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12 Olienhout Str
 Miederpark
 Potchefstroom
 2531

1. ECO SOIL COMPANY PROFILE

- FMB Management Services (CC), trading as Eco Soil was registered on the 2007/07/30. **CK1 REG no. 2007/145553/23**
- **Vat Reg. 4370/241/541**
- F. Botha (Director) has been practicing as an independent soil scientist since 2004/10/01.
- **BEE Certificate No. 007245**
- **SACNASP Pr. Nat. Sci. REG No. 400063/15**

Herewith a list of corporate clients:

Clients	Project
USAID / Sothern Mapping	Soil classification and land capability study, irrigation feasibility and agronomic recommendations, Kilombero, Tanzania
Rural Consult	Agro Ecological Rezoning, Zambezia and Nampula Province, Mozambique
Booker Tate	Soil classification and land capability study, irrigation feasibility and agronomic recommendations, Massingir, Mozambique
Resource Energy	Soil classification and land capability study, irrigation feasibility and agronomic recommendations, Buzi, Mozambique
Sekab	Soil classification and land capability study, irrigation feasibility and agronomic recommendations, Rafiji, Tanzania
Swazican	Soil classification and land capability study, irrigation feasibility and agronomic recommendations, Tsaneni, Swaziland
Epoch Resources	Soil classification and land capability study, Kalana, Mali
Fraser Alexander	Soil classification and land capability study for Mintails project
Anglo Coal	Soil rehabilitation and monitoring
MTC Minerals	Soil classification and land capability study
Menco	Soil classification and land capability study
Envass	Soil classification and land capability study
Richmond Exploration	Soil classification and land capability study
TWP	Soil classification and land capability study
Envirogis	Soil classification and land capability study, Site classification, Komatiland Forests
IDC	Soil classification and land capability study
Dept of Agriculture Limpopo	Soil classification and land capability study, irrigation feasibility and agronomic recommendations, RESIS Project
Kobwa	Soil classification and land capability study, irrigation feasibility and agronomic recommendations
Forestek	Soil classification for forestry decision support system GIS system
Floppy Sprinkler	Soil classification study, irrigation feasibility
Irricon	Soil classification study, irrigation feasibility
WSM Leshika	Soil classification and land capability study, irrigation feasibility and agronomic recommendations



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2. PROJECT TEAM

SPECIALISTS	FUNCTION	QUALIFICATION
F Botha	Soils project leader	Pedologist
Astrid Hattingh	Pedologist, GIS Specialist	Pedologist GIS Specialist
J Hattingh	Pedologist, Soil Chemist	Pedologist

3. RESUM S

RESUM OF F. BOTHA

1. FORMAL QUALIFICATIONS

- B.Sc. Degree (Pedology) from PU for CHE
- B.Sc. (Honn) degree (Pedology) from PU for CHE
- B. Comm. degree (Economics and Business Economics) from UNISA (2001).

2. MEMBERSHIP

- Soil Science Society of South Africa
- South African Soil Surveyors association
- Land Rehabilitation Association of SA (formation in process)
- SA Irrigation Institute

3. WORK EXPERIENCE

- 8 years' experience as an extension officer, with the focus on sugarcane production under irrigation in the Malelane region.
- Involved in pedological and geological surveys for Forestek (35 000ha's), ARC and private individuals for forestry, game ranching, farming enterprises and new agricultural developments (150 000ha).



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- Functioned as project leader on a number of large scale soil survey projects, e.g. Donkerhoek Agricultural project, Mpumalanga
 - Pedological specialist studies for environmental impact assessments (EIA's) as well as a number of economic and agronomic feasibility studies for new agricultural developments.
 - Lecturing experience of 13 years in soil science at agricultural colleges.
 - Consultation on biological and soil health principles on various agricultural projects
 - At present I am consulting on the following (see company profile for client list):
 - Precision farming sampling and mapping in the maize sugar and industry
 - Feasibility studies on new sugarcane and agricultural projects under irrigation in Southern Africa
 - Environmental Impact Assessments for mining and new projects
 - Rehabilitation of opencast mining soils
 - Wetland delineation
-



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RESUM OF A. HATTINGH

1. FORMAL QUALIFICATIONS

- BSc Soil Science 1977 PU for CHE
- Honns Soil Science 1978 PU for CHE
- MSc Soil Science 1983 PU for CHE

2. MEMBERSHIP

- Soil Science Society of South Africa.
- International Soil Science Society.

3. EMPLOYMENT HISTORY

- 1979 –1993 Dept. of Agriculture (Highveld Region) as Researcher.
- 1993-1996 Assistant Director Soil Science.
- 1997-1998 Part time lecturer at PU for CHE in clay mineralogy, soil physics, irrigation, drainage, soil chemistry.
- 1997 Part time at REHAB. Soil consultant
- 1998-2002 Own business: Handrid Flora: Seedlings and vegetable production.
- 2002- 2003 Own Business in participation with Africa Plus Projects and Geoquip. Irrigation scheduling and soil consultant.
- 2004 Consultant Techniland. Precision farming.
- 2006 GCI- ARC. Researcher
- 2007 –2008 Africa Geo Environmental Services (AGES) GIS specialist, Soil Scientist
- 2009-2010 Part time Lecturer at Potchefstroom University and Agricultural College Potchefstroom. Private consultation.
- 2011-present. Precision Farming Own Business. Africa and mine Projects with GIS interpretation of soil and land capability studies.



