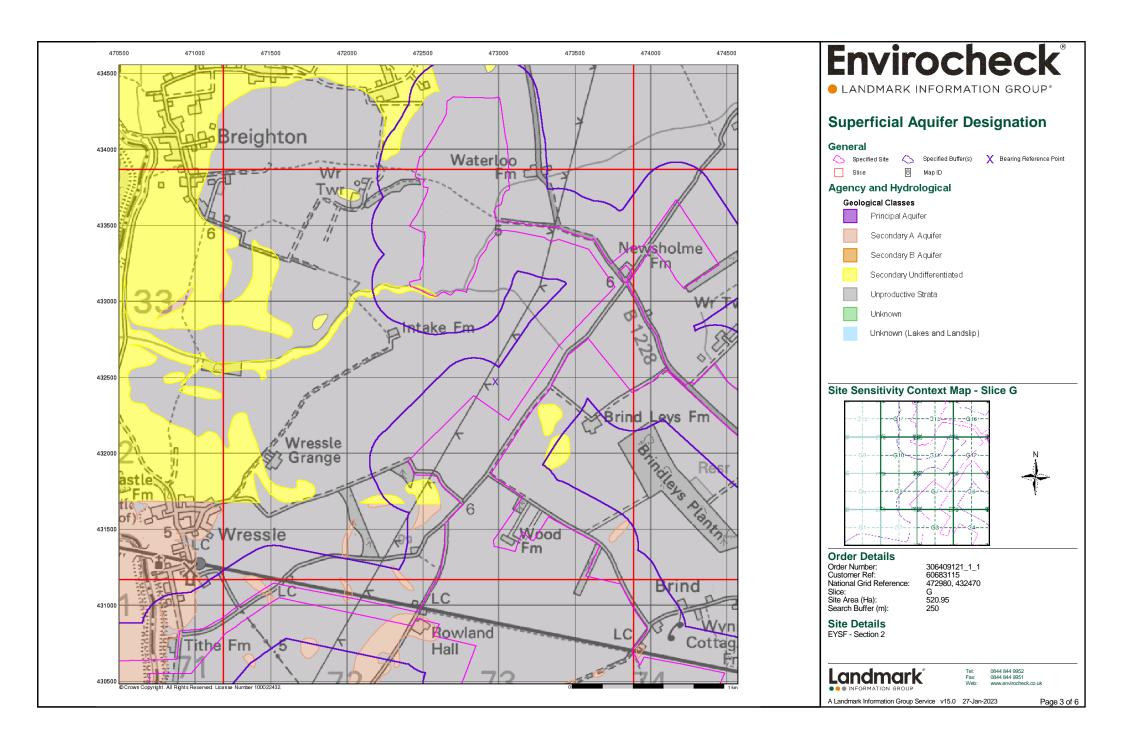


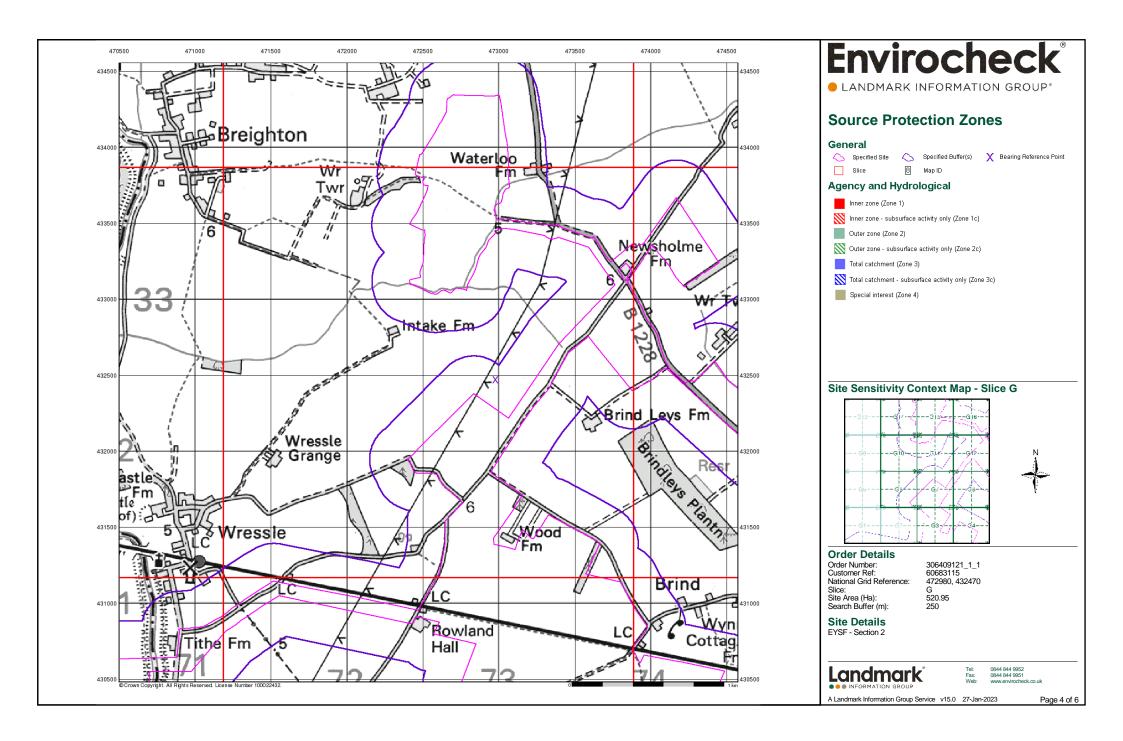


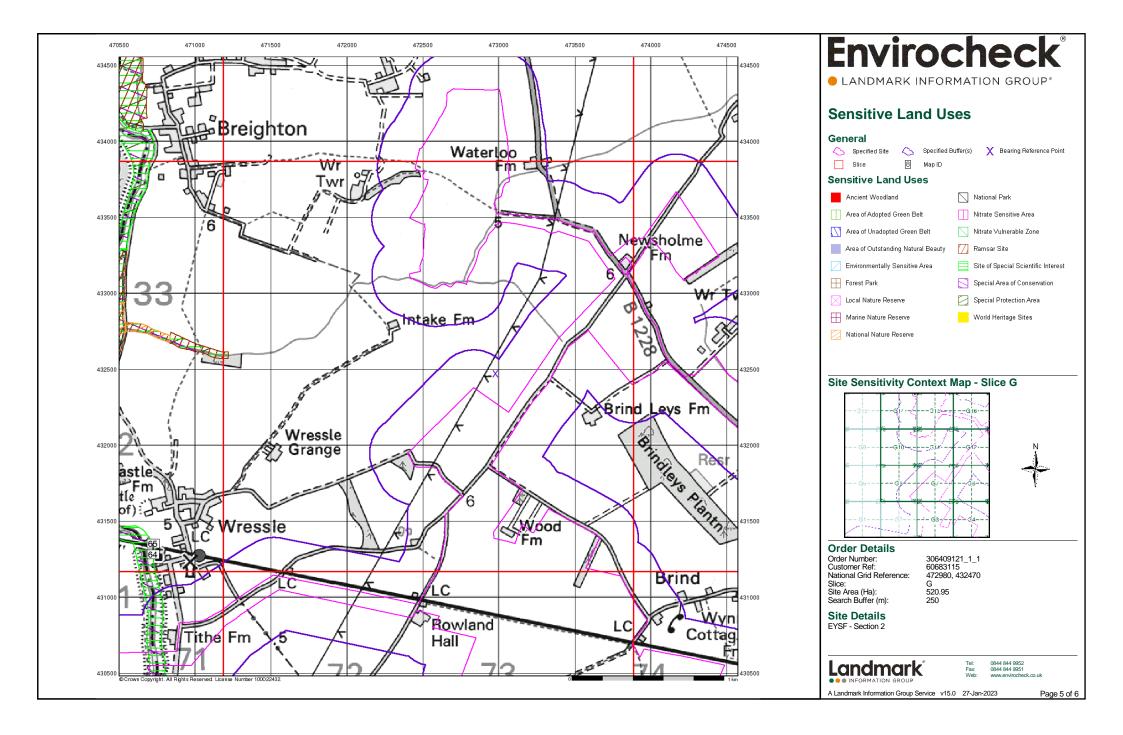


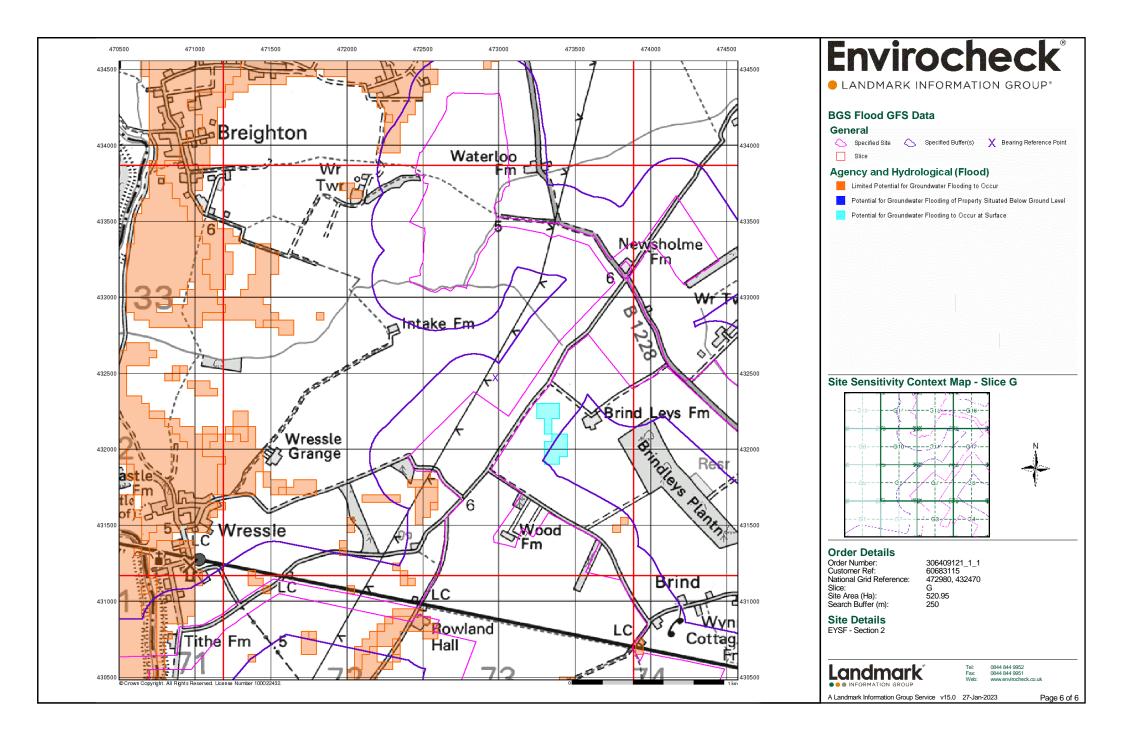


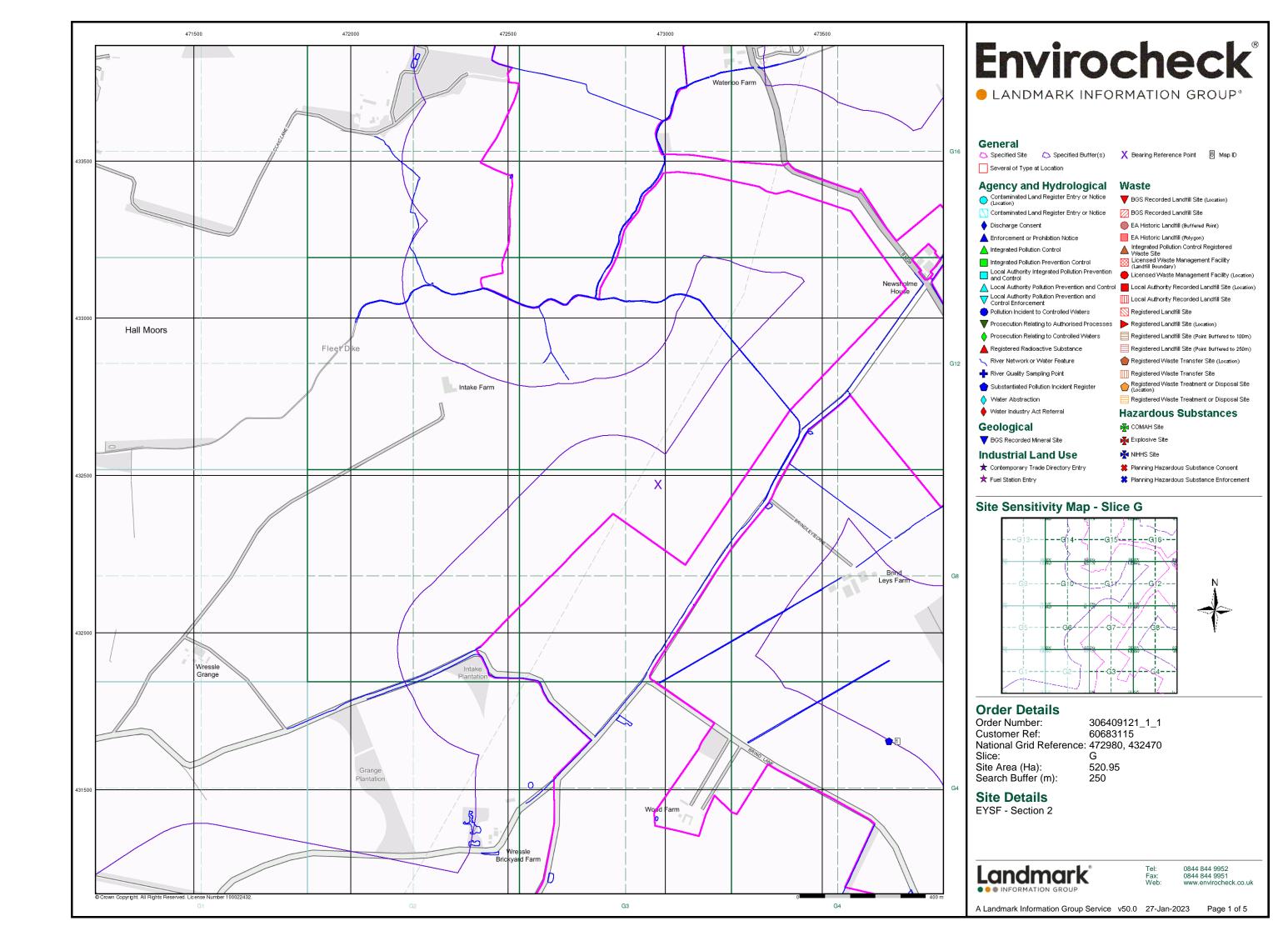


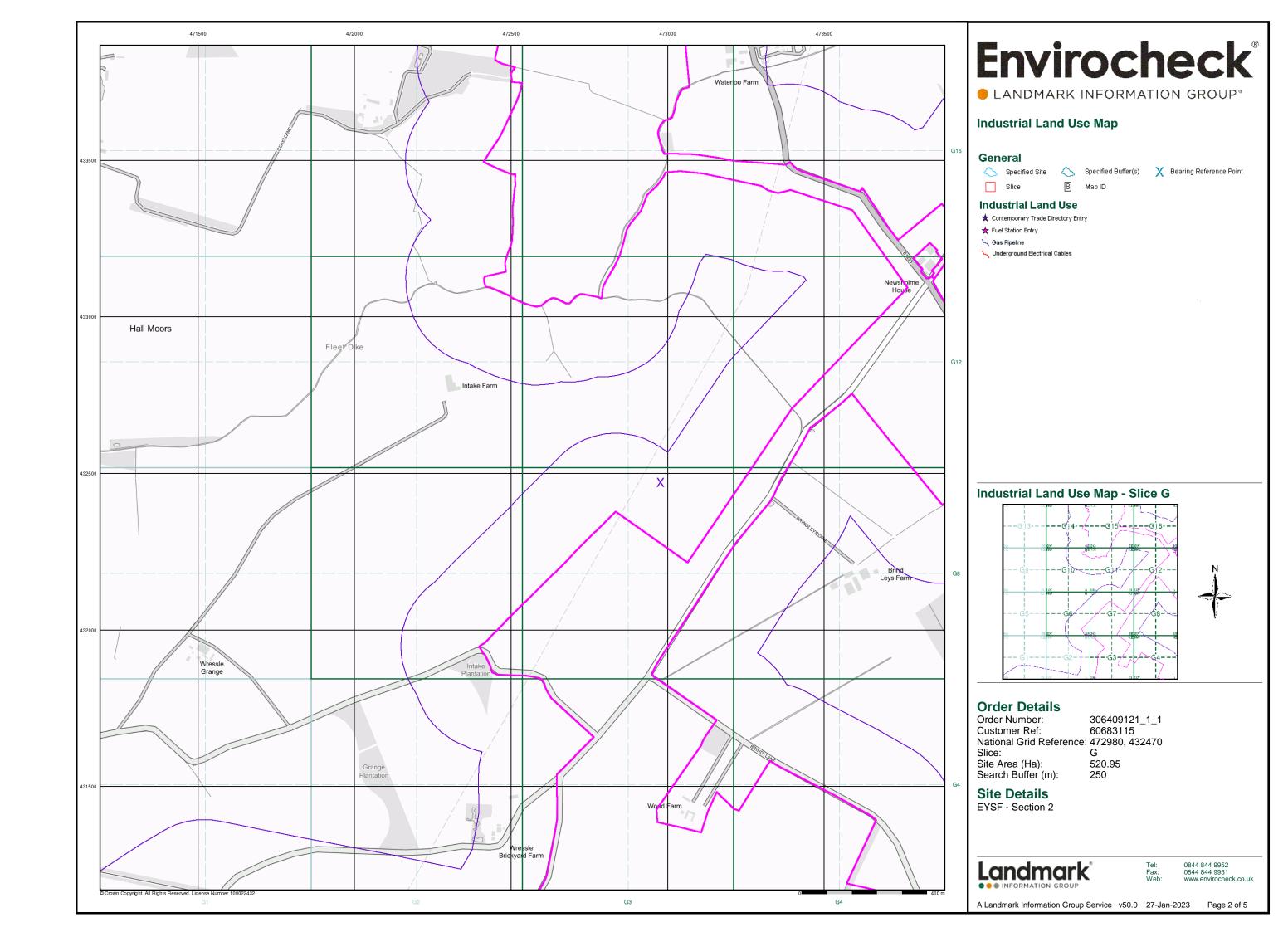


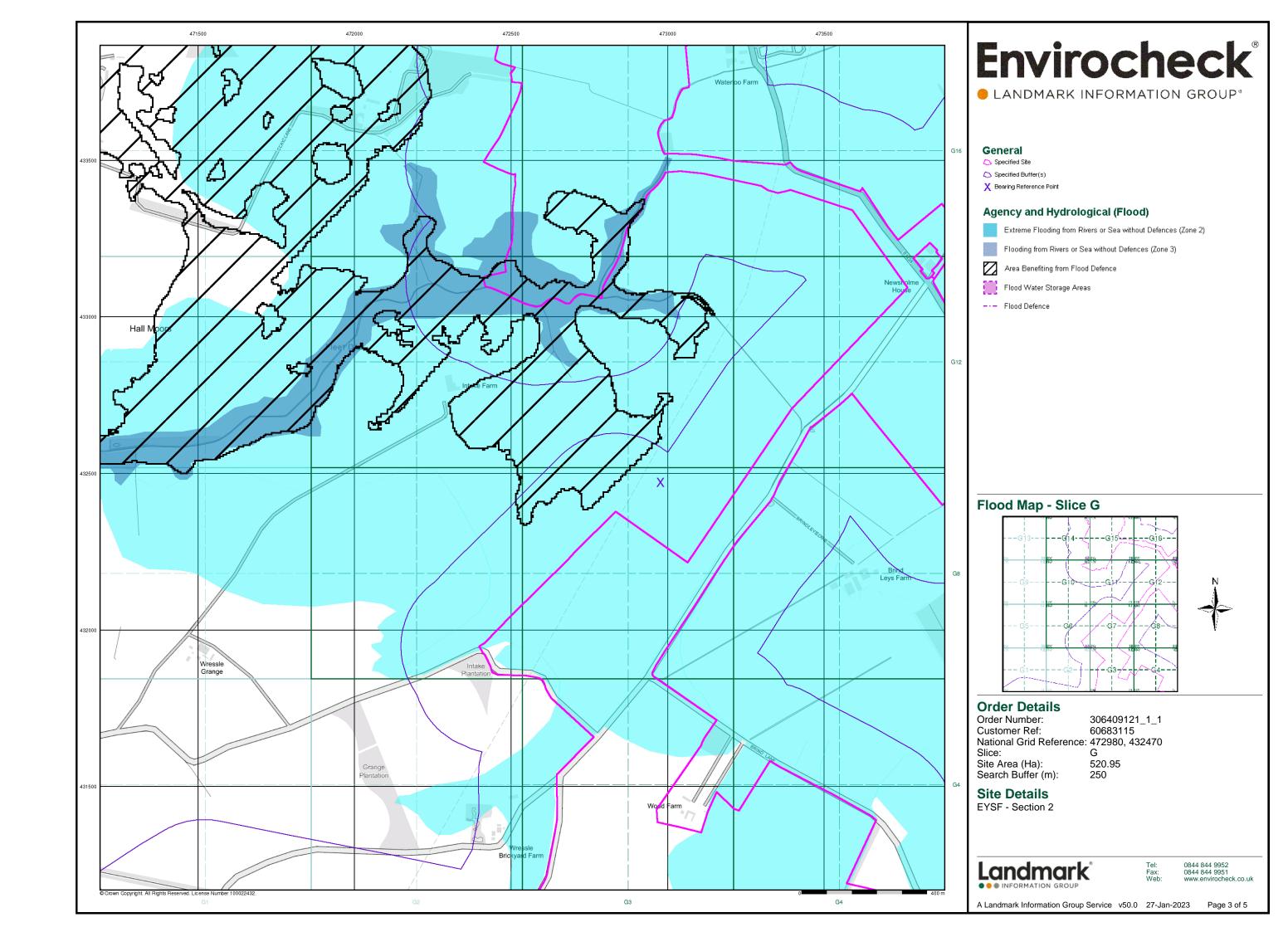


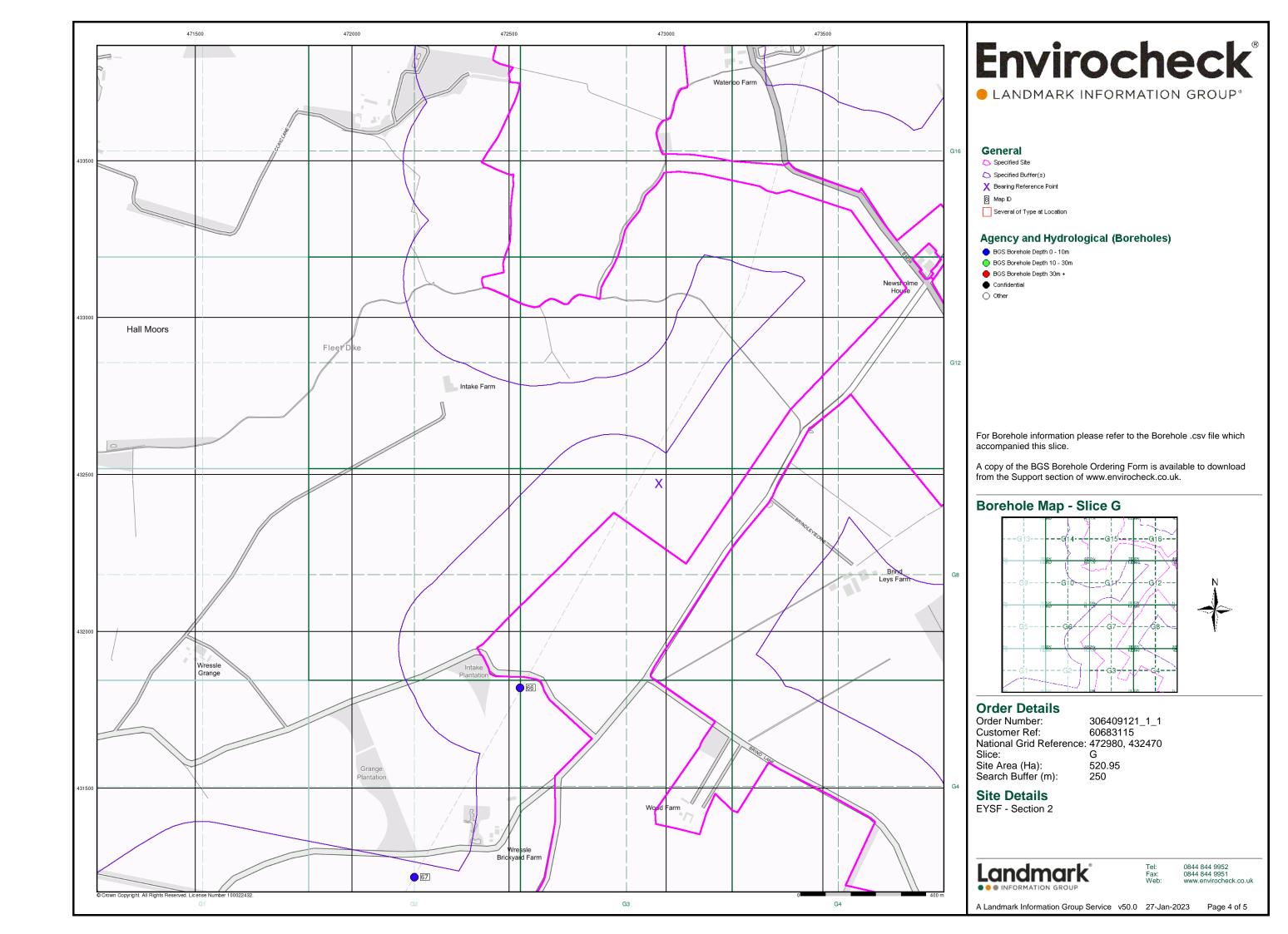


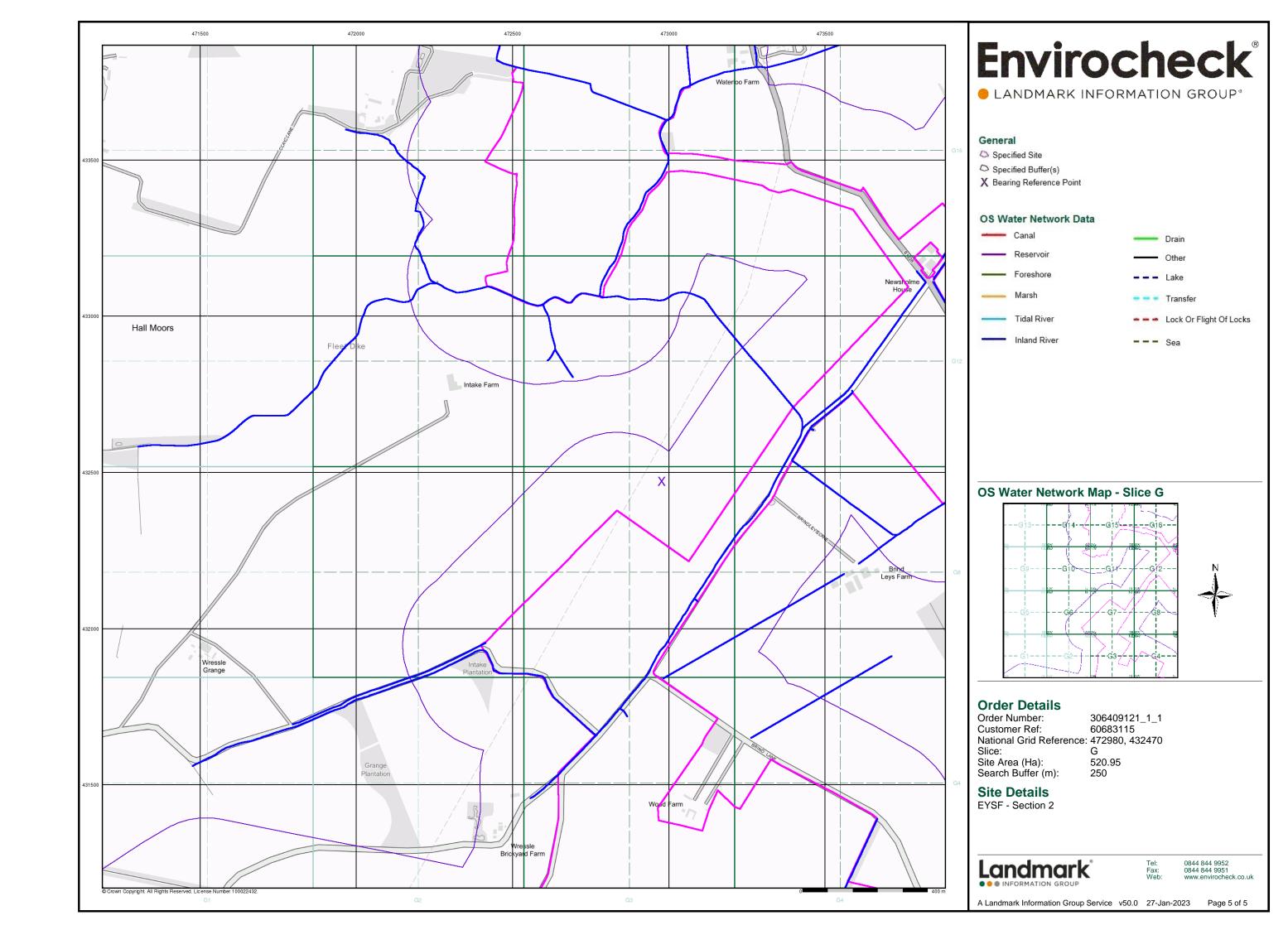


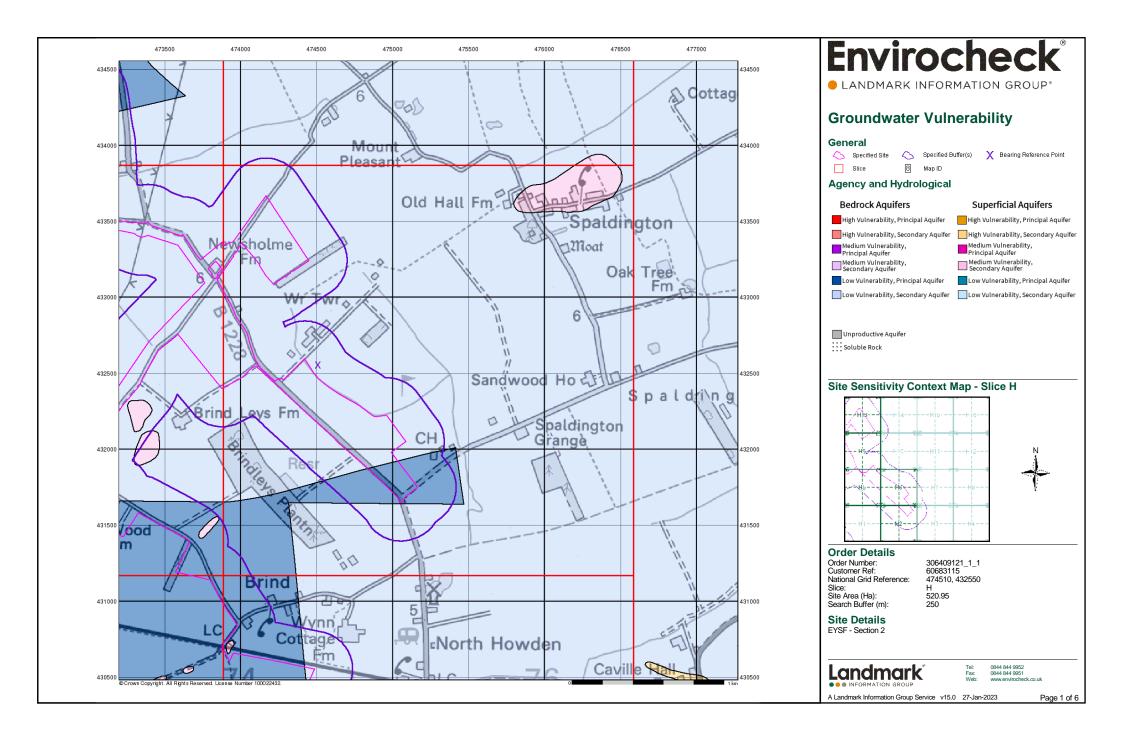


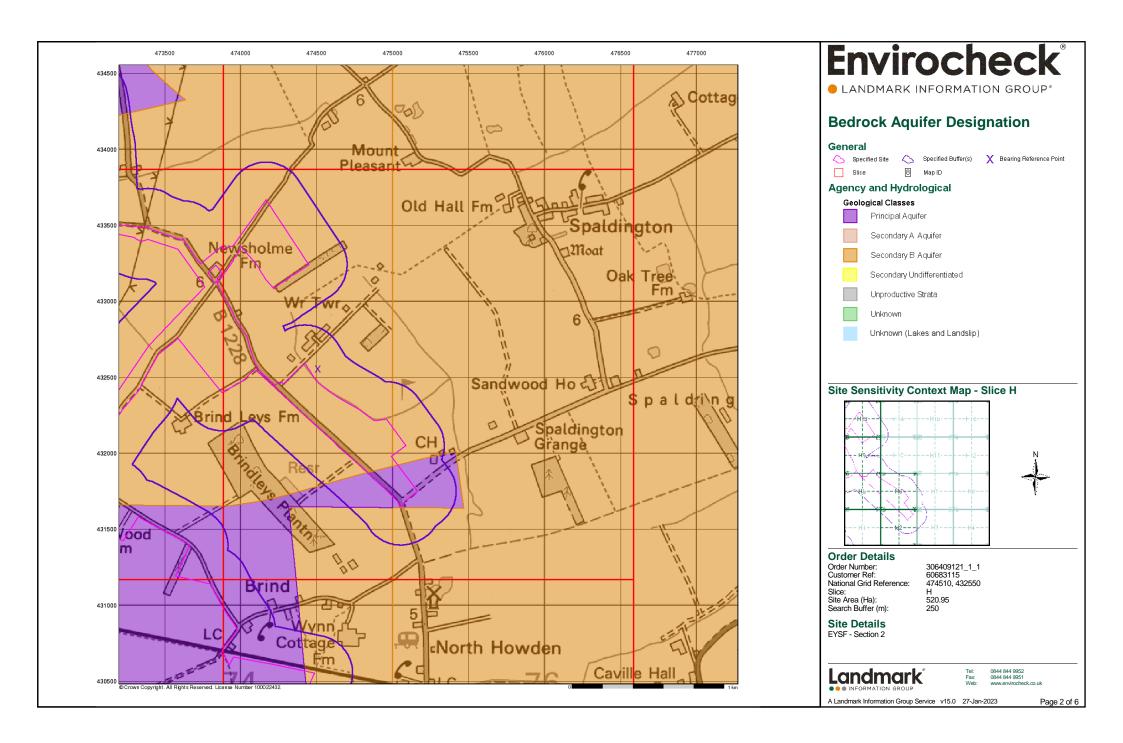


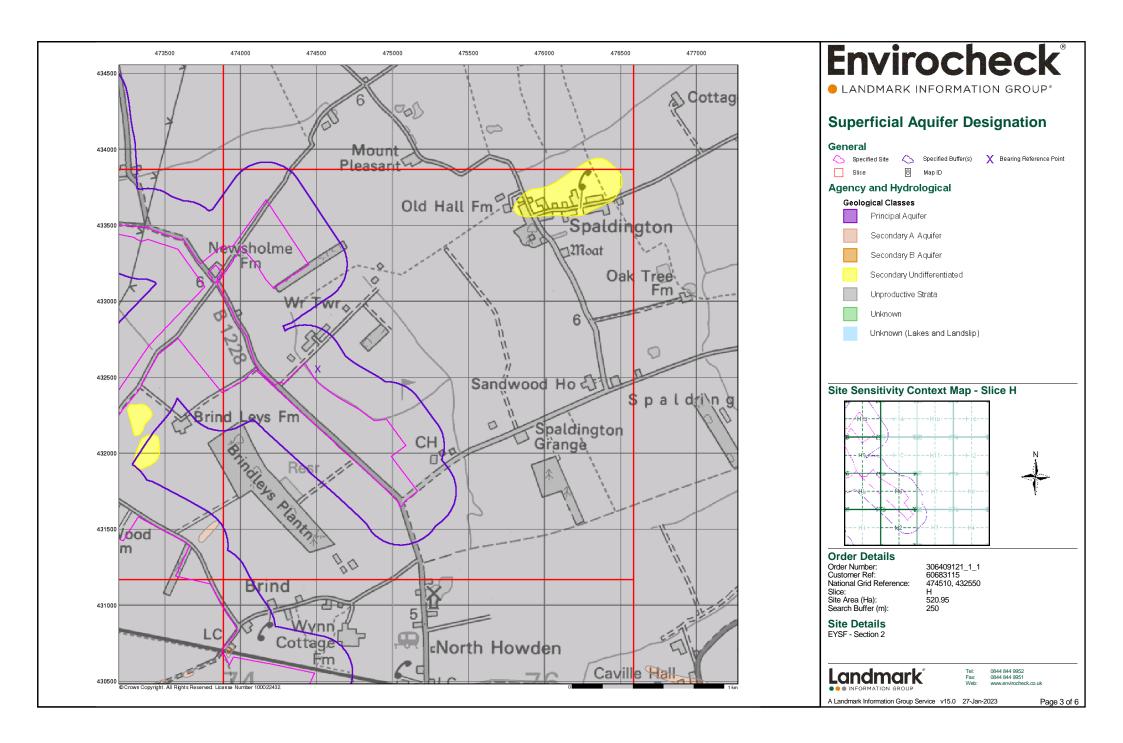


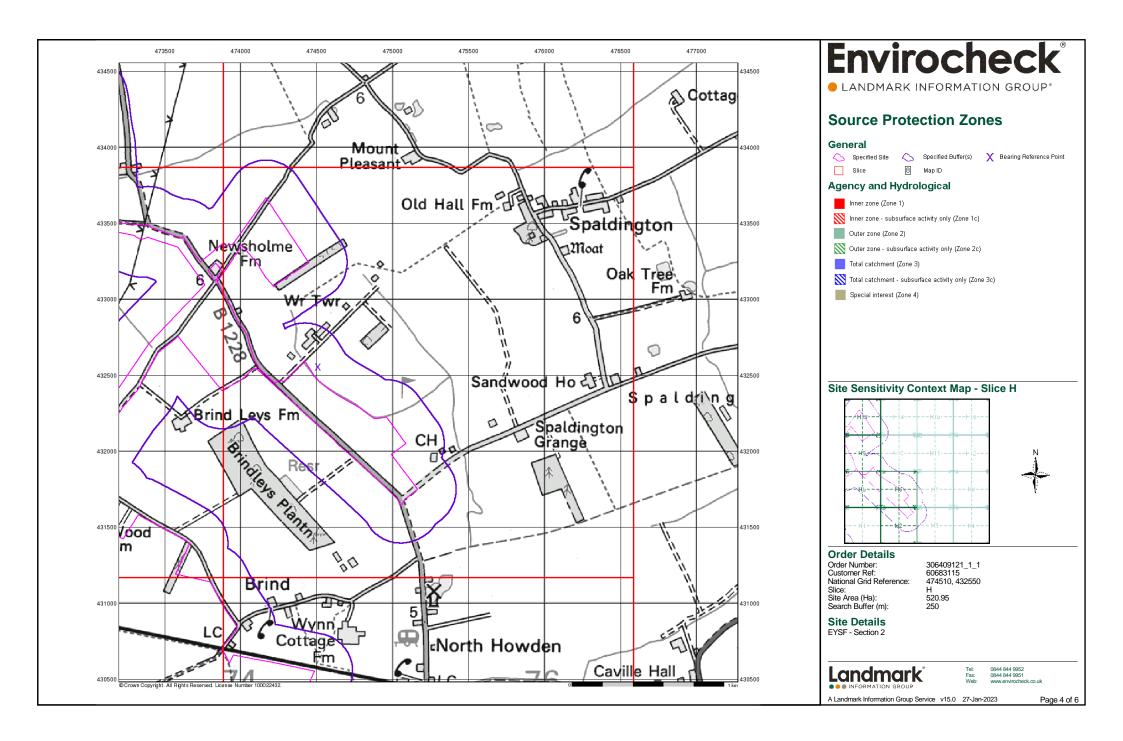


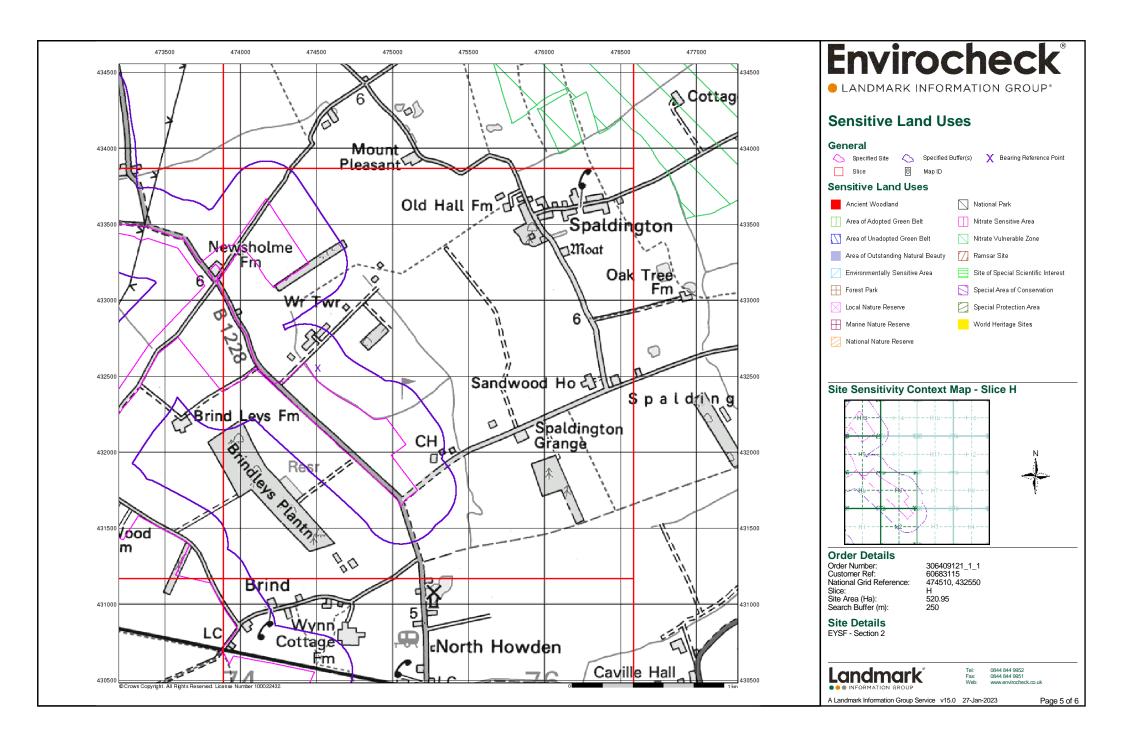


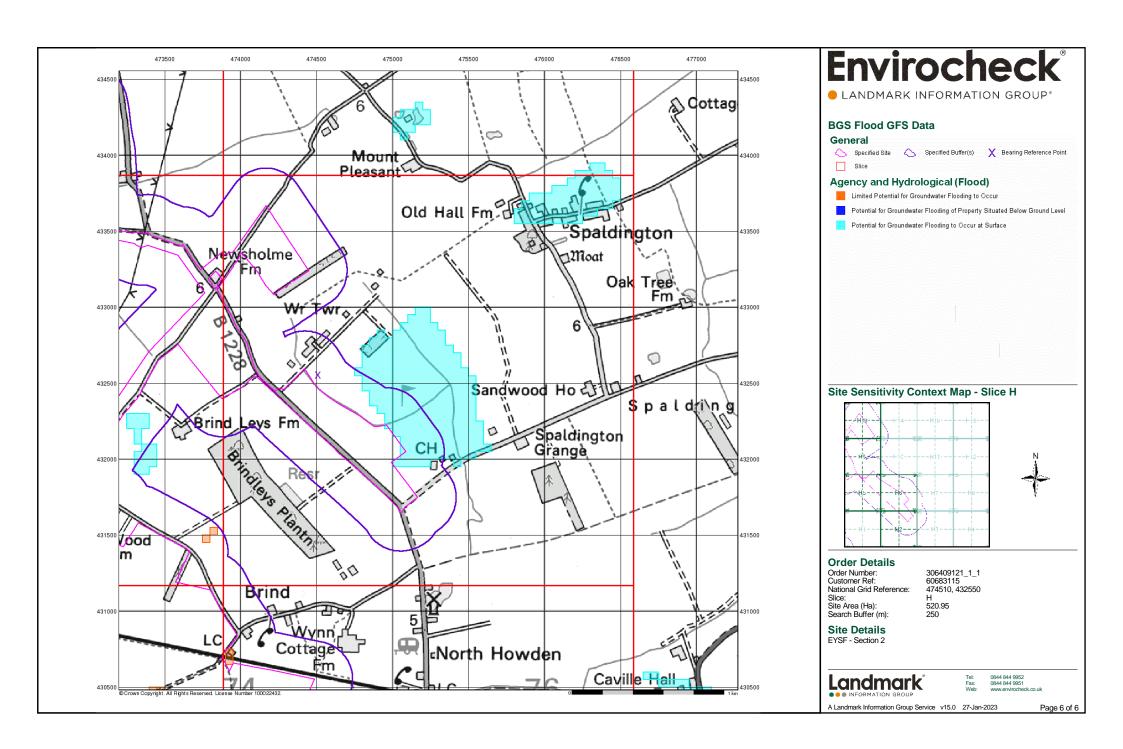


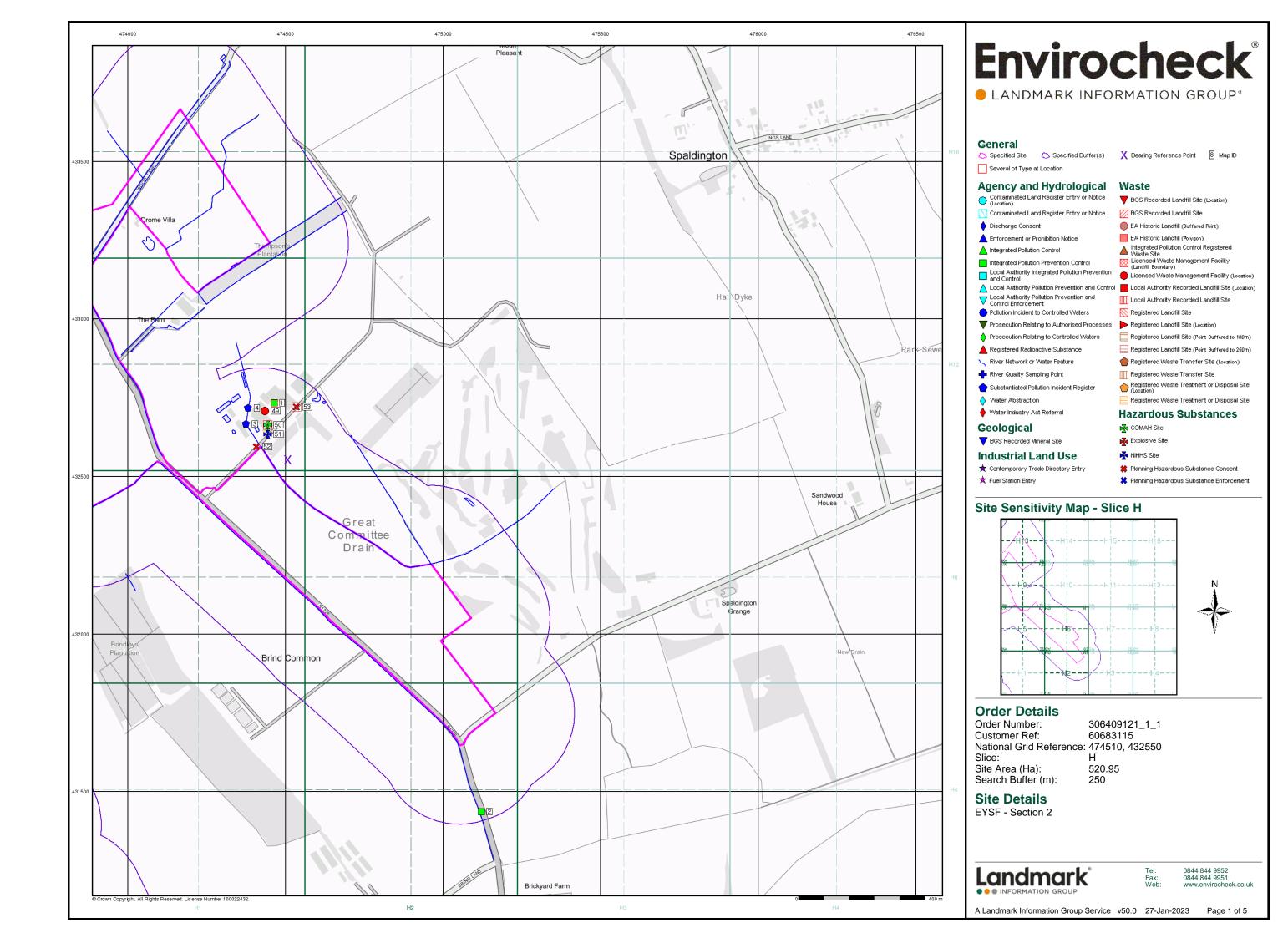


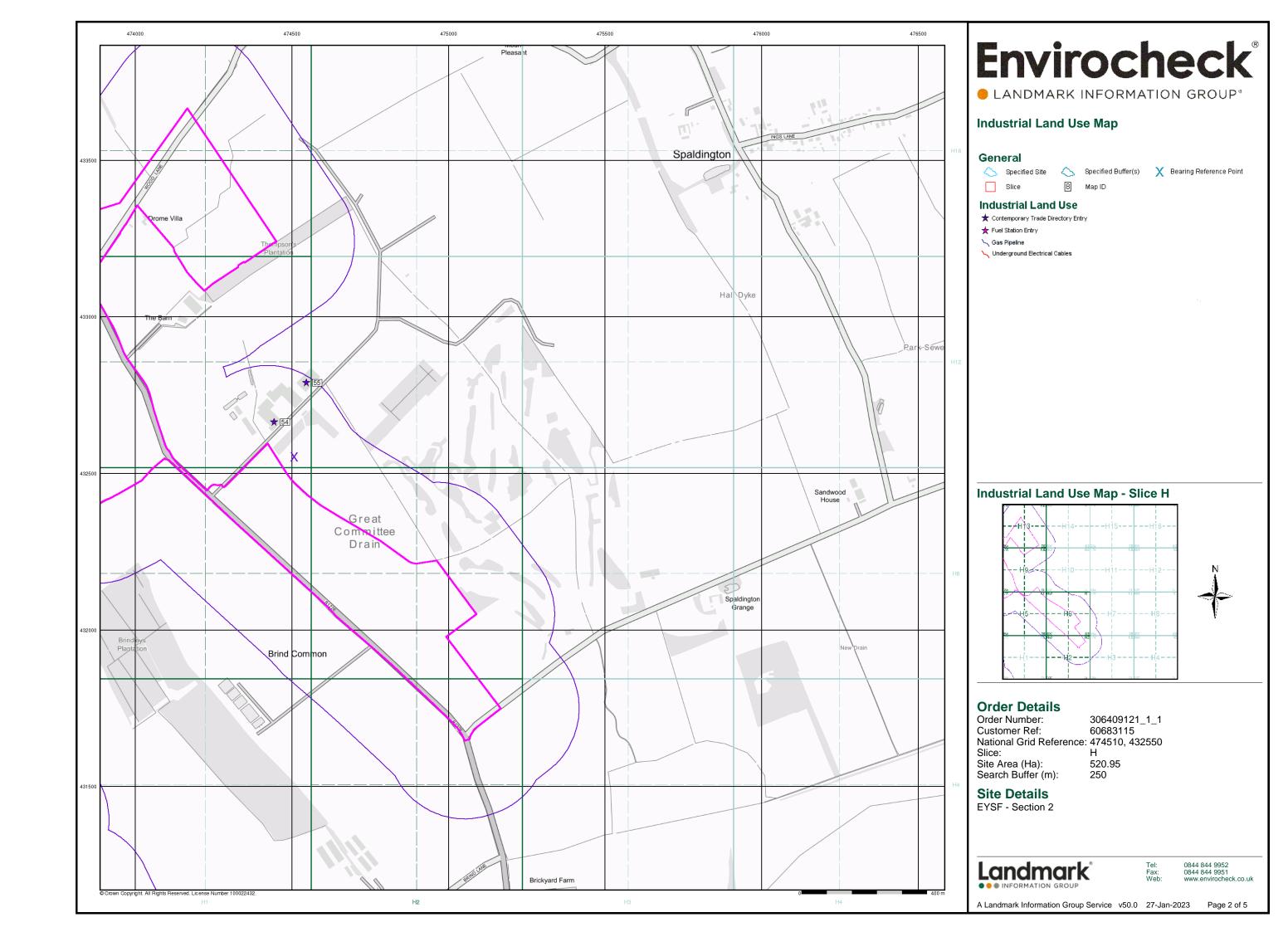


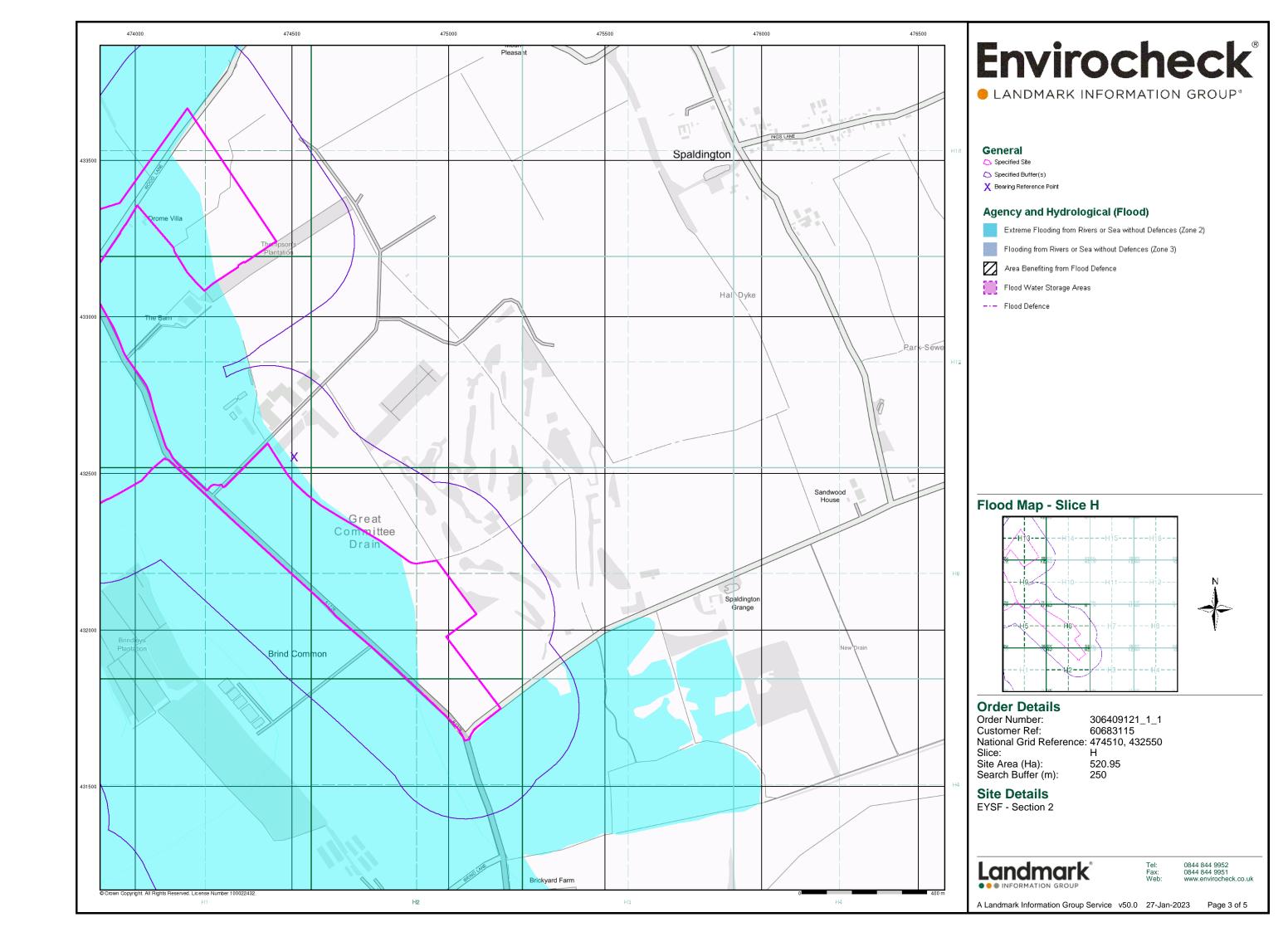


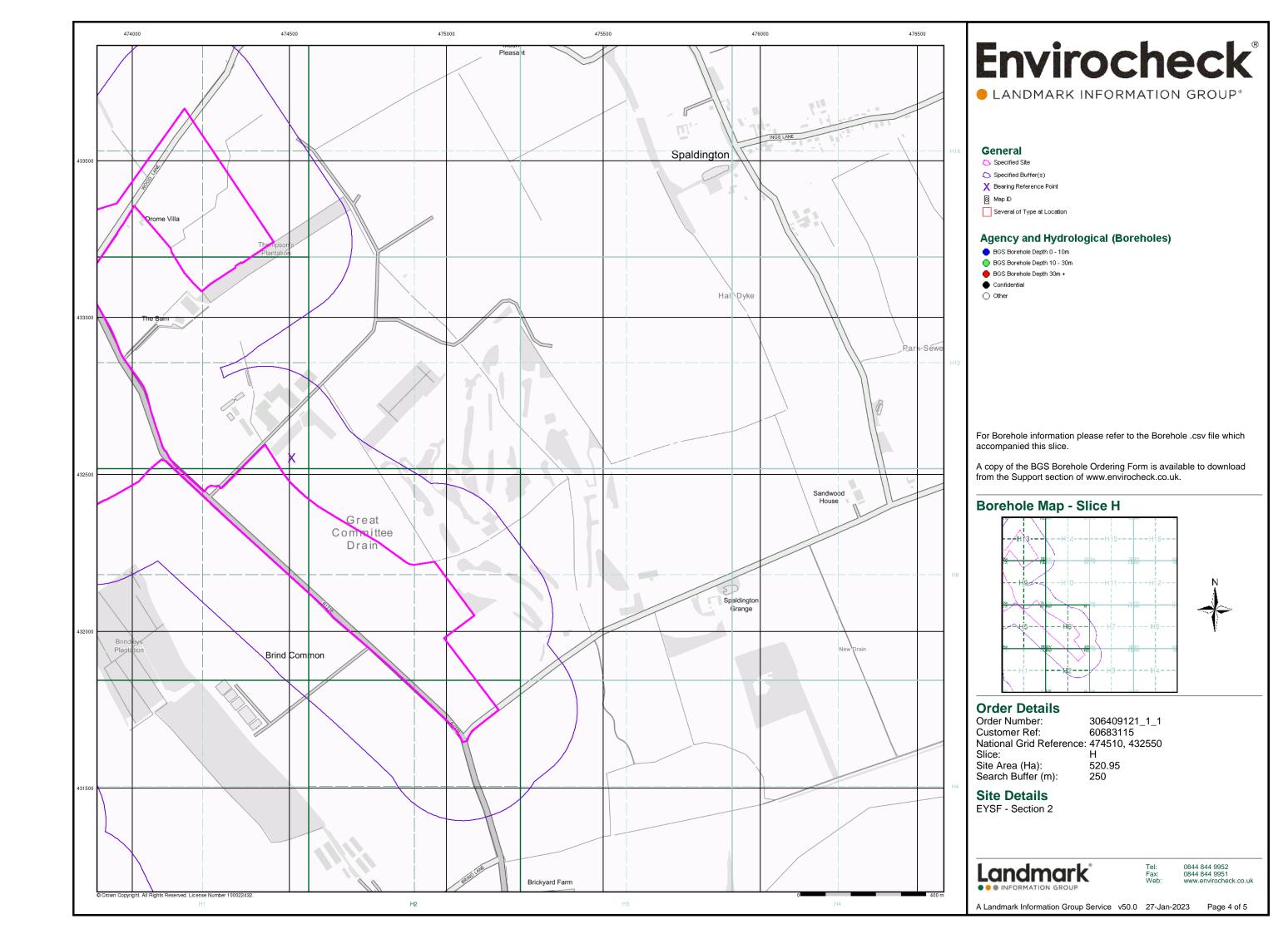


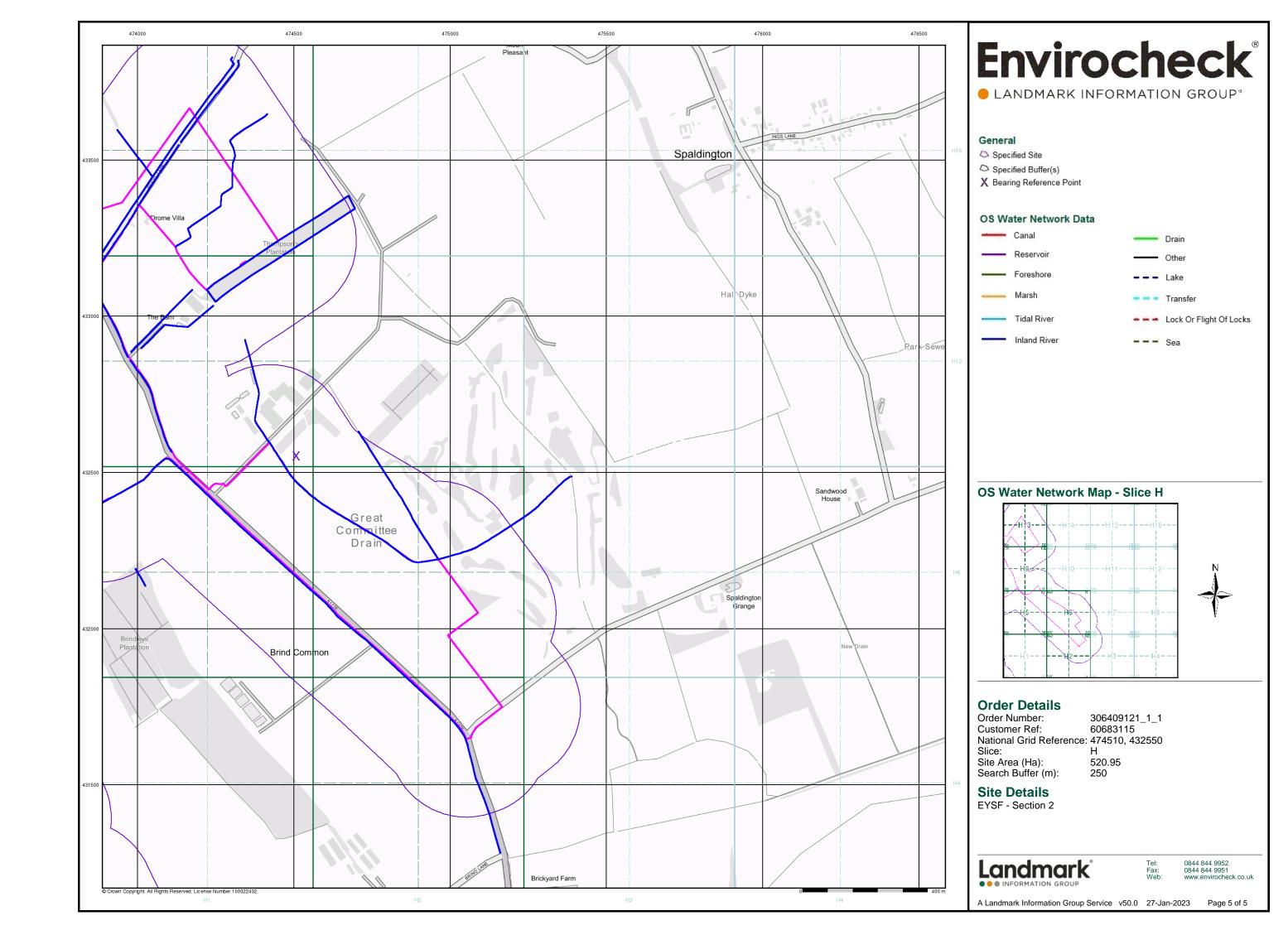


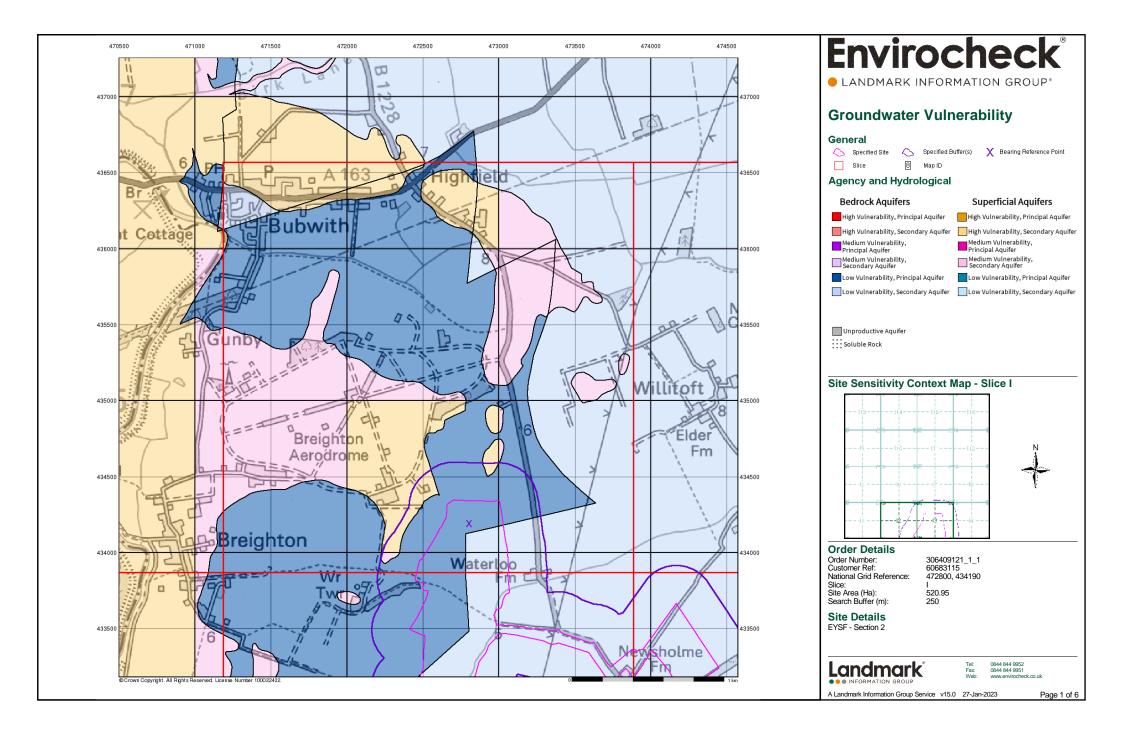


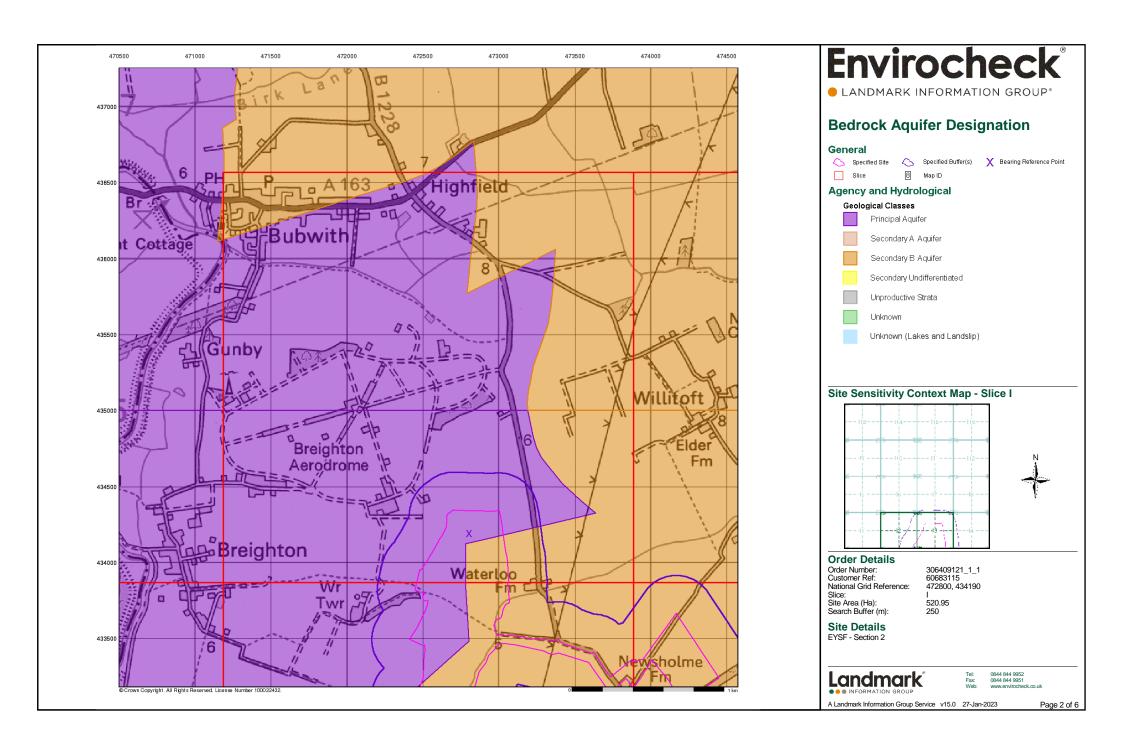


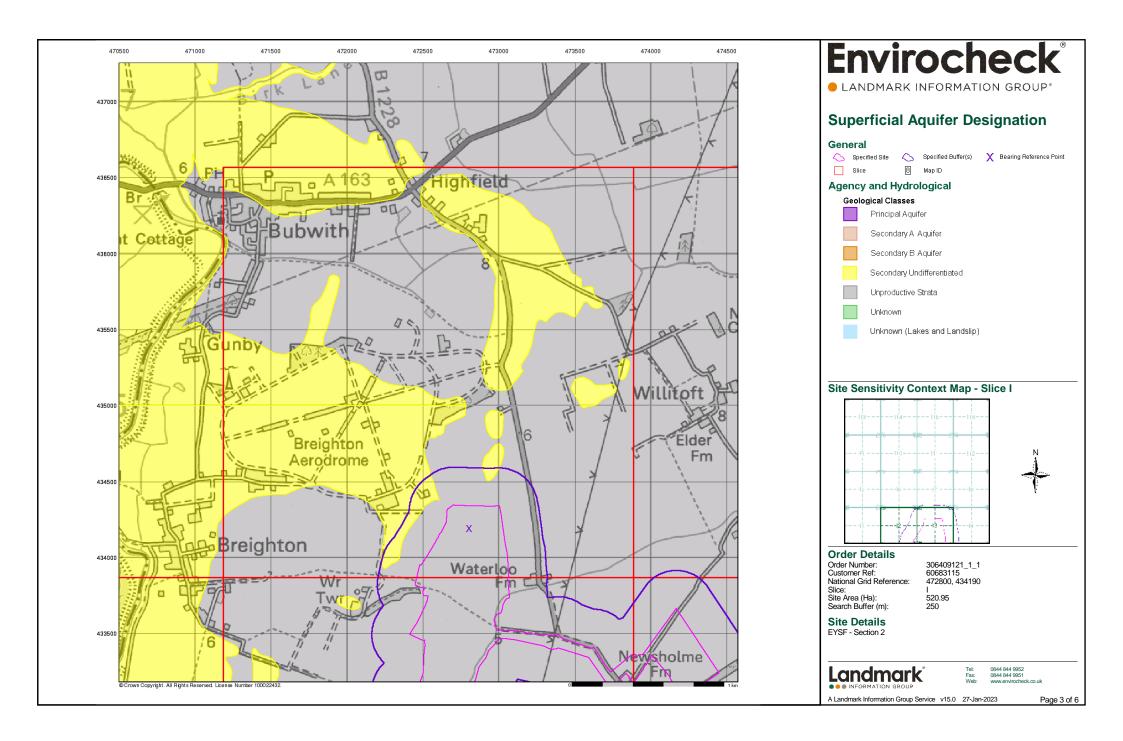


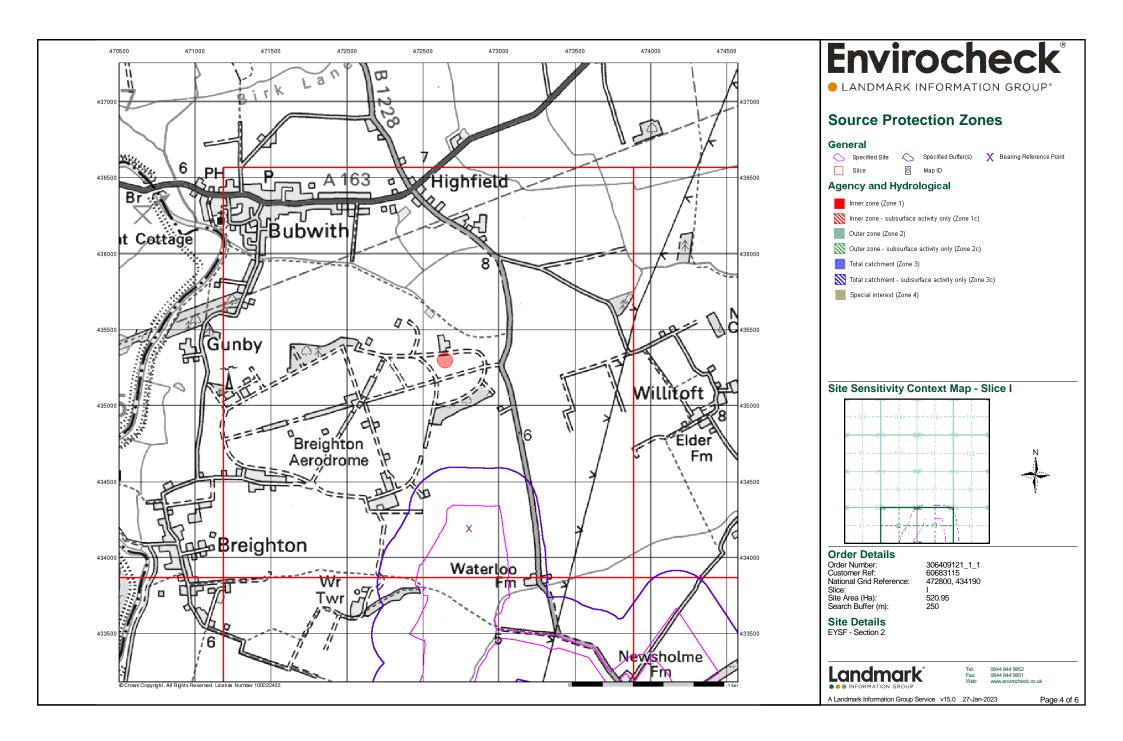


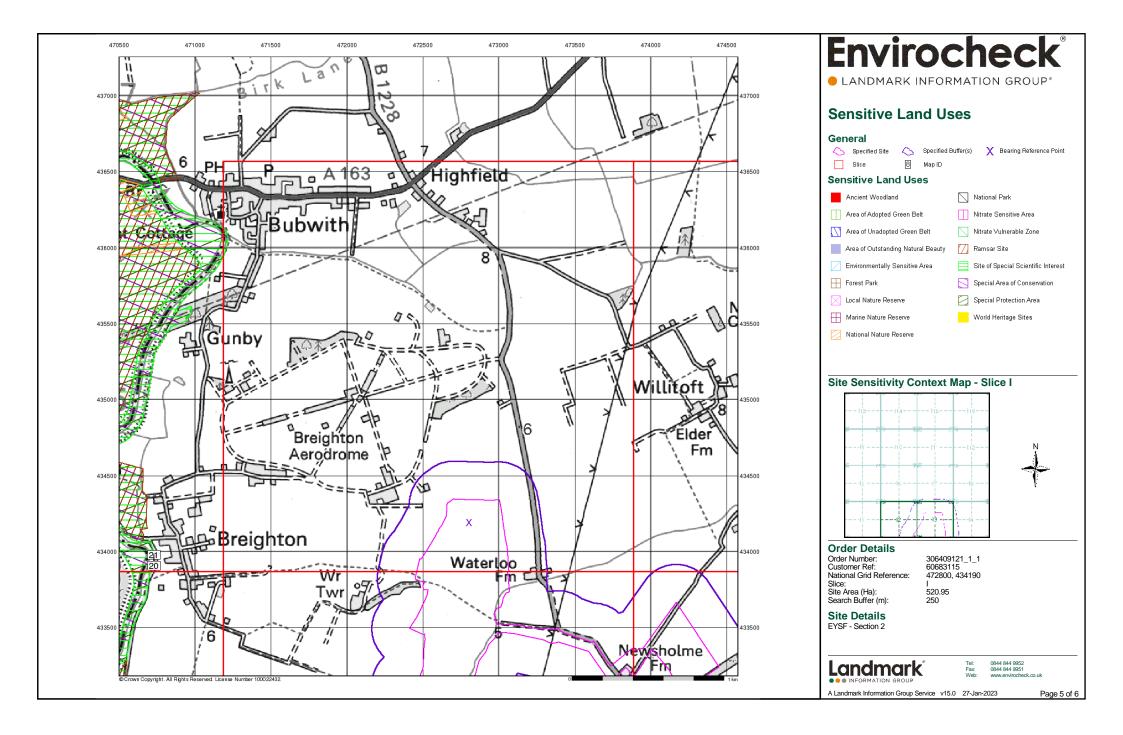


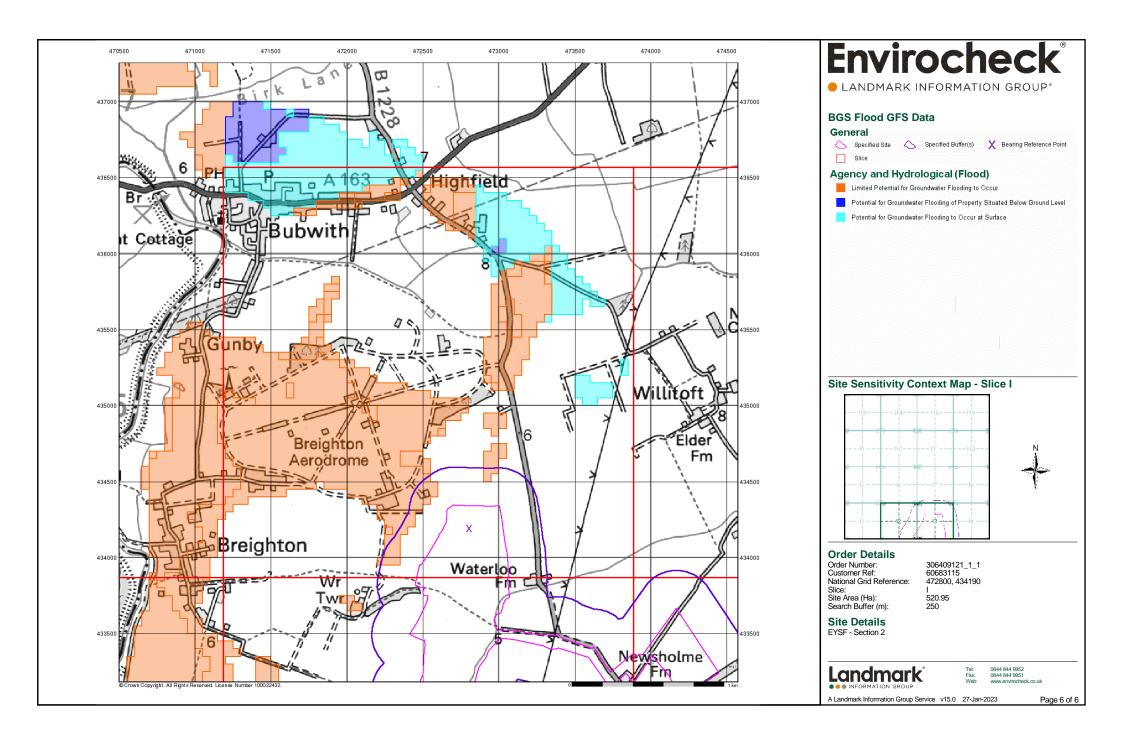


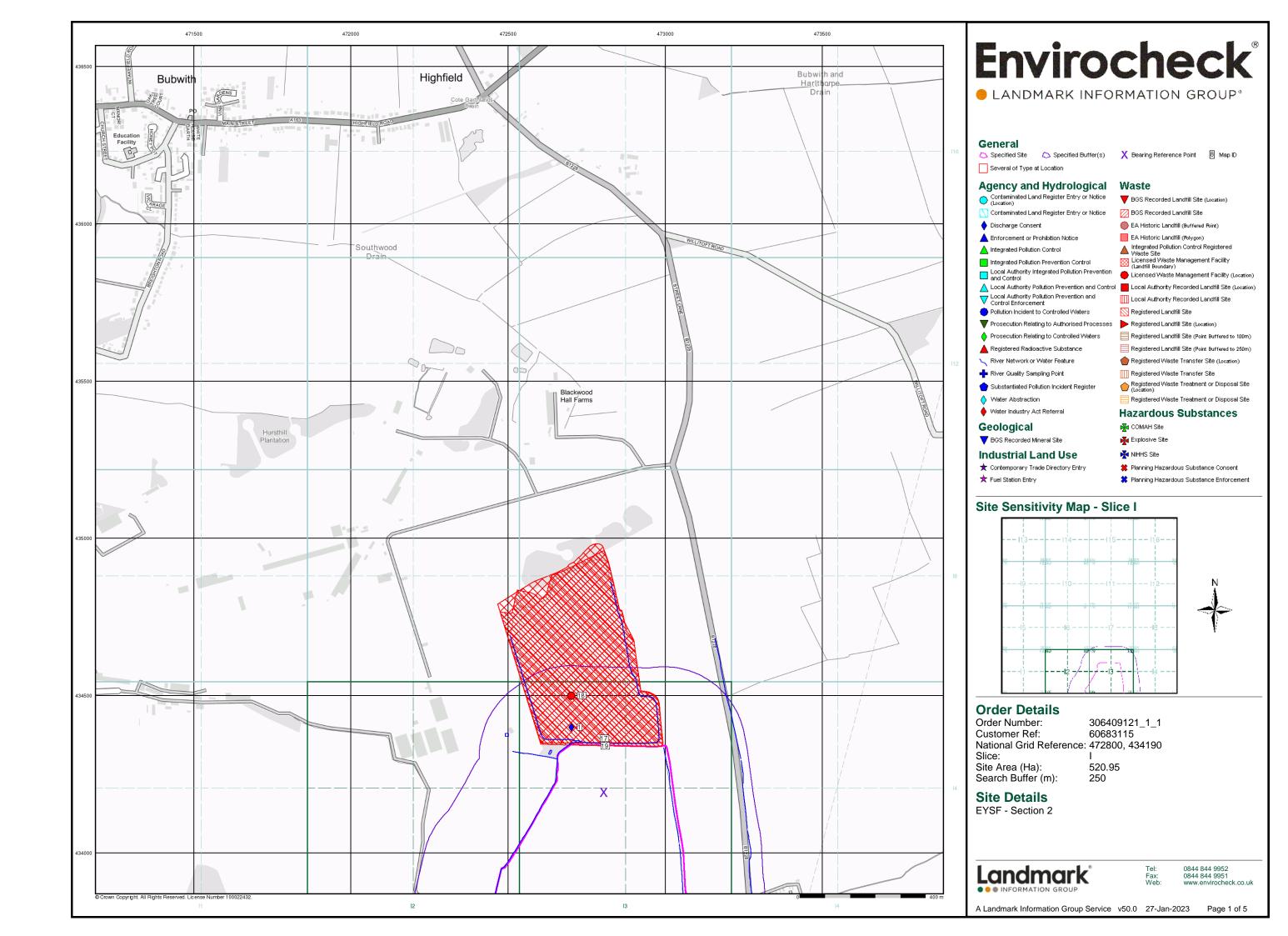


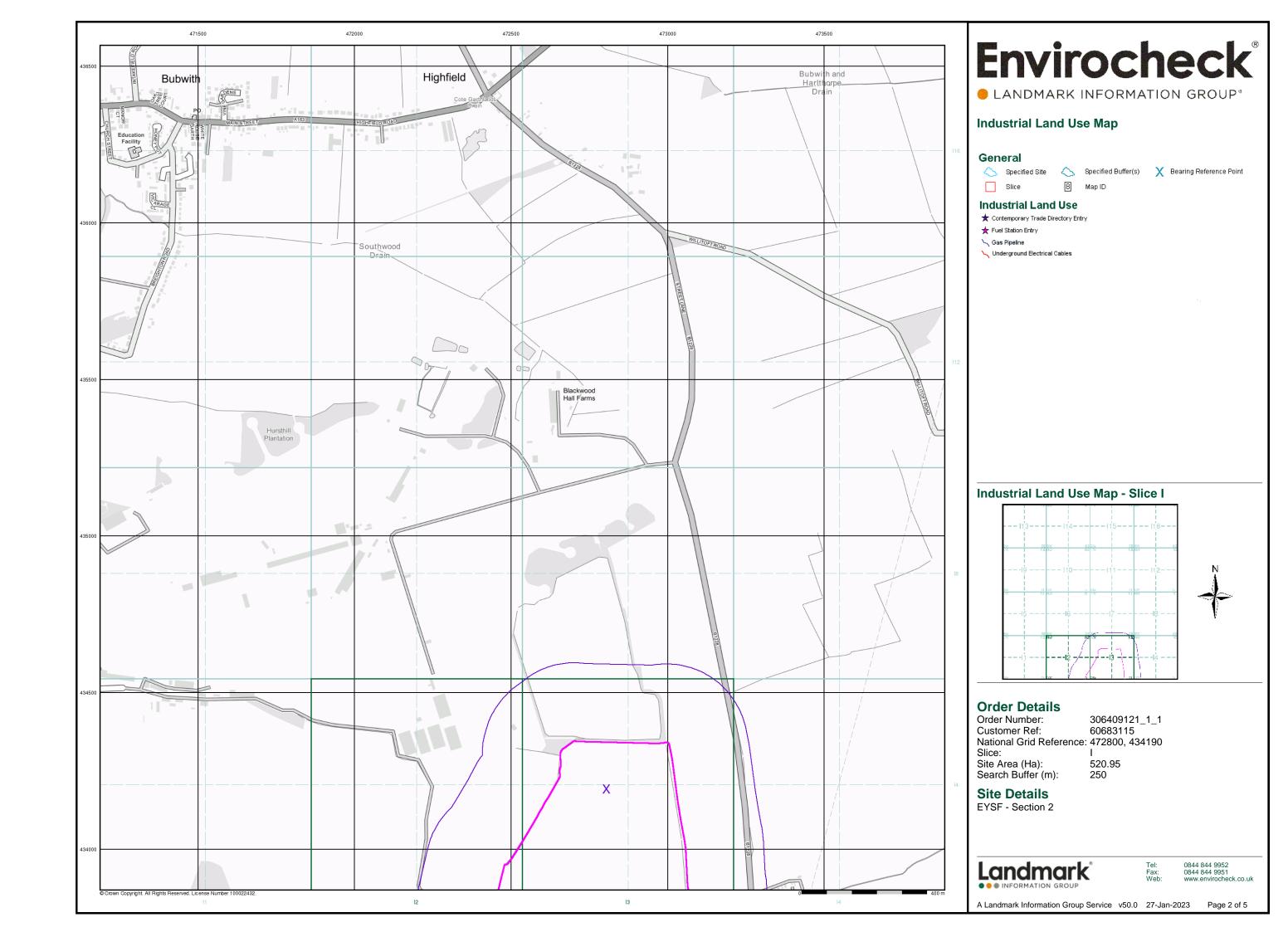


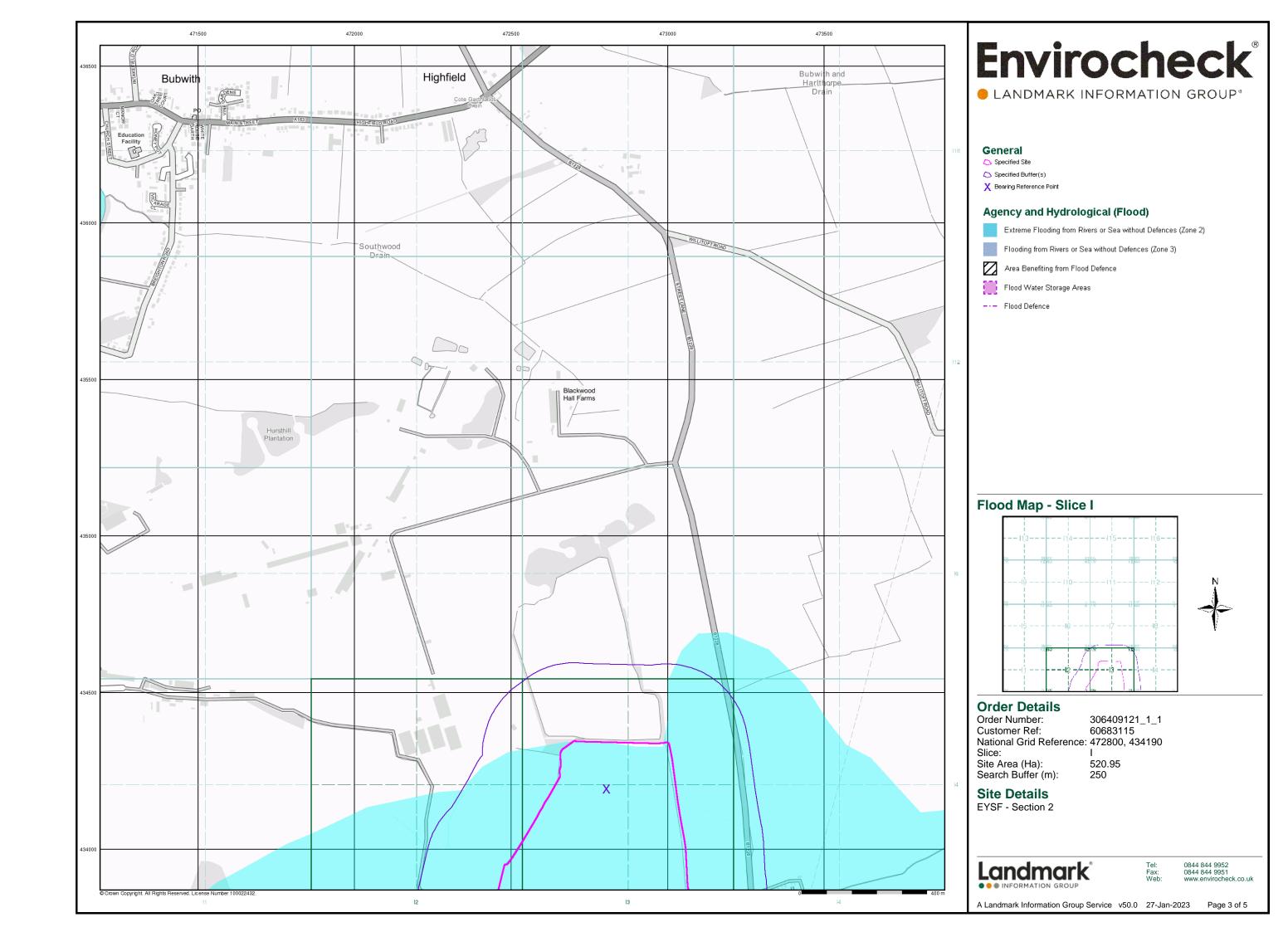


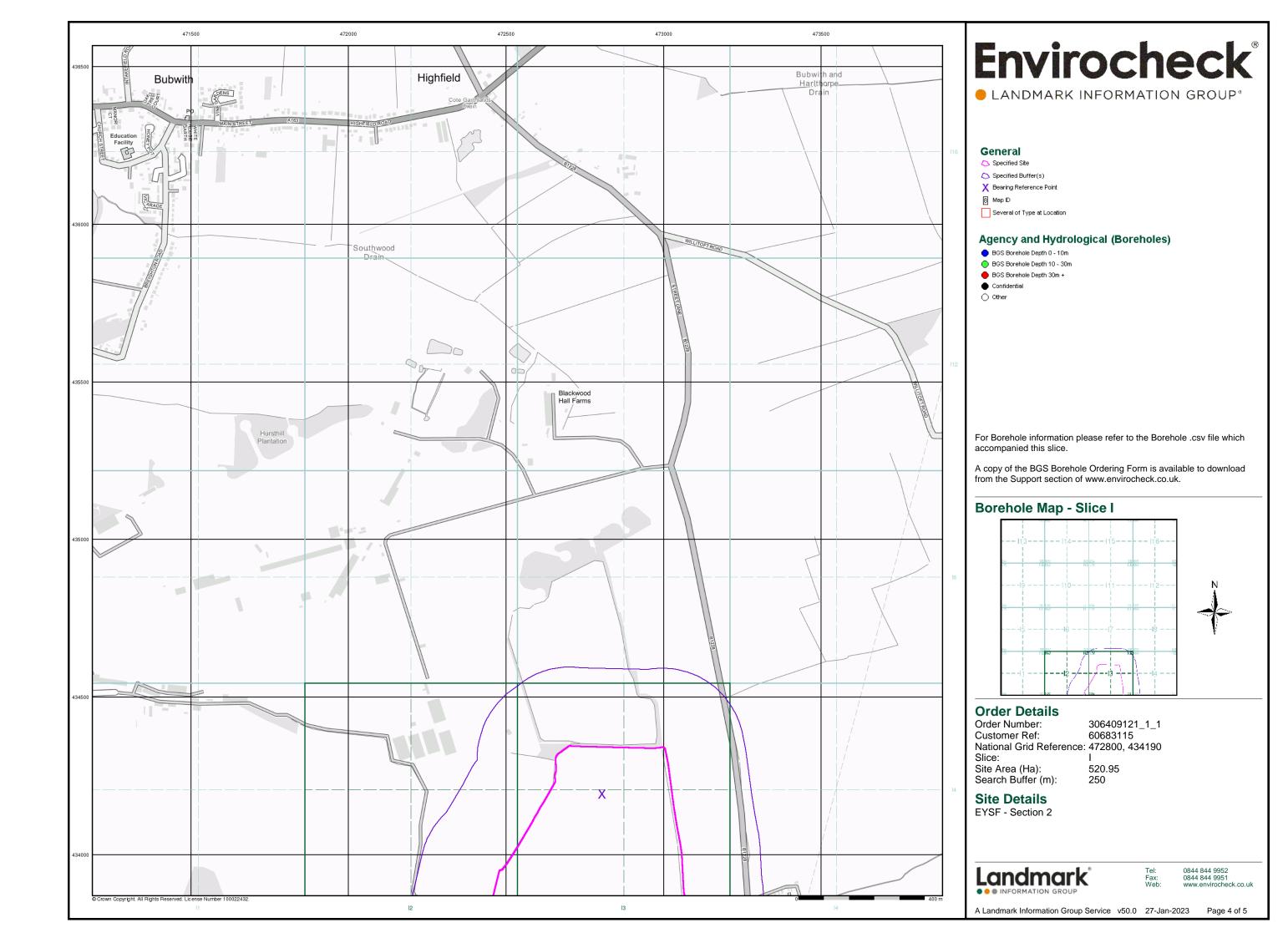


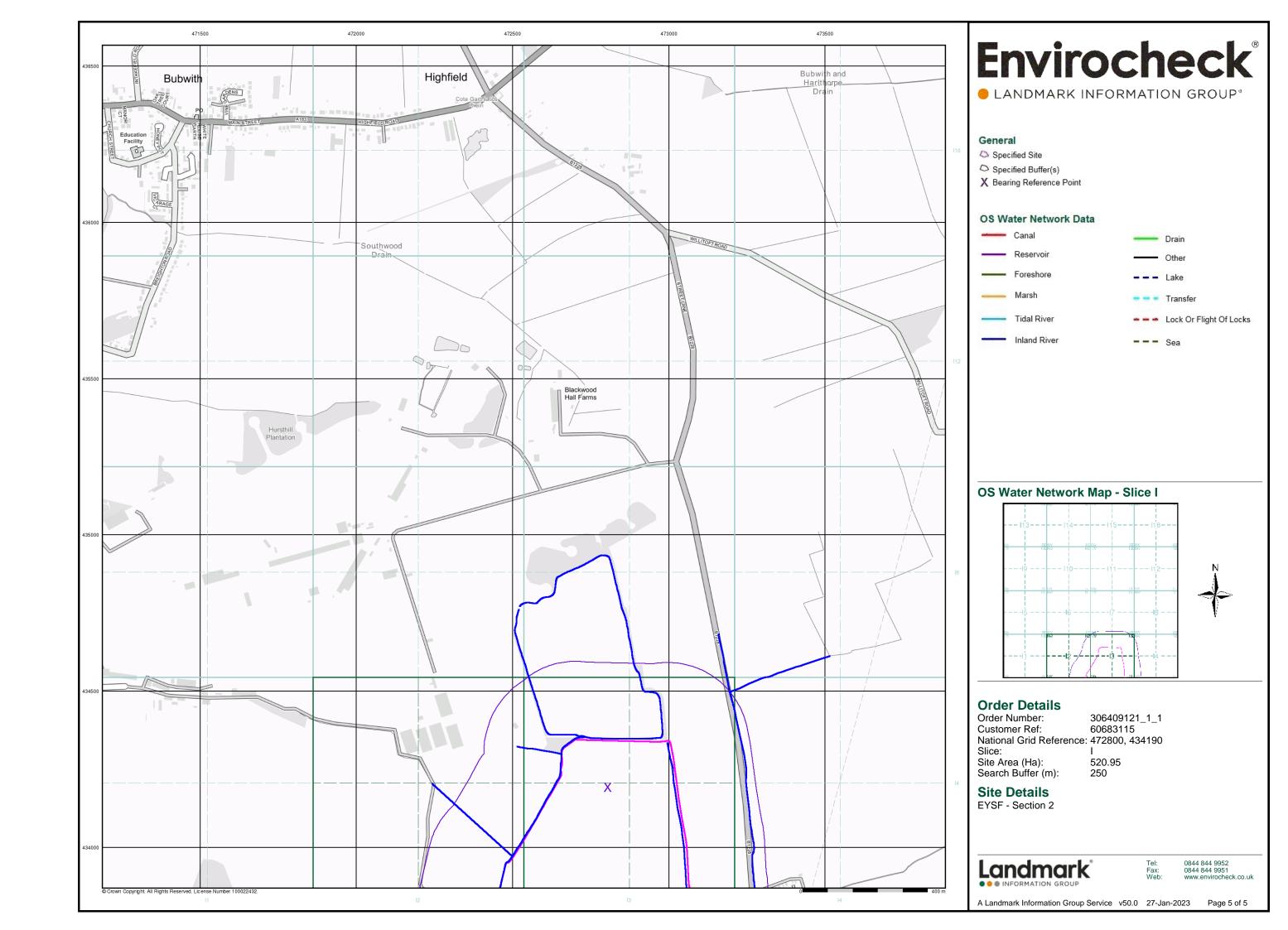


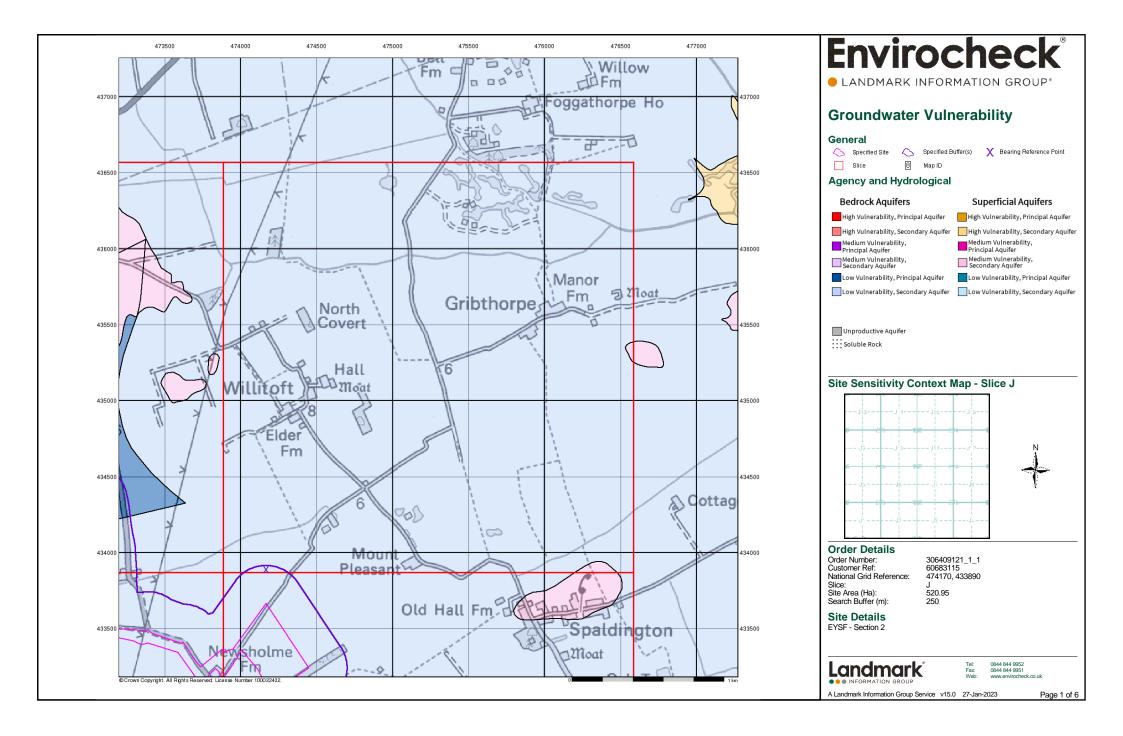


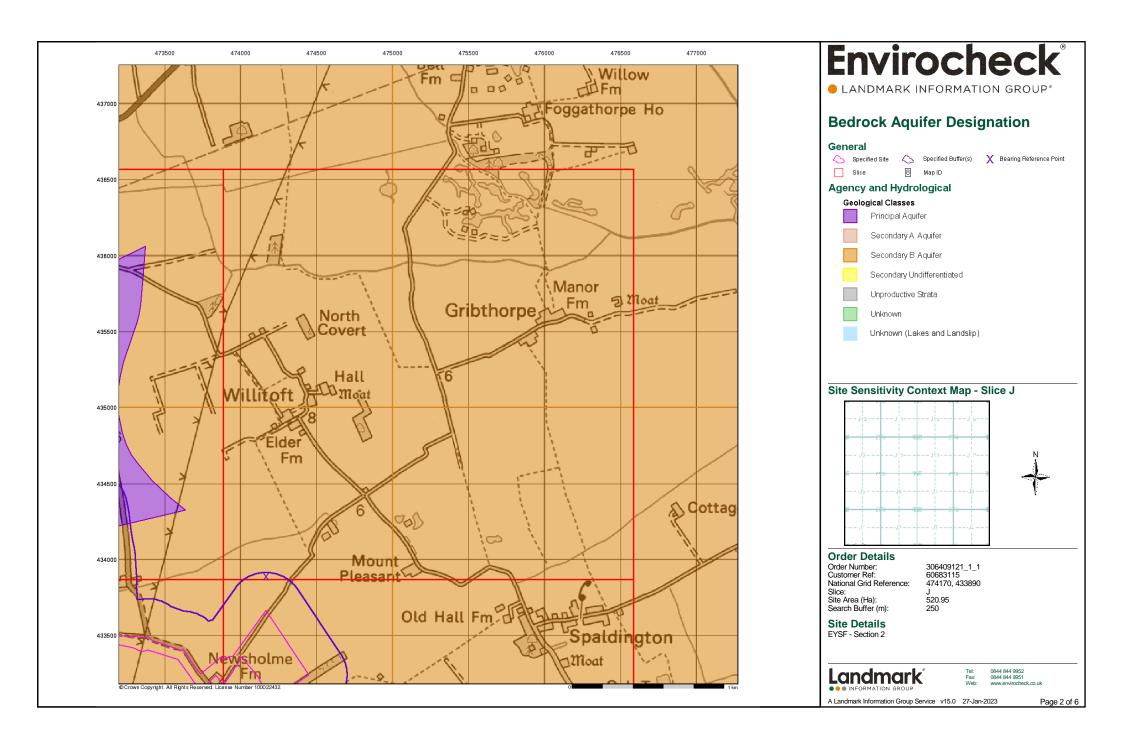


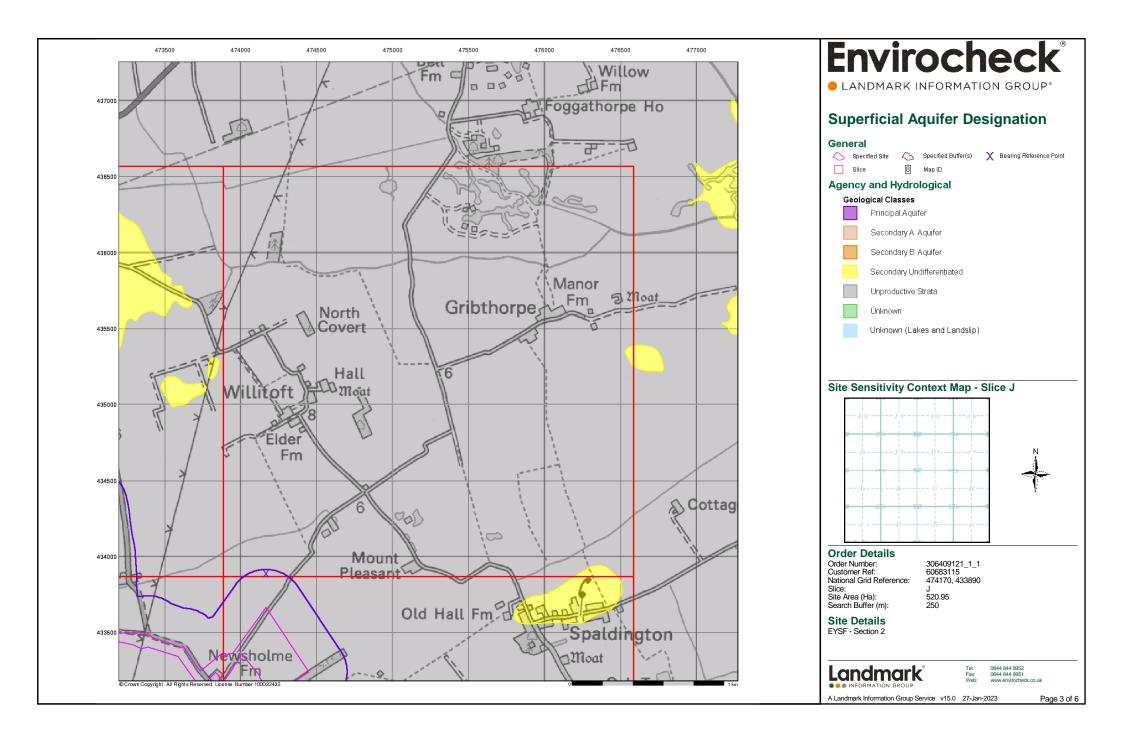


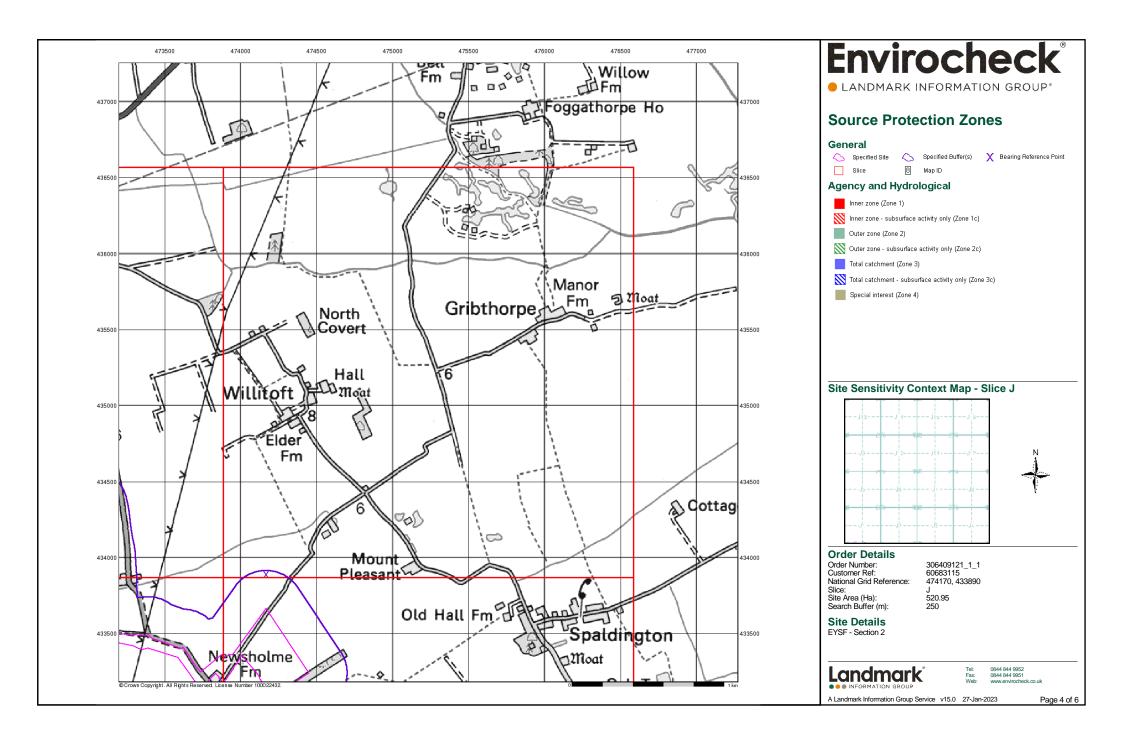


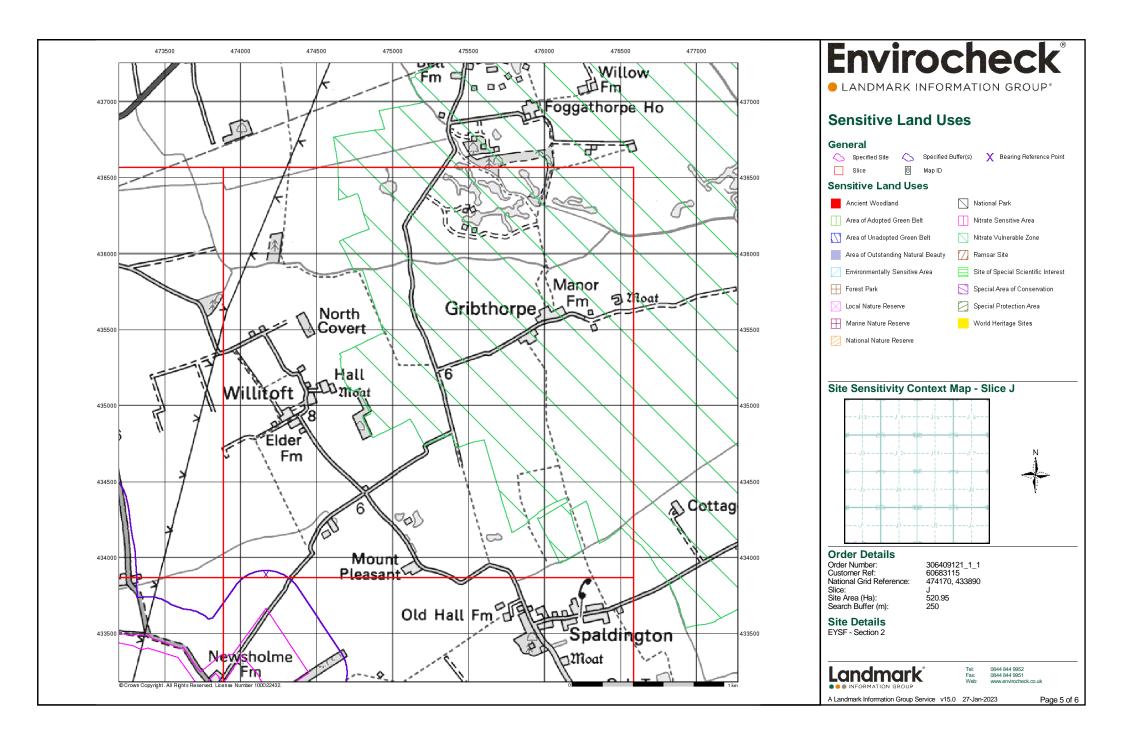


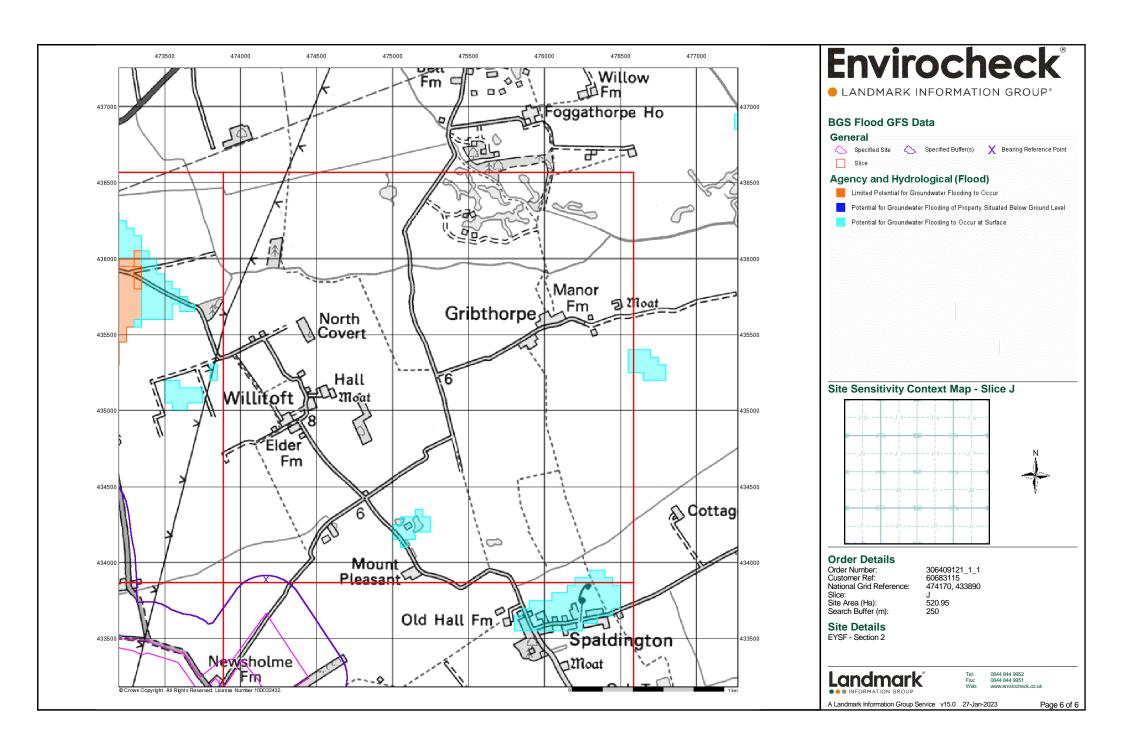


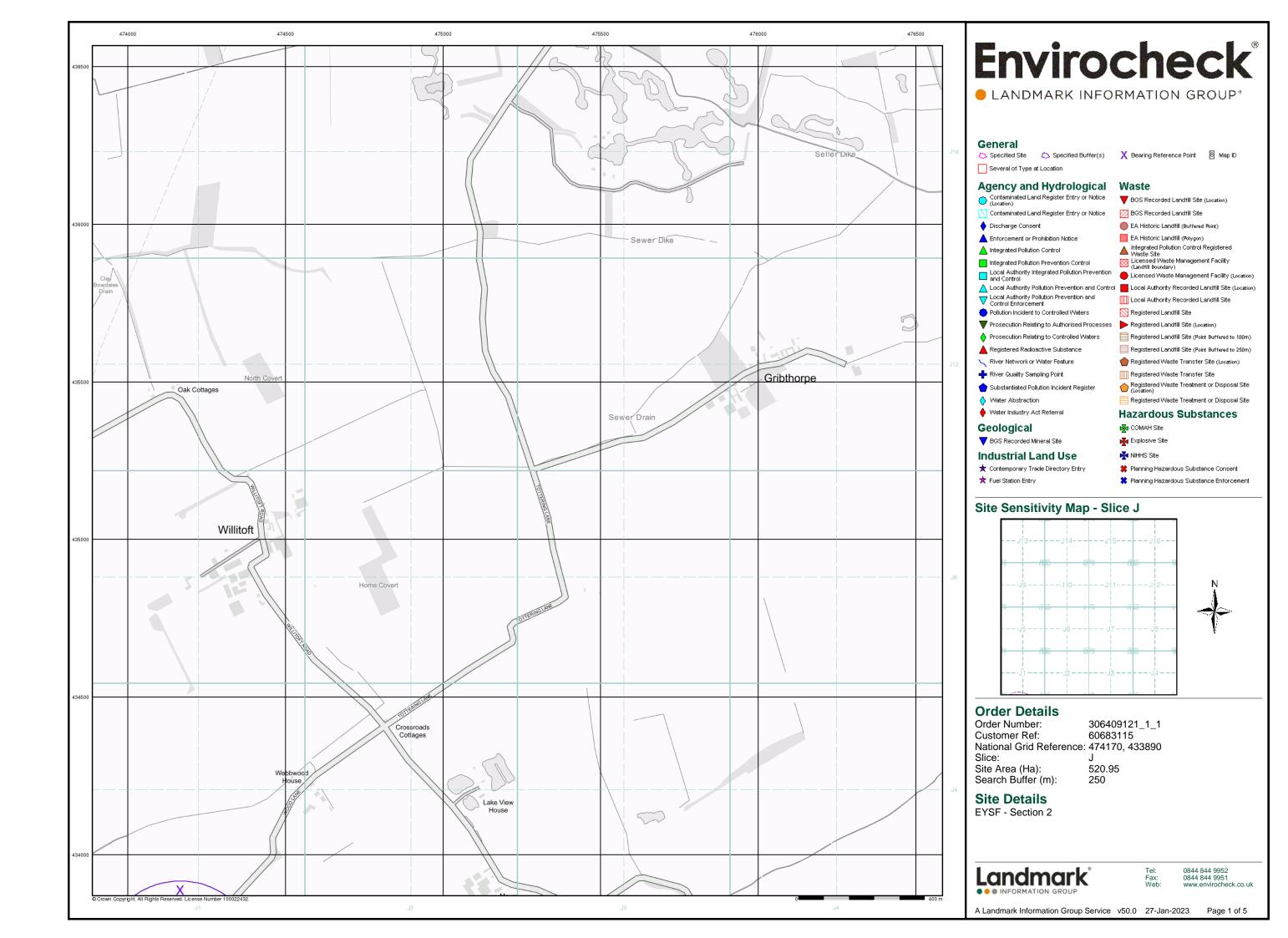


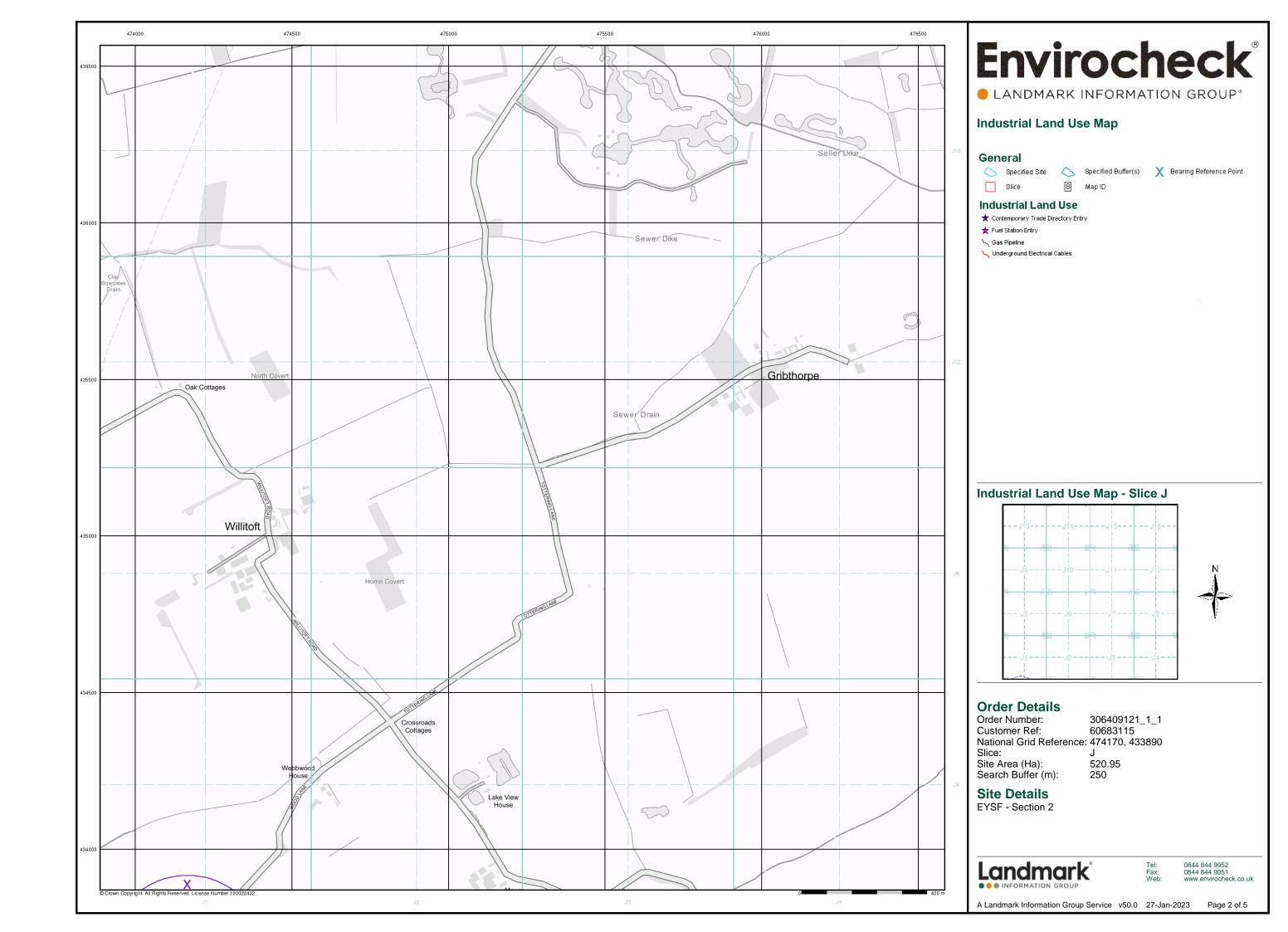


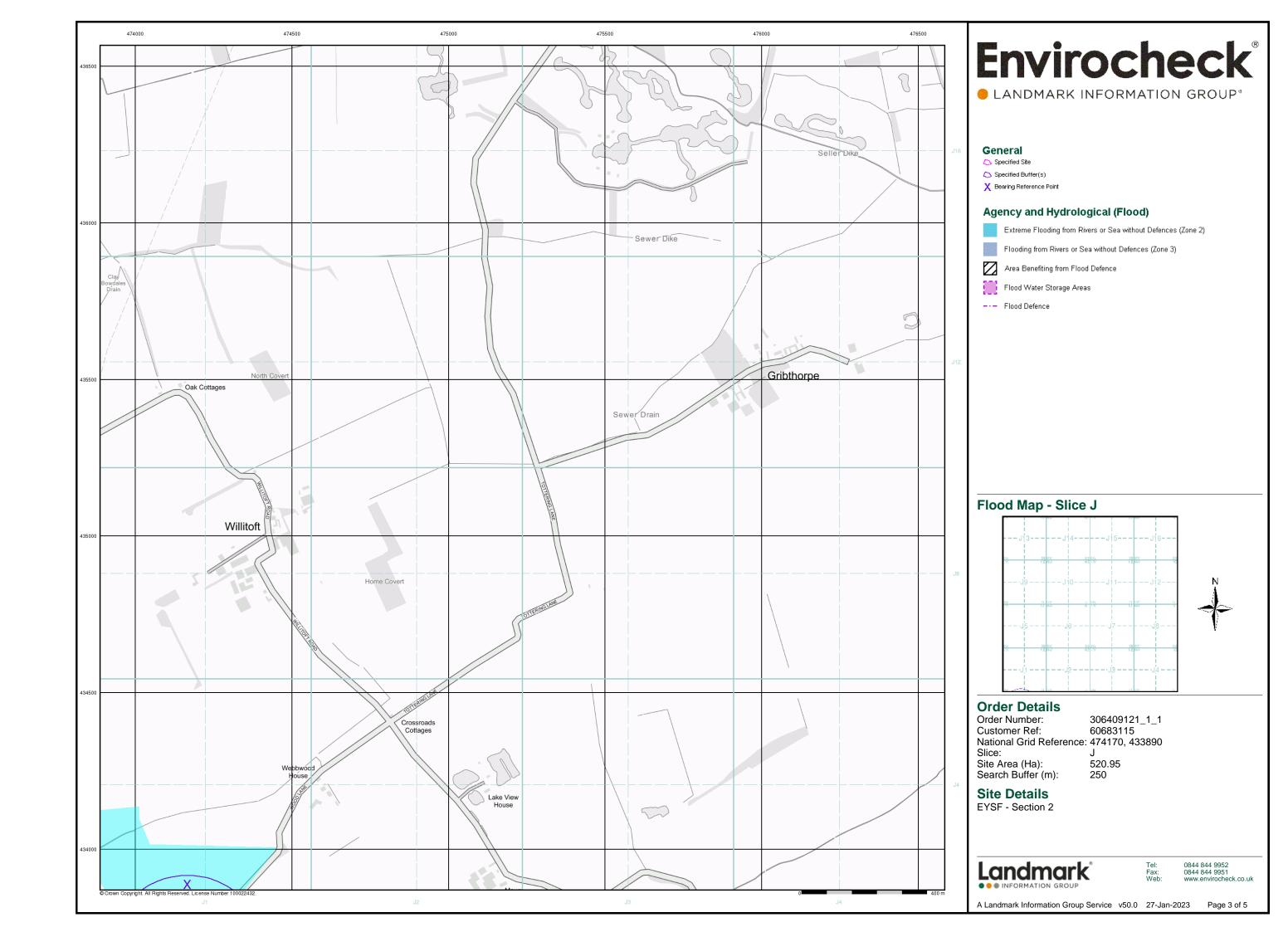


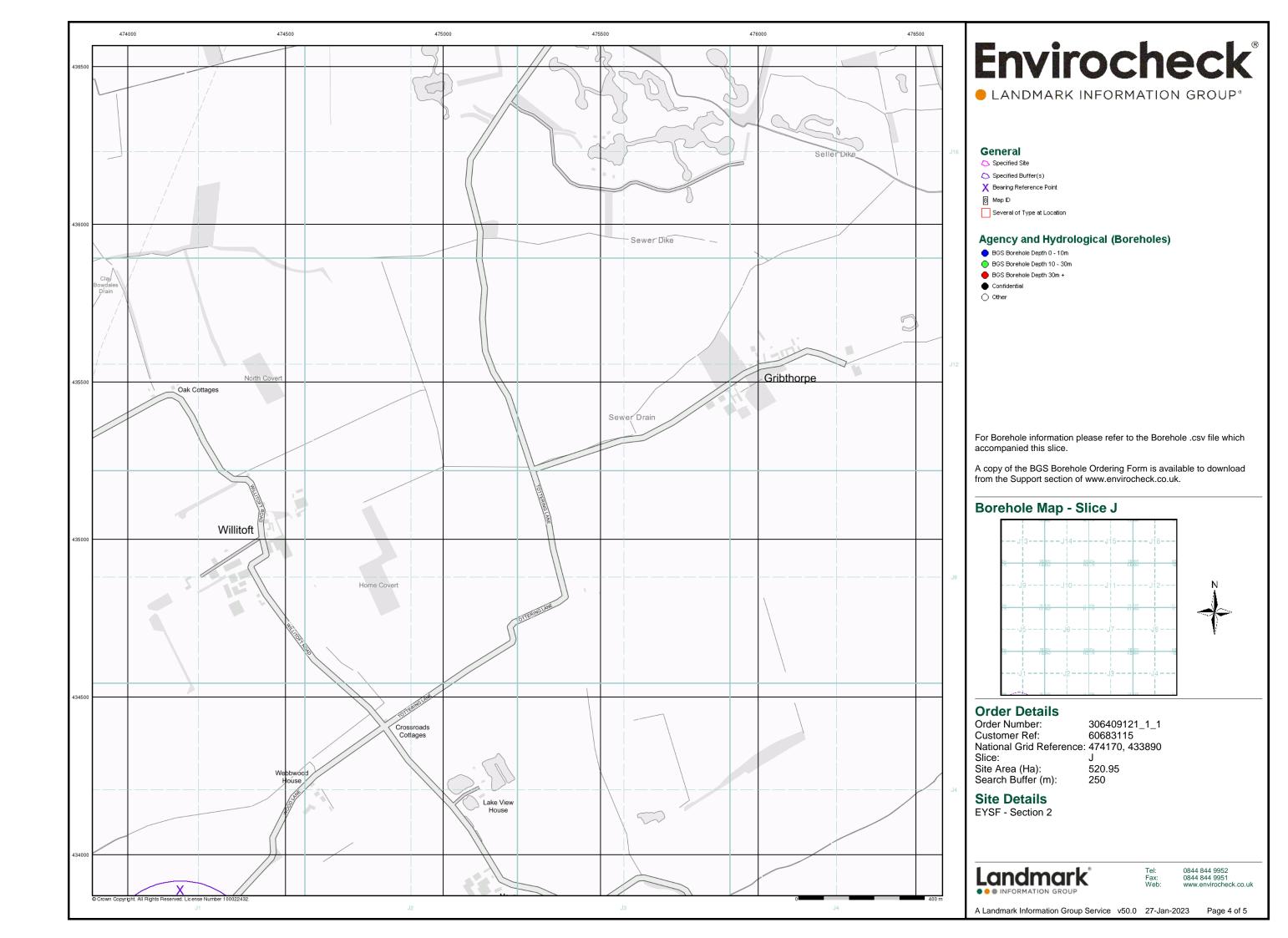


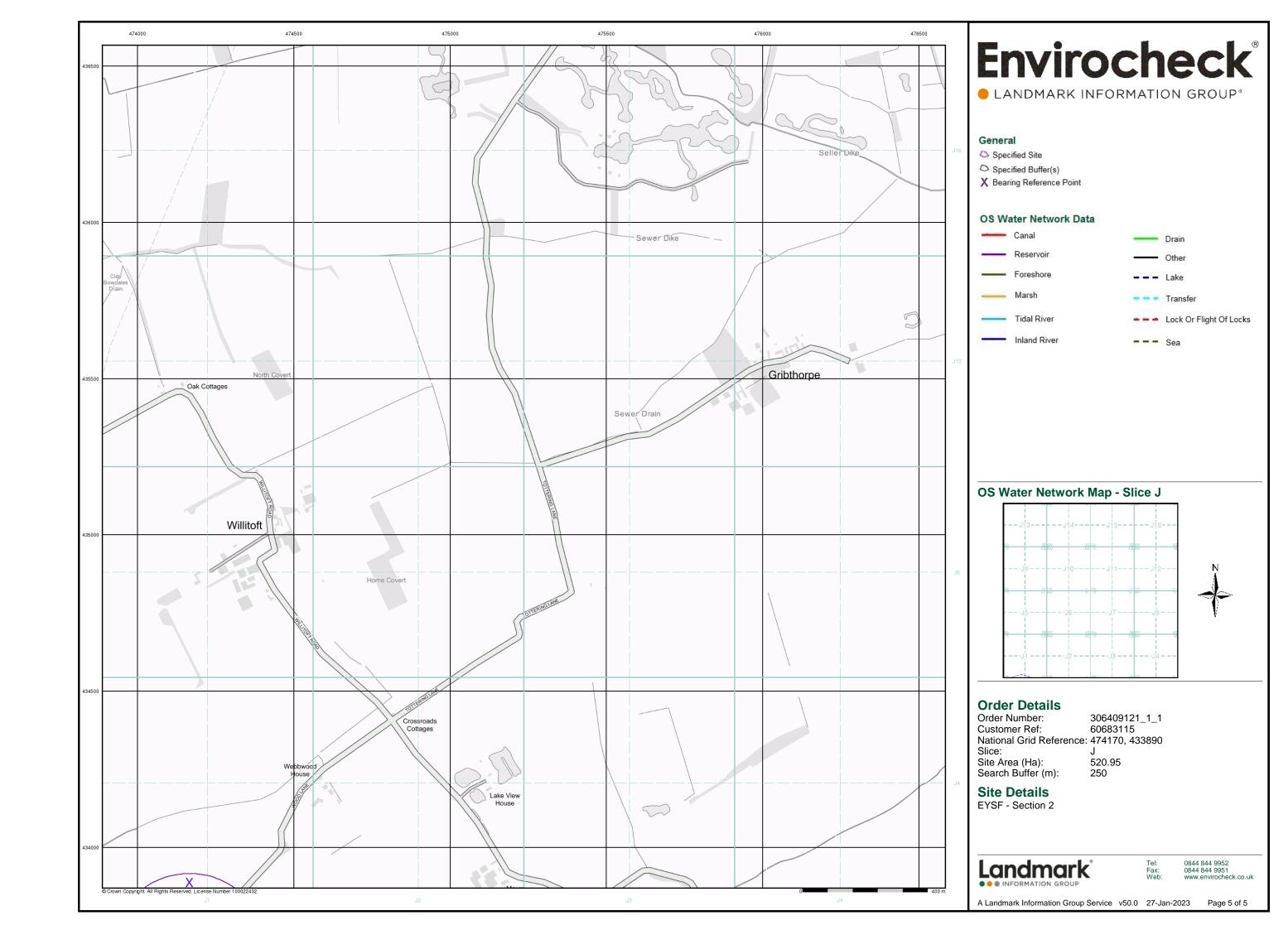


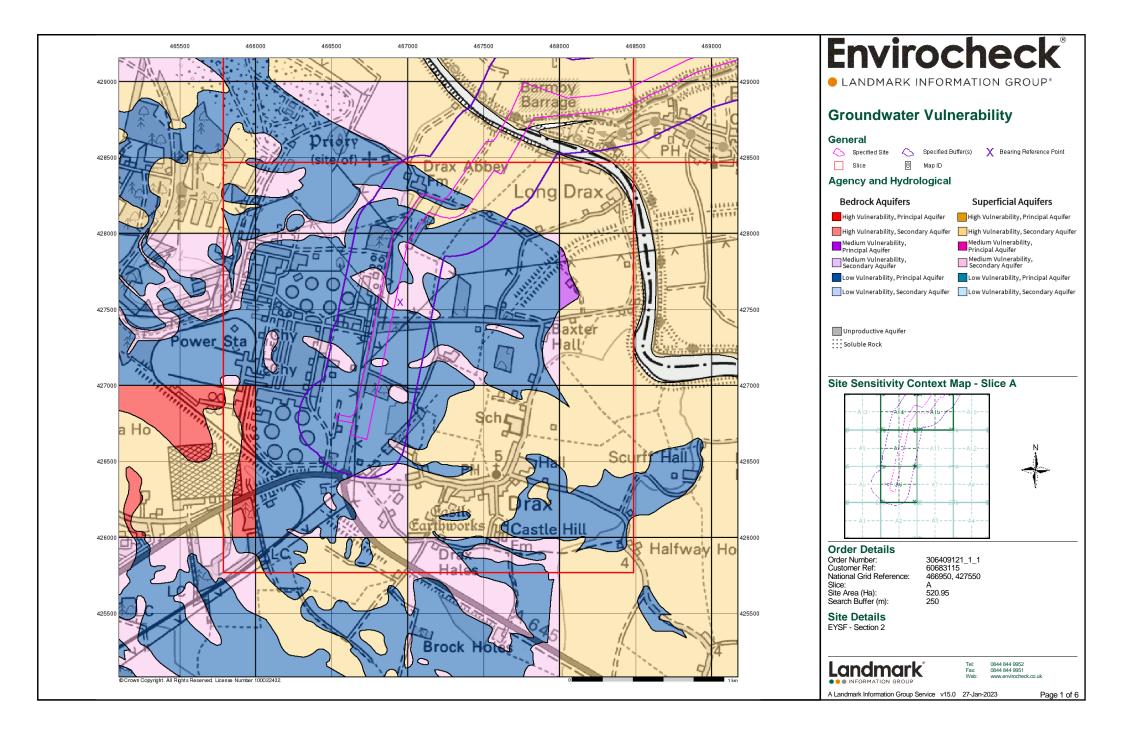


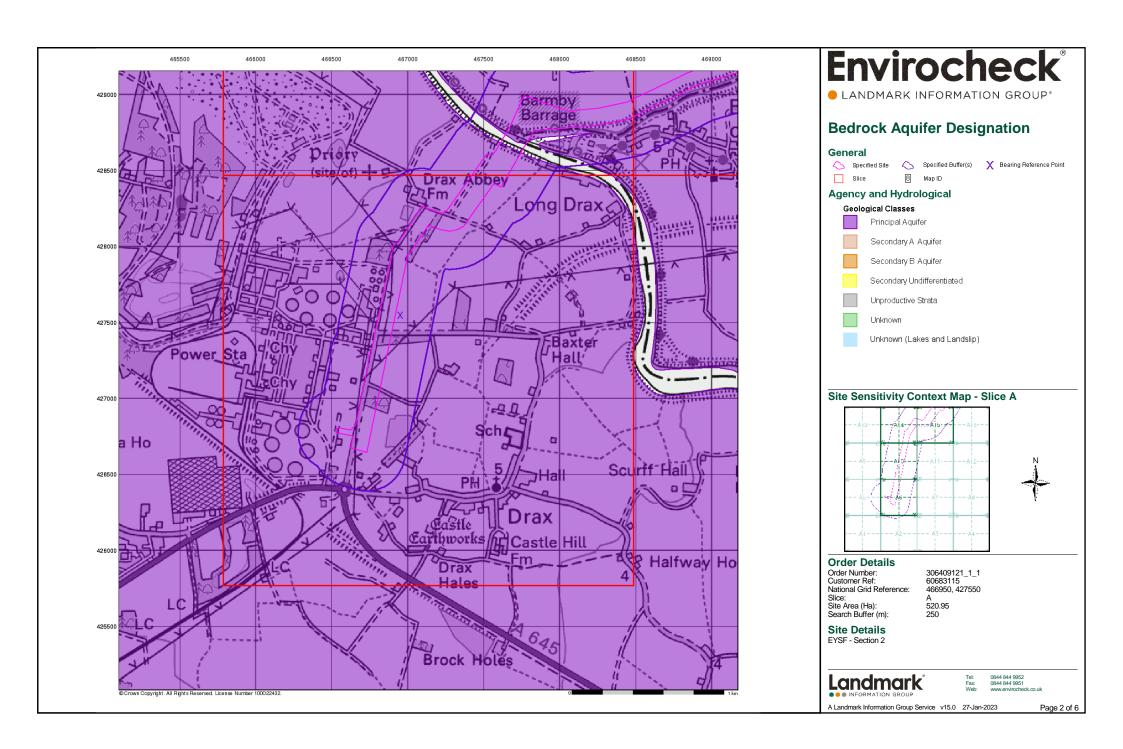


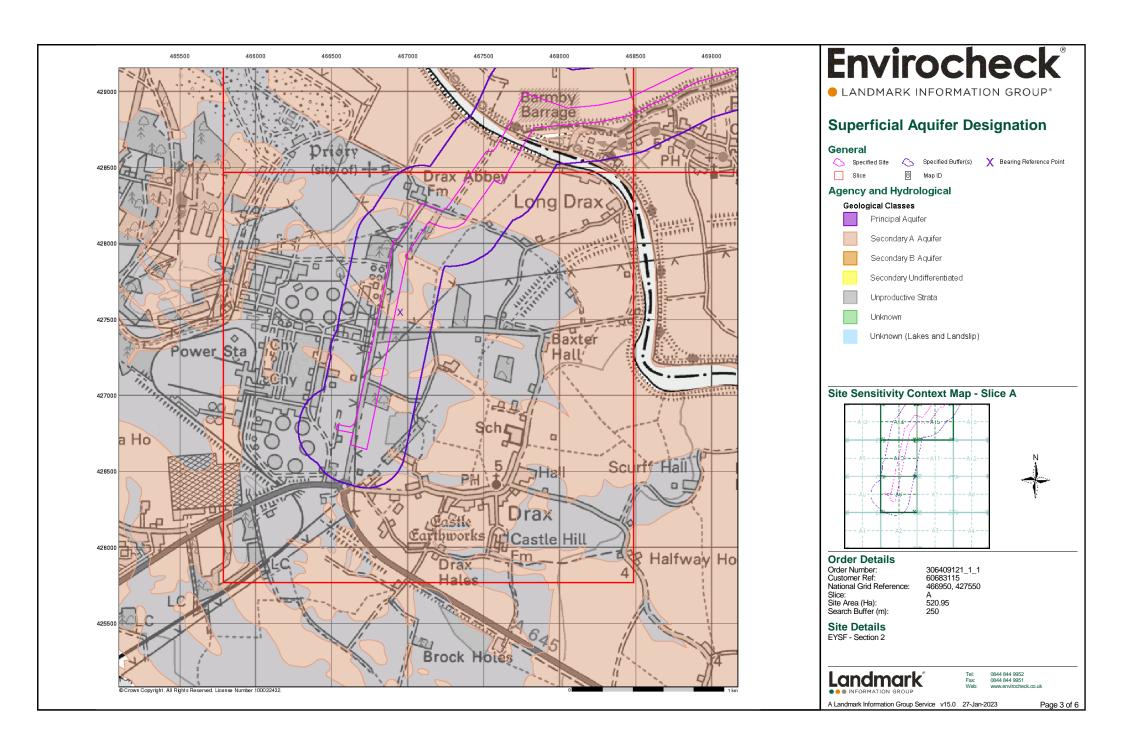


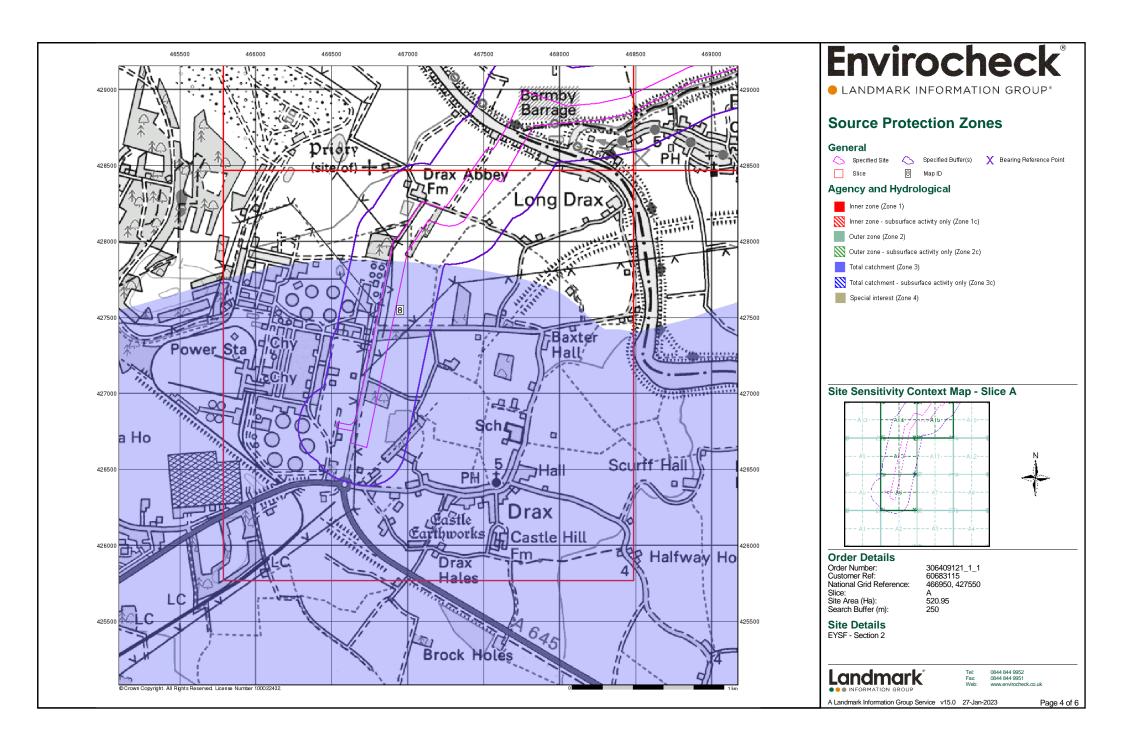


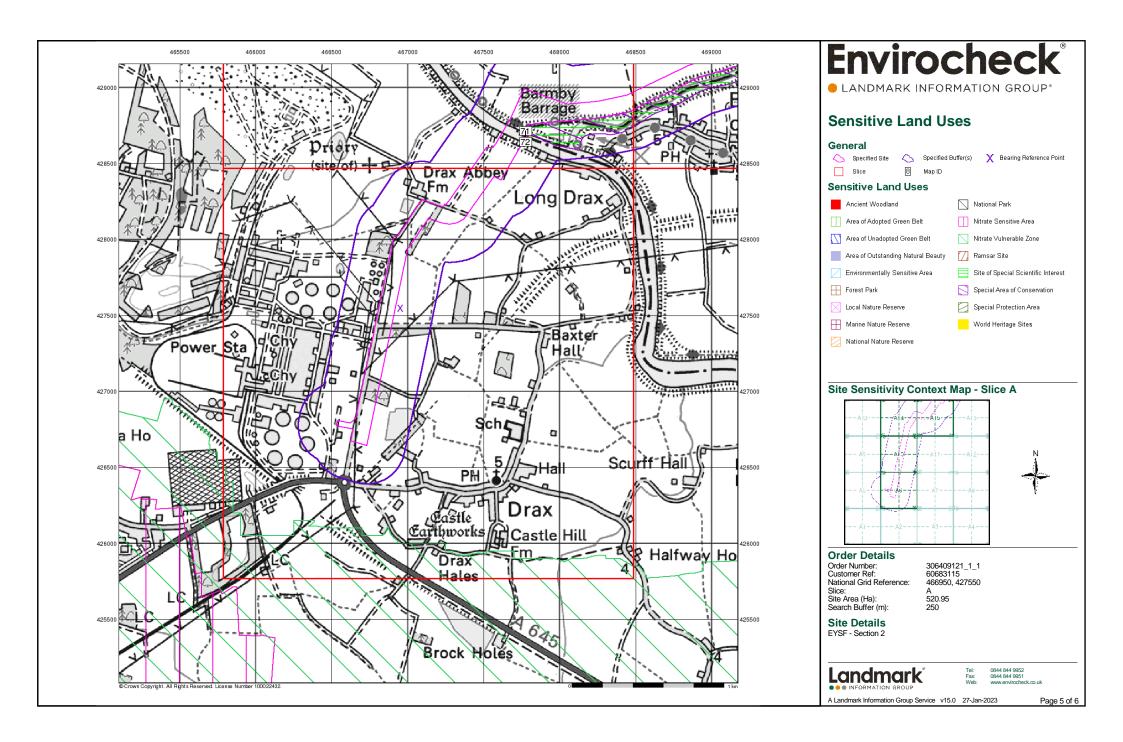


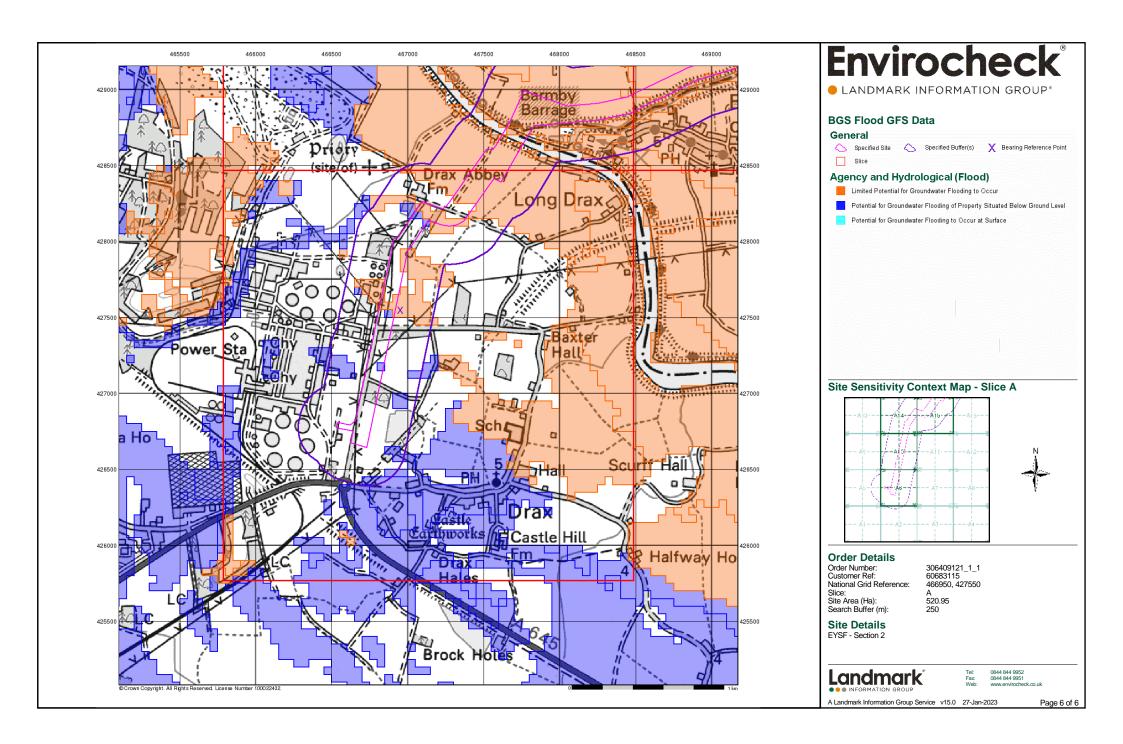


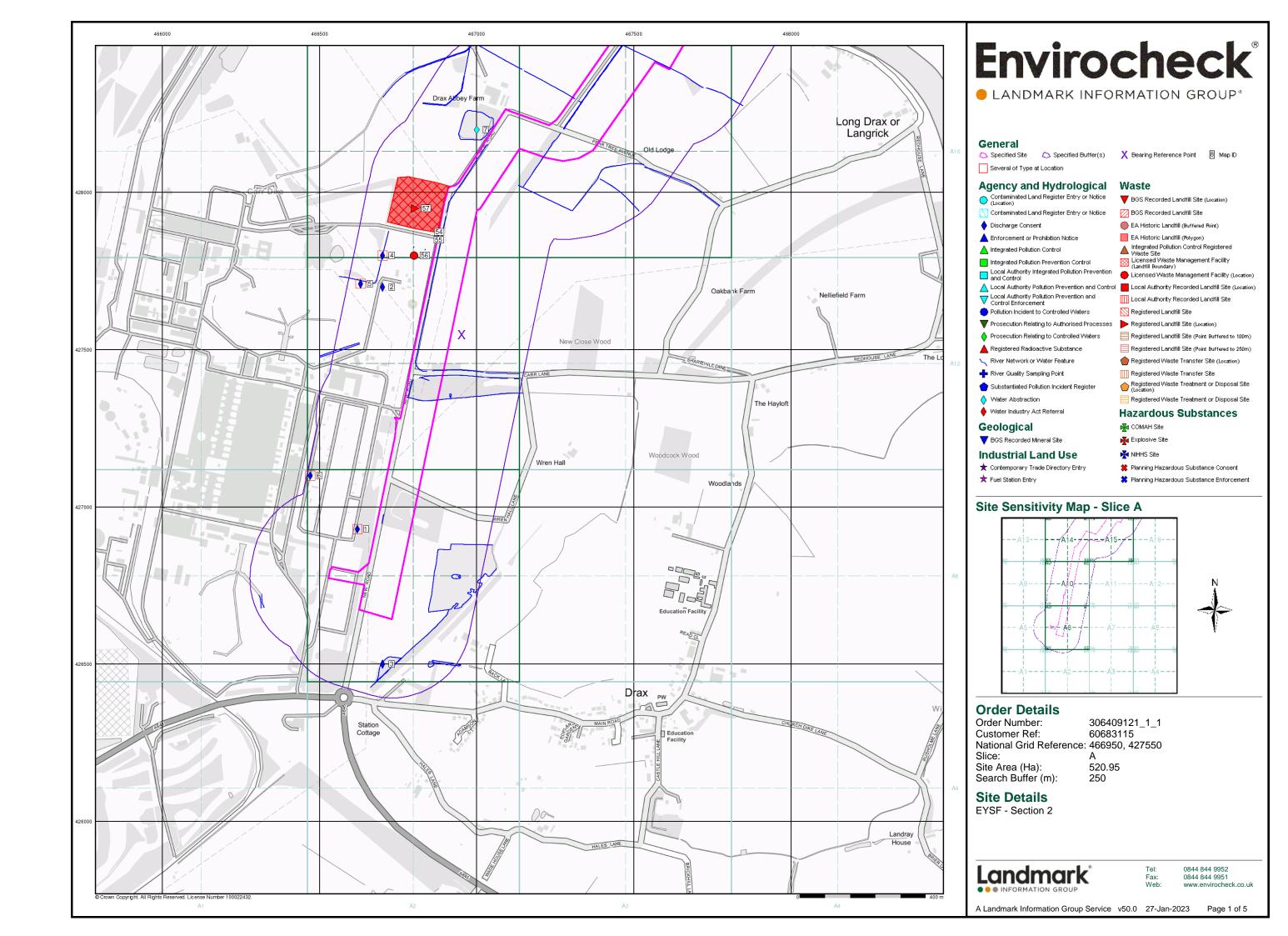


