

Section 6 Preliminary Conceptual Site Model

6.1 Sources and Pathways of Contamination

The Landmark Site Specific Envirocheck Report and Site Walkover have been used to identify potential contaminative sources. These sources have been presented in Table 5.2. An assessment of the likely pathways and the likelihood of each contaminative source that was considered a risk has been presented in Sections 6.2 to 6.4.

6.2 Potential Pathways

A review of the potential pathways on and off the site has been undertaken based on the site, ground conditions, hydrology and scientific knowledge of the behaviour of the contaminants in the ground. The pathways applicable to the site and the proposed development have been marked in Table 6.1.

Table 6.1 Applicable Pathways

Pathway	Present	Comment
Inhalation of dust	✓	Future users of the site
Inhalation of vapour/gases	✓	Construction workers on-site
Ingestion and absorption via direct contact	✓	Service and maintenance workers Site neighbours and wider public
Migration via surface runoff	✓	Surface Water
Migration in solution via groundwater	✓	Through permeable River Terrace Deposits
Migration of gases via permeable soils	✓	
Direct contact with construction material	✓	Buried Structures
Services and utilities	✓	Buried Services

6.3 Potential Sources of On-site Contamination.

These sources are presented in Table 6.2.

Table 6.2 On-site Potential Contamination Sources

Source	Likely	Reasoning
Domestic rubbish		Unlikely, very small quantity of plastic and metal frame will be removed during site formation, and the ground was all hardstanding.
Agriculture use (if arable)		Unlikely, as it was dated over 100 years ago.
Car park	✓	From Google Earth image, car park was noted since 2000 until demolished in 2022

6.4 Potential Off-site Sources of Contamination

These sources are presented in Table 6.3.

Table 6.3 Off-site Potential Contamination Sources

Source	Direction	Distance (m)	Likely	Reasoning
Cleaning services	S	60		Down hydraulic gradient
Agriculture use (if arable)	N/E/S/W	<250		Unlikely over 100 years ago and lands already developed as residential houses
Allotment gardens	E	75		Not on hydraulic gradient
Allotment gardens	NW	75		Not on hydraulic gradient
Electricity sub-station	SE	125		Down hydraulic gradient and remote from site. Potential contaminants (PCB's) have very low mobility.
Electricity sub-station	S	130		
Cleaning services	E	232		

6.5 Potential Contaminants

Table 6.4 presents the range of possible contaminants associated with the onsite and off-site activities and sources identified following a review of historical maps and datasets.

Table 6.4 Potential Contaminants

Potential Contaminative Sources	Contaminants / Chemical Properties
Car park	Metals, Semi-metals and non-metals, PAHs, TPHs, Asbestos, pH

6.6 Potential Exposure Receptors

The assessment for potential receptors is presented in Table 6.5.

Table 6.5 Potential Receptors

Potential Receptor	Present
Human Health	
Future users of the site (End Users)	✓
Construction workers on-site (Site Workers)	✓
Service and maintenance workers (Site Maintenance)	✓
Site neighbours and wider public (Off-site Users)	✓
Groundwater /	
Controlled	
Waters	
Surface Water	✓
Shallow Aquifer	✓
Deep Aquifer	
Buildings &	
Materials	
Buildings and Confined Spaces	✓
Buried Structures	✓
Buried Services	✓
Ecosystems	
Flora and fauna	

6.7 Preliminary Conceptual Site Model and Risk Assessment

A preliminary risk assessment has been undertaken based on the proposed development. The assessment has been based on the likelihood of the presence of a pollutant linkage.

A pollutant linkage is the relationship between a contaminant source, a pathway and a receptor. Unless all three elements of a pollutant linkage are present, a risk is not considered to exist. Each of the three elements has been considered within Table 6.1 to Table 6.5. The preliminary conceptual site model and risk assessment is presented in Table 6.6. The classification tables on which the level of risk has been determined have been modified from 'Contaminated land risk assessment: A guide to good practice, 2001, CIRIA C552' and are presented in Appendix G.

