Analysis of Brownfield Soil Contamination Using Local Government Planning Data

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Abstract : BBrownfield sites are currently being redeveloped for residential use. Information on soil contamination on these former industrial sites is collected as part of the planning process by the local government. This research project analyses this untapped resource of environmental data, using site investigation data submitted to a local Borough Council, in Surrey, UK. Over 150 site investigation reports were collected and interrogated to extract relevant information. This study involved three phases. Phase 1 was the development of a database for soil contamination information from local government reports. This database contained information on the source, history, and quality of the data together with the chemical information on the soil that was sampled. Phase 2 involved obtaining site investigation reports for development within the study area and extracting the required information for the database. Phase 3 was the data analysis and interpretation of key contaminants to evaluate typical levels of contaminants, their distribution within the study area, and relating these results to current guideline levels of risk for future site users. Preliminary results for a pilot study using a sample of the dataset have been obtained. This pilot study showed there is some inconsistency in the quality of the reports and measured data, and careful interpretation of the data is required. Analysis of the information has found high levels of lead in shallow soil samples, with mean and median levels exceeding the current guidance for residential use. The data also showed elevated (but below guidance) levels of potentially carcinogenic polyaromatic hydrocarbons. Of particular concern from the data was the high detection rate for asbestos fibers. These were found at low concentrations in 25% of the soil samples tested (however, the sample set was small). Contamination levels of the remaining chemicals tested were all below the guidance level for residential site use. These preliminary pilot study results will be expanded, and results for the whole local government area will be presented at the conference. The pilot study has demonstrated the potential for this extensive dataset to provide greater information on local contamination levels. This can help inform regulators and developers and lead to more targeted site investigations, improving risk assessments, and brownfield development.

Keywords : Brownfield development, contaminated land, local government planning data, site investigation

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