Soil Investigation

Geotechnical investigation and exploration is the root of any construction, where the design inputs are highly required in accurate precise measures for constructing any building. Such design data will benefit the owner for having a well secured building for long term ownership. Similarly, the engineering consultants will benefit in a good outstanding for providing the correct designs according to the soil investigation results.

We provides variety of services against reasonable fees for fulfilling the needs of properties owners, engineering consultants offices, construction contractors, governmental sectors and private companies. We offers geotechnical engineering services such as bearing capacity analysis, foundation analysis, settlement analysis, slope stability analysis and other related engineering analysis.

FIELD INVESTIGATIONS

Shallow Penetrating Sampling
Boring test using hand auger boring with 'continues coring' method by 73 mm core diameter. Undisturbed sample taken for laboratory test by using thin wall shelby tube with 70 mm diameter and 70 cm length.

Standard Penetration Test (SPT)
SPT procedure and equipment follow ASTM D 1586-84, "Standard Method for Penetration Test and Split Barrel Sampling of Soils". The resistance of soils is represented by the N-value. The number of blows of hammer striking drilling rod to cause 3x6" penetration of the split spoon at the tip into the soil is counted. The total number of blows for the last 2 x 6" penetration is called N-value. The test results are recorded in the boring log.

Dutch Cone Penetration Test (CPT)
The cone penetration test can be used to obtain continuous profiles with depth of cone point resistance, sleeve friction and, in more recent devices, pore pressure. Appropriate, interpretation of this data enables the following to be estimated; soil profile, relative density (of sand deposits), soil strength, soil stiffness, soil permeability or coefficient of consolidation, pile skin friction, pile end-bearing capacity.

Boring & Sampling of Soil
Undisturbed sampling follows ASTM D 1587-83 "Standard Practice for Thin-Walled Tube Sampling of Soils". An undisturbed soil sample is taken from a specified depth by using a shelby tube sampler (a thin walled tube sampler). Subsequently the soil sample is protected against shock, vibration and change in moisture, in order to maintain the soil structure and physical composition to be as in original conditions, until is extruded to be tested in the laboratory. Depth to top of sample and the length of sampler are recorded in the boring log.

Others Field Investigation Test

- Plate grade Modulus (K) CBR,
- Field density (Bulk & dry),
- In-situ Vane Shear
- Permeability Tests

- Land Surveying (Topographical & Contour Surveys) - to facilitate finalization of Building & Plant Layout including making of Bench Mark, Boundary & Grid pillars, marking of bore holes and other test locations for Geotechnical investigations.

SOIL MECHANICAL LABORATORY TEST

Works of laboratory consist of testing to undisturbed samples or disturbed samples taken away from site. Intention of this work is to know the nature of mechanic and physical of soil. Testing of soil in this laboratory is executed pursuant to testing Materials for (ASTM) or Transportation Officials and of pursuant to standard of Unified laboratory works including,

standard according to American Society Testing American Association State Highway (AASHTO), while soil classification standard Soil Classification System (USCS). Soil

Testing of nature physical soil:

- Classification and Index Properties
- Moisture Content, Unit Weight (Density)
- Particle Density (Specific Gravity)
- Particle Size Distribution (Sieving and Hydrometer)
- Dry Density and Moisture Content Relationship
- Atterberg Limits (Liquid Limit, Plastic Limit & Shrinkage Limit)

Testing of engineering properties of soil for applicable samples:

- Unconfined Compression (UC)
- Unconsolidated Undrained (UU) Triaxial Compression
- Consolidated Undrained (CU) Triaxial Compression
- Consolidated Drained (CD) Triaxial Compression
- Direct Shear (Undrained and Drained)
- Oedometer Consolidation

California Bearing Ratio (CBR) Properties

SOIL ANALYSIS WORKS

Analysis works including data calculation, analysis and evaluation to prepare a recommendation which is including,

- Foundation system plan
- Bearing capacity analysis
- Settlement analysis
- Soil improvement recommendation

PT. GEONUSA UTAMA, Drilling & Geotechnical Specialist
Patra Office Tower 17th floor, room 1702, Jl. Gatot Subroto Kav.32-34, Jakarta 12950 Indonesia.
Workshop: Jl. Merdeka, Jl. H Japat 2 No.61, Depok 16417 Indonesia
Phones: +62-21-7707005 Fax: +62-21-7707004
e-mail: geo@geonusa.com website: www.geonusa.com