Table 6.6 Preliminary Conceptual Site Model and Risk Assessment Methodology

Source (Table 6.2 & Table 6.3)	Potential Contaminant (Table 6.4)	Exposure Pathway (Table 6.1)	Receptor (Table 6.5)	Initial Assessment from Preliminary Investigation Report Information		Comments	Proposed Investigation
				Severity	Probability		
Car park On-site historic and current site usage.	Metals, Semi-metals and non- metals, PAHs, TPHs, MTBE and BTEX, Asbestos, pH	Inhalation of dust	Site Workers/Site Maintenance	Mild	Low	The site is location on Unproductive strata of the London Clay Formation, rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow. Superficial River Terrace Deposits classified as Secondary A Aquifer which support shallow groundwater flow.	Phase II ground investigation to confirm the ground conditions present and chemical testing prior to undertaking a generic quantitative risk assessment.
			End Users	Mild	Unlikely		
			Off-site Users	Mild	Unlikely		
			Site Workers/Site Maintenance	Mild	Low		
	PAHs, TPHs, MTBE and BTEX	Inhalation of vapour/gases (including Radon)	End Users	Mild	Unlikely		
			Off-site Users	Mild	Unlikely		
			Site Workers/Site Maintenance	Mild	Low		
			End Users	Mild	Unlikely		
	Metals, Semi-metals and non- metals, PAHs, TPHs, MTBE and BTEX, Asbestos, pH	Ingestion and absorption via direct contact	Site Workers/Site Maintenance	Mild	Low		
			End Users	Mild	Unlikely		
	Metals, Semi-metals and non- metals, PAHs, TPHs, MTBE and BTEX, Asbestos, pH	Migration via surface runoff Migration in solution via groundwater Direct contact with construction material	Surface Water	Mild	Low		
			Surface Water	Mild	Low		
			Shallow Aquifer	Mild	Low		
			Buried Structures	Mild	Low		
			Buried Services				

Section 7 Recommendations

7.1 General

Based on the information obtained during the compilation of this Preliminary Investigation Report and the preliminary conceptual site model, a potential for a **very low to low** risk of contamination has been identified.

7.2 UXO

A specialist UXO risk assessment is required for the proposed development.

7.3 Radon

Basic radon protective measures are required for the proposed development.

7.4 Proposed Further Site Works

The general requirements for further environmental investigation are presented in Table 7.1.

Table 7.1 Proposed Further Environmental Investigation

Proposed Works	General Purpose	Required
Investigatory Holes	To collect sufficient samples for a robust assessment	✓
Laboratory Testing	To quantify the risks identified in the Conceptual Site Model	✓
Risk Assessment	Assess pollutant linkages based on current contaminated land guidance and screening criteria's	✓
Borehole well installation	To allow for continued groundwater and/or gas monitoring	X
Remediation	If the site-specific risk assessment reveals that the site was contaminated	TBC
Validation & Verification	To validate and verify the remedial objectives based on the site-specific risk assessment	TBC
Note(s): TBC – To be confirmed		

7.5 Discovery Strategy

There may be areas of contamination not identified during the investigation. Such occurrences may also be discovered during the demolition and construction phases for the redevelopment of the site.

