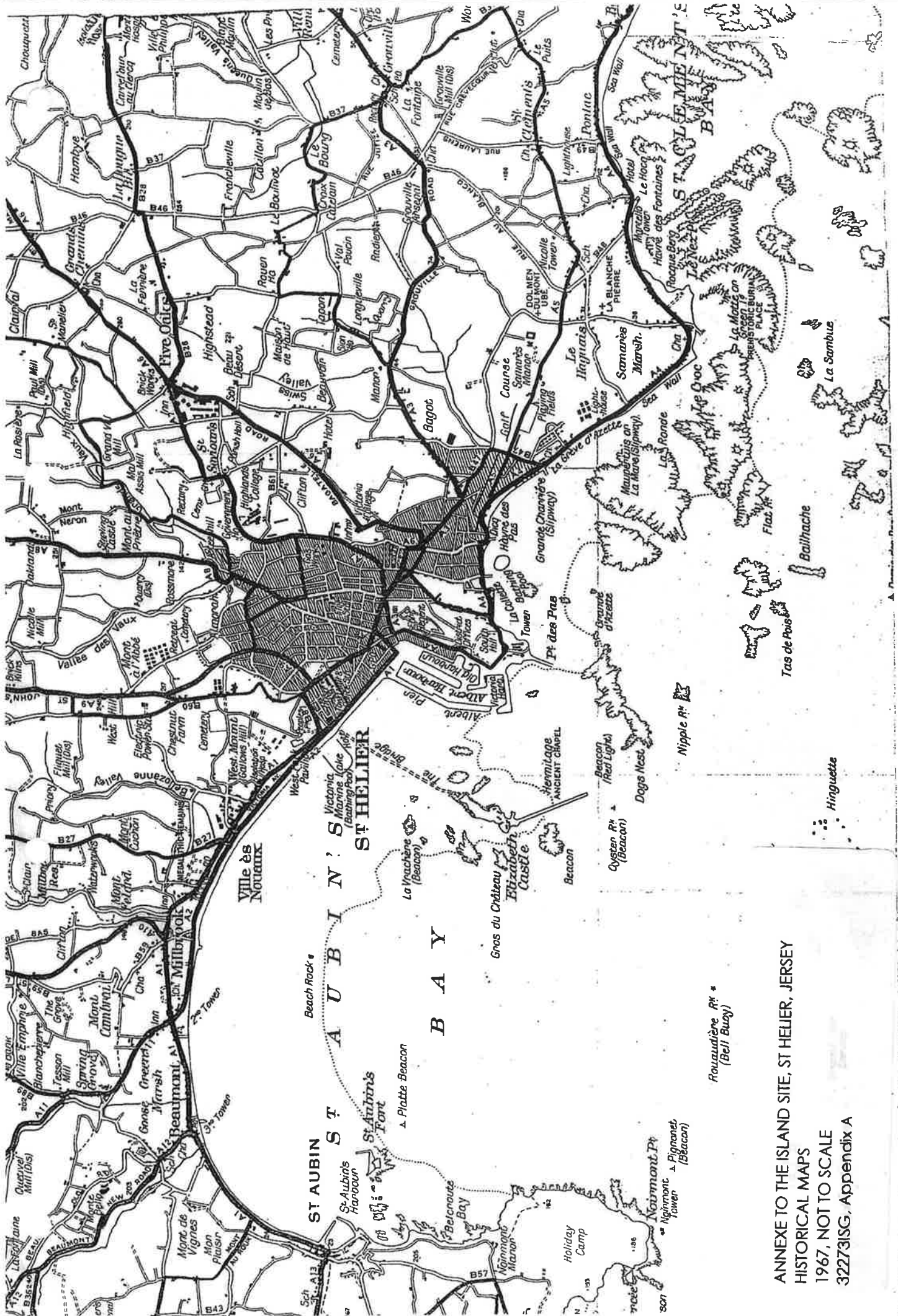
