FREQUENCY ANALYIS TO MAP FOUNDATION EXTENTS IN A PARKING GARGE - A SIMPLE SOLUTION TO A COMPLEX GEOPHYSICAL OBJECTIVE

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Due to unexpected conditions revealed part-way through a limited test pit exploration, a geophysical survey of the bottom floor of a parking garage was conducted to help determine if columns were supported by spread footings, as indicated by as-built plans, or a mat foundation. Additionally, we attempted to estimate the thickness of and rebar configuration within the foundation exposed in the test pits. To address these objectives, we performed a geophysical investigation using two methods: seismic surface wave analysis and ground-penetrating radar (GPR). The surface wave analysis was not multi-channel analysis of surface waves (MASW) but was instead a simple frequency analysis. This was a fallback option after MASW was ineffective due to the complicated, non-geologic setting. The results of the frequency analysis proved to be more effective than was even hoped for from the MASW. GPR was also conducted, with limited success. Another unexpected source of information will also be discussed.