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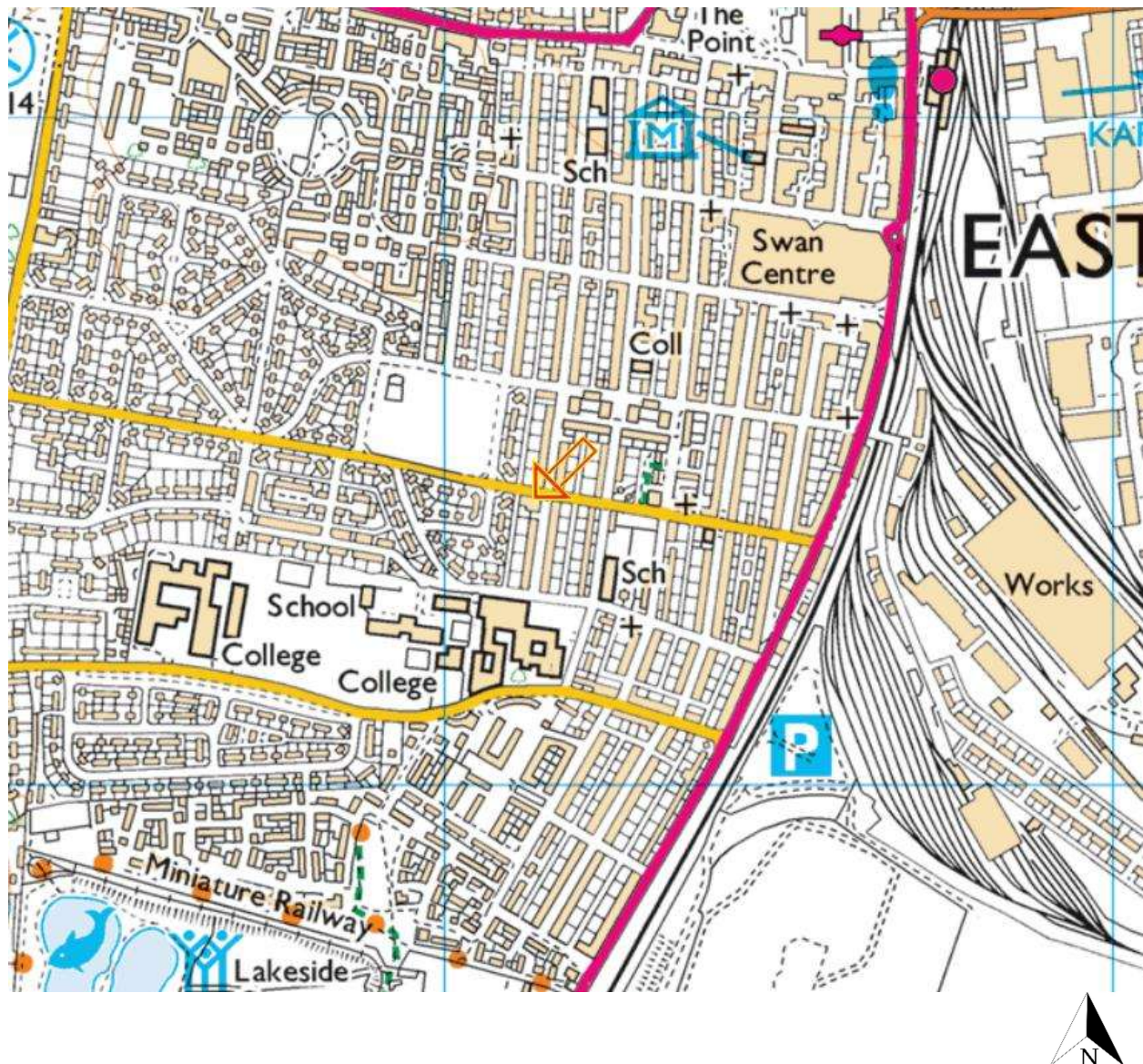


Figure 1 – Site Location Map

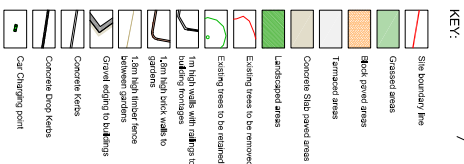
Job Number
19192

Project
Samsons Gym, 237 Chamberlayne Road, Eastleigh, Hampshire SO50 5JB

Client
Eastleigh Borough Council

Date
May 2021

Appendix A Proposed Development Plans



Notes

The Contractor is to check all dimensions and conditions on site before commencing. Do not scale from this drawing.

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Scale bars TO BE USED ON V.A.S. G.P. PAPER

1:500	2.5m	1:1000	5.0m	1:2000	10.0m
1:250	5.0m	1:500	10.0m	1:1000	20.0m
1:100	10.0m	1:250	20.0m	1:500	40.0m
1:500	5.0m	1:1000	10.0m	1:2000	20.0m

Project Status	Description	Planning Status
Item		By Date
P03	Issued for Planning	L01 26.06.23
P02	Issued for Planning	L01 31.05.23
P01	Issued for review	L01 17.05.23

Stage 3 Planning

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Aspect (Eastleigh) Ltd
Redevelopment of
Samson's Gym

PROPOSED SITE PLAN

17/05/2022	1:100	@ A1
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Drawn By		
3D CoOrd		