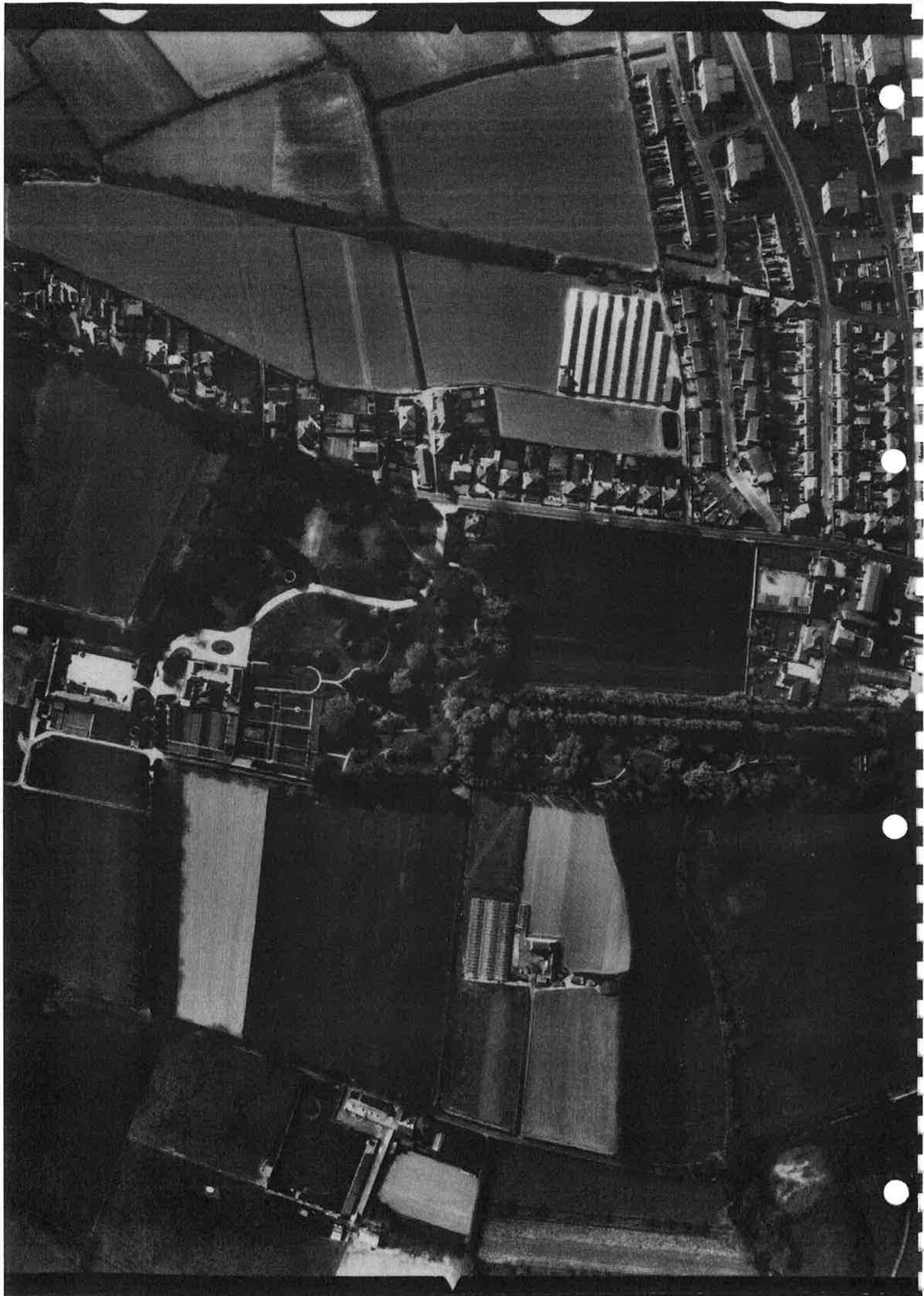