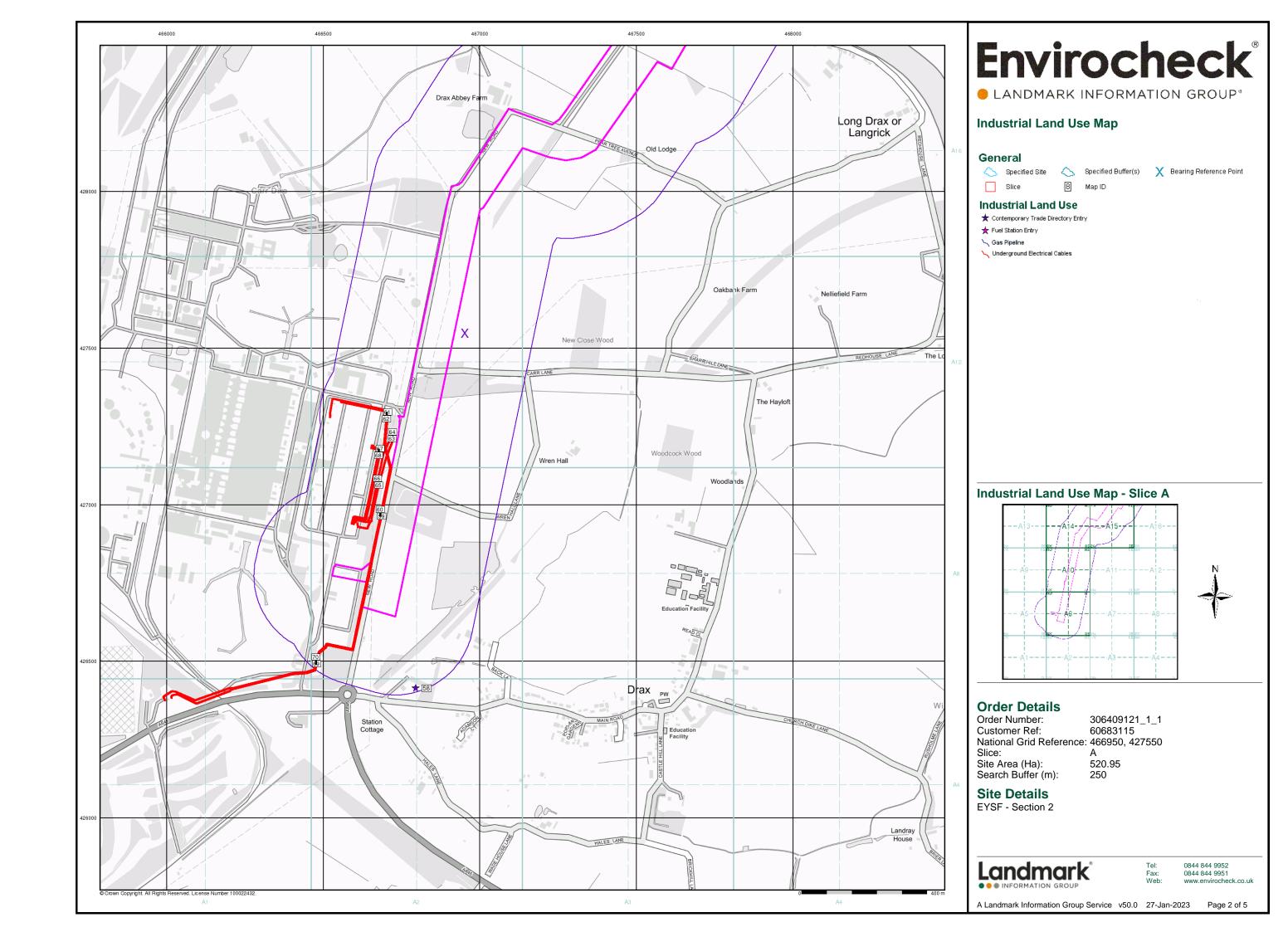


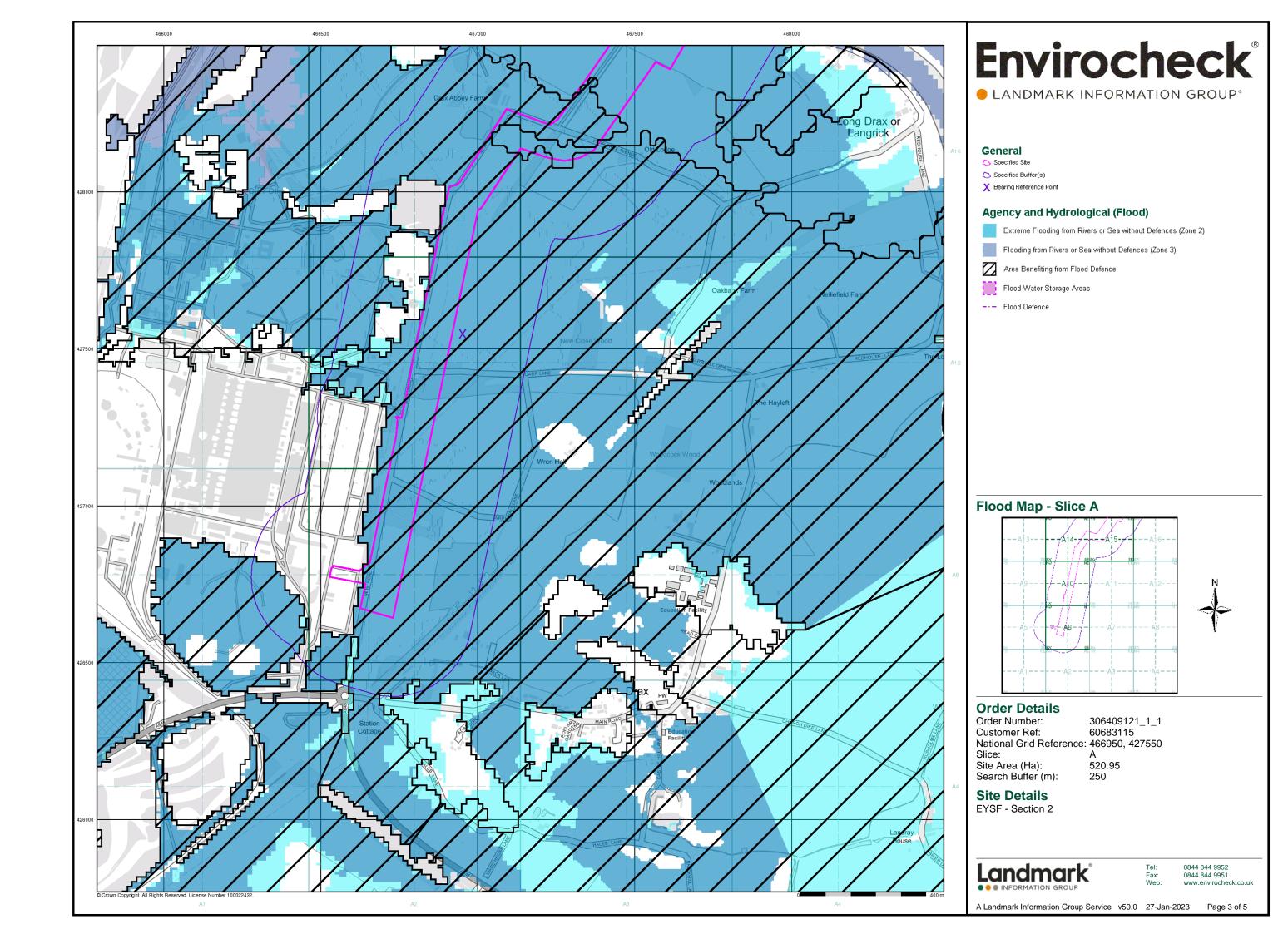


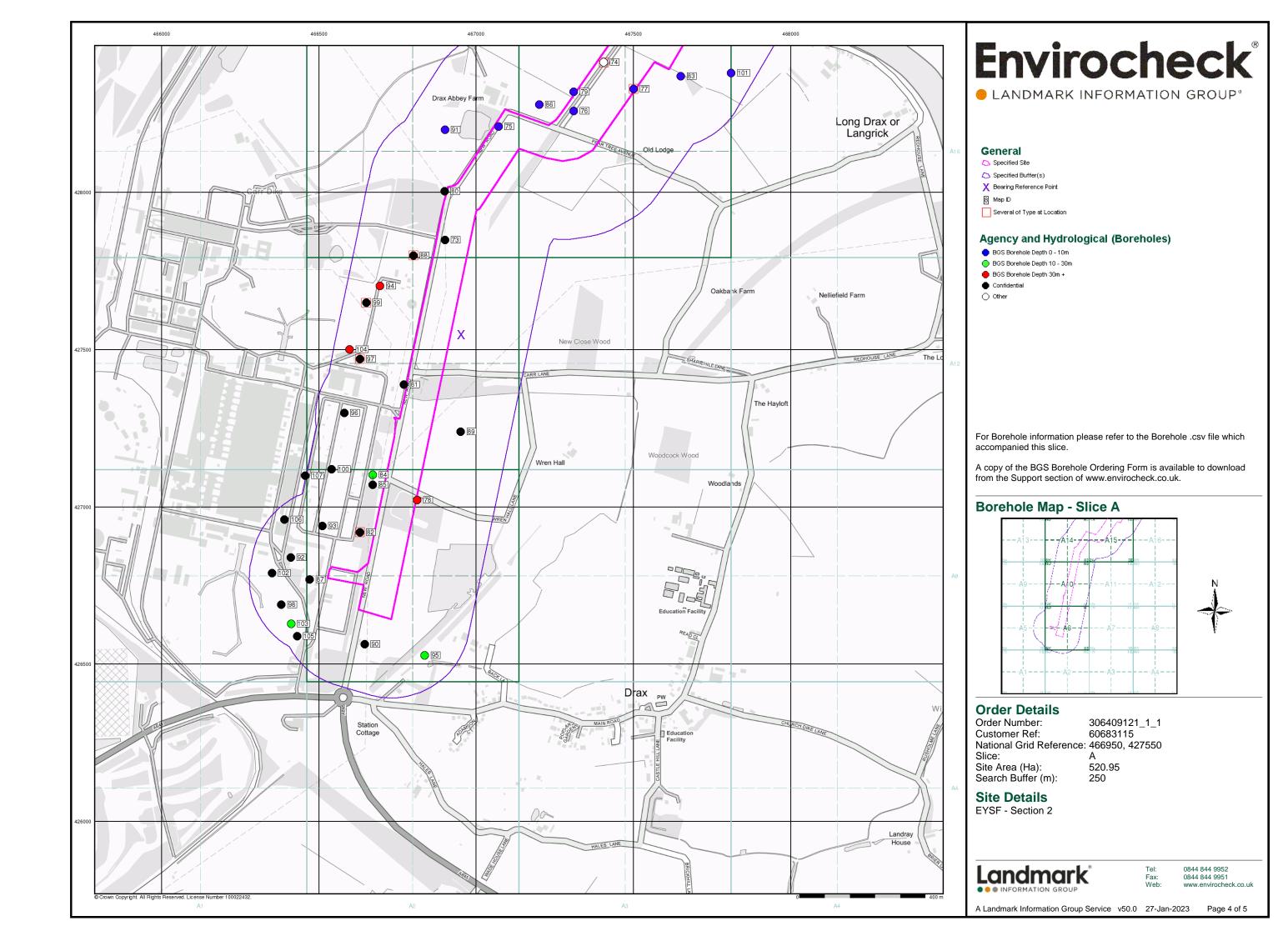


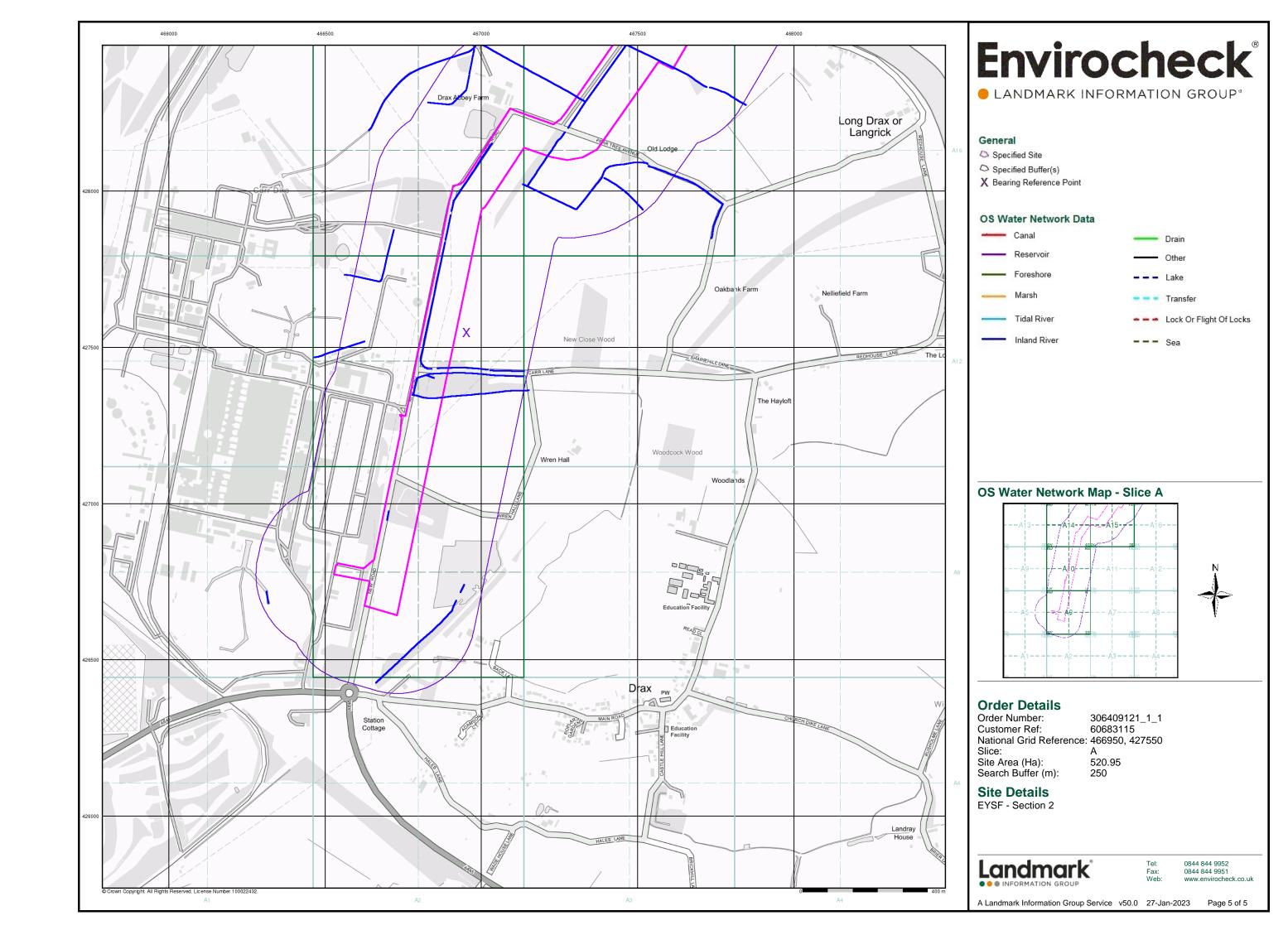


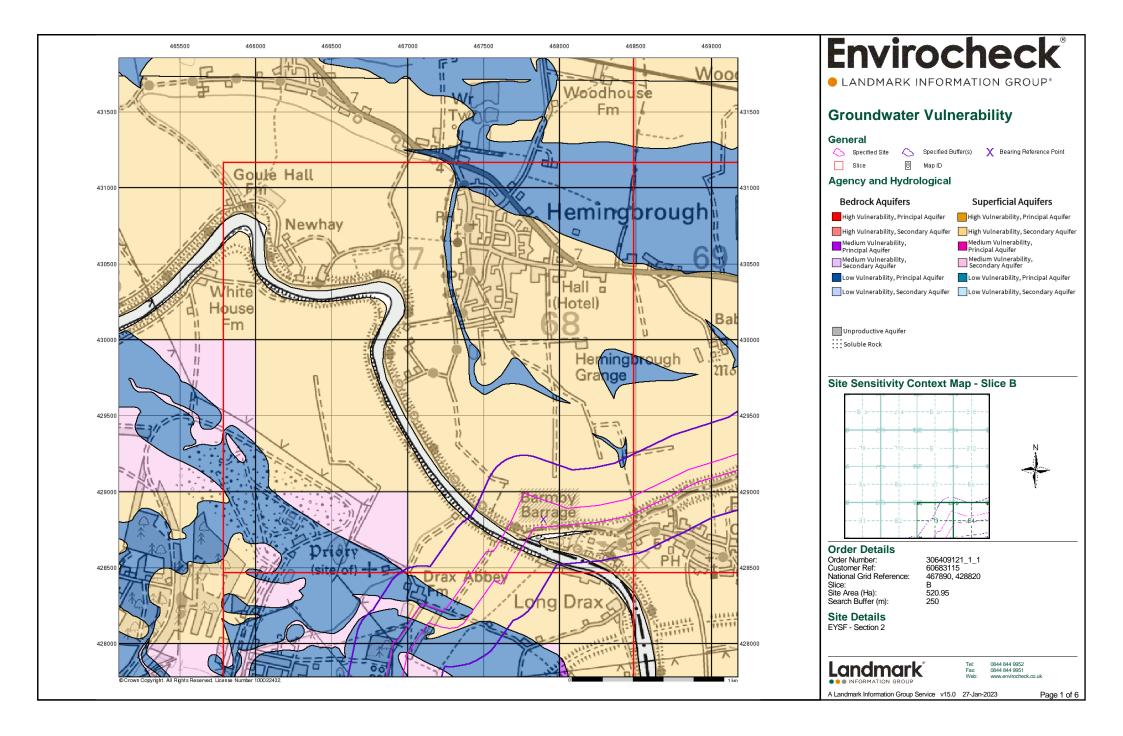


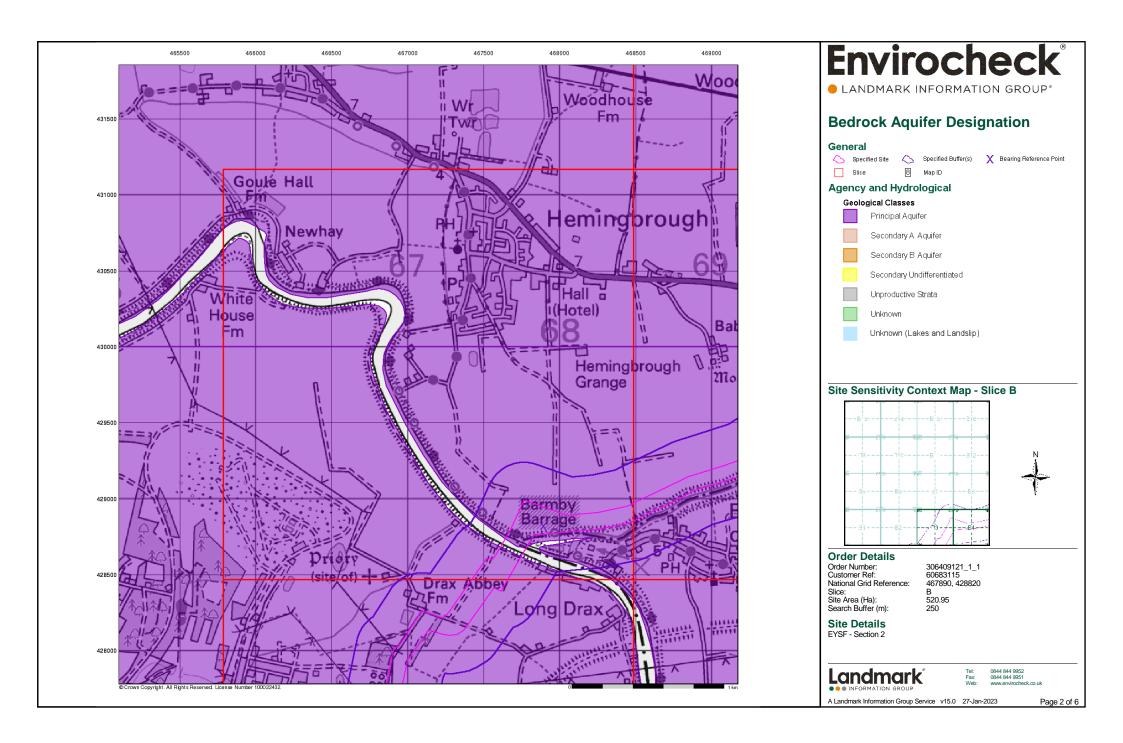


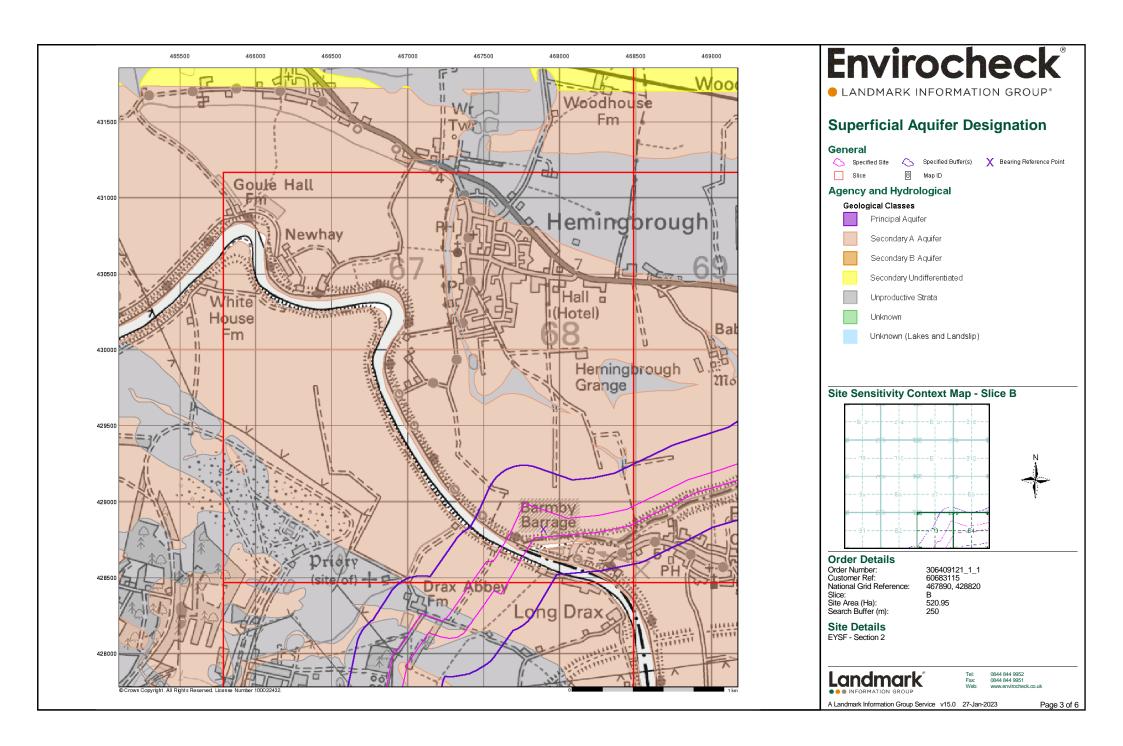


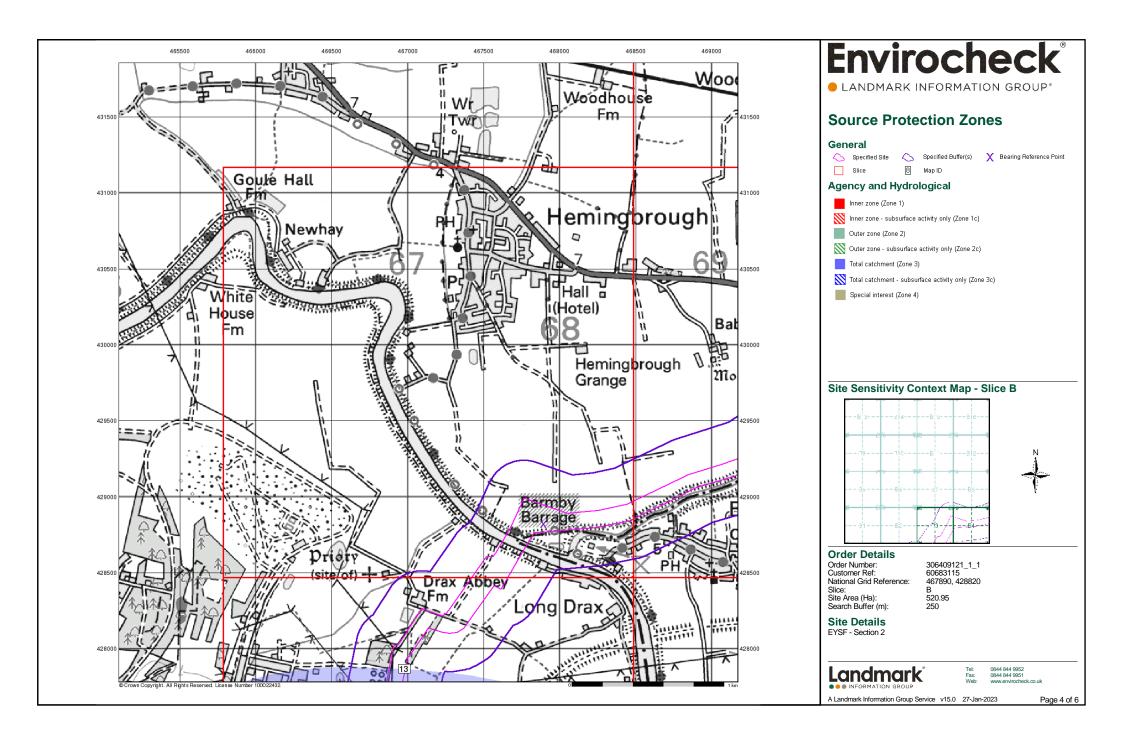


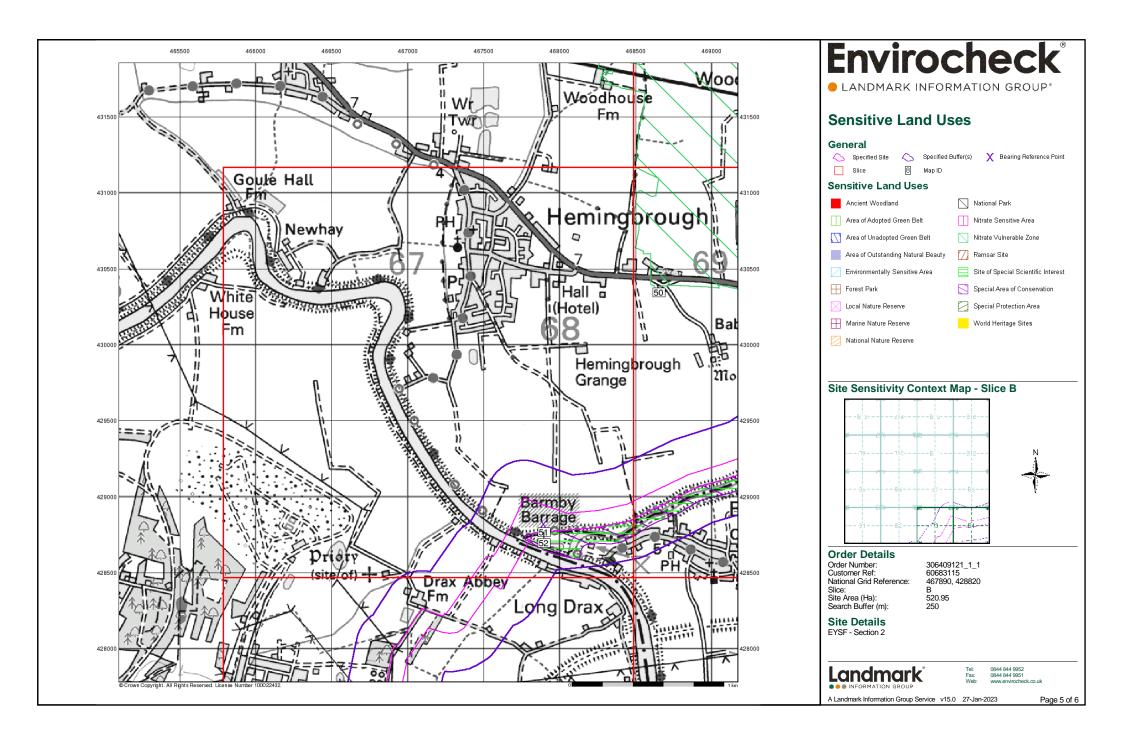


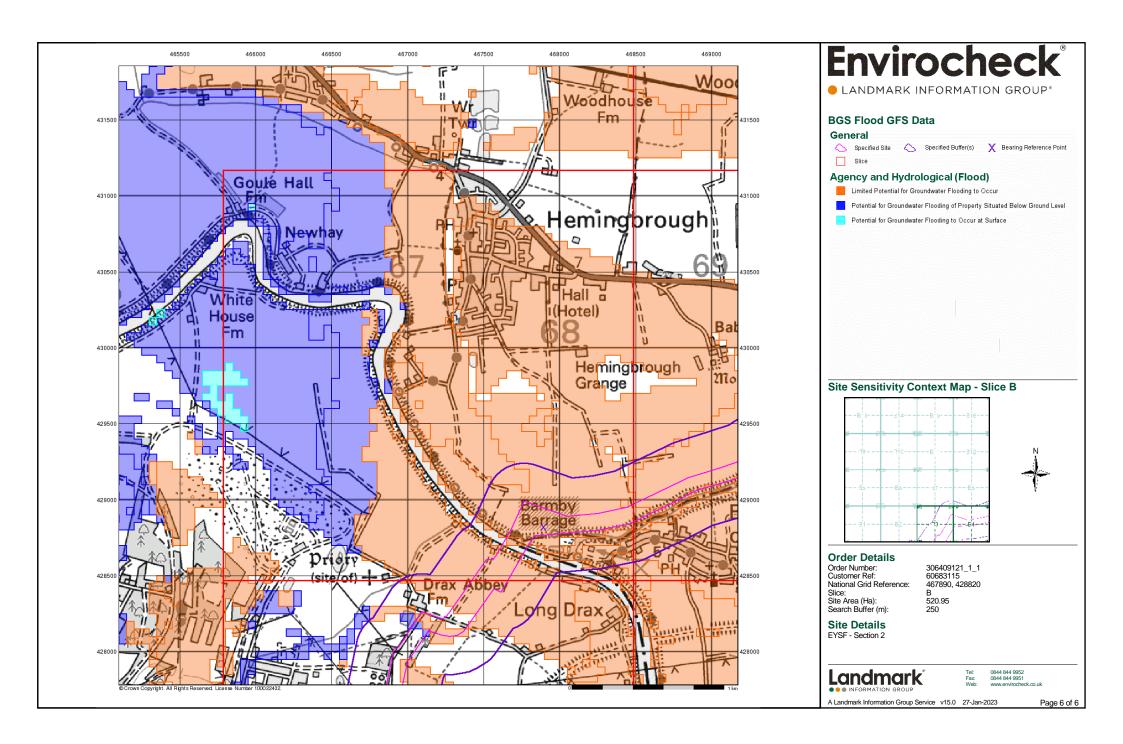












Annex C Exploratory Boreholes Records

X: 473225.41 Y: 430822.21 Level: 6.98 Start: End: Client: Network Rail Contractor: AECOM Engineer: Mott MacDonald Page 1 DEPTH METRES Depth Level Log Description MADE GROUND Grey and pinkish grey angular fine to coarse GRAVEL of igneous rock and limestone BALLAST 0.74 6.24 1.0 -1.20 5.78 2.0 -MADE GROUND Grey and pinkish grey sandy angular to subangular fine to coarse GRAVEL of igneous rock and limestone Sand is coarse 3.0 -4.0 -

Garforth to Hull Contract 1 L2H-P1-GH01-052 IP IP

IMPORTANT: This is a basic log auto-generated from AGS data held by the National Geoscience Data Centre (NGDC) and does not necessarily include all of the information supplied in the original AGS file. If you wish to deposit AGS files to the NGDC please see www.bgs.ac.uk/services/ngdc. Generated 27-02-2023 at 17:14 by BGS Groundhog (BETA). BGS Reference 202204261151002156

1. Hand Excavated Inspection Pit located in the 4ft of the HUL1 Down Line at approximate mileage 23m 1040y. 2. Hand Excavated Inspection Pit excavated using insulated hand tools, completed to 1.20m bgl. 3. Topography: 2.0m embankment. 4. No olfactory or visual evidence of contamination. 5. Groundwater not encountered during excavation. 6. Backfilled with arisings on completion.

Garforth to Hull Contract 1 L2H-P1-GH01-053 CPT X: 474258.01 Y: 430615.54 Level: 6.31 Start: End: Client: Network Rail Contractor: AECOM **Engineer: Mott MacDonald** Page 1 DEPTH METRES Depth Level Log Description MADE GROUND Grey to pinkish grey angular to subangular medium to coarse GRAVEL of igneous rock 0.54 5.77 0.93 5.38 1.0 -MADE GROUND Greyish brown slightly sandy