

CURRICULUM VITAE OF KHOMOTJO REUBEN MAROGA

| | |
|-------------------------|---|
| Profession : | Environmental Consultant |
| Specialisation: | Environmental Impact Assessments, Basic Assessments, Site Visits, Compilation of Environmental Management Programmes and Liaison with authorities |
| Work Experience: | 2.5 years of experience in the environmental management field |

VOCATIONAL EXPERIENCE

Khomotjo Reuben Maroga has two years of experience in the environmental field. He has worked on a mining infrastructure project in compiling environmental control officer's reports and conducting air and groundwater monitoring using the DustTrak DRX Aerosol Monitor and a Bailer as apparatuses. Additionally, he has provided assistance to Eco-Elementum & Engineering on WUL applications and EIAs.

SKILLS BASE AND CORE COMPETENCIES

- ECO Report writing
- Environmental monitoring
- Administrative tasks

EDUCATION AND PROFESSIONAL STATUS

Degrees:

- B.Sc. (Hons) Geology, University of Johannesburg, 2016
- B.Sc. Geology and Environmental Management, University of Johannesburg, 2015

Courses:

- Business Communication, ProEarth Learning Academy (Pty) in Middelburg (2018)
- Describe the functions of a Health and Safety representative, Elite Training (Pty) Ltd in Middelburg (2017)
- Basic Fire Fighting, Elite Training (Pty) Ltd in Middelburg (2017)
- Combined OSHAS 18001: 2007 and ISO 14001: 2015 Introduction, NOSA in eMalahleni (2017)
- Combined OSHAS 18001: 2007 and ISO 14001: 2015 Implementation (2017), NOSA in eMalahleni (2017)
- Emotional Intelligence, LearnMe (Pty) Ltd in Middelburg (2017)

EMPLOYMENT

| Date | Company | Roles and Responsibilities |
|--------------------------------------|--|--|
| October 2018 - current | Savannah Environmental (Pty) Ltd | Environmental Consultant <i>Tasks include:</i> Applying applicable legislation, research of related environmental policy documentation required for EIAs, efficient and quality report writing, liaison with relevant environmental authorities, site visits, compilation of application forms, environmental management programmes (EMPrs) and public participation include documentation. Other related tasks include undertaking water use license applications, environmental auditing (Environmental Control Officer – ECO work) and any other related authorisation, permitting and licensing tasks (on an as and when required basis). |
| September 2016 - October 2018 | Yoctolux Collieries (Pty) Ltd | Environmental Management Intern <i>Tasks included:</i> Drafting monthly ECO reports, conducting monthly environmental monitoring, providing assistance on WULAs and EIAs to Eco-Elementum & Engineering (Pty) Ltd and providing oversight on IAPs eradication and management programme. |
| January – September 2016 | University of Johannesburg Auckland Park, Kingsway Campus | Second-year Practical Demonstrator <i>Tasks included:</i> Marking of practical's, attending to any ad-hoc administrative duties and liaising with designated lecturers. |

PROJECT EXPERIENCE**MINING PROJECTS: COAL MINING*****Water Use Licence Application***

| Project Name & Location | Client Name | Role |
|---|---|-------------|
| Compiling a water use licence report for an underground coal mining development (Tala Bethal Coal) in Hendrina, Mpumalanga. | Diepsoils Investments (Pty) Ltd Vernon Siemelink: 072 196 9928 | Assistant |

WASTE TREATMENT WORKS

| Project Name & Location | Client Name | Role |
|---|---|-------------|
| Kriel Power Station Lime Plant Upgrade, Kriel, Mpumalanga | Eskom Holdings SOC Limited Khuliso Rasimphi : 017 615 2634 | Junior EAP |

RENEWABLE ENERGY

Basic Assessments

| Project Name & Location | Client Name | Role |
|--|--|-------------|
| Basic Assessment Process for Sirius 2x 100MW Solar Photovoltaic facilities, Upington, Northern Cape | SOLA Future Energy (Pty) Ltd Tseliso Mahao: 076 067 8221 | Junior EAP |
| Basic Assessment Process for Aggeneys 2x 100MW Solar Photovoltaic facilities, Aggeneys, Northern Cape. | Atlantic Energy Partners (Pty) Ltd and ABO Wind AG Sonia Miszczak: 021 418 2596 | Junior EAP |

Section 53 Applications

| Project Name & Location | Client Name | Role |
|--|--|-------------|
| Section 53 applications for the Veld PV North and PV South, Northern Cape. | Veld Renewables (Pty) Ltd Jason Cope: 021 020 1044/ 082 598 1123 | EAP |

Part 1 Amendments

| Project Name & Location | Client Name | Role |
|---|---|-------------|
| 20MW Konkoonsies Solar Photovoltaic facility, Pofadder, Northern Cape. | Biotherm Energy (Pty) Ltd Michael Barnes: 011 367 4600 | Junior EAP |
| 10MW Aries Solar PV Photovoltaic facility, near Kenhardt, Northern Cape. | Biotherm Energy (Pty) Ltd Michael Barnes: 011 367 4600 | Junior EAP |
| 27MW Klipheuwel/Dassiefontein Wind Energy facility near Calendon, Western Cape. | Biotherm Energy (Pty) Ltd Michael Barnes: 011 367 4600 | Junior EAP |
| Matzikama Solar PV Photovoltaic facility, near Vredendal, Western Cape. | SolaireDirect (Pty) Ltd Reggie Niemand: 082 674 1233 | EAP |
| Grootspruit Solar PV Photovoltaic facility, near Welkom, Free State. | SolaireDirect (Pty) Ltd Reggie Niemand: 082 674 1233 | EAP |
| Reddersburg Solar PV Photovoltaic facility, near Reddersburg, Free State. | SolaireDirect (Pty) Ltd Reggie Niemand: 082 674 1233 | EAP |
| Graspan Solar PV Photovoltaic facility, near Hopetown, Northern Cape | SolaireDirect (Pty) Ltd Reggie Niemand: 082 674 1233 | EAP |

INFRASTRUCTURE DEVELOPMENT

Basic Assessments

| Project Name & Location | Client Name | Role |
|---|---|-------------|
| Basic Assessment Process for the Wilmar Vegetable Oil Pipeline, Richards Bay, Kwa-Zulu Natal. | Wilmar Processing (Pty) Ltd Aidan Dowdle: 082 872 3628 | Junior EAP |

WASTE MANAGEMENT

Basic Assessments

| Project Name & Location | Client Name | Role |
|--|---|-------------|
| Decommissioning of the Asbestos landfill at the Kriel Power Station, Mpumalanga. . | Eskom Holdings SOC Limited Khuliso Rasimphi : 017 615 2634 | EAP |

CURRICULUM VITAE OF JO-ANNE THOMAS

| | |
|-------------------------|---|
| Profession: | Environmental Management and Compliance Consultant; Environmental Assessment Practitioner |
| Specialisation: | Environmental Management; Strategic environmental advice; Environmental compliance advice & monitoring; Environmental Impact Assessments; Policy, strategy & guideline formulation; Project Management; General Ecology |
| Work experience: | Twenty one (21) years in the environmental field |

VOCATIONAL EXPERIENCE

Provide technical input for projects in the environmental management field, specialising in Strategic Environmental Advice, Environmental Impact Assessment studies, environmental auditing and monitoring, environmental permitting, public participation, Environmental Management Plans and Programmes, environmental policy, strategy and guideline formulation, and integrated environmental management. Key focus on integration of the specialist environmental studies and findings into larger engineering-based projects, strategic assessment, and providing practical and achievable environmental management solutions and mitigation measures. Responsibilities for environmental studies include project management (including client and authority liaison and management of specialist teams); review and manipulation of data; identification and assessment of potential negative environmental impacts and benefits; review of specialist studies; and the identification of mitigation measures. Compilation of the reports for environmental studies is in accordance with all relevant environmental legislation.

Undertaking of numerous environmental management studies has resulted in a good working knowledge of environmental legislation and policy requirements. Recent projects have been undertaken for both the public- and private-sector, including compliance advice and monitoring, electricity generation and transmission projects, various types of linear developments (such as National Road, local roads and power lines), waste management projects (landfills), mining rights and permits, policy, strategy and guideline development, as well as general environmental planning, development and management.

SKILLS BASE AND CORE COMPETENCIES

- Project management for a range of projects
- Identification and assessment of potential negative environmental impacts and benefits through the review and manipulation of data and specialist studies
- Identification of practical and achievable mitigation and management measures and the development of appropriate management plans
- Compilation of environmental reports in accordance with relevant environmental legislative requirements
- External and peer review of environmental reports & compliance advice and monitoring
- Formulation of environmental policies, strategies and guidelines
- Strategic and regional assessments; pre-feasibility & site selection
- Public participation processes for a variety of projects
- Strategic environmental advice to a wide variety of clients both in the public and private sectors
- Working knowledge of environmental planning processes, policies, regulatory frameworks and legislation

EDUCATION AND PROFESSIONAL STATUS

Degrees:

- B.Sc Earth Sciences, University of the Witwatersrand, Johannesburg (1993)
- B.Sc Honours in Botany, University of the Witwatersrand, Johannesburg (1994)
- M.Sc in Botany, University of the Witwatersrand, Johannesburg (1996)

Short Courses:

- Environmental Impact Assessment, Potchefstroom University (1998)
- Environmental Law, Morgan University (2001)
- Environmental Legislation, IMBEWU (2017)
- Mining Legislation, Cameron Cross & Associates (2013)
- Environmental and Social Risk Management (ESRM), International Finance Corporation (2018)

Professional Society Affiliations:

- Registered with the South African Council for Natural Scientific Professions as a Professional Natural Scientist: Environmental Scientist (400024/00)
- Registered with the International Association for Impact Assessment South Africa (IAIASa): 5601
- Member of the South African Wind Energy Association (SAWEA)

EMPLOYMENT

| Date | Company | Roles and Responsibilities |
|------------------------|----------------------------------|--|
| January 2006 - Current | Savannah Environmental (Pty) Ltd | Director Project manager Independent specialist environmental consultant, Environmental Assessment Practitioner (EAP) and advisor. |
| 1997 – 2005 | Bohlweki Environmental (Pty) Ltd | Senior Environmental Scientist at. Environmental Management and Project Management |
| January – July 1997 | Sutherland High School, Pretoria | Junior Science Teacher |

PROJECT EXPERIENCE

Project experience includes large infrastructure projects, including electricity generation and transmission, wastewater treatment facilities, mining and prospecting activities, property development, and national roads, as well as strategy and guidelines development.

RENEWABLE POWER GENERATION PROJECTS: PHOTOVOLTAIC SOLAR ENERGY FACILITIES

Environmental Impact Assessments and Environmental Management Programmes

| Project Name & Location | Client Name | Role |
|---|----------------------------|-----------------------|
| Christiana PV 2 SEF, North West | Solar Reserve South Africa | Project Manager & EAP |
| De Aar PV facility, Northern Cape | iNca Energy | Project Manager & EAP |
| Everest SEF near Hennenman, Free State | FRV Energy South Africa | Project Manager & EAP |
| Graafwater PV SEF, Western Cape | iNca Energy | Project Manager & EAP |
| Grootkop SEF near Allanridge, Free State | FRV Energy South Africa | Project Manager & EAP |
| Hertzogville PV 2 SEF with 2 phases, Free State | SunCorp / Solar Reserve | Project Manager & EAP |
| Karoshhoek CPV facility on site 2 as part of the larger Karoshhoek Solar Valley Development East of Upington, Northern Cape | FG Emvelo | Project Manager & EAP |

| Project Name & Location | Client Name | Role |
|---|---|-----------------------|
| Kgabalatsane SEF North-East for Brits, North West | Built Environment African Energy Services | Project Manager & EAP |
| Kleinbegin PV SEF West of Groblershoop, Northern Cape | MedEnergy Global | Project Manager & EAP |
| Lethabo Power Station PV Installation, Free State | Eskom Holdings SoC Limited | Project Manager & EAP |
| Majuba Power Station PV Installation, Mpumalanga | Eskom Holdings SoC Limited | Project Manager & EAP |
| Merapi PV SEF Phase 1 – 4 South-East of Excelsior, Free State | SolaireDirect Southern Africa | Project Manager & EAP |
| Sannaspos Solar Park, Free State | SolaireDirect Southern Africa | Project Manager & EAP |
| Ofir-Zx PV Plant near Keimoes, Northern Cape | S28 Degrees Energy | Project Manager & EAP |
| Oryx SEF near Virginia, Free State | FRV Energy South Africa | Project Manager & EAP |
| Project Blue SEF North of Kleinsee, Northern Cape | WWK Development | Project Manager & EAP |
| S-Kol PV Plant near Keimoes, Northern Cape | S28 Degrees Energy | Project Manager & EAP |
| Sonnenberg PV Plant near Keimoes, Northern Cape | S28 Degrees Energy | Project Manager & EAP |
| Tutuka Power Station PV Installation, Mpumalanga | Eskom Transmission | Project Manager & EAP |
| Two PV sites within the Northern Cape | MedEnergy Global | Project Manager & EAP |
| Two PV sites within the Western & Northern Cape | iNca Energy | Project Manager & EAP |
| Upington PV SEF, Northern Cape | MedEnergy Global | Project Manager & EAP |
| Vredendal PV facility, Western Cape | iNca Energy | Project Manager & EAP |
| Waterberg PV plant, Limpopo | Thupela Energy | Project Manager & EAP |
| Watershed Phase I & II SEF near Litchtenburg, North West | FRV Energy South Africa | Project Manager & EAP |
| Alldays PV & CPV SEF Phase 1, Limpopo | BioTherm Energy | Project Manager & EAP |
| Hyperion PV Solar Development 1, 2, 3, 4, 5 & 6 | Building Energy | Project Manager & EAP |