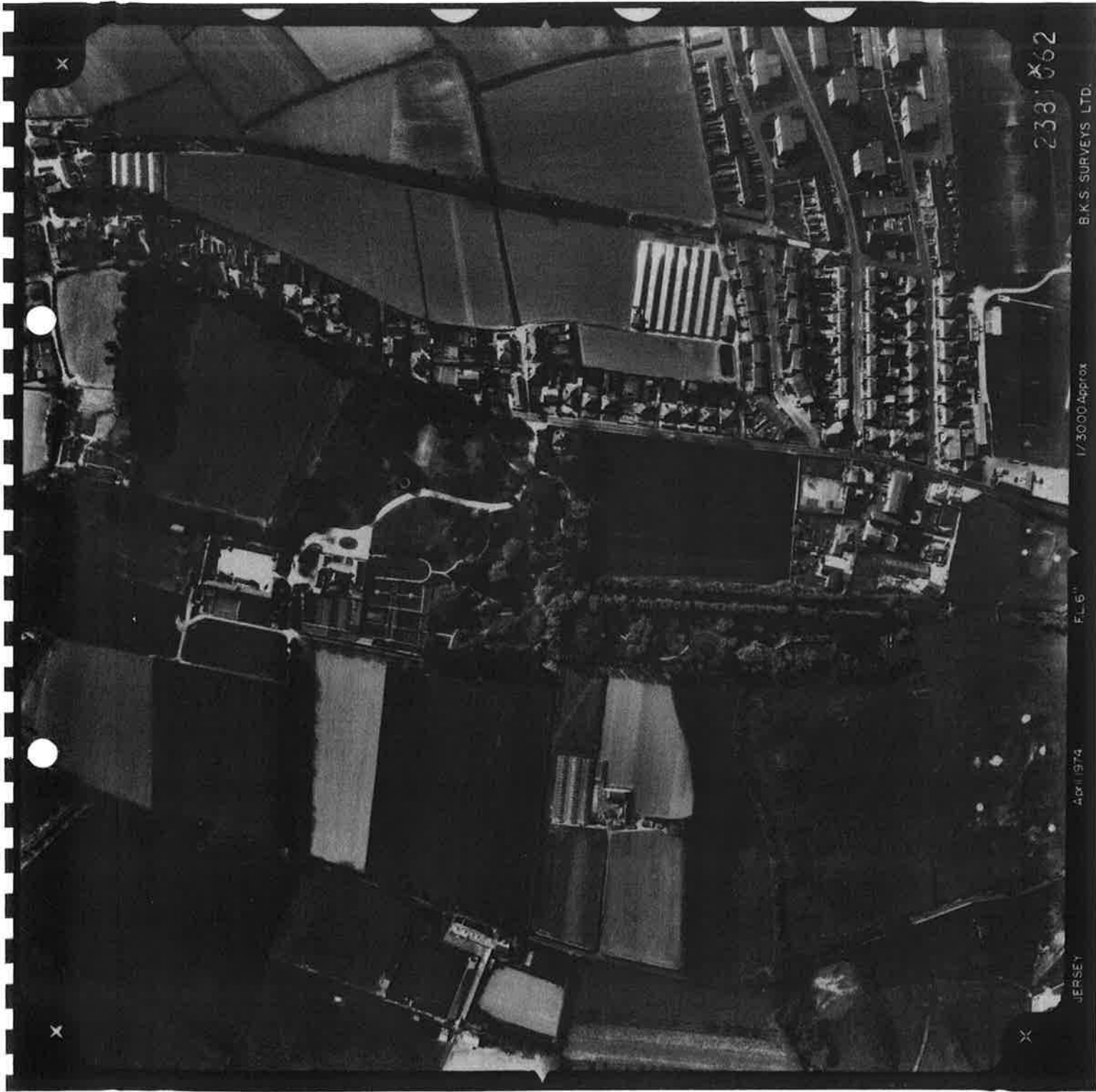


ANNEXE TO THE ISLAND SITE, ST. HELIER, JERSEY
 HISTORICAL MAPS
 1942, 1:31680 (approx)
 32273ISG, Appendix A



ANNEXE TO THE ISLAND SITE, ST. HELIER, JERSEY
 HISTORICAL MAPS
 1967, NOT TO SCALE
 322731SG, Appendix A





JERSEY

April 1974

FL-6

1/3000 Approx

B.K.S. SURVEYS LTD.

