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Save money with integrated geotechnical services that can assist during the entire site development

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Geotechnical engineering and site development today has become more difficult because fewer desirable raw land sites are still available. Many attractive retail sites have been previously developed by a variety of users for wide-ranging purposes. The relatively simple task of dealing with the engineering properties of soils deposited by ancient geological processes has been made complex by the previous construction activities of former users. Many prime retail sites are being re-developed for the second or third time. Geotechnical issues, such as dealing with varying thicknesses of man-made fills throughout the site, are compounded with environmental issues associated with the site's historical use. Planning and implementing appropriate subsurface investigations become more difficult during the due diligence phase, when there are existing structures and tenants still operating at the site.

Most owners and developers have a good understanding of how much a particular type of structure costs to construct once above ground level. Below ground is where the risks are and where money is lost fast. A proper geotechnical subsurface study informs the owner on the risks associated with the planned site development and provides cost effective recommendations to limit these risks. The due diligence phase of a project informs the owner of the risks associated with historical use of the site and the risks from neighboring properties. If the due diligence research indicates the presence of recognized environmental conditions requiring additional soil and groundwater sampling to address potential environmental impacts, combining the geotechnical investigation with the environmental sampling ultimately saves time and money and makes sense.

In an approach that Terracon often utilizes, combining the geotechnical work with the Phase I Environmental Site Assessment and the subsequent Limited Site Investigation addresses such concerns. Where demolition may have taken place several times, complex environmental and geotechnical issues can be exacerbated when there have been historical manufacturing activities at the site. In addition to previous uncontrolled filling of the site, which causes problems for footing and slab-on-grade support, there could be significant problems with asbestos from heat resistant components and lead from old paint mixed with the fill material. Contamination of the subsurface soil and groundwater hampers the geotechnical engineer in the quest for robust foundation solutions. Integrated geotechnical engineers and environmental specialists can work together efficiently to resolve such issues and prepare precise documentation. The environmental specialists can also deal with owners' legal representatives in the due diligence process.

Sites that require significant effort at the investigation and due diligence stage are prone to problems during construction. These problems can be best handled by the geotechnical engineers and environmental specialists already involved on the project. By having the same company perform the independent third-party construction materials testing, construction technicians and project

managers can have direct access to these knowledgeable engineers and specialists.

Independent third-party construction materials testing/quality control is important to the success of any project, and is essential if the project incorporates Special Inspections requirements. By having a single company provide all the services, the construction materials testing can interface directly with the integrated geotechnical and environmental personnel, thus enabling the project team to effectively resolve issues that arise during construction. This is especially beneficial for sites with various historical issues and where geotechnical and environmental studies were performed prior to existing building demolition.

Retaining a company that provides geotechnical, environmental, and construction material testing services gives a client access not only to the soil, concrete, and steel inspectors typically included in the monitoring and quality control process, but also to senior level technicians trained by the geotechnical engineers and environmental specialists to be competent at additional testing tasks such as identification of contaminated material, environmental sampling, dust measurements, vibration assessments, and settlement monitoring during construction. Field reports prepared during the construction phase can be reviewed by a professional engineer who works directly with the geotechnical engineer of record or the environmental professional. The construction inspection process is streamlined by having fewer technicians in the field performing multiple services, lessening the impact on the construction schedule when unanticipated conditions arise.

Terracon is an example of the "one call" consultant with integrated services that can effectively assist during the entire site development, saving time and money for the client in the process.

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