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RESUM OF J. HATTINGH

1. FORMAL QUALIFICATIONS

- B.Sc (Pedology) University: PU for CHE
- B.Sc (Honns) (Pedology) University: PU for CHE
- M.Sc (Engineering Geology) University: Purdue (Indiana USA)

2. PROFESSIONAL REGISTRATION AND MEMBERSHIP

- International Society for Terrain Vehicle Interaction
- Soil Science Society of South Africa

3. EMPLOYMENT HISTORY

- 1982 - 1998: Lecturer in soil science at the PU for CHE.
- 1998 - 2003: Own business (Handrid Flora) and technical consultant for Envirogreen (Pty) Ltd.
- 2003 - 2005: Research and development in precision farming for Techniland (Pty) Ltd
- 2005 - 2007: Specialist agronomist in precision agriculture for Cal Tech (Pty) Ltd
- 2007-present: Own business in precision agriculture & consultant OmniPreciseTM

4. RESEARCH

- Trafficability of vehicles (53 Reports)
- Terrain evaluation
- Dispersion of soils
- Phosphate adsorption.
- Soil Compaction (Forestry)
- Cone penetrometer and Bevameter
- Backfill material
- Erosion
- Rehabilitation of Gold tailings dams



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5. LECTURING

- Soil Chemistry (4 years)
- Clay mineralogy (5 years)
- Soil Mechanics (17 years)
- Soil Physics (6 years)
- Irrigation (6 years)
- Drainage (6 years)
- Erosion (6 years)
- Soil classification (7 years)
- Land use planning and sustainability (5 years)

6. POST GRADUATE LEADER

- Leader of five M.Sc dissertations
- Examiner of various M.Sc dissertations.

7. INVESTIGATIONS

- Reconnaissance soil investigations (soil mapping) (Venda and Gazankulu)
- Soil investigation for irrigation purposes (Taung and Klein Letaba)
- Soil investigation for township development (Potchefstroom, Klerksdorp, Krugersdorp, Fochville and Nylstroom)
- Soil investigation for precision farming (more than 40 000ha) (Schweizer Reneke, Hoopstad, Hertzogville, Klerksdorp, Viljoenskroon, Bothaville, Lichtenburg)
- Rehabilitation of slimes dams (FS N 6, ST Helena and Beatrix slimes dams)

8. POSITIONS HELD AND COMMITTEE PARTICIPATION

- Acting head of Department of Soil Science. PU for CHE
- Administration, management, training, research and projects
- Acting director of Institute for Soil Science Research. PU for CHE
- Member of the Faculty Board: Natural Science. PU for CHE
- Executive member of the Environmental Earth Science Group (4 years)
- Member of various ARMSCOR panels
- Member of various WRC panels



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4. COPY OF BEE CERTIFICATE



BEE Rating Solutions

Broad Based Black Economic Empowerment Verification Certificate

Measured Entity:

FMB MANAGEMENT SERVICES CC T/A ECO SOIL
Registration no: 2007/145553/23
VAT no: 4370241541
Business Address: 12 Olienhout Street, Miederpark, Potchefstroom, 2531

Verification Standard Applied	:	The Codes of Good Practice on Black Economic Empowerment
Issue of the rating standard applied	:	Section 9 of the B-BBEE Act 53 of 2003
Scorecard Applied	:	Exempt Micro Enterprise Scorecard
Size of the enterprise	:	Exempt Micro Enterprise Scorecard (<R10 million annual turnover)*

Broad-Based BEE status level: Level FOUR Contributor to BEE

BEE Procurement Recognition Level: 100%

Black Ownership: 0%

Black Women Ownership: 0%

Empowering Supplier: Yes

**Although the abovementioned is the current level of turnover/income and is closely related to the economic indicators, it may be more or less in future. Consequently, this Certificate does not serve as a guarantee that the income will continue at the same levels. Where the entity is a start-up enterprise this EME Certificate is valid only for contracts with a single value of less than or equal to R 5 million. Should the contract value being tendered for be higher than R 10 million and less than R50 million, the EME will be required to submit a QSE Verification Certificate with any tender. For contracts over R50 million a B-BBEE Verification Certificate based on the Generic Codes must be submitted.*

Based on certain procedures performed, we have determined that the turnover / income is less than or equal to R10 million. Based on certain procedures performed, we have determined that the level of Black Ownership / Black Women Ownership is as set out in this Certificate.

This certificate is the result of an independent and impartial verification of the BBBEE status of the measured entity measured against the Codes of Good Practice on Broad Based Black Economic Empowerment. The objective of our verification is to verify the validity and accuracy of the BBBEE status represented by the measured entity. BEE Rating Solutions SA (Pty) Ltd is not responsible for ensuring completeness of information provided to support the BBBEE status.



Frans Sarel Jacobus Els
IRBA Reg No: 833908B
Registered Auditor
Approved by IRBA to engage on
B-BEE certificates
Company: Frans Els and Associates Inc.
Reg. No. 2012/010643/21

Certificate No: 1816
Date of issue: 15 April 2014
Expiry Date: 14 April 2015

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Directors: S Mmusamy, PSI Els Reg No. 2013/014102/07