2381 862

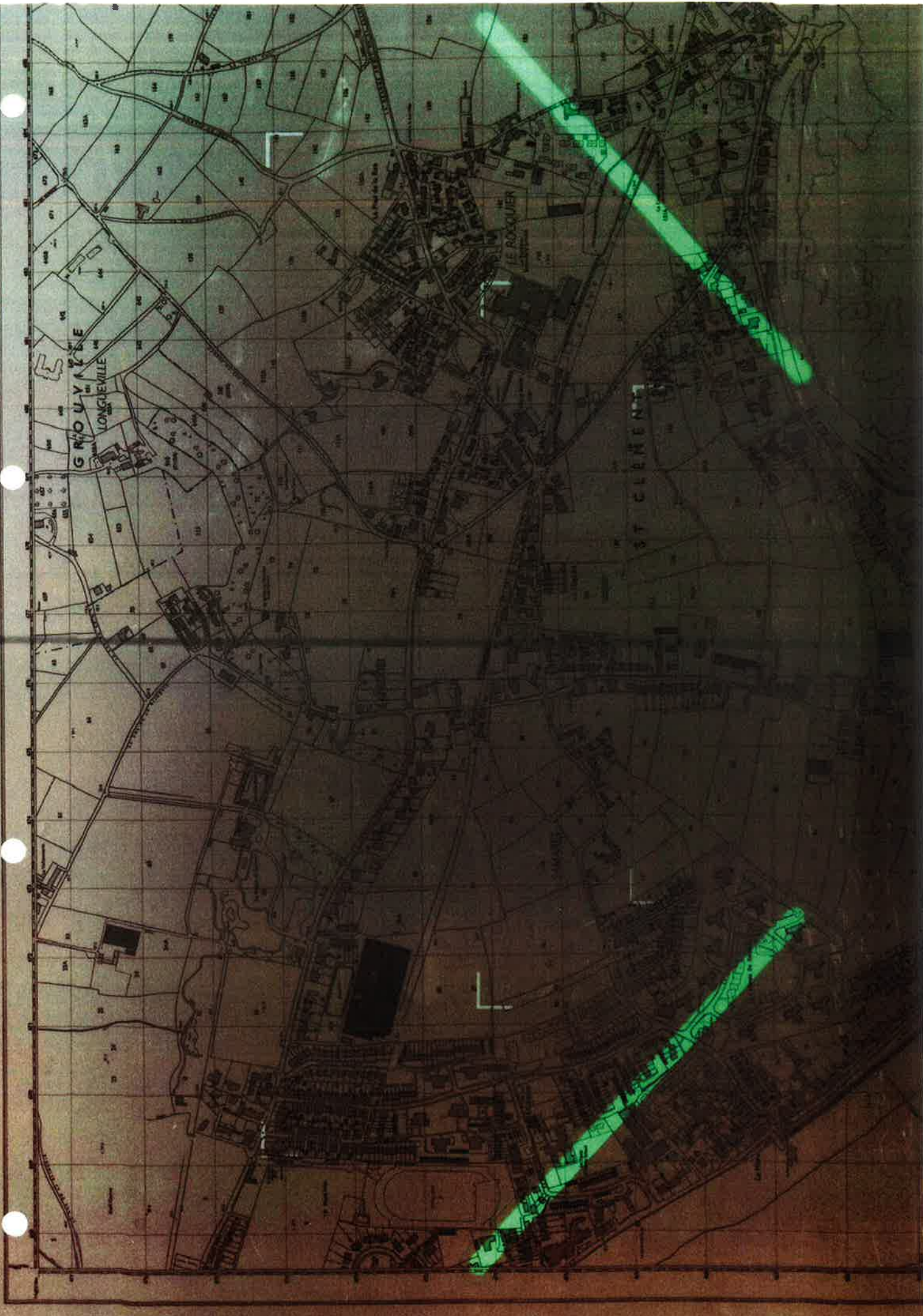


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Theford Norfolk U.K.

