



Artificial Ground: Where Geologists and Archaeologists Share Territory

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Since pre-historic times mankind has been changing the landscape from its natural state. More recently the Industrial Age has dramatically altered the shape and composition of the terrain and subsurface in many areas. Anthropogenically altered land has different material and structural properties to natural deposits and engineers need to understand the geotechnical behaviour of these features in order to develop sites sustainably and prevent geohazards such as landslides, subsidence and flooding. Therefore detailed mapping of this land type needs to be available for desk studies.

Anthropogenic landforms feature on geological maps as artificial ground but the record of their existence can be sporadic and usually does not take into consideration deposit thickness. The irregular recording of mapped artificial ground stems, in part, from the ever-evolving nature of such deposits and from a historic lack of clearly defined interest in the capture of such data. Geologists are responsible for mapping artificial ground yet where detailed historic land use is unknown and site investigation data is unavailable, there may be little evidence on which the geologist can base their mapping. Archaeologists have less of a stake in the geotechnical interest in artificial ground but in some areas they may have a more detailed understanding of anthropogenic ground conditions.

On geological maps, artificial ground is often divided into broad classifications such as made ground, worked ground or infilled ground but these terms are of a little real value to would-be developers of the land as they provide no insight into ground conditions. Artificial ground is, by its very nature, heterogeneous, thus for its mapping to be more useful to end-users, an approach which attempts to characterise the type of ground likely to be encountered is needed. Archaeologists know the ground in which they work whereas geologists can interpret that information and make conclusions on material properties which can be transferred to geological maps and 3D models. It is only by working closely together that both professions can contribute to meaningful datasets.

Presented here is a case study from Newport, Wales, U.K., of a collaborative approach towards data, and how the different skill sets of the archaeologists and geologists were, and continue to be, put to use. Thanks to a data sharing agreement with a local archaeological trust, the British Geological Survey has been able to utilise detailed information on the composition of anthropogenic landscapes to produce a more informative approach to artificial ground mapping, with the future hope of upscaling this work to attributed 3D models.