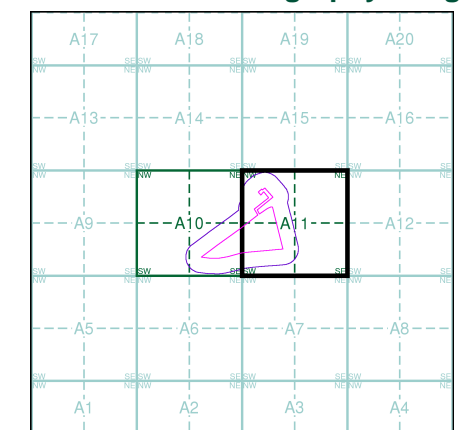


Historical Aerial Photography

Published 1999

This aerial photography was produced by Getmapping, these vertical aerial photographs provide a seamless, full colour survey of the whole of Great Britain

Historical Aerial Photography - Segment A11



Order Details

Order Number: 366363277_1_1
 Customer Ref: GCU0127073
 National Grid Reference: 508650, 411230
 Slice: A
 Site Area (Ha): 8.23
 Search Buffer (m): 100

Site Details

Singleton Birch Ltd, Melton Ross Quarries, BARNETBY, DN38 6AE



A

P

P

E

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D

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X

C

Risk Assessment Principles

Environment Agency guidance on Land Contamination: Risk Management (LCRM) first published in 2020 is considered best practice and recommends tiered risk assessment approach. This guidance applies when assessing sites with historical contamination to determine whether risks are acceptable and where considered unacceptable where action is required to mitigate risks to sensitive receptors including human health, the environment, crops or property.

For a risk to be present, there must be a viable contaminant linkage, i.e. a mechanism whereby a contamination source impacts on a sensitive receptor via a pathway. Sources, pathways and receptors (S-P-R) are identified in the bespoke Conceptual Site Model for the site.

There are three tiers of risks assessment that may be undertaken:

Tier 1: Preliminary Risk Assessment (PRA), commonly known as a Phase 1 Desk Study.

Tier 2: Generic Quantitative Assessment (GQRA) which includes assessment of intrusive site investigation information.

Tier 3: Detailed Quantitative Risk Assessment (DQRA) which uses site specific information to refine and assess risks.

Following review and an assessment of risks at each tier, a Qualitative Risk Assessment (QRA) may be undertaken if required (noting that a qualitative risk assessment is allowed under the guidance if applicable). This summarises potential risks at a site in context of the Conceptual Site Model (CSM) and recommendations going forward. LCRM recommends the Qualitative Risk Assessment approach as presented in the National House Building Council and Chartered Institute of Environmental Health publication *R&D 66: Guidance for the Safe Development of Housing on Land Affected by Contamination* (NHBC/EA/CIEH, 2008), as an example of an appropriate method for assessing risks. Other risk classification approaches, such as that presented in *Contaminated Land Risk Assessment: A Guide to Good Practice* (CIRIA C552, 2001) can also be used, but Geosyntec has adopted R&D 66 as it builds upon the principles outlined in the older CIRIA framework and is directly referenced in the LCRM as good practice.

Risk Assessment Framework

The magnitude of the risk associated with potential contamination at the Site has been assessed. To do this an estimate is made of:

- The magnitude of the potential consequence (i.e. severity) of contamination at a given source;
- The magnitude of probability (i.e. likelihood) of a pathway between a given source and receptor being present.

The severity of the risk is classified according to the criteria in Table 1.

Table 1 Description of Severity of Risk

<i>Term</i>	<i>Description</i>
Severe	<ul style="list-style-type: none"> – Highly elevated concentrations likely to result in “significant harm” to human health as defined by the EPA 1990, Part 2A, if exposure occurs. – 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 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. – Catastrophic damage to crops, buildings or property.
Medium	<ul style="list-style-type: none"> – 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 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. – Significant damage to crops, buildings or property.
Mild	<ul style="list-style-type: none"> – Exposure to human health unlikely to lead to “significant harm”. – Equivalent to EA Category 3 pollution incident including minimal or short-lived effect on water quality; marginal effect on amenity value, agriculture or commerce. – 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 damage to crops, buildings or property
Minor	<ul style="list-style-type: none"> – No measurable effect on humans. – Equivalent to insubstantial pollution incident with no observed effect on water quality or ecosystems. – Repairable effects of damage to buildings, structures and services.

Taken from NHBC/EA/CIEH Section A4.3 of NHBC/EA/CIEH document Guidance for the Safe Development of Housing on Land Affected by Contamination R&D66: 2008 Volume 2 Appendices and Annexes (2008)

The probability of the risk occurring is classified according to the criteria in Table 2.

Table 2 Likelihood of Risk Occurrence

Likelihood	Explanation
High	– 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
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.
Low	– 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.
Unlikely	– There is pollutant linkage but circumstances are such that it is improbable that an event would occur even in the very long-term.

An overall evaluation of the level of risk is gained from a comparison of the severity and probability, as shown in Table 3.

Table 3 Risk based on Comparison of Likelihood and Severity

		Severity			
		SEVERE	MEDIUM	MILD	MINOR
Likelihood	HIGH	Very High	High	Moderate	Low
	LIKELY	High	Moderate	Moderate/Low	Low
	LOW	Moderate	Moderate/Low	Low	Very Low
	UNLIKELY	Moderate/Low	Low	Very Low	Very Low

LCRM Assessment of Risk

The central test from LCRM at the Qualitative Risk Assessment stage is whether or not a risk identified in your Conceptual Site Model (CSM) is regarded as “unacceptable”. An unacceptable risk would equate with a High or Very High risk in Table 3. LCRM also describes a scenario where “further assessment” is required. This might typically align with a Moderate/Low or Moderate risk, but data gaps or uncertainties can exist at any level of risk and the requirement for additional information should be informed by the CSM, the site use or future site use and the specific receptors identified. Finally, a Low or Very Low risk would typically be regarded as having “no further assessment required” within the LCRM framework. This might be a pollutant linkage which is not relevant for a current or proposed land use or a linkage which is obviously broken by site conditions, without the need for further investigation. Such risks may still be worthy of further investigation, but they are unlikely to be risk drivers in the assessment and possible remediation of a site. Risk levels may change following ground investigation or additional information being added to the assessment.

To align the risk rankings in Table 3 with the language used in LCRM and with the Part 2A definitions, the following matrix has been utilised and is presented in **Table 4**.

Table 4 Conversion to LCRM Risk Categories

Risk Category	No Further Investigation Recommended	Further Investigation Recommended	Unacceptable Risk
Very Low			
Low			
Moderate/Low			
Moderate			
High			
Very High			