Basic Assessments

| Project Name & Location | Client Name | Role |
|--|--------------------------------------|-----------------------|
| Aberdeen PV SEF, Eastern Cape | BioTherm Energy | Project Manager & EAP |
| Christiana PV 1 SEF on Hartebeestpan Farm, North-West | Solar Reserve South Africa | Project Manager & EAP |
| Heuningspruit PV1 & PV 2 facilities near Koppies, Free State | Sun Mechanics | Project Manager & EAP |
| Kakamas PV Facility, Northern Cape | iNca Energy | Project Manager & EAP |
| Kakamas II PV Facility, Northern Cape | iNca Energy | Project Manager & EAP |
| Machadodorp 1 PV SEF, Mpumalanga | Solar To Benefit Africa | Project Manager & EAP |
| PV site within the Northern Cape | iNca Energy | Project Manager & EAP |
| PV sites within 4 ACSA airports within South Africa, National | Airports Company South Africa (ACSA) | Project Manager & EAP |
| RustMo1 PV Plant near Buffelspoort, North West | Momentous Energy | Project Manager & EAP |
| RustMo2 PV Plant near Buffelspoort, North West | Momentous Energy | Project Manager & EAP |
| RustMo3 PV Plant near Buffelspoort, North West | Momentous Energy | Project Manager & EAP |
| RustMo4 PV Plant near Buffelspoort, North West | Momentous Energy | Project Manager & EAP |
| Sannaspos PV SEF Phase 2 near Bloemfontein, Free State | SolaireDirect Southern Africa | Project Manager & EAP |
| Solar Park Expansion within the Rooiwal Power Station, Gauteng | AFRKO Energy | Project Manager & EAP |
| Steynsrus SEF, Free State | SunCorp | Project Manager & EAP |

| Project Name & Location | Client Name | Role |
|---|--------------------|-----------------------|
| Sirius Solar PV Project Three and Sirius Solar PV Project Four (BA in terms of REDZ regulations), Northern Cape | SOLA Future Energy | Project Manager & EAP |

Screening Studies

| Project Name & Location | Client Name | Role |
|--|----------------------------|-----------------------|
| Allemans Fontein SEF near Noupoot, Northern Cape | Fusion Energy | Project Manager & EAP |
| Amandel SEF near Thabazimbi, Limpopo | iNca Energy | Project Manager & EAP |
| Arola/Doornplaat SEF near Ventersdorp, North West | FRV & iNca Energy | Project Manager & EAP |
| Bloemfontein Airport PV Installation, Free State | The Power Company | Project Manager & EAP |
| Brakspruit SEF near Klerksorp, North West | FRV & iNca Energy | Project Manager & EAP |
| Carolus Poort SEF near Noupoot, Northern Cape | Fusion Energy | Project Manager & EAP |
| Damfontein SEF near Noupoot, Northern Cape | Fusion Energy | Project Manager & EAP |
| Everest SEF near Welkom, Free State | FRV & iNca Energy | Project Manager & EAP |
| Gillmer SEF near Noupoot, Northern Cape | Fusion Energy | Project Manager & EAP |
| Grootkop SEF near Allansridge, Free State | FRV & iNca Energy | Project Manager & EAP |
| Heuningspruit PV1 & PV 2 near Koppies, Free State | Cronimat | Project Manager & EAP |
| Kimberley Airport PV Installation, Northern Cape | The Power Company | Project Manager & EAP |
| Kolonnade Mall Rooftop PV Installation in Tshwane, Gauteng | Momentous Energy | Project Manager & EAP |
| Loskop SEF near Groblersdal, Limpopo | S&P Power Unit | Project Manager & EAP |
| Marble SEF near Marble Hall, Limpopo | S&P Power Unit | Project Manager & EAP |
| Morgenson PV1 SEF South-West of Windsorton, Northern Cape | Solar Reserve South Africa | Project Manager & EAP |
| OR Tambo Airport PV Installation, Gauteng | The Power Company | Project Manager & EAP |
| Oryx SEF near Virginia, Free State | FRV & iNca Energy | Project Manager & EAP |
| Rhino SEF near Vaalwater, Limpopo | S&P Power Unit | Project Manager & EAP |
| Rustmo2 PV Plant near Buffelspoort, North West | Momentous Energy | Project Manager & EAP |
| Spitskop SEF near Northam, Limpopo | FRV & iNca Energy | Project Manager & EAP |
| Steynsrus PV, Free State | Suncorp | Project Manager & EAP |
| Tabor SEF near Polokwane, Limpopo | FRV & iNca Energy | Project Manager & EAP |
| Upington Airport PV Installation, Northern Cape | The Power Company | Project Manager & EAP |
| Valeria SEF near Hartebeestpoort Dam, North West | Solar to Benefit Africa | Project Manager & EAP |
| Watershed SEF near Lichtenburg, North West | FRV & iNca Energy | Project Manager & EAP |
| Witkop SEF near Polokwane, Limpopo | FRV & iNca Energy | Project Manager & EAP |
| Woodmead Retail Park Rooftop PV Installation, Gauteng | Momentous Energy | Project Manager & EAP |

Environmental Compliance, Auditing and ECO

| Project Name & Location | Client Name | Role |
|--|------------------------|-----------------|
| ECO and bi-monthly auditing for the construction of the Adams Solar PV Project Two South of Hotazel, Northern Cape | Enel Green Power | Project Manager |
| ECO for the construction of the Kathu PV Facility, Northern Cape | REISA | Project Manager |
| ECO and bi-monthly auditing for the construction of the Pulida PV Facility, Free State | Enel Green Power | Project Manager |
| ECO for the construction of the RustMo1 SEF, North West | Momentous Energy | Project Manager |
| ECO for the construction of the Sishen SEF, Northern | Windfall 59 Properties | Project Manager |

| Project Name & Location | Client Name | Role |
|--|-------------------|-----------------|
| Cape | | |
| ECO for the construction of the Upington Airport PV Facility, Northern Cape | Sublanary Trading | Project Manager |
| Quarterly compliance monitoring of compliance with all environmental licenses for the operation activities at the Kathu PV facility, Northern Cape | REISA | Project Manager |
| ECO for the construction of the Konkoonies II PV SEF and associated infrastructure, Northern Cape | BioTherm Energy | Project Manager |
| ECO for the construction of the Aggeneys PV SEF and associated infrastructure, Northern Cape | BioTherm Energy | Project Manager |

Compliance Advice and ESAP Reporting

| Project Name & Location | Client Name | Role |
|---|--|-----------------------|
| Aggeneys Solar Farm, Northern Cape | BioTherm Energy | Environmental Advisor |
| Airies II PV Facility SW of Kenhardt, Northern Cape | BioTherm Energy | Environmental Advisor |
| Kalahari SEF Phase II in Kathu, Northern Cape | Engie | Environmental Advisor |
| Kathu PV Facility, Northern Cape | Building Energy | Environmental Advisor |
| Kenhardt PV Facility, Northern Cape | BioTherm Energy | Environmental Advisor |
| Kleinbegin PV SEF West of Groblershoop, Northern Cape | MedEnergy | Environmental Advisor |
| Konkoonies II SEF near Pofadder, Northern Cape | BioTherm Energy | Environmental Advisor |
| Konkoonies Solar Farm, Northern Cape | BioTherm Energy | Environmental Advisor |
| Lephalale SEF, Limpopo | Exxaro | Environmental Advisor |
| Pixley ka Seme PV Park, South-East of De Aar, Northern Cape | African Clean Energy Developments (ACED) | Environmental Advisor |
| RustMo1 PV Plant near Buffelspoort, North West | Momentous Energy | Environmental Advisor |
| Scuitdrift 1 SEF & Scuitdrift 2 SEF, Limpopo | Building Energy | Environmental Advisor |
| Sirius PV Plants, Northern Cape | Aurora Power Solutions | Environmental Advisor |
| Upington Airport PV Power Project, Northern Cape | Sublunary Trading | Environmental Advisor |
| Upington SEF, Northern Cape | Abengoa Solar | Environmental Advisor |
| Ofir-ZX PV SEF near Keimoes, Northern Cape | Networx S28 Energy | Environmental Advisor |
| Steynsrus PV1 & PV2 SEF's, Northern Cape | Cronimet Power Solutions | Environmental Advisor |
| Heuningspruit PV SEF, Northern Cape | Cronimet Power Solutions | Environmental Advisor |

Due Diligence Reporting

| Project Name & Location | Client Name | Role |
|---|------------------------|-----------------------|
| 5 PV SEF projects in Lephalale, Limpopo | iNca Energy | Environmental Advisor |
| Prieska PV Plant, Northern Cape | SunEdison Energy India | Environmental Advisor |
| Sirius Phase One PV Facility near Upington, Northern Cape | Aurora Power Solutions | Environmental Advisor |

Environmental Permitting, S53, Water Use Licence (WUL), Waste Management Licence (WML) & Other Applications

| Project Name & Location | Client Name | Role |
|--|------------------|-----------------------|
| Biodiversity Permit & WULA for the Aggeneys SEF near Aggeneys, Northern Cape | BioTherm Energy | Project Manager & EAP |
| Biodiversity Permit for the Konkoonies II SEF near Pofadder, Northern Cape | BioTherm Energy | Project Manager & EAP |
| Biodiversity Permitting for the Lephalale SEF, Limpopo | Exxaro Resources | Project Manager & EAP |

| Project Name & Location | Client Name | Role |
|--|--------------------------|-----------------------|
| Environmental Permitting for the Kleinbegin PV SEF West of Groblershoop, Northern Cape | MedEnergy | Project Manager & EAP |
| Environmental Permitting for the Upington SEF, Northern Cape | Abengoa Solar | Project Manager & EAP |
| Environmental Permitting for the Kathu PV Facility, Northern Cape | Building Energy | Project Manager & EAP |
| Environmental Permitting for the Konkoonsies Solar Farm, Northern Cape | BioTherm Energy | Project Manager & EAP |
| Environmental Permitting for the Lephalale SEF, Limpopo | Exxaro Resources | Project Manager & EAP |
| Environmental Permitting for the Scuitdrift 1 SEF & Scuitdrift 2 SEF, Limpopo | Building Energy | Project Manager & EAP |
| Environmental Permitting for the Sirius PV Plant, Northern Cape | Aurora Power Solutions | Project Manager & EAP |
| Environmental Permitting for the Steynsrus PV1 & PV2 SEF's, Northern Cape | Cronimet Power Solutions | Project Manager & EAP |
| Environmental Permitting for the Heuningspruit PV SEF, Northern Cape | Cronimet Power Solutions | Project Manager & EAP |
| Permits for the Kleinbegin and UAP PV Plants, Northern Cape | MedEnergy Global | Project Manager & EAP |
| S53 Application for Arriesfontein Solar Park Phase 1 – 3 near Danielskuil, Northern Cape | Solar Reserve / SunCorp | Project Manager & EAP |
| S53 Application for Hertzogville PV1 & PV 2 SEFs, Free State | Solar Reserve / SunCorp | Project Manager & EAP |
| S53 Application for the Bloemfontein Airport PV Facility, Free State | Sublunary Trading | Project Manager & EAP |
| S53 Application for the Kimberley Airport PV Facility, Northern Cape | Sublunary Trading | Project Manager & EAP |
| S53 Application for the Project Blue SEF, Northern Cape | WWK Developments | Project Manager & EAP |
| S53 Application for the Upington Airport PV Facility, Free State | Sublunary Trading | Project Manager & EAP |
| WULA for the Kalahari SEF Phase II in Kathu, Northern Cape | Engie | Project Manager & EAP |
| Environmental Permitting for the Steynsrus PV1 & PV2 SEF's, Northern Cape | Cronimet Power Solutions | Project Manager & EAP |
| Environmental Permitting for the Heuningspruit PV SEF, Northern Cape | Cronimet Power Solutions | Project Manager & EAP |

RENEWABLE POWER GENERATION PROJECTS: CONCENTRATED SOLAR FACILITIES (CSP)

Environmental Impact Assessments and Environmental Management Programmes

| Project Name & Location | Client Name | Role |
|--|--------------------|-----------------------|
| Ilanga CSP 2, 3, 4, 5, 7 & 9 Facilities near Upington, Northern Cape | Emvelo Holdings | Project Manager & EAP |
| Ilanga CSP near Upington, Northern Cape | Ilangethu Energy | Project Manager & EAP |
| Ilanga Tower 1 Facility near Upington, Northern Cape | Emvelo Holdings | Project Manager & EAP |

| Project Name & Location | Client Name | Role |
|--|-------------|-----------------------|
| Karoshhoek CPVPD 1-4 facilities on site 2 as part of the larger Karoshhoek Solar Valley Development East of Upington, Northern Cape | FG Emvelo | Project Manager & EAP |
| Karoshhoek CSP facilities on sites 1.4; 4 & 5 as part of the larger Karoshhoek Solar Valley Development East of Upington, Northern Cape | FG Emvelo | Project Manager & EAP |
| Karoshhoek Linear Fresnel 1 Facility on site 1.1 as part of the larger Karoshhoek Solar Valley Development East of Upington, Northern Cape | FG Emvelo | Project Manager & EAP |

Environmental Compliance, Auditing and ECO

| Project Name & Location | Client Name | Role |
|---|----------------------|-----------------|
| ECO for the construction of the !Khi CSP Facility, Northern Cape | Abengoa Solar | Project Manager |
| ECO for the construction of the Ilanga CSP 1 Facility near Upington, Northern Cape | Karoshhoek Solar One | Project Manager |
| ECO for the construction of the Solar Park, Northern Cape | Kathu Solar | Project Manager |
| ECO for the construction of the KaXu! CSP Facility, Northern Cape | Abengoa Solar | Project Manager |
| Internal audit of compliance with the conditions of the IWUL issued to the Karoshhoek Solar One CSP Facility, Northern Cape | Karoshhoek Solar One | Project Manager |

Screening Studies

| Project Name & Location | Client Name | Role |
|--|---------------------|-----------------------|
| Upington CSP (Tower) Plant near Kanoneiland, Northern Cape | iNca Energy and FRV | Project Manager & EAP |

Compliance Advice and ESAP reporting

| Project Name & Location | Client Name | Role |
|--|------------------|-----------------------|
| Ilanga CSP Facility near Upington, Northern Cape | Ilangethu Energy | Environmental Advisor |
| Ilangaletu CSP 2, Northern Cape | FG Emvelo | Environmental Advisor |
| Kathu CSP Facility, Northern Cape | GDF Suez | Environmental Advisor |
| Lephalale SEF, Limpopo | Cennergi | Environmental Advisor |
| Solis I CSP Facility, Northern Cape | Brightsource | Environmental Advisor |

Environmental Permitting, S53, Water Use Licence (WUL), Waste Management Licence (WML) & Other Applications

| Project Name & Location | Client Name | Role |
|---|------------------|-----------------------|
| Environmental Permitting for the Ilanga CSP Facility near Upington, Northern Cape | Ilangethu Energy | Project Manager & EAP |
| Environmental Permitting for the Kathu CSP, Northern Cape | GDF Suez | Project Manager & EAP |
| WULA for the Solis I CSP Facility, Northern Cape | Brightsource | Project Manager & EAP |

