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Sampling and monitoring soil conditions for archaeological preservation in situ

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When archaeology is left in situ (in the soil or sediment), as opposed to being excavated (ex situ), an assessment of the soil conditions for this preservation in situ should be performed. Few countries have developed a standardized toolbox for this, with Norway and England being the furthest in its development. The assessment should describe parameters over time that are important indicators preferable soil conditions, such as water-content, oxidation-reduction conditions and pH development. More importantly, it should give an idea of long term storage potential for the archaeological features and the influence of current and future developments on those conditions. As the sites should be preserved as they are, invasive techniques can only be applied at the absolute minimum. Another strong restraint is that the costs for this assessment, which can take several years of monitoring, is to be paid by the developer. This combination leads to an array of limitations, and often limited scientific backing of the obtained data. Sampling designs often include a quick scan of conditions in order to get to a stratified design, but this methodology also creates longer measurement periods. We will present the background of monitoring for archaeological preservation and discuss two recent assessment examples from Norway. One on the preservation of the World Heritage site Bryggen in Bergen, the other of the new Railroad project in Oslo. With these we will discuss possible optimizations for both the scientists and project managers, and look for input from other researchers.