Practical 2: Desktop Review for a Stage I Geotechnical Investigation

Scenario: You've just been brought in as a junior site engineer for a consulting firm tasked with planning a Stage I geotechnical investigation for a proposed development.

Before any field crews are mobilised, your role is to carry out a thorough desktop review using technical tools that form the backbone of early-stage site assessment in professional practice. Online platforms such as the BGS Geology Viewer, UK Soil Observatory, and historical borehole records are standard resources used by engineers to make informed decisions, reduce uncertainty, and minimise risk before breaking ground.

Your findings will help determine where to drill, what to expect underground, and what early precautions might be necessary.

Treat this like a real-world briefing: you're laying the groundwork for safe, efficient fieldwork, and every insight you extract now will pay off later.

Objective: Conduct a preliminary site screening for a geotechnical investigation using publicly available online resources. The goal is to familiarize yourself with the process of gathering, analysing, and summarizing geotechnical data for a selected site. Based on your findings, you will recommend an approach for the initial steps of an on-site investigation. Work in pairs to choose a site from the provided list. Each pair will investigate one site, which is proposed for development.

Task Instructions:

Desktop Review Tools:

Use the following online resources to gather geotechnical data:

- Google and Google Maps: Obtain general information about the site's location, topography, and surface features (e.g., proximity to rivers, slopes, existing infrastructure)

  https://www.google.co.uk/maps

- Borehole Records: Access borehole and well records for historical data on groundwater and subsurface strata.

  https://www2.bgs.ac.uk/groundwater/datainfo/NWRA.html

- BGS Geology Viewer: Gather geological data, including rock formations, faults, and other relevant subsurface conditions.

  https://www.bgs.ac.uk/map-viewers/bgs-geology-viewer/

- UK Soil Observatory: Analyse soil characteristics, including soil types, permeability, and classifications.

  https://www.ukso.org/

Screening Summary:

Prepare a concise one- to two-page summary of your findings. Be concise, and point-form is acceptable, but include as much pertinent information as possible.

- Site Location and Description: Provide a brief description of the site's location, surface features, and any other notable geographic information that could impact soil/bedrock/groundwater conditions.
- Geological Conditions: Use the BGS Geology Viewer to describe the bedrock type(s).
- Stratification and Hydrological Considerations: Review the well records for information about subsurface strata and groundwater. Note the depth to the water table and potential risks related to soil saturation.
- Soil Characteristics: Summarize the soil types, permeability, and other properties from the UK Soil Observatory. Consider potential concerns for development based on soil conditions.
- Historical Site Usage (if available): Investigate any previous uses of the site (e.g., industrial, agricultural, residential) using available online resources. Discuss whether prior usage may affect current or future geotechnical considerations, such as contamination risks or changes in soil structure.

Recommendations for On-Site Investigation:

Based on your desktop review, outline the first steps of an on-site geotechnical investigation. Consider the following in your recommendations:

- What important details are still missing or require ground-truthing?
- How many test pits and boreholes would you suggest, and where should they be located? How deep should each be, what earth materials do you expect to encounter, and what equipment might be needed?
- What precautions should be considered?
- Which areas might require further investigation (e.g., lacking data or detail, areas requiring dewatering, or areas with complex soil conditions)?