RENEWABLE POWER GENERATION PROJECTS: WIND ENERGY FACILITIES

Environmental Impact Assessments and Environmental Management Programmes

| Project Name & Location | Client Name | Role |
|-------------------------|----------------------------|------|
| Sere WEF, Western Cape | Eskom Holdings SoC Limited | EAP |

| Project Name & Location | Client Name | Role |
|--|--|-----------------------|
| Aberdeen WEF, Eastern Cape | Eskom Holdings SoC Limited | Project Manager & EAP |
| Amakhala Emoyeni WEF, Eastern Cape | Windlab Developments | Project Manager & EAP |
| EXXARO West Coast WEF, Western Cape | EXXARO Resources | Project Manager & EAP |
| Goereesoe Wind Farm near Swellendam, Western Cape | iNca Energy | Project Manager & EAP |
| Hartneest WEF, Western Cape | Juwi Renewable Energies | Project Manager & EAP |
| Hopefield WEF, Western Cape | Umoya Energy | EAP |
| Kleinsee WEF, Northern Cape | Eskom Holdings SoC Limited | Project Manager & EAP |
| Klipheuwel/Dassiesfontein WEF within the Overberg area, Western Cape | BioTherm Energy | Project Manager & EAP |
| Moorreesburg WEF, Western Cape | iNca Energy | Project Manager & EAP |
| Oyster Bay WEF, Eastern Cape | Renewable Energy Resources Southern Africa | Project Manager & EAP |
| Project Blue WEF, Northern Cape | Windy World | Project Manager & EAP |
| Rheboksfontein WEF, Western Cape | Moyeng Energy | Project Manager & EAP |
| Spitskop East WEF near Riebeeck East, Eastern Cape | Renewable Energy Resources Southern Africa | Project Manager & EAP |
| Suurplaat WEF, Western Cape | Moyeng Energy | Project Manager & EAP |
| Swellendam WEF, Western Cape | IE Swellendam | Project Manager & EAP |
| Tsitsikamma WEF, Eastern Cape | Exxarro | Project Manager & EAP |
| West Coast One WEF, Western Cape | Moyeng Energy | Project Manager & EAP |

Basic Assessments

| Project Name & Location | Client Name | Role |
|--|--|-----------------------|
| Amakhala Emoyeni Wind Monitoring Masts, Eastern Cape | Windlab Developments | Project Manager & EAP |
| Beaufort West Wind Monitoring Masts, Western Cape | Umoya Energy | Project Manager & EAP |
| Hopefield Community Wind Farm near Hopefield, Western Cape | Umoya Energy | Project Manager & EAP |
| Koekenaap Wind Monitoring Masts, Western Cape | EXXARO Resources | Project Manager & EAP |
| Koingnaas WEF, Northern Cape | Just Palm Tree Power | Project Manager & EAP |
| Laingsburg Area Wind Monitoring Masts, Western Cape | Umoya Energy | Project Manager & EAP |
| Overberg Area Wind Monitoring Masts, Western Cape | BioTherm Energy | Project Manager & EAP |
| Oyster Bay Wind Monitoring Masts, Eastern Cape | Renewable Energy Systems Southern Africa (RES) | Project Manager & EAP |

Screening Studies

| Project Name & Location | Client Name | Role |
|---|------------------------|-----------------------|
| Albertinia WEF, Western Cape | BioTherm Energy | Project Manager & EAP |
| Koingnaas WEF, Northern Cape | Just Pal Tree Power | Project Manager & EAP |
| Napier Region WEF Developments, Western Cape | BioTherm Energy | Project Manager & EAP |
| Tsitsikamma WEF, Eastern Cape | Exxarro Resources | Project Manager & EAP |
| Various WEFs within an identified area in the Overberg area, Western Cape | BioTherm Energy | Project Manager & EAP |
| Various WEFs within an identified area on the West Coast, Western Cape | Investec Bank Limited | Project Manager & EAP |
| Various WEFs within an identified area on the West Coast, Western Cape | Eskom Holdings Limited | Project Manager & EAP |

| Project Name & Location | Client Name | Role |
|--|---|-----------------------|
| Various WEFs within the Western Cape | Western Cape Department of Environmental Affairs and Development Planning | Project Manager & EAP |
| Velddrift WEF, Western Cape | VentuSA Energy | Project Manager & EAP |
| Wind 1000 Project | Thabo Consulting on behalf of Eskom Holdings | Project Manager & EAP |
| Wittekleibosch, Snylip & Doriskraal WEFs, Eastern Cape | Exxarro Resources | Project Manager & EAP |

Environmental Compliance, Auditing and ECO

| Project Name & Location | Client Name | Role |
|---|--------------------|-----------------|
| ECO for the construction of the West Coast One WEF, Western Cape | Aurora Wind Power | Project Manager |
| ECO for the construction of the Gouda WEF, Western Cape | Blue Falcon | Project Manager |
| EO for the Dassiesklip Wind Energy Facility, Western Cape | Group 5 | Project Manager |
| Quarterly compliance monitoring of compliance with all environmental licenses for the operation activities at the Gouda Wind Energy facility near Gouda, Western Cape | Blue Falcon | Project Manager |
| Annual auditing of compliance with all environmental licenses for the operation activities at the West Coast One Wind Energy facility near Vredenburg, Western Cape | Aurora Wind Power | Project Manager |
| External environmental and social audit for the Amakhala Wind Farm, Eastern Cape | Cennergi | Project Manager |
| External environmental and social audit for the Tsitsikamma Wind Farm, Eastern Cape | Cennergi | Project Manager |
| ECO for the construction of the Excelsior Wind Farm and associated infrastructure, Northern Cape | BioTherm Energy | Project Manager |
| External compliance audit of the Dassiesklip Wind Energy Facility, Western Cape | BioTherm Energy | Project Manager |

Compliance Advice

| Project Name & Location | Client Name | Role |
|---|--|-----------------------|
| Amakhala Phase 1 WEF, Eastern Cape | Cennergi | Environmental Advisor |
| Dassiesfontein WEF within the Overberg area, Western Cape | BioTherm Energy | Environmental Advisor |
| Excelsior Wind Farm, Western Cape | BioTherm Energy | Environmental Advisor |
| Great Karoo Wind Farm, Northern Cape | African Clean Energy Developments (ACED) | Environmental Advisor |
| Hopefield Community WEF, Western Cape | African Clean Energy Developments (ACED) | Environmental Advisor |
| Rheboksfontein WEF, Western Cape | Moyeng Energy | Environmental Advisor |
| Tiqua WEF, Western Cape | Cennergi | Environmental Advisor |
| Tsitsikamma WEF, Eastern Cape | Cennergi | Environmental Advisor |
| West Coast One WEF, Western Cape | Moyeng Energy | Environmental Advisor |

Due Diligence Reporting

| Project Name & Location | Client Name | Role |
|---|----------------------------------|-----------------------|
| Witteberg WEF, Western Cape | EDPR Renewables | Environmental Advisor |
| IPD Vredenburg WEF within the Saldanha Bay area, Western Cape | IL&FS Energy Development Company | Environmental Advisor |

Environmental Permitting, S53, Water Use Licence (WUL), Waste Management Licence (WML) & Other Applications

| Project Name & Location | Client Name | Role |
|---|--|-----------------------|
| Biodiversity Permitting for the Power Line between the Tsitikamma Community WEF & the Diep River Substation, Eastern Cape | Cennergi | Project Manager & EAP |
| Biodiversity Permitting for the West Coast One WEF, Western Cape | Aurora Wind Power | Project Manager & EAP |
| Environmental Permitting for the Excelsior WEF, Western Cape | BioTherm Energy | Project Manager & EAP |
| Plant Permits & WULA for the Tsitikamma Community WEF, Eastern Cape | Cennergi | Project Manager & EAP |
| S24G and WULA for the Rectification for the commencement of unlawful activities on Ruimsig AH in Honeydew, Gauteng | Hossam Soror | Project Manager & EAP |
| S24G Application for the Rhebokfontein WEF, Western Cape | Ormonde - Theo Basson | Project Manager & EAP |
| S53 Application & WULA for Suurplaat and Gemini WEFs, Northern Cape | Engie | Project Manager & EAP |
| S53 Application for the Hopefield Community Wind Farm near Hopefield, Western Cape | Umoya Energy | Project Manager & EAP |
| S53 Application for the Project Blue WEF, Northern Cape | WWK Developments | Project Manager & EAP |
| S53 for the Oyster Bay WEF, Eastern Cape | RES | Project Manager & EAP |
| WULA for the Great Karoo Wind Farm, Northern Cape | African Clean Energy Developments (ACED) | Project Manager & EAP |

CONVENTIONAL POWER GENERATION PROJECTS (COAL)

Environmental Impact Assessments and Environmental Management Programmes

| Project Name & Location | Client Name | Role |
|---|-------------------|-----------------------|
| Mutsho Power Station near Makhado, Limpopo | Mutsho Consortium | Project Manager & EAP |
| Coal-fired Power Station near Ogies, Mpumalanga | Ruukki SA | Project Manager & EAP |
| Thabametsi IPP Coal-fired Power Station, near Lephallale, Limpopo | Axia | Project Manager & EAP |
| Transalloys Coal-fired Power Station, Mpumalanga | Transalloys | Project Manager & EAP |
| Tshivasho IPP Coal-fired Power Station (with WML), near Lephallale, Limpopo | Cennergi | Project Manager & EAP |
| Umbani Coal-fired Power Station, near Kriel, Mpumalanga | ISS Global Mining | Project Manager & EAP |
| Waterberg IPP Coal-Fired Power Station near Lephallale, Limpopo | Exxaro Resources | Project Manager & EAP |

Basic Assessments

| Project Name & Location | Client Name | Role |
|---|----------------|-----------------------|
| Coal Stockyard on Medupi Ash Dump Site, Limpopo | Eskom Holdings | Project Manager & EAP |

| Project Name & Location | Client Name | Role |
|--|--------------------|-----------------------|
| Biomass Co-Firing Demonstration Facility at Arnot Power Station East of Middleburg, Mpumlanaga | Eskom Holdings | Project Manager & EAP |

Screening Studies

| Project Name & Location | Client Name | Role |
|---|----------------------------|-----------------------|
| Baseload Power Station near Lephallale, Limpopo | Cennergi | Project Manager & EAP |
| Coal-Fired Power Plant near Delmas, Mpumalanga | Exxaro Resources | Project Manager & EAP |
| Makhado Power Station, Limpopo | Mutsho Consortium, Limpopo | Project Manager & EAP |

Environmental Compliance, Auditing and ECO

| Project Name & Location | Client Name | Role |
|--|--------------------|-----------------|
| ECO for the Camden Power Station, Mpumalanga | Eskom Holdings | Project Manager |

Compliance Advice

| Project Name & Location | Client Name | Role |
|---|--------------------|-----------------------|
| Thabametsi IPP Coal-fired Power Station, near Lephallale, Limpopo | Axia | Environmental Advisor |

Environmental Permitting, S53, Water Use Licence (WUL), Waste Management Licence (WML) & Other Applications

| Project Name & Location | Client Name | Role |
|---|--------------------|-----------------------|
| Permit application for the Thabametsi Bulk Water Pipeline, near Lephallale, Limpopo | Axia | Project Manager & EAP |
| S53 & WULA for the Waterberg IPP Coal-Fired Power Station near Lephallale, Limpopo | Exxaro Resources | Project Manager & EAP |
| S53 Application for the Tshivasho Coal-fired Power Station near Lephallale, Limpopo | Cennergi | Project Manager & EAP |

CONVENTIONAL POWER GENERATION PROJECTS (GAS)

Environmental Impact Assessments and Environmental Management Programmes

| Project Name & Location | Client Name | Role |
|--|----------------------------|-----------------------|
| Ankerlig OCGT to CCGT Conversion project & 400 kV transmission power line between Ankerlig and the Omega Substation, Western Cape | Eskom Holdings SoC Limited | Project Manager & EAP |
| Gourikwa OCGT to CCGT Conversion project & 400 kV transmission power line between Gourikwa & Proteus Substation, Western Cape | Eskom Holdings SoC Limited | Project Manager & EAP |
| Richards Bay Gas to Power Combined Cycle Power Station, KwaZulu-Natal | Eskom Holdings SoC Limited | Project Manager & EAP |
| Richards Bay Gas to Power Plant, KwaZulu-Natal | Richards Bay Gas | Project Manager & EAP |
| Decommissioning & Recommissioning of 3 Gas Turbine Units at Acacia Power Station & 1 Gas Turbine Unit at Port Rex Power Station to the existing Ankerlig Power Station in Atlantis Industria, Western Cape | Eskom Holdings | Project Manager & EAP |
| Two 132kV Chickadee Lines to the new Zonnebloem Switching Station, Mpumalanga | Eskom Holdings | Project Manager & EAP |

Screening Studies

| Project Name & Location | Client Name | Role |
|---|----------------------------|-----------------------|
| Fatal Flaw Analysis for 3 area identified for the establishment of a 500MW CCGT Power Station | Globeleq Advisors Limited | Project Manager & EAP |
| Richards Bay Gas to Power Combined Cycle Power Station, KwaZulu-Natal | Eskom Holdings SoC Limited | Project Manager & EAP |

GRID INFRASTRUCTURE PROJECTS

Environmental Impact Assessments and Environmental Management Programmes

| Project Name & Location | Client Name | Role |
|--|--------------------|-----------------------|
| Aggeneis-Oranjemond Transmission Line & Substation Upgrade, Northern Cape | Eskom Transmission | Project Manager & EAP |
| Ankerlig-Omega Transmission Power Lines, Western Cape | Eskom Transmission | Project Manager & EAP |
| Karoshhoek Grid Integration project as part of the Karoshhoek Solar Valley Development East of Upington, Northern Cape | FG Emvelo | Project Manager & EAP |
| Koeberg-Omega Transmission Power Lines,, Western Cape | Eskom Transmission | Project Manager & EAP |
| Koeberg-Stikland Transmission Power Lines, Western Cape | Eskom Transmission | Project Manager & EAP |
| Kyalami Strengthening Project, Gauteng | Eskom Transmission | Project Manager & EAP |
| Mokopane Integration Project, Limpopo | Eskom Transmission | Project Manager & EAP |
| Saldanha Bay Strengthening Project, Western Cape | Eskom Transmission | Project Manager & EAP |
| Steelpoort Integration Project, Limpopo | Eskom Transmission | Project Manager & EAP |
| Transmission Lines from the Koeberg-2 Nuclear Power Station site, Western Cape | Eskom Transmission | Project Manager & EAP |
| Tshwane Strengthening Project, Phase 1, Gauteng | Eskom Transmission | Project Manager & EAP |

