

**AGS (HK) One Day Seminar on Ground Investigation and  
Ground Characterization for Civil Engineering Projects**

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This seminar gave introduction of the ground investigation and characterization technologies. The seminar highlighted seven topics on ground investigation works and informative presentations were given by experienced professions.

**Topic 1: AGS Data Format**

Dr. Roger Chandler introduced the integrated 3D model base process of BIM. A successful BIM model from Arup is presented to show its advantages in large scale civil project, allowing early identification of geotechnical risk and data sharing among different parties and helping client to think in 3D by providing better visualization.

**Topic 2: The Influence of Ground Conditions on the Choice of  
Instrumentation and Modelling Regimes**

Dr. Angus Maxwell introduced different instrumentations based on monitoring of pore pressure, ground settlement, inclination and vibration control. The ground condition considerations, working principle and constraint of the instruments are presented. Some precautions on data interpretation are reminded, such as different sensitivity of piezometer on soil and rock.

**Topic 3: Application of Geophysical Techniques in Land Related Projects**

Dr. Margie Chan introduced three borehole seismic survey methods commonly used in Hong Kong, surface-to-borehole, X-hole and P-S logging. The P-S logging are more recommended due to higher certainty. Dr. Chan also emphasized that better communication between design engineer and geoscientist can improve the value of geophysical data.

**Topic 4: Description and Classification of Rocks of the Tuen Mun Formation**

Prof. Rod Sewell introduced the history of naming and geology of Tuen Mun Formation. The classification was proposed based on the percentage of non-pyroclastic volcanic rock, marble clast and carbonate material and type of metamorphosis. However, there was controversy suggested that chemical test is required to fit international standard.

**Topic 5: Application of HDC and HDD for Projects in Hong Kong**

Mr. M.P. Chan explained the need of directional guidance of drill rig due to unavoidable alignment deviation. The working mechanism of the steering method by wedging and jacking force control, were presented. The similar technology of HDD for pipeline installation was also introduced. Mr. Chan also shared his experience on HDC projects in Hong Kong.

**Topic 6: The Recent Development of the Sonic Drilling Method  
and Improvements in the Standard Penetration Test**

Ir. Raymond Chan introduced the precaution of using different hammer and correction factors of borehole diameter, sampler and rod length on N value. The requirement of seating blow and terminate blow of SPT are proposed to be divided into two categories based on its purpose, preliminary study with general purpose and foundation design.

**Topic 7: Development of Special and Advanced Laboratory Apparatus and  
Applications in Testing of the Behavior of Geo-materials**

Prof Yin introduced innovative apparatus in the soil laboratory in the Hong Kong Polytechnic University. They are cyclic triaxial test, bender element test, extension test, large diameter direct shear box, double cell triaxial test, hollow cylinder apparatus, truly triaxial system and innovative soil nail pullout box with instrumentation.

**Topic 8: Near-shore Marine Ground Investigation Practice**

Ir. Carlton Hall introduced the difficulties and application of drilling and sampling technique in near-shore condition. One of the challenge of near-shore GI work is providing stable drilling platform. Some geophysical investigation methods, such as sub-bottom profiling and seismic reflection, were also presented.