silty angular 1.20 5.11 to subrounded fine to coarse GRAVEL of chert igneous rock and mudstone with abundant ash Sand is fine to coarse 2.0 -MADE GROUND Brown sandy clayey subangular to subrounded fine to coarse GRAVEL of chalk and flint with occasional ash 3.0 -Medium strength becoming high strength CLAY 3 4.00 2.31 4.0 -High strength silty CLAY to CLAY 4

IMPORTANT: This is a basic log auto-generated from AGS data held by the National Geoscience Data Centre (NGDC) and does not necessarily include all of the information supplied in the original AGS file. If you wish to deposit AGS files to the NGDC please see www.bgs.ac.uk/services/ngdc. Generated 27-02-2023 at 17:11 by BGS Groundhog (BETA). BGS Reference 202204261151002157

Garforth to Hull Contract 1 L2H-P1-GH01-053 CPT X: 474258.01 Y: 430615.54 Level: 6.31 Start: End: Client: Network Rail Contractor: AECOM Engineer: Mott MacDonald Page 2 DEPTH METRES Depth Description Level Log High strength silty CLAY to CLAY 4 6.0 -7.0 -8.0 -9.0 -9.93 -3.62

IMPORTANT: This is a basic log auto-generated from AGS data held by the National Geoscience Data Centre (NGDC) and does not necessarily include all of the information supplied in the original AGS file. If you wish to deposit AGS files to the NGDC please see www.bgs.ac.uk/services/ngdc. Generated 27-02-2023 at 17:11 by BGS Groundhog (BETA). BGS Reference 202204261151002157

Test completed at target depth.

X: 474311.72 Y: 430604.8 Level: 6.3 Start: End: Client: Network Rail Contractor: AECOM Engineer: Mott MacDonald Page 1 DEPTH METRES Depth Level Log Description MADE GROUND Grey to pinkish grey angular to subangular medium to coarse GRAVEL of igneous rock 5.79 0.51 1.0 -1.20 5.10 2.0 -MADE GROUND Greyish brown slightly sandy silty angular to subrounded fine to coarse GRAVEL of chert igneous rock and mudstone with abundant ash Sand is fine to coarse 3.0 -4.0 -

Garforth to Hull Contract 1 L2H-P1-GH01-056 IP IP