Basic Assessments

| Project Name & Location | Client Name | Role |
|--|--|-----------------------|
| Dassenberg-Koeberg Power Line Deviation from the Koeberg to the Ankerlig Power Station, Western Cape | Eskom Holdings | Project Manager & EAP |
| Golden Valley II WEF Power Line & Substation near Cookhouse, Eastern Cape | BioTherm Energy | Project Manager & EAP |
| Golden Valley WEF Power Line near Cookhouse, Eastern Cape | BioTherm Energy | Project Manager & EAP |
| Karoshhoek Grid Integration project as part of the Karoshhoek Solar Valley Development East of Upington, Northern Cape | FG Emvelo | Project Manager & EAP |
| Konkoonsies II PV SEF Power Line to the Paulputs Substation near Pofadder, Northern Cape | BioTherm Energy | Project Manager & EAP |
| Perdekraal West WEF Powerline to the Eskom Kappa Substation, Western Cape | BioTherm Energy | Project Manager & EAP |
| Rheboksfontein WEF Powerline to the Aurora Substation, Western Cape | Moyeng Energy | Project Manager & EAP |
| Soetwater Switching Station near Sutherland, Northern Cape | African Clean Energy Developments (ACED) | Project Manager & EAP |

| | | |
|--|----------------------|-----------------------|
| Solis Power I Power Line & Switchyard Station near Upington, Northern Cape | Brightsource | Project Manager & EAP |
| Stormwater Canal System for the Ilanga CSP near Upington, Northern Cape | Karoshhoek Solar One | Project Manager & EAP |
| Tsitsikamma Community WEF Powerline to the Diep River Substation, Eastern Cape | Eskom Holdings | Project Manager & EAP |

Environmental Compliance, Auditing and ECO

| Project Name & Location | Client Name | Role |
|--|--|-----------------|
| ECO for the construction of the Ferrum-Mookodi Transmission Line, Northern Cape and North West | Trans-Africa Projects on behalf of Eskom | Project Manager |
| EO for the construction of the Gamma-Kappa Section A Transmission Line, Western Cape | Trans-Africa Projects on behalf of Eskom | Project Manager |
| EO for the construction of the Gamma-Kappa Section B Transmission Line, Western Cape | Trans-Africa Projects on behalf of Eskom | Project Manager |
| EO for the construction of the Hydra IPP Integration project, Northern Cape | Trans-Africa Projects on behalf of Eskom | Project Manager |
| EO for the construction of the Kappa-Sterrekus Section C Transmission Line, Western Cape | Trans-Africa Projects on behalf of Eskom | Project Manager |
| EO for the construction of the Namaqualand Strengthening project in Port Nolloth, Western Cape | Trans-Africa Projects on behalf of Eskom | Project Manager |
| ECO for the construction of the Neptune Substation Soil Erosion Mitigation Project, Eastern Cape | Eskom | Project Manager |
| ECO for the construction of the Ilanga-Gordonia 132kV power line, Northern Cape | Karoshhoek Solar One | Project Manager |

Environmental Permitting, S53, Water Use Licence (WUL), Waste Management Licence (WML) & Other Applications

| Project Name & Location | Client Name | Role |
|--|--------------------|-----------------------|
| Environmental Permitting and WULA for the Rockdale B Substation & Loop in Power Lines, | Eskom Holdings | Project Manager & EAP |
| Environmental Permitting and WULA for the Steelpoort Integration project, Limpopo | Eskom Holdings | Project Manager & EAP |
| Environmental Permitting for Solis CSP near Upington, Northern Cape | Brightsource | Project Manager & EAP |

MINING SECTOR PROJECTS

Environmental Impact Assessments and Environmental Management Programmes

| Project Name & Location | Client Name | Role |
|---|---------------------------|-----------------------|
| Elitheni Coal Mine near Indwe, Eastern Cape | Elitheni Coal | Project Manager & EAP |
| Groot Letaba River Development Project Borrow Pits | liso | Project Manager & EAP |
| Grootegeluk Coal Mine for coal transportation infrastructure between the mine and Medupi Power Station (EMPr amendment) , Limpopo | Eskom Holdings | Project Manager & EAP |
| Waterberg Coal Mine (EMPr amendment), Limpopo | Sesoko Resources | Project Manager & EAP |
| Aluminium Plant WML & AEL, Gauteng | GfE-MIR Alloys & Minerals | Project Manager & EAP |

Basic Assessments

| Project Name & Location | Client Name | Role |
|--|--------------------|-----------------------|
| Rare Earth Separation Plant in Vredendal, Western Cape | Rareco | Project Manager & EAP |

| | | |
|---|-----|-----------------------|
| Decommissioning and Demolition of Kilns 5 & 6 at the Slurry Plant, Kwa-Zulu Natal | PPC | Project Manager & EAP |
|---|-----|-----------------------|

Environmental Compliance, Auditing and ECO

| Project Name & Location | Client Name | Role |
|---|----------------------------|-----------------|
| ECO for the construction of the Duhva Mine Water Recovery Project, Mpumalanga | Eskom Holdings SoC Limited | Project Manager |
| External compliance audit of Palesa Coal Mine's Integrated Water Use License (IWUL), near KwaMhlanga, Mpumalanga | HCI Coal | Project Manager |
| External compliance audit of Palesa Coal Mine's Waste Management License (WML) and EMP, near KwaMhlanga, Mpumalanga | HCI Coal | Project Manager |
| External compliance audit of Mbali Coal Mine's Integrated Water Use License (IWUL), near Ogies, Mpumalanga | HCI Coal | Project Manager |
| Independent External Compliance Audit of Water Use License (WUL) for the Tronox Namakwa Sands (TNS) Mining Operations (Brand se Baai), Western Cape | Tronox Namakwa Sands | Project Manager |
| Independent External Compliance Audit of Water Use License (WUL) for the Tronox Namakwa Sands (TNS) Mineral Separation Plant (MSP), Western Cape | Tronox Namakwa Sands | Project Manager |
| Independent External Compliance Audit of Water Use License (WUL) for the Tronox Namakwa Sands (TNS) Smelter Operations (Saldanha), Western Cape | Tronox Namakwa Sands | Project Manager |
| Compliance Auditing of the Waste Management Licence for the PetroSA Landfill Site at the GTL Refinery, Western Cape | PetroSA | Project Manager |

Environmental Permitting, S53, Water Use Licence (WUL), Waste Management Licence (WML) & Other Applications

| Project Name & Location | Client Name | Role |
|--|---------------------------|-----------------------|
| Waste Licence Application for the Rare Earth Separation Plant in Vredendal, Western Cape | Rareco | Project Manager & EAP |
| WULA for the Expansion of the Landfill site at Exxaro's Namakwa Sands Mineral Separation Plant, Western Cape | Exxaro Resources | Project Manager & EAP |
| S24G & WML for an Aluminium Plant, Gauteng | GfE-MIR Alloys & Minerals | Project Manager & EAP |

INFRASTRUCTURE DEVELOPMENT PROJECTS (BRIDGES, PIPELINES, ROADS, WATER RESOURCES, STORAGE, ETC)

Environmental Impact Assessments and Environmental Management Programmes

| Project Name & Location | Client Name | Role |
|--|----------------|-----------------------|
| Bridge across the Ngotwane River, on the border of South Africa and Botswana | Eskom Holdings | Project Manager & EAP |
| Chemical Storage Tanks, Metallurgical Plant Upgrade & Backfill Plant upgrade at South Deep Gold Mine, near Westonaria, Gauteng | Goldfields | Project Manager & EAP |
| Expansion of the existing Welgedacht Water Care Works, Gauteng | ERWAT | Project Manager & EAP |

| Project Name & Location | Client Name | Role |
|--|--|-----------------------|
| Golden Valley WEF Access Road near Cookhouse, Eastern Cape | BioTherm Energy | Project Manager & EAP |
| Great Fish River Wind Farm Access Roads and Watercourse Crossings near Cookhouse, Eastern Cape | African Clean Energy Developments (ACED) | Project Manager & EAP |
| Ilanga CSP Facility Watercourse Crossings near Upington, Northern Cape | Karoshok Solar one | Project Manager & EAP |
| Modification of the existing Hartebeestfontein Water Care Works, Gauteng | ERWAT | Project Manager & EAP |
| N10 Road Realignment for the Ilanga CSP Facility, East of Upington, Northern Cape | SANRAL | Project Manager & EAP |
| Nxuba (Bedford) Wind Farm Watercourse Crossings near Cookhouse, Eastern Cape | African Clean Energy Developments (ACED) | Project Manager & EAP |
| Pollution Control Dams at the Medupi Power Station Ash Dump & Coal Stockyard, Limpopo | Eskom | Project Manager & EAP |
| Qoboshane borrow pits (EMPr only), Eastern Cape | Emalahleni Local Municipality | Project Manager & EAP |
| Tsitsikamma Community WEF Watercourse Crossings, Eastern Cape | Cennergi | Project Manager & EAP |
| Clayville Central Steam Plant, Gauteng | Bellmall Energy | Project Manager & EAP |
| Msenge Emoyeni Wind Farm Watercourse Crossings and Roads, Eastern Cape | Windlab | Project Manager & EAP |

Basic Assessments

| Project Name & Location | Client Name | Role |
|--|--|-----------------------|
| Harmony Gold WWTW at Doornkop Mine, Gauteng | Harmony Doornkop Plant | Project Manager & EAP |
| Ofir-ZX Watercourse Crossing for the Solar PV Facility, near Keimoes, Northern Cape | Networx S28 Energy | Project Manager & EAP |
| Qoboshane bridge & access roads, Eastern Cape | Emalahleni Local Municipality | Project Manager & EAP |
| Relocation of the Assay Laboratory near Carletonville, Gauteng | Sibanye Gold | Project Manager & EAP |
| Richards Bay Harbour Staging Area, KwaZulu-Natal | Eskom Holdings | Project Manager & EAP |
| S-Kol Watercourse Crossing for the Solar PV Facility, East of Keimoes, Northern Cape | Networx S28 Energy | Project Manager & EAP |
| Sonnenberg Watercourse Crossing for the Solar PV Facility, West Keimoes, Northern Cape | Networx S28 Energy | Project Manager & EAP |
| Kruisvallei Hydroelectric Power Generation Scheme, Free State | Building Energy | Project Manager & EAP |
| Masetjaba Water Reservoir, Pump Station and Bulk Supply Pipeline near Nigel, Gauteng | Naidu Consulting Engineers | Project Manager & EAP |
| Access Road for the Dwarsug Wind Farm, Northern Cape Province | South Africa Mainsteam Renewable Power | Project Manager & EAP |
| Upgrade of the Cooling Water Treatment Facility at the Kriel Power Station, Mpumalanga | Eskom | Project Manager & EAP |

Screening Studies

| Project Name & Location | Client Name | Role |
|---|-----------------------------|-----------------------|
| Roodepoort Open Space Optimisation Programme (OSOP) Precinct, Gauteng | TIMAC Engineering Projects | Project Manager & EAP |
| Vegetable Oil Plant and Associated Pipeline, Kwa-Zulu Natal | Wilmar Oils and Fats Africa | Project Manager & EAP |

Environmental Compliance, Auditing and ECO

| Project Name & Location | Client Name | Role |
|--|---|----------------------------|
| ECO and bi-monthly auditing for the construction of the Olifants River Water Resources Development Project (ORWRDP) Phase 2A: De Hoop Dam, R555 realignment and housing infrastructure | Department of Water and Sanitation | Project Manager Auditor |
| ECO for the Rehabilitation of the Blaaupan & Storm Water Channel, Gauteng | Airports Company of South Africa (ACSA) | Project Manager |
| Due Diligence reporting for the Better Fuel Pyrolysis Facility, Gauteng | Better Fuels | Project Manager |
| ECO for the Construction of the Water Pipeline from Kendal Power Station to Kendal Pump Station, Mpumalanga | Transnet | Project Manager |
| ECO for the Replacement of Low-Level Bridge, Demolition and Removal of Artificial Pong, and Reinforcement the Banks of the Crocodile River at the Construction at Walter Sisulu National Botanical Gardens, Gauteng Province | South African National Biodiversity Institute (SANBI) | Project Manager |
| External Compliance Audit of the Air Emission Licence (AEL) for a depot in Bloemfontein, Free State Province and in Tzaneen, Mpumalanga Province | PetroSA | Project Manager |

Environmental Permitting, S53, Water Use Licence (WUL), Waste Management Licence (WML) & Other Applications

| Project Name & Location | Client Name | Role |
|--|---|-----------------------|
| WULA for the Izubulo Private Nature Reserve, Limpopo | Kjell Bismeyer, Jann Bader, Laurence Saad | Project Manager & EAP |
| WULA for the Masodini Private Game Lode, Limpopo | Masodini Private Game Lodge | Environmental Advisor |
| WULA for the Ezulwini Private Nature Reserve, Limpopo | Ezulwini Investments | Project Manager & EAP |
| WULA for the Masodini Private Game Lode, Limpopo | Masodini Private Game Lodge | Project Manager & EAP |
| WULA for the N10 Realignment at the Ilanga SEF, Northern Cape | Karoshhoek Solar One | Project Manager & EAP |
| WULA for the Kruisvallei Hydroelectric Power Generation Scheme, Free State | Building Energy | Project Manager & EAP |
| S24G and WULA for the illegal construction of structures within a watercourse on EFF 24 Ruimsig Agricultural Holdings, Gauteng | Sorrow Language Services | Project Manager & EAP |

HOUSING AND URBAN PROJECTS

Basic Assessments

| Project Name & Location | Client Name | Role |
|--|-------------|-----------------------|
| Postmasburg Housing Development, Northern Cape | Transnet | Project Manager & EAP |

Compliance Advice and reporting

| Project Name & Location | Client Name | Role |
|---|-------------|-----------------------|
| Kampi ya Thude at the Olifants West Game Reserve, Limpopo | Nick Elliot | Environmental Advisor |

| Project Name & Location | Client Name | Role |
|---|---------------------------|-----------------|
| External Compliance Audit of WUL for the Johannesburg Country Club, Gauteng | Johannesburg Country Club | Project Manager |