DW/ES/1
JERSEY ARCHIVE REFERENCE:
NOT TO BE REPRODUCED WITHOUT PERMISSION

JENSEY

Scale 1:2500



References for Historical Mapping:

Jersey Archive (Aerial Photograph) [D/2/L/8/2/2]

Jersey Archive (OS Map) [D/AL/B/22/U30]

Jersey Archive (Aerial Photograph) [D/W/E3/1/2282]

Jersey Archive (OS Map) [D/W/H2/13SE]

Courtesy of Jersey Heritage

Appendix C Background to Legislation on Contaminated Land

Legislative Framework

Planning Policy Statement PPS23 indicates that the standard of remediation to be achieved through the grant of planning permission for new development, including permission for land remediation activities, is the removal of unacceptable risk and making the site 'suitable for use'. As a minimum, after carrying out the development and commencement of its use, the land should not be capable of being determined as Contaminated Land under Part IIA.

Part IIA of the Environmental Protection Act 1990 was introduced by the Environment Act, 1995 and came into power 2000, via the Contaminated Land Regulations which along with statutory guidance in the DETR Circular 02/2000 comprise the main statutory instrument for the identification and management of Contaminated Land, the definition of is as follows:

"...any land which appears to the Local Authority in whose area it is situated to be in such a condition, by reason of substances in, on or under the land, that -

- (a) Significant harm is being caused or there is a significant possibility of such harm being caused; or
- (b) Significant pollution* of controlled waters is being caused, or there is a significant possibility of such pollution being caused."

Further regulatory control in the form of the Radioactive (Enabling Powers) (England) (Regulations) 2005, which along with amendment to the original regulations, were consolidated within the Contaminated Land (England) Regulations (2006). The current regulations introduce the concept of radioactively contaminated land and its assessment.

[*Text note - The Water Act 2003 has introduced the concept of a significance test to the assessment of the degree of contamination to controlled waters, excluding that which is contained in underground strata but above the saturation zone. The significance test is designed to screen out minor contamination issues and ensure only significant historic contamination of controlled waters is considered. The Act has a timetable for implementation and is not yet fully on the statute books and Section 86 dealing with contaminated land is anticipated for implementation during 2008 or soon thereafter.]

Risk Assessment

The definition of Contaminated Land under Part IIA of the Environmental Protection Act 1990 is based upon the principles of risk assessment. For the purposes of this guidance, "risk" is defined as the combination of:

- (a) The probability, or frequency, of occurrence of a defined hazard (for example, exposure to a property of a substance with the potential to cause harm); and
- (b) The magnitude (including the seriousness) of the consequences.

Pollutant Linkage

The basis of an environmental risk assessment involves:

- Identifying a source of contamination;
- Identifying a pathway/media through which the contamination may migrate; and
- Identifying a receptor or target at risk from the contamination.

Current legislation gives the following definitions:

A contaminant is a substance which is in, on or under the land and which has the potential to cause harm or to cause pollution of controlled waters.

A pathway is one or more routes or means by, or through, which a receptor:

- (a) is being exposed to, or affected by, a contaminant, or
- (b) could be so affected.

A receptor is either:

- (a) a living organism, an ecological system or a piece of property; or
- (b) controlled waters.

Table A of DETR Circular 01/2006 gives the categories of Significant harm for a receptor as prescribed in the regulations.

The term 'pollutant linkage' indicates that all three elements (i.e. a contaminant, a pathway and a receptor) have been identified. The site can only be designated by the Local Authority as Contaminated Land if there is a pollutant linkage and the contamination meets the criteria, outlined in Section 5.1. It is necessary to ensure that where a pollutant linkage is identified there must be a reasonable possibility of actual harm or it assumed that harm shall take place. Table B of DETR Circular gives the categories of Significant Possibility of Significant harm to a receptor.

This review is aimed at identifying possible risks, if any, arising from substances used or deposited on the site, or from other sources of land contamination. Both past and current potentially contaminative land uses have been considered.

