COMPANY PROFILE
ENVIRONMENTAL, GEOTECHNICAL ENGINEERING AND GEOHYDROLOGICAL CONSULTANTS

INTRODUCTION

This submission provides a brief introduction to the environmental and geotechnical services that Terratest (Pty) Ltd, can offer. The staff includes qualified and experienced environmental scientists, geotechnical engineers, engineering geologists, geohydrologists, geophysicists and professional engineers who have specialised in hydrology and geohydrology.

Our firm has offices in Durban, Pietermaritzburg, East London and Port Elizabeth.

FIELDS OF ENVIRONMENTAL EXPERTISE

Environmental Impact Assessments (EIAs)

The firm has undertaken a variety of Basic Assessment Reports and EIAs in terms of Integrated Environmental Management (IEM) procedure and in conjunction with the old Regulations of the Environment Conservation Act 73 of 1989. The Regulations include Section 21 (List of Identified Activities), Section 22 (Prohibition) and Section 26 (Regulations) and recently amended National Environmental Management Act (Act No. 107of 1998) Regulations. The “list of identified activities” covers virtually every form of development in South Africa.

Environmental Management Programmes (EMPs)

In terms of the Minerals Act 50 of 1991 an approved EMP Report is required for every quarry, mining, sand-winning or prospecting activity. The firm has successfully completed numerous EMP’s for private bodies and public authorities.

Other Environmental Capabilities

There are many aspects to environmental work and, in line with international trends and changes to South African law, it is important that standards are maintained across the spectrum. To this end environmental review and auditing are important facets. Our company has experience in these areas of work. We also undertake environmental baselining, scoping and auditing. Audits may include pre-acquisition, compliance and waste audits.

Environmental Management Systems (EMS), e.g. ISO 14001, can be applied to any sphere of business and demonstrates commitment and adherence to environmental principles. This is of particular significance where potential trading partners and clients require proof of integrity in terms of the environment. We can devise and implement an EMS for all working environments.
Environmental Legislation

In line with constitutional rights to a healthy environment there is rapid change taking place in legislation. We are keeping abreast of developments and are well informed of recent and impending changes in various Acts and new legislation that impact on the work we carry out.

Waste Management

The firm has extensive experience in both landfill investigations and waste management. Permit applications have been made for general and industrial landfills. All applications are undertaken with strict adherence to the “Minimum Requirements: Volumes 1 to 3” (Department of Water Affairs and Forestry, 1994). EIA’s and public participation are of major importance to the procedure.

FIELDS OF GEOTECHNICAL EXPERTISE

Geotechnical Investigations

Extensive experience has been gained in all aspects of geotechnical work throughout Southern Africa, the Congo, Ethiopia, Zaire and Indonesia. Projects include commercial, industrial and residential developments such as airports, bridges, waste disposal sites, cemetery sites, pipelines, railways, roads and communication towers.

Geotechnical investigations have been completed for new roads, and the upgrading and rehabilitation of existing roads that vary from low volume gravel roads to freeways. Material investigations are an integral part of the geotechnical work whereby material sources are identified and assessments of material quality and volume are made (supervising drilling, logging core & trial pits, sampling and interpretation of laboratory results).

The identification of problem soils (such as dispersive soils, collapsing sands, heaving and compressible clays) and recommendations for engineering solutions is a significant aspect of any investigation we undertake. Dolomite terrain presents constraints for development, which we are able to assess and advise on.

Slope stability analyses form part of many projects such as road and rail embankments, waste disposal dumps and fill slopes. We are able to design slopes and give solutions in the case of failures.

More specialist work incorporates dam and tunnel investigations, rock mass characterisation, rock support requirements, tunnel linings, pile design, lateral support for deep excavations, and calculations for accelerating consolidation in highly compressible clays.

Geohydrology

Geohydrological investigations have been completed for the identification of aquifers, location of boreholes for drinking water supply and for use as monitoring boreholes for mines and landfill waste disposal sites (to determine the impact of operations on groundwater). Catchment studies have been completed. Hydrological and geohydrological studies have been undertaken to determine pollution control solutions such as that for Richards Bay Coal Terminal. Geohydrological studies include the interpretation of geological setting, extensive use of geophysical methods and groundwater modelling.
SUMMARY – TERRATEST FIELDS OF EXPERTISE

Environmental Services

- Environmental Impact Assessments (EIAs)
- Environmental Management Programme Reports (EMPRs) (for mining)
- Environmental Management Plans (EMPs)
- Environmental Management Systems (EMS)
- Strategic Environmental Assessments (SEAs)
- Spatial Development Plans
- Rehabilitation Plans
- Environmental Auditing
- Public Participation & Community Facilitation

Waste Management

- Site Selection
- Landfill permitting (DWAF Minimum requirements)
- Closure permitting
- Environmental Auditing