Environmental Compliance, Auditing and ECO

| Project Name & Location | Client Name | Role |
|---|--|-----------------|
| Due Diligence Audit for the Due Diligence Audit Report, Gauteng | Delta BEC (on behalf of Johannesburg Development Agency (JDA)) | Project Manager |

ENVIRONMENTAL MANAGEMENT TOOLS

| Project Name & Location | Client Name | Role |
|---|---|-----------------------|
| Development of the 3rd Edition Environmental Implementation Plan (EIP) | Gauteng Department of Agriculture and Rural Development (GDARD) | Project Manager & EAP |
| Development of Provincial Guidelines on 4x4 routes, Western Cape | Western Cape Department of Environmental Affairs and Development Planning | EAP |
| Compilation of Construction and Operation EMP for the Braamhoek Transmission Integration Project, Kwazulu-Natal | Eskom Holdings | Project Manager & EAP |
| Compilation of EMP for the Wholesale Trade of Petroleum Products, Gauteng | Munaca Technologies | Project Manager & EAP |
| Operational Environmental Management Programme (OEMP) for Medupi Power Station, Limpopo | Eskom Holdings | Project Manager & EAP |
| Operational Environmental Management Programme (OEMP) for the Dube TradePort Site Wide Precinct | Dube TradePort Corporation | Project Manager & EAP |
| Operational Environmental Management Programme (OEMP) for the Kusile Power Station, Mpumalanga | Eskom Holdings | Project Manager & EAP |
| Review of Basic Assessment Process for the Wittekleibosch Wind Monitoring Mast, Eastern Cape | Exxaro Resources | Project Manager & EAP |
| Revision of the EMPr for the Sirius Solar PV | Aurora Power Solutions | Project Manager & EAP |
| State of the Environment (SoE) for Emalahleni Local Municipality, Mpumalanga | Simo Consulting on behalf of Emalahleni Local Municipality | Project Manager & EAP |
| Aspects and Impacts Register for Salberg Concrete Products operations | Salberg Concrete Products | EAP |
| First State of Waste Report for South Africa | Golder on behalf of the Department of Environmental Affairs | Project Manager & EAP |
| Responsibilities Matrix and Gap Analysis for the Kruisvallei Hydroelectric Power Generation Scheme, Free State Province | Building Energy | Project Manager |
| Responsibilities Matrix and Gap Analysis for the Roggeveld Wind Farm, Northern & Western Cape Provinces | Building Energy | Project Manager |

PROJECTS OUTSIDE OF SOUTH AFRICA

| Project Name & Location | Client Name | Role |
|---|--------------------|-----------------------|
| Advisory Services for the Zizabona Transmission Project, Zambia, Zimbabwe, Botswana & Namibia | PHD Capital | Advisor |
| EIA for the Semonkong WEF, Lesotho | MOSCET | Project Manager & EAP |
| EMP for the Kuvaninga Energia Gas Fired Power Project, Mozambique | ADC (Pty) Ltd | Project Manager & EAP |
| Environmental Screening Report for the SEF near Thabana Morena, Lesotho | Building Energy | EAP |
| EPBs for the Kawambwa, Mansa, Mwense and Nchelenge SEFs in Luapula Province, Zambia | Building Energy | Project Manager & EAP |
| ESG Due Diligence for the Hilton Garden Inn Development in Windhoek, Namibia | Vatange Capital | Project Manager |
| Mandahill Mall Rooftop PV SEF EPB, Lusaka, Zambia | Building Energy | Project Manager & EAP |
| Monthly ECO for the PV Power Plant for the Mocuba Power Station | Scatec | Project Manager |

CURRICULUM VITAE OF LISA OPPERMAN

| | |
|-------------------------|---|
| Profession : | Environmental Assessment Practitioner and GIS Consultant |
| Specialisation: | Environmental Impact Assessments, Basic Assessments, Site Screening and Site Selection reporting, compilation of maps through the use of ArcGIS |
| Work Experience: | 4 years of experience in the environmental management and GIS field |

VOCATIONAL EXPERIENCE

Lisa Opperman has four years of experience in the environmental field. She has worked on a variety of EIA processes including renewable energy projects, as well as industrial developments. She has also been involved in the undertaking of public participation for projects located in South Africa which has included the undertaking of public meetings, focus group meetings and key stakeholder meetings in both Afrikaans and English. She also has experience in working with ArcGIS 10 for the compilation of maps, the manipulation of data and screening for environmental sensitivities within areas with the potential for development.

SKILLS BASE AND CORE COMPETENCIES

- GIS Mapping
- EIA Report Writing
- Conducting of public involvement processes
- Administrative tasks
- Analysis and manipulation of geographical information and technical experience with the use of ArcGIS

EDUCATION AND PROFESSIONAL STATUS

Degrees:

- B.Sc. (Hons) Environmental Management (2014), North-West University, Potchefstroom
- B.A Psychology, Geography and Environmental Studies (2013), North-West University, Potchefstroom

Courses:

- Environmental Legal Compliance and Auditing (2017), Janice Tooley at the Protea Hotel OR Tambo, Johannesburg

EMPLOYMENT

| Date | Company | Roles and Responsibilities |
|--------------------------------|----------------------------------|--|
| February 2015 – current | Savannah Environmental (Pty) Ltd | Environmental Assessment Practitioner and GIS Consultant <i>Tasks include: Compilation of Environmental Scoping Reports, Plan of Study, Environmental Impact Assessment Reports, Basic Assessments and Environmental management programmes; Environmental Screening Reports; Specialist management; project proposals and tenders; Client liaison and Marketing; Process EIA Applications, GIS Mapping and data analysis and manipulation</i> |

PROJECT EXPERIENCE**Renewable Power Generation Projects: Solar Energy Facilities****Screening Studies**

| Project Name & Location | Client Name | Role |
|---|--------------------|-------------------------------|
| <i>Pre-feasibility Desktop Screening and Fatal Flaw Scan for a Solar PV Project near Lichtenburg, North West Province</i> | ABO Wind AG | <i>EAP and GIS Consultant</i> |
| <i>Pre-feasibility Desktop Screening and Fatal Flaw Scan for a Solar PV Project neat Aggeneys, Northern Cape Province</i> | ABO Wind AG | <i>EAP and GIS Consultant</i> |

Environmental Impact Assessments and Environmental Management Programmes

| Project Name & Location | Client Name | Role |
|--|--|-------------------------------|
| <i>Buffels PV 1 & Buffels PV 2 Solar Energy Facilities near Orkney, North West</i> | <i>Kabi Solar</i> | <i>EAP and GIS Consultant</i> |
| <i>Woodhouse Solar 1 & Woodhouse Solar 2 PV Facilities near Vryburg, North West</i> | <i>Genesis Eco-Energy Developments</i> | <i>EAP and GIS Consultant</i> |
| <i>Orkney Solar Farm, North West</i> | <i>Genesis Eco-Energy Developments</i> | <i>EAP and GIS Consultant</i> |
| <i>Tewa Isitha Solar 1 & Tewa Isitha Solar 2 PV facilities near Upington, Northern Cape</i> | <i>AfriCoast Energy</i> | <i>EAP and GIS Consultant</i> |
| <i>Lichtenburg 1, Lichtenburg 2 and Lichtenburg 3 PV Facilities, near Lichtenburg, North West Province (EIA Phase)</i> | ABO Wind AG | <i>EAP and GIS Consultant</i> |

Basic Assessments

| Project Name & Location | Client Name | Role |
|--|--------------------|-------------------------------|
| <i>Harmony Gold 3x PV Facilities, Welkom, Free State</i> | BBEntropie | <i>EAP and GIS Consultant</i> |

Renewable power generation projects: Wind Energy Facilities

Screening Studies

| Project Name & Location | Client Name | Role |
|--|--------------------------|-------------------------------|
| <i>Juno Wind Farm Screening Assessment Report near Lamberts Bay, Western Cape Province</i> | <i>AMDA Developments</i> | <i>EAP and GIS Consultant</i> |
| <i>Lamberts Bay Wind Farm Screening Assessment Report near Lamberts Bay, Western Cape Province</i> | <i>Windy World</i> | <i>EAP and GIS Consultant</i> |
| <i>Pre-feasibility Desktop Screening and Fatal Flaw Scan for the Kudusberg and Rondekop Wind Energy Facilities, Northern Cape and Western Cape Provinces</i> | <i>ABO Wind AG</i> | <i>EAP and GIS Consultant</i> |
| <i>Pre-feasibility Desktop Screening and Fatal Flaw Scan for Wind Projects near Touws River, Western Cape Province</i> | <i>ABO Wind AG</i> | <i>EAP and GIS Consultant</i> |

Environmental Impact Assessments and Environmental Management Programmes

| Project Name & Location | Client Name | Role |
|---|--|-------------------------------|
| <i>Boulders Wind Farm, Western Cape Province</i> | <i>Vredenburg Windfarm</i> | <i>EAP and GIS Consultant</i> |
| <i>Namas Wind Farm, Northern Cape Province</i> | <i>Genesis Namas Wind (Pty) Ltd</i> | <i>EAP and GIS Consultant</i> |
| <i>Zonnequa Wind Farm, Northern Cape Province</i> | <i>Genesis Zonnequa Wind (Pty) Ltd</i> | <i>EAP and GIS Consultant</i> |

Grid Infrastructure Projects

Basic Assessments

| Project Name & Location | Client Name | Role |
|--|--|-------------------------------|
| <i>132/11kV Olifantshoek Substation and Power Line, Northern Cape</i> | <i>Eskom</i> | <i>EAP and GIS Consultant</i> |
| <i>Grid connection infrastructure for the Namas Wind Farm, Northern Cape Province</i> | <i>Genesis Namas Wind (Pty) Ltd</i> | <i>EAP and GIS Consultant</i> |
| <i>Grid connection infrastructure for the Zonnequa Wind Farm, Northern Cape Province</i> | <i>Genesis Zonnequa Wind (Pty) Ltd</i> | <i>EAP and GIS Consultant</i> |

Gas Projects

Environmental Impact Assessments and Environmental Management Programmes

| Project Name & Location | Client Name | Role |
|--|--------------------|--|
| <i>Richards Bay Combined Cycle Power Plant (CCPP) power plant, KwaZulu-Natal (Scoping Phase)</i> | <i>Eskom</i> | <i>EAP (assistance) and GIS Consultant</i> |

Basic Assessments

| Project Name & Location | Client Name | Role |
|---|--------------------|---|
| <i>Neopak Combined Heat and Power (CHP) Plant, Rosslyn, Gauteng</i> | <i>Neopak</i> | <i>EAP, Public Participation and GIS Consultant</i> |

Screening Studies

| Project Name & Location | Client Name | Role |
|---|--------------------|-------------------------------|
| <i>Richards Bay Combined Cycle Power Plant (CCPP) power plant, near Richards Bay, KwaZulu-Natal</i> | <i>Eskom</i> | <i>EAP and GIS Consultant</i> |

Infrastructure Development Projects (bridges, pipelines, roads, etc)

Basic Assessments

| Project Name & Location | Client Name | Role |
|--|--------------------|--|
| Water Treatment Plant at the Neopak Facility, Rosslyn, Gauteng | Neopak | EAP, Public Participation and GIS Consultant |

Housing and Urban Projects

Environmental Impact Assessments and Environmental Management Programmes

| Project Name & Location | Client Name | Role |
|---|--|------------------------|
| Metals Industrial Cluster near Kuruman, Northern Cape | Northern Cape Department of Economic Development and Tourism | EAP and GIS Consultant |

Environmental Management Tools

Environmental Management Programmes

| Project Name & Location | Client Name | Role |
|--|------------------------------|------------------------|
| Environmental Management Programme (EMPr) for the Nxuba Wind Farm, Eastern Cape | ACED | EAP |
| Operation Environmental Management Programme (EMPr) for Phase 1 of the Amakhala Emoyeni Wind Energy Facility, Eastern Cape | Cennergi | EAP |
| Operation Environmental Management Programme (EMPr) for the Tsitsikamma Community Wind Energy Facility, Eastern Cape Province | Cennergi | EAP |
| Environmental Management Programme (EMPr) for the Skuitdrift 1 Solar PV Energy Facility near Augrabies, Northern Cape Province | Building Energy South Africa | EAP and GIS Consultant |
| Environmental Management Programme (EMPr) for the Skuitdrift 2 Solar PV Energy Facility near Augrabies, Northern Cape Province | Building Energy South Africa | EAP and GIS Consultant |

Environmental and Social Management System (ESMS)

| Project Name & Location | Client Name | Role |
|---|------------------------------|----------------|
| Preparation of Policies and Plans for the Roggeveld Wind Farm, Western Cape Province | Building Energy South Africa | EAP assistance |
| Preparation of Policies and Plans for the Kruisvallei Hydro Scheme, Free State Province | Building Energy South Africa | EAP assistance |

CURRICULUM VITAE OF NICOLENE VENTER

| | |
|-------------------------|--|
| Profession : | Public Participation and Social Consultant |
| Specialisation: | Public participation process; stakeholder engagement; facilitation (workshops, focus group and public meetings; public open days; steering committees); monitoring and evaluation of public participation and stakeholder engagement processes |
| Work Experience: | 21 years' experience as a Public Participation Practitioner and Stakeholder Consultant |

VOCATIONAL EXPERIENCE

Over the past 21 years Nicolene established herself as an experienced and well recognised public participation practitioner, facilitator and strategic reviewer of public participation processes. She has experience in managing public participation projects and awareness creation programmes. Her experience includes designing and managing countrywide public participation and awareness creation projects, managing multi-project schedules, budgets and achieving project goals. She has successfully undertaken several public participation processes for EIA, BA and WULA projects. The EIA and BA process include linear projects such as the NMPP, Eskom Transmission and Distribution power lines as well as site specific developments such as renewable energy projects i.e. solar, photo voltaic and wind farms. She also successfully managed stakeholder engagement projects which were required to be in line with the Equator Principles.