Appendix D Assessment of Plausible Pollutant Linkages

Qualitative Risk Assessment of Land Potentially Affected by Contamination

Plausible Pollutant Linkages Assuming Current Conditions							
No.	Source	Pathway	Receptor	Consequence	Probability	Risk	Justification
Hazards to Human Health							
1	Non-volatile contamination in soils	Direct contact / ingestion	Current site users	Medium	Likely	Moderate Risk	Historical / Existing potential sources of contamination on site
2	Volatile contamination in soils	Inhalation	Current site users	Medium	Likely	Moderate Risk	Historical / Existing potential sources of contamination on site
3	Contamination in soils	Direct contact / ingestion / Inhalation	Maintenance works	Medium	Likely	Moderate Risk	Historical / Existing potential sources of contamination on site
4	Ground gas	Inhalation / asphyxiation	Current site users	Severe	Unlikely	Moderate/Low Risk	Historical / Existing potential sources of contamination on site
5	Ground Gas	Explosion	Current site users	Severe	Unlikely	Moderate/Low Risk	Historical / Existing potential sources of contamination on site
6	Ground gas	Inhalation / asphyxiation / explosion	Maintenance works	Severe	Low Likelihood	Moderate Risk	Historical / Existing potential sources of contamination on site
Hazards to the Water Environment							
8	Contamination in soils	Leachable contamination	Minor Aquifer	Mild	Select Likelihood	Risk	Historical / Existing potential sources of contamination on site
10	Groundwater contamination	Aquifer	Minor Aquifer	Mild	Select Likelihood	Risk	Historical / Existing potential sources of contamination on site
12	Groundwater contamination	Aquifer	Surface water	Severe	Select Likelihood	Risk	Historical / Existing potential sources of contamination on site
13	Groundwater contamination	Aquifer	Water supply well(s)	Severe	Select Likelihood	Risk	Historical / Existing potential sources of contamination on site
Hazards to Flora and Fauna							
14	Contamination in Soils	Plant uptake	Plants and soft landscaping	Minor	Unlikely	Very Low Risk	Historical / Existing potential sources of contamination on site
15	Ground gas / low oxygen	Plant uptake	Plants and soft landscaping	Minor	Unlikely	Very Low Risk	Historical / Existing potential sources of contamination on site
Hazards to Building Structure and Services							
16	Contamination in soils	Direct contact with subsurface	Buried concrete	Mild	Low Likelihood	Low Risk	Historical / Existing potential sources of contamination on site
17	Contamination in soils	Direct contact with subsurface	Plastic water supply pipes	Mild	Low Likelihood	Low Risk	Historical / Existing potential sources of contamination on site
18	Ground gas	Explosion	Building structure	Severe	Unlikely	Moderate/Low Risk	Historical / Existing potential sources of contamination on site

Plausible Pollutant Linkages Assuming Future Development							
No.	Source	Pathway	Receptor	Consequence	Probability	Risk	Justification
Hazards to Human Health							
1	Non-volatile contamination in soils	Direct contact / ingestion	Future site users	Medium	Select Likelihood	Risk	Risks to be mitigated through design/remediation
2	Volatile contamination in soils	Inhalation	Future site users	Medium	Select Likelihood	Risk	Risks to be mitigated through design/remediation
3	Contamination in soils	Direct contact / ingestion / Inhalation	Maintenance works	Medium	Select Likelihood	Risk	Risks to be mitigated through design/remediation
4	Ground gas	Inhalation / asphyxiation	Future site users	Severe	Select Likelihood	Risk	Risks to be mitigated through design/remediation
5	Ground Gas	Explosion	Future site users	Severe	Select Likelihood	Risk	Risks to be mitigated through design/remediation
6	Ground gas	Inhalation / asphyxiation / explosion	Maintenance works	Severe	Select Likelihood	Risk	Risks to be mitigated through design/remediation
Hazards to the Water Environment							
8	Contamination in soils	Leachable contamination	Minor Aquifer	Mild	Select Likelihood	Risk	Residual risks
10	Groundwater contamination	Aquifer	Minor Aquifer	Mild	Select Likelihood	Risk	Residual risks
12	Groundwater contamination	Aquifer	Surface water	Severe	Select Likelihood	Risk	Residual risks
13	Groundwater contamination	Aquifer	Water supply well(s)	Severe	Select Likelihood	Risk	Residual risks
Hazards to Flora and Fauna							
14	Contamination in Soils	Plant uptake	Plants and soft landscaping	Minor	Select Likelihood	Risk	Risks to be mitigated through remediation
15	Ground gas / low oxygen	Plant uptake	Plants and soft landscaping	Minor	Select Likelihood	Risk	Risks to be mitigated through remediation
Hazards to Building Structure and Services							
16	Contamination in soils	Direct contact with subsurface	Buried concrete	Mild	Select Likelihood	Risk	Risks to be mitigated through design
17	Contamination in soils	Direct contact with subsurface	Plastic water supply pipes	Mild	Select Likelihood	Risk	Risks to be mitigated through design
18	Ground gas	Explosion	Building structure	Severe	Select Likelihood	Risk	Risks to be mitigated through design