IMPORTANT: This is a basic log auto-generated from AGS data held by the National Geoscience Data Centre (NGDC) and does not necessarily include all of the information supplied in the original AGS file. If you wish to deposit AGS files to the NGDC please see www.bgs.ac.uk/services/ngdc. Generated 27-02-2023 at 17:08 by BGS Groundhog (BETA). BGS Reference 202204261151002164

1. Hand Excavated Inspection Pit located in the 4ft of the HUL1 Down Line at approximate mileage 22m 1590y. 2. Hand Excavated Inspection Pit excavated using insulated hand tools, completed to 1.20m bgl. 3. Topography: 1.0-2.0m embankment. 4. Ash recovered from 0.47m bgl. No olfactory evidence of contamination. 5. Groundwater was encountered at 1.2m bgl, rising to 0.91m bgl after 20 minutes. 6. Backfilled with arisings on completion.

X: 474293.9 Y: 430608.35 Level: 6.33 Start: End: Client: Network Rail Contractor: AECOM **Engineer: Mott MacDonald** Page 1 DEPTH METRES Depth Level Log Description MADE GROUND Grey to pinkish grey angular to subangular medium to coarse GRAVEL of igneous rock 0.47 5.86 0.89 5.44 1.0 -1.20 5.13 MADE GROUND Greyish brown slightly sandy silty angular to subrounded fine to coarse GRAVEL of chert igneous rock and mudstone with abundant ash Sand is fine to coarse 2.0 -3.0 -MADE GROUND Brown sandy clayey subangular to subrounded fine to coarse GRAVEL of chalk with occasional ash 4.0 -

Garforth to Hull Contract 1 L2H-P1-GH01-055 IP IP

IMPORTANT: This is a basic log auto-generated from AGS data held by the National Geoscience Data Centre (NGDC) and does not necessarily include all of the information supplied in the original AGS file. If you wish to deposit AGS files to the NGDC please see www.bgs.ac.uk/services/ngdc. Generated 27-02-2023 at 17:10 by BGS Groundhog (BETA). BGS Reference 202204261151002162

1. Hand Excavated Inspection Pit located in the 4ft of the HUL1 Down Line at approximate mileage 22m 1610y. 2. Hand Excavated Inspection Pit excavated using insulated hand tools, completed to 1.20m bgl. 3. Topography: 1.0-2.0m embankment. 4. Ash recovered from 0.47m bgl. No olfactory evidence of contamination. 5. Groundwater was encountered at 1.2m bgl, rising to 0.92m bgl after 20 minutes. 6. Backfilled with arisings on completion.