SKILLS BASE AND CORE COMPETENCIES

- Project Management
- Public Participation, Stakeholder Engagement and Awareness Creation
- Public Speaking and Presentation Skills
- Facilitation (workshops, focus group meetings, public meetings, public open days, working groups and committees)
- Social Assessments (Stakeholder Analysis / Stakeholder Mapping)
- Monitoring and Evaluation of Public Participation and Stakeholder Engagement Processes
- Community Liaison
- IFC Performance Standards
- Equator Principles
- Minute taking, issues mapping, report writing and quality control

EDUCATION AND PROFESSIONAL STATUS

Degrees:

- Higher Secretarial Certificate, Pretoria Technicon (1970)

Short Courses:

- Techniques for Effective Public Participation, International Association for Public Participation, IAP2 (2008)
- Foundations of Public Participation (Planning and Communication for Effective Public Participation, IAP2 (2009)
- Certificate in Public Relations, Public Relation Institute of South Africa, Damelin Management School (1989)

Professional Society Affiliations:

- Board Member of International Association for Public Participation (IAP2): Southern Africa

EMPLOYMENT

| Date | Company | Roles and Responsibilities |
|---------------------------------------|--|---|
| <p>November 2018 – current</p> | <p>Savannah Environmental (Pty) Ltd</p> | <p>Public Participation and Social Consultant</p> <p><u>Tasks include:</u></p> <p><i>Tasks include: Drafting of a Public Participation Plan with key deliverable dates and methodology to be followed, Background Information Document, Letters to Stakeholders and Interested and/or Affected Parties (I&APs) inclusive of key project deliverables and responses to questions / concerns raised; Stakeholder identification; facilitating stakeholder workshops, focus group and public meetings; conduct one-on-one consultation with Community Leaders, Tribal Chiefs, affected landowners, etc.</i></p> <p><i>Managing interaction between Stakeholders and Team Members, liaising with National, Provincial and Local Authorities, managing community consultation and communications in project affected areas, attend to the level of technical information communicated to and consultation with all level of stakeholders involved.</i></p> |
| <p>2016 – October 2018</p> | <p>Imaginative Africa (Pty) Ltd (company owned by Nicolene Venter)</p> | <p>Independent Consultant</p> <p>Consulting to various Environmental Assessment Practitioners for Public Participation and Stakeholder Engagements:</p> <p><u>Tasks include:</u></p> <p><i>Tasks include: Drafting of a Public Participation Plan with key deliverable dates and methodology to be followed, Background Information Document, Letters to Stakeholders and Interested and/or Affected Parties (I&APs) inclusive of key project deliverables and responses to questions / concerns raised; Stakeholder identification; facilitating stakeholder workshops, focus group and public meetings; conduct one-on-one consultation with Community Leaders, Tribal Chiefs, affected landowners, etc.</i></p> <p><i>Managing interaction between Stakeholders and Team Members, liaising with National, Provincial and Local Authorities, managing community consultation and communications in project</i></p> |

| | | |
|--------------------|--|--|
| | | <p>affected areas, attend to the level of technical information communicated to and consultation with all level of stakeholders involved</p> <p><u>Clients:</u> SiVEST Environmental, Savannah Environmental, Baagi Environmental; Royal Haskoning DHV (previously SSI)</p> |
| 2013 - 2016 | <p>Zitholele Consulting</p> <p>Contact person: Dr Mathys Vosloo Contact number: 011 207 2060</p> | <p>Senior Public Participation Practitioner and Project Manager</p> <p><u>Tasks included:</u> Project managed public participation process for EIA/BA/WULA/EAL projects. Manages two Public Participation Administrators. Public Participation tasks as outlined as above and including financial management of public participation processes.</p> |
| 2011 - 2013 | <p>Imaginative Africa (Pty) Ltd (company owned by Nicolene Venter)</p> | <p>Independent Consultant Consulting to various Environmental Assessment Practitioners for Public Participation and Stakeholder Engagements</p> <p><u>Tasks included:</u> Drafting of a Public Participation Plan with key deliverable dates and methodology to be followed, Background Information Document, Letters to Stakeholders and Interested and/or Affected Parties (I&APs) inclusive of key project deliverables and responses to questions / concerns raised; Stakeholder identification; facilitating stakeholder workshops, focus group and public meetings; conduct one-on-one consultation with Community Leaders, Tribal Chiefs, affected landowners, etc.</p> <p>Managing interaction between Stakeholders and Team Members, liaising with National, Provincial and Local Authorities, managing community consultation and communications in project affected areas, attend to the level of technical information communicated to and consultation with all level of stakeholders involved</p> <p><u>Clients:</u> Bohlweki Environmental, Bembani Sustainability (Pty) Ltd; Naledzi Environmental</p> |
| 2007 – 2011 | <p>SiVEST SA (Pty) Ltd</p> <p>Contact person: Andrea Gibb Contact number: 011 798 0600</p> | <p>Unit Manager: Public Participation Practitioner</p> <p><u>Tasks included:</u> Project managed public participation process for EIA/BA projects. Manages two Junior Public Participation Practitioners. Public Participation</p> |

| | | |
|--------------------|--|---|
| | | tasks as outlined as above and including financial management of public participation processes. |
| 2005 – 2006 | Imaginative Africa (Pty) Ltd (company owned by Nicolene Venter) | <p>Independent Consultant Public Participation and Stakeholder Engagement Practitioner</p> <p><u>Tasks included:</u> Drafting of a Public Participation Plan with key deliverable dates and methodology to be followed, Background Information Document, Letters to Stakeholders and Interested and/or Affected Parties (I&APs) inclusive of key project deliverables and responses to questions / concerns raised; Stakeholder identification; facilitating stakeholder workshops, focus group and public meetings; conduct one-on-one consultation with Community Leaders, Tribal Chiefs, affected landowners, etc.</p> <p>Managing interaction between Stakeholders and Team Members, liaising with National, Provincial and Local Authorities, managing community consultation and communications in project affected areas, attend to the level of technical information communicated to and consultation with all level of stakeholders involved.</p> <p><u>Clients:</u> Manyaka-Greyling-Meiring (previously Greyling Liaison and currently Golder Associates)</p> |
| 1997 - 2004 | Imaginative Africa (Pty) Ltd (company owned by Nicolene Venter) | <p>Independent Consultant: Public Participation Practitioner.</p> <p><u>Tasks included:</u> Drafting of a Public Participation Plan with key deliverable dates and methodology to be followed, Background Information Document, Letters to Stakeholders and Interested and/or Affected Parties (I&APs) inclusive of key project deliverables and responses to questions / concerns raised; Stakeholder identification; facilitating stakeholder workshops, focus group and public meetings; conduct one-on-one consultation with Community Leaders, affected landowners, etc.</p> <p>Managing interaction between Stakeholders and Team Members, liaising with National, Provincial Local Authorities, managing community consultation and communications in project affected areas, attend to the level of technical</p> |

| | | |
|--|--|---|
| | | <p>information communicated to and consultation with all level of stakeholders involved.</p> <p><u>Clients:</u> Greyling Liaison (currently Golder Associates); Bemban Sustainability (Pty) Ltd; Lidwala Environmental; Naledzi Environmental</p> |
|--|--|---|

PROJECT EXPERIENCE

RENEWABLE POWER GENERATION PROJECTS: PHOTOVOLTAIC SOLAR ENERGY FACILITIES

Environmental Impact Assessments and Environmental Management Programmes

| Project Name & Location | Client Name | Role |
|---|--|--|
| Lichtenburg PVs (3 PVs) & Power Lines (grid connection), Lichtenburg, North West Province | Atlantic Energy Partners EAP: Savannah Environmental | Project Manage the Public Participation Process Facilitate all meetings Consultation with Government Officials, Key Stakeholders, Landowners & Community Leaders |
| Allepad PVs 4 PVs) & Power Lines (grid connection), Upington, Northern Cape Province | IL Energy EAP: Savannah Environmental | |
| Hyperion Solar PV Developments (4 PVs) and Associated Infrastructures, Kathu, Northern Cape Province | Building Energy EAP: Savannah Environmental | |
| Aggeneys Solar PV Developments (2 PVs) and Associated Infrastructures, Aggeneys, Northern Cape Province | Atlantic Energy Partners and ABO Wind EAP: Savannah Environmental | |

| Project Name & Location | Client Name | Role | |
|--|---|--|--|
| <p>Tlitseng PV, including Substations & Power Lines, Lichtenburg, North West Province</p> <p>Sendawo PVs, including Substations & Power Lines, Vryburg, North West Province</p> <p>Helena Solar 1, 2 and 3 PVs, Copperton, Northern Cape Province</p> | <p>BioTherm Energy EAP: SiVEST</p> | Public Participation, Landowner and Community Consultation | |
| Farm Spes Bona 23552 Solar PV Plants, Bloemfontein, Free State Province | Surya Power EAP: SiVEST | | Public Participation, Landowner and Community Consultation |
| <p>De Aar Solar Energy Facility, De Aar, Northern Cape Province</p> <p>Droogfontein Solar Energy Facility, Kimberley, Northern Cape Province</p> <p>Kaalspruit Solar Energy Facility, Loeriesfontein, Northern Cape Province</p> <p>Platsjambok East PV, Prieska, Northern Cape Province</p> | <p>South Africa Mainstream Renewable Power Developments EAP: SiVEST</p> | | Public Participation, Landowner and Community Consultation |
| Renosterburg PV, De Aar, Northern Cape Province | Renosterberg Wind Energy Company EAP: SiVEST | Public Participation, Landowner and Community Consultation | |

| | | |
|--|---|--|
| 19MW Solar Power Plant on Farm 198 (Slypklip), Danielskuil, Northern Cape Province | Solar Reserve South Africa EAP: SiVEST | Public Participation, Landowner and Community Consultation |
|--|---|--|

Basic Assessments and Environmental Management Programmes – Located within the Renewable Energy Development Zones (REDZ)

| Project Name & Location | Client Name | Role |
|---|---|---|
| Moeding Solar PV Solar Energy Facility, Vryburg, North West Province | Kabi Solar EAP: Savannah Environmental | Project Manage the Public Participation Process Facilitate all meetings Consultation with Government Officials, Key Stakeholders, Landowners & Community Leaders |
| Sirius Solar PV Solar Energy Facility, Upington, Northern Cape Province | SOLA Future Energy EAP: Savannah Environmental | |

RENEWABLE POWER GENERATION PROJECTS: WIND ENERGY FACILITIES

Environmental Impact Assessments and Environmental Management Programmes

| Project Name & Location | Client Name | Role |
|---|---|----------------------|
| Aletta Wind Farm, Copperton, Northern Cape Province | BioTherm Energy EAP: SiVEST | Public Participation |
| Eureka Wind Farm, Copperton, Northern Cape Province | | |
| Loeriesfontein Wind Farm, Loeriesfontein, Northern Cape Province | South Africa Mainstream Renewable Power Developments EAP: SiVEST | Public Participation |
| Droogfontein Wind Farm, Loeriesfontein, Northern Cape Province | | |
| Four Leeuwberg Wind Farms, Loeriesfontein, Northern Cape Province | | |
| Noupoort Wind Farm, Noupoort, Northern Cape Province | | |
| Mierdam PV & Wind Farm, Prieska, Northern Cape Province | | |
| Platsjambok West Wind Farm & PV, Prieska, Northern Cape Province | | |
| | | |

Basic Assessments and Environmental Management Programmes – Located within the Renewable Energy Development Zones (REDZ)

| Project Name & Location | Client Name | Role |
|---|--|---|
| Nama Wind Energy Facility, Northern Cape Province | Genesis ECO EAP: Savannah Environmental | Project Manage the Public Participation Process Facilitate all meetings Consultation with Government Officials, Key Stakeholders, Landowners & Community Leaders |
| Zonnequa Wind Energy Facility, Northern Cape Province | | |

Environmental Authorisation Amendments

| Project Name & Location | Client Name | Role |
|-------------------------|-------------|------|
|-------------------------|-------------|------|

| | | |
|--|---|----------------------|
| Beaufort West 280MW Wind Farm into two 140MW Trakas and Beaufort West Wind Farms, Western Cape | South Africa Mainstream Renewable Power Developments EAP: SiVEST | Public Participation |
|--|---|----------------------|

RENEWABLE POWER GENERATION PROJECTS: CONCENTRATED SOLAR FACILITIES (CSP)

Environmental Impact Assessments and Environmental Management Programmes

| Project Name & Location | Client Name | Role |
|---|---|----------------------|
| Upington Concentrating Solar Plant and associated Infrastructures, Northern Cape Province | Eskom Holdings EAP: Bohlweki Environmental | Public Participation |

GRID INFRASTRUCTURE PROJECTS

Environmental Impact Assessments and Environmental Management Programmes

| Project Name & Location | Client Name | Role |
|--|---|--|
| Pluto-Mahikeng Main Transmission Substation and 400kV Power Line (Carletonville to Mahikeng), Gauteng and North West Provinces | Eskom Holdings EAP: Baagi Environmental | |
| Thyspunt Transmission Lines Integration Project, Eastern Cape Province | Eskom Holdings EAP: SiVEST | Public Participation, Landowner and Community Consultation |
| Westrand Strengthening Project, Gauteng Province | | Public Participation, |
| Mookodi Integration Project, North-West Province | | |
| Transnet Coallink, Mpumalanga and KwaZulu-Natal Provinces | | |
| Delarey-Kopela-Phahameng Distribution power line and newly proposed Substations, North-West Province | | Public Participation, Landowner and Community Consultation |
| Invubu-Theta 400kV Eskom Transmission Power Line, KwaZulu-Natal Province | Eskom Holding EAP: Bembani Environmental | |

Facilitation

| Project Name & Location | Client Name | Meeting Type |
|--|---|--|
| Bloemfontein Strengthening Project, Free State Province | Eskom Holdings EAP: Baagi Environmental | Public Meetings |
| Moidraai-Smitkloof 132kV Power Line and Substation, Northern Cape Province | Eskom Holdings EAP: SSI | Focus Group Meetings |
| Aggeneis-Oranjemond 400kV Eskom Transmission Power Line, Northern Cape Province | Eskom Holdings EAP: Savannah Environmental | Focus Group Meetings & Public Meetings |
| Ariadne-Eros 400kV/132kV Multi-Circuit Transmission Power Line (Public Meetings) | Eskom Holdings EAP: ACER Africa | Public Meetings |
| Majuba-Venus 765kV Transmission Power Lines, Mpumlanaga Province | | Public Meetings |