Qualitative Risk Assessment of Land Potentially Affected by Contamination

Notes for Tables:

In preparing the tables the following assumptions have been made:

- a) The proposed development comprises (i) low-rise residential use with private gardens (ii) commercial or industrial use with hardcover (iii) a mixture of residential and commercial buildings and associated open spaces (delete as necessary).
- b) Clean topsoil cover will be provided in landscaped areas when necessary (delete as necessary).
- c) The final foundation design is not confirmed and may be influenced by a need to ensure no preferential pathways are created between any potential sources of contamination and underlying natural strata.
- d) Risks to construction workers, members of the public and the environment during the construction stage will be mitigated through the use of best industry practice and the adoption of appropriate health and safety precautions including the use of PPE.

Classification of consequence

Classification	Definition	Examples
Severe	Highly elevated concentrations likely to result in "significant harm" to human health as defined by the EPA 1990, Part 2A, if exposure occurs.	Significant harm to humans is defined in circular 01/2006 as death, disease*, serious injury, genetic mutation, birth defects or the impairment of reproductive functions.
	Equivalent to EA Category 1 pollution incident including persistent and/or extensive effects on water quality; leading to closure of a potable abstraction point; major impact on amenity value or major damage to agriculture or commerce.	Major fish kill in surface water from large spillage of contaminants from site.
	Major damage to aquatic or other ecosystems, which is likely to result in a substantial adverse change in its functioning or harm to a species of special interest that endangers the long-term maintenance of the population.	Highly elevated concentrations of List I and II substances present in groundwater close to small potable abstraction (high sensitivity).
Medium	Catastrophic damage to crops, buildings or property.	Explosion, causing building collapse (can also equate to immediate human health risk if buildings are occupied).
	Elevated concentrations which could result in "significant harm" to human health as defined by the EPA 1990, Part 2A if exposure occurs. Equivalent to EA Category 2 pollution incident including significant effect on water quality; notification required to abstractors; reduction in amenity value or significant damage to agriculture or	Significant harm to humans is defined in circular 01/2006 as death, disease*, serious injury, genetic mutation, birth defects or the impairment of reproductive functions.

	commerce.	
	Significant damage to aquatic or other ecosystems, which may result in a substantial adverse change in its functioning or harm to a species of special interest that may endanger the long-term maintenance of the population.	Damage to building rendering it unsafe to occupy e.g. foundation damage resulting in instability.
Mild	Significant damage to crops, buildings or property.	Ingress of contaminants through plastic potable water pipes.
	Exposure to human health unlikely to lead to "significant harm".	Exposure could lead to slight short-term effects (e.g. mild skin rash).
	Equivalent to EA Category 3 pollution incident including minimal or short lived effect on water quality; marginal effect on amenity value, agriculture or commerce.	Surface spalling of concrete.
	Minor or short lived damage to aquatic or other ecosystems, which is unlikely to result in a substantial adverse change in its functioning or harm to a species of special interest that would endanger the long-term maintenance of the population.	
Minor	Minor damage to crops, buildings or property. No measurable effect on humans.	The loss of plants in a landscaping scheme.
	Equivalent to insubstantial pollution incident with no observed effect on water quality or ecosystems.	Discoloration of concrete.
	Repairable effects of damage to buildings, structure and services.	

