**INTRODUCTION**

Mabu Geotechnical Consultancy is a specialist Geotechnical/ Engineering Geological company with a team of qualified and competent Engineering Geologists (led by Professional Engineering Geologists- SACNASP and SAIEG), which work closely together to provide a service and quality products which far exceed the industry standards. Our team enjoys a diversity of work, with a wide range of clients. Mabus’ values include quality, professionalism, integrity, sustainability, passion and cost effectiveness. In addition, we have an obligation to our clients to ensure that our data and interpretation thereof is accurate and ethical.

Engineering Geology is the application of the geologic sciences to engineering practice for the purpose of assuring that the geologic factors affecting the location, design, construction, operation and maintenance of engineering works are recognized and adequately provided for.

The aim of an Engineering Geological or Geotechnical Investigation is to give recommendations on the most cost efficient design and construction method for any given development. This is done through the detailed assessment of the geological, geotechnical and geo-environmental characteristics underlying, overlying and surrounding a proposed development. The analysis of these characteristics, and the effects they impose on a development, can limit the cost of overdesign and reduce the risk of structural failure which may lead to loss/ destruction of property and/or life.

According to the Site Investigation Code of Practice of South Africa (SAICE, 2010) the conducting of a detailed geotechnical site investigation can save a client anywhere between 10 and 100 % on the project foundation costs.

The overall time line for geotechnical investigations are minimised due to the link between the investigative team and the civil engineering laboratory.
Quality
Precise results and superior service which far exceed the industry standards

Professionalism
As qualified individuals we conduct investigations and communications in professional manner

Integrity
A commitment to a strict moral framework and industry codes of practices

Sustainability
Conducting business and investigations in a manner which is structured, reliable, consistent, qualitative and quantitative

Cost Effectiveness
Recommending investigations which have balance between the optimum results and required client expenditure

Passion
Installing a passionate drive and a compelling enthusiasm into all investigations, big or small
MABU uses scientific methods to assess the soil, rock and groundwater conditions prior to the design and construction phases of developments. The Protocols and Standards adhered to during these Investigations are based on the current Site Investigation Code of Practice of South Africa (SAICE, 2010), to ensure that reliable, consistent, qualitative and quantitative results are always obtained.

The entire Mabu team is driven by an overwhelming urge to exceed the industry standards in order to create a final product of the UT-most quality and stature.

Mabu is familiar with multiple investigative techniques ranging from geophysics to rotary core drilling to in-situ testing and test pitting, each with their own site specific application and associated soil and rock laboratory testing.

Specialist services include, but are not limited to, the following types of investigations:

**Large Structures:**
- Deep foundation investigations for large structures such as Multi-storey Buildings, Power Stations, Dams, Bridges, Power Lines, Shopping Centre’s and buildings with multiple basement levels.

**Stability Investigations:**
- Stability investigations for sites underlain by Soluble Rock. Investigations adhere to the guidelines presented in SANS 1936 Part 1 to Part 4. Final Report makes recommendations on the suitability of the site for a proposed structure, based on the results from the Test Pitting, Geophysical and Percussion Drilling (rock chip logging) phases of the investigation.

**Bulk Water Supply Systems:**
- Deep foundation investigations for the various infrastructural units forming part of bulk water supply systems such as Waste Water Treatment Works, Reservoirs, Elevated Water Tanks, Pump Stations and sub-surface pipe lines; with the associated calculations required for detailed designs such as lateral earth pressures and bearing capacity.
Geo-Environmental Investigations:
Geo-environmental and hydrological investigations for **environmentally sensitive** developments such as Filling Stations, Landfill Sites, Cemeteries, Effluent Dams and Golf Courses.

Township Developments (Rural and Urban):  
**Pre-feasibility, Feasibility and Design Phase** Township Development Investigations for the extensions to existing townships, establishment of new townships and the installation of services within existing townships. Investigations undertaken in accordance with the “Geotechnical Investigations for Housing Developments” as presented in the General Specifications GFSH-2 (2002) and the guidelines presented in SANS 634 document. Where applicable, sites are zoned according to their unique development potential using the system proposed by Partridge *et al* (1993).

Shallow Foundations:
Shallow foundation investigations for **single and double storey infrastructural units**, such as: Schools, Ablution Facilities (with associated testing), Residential Structures, Warehouses, Clinics and Shopping Complexes.

Materials Investigations:
Detailed centerline and materials investigations for the construction of roads and parking areas, pipelines and infrastructural units which require extensive layer works such as fields and embankments. These investigations focus on the testing of material for the **suitability for the re-use in construction**.