su	SURVEY OF EXISTING BOREHOLES									ENVIRONMENT AGENCY							
B.C	i.S.	Re	f. N	lo.						N	.G.R.	SE	7	49	343		Licence No.
Owners Name																	
Depth	3	+	19	2		22		23	23.5	50							3 4 cu m/d → .5 cu m/h
- DICK	3	4	12	4		_		1	0.5	26.5							Dia. 150 ~~ Depth 50 ~
STRAIA DETAILS	HARD BROWN CLAY	SIGH YELLOW SAND	ic Brown	SMACC		CONPACT CREEY SAND	(J. Conne)	SAND & GRAVEL - CHALL	BWE MAR / CAY		OCC THIN MARK						Lining Steal to 25m Well Sinker D. HUCHES Date JULY 1995 STRIKES @ 196235 Abd R.W.L. P.W.L. Rate.

SSL.3-RPC

Seismograph Service Limited

		DRILLING I	RECORD	British Geological Survey			
Hole No	79 694	02918	Location: 13	13			
Date 23 JUIVI 1965							
Prospect	Cochi						
Depth of Hole	150	Feet	Casing	I			
	ET	British Geological Survey	FORMATION	British Geological Survey			
Prom	70213			- 1000 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 -			
70	150	SANDSTO	11/1-				
	4572						
beological Survey		annan geological Somey		British Geological Survey			
		REMAR	KS	2.0			
	•						
	Ву	y		alasisal Opriller			

IMPORTANT-When samples are taken mention depth and number sent to office.

FORM WR - 38		
Agency No:	 V 153	Dalliah Caalesi



71

OREHOLE RECORD

SOUTHERN LS	NORTHEAST EX	SE73/20 SE73.5E
Borehole drilled for	R. HARE AND W	가득하는 사람들이 가는 사람들이 되었다. 이 사람들이 가입하게 되었다면 하나 없는 사람들이 되었다면 하다 되었다. 그런 사람들이 다른 사람들이 다른 사람들이 되었다면 하다 되었다면 하는데 되었다면 하다 되었다면 하는데 되었
Location	OAK TREE FARM, SA	ALDINGTON, HOWDEN, CAST YORKS
NGR (8 fig) Ground Level (if known)	SE 7692 3300	Please attach site plan
Drilling Company	DALES WATER SER	LUICES LTD
Date of drilling	Commenced:3 (2	96Completed: 6 12 96

CONSTRUCTION DETAILS

Borehole datum (If not ground level) (point from which all measurements of depth a	EDGE OF MANHOLE are taken eg flange, ødge of chamber, etc)	above m below GL
Borehole drilled diameter		to 60 m/depth
A	mm from	tom/depth
	mm from	tom/depth
PLAIN Casing material STEEL diameter	150 mm from GL	to 32 -50 m/depth
and type (eg plain steel, plastic slotted)diameter	mm from	to m/depth
diameter	mm from	to m/depth
British Geological Suney diameter	mm from	to m/depth