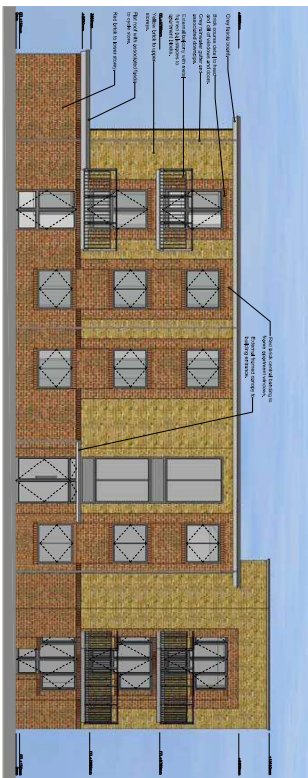




West Elevation



South Elevation



East Elevation



North Elevation

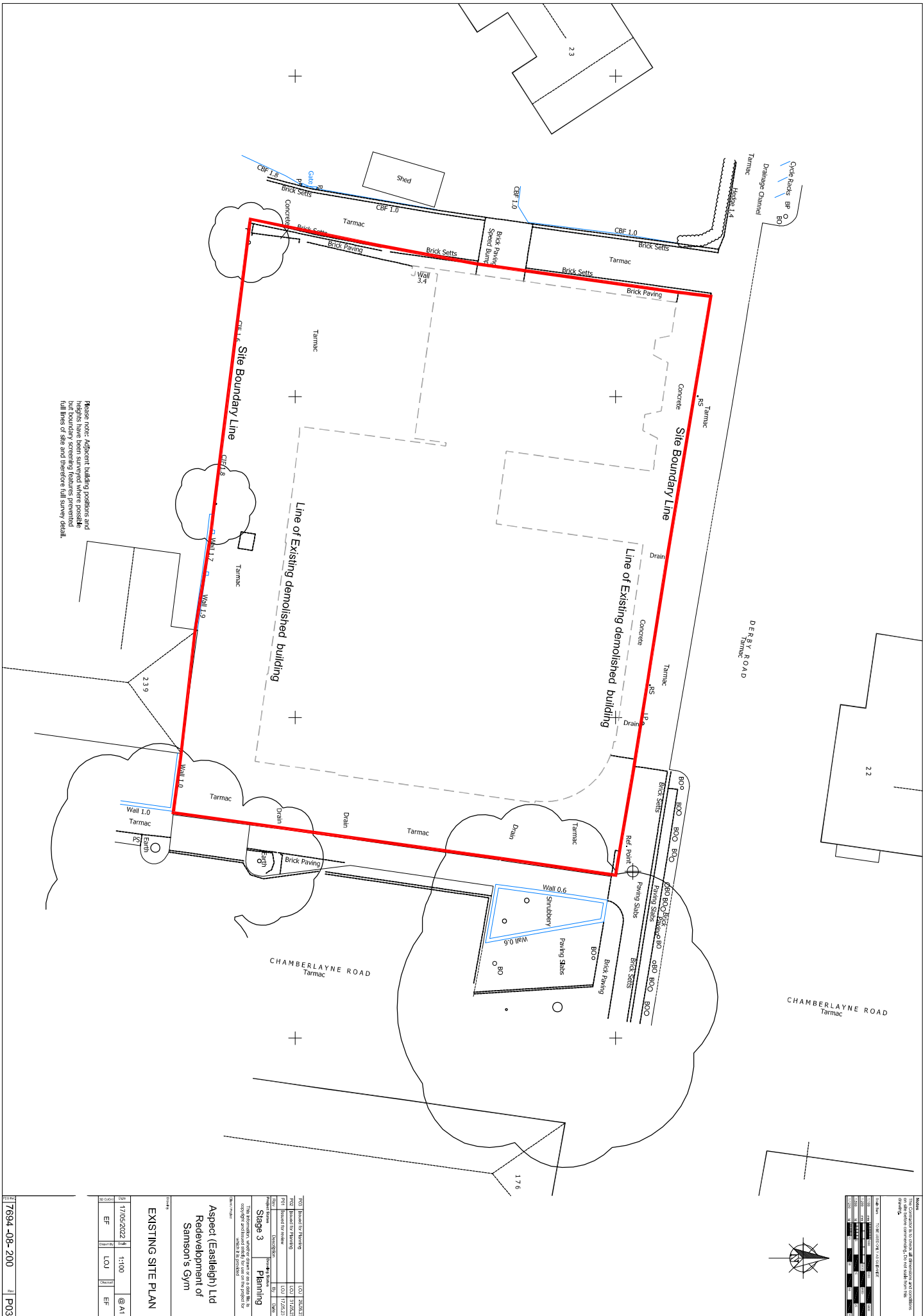
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Proposed Elevations