Basic Assessments and Environmental Management Programmes

| Project Name & Location | Client Name | Role |
|------------------------------------|--------------------|-------------|
|------------------------------------|--------------------|-------------|

| | | |
|---|----------------------------------|--|
| Melkhout-Kudu-Grassridge 132kV Power Line Project (project not submitted to DEA), Eastern Cape Province | Eskom Holdings EAP: SiVEST | Public Participation, Landowner and Community Consultation |
| Tweespruit-Welroux-Driedorp-Wepener 132Kv Power Line, Free State Province | | Public Participation, Landowner and Community Consultation |
| Kuruman 132Kv Power Line Upgrade, Northern Cape Province | Eskom Holdings EAP: Zitholele | Public Participation, Landowner and Community Consultation |
| Vaalbank 132Kv Power Line, Free State Province | | Public Participation, Landowner and Community Consultation |
| Pongola-Candover-Golela 132kV Power Line (Impact Phase), KwaZulu-Natal Province | | Public Participation, Landowner and Community Consultation |
| Ndumo-Geziza 132kV Power Line, KwaZulu-Natal Province | | Public Participation, Landowner and Community Consultation |
| | | Public Participation, Landowner and Community Consultation |

Screening Studies

| Project Name & Location | Client Name | Role |
|--|--|-------------------|
| Potential Power Line Alternatives from Humansdorp to Port Elizabeth, Eastern Cape Province | Nelson Mandela Bay Municipality EAP: SiVEST | Social Assessment |

CONVENTIONAL POWER GENERATION PROJECTS (COAL, GAS AND ASSOCIATED INFRASTRUCTURE)

Stakeholder Engagement

| Project Name & Location | Client Name | Role |
|---|------------------------------------|----------------------|
| Determination, Review and Implementation of the Reserve in the Olifants/Letaba System | Department of Water and Sanitation | Secretarial Services |
| Orange River Bulk Water Supply System | Golder Associates | |
| Levuvu-Letaba Resources Quality Objectives | | |

Facilitation

| Project Name & Location | Client Name | Meeting Type |
|--|---|--------------------------------------|
| Thabametsi IPP Power Station, Limpopo Province | Thabametsi Power Company EAP: Savannah Environmental | Focus Group Meeting & Public Meeting |

Environmental Impact Assessments and Environmental Management Programmes

| Project Name & Location | Client Name | Role |
|--|---|--|
| Richards Bay Combined Cycle Power Plant, Richards Bay, Kwa-Zulu Natal Province (Impact Phase) | Eskom Holdings EAP: Savannah Environmental | Public Participation |
| Medupi Flue Gas Desulphurisation Project (up to completion of Scoping Phase), Limpopo Province | Eskom Holdings SOC Ltd EAP: Zitholele Consulting | Public Participation, Landowner and Community Consultation |
| Kendal 30-year Ash Disposal Facility, Mpumalanga Province | | |
| Kusile 60-year Ash Disposal Facility, Mpumalanga Province | | |

| | | |
|---|--|--|
| Camden Power Station Ash Disposal Facility, Mpumalanga Province | | |
| Tutuka Fabric Filter Retrofit and Dust Handling Plant Projects, Mpumalanga Province | Eskom Holdings SOC Ltd EAP: Lidwala Environmental | Public Participation, Landowner and Community Consultation |
| Eskom's Majuba and Tutuka Ash Dump Expansion, Mpumalanga Province | | Public Participation, Landowner and Community Consultation |
| Hendrina Ash Dam Expansion, Mpumalanga Province | | Public Participation, Landowner and Community Consultation |

INFRASTRUCTURE DEVELOPMENT PROJECTS (BRIDGES, PIPELINES, RAILWAY LINES, ROADS, WATER RESOURCES, STORAGE FACILITIES, ETC)

Facilitation

| Project Name & Location | Client Name | Meeting Type |
|--|--|----------------------|
| Determination, Review and Implementation of the Reserve in the Olifants/Letaba System | Department of Water and Sanitation Golder Associates | Secretarial Services |
| Orange River Bulk Water Supply System | Department of Water and Sanitation Golder Associates | Secretarial Services |
| Levuvu-Letaba Resources Quality Objectives | Department of Water and Sanitation Golder Associates | Secretarial Services |
| SmancorCR Chemical Plant (Public Meeting), Gauteng Province | Samancor Chrome (Pty) Ltd EAP: Environmental Science Associates | Public Meeting |
| SANRAL N4 Toll Highway Project (2 nd Phase), Gauteng & North West Provinces | Department of Transport EAP: | Public Meetings |

Environmental Impact Assessments and Environmental Management Programmes

| Project Name & Location | Client Name | Role |
|--|---|----------------------|
| Transnet's New Multi-Products Pipeline traversing Kwa-Zulu Natal, Free State and Gauteng Provinces | Transnet EAP: Bohlweki Environmental | Public Participation |

Basic Assessments

| Project Name & Location | Client Name | Role |
|--|--|----------------------|
| Realignment of the Bulshoek Dam Weir near Klawer and the Doring River Weir near Clanwilliam, Western Cape Province | Dept of Water and Sanitation EAP: Zitholele | Public Participation |

MINING SECTOR


Environmental Impact Assessment and Environmental Management Programme

| Project Name & Location | Client Name | Role |
|--|---|----------------------|
| Zero Waste Recovery Plant at highveld Steel, Mpumalanga Province | Anglo African Metals EAP: Savannah Environmental | Public Participation |
| Koffiefontein Slimes Dam, Free State Province | Petra Diamond Mines EAP: Zitholele | Public Participation |

| | | |
|---|--|--|
| <i>Baobab Project: Ethenol Plant, Chimbanje, Middle Sabie, Zimbabwe</i> | <i>Applicant: Green Fuel EAP: SiVEST</i> | <i>Public Participation & Community Consultation</i> |
| <i>BHP Billiton Energy Coal SA's Middelburg Water Treatment Plant, Mpumalanga</i> | <i>BHP Billiton Group EAP: Jones & Wagener</i> | <i>Public Participation</i> |



Short CV/Summary of Expertise – Simon Todd

| | | |
|--|---|--|
|  <p>SIMON TODD CONSULTING</p> <p>ECOLOGICAL SPECIALIST SERVICES</p> <p>Assessment/Management/Research</p> | <p>Simon Todd Pr.Sci.Nat</p> <p>C: 082 3326502 O: 021 782 0377 Simon.Todd@3foxes.co.za</p> <p>60 Forrest Way Glencairn 7975</p> | <p>Ecological Solutions for People & the Environment</p> |
|--|---|--|

Professional Profile

Simon Todd has extensive experience in biodiversity management and ecological assessment across South African ecosystems. This includes a variety of broad-scale strategic assessments and best-practice guidelines for a range of industries. In addition, Simon Todd has conducted a large amount of research on the impacts of land-use on biodiversity and has published numerous scientific papers in international peer-reviewed journals on this topic. Simon Todd is a recognised ecological expert and is a past chairman and current executive committee member of the Arid-Zone Ecology Forum and has over 20 years' experience working throughout the country. Simon Todd is registered with the South African Council for Natural Scientific Professions (No. 400425/11).

Recent notable projects include:

- First-author of a book chapter on the ecological impacts of Shale Gas development on the Karroo of South Africa. (2017)
 - Co-author on the Biodiversity chapter of the Shale Gas SEA being conducted by CSIR. (2016)
 - Co-author on the Eskom Grid Infrastructure SEA, managed by CSIR. (2016)
 - Co-author on the Wind and Solar SEA, managed by CSIR. (2015)
-

Abbreviated CV

- Profession: Independent Ecological Consultant - Pr.Sci.Nat 400425/11
- Specialisation: Plant & Animal Ecology
- Years of Experience: 20 Years

Skills & Primary Competencies

- Research & description of ecological patterns & processes in Thicket, Savannah Nama Karoo, Succulent Karoo, Arid Grassland and Fynbos Ecosystems.
- Ecological Impacts of land use on biodiversity and provision of associated management advice.

- Vegetation surveys & degradation assessment & mapping
- Long-term vegetation monitoring
- Faunal surveys & assessment.
- GIS & remote sensing

Tertiary Education:

- 1992-1994 – BSc (Botany & Zoology), University of Cape Town
- 1995 – BSc Hons, Cum Laude (Zoology) University of Natal
- 1996-1997- MSc, Cum Laude (Conservation Biology) University of Cape Town

Employment History

- 1997 – 1999 – Research Scientist (Contract) – South African National Biodiversity Institute
- 2000-2004 – Specialist Scientist (Contract) - South African National Biodiversity Institute
- 2004-2007 – Senior Scientist (Contract) – Plant Conservation Unit, Department of Botany, University of Cape Town
- 2007-Present – Senior Scientist (Associate) – Plant Conservation Unit, Department of Botany, University of Cape Town.
- 2010-Present – Self-employed as consultant and sole proprietor of Simon Todd Consulting, which has conducted more than 150 specialist assessments.

General Experience & Expertise

- Lead ecologist on several SEA chapters, including Eskom Grid Infrastructure, Wind and Solar SEA and Shale Gas SEA.
- Conducted a large number of fauna and flora specialist assessments distributed widely across South Africa. Projects have ranged in extent from <50 ha to more than 50 000 ha.
- Widely-recognized ecology specialist. Published numerous peer-reviewed scientific publications based on various ecological studies across the country. Past chairman of the Arid Zone Ecology Forum and current executive committee member.
- Extensive field and personal experience across a broad range of South African ecosystems, with particular focus on the Western, Northern and Eastern Cape.
- Strong research background which has proved invaluable when working on ecologically sensitive and endangered ecosystems, habitats and species.
- Published numerous research reports as well as two book chapters and a large number of papers in leading scientific journals dealing primarily with human impacts on the vegetation and ecology of South African ecosystems.
- Maintain several long-term vegetation monitoring projects which have led to several publications.
- Guest lecturer at two universities and have also served as an external examiner.
- Reviewed papers for more than 12 international ecological journals.
- SACNASP registered as a Professional Natural Scientist, (Ecology) No. 400425/11.

Current Committees

- SANBI Vegmap Committee – 2015 – present
- CSIR Wind and Solar SEA Phase II advisory committee – 2016-present
- AZEF deputy chair – 2012-present
- SANBI Karoo Biogaps Taxon leads' committee and executive committee member.

Recent & Relevant Outputs & Publications

Strategic Environmental Assessments

Co-Author. Chapter 7 - Biodiversity & Ecosystems - Shale Gas SEA. CSIR 2016.

Co-Author. Chapter 1 Scenarios and Activities – Shale Gas SEA. CSIR 2016.

Co-Author – Ecological Chapter – Wind and Solar SEA. CSIR 2014.

Co-Author – Ecological Chapter – Eskom Grid Infrastructure SEA. CSIR 2015.

Contributor – Ecological & Conservation components to SKA SEA. CSIR 2017.

Specialist Fauna and Flora Assessments:

Specialist Ecological studies for many different developments distributed across the country including:

- Over 30 Wind Energy projects
- More than 60 Solar Energy developments
- More than 30 different housing, roads, mining and other infrastructure development projects.
- More than 20 electricity transmission infrastructure projects.

A full list of projects is available on request.

Eric Herrmann

Eric Herrmann is an avifaunal specialist with over 15 years of experience in biodiversity research and conservation in the Northern Cape. He completed a B.Tech Degree in Nature Conservation (1999) at the Cape Technikon, followed by a Masters in Conservation Ecology at the University of Stellenbosch (2004). He has worked as a research assistant for the Endangered Wildlife Trust (1999-2001) in the Kgalagadi Transfrontier Park, and then for the Percy FitzPatrick Institute of African Ornithology (University of Cape Town) as project manager of a field research centre near Kimberley (2003 to 2006). In 2006 he joined the provincial Department of Environment and Nature Conservation (DENC) in Kimberley as a faunal scientist until 2012. Since 2016 he has been working independently as an avifaunal specialist largely on wind and solar energy projects in the Western and Northern Cape.

Tertiary Education:

- 1994 - 1997 – National Diploma: Nature Conservation (cum laude), Cape Technikon
- 1998 - 1999 – B.Tech Degree: Nature Conservation (cum laude), Cape Technikon
- 2000 - 2004 – MFor: Conservation Ecology (cum Laude), University of Stellenbosch
- *Employment History*
- 2016 - Present – Independent contractor, avifaunal specialist for renewable energy projects.
- 2006 - 2012 – Senior Conservation Scientist, Department of Environment and Nature Conservation, Kimberley.
- 2003 - 2006 – Research Assistant and Field Projects Manager, Percy Fitzpatrick Institute of African Ornithology, Cape Town
- 2001 - 2002 – Field Researcher, Deciduous Fruit Producers Trust, Stellenbosch.
- 1999 - 2001 – Research Assistant, Endangered Wildlife Trust, Johannesburg.

Recent Specialist Ecological Studies in the vicinity of the current site

- Allepad Solar PV Facility, Upington. Avifaunal Specialist Report. Savannah Environmental. 2018/19.
- Aggeneys Solar PV Facility, Aggeneys. Avifaunal Specialist Report. Savannah Environmental. 2018/19.
- Gaetsewe Solar PV Facility, Kathu. Avifaunal Specialist Report. Cape EAPrac 2018.
- Mogara Solar PV Facility, Kathu. Avifaunal Specialist Report. Cape EAPrac 2018.
- Kathu Hyperion Solar PV Facility, Kathu. Avifaunal Specialist Report. Cape EAPrac 2018.