NHBRC Enrolments:
Investigations for the **NHBRC Enrolment of a single stand or site** within a development in order to assist with the foundation design of single storey residential structures (or structures with similar foundation loads). Investigations can be conducted to guide the required initial building standard of an **existing structure**.

Borrow Pit Investigations:
Detailed **borrow pit exploration** exercises conducted in order to located possible sources of material which are **suitable** for the use in construction, such as material used as bedding for pipelines, layer works in roads and rock and clay for the use in earth fill dam walls.
<table>
<thead>
<tr>
<th>Year</th>
<th>Contract Name</th>
<th>Description</th>
<th>Site Inspection Methods</th>
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</thead>
<tbody>
<tr>
<td>2016</td>
<td>Calcutta Bridge</td>
<td>Engineering Geological Investigation for the construction of a bridge structure spanning across a known water course (traitorous alluvial depositional system)</td>
<td>Rotary core drilling with in-situ testing (SPT) and test pitting; including borrow pit exploration</td>
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<td>2016</td>
<td>Nancefield Township Development</td>
<td>Engineering Geological Investigation for the construction of 300 RDP housing structures across a 35 Ha site.</td>
<td>Detailed desktop study, test pitting and disturbed and undisturbed sample testing</td>
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<td>2015</td>
<td>Kriel FFP Refurbishment Project</td>
<td>Engineering Geological Investigation for the construction of Fabric Filter Plant structures at the existing Kriel Power Station</td>
<td>Geophysical testing, rotary core drilling, test pitting and in-situ testing (DMT and DPH)</td>
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<td>2015</td>
<td>Giyani Landfill Site</td>
<td>Greenfield site suitability investigation for a new landfill site</td>
<td>Geophysical testing and test pitting; including borrow pit exploration</td>
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<td>2015</td>
<td>Wolwas Hydro Power Plant- Free State Province</td>
<td>Greenfield site suitability investigation for the proposed Hydro Power Scheme</td>
<td>Detailed desktop study, site walk over with joint mapping and rock sampling (XRF and XRD analysis).</td>
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<td>2015</td>
<td>Geo-environmental Investigation- Aloe Falls Country Estate</td>
<td>Geo-environmental Investigation for the construction of a golf course development and associated infrastructure</td>
<td>Complete geo-environmental investigation including test pitting, in-situ testing and water sampling (surface and sub-surface)</td>
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<tr>
<td>2015</td>
<td>Mpuru Access Bridge</td>
<td>Engineering Geological Investigation for the construction of a bridge structure spanning across a known water course</td>
<td>Rotary core drilling and test pitting</td>
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<td>2015</td>
<td>Upgrading of the R702</td>
<td>Centerline and Materials Investigation for the upgrading of the existing Reginal Road 702 (R702)</td>
<td>Test pitting and DCP testing</td>
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<td>2015</td>
<td>Extensions to the Maphutha Malatjie Hospital- Phalaborwa</td>
<td>Engineering Geological Investigation for the extensions to the Maphutha Malatjie Hospital- Phalaborwa</td>
<td>Test pitting and in-situ testing (undisturbed samples)</td>
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<td>2015</td>
<td>Mookgopong Water Infrastructure Rehabilitation Project</td>
<td>Pipeline and Materials Investigation for the proposed Mookgopong Water Infrastructure Rehabilitation Project (including reservoirs)</td>
<td>Test pitting and specialist geotechnical testing</td>
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<td>2015</td>
<td>NHBRC Site Enrolment- Leopard Creek</td>
<td>NHBRC Site Enrolment for a stand in the Leopard Creek Golf Estate</td>
<td>Test pitting and in-situ testing (undisturbed samples)</td>
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<td>2014</td>
<td>IDT Schools project</td>
<td>Engineering Geological Investigation for the extensions to multiple school structures in the Limpopo Province</td>
<td>Test pitting and in-situ testing (undisturbed samples)</td>
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<td>2014</td>
<td>Hoedspruit Water Treatment Works</td>
<td>Greenfield engineering geological investigation for the construction of the proposed Water Treatment Works</td>
<td>Test pitting (heavy mechanical excavator) with the require rock and soil sampling and analysis</td>
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<td>2014</td>
<td>240 Ha Solar Farm Development (Zimbabwe)</td>
<td>Engineering Geological Investigation for the construction of a large scale solar farm development</td>
<td>Test pitting and in-situ testing (undisturbed samples and DPL testing)</td>
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<td>2014</td>
<td>Geo-Environmental Investigation- Tailings Dam Structure- TSB</td>
<td>Geo-environmental Investigation for the construction of a new tailings dam structure for TSB</td>
<td>Complete geo-environmental investigation including test pitting, in-situ percolation testing and borehole sampling</td>
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CONTACT DETAILS AND LOCATION

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