**Aspect (Eastleigh) Ltd
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Samson's Gym**

Planning

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Appendix B Country Series and Ordnance Survey Maps

Groundwater Vulnerability

General

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

Agency and Hydrological

Bedrock Aquifers

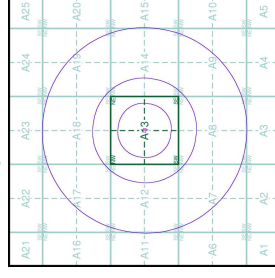
- High Vulnerability, Principal Aquifer
- High Vulnerability, Secondary Aquifer
- Medium Vulnerability, Principal Aquifer
- Medium Vulnerability, Secondary Aquifer
- Low Vulnerability, Principal Aquifer
- Low Vulnerability, Secondary Aquifer

Superficial Aquifers

- High Vulnerability, Principal Aquifer
- High Vulnerability, Secondary Aquifer
- Medium Vulnerability, Principal Aquifer
- Medium Vulnerability, Secondary Aquifer
- Low Vulnerability, Principal Aquifer
- Low Vulnerability, Secondary Aquifer

- Unproductive Aquifer
- Soluble Rock

Site Sensitivity Context Map - Slice A



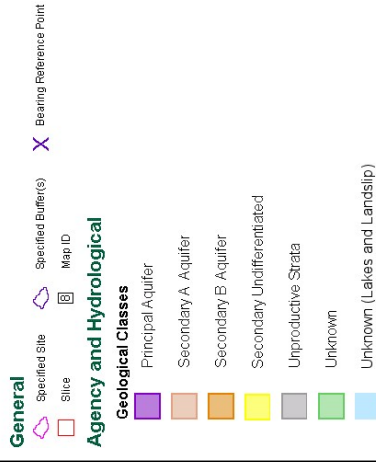
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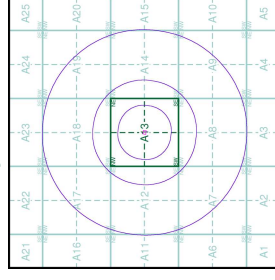
Site Details

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Bedrock Aquifer Designation



Site Sensitivity Context Map - Slice A



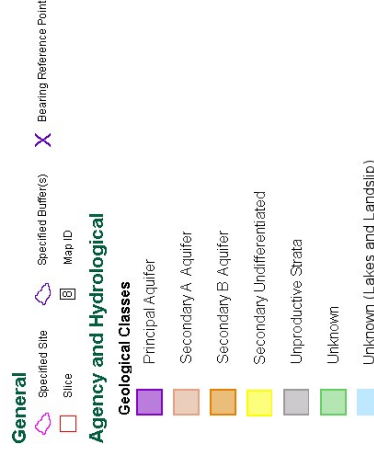
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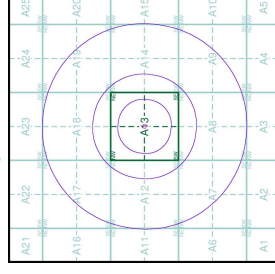
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Superficial Aquifer Designation