Geotechnical Investigations

- Site Investigations
- Field Geological Mapping
- Supervision, and Profiling of Trial Pits and Boreholes
- Geophysical Investigations
- Identification of Problem Soils
- Dolomite Investigations
- Sampling and Laboratory Testing
- Interpretation and Reporting

Geotechnical Design

- Lateral Support Design
- Slope Stabilisation
- Ground Improvement Techniques
- Foundation Recommendations
- Accelerated Consolidation

Construction Materials

- Identification of Borrow Pits and Rock Quarries
- Sampling and Testing of Materials
- Centre Line Surveys
- Stabilisation Methods for Road Layerworks
The firm has received the following Environmental Awards:

- The 1997 "Bob Laburn Award" for its contribution to Environmental Awareness in Civil Engineering, specifically for the Reconstruction of Main Road 191 between Groot Drakenstein and Wemmershoek, near Franschhoek.

KEY PERSONNEL


Mrs Norris has completed numerous geotechnical investigations for large and small structures including housing, industrial and infrastructure (dams, reservoirs), materials investigations for roads, slope stability assessments and monitoring of embankments (inclinometers & piezometers). Her experience includes project management and business skills (contract documentation, client liaison, rates & payments). She has completed many EMPs for projects that fall under the Mineral Act 1991, namely sand winning operations, commercial and local authority borrow pits and quarries. Involved with public participation, impact assessments and mitigation measures, rehabilitation of sites and calculation of financial provisions. All EMPs submitted have been approved by the Department of Minerals and Energy. A number of EIAs have been undertaken for a variety of projects including new service stations, bridges, new and up-graded roads, dams water supply schemes and solid waste disposal sites.


Cecilia Canahai has completed numerous environmental impact assessments and management plans for large and small projects such as community water supply schemes, dams, reservoirs, etc. All these projects included identification of impacts, proposed mitigation and public participation. All EMP’s and EIA’s submitted by Mrs Canahai have been approved by the relevant departments. Mrs Canahai was also involved in numerous geotechnical investigations ranging from housing and industrial developments to roads, dams and tunnel investigations.

Richard Fyvie  Pr. Sci Nat, FGS, BSc (Hons), Engineering and Environmental Geology. Currently working on MBA.

Richard has a number of years experience with Terratest, operating across the fields of geotechnical and environmental engineering both within South Africa and Britain. He specialises in geotechnical site investigations, slope stability assessments, materials and centreline investigations, foundation design, environmental impact assessments, basic assessment reports and environmental auditing. Richard has also working on projects in England, Scotland and Northern Ireland for the Mouchel Group, focusing on evaluation of abnormal development design and remediation of brownfield sites, detailed S.I.’s and Highways Agency embankment stability term contracts.

Richard has worked extensively throughout the Eastern Cape and the Nelson Mandela Metropole, notably on geotechnical evaluations for Coega Zones 1 – 5, and upgrades associated with the 2010 World Cup. Richard currently manages the Terratest Port Elizabeth office, based within the Greenacres Office Park in Newton Park.

Steven Bok  BSc (Hons), Geology.

Steven joined the firm in 2002 and has been an integral part of the geotechnical and environmental divisions. He specialises in geotechnical investigations for state, commercial and private bodies, including numerous housing developments, houses, office buildings, bridges and pipelines throughout South and Southern Africa. Recent specific experience involved geotechnical investigations for the proposed Ludeke Dam, near Bizana, Eastern Cape, a weir and off-channel storage dam on the Black Umfolozi River, near Nongoma, KwaZulu Natal and the Thuni Dam in eastern Botswana.
Steven’s geophysical experience is often called upon for the inferral of rockhead contact and groundwater information for quarries and borrow pits, groundwater identification and bridge and dam site investigation. Geophysical methods used are p- and s-wave seismic surveys, 2D resistivity and EM-34 electromagnetic surveys. His environmental experience includes the successful completion of EIAs, BARs, Environmental Management Plans and Mining Permit Applications for a wide variety of development and mining concerns.

Dumisani has recently joined us after a number of years with the Ikamva Consulting Agency. He specialises in Environmental and Waste Management Services. He was a project leader in a number of waste management investigations which include the following: Integrated Waste Management Plans for OR Tambo District Municipality, Waste Management Planning for Umhlanga District Municipality, Involved in the development of a new waste disposal site in Mandeni, Environmental Impact Assessment investigations for new land fill sites. He was also involved in developing Integrated Waste Management Plan for Alfred Nzo District Municipality. Dumisani also has experience in the fields of Environmental Impact Assessment, Public Participation.


