



Jones & Wagener

Engineering & Environmental Consultants

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GEOTECHNICAL CAPABILITY STATEMENT

Jones & Wagener is a firm of engineering and environmental consultants, established in 1966. Our Geotechnical capabilities are discussed below in more detail.

GEOTECHNICAL

Jones & Wagener probably has one of the strongest geotechnical teams in the country. We have the expertise and capability of conducting geotechnical investigations, design and specialised analysis for any type of infrastructure both within and outside of South Africa.

Some of the major industries and clients that we have serviced over many decades, and keep servicing, include:

- **The Mining Industry:** Coal, Gold, Platinum, Iron Ore, Diamonds.

Anglo American, Glencore, BHP Billiton, Kumba Iron Ore, Impala Platinum, Sasol Mining, DeBeers, Exxaro.

- **Transportation Industry:** Ports, Airports, Rail and Road.

Transnet, National Ports Authority, Bombela JV.

- **Power Industry:** Coal, Gas & Oil, Nuclear as well as Renewable Energy Power Plants.

Eskom, PBMR, PB Power, NamPower, Vestas.

- **Heavy Industrial Plants:** Smelters, Processing and Manufacturing Plants etc.

Sasol, Arcelor Mittal, Columbus Stainless Steel, Highveld Steel, Alcan, Technip, Coega Industrial Development Corporation.

- **Large Commercial Developments:** Basement Excavations and Foundations.

Growth Point.

- **Residential Developments:** Specialising in development over problem ground conditions.



Apart from working directly for the development client, J&W is often sub-consulted for specialised geotechnical services by other consultants and by contractors.

- **Consultants:**

Hatch Goba, Batemans, MDM Engineering, DRA, VGI Consulting, PRDW.

- **Contractors:**

Group Five, Murray & Roberts, Redpath, Esor, Franki Africa, Concor, Hochtief, Grinaker-LTA.



We also provide key geotechnical services to other divisions of J&W for the design of waste and tailings facilities, mining infrastructure, as well as environmental and water management projects.

The pioneering work that was started by Dr Fritz Wagener on the 1st of March 1965 has been carried into the new millennium under the leadership of Dr Peter Day and Gavin Wardle and has firmly established Jones & Wagener as the leading geotechnical specialist consultancy in southern Africa.



Geotechnical Investigations

Jones & Wagener has undertaken geotechnical investigations for a wide range of projects across the continent of Africa. Our strength lies in our understanding and appreciation of problem soil conditions such as soft or expansive clays, collapsible soils, dolomitic ground and the risk of subsidence and sinkholes, undermined ground, seismicity, and adverse groundwater conditions.

Our geotechnical engineers are supported by a team of highly experienced and capable engineering geologists. This symbiotic relationship between engineer and geologist is often key to the successful characterisation of ground conditions that ultimately lead to practical design solutions. J&W is well respected in the industry for delivering geotechnical investigation reports that provide not only factual information but valuable interpretation and practical recommendations that can be translated directly



into construction design without the need for further investigations.

We can design, supervise and execute geotechnical investigations ranging from routine foundation investigations for a house to highly complex and sophisticated investigations for a nuclear power plant.

Our experience includes investigation of on-shore, near-shore and off-shore sites in accordance with local South African standards, as well as British and American Standards.

Our staff are well versed and trained in aspects of health, safety and preservation of the environment that are associated with geotechnical investigations. It is a core value of the Company that all work is carried out in accordance with the Occupational Health and Safety Act, the Construction Regulations and the Mine Health and Safety Act.

Geotechnical Design

Jones & Wagener has a strong team of specialised, highly experienced and practical engineers that are capable of analysing soil-structure-interaction and designing geotechnical structures.

Our engineers are familiar with a broad range of design philosophies and approaches including limit equilibrium analysis, limit states design, numerical modelling and the Observational Method. Not only are our engineers familiar with these design codes, but they often play a key role on national and international professional committees that are responsible for the drafting of design and other codes of practice.

Design capabilities are further enhanced by the fact that the design engineer is often involved from the start of the project and part of the site investigation team. This ensures that geotechnical investigations are tailored to adequately address the design requirements and that the pursuant information is fit for design purposes.

Jones & Wagener uses commercial software developed for the analysis and modelling of soil-structure interactions and for geotechnical



design. In addition to these, we have developed a number of in-house software applications for both routine and specialised applications.

In addition to the design of final structures, J&W also specialises in the design of temporary works, when often the structure is at its highest risk. Examples include the design of temporary support and dewatering for deep excavations, foundations for construction equipment such as cranes and the headworks for raisebore projects, temporary working platforms for piling rigs and other construction equipment and temporary haul and transport roads for large mining equipment including draglines.



Forensic Geotechnical Services

Forensic services include investigation of insurance claims and expert evidence during litigation and dispute resolution. We also assist the Engineering Council with investigation of complaints against registered professionals.



Professional Involvement

The senior geotechnical staff at J&W are actively involved with the profession and have served or are serving as leading committee members of a number of international and national societies and councils:

- ISSMGE Board (Vice President for Africa)
- SAICE Council
- SAICE Geotechnical Division Chair
- SAIEG President
- ECSA Investigating Committee & Identification of Work
- CESA Risk & Quality Management Committee

In recognition of these efforts Dr Peter Day received the 2014 award for the SAICE Engineer of the Year and both Peter and Gavin have been awarded the SAICE Geotechnical Division Gold Medal.



Development of Standards

We have also played key roles in the development of several national codes:

- SAICE: Lateral Support in Surface Excavations
- SAICE: The Safety of Persons Working in Small Diameter Shafts and Test Pits for Civil Engineering Purposes
- AEG, SAICE & SAIEG: Guidelines for Soil and Rock Logging in South Africa
- SANS 207: The Design and Construction of Reinforced Soils and Fills
- SAICE: Site Investigation Code of Practice
- SANS 10160: Basis of Structural Design and Action for Buildings and industrial Structures, Part 5: Basis of Geotechnical Design and Actions
- SANS 1936: Development on Dolomite Land

Engineers from our office currently chair or have chaired several SABS Technical committees including TC59 SC03 (Geotechnical Construction Standards), TC 98 (Structural and Geotechnical Design Standards) and TC98 SC06 (Geotechnical Design Standards).

Publications and Continuing Professional Development

Jones & Wagener supports involvement of its staff in participation in and organisation of national and international conferences including Regional and International Conferences of the ISSMGE, Young Geotechnical Engineers Conference and local SAIEG and Geotechnical Division events. We take pride in sharing our knowledge with others in the profession by means of technical papers and contributions at seminars.

We currently serve on the Editorial Advisory Panels of the Institution of Civil Engineers (London), Granular Matter and of the SAICE Journal.



Involvement in Education

- Supervision of post-graduate research
- External examining of post-graduate and undergraduate courses
- Adjunct professor at a leading university
- Mentoring of candidate engineers and geologists.