Classification of probability

Category	Definition	Examples
High Likelihood	There is pollutant linkage and an event would appear very likely in the short-term and almost inevitable over the long-term, or there is evidence at the receptor of harm or pollution.	a) Elevated concentrations of toxic contaminants are present in soils in the top 0.5m in a residential garden. b) Ground/groundwater contamination could be present from chemical works, containing a number of USTs, having been in operation on the same site for over 50 years.
Likely	There is pollutant linkage and all the elements are present and in the right place which means that it is probable that an event will occur. Circumstances are such that an event is not inevitable, but possible in the short-term and likely over the long-term.	a) Elevated concentrations of toxic contaminants are present in soils at depths of 0.5 – 1.0m in a residential garden, or the top 0.5m in public open space.

- Low likelihood** There is pollutant linkage and circumstances are possible under which an event could occur. However, it is by no means certain that even over a long period such an event would take place, and is less likely in the shorter term.
- a) Elevated concentrations of toxic contaminants are present in soils at depths >1m in a residential garden, or 0.5-1.0m in public open space.
 - b) Ground/groundwater contamination could be present on a light industrial unit constructed in the 1990s containing a UST in operation over the last 10 years – the tank is double skinned but there is no integrity testing or evidence of leakage.
- Unlikely** There is pollutant linkage but circumstances are such that it is improbable that an event would occur even in the very long-term.
- a) Elevated concentrations of toxic contaminants are present below hardstanding.
 - b) Light industrial unit <10yrs old containing a double skinned UST with annual integrity testing results available.

Comparison of Consequence against Probability

		Consequence			
		Severe	Medium	Mild	Minor
Probability	High Likelihood	Very High Risk	High Risk	Moderate Risk	Low Risk
	Likely	High Risk	Moderate Risk	Moderate / Low Risk	Low Risk
	Low Likelihood	Moderate Risk	Moderate / Low Risk	Low Risk	Very Low Risk
	Unlikely	Moderate / Low Risk	Low Risk	Very Low Risk	Very Low Risk

Description of the classified risks and likely action required

Very High Risk	There is a high probability that severe harm could arise to a designated receptor from an identified hazard at the site without remediation action OR there is evidence that severe harm to a designated receptor is already occurring. Realisation of that risk is likely to present a substantial liability to be site owner/or occupier. Investigation is required as a matter of urgency and remediation works likely to follow in the short-term.
High Risk	Harm is likely to arise to a designated receptor from an identified hazard at the site without remediation action. Realisation of the risk is likely to present a substantial liability to the site owner/or occupier. Investigation is required as a matter of urgency to clarify the risk. Remediation works may be necessary in the short-term and are likely over the longer term.
Moderate Risk	It is possible that harm could arise to a designated receptor from an identified hazard. However, it is either relatively unlikely that any such harm would be severe, and if any harm were to occur it is more likely, that the harm would be relatively mild. Further investigative work is normally required to clarify the risk and to determine the potential liability to site owner/occupier. Some remediation works may be required in the longer term.
Low Risk	It is possible that harm could arise to a designated receptor from identified hazard, but it is likely at worst, that this harm if realised would normally be mild. It is unlikely that the site owner/or occupier would face substantial liabilities from such a risk. Further investigative work (which is likely to be limited) to clarify the risk may be required. Any subsequent remediation works are likely to be relatively limited.
Very Low Risk	It is a low possibility that harm could arise to a designated receptor, but it is likely at worst, that this harm if realised would normally be mild or minor.
No potential risk	There is no potential risk if no pollution linkage has been established.

Definitions	
Hazard	A property or situation which in certain circumstances could lead to harm. (The properties of different hazards must be assessed in relation to their potential to affect the various different receptors).
Risk	A combination of the probability or frequency of the occurrences of a defined hazard AND the magnitude of the consequences of that occurrence.
Probability	The mathematical expression of the chance of a particular event in a given period of time (e.g. probability of 0.2 is equivalent to 20% or a 1 in 5 chance).
Likelihood	Probability; the state of face of being likely.
Consequences	The adverse effects (or harm) arising from a defined hazard which impairs the quality of the environment or human health in the short or longer term.
Pollution linkage	An identified pathway is capable of exposing a receptor to a contaminant and that contaminant is capable of harming the receptor.



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