



GEOLABS Limited

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Geotechnical Soils & Rocks Testing Facilities

Geolabs Limited is a leading independent geotechnical soils, rocks and associated materials testing laboratory with state-of-the-art, in-house testing facilities.

Based in the in the United Kingdom with laboratories in Watford and Birmingham, our facilities enable us to perform a wide range of test procedures to British and other National and International Standards as well as in-house and bespoke methods.

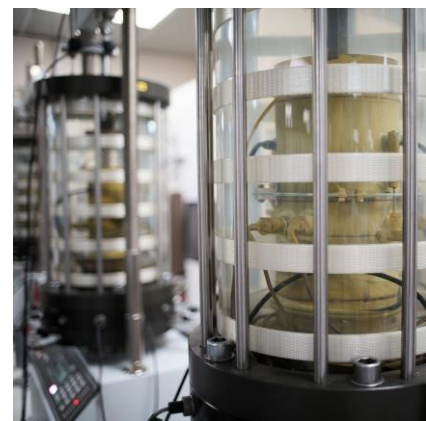
We perform a wide range of geotechnical tests for civil engineering and construction projects, including exploration and testing for mineral resources, all types of advanced and routine testing relating to the development of renewable energy resources (offshore and onshore), tunnelling, embankment construction, pipeline projects and major construction projects requiring high quality testing. We regularly undertake testing commissions from clients and projects from all over the world as well as providing essential technical support when required.



Staff

Our staff are knowledgeable and have expertise in all routine and advanced geotechnical laboratory testing with a combined geotechnical testing experience in excess of 500 years.

With staff serving on numerous National and International Standards committees, working groups and technical panels, often in the capacity of Chairmen or Working Group Coordinators we keep at the forefront of developments in the geotechnical and testing world. Our staff also lecture and present technical papers throughout the world.



Resonant Column

Our Hardin Type Resonant Column apparatus (H-RCA) allows elastic moduli to be determined over a wide range of strains. In addition, the damping properties of the soil can be determined from the speed at which the vibrations diminish after exciting the column.



Advanced and Standard Triaxial

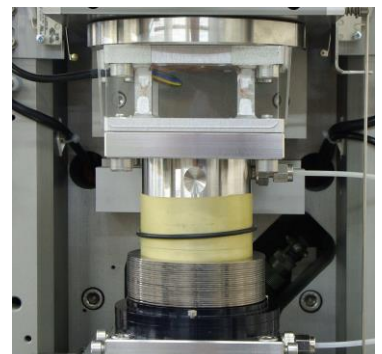
Our Advanced triaxial testing capabilities comprises up to eleven stress path stations each with their own dedicated stepless, computer-controlled compression frames. We routinely test both 70mm and 100mm diameter specimens. Each cell is capable of being equipped with three pairs of bender elements to determine shearwave velocities in up to three directions,

mid-plane pore pressure transducer, and local axial and radial strain measurements in compression and extension. All stress path cells can perform tests to greater than 10 % axial strain on 100mm diameter specimens. We have cyclic triaxial testing facilities up to 1 cycle per minute.

We can run concurrently up to 60 standard effective stress tests from 38 mm to 150 mm diameter using thirty two compression machines from 1 tonne to 10 tonne capacity dedicated to effective stress testing. Eleven high-pressure cells and high-pressure maintainers allow tests to be undertaken with effective pressures in excess of 1000 kPa and confining pressures of up to 3500 kPa.

Dynamic Cyclic Simple Shear

Our two sets of state-of-the-art Dynamic Cyclic Simple Shear (DCSS) apparatus, one 5 kN capacity and one 10 kN capacity, use their dedicated high-speed closed-loop computer control to enable both static and dynamic (cyclic) measurements to be made. We use low friction PTFE coated precision ground stainless steel rings to confine the 66mm diameter specimen.



Routine Testing

Our extensive equipment resources enable us to perform a wide range of testing of a routine nature (all BS1377 and BS EN ISO 17892 tests including classification, durability, compactions, CBR's, MCV's and total stress shear strength). We also perform the Fall Cone and other tests to other specifications and National Standards. We have jointly developed a new, proven, in-house method for determining maximum dry density of sands which gives high densities with minimal grain crushing.



Rock Testing

Our facilities allow us to perform a wide range of rock testing including: Unconfined and Triaxial Compressive Strength tests (which can include Young's Modulus and Poisson's Ratio determinations with load/unload cycles and utilise stress or strain controlled loading); Indirect Tensile Strength (Brazilian); Sound Velocity (P&S waves); Cerchar Abrasivity; Shore Scleroscope; Shearbox tests (on specimens up to 150 mm diameter); Petrographic analysis; Angularity; Swelling Pressure; Swelling Strain; Free Unconfined Swelling Strain; Volumetric Strain etc.



Direct Shear and Ringshear

We have twelve 60 mm x 60 mm shearbox apparatus (two capable of also performing 100 mm x 100 mm specimens and one capable of testing at higher normal stresses); two 300 mm x 300 mm shearboxes (one capable of also performing 150 mm x 150 mm specimens and both capable of performing soil v Geofabric, Geomembrane, Geotextiles, Geosynthetic etc. tests to BS and ASTM Standards); three Ringshear apparatus (for performing both BS1377 and custom interface tests); one Hoek shearbox apparatus (*for rock testing*). These extensive resources enable us to provide many combinations of direct shear testing.

Consolidation Testing

Geolabs have thirty-seven one-dimensional consolidation stations capable of performing tests on samples from 38 mm to 150 mm diameter. We also have six 76 mm, one 100 mm and six 250 mm diameter hydraulic consolidation (Rowe) cells; these cells can also be used for Permeability tests. In addition, we have Floating Ring and three Constant Rate of Strain (CRS) apparatus capable of applying back pressure and monitoring pore pressures.

Permeability Tests

We have the capacity to perform in excess of fifty triaxial permeability tests simultaneously, to BS1377, BS EN ISO 17892 and Environment Agency Procedures. We have the resources to perform constant head permeability tests in 76 mm and 112 mm diameter cells, Falling Head and Highways Agency permeability tests for graded aggregates. We also have apparatus to perform permeability tests on one-dimensional consolidation tests at each stage of incremental loading.

Quality

Quality is our mission!



Geolabs Limited is accredited in accordance with BS EN ISO/IEC 17025:2017 - *General requirements for the competence of testing and calibration laboratories*. We are audited annually by independent UKAS Technical Assessors to ensure that we comply with the BS EN ISO/IEC 17025:2017 Standard as well as complying with the National Testing Standards and/or documented Technical Procedures that we hold accreditation for. Our accreditation demonstrates that we are technically competent and have the necessary technical expertise and experience to perform our extensive scope of accredited tests. Our accreditation and annual surveillance and monitoring is certificated by the United Kingdom Accreditation Service (UKAS) which is the recognised national body in the United Kingdom responsible for assessing the competence of organisations in the fields of calibration, testing, inspection and certification of systems, products or services.

We have been a UKAS Accredited laboratory since 1999 and have held accreditation for effective stress testing since 2000.



www.geolabs.co.uk