Grouting details		
Water struck at	40	_ m (depth below datum - mbd)
	51	_ m (depth below datum - mbd)
Rest water level on completion		_ m (depth below datum - mbd)

C. TEST PUMPING SUMMARY (Please supply fully details on Form WB - 39)

CLASSIFIED SHEET

Test Pumping Datum •		above m below borehole datum
(if different from borehole datum)	, · · · (m	nbd)
Pump Suction Depth	British Geological Survey	mbd Brillsh Geological Survey
Water Level (Start of Test)		mbd
Water Level (End of Test)		mbd
Pumping rate		m³/d : l/s
for		days/hours
Recovery to (from end of pumping)	mbd in	mins : hrs : days
Date(s) of measurements		
Please Supply Chemical Analysis If Available		Ţ

D. STRATA LOG

British Geological Survey

British Geological Survey

Geological Classification	Description of Strata	Thickness	Depth
(BGS only)		m	m
RH RH WECCIA HUDSTONE FORMSTON	TOP SOIL BROWN CLAY WITH BANDS OF SAND GRAVEL RED MARL AND SANDSTONE GREY SANDSTONE	20.65	60 00 40.00 57.20 51.00
British Geological Survey	Eritish Geological Survey	British G	eological Survey
	[continue on separate page if necessary] Other Comments (eg gas encountered, saline water intercepted, etc)		

FOR OFFICIAL USE ONLY	British Aprilantinal Brings	British Continued Stines
FILE	CONSENT NO	BGS REF NO
LICENCE NO	USE OF BH	NGR

FORM WR - 38		
Agency No:	 V 153	Dalliah Caalesi



71

OREHOLE RECORD

SOUTHERN LS	NORTHEAST EX	SE73/20 SE73.5E
Borehole drilled for	R. HARE AND W	
Location	OAK TREE FARM, SA	ALDINGTON, HOWDEN, CAST YORKS
NGR (8 fig) Ground Level (if known)	SE 7692 3300	Please attach site plan
Drilling Company	DALES WATER SER	LUICES LTD
Date of drilling	Commenced:3 (2	96Completed: 6 12 96

CONSTRUCTION DETAILS

Borehole datum (If not ground level) (point from which all measurements of depth a	EDGE OF MANHOLE are taken eg flange, ødge of chamber, etc)	above m below GL
Borehole drilled diameter		to 60 m/depth
A	mm from	tom/depth
	mm from	tom/depth
PLAIN Casing material STEEL diameter	150 mm from GL	to 32 -50 m/depth
and type (eg plain steel, plastic slotted)diameter	mm from	to m/depth
diameter	mm from	to m/depth