Mr Kholisa joined the firm after a number of years with the Department of Environment Affairs in both the Western and Eastern Cape. He thus has a wealth of experience in a wide range of Environmental Impact Management processes and applications, including Environmental Compliance Monitoring, Environmental Law Enforcement and Biodiversity Management. He has assisted in compiling a Provincial Environmental Implementation Plan and Annual Performance Report, as mandated by National Environmental Management Act, for the Eastern Cape Department of Environmental Affairs, and is currently Project Leader for a number of private and parastatal Environmental Impact Assessment investigations.
Environmental projects:

- Honeydew Quarry audit review
- Philippi R 300 extension – environmental report
- Policy guidelines for borrow pits EMPs for DOT (KwaZulu-Natal)
- EMPs for underground coal mine (Rietvlei), opencast (nr. Hlobane) and 3 coal dumps (nr. Newcastle).
- Richards Bay Coal Terminal: comprehensive environmental audit with construction of pollution control structures
- Initial EIA for Mpendle Water Supply Scheme including 80kms of pipeline and 6 dams
- Hard rock quarry, Pietermaritzburg
- EIA for road and radar site, near De Aar
- EIA for road extension near Uitenhage
- EIA for Sentech mast, Vredendal
- EIA for new dam site in Ludeke, Eastern Cape
- EMP for hard rock quarry near Bizana
- EMP for hard rock quarry near Lusikisiki
- EIA for oxidation ponds at Bizana and Riverside
- Waste Management System for Amatola District Municipality
- Umngazi River Road – EIA
- EIA for Nelson Mandela Bay Municipality Bucket Eradication Programme

Geotechnical projects:

- Hilton TLC landfill investigation and report
- Industrial landfill, Cato Ridge (aluminium waste)
- Ceres, waste management / recycling
- Radar towers, Potgietersrus and De Aar
- Bridge foundations; Franschhoek, Durban Southern Gateway, Francistown, Botswana.
- Housing and industrial developments in Belville, Edendale, Frischgewaagd
- Slope stability analysis, R34 nr. Vryheid
- Sewerage ponds, Ramotswa, Botswana
- Centre line road investigation, Mochudi, Botswana
- Rock mass characterisation, De Aar
- University of Botswana, foundation investigation
- Gold prospecting, Tanzania
- Various small & medium scale housing developments
- Lateral Support design and supervision for North Coast Road
- Mimosa Road / North Coast Road Slope Stabilisation
- Stanger Road / Argyle Road bridge and abutment foundation design on “Hippo” clays
• EIA for St Albans Sewage Pipeline in Port Elizabeth

• EIA for Motherwell Canal Development in Port Elizabeth

• EIA for Infrastructure Developments in Teko Springs, Butterworth

• ECO for Olifantskop Pass Stabilisation near Paterson

• EIA for Eskom Telecommunication Tower in Jamestown
## TERRATEST CONTACT DETAILS

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<thead>
<tr>
<th>Office &amp; Address</th>
<th>Contact Numbers and Email</th>
<th>Contact Person</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PIETERMARITZBURG</strong>&lt;br&gt;PO Box 13009&lt;br&gt;Cascades&lt;br&gt;3202</td>
<td>Tel: (033) 347 1841&lt;br&gt;Fax: (033) 347 1845&lt;br&gt;E-mail: <a href="mailto:norrisj@terratest.co.za">norrisj@terratest.co.za</a>, <a href="mailto:schreinerd@terratest.co.za">schreinerd@terratest.co.za</a>, <a href="mailto:canahaic@terratest.co.za">canahaic@terratest.co.za</a></td>
<td>Jan Norris&lt;br&gt;Deneys Schreiner&lt;br&gt;Cecilia Canahai</td>
</tr>
<tr>
<td><strong>DURBAN</strong>&lt;br&gt;PO Box 37378&lt;br&gt;OVERPORT&lt;br&gt;4067</td>
<td>Tel: (031) 275 5500&lt;br&gt;Fax: (031) 209 4936&lt;br&gt;E-mail: <a href="mailto:lotzm@terratest.co.za">lotzm@terratest.co.za</a></td>
<td>Mark Schapers&lt;br&gt;Michelle Lotz</td>
</tr>
<tr>
<td><strong>EAST LONDON</strong>&lt;br&gt;PO Box 19046&lt;br&gt;Tecoma&lt;br&gt;5214</td>
<td>Tel: (043) 726 8424&lt;br&gt;Fax: (043) 726 8565&lt;br&gt;Email: <a href="mailto:terratest-el@terratest.co.za">terratest-el@terratest.co.za</a></td>
<td>Tarryn Jordaan</td>
</tr>
<tr>
<td><strong>PORT ELIZABETH</strong>&lt;br&gt;PO Box 27308&lt;br&gt;Greenacres&lt;br&gt;6057</td>
<td>Tel: (041) 363 4428&lt;br&gt;Fax: (041) 363 1922&lt;br&gt;Email: <a href="mailto:terratest-pe@terratest.co.za">terratest-pe@terratest.co.za</a></td>
<td>Richard Fyvie&lt;br&gt;Makhosi Kholisa</td>
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