Site Sensitivity Context Map - Slice A

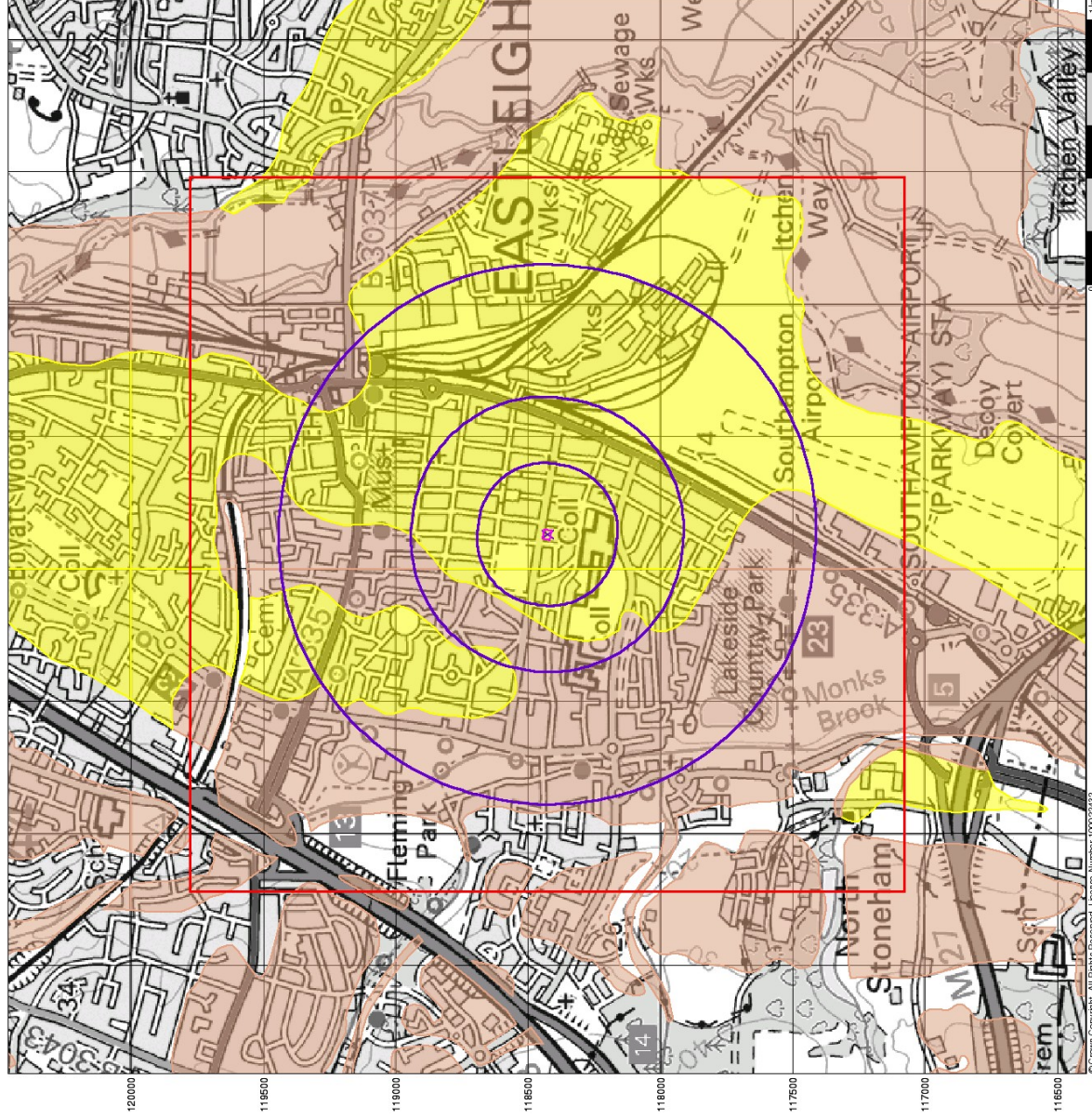


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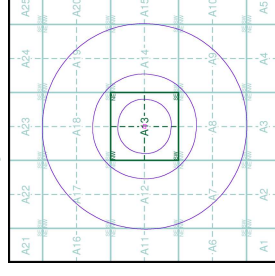
Source Protection Zones

