

RAPID RETRIEVAL OF INFORMATION ON GEOLOGY AND GROUND CONDITIONS USING A GIS APPLICATION – THE LONDON MODEL

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A database containing digital geological maps, a digital terrain model, and geological surface models derived from analysis of more than 30 000 borehole records, are the basis for a robust 3-D geological model of London. This has been developed in the last 5 years under the LOCUS (London Computerised Underground and Surface modelling) project. Utilised within a GIS environment the model is a powerful tool for the provision of data for a variety of users, from planners to tunnelling engineers. It is used, for example, for environmental assessment, site feasibility studies, and route planning. The key to making these data suitable for use has been the attribution of geological map polygons with multidisciplinary environmental data. Thus each geological formation has an attachment of a range of information regarding aspects such as ground conditions, hydrogeological criteria and mineral potential. In addition all areas of worked ground and tip have attached digital information about their historical use. The GIS system developed for London enables the automatic generation of point and area-specific reports showing the geological succession and giving associated applied information, and cross sections along any given route. In addition, visualisation of the geology and topography of London is made with colour shaded contour plots. There is little doubt that GIS systems similar to this could considerably assist in the sustainable development of towns and cities throughout the world by providing site specific and regional information on ground characteristics for use in a wide range of disciplines.