British Geological Suney diameter	mm from	to m/depth
Grouting details		
Water struck at	40	_ m (depth below datum - mbd)
	51	_ m (depth below datum - mbd)
Rest water level on completion		_ m (depth below datum - mbd)

C. TEST PUMPING SUMMARY (Please supply fully details on Form WB - 39)

CLASSIFIED SHEET

Test Pumping Datum •		above m below borehole datum
(if different from borehole datum)	, · · · (m	nbd)
Pump Suction Depth	British Geological Survey	mbd Brillsh Geological Survey
Water Level (Start of Test)		mbd
Water Level (End of Test)		mbd
Pumping rate		m³/d : l/s
for		days/hours
Recovery to (from end of pumping)	mbd in	mins : hrs : days
Date(s) of measurements		
Please Supply Chemical Analysis If Available		Ţ

D. STRATA LOG

British Geological Survey

British Geological Survey

Geological Classification	Description of Strata	Thickness	Depth
(BGS only)		m	m
RH RH WECCIA HUDSTONE FORMSTON	TOP SOIL BROWN CLAY WITH BANDS OF SAND GRAVEL RED MARL AND SANDSTONE GREY SANDSTONE	20.65	60 00 40.00 57.20 51.00
British Geological Survey	Eritish Geological Survey	British G	eological Survey
	[continue on separate page if necessary] Other Comments (eg gas encountered, saline water intercepted, etc)		

FOR OFFICIAL USE ONLY	British Aprilantinal Brings	British Continued Stines
FILE	CONSENT NO	BGS REF NO
LICENCE NO	USE OF BH	NGR

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SSL.3-RPC

Seismograph Service Limited

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		REMAR	cs

IMPORTANT-When samples are taken mention depth and number sent to office.

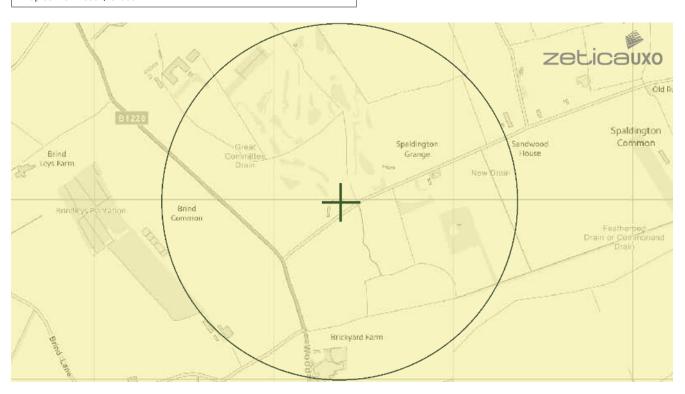
Annex D Zetica UXO Map

UNEXPLODED BOMB RISK MAP

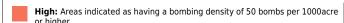


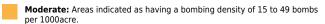
SITE LOCATION

Location: DN14 7NG, Map Centre: 475381.431986



LEGEND





Low: Areas indicated as having 15 bombs per 1000acre or less.

















Bombing decoy



How to use your Unexploded Bomb (UXB) risk map?

The map indicates the potential for Unexploded Bombs (UXB) to be present as a result of World War Two (WWII) bombing.