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

Agency and Hydrological

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

Site Sensitivity Context Map - Slice A

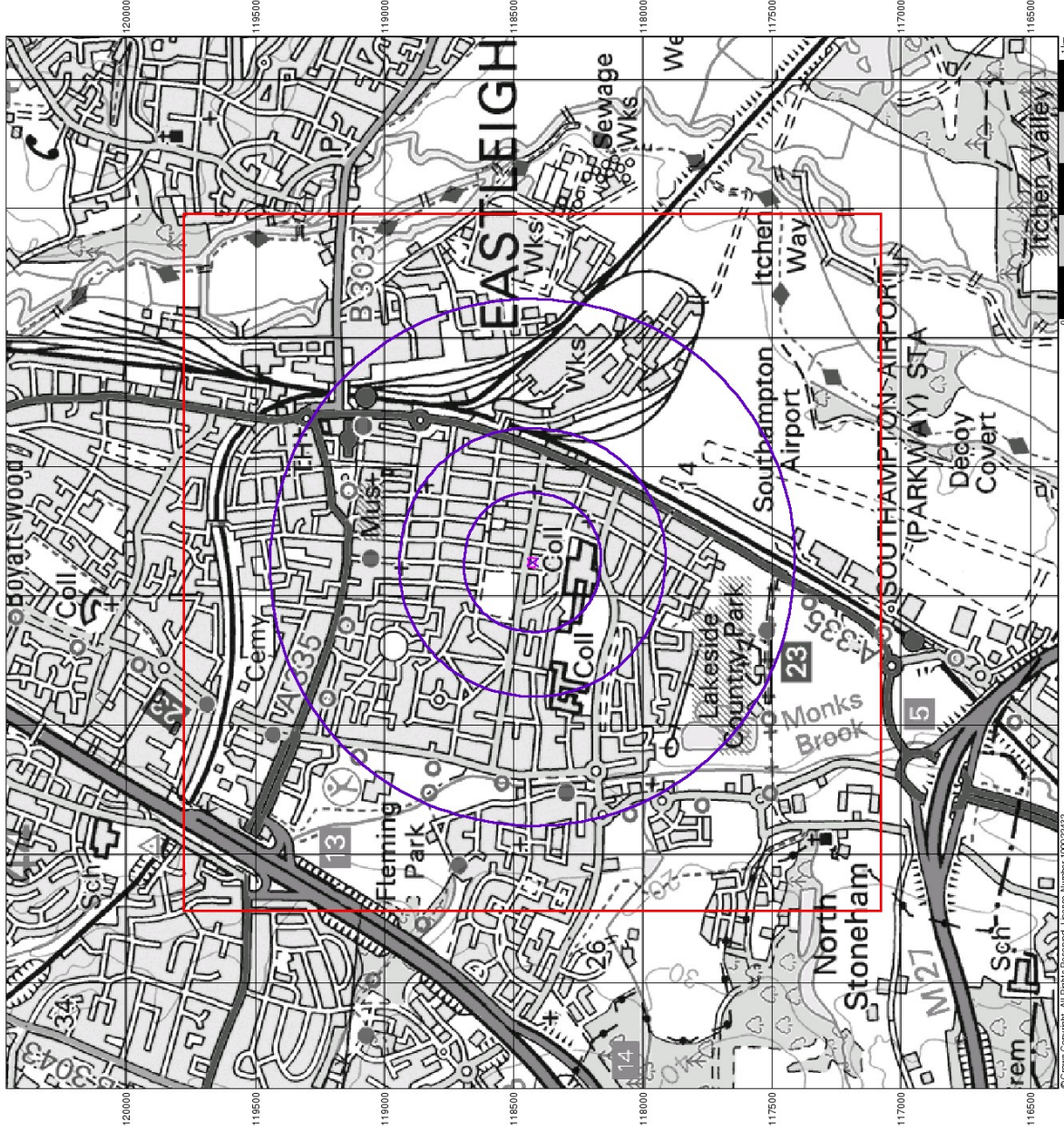


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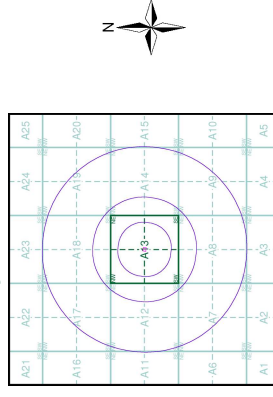
Sensitive Land Uses

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

Sensitive Land Uses

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

Site Sensitivity Context Map - Slice A



Order Details

Order Number: 278471514_1_1
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