RESEARCH NEEDS FOR STRUCTURES TAG

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ISSUE

IDOT currently utilizes Standard Penetration Testing (SPT) for its subsurface investigations. Although this type of testing is the “Tried and True” means of collecting subsurface information, it is rather limited in what information it gives the department. It is very labor intensive and time consuming. The values that come from this type of testing may be questioned because the sample is disturbed when collected. Cone Penetration Testing (CPT) methods obtain in-situ soil strength parameters directly. As a result, CPT would be ideal for shallow investigations for items like temporary retention at box culverts, mast arm foundations, bridge foundations, retaining walls, and roadway soil surveys.

SUMMARY OF PROBLEM

As mentioned above, the information gathered from SPT is limited. However, most the US DOTs use this method for subsurface investigation. This technology has been around for about 100 years, with all of the formulas geared toward the basic information. The basic drawback to SPT is that it does not take into account the confining pressures of the in-situ material. Additionally, performing an SPT investigation is time consuming, requires large pieces of equipment, and sampling intervals are 2.5 to 5 foot intervals resulting in information gaps. Utilizing CPT methods for subsurface investigations would provide higher quality, continuous soil profile data in a more efficient manner. Smaller equipment could also be utilized, which would enable transportation with vehicles not requiring a CDL to operate. The smaller equipment would also have less disruptive access to investigation sites.

DESIRED RESULTS/OUTCOME

Expand the use of CPT in our current IDOT practices in order to utilize higher quality subsurface data and reduce the cost of the field exploration and design.