APPENDIX B: RISK ASSESSMENT METHDOLOGY

Current good practice recommends that the assessment of hazards due to land contamination is based on the principle of risk assessment, as outlined in the Environment Agency guidance on Land Contamination Risk Management (LCRM). For a risk to be present, there must be a viable pollutant linkage; i.e., a mechanism whereby a source impacts on a sensitive receptor via a pathway. Assessments of risks associated with each of these pollutant linkages are discussed in the following sections.

Using criteria broadly based on those presented in EA, Chartered Institute of Environmental Health (CIEH) and National House Building Council (NHBC) R&D Publication 66 'Guidance for the Safe Development of Housing on Land Affected by Contamination' (2008), 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); and
- The magnitude of probability (i.e. likelihood).

The severity of the risk is classified according to the criteria in **Table B-1**, below:

Table B-1. Severity of Potential Pollutant Linkages

Severity	Definition and Examples
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. • 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.

The probability of risk occurring is summarised in **Table B-2**.

Table B-2. Likelihood of Occurrence

Likelihood	Explanation
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

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

Table B-3. Evaluation of Risk

		Severity			
		Severe	**Medium**	**Mild**	**Minor**
Likelihood	**High**	Very High	High	Moderate	Moderate/ Low
	Likely	High	Moderate	Moderate/ Low	Low
	Low	Moderate	Moderate/ Low	Low	Very Low
	Unlikely	Moderate/ Low	Low	Very Low	Very Low