You can incorporate the map into your preliminary risk assessment* for potential Unexploded Ordnance (UXO) for a site. Using this map, you can make an informed decision as to whether more in-depth detailed risk assessment* is necessary.

What do I do if my site is in a moderate or high risk area?

Generally, we recommend that a detailed UXO desk study and risk assessment is undertaken for sites in a moderate or high UXB risk area.

Similarly, if your site is near to a designated Luftwaffe target or bombing decoy then additional detailed research is recommended.

More often than not, this further detailed research will conclude that the potential for a significant UXO hazard to be present on your site is actually low.

Never plan site work or undertake a risk assessment using these maps alone. More detail is required, particularly where there may be a source of UXO from other military operations which are not reflected on these maps.

If my site is in a low risk area, do I need to do anything?

If both the map and other research confirms that there is a low potential for UXO to be present on your site then, subject to your own comfort and risk tolerance, works can proceed with no special precautions.

A low risk really means that there is no greater probability of encountering UXO than anywhere else in the UK.

If you are unsure whether other sources of UXO may be present, you can ask for one of our **pre-desk study assessments (PDSA)**

If I have any questions, who do I contact?

tel: +44 (0) 1993 886682 email: uxo@zetica.com web: www.zeticauxo.com

The information in this UXB risk map is derived from a number of sources and should be used in conjunction with the accompanying notes on our website: (https://zeticauxo.com/downloads-and-resources/risk-maps/)

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It is important to note that this map is not a UXO risk assessment and should not be reported as such when reproduced.

*Preliminary and detailed UXO risk assessments are advocated as good practice by industry guidance such as CIRIA C681 'Unexploded Ordnance (UXO), a guide for the construction industry'.