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Geotechnical engineering

At Applus+, we offer comprehensive geotechnical engineering services for all types of projects in buildings, infrastructures, renewables, and diversified industries. We work for public administrations, private clients, construction companies, engineering companies, developers, and industries.

We offer our clients the best cost-effective solutions through our expert geotechnical engineering consultants, equipment, and facilities, including drilling equipment and a laboratory network.

THE Applus+ SOLUTION

Applus+ has overseas experience acquired through the years and enhanced with several company acquisitions such as LEM (Chile) and SAFCO (KSA and Egypt). Our portfolio includes:

Geotechnical Studies:

- Geotechnical characterization of sites.
- Structural foundation studies
- Slope stability studies
- Esplanade bearing capacity studies
- Substrate removal capacity studies
- Embankment studies
- Tunnel studies (geology, geotechnics, supports, etc.)
- Port studies (dock stability, dredging, etc.)

Geological and Hydrogeological studies:

- Geological cartography and geological and geotechnical characterization
- Hydrogeological studies

- Pumping tests, piezometry, etc

Pathology studies of the terrain and auscultation:

This service includes everything from the early diagnosis of pathology to the recommendations for its definitive stabilization, as well as its monitoring and control through instrumentation and geotechnical auscultation.

- Slope and slope instabilities
- Pathologies of earth structures
- Structure movements
- Pathologies of pavements and esplanades
- Foundation pathologies
- Calculations for the design of corrective measures
- Expert studies

Geological risk studies and territorial planning:

- Preparation of studies and maps of geological risks, definition of risk, and quantification in orders of probability
- Execution of all field and laboratory work
- Analysis and data processing
- Early detection of pathologies
- Thematic, global risk maps and risk areas
- Mining subsidences and collapses

Pollution studies:

- Detailed investigation for the characterization and determination of the extent of soil and groundwater contamination
- Diagnosis of soil and water quality

Site Investigations

- Geotechnical site investigation campaigns through surveys and "in situ" and laboratory tests
- Boreholes to recognize structural elements (walls, screens, piles, etc.)
- Recognition of boreholes in jet grouting
- Instrumentation boreholes

On-site Testing

- Permeability tests in boreholes (Lugeon and Lefranc) and infiltrometry
- Plate Bearing Test
- Pressuremetric tests
- PANDA dynamic penetration tests
- Dynamic penetration tests

- Seismic refraction studies
- Electrical and seismic tomography studies
- **Crosshole**

Structural surveys, inspections, and inventories:

- Bridge structural surveys
- Slope surveys
- Tunnel reconnaissance

We count on different accreditations and recognitions, as well as proven experience in geological engineering through significant projects implemented in various types of infrastructures and facilities:

- Geological, geotechnical, and hydrogeological study of storage platforms
- Geological-geotechnical investigations for the feasibility study of reversible hydroelectric power stations
- Geotechnical study and geotechnical site investigation with DPSH for the construction of eolic parks
- Geotechnical ground investigation for the works of the extension of ports
- Geotechnical ground investigation for new public buildings
- Geotechnical ground investigation and geotechnical engineering report for roads and highway design
- Geotechnical ground investigation and geotechnical engineering report for the design of the new railway access
- Geotechnical engineering, site Investigation and instrumentation and monitoring works in high-speed rail
- Geotechnical studies for theme parks.