The Coal Authority

# Summary of findings

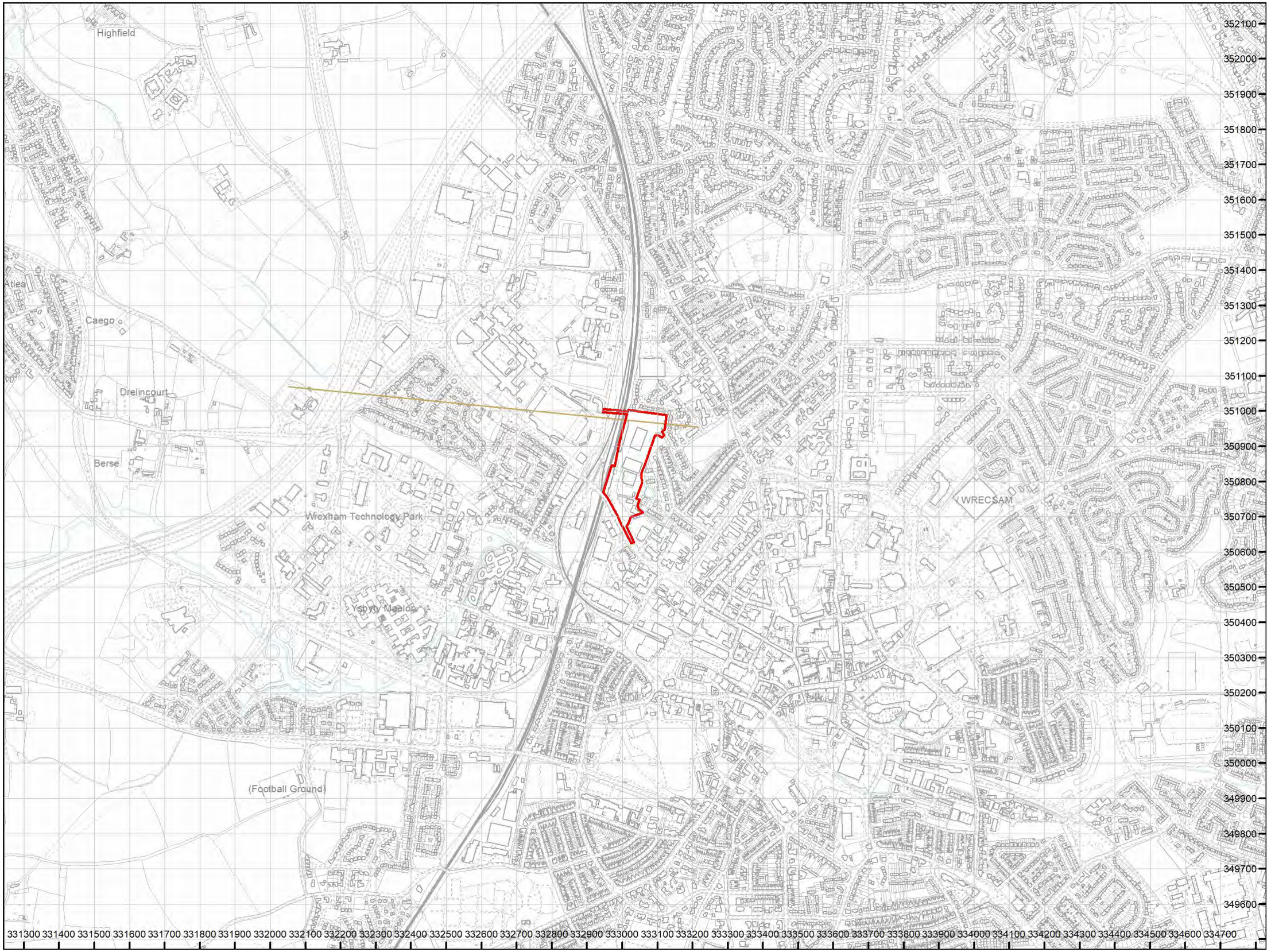


The map highlights any specific surface or subsurface features within or near to the boundary of the site.

## Key

Approximate position of the enquiry boundary shown

Geological faults

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# Appendix E

## Risk Assessment Methodology

## Civic Earth Risk Assessment Methodology

Civic Earth's risk assessment methodology is based on the CIRIA C552 (2001) Contaminated Land Risk Assessment – A Guide to Good Practice[1].

The assessment approach is to quantify the potential risk at Phase 1 Stage via risk estimation and risk evaluation. This defines the overall risk category that can be used to identify likely actions to address the potential risk or undertake further risk evaluation.

The methodology is a qualitative approach and is undertaken for each identified potential contaminant linkage (source-pathway-receptor) identified for the site in accordance with the October 2020 Land Contamination Risk Management Guidance (LCRM)[2].

The methodology requires the classification of the following:

- The magnitude of the consequence (severity) of a risk occurring; and
- The magnitude of the probability (likelihood) of a risk occurring.

The potential consequences of contamination risks occurring at a site are classified in accordance with Table 1 below, which is based on CIRIA guidance[1].

*Table 1: Classification of Consequence Ratings*

| Classification | Definition of Consequence | Examples |
|---|---|---|
| Severe | Short-term (acute) risks to human health.<br>Short-term (acute) risk of pollution of sensitive water resource or ecosystem<br>Catastrophic damage to crops/ building/ property/ infrastructure, including off-site soils | High concentration of cyanide on the surface of an informal recreation area<br>Major spillage of contaminants from site into controlled waters<br>Explosion causing building collapse |
| Medium | Long-term (chronic) risks to human health<br>Long-term (chronic) pollution of sensitive water resource<br>Significant change in an ecosystem/contamination of off-site soils | Concentrations of a contaminant on site exceeding the generic or site specific assessment criteria<br>Leaching of contaminants from a site into a major or minor aquifer<br>Death of species within a designated nature reserve |
| Mild | Pollution of non-sensitive water resource<br>Significant damage to crops/ buildings/ property /infrastructure<br>Damage to an ecosystem or sensitive buildings/structures/services | Pollution of a non-classified groundwater<br>Damage to a building rendering it unsafe to occupy (e.g. foundation damage resulting in instability) |
| Minor | Easily preventable non-permanent effects<br>Harm, although not necessarily significant harm, which may result in financial loss or expenditure resolve<br>Easily repairable effects of damage to building/ structures/ services | Presence of contamination at concentrations which require the use of personal protective equipment during site work<br>Loss of plants in a landscaping scheme/discolouration of concrete |

The potential probability of the risks being realised are classified in accordance with the ratings set out in Table 2, which are based on CIRIA guidance[1]. It should be noted that where a potential contaminant linkage has not been identified the likelihood is considered to be negligible.

[1] CIRIA, (2001). Contaminated Land Risk Assessment. A Guide to Good Practice. CIRIA C552.

[2] Environment Agency (2020). *Land Contamination Risk Management (LCRM)*.

*Table 2: Classification of Probability Ratings*

| Classification | Definition of Consequence |
|---|---|
| High likelihood | There is a contaminant linkage and an event that either appears very likely in the short term and almost inevitable in the long term, or there is evidence at the receptor that an event has occurred |
| Likely | There is a contaminant linkage and all the elements are present 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 likelihood | There is a contaminant linkage and circumstances are possible under which an event could occur. However, it is by no means certain that even over a longer period such an event would take place and is less likely in the short term |
| Unlikely | There is a contaminant linkage but circumstances are such that it is improbable that an event would occur even in the very long term |

In accordance with C552, the risk classifications for each potential contaminant linkage are classified in accordance with the matrix of consequence and probability set out in Table 3. The definitions for the risk classifications are presented in Table 4.

*Table 3: Risk Classification Matrix*

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

*Table 4: Risk Classification Definitions*

| Classification | Definition |
|---|---|
| Very High | There is a high probability that severe harm could arise to a designated receptor from the identified hazard or there is evidence that severe harm is currently happening. This risk, if realised, is likely to result in substantial liability. Urgent investigation (if not already undertaken) and remediation are likely to be required. |
| High | Harm is likely to arise to a designated receptor from the identified hazard. Realisation of the risk is likely to result in substantial liability. Urgent investigation (if not already undertaken) and remediation are likely to be required. |
| Moderate | It is possible that harm could arise to a designated receptor from the identified hazard. However, it is either relatively unlikely that such harm would be severe or if any harm were to occur it is more than likely that the harm would be relatively mild. Urgent investigation (if not already undertaken) is normally required to clarify the potential risk and to determine the potential liability. Some remedial works may be required in the longer term. |
| Low | It is possible that harm could arise to a designated receptor from the identified hazard, but it is considered likely that this harm, if realised, would at worse normally be mild. |
| Very Low | There is a low possibility that harm could arise to a designated receptor from the identified hazard. In the event of such harm being realised it is not likely to be severe. |

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