CURRICULUM VITAE
Dr Brian Michael Colloty

Profession: Ecologist & Environmental Assessment Practitioner (Pr. Sci. Nat. 400268/07 & EAPSA certified)
Specialisation: Ecology and conservation importance rating of inland habitats, wetlands, rivers & estuaries
Years experience: 20 years

SKILLS BASE AND CORE COMPETENCIES

- 20 years experience in environmental sensitivity and conservation assessment of aquatic and terrestrial systems inclusive of Index of Habitat Integrity (IHI), WET Tools, Riparian Vegetation Response Assessment Index (VEGRAI), estuarine and wetland delineation throughout Africa. Experience also includes biodiversity and ecological assessments with regard sensitive fauna and flora, within the marine, coastal and inland environments. Countries include Mozambique, Kenya, Namibia, Central African Republic, Zambia, Eritrea, Mauritius, Madagascar, Angola, Ghana, Guinea-Bissau and Sierra Leone.
- 12 years experience in the coordination and management of multi-disciplinary teams, such as specialist teams for large scale EIAs and environmental monitoring programmes, throughout Africa and inclusive of marine, coastal and inland systems.
- GIS mapping and sensitivity analysis
- Estuarine conservation (vegetation and habitat specialist)

TERTIARY EDUCATION

- 1994: B Sc Degree (Botany & Zoology) - NMMU
- 1995: B Sc Hon (Zoology) - NMMU
- 1996: M Sc (Botany) - NMMU
- 2000: Ph D (Botany) – NMMU

EMPLOYMENT HISTORY

- 1996 – 2000 Researcher at Nelson Mandela Metropolitan University – SAB institute for Coastal Research & Management.
- 2001 – January 2003 Training development officer AVK SA
- February 2003- June 2005 Project manager & Ecologist for Strategic Environmental Focus (Pretoria)
- July 2005 – June 2009 Principal Environmental Consultant Coastal & Environmental Services
- June 2009 – present Owner / Ecologist of Scherman Colloty & Associates cc

SELECTED RELEVANT PROJECT EXPERIENCE

- Transnet Freight Rail – Swazi Rail Link (Current) wetland and ecological assessment on behalf of Aurecon for the proposed rail upgrade from Ermelo to Richards Bay
- Eskom Transmission wetland and ecological assessment for the proposed transmission line between Pietermaritzburg and Richards Bay on behalf of Aurecon (2012).
- Port Durnford Exarro Sands biodiversity assessment for the proposed mineral sands mine on behalf of Exxaro (2009)
- Fairbreeze Mine Exxaro (Mtunzini) wetland assessment on behalf of Strategic Environmental Services (2007).
- Wetland assessment for Richards Bay Minerals (2013) – Zulti North haul road on behalf of RBM.
- Biodiversity and aquatic assessments for 68 renewable projects in the past three years in the Western, Eastern, Northern Cape, KwaZulu-Natal and Free State provinces. Clients included RES-SA, RedCap, ACED Renewables, Mainstream Renewable, GDF Suez, Globeleq, ENEL, Abengoa amongst others. Particular aquatic sensitivity assessment and Water Use License Applications on behalf of Mainstream Renewable Energy (8 wind farms and 3 PV facilities.), Cennergi / Exxaro (1 Wind farm), WKN Wind current (2 wind farms & 2 PV facilities), ACED (6 wind farms) and Windlab (3 Wind farms) were also conducted. Several of these projects also required the assessment of the proposed transmission lines and switching stations, which were conducted on behalf of Eskom.
- Vegetation assessments on the Great Brak rivers for Department of Water and Sanitation, 2006 and the Gouritz Water Management Area (2014)
- Farim phosphate mine and port development, Guinea Bissau – biodiversity and estuarine assessment on behalf of Knight Piesold Canada – current.
- Tema LNG offshore pipeline EIA – marine and estuarine assessment for Quantum Power (on-going).
- Colluli Potash South Boulder, Eritrea, SEIA marine baseline and hydrodynamic surveys co-ordinator and coastal vegetation specialist (coastal lagoon and marine) (on-going).
- Various wetland (85) and marine and biodiversity assessments for the Savannah Environmental, Gibb Consulting, AECOM, CSIR and EOH-CES, 1996, 2006, 2009, 2010, 2011, 2012, 2013 and 2014
- Proposed FibreCo fibre optic cable vegetation assessment along the N2, PE to Cape Town, 2012 on behalf of SRK (2013).
- Wetland, estuarine and riverine assessment for Addax Biofeuls Sierra Leone, Makeni for Coastal & Environmental Services: 2009
- Project manager long-term, marine monitoring phase with regards the dredge works required in Luanda bay,

CURRICULUM VITAE

A. Personal Details

Last name: **Pienaar**

First name: **Mariné**

Nationality: **South African**

Employment: **Self-employed (Consultant)**

B. Contact Details

Email address: mpienaar@terraafrica.co.za

Website: www.terraafrica.co.za

Mailing address: **PO Box 433, Ottosdal, 2610**

Telephone: **+27828283587**

Address: **57 Kruger Street, Wolmaransstad, 2630, Republic of South Africa**

Current Job: **Lead Consultant and Owner of Terra Africa Consult**

C. Concise biography

Mariné Pienaar is a professionally registered soil- and agricultural scientist (SACNASP) who has consulted extensively for the past eleven years in the fields of soil, land use and agriculture in several African countries. These countries include South Africa, Liberia, Ghana, DRC, Mozambique, Botswana, Angola, Swaziland and Malawi. She has worked with mining houses, environmental consulting companies, Eskom, government departments as well as legal and engineering firms. She conducted more than three hundred specialist studies that included baseline soil assessment and rehabilitation planning for new projects or expansion of existing projects, soil quality monitoring, land rehabilitation assessment and monitoring, natural resource assessment as part of agricultural project planning, evaluation and development of sustainable agriculture practices, land use assessment and livelihood restoration planning as part of resettlement projects and land contamination risk assessments. She holds a BSc. Agriculture degree with specialisation in Plant Production and Soil Science from the University of Pretoria and a MSc in Environmental Science from the University of the Witwatersrand. In addition to this, she has attended a number of

courses in Europe, the USA and Israel in addition to those attended in South Africa. Mariné is a contributing author of a report on the balance of natural resources between the mining industry and agriculture in South Africa (published by the Bureau for Food and Agricultural Policy, 2015).

D. Qualifications

Academic Qualifications:

- ♦ **MSc Environmental Science**; University of Witwatersrand, South Africa, 2018
- ♦ **BSc (Agric) Plant Production and Soil Science**; University of Pretoria, South Africa, 2004
- ♦ **Senior Certificate / Matric**; Wolmaransstad High School, South Africa, 2000

Courses Completed:

- ♦ **World Soils and their Assessment**; ISRIC – World Soil Information, Wageningen, 2015
- ♦ **Intensive Agriculture in Arid- and Semi-Arid Environments** – Gilat Research Centre, Israel, 2015
- ♦ **Hydrus Modelling of Soil-Water-Leachate Movement**; University of KwaZulu-Natal, South Africa, 2010
- ♦ **Global Sustainability Summer School 2012**; Institute for Advanced Sustainability Studies, Potsdam, Germany, 2012
- ♦ **Wetland Rehabilitation**; University of Pretoria, South Africa, 2008
- ♦ **Enviropreneurship Institute**; Property and Environment Research Centre [PERC], Montana, U.S.A., 2011
- ♦ **Youth Encounter on Sustainability**; ACTIS Education [official spin-off of ETH Zürich], Switzerland, 2011
- ♦ **Environmental Impact Assessment | Environmental Management Systems – ISO 14001:2004 | Environmental Law**; University of Potchefstroom, South Africa, 2008
- ♦ **Carbon Footprint Analyst Level 1**; Global Carbon Exchange Assessed, 2011
- ♦ **Negotiation of Financial Transactions**; United Nations Institute for Training and Research, 2011
- ♦ **Food Security: Can Trade and Investment Improve it?** United Nations Institute for Training and Research, 2011

E. Language ability

Perfectly fluent in English and Afrikaans (native speaker of both) and conversant in French.

F. Professional Experience

| | |
|-----------------------|--|
| Name of firm | Terra Africa Environmental Consultants |
| Designation | Owner Principal Consultant |
| Period of work | December 2008 to Date |

G. Prior Tenures

Integrated Development Expertise (Pty) Ltd; **Junior Land Use Consultant** [July 2006 to October 2008]

Omnia Fertilizer (Pty) Ltd; **Horticulturist and Extension Specialist** [January 2005 to June 2006]

H. Professional Affiliations

- ♦ South African Council for Natural Scientific Professions [SACNASP]
- ♦ Soil Science Society of South Africa [SSSA]
- ♦ Soil Science Society of America
- ♦ South African Soil Surveyors' Organisation [SASSO]
- ♦ International Society for Sustainability Professionals [ISSP]

Summary of a selected number of projects completed successfully:

[Comprehensive project dossier available on request]

- ♦ *Sekoko Railway Alignment and Siding Soil, Land Use and Capability Study* in close proximity to the Medupi Power Station in the Lephalale area, Limpopo Province.
- ♦ *ItalThai Rail and Port Projects, Mozambique* – The study included a thorough assessment of the current land use practices in the proposed development areas including subsistence crop production and fishing as well as livestock farming and forestry activities. All the land uses were mapped and intrinsically linked to the different soil

types and associated land capabilities. This study was used to develop Livelihood Restoration Planning from.

- ♦ *Bomi Hills Railway Alignment Project, Liberia*: soil, land use and agricultural scientist for field survey and reporting of soil potential, current land use activities and existing soil pollution levels, as well as associated infrastructure upgrades of the port, road and railway.
- ♦ *Kingston Vale Waste Facility, Mpumalanga Province, South Africa*: Soil and vegetation monitoring to determine the risk of manganese pollution resulting from activities at the waste facility.
- ♦ *Keaton Mining's Vanggatfontein Colliery, Mpumalanga*: Assessment of soil contamination levels in the mining area, stockpiles as well as surrounding areas as part of a long-term monitoring strategy and rehabilitation plan.
- ♦ *Richards Bay Minerals, KwaZulu-Natal*: Contaminated land assessment of community vegetable gardens outside Richards Bay as a result of spillages from pipelines of Rio Tinto's Richards Bay Minerals Mine.
- ♦ *Buffelsfontein Gold Mine, Northwest Province, South Africa*: Soil and land contamination risk assessment for as part of a mine closure application. Propose soil restoration strategies.
- ♦ *Glenover Phosphate Mining Project near Steenbokpan in the Lephalale area* – Soil, Land Use and Land Capability Study as part of the environmental authorisation process.
- ♦ *Waterberg Coal 3 and 4 Soil, Land Use and Land Capability Study* on 23 000 ha of land around Steenbokpan in the Lephalale area.
- ♦ *Lesotho Highlands Development Agency, development of Phase II (Polihali Dam and associated infrastructure)*: External review and editing of the initial Soil, Land Use and Land Capability Assessment as requested by ERM Southern Africa.
- ♦ *Tina Falls Hydropower Project, Eastern Cape, South Africa*: Soil, land use and land capability assessment as part of the ESIA for the construction of a hydropower plant at the Tina Falls.

- ♦ *Graveyard relocation as part of Exxaro Coal's Belfast Resettlement Action Plan: Soil assessment to determine pedohydrological properties of the relocation area in order to minimise soil pollution caused by graveyards.*
- ♦ *Rhino Oil Resources: Strategic high-level soil, land use and land capability assessment of five proposed regions to be explored for shale gas resources in the KwaZulu-Natal, Eastern Cape, North-West and Free State provinces of South Africa.*
- ♦ *Eskom Kimberley Strengthening Phase 4 Project, Northern Cape & Free State, South Africa: soil, agricultural potential and land capability assessment.*
- *Mocuba Solar Project, Mozambique – The study included a land use assessment together with that of the soil and land capabilities of the study area. All current land uses were documented and mapped and the land productivity was determined. This study advocated the resettlement and livelihood restoration planning.*
- ♦ *Botswana (Limpopo-Lipadi Game Reserve). Soil research study on 36 000 ha on the banks of the Limpopo River. This soil study forms part of an environmental management plan for the Limpopo-Lipadi Game Reserve situated here as well as the basis for the Environmental Impact Assessment for the development of lodges and Land Use Management in this area.*
- ♦ *TFM Mining Operations [proposed] Integrated Development Zone, Katanga, DRC [part of mining concession between Tenke and Fungurume]: soil and agricultural impact assessment study.*
- ♦ *Closure Strategy Development for Techmina Mining Company – Lucapa, Angola. Conducted an analysis of the natural resources (soil, water) to determine the existing environmental conditions on an opencast diamond mine in Angola. The mine currently experience severe problems with kimberlite sediment flowing into the river. A plan is currently being developed to change the mining area into a sustainable bamboo farming operation.*
- *Closure of sand mining operations, Zeerust District. Successfully conducted the closure application of the Roos Family Sand Mine in the Zeerust District. Land Use*

Management Plans for rehabilitated soil were developed. The mine has closed now and the financial provision has been paid out to the applicant.

- ♦ *ESIA for [proposed] Musonoi Mine, Kolwezi area, Katanga, DRC: soil, land use and land capability assessment.*
- ♦ *Bauba A Hlabirwa Moeijelik Platinum mine [proposed] project, Mpumalanga, South Africa: soil, land use and land capability assessment and impact on agricultural potential of soil.*
- ♦ *Commissiekraal Coal Mine [proposed] project, KwaZulu-Natal, South Africa: sustainable soil management plans, assessment of natural resource and agricultural potential and study of the possible impacts of the proposed project on current land use. Soil conservation strategies included in soil management plan.*
- ♦ *Cronimet Chrome Mine [proposed] project, Limpopo Province, South Africa: soil, land use and land capability of project area and assessment of the impacts of the proposed project.*
- ♦ *Moonlight Iron Ore Land Use Assessment, South Africa – Conducted a comprehensive land use assessment that included interviews with land users in the direct and indirect project zones of influence. The study considered all other anticipated social and environmental impacts such as water, air quality and noise and this was incorporated into a sensitivity analysis of all land users to the proposed project.*
- ♦ *Project Fairway Land Use Assessment, South Africa – The study included an analysis of all land users that will directly and indirectly be influenced by the project. It analysed the components of their land uses and how this components will be affected by the proposed project. Part of the study was to develop mitigation measures to reduce the impact on the land users.*
- ♦ *Bekkersdal Urban Renewal Project – Farmer Support Programme, Independent consultation on the farmer support programme that forms part of Bekkersdal Renewal Project. This entailed the production of short and long term business plans based on soil and water research conducted. Part of responsibilities were the evaluation of current irrigation systems and calculation of potential water needs, etc. as well as determining quantities and prices of all project items to facilitate the formalisation of tender documents.*

- ♦ *Area-based agricultural business plans for municipalities in Dr. Kenneth Kaunda Municipal District.* Evaluation of the agricultural and environmental status of the total district as well as for each municipality within the district. This included the critical evaluation of current agricultural projects in the area. The writing of sustainable, executable agricultural business plans for different agricultural enterprises to form part of the land reform plans of each Municipality within the district.
- ♦ *Batsamaya Mmogo, Hartswater.* Conducted a soil and water assessment for the farm and compiled management and farming plans for boergoats grazing on *Sericea lespedeza* with pecan nuts and lucerne under irrigation.
- ♦ *Anglo Platinum Twickenham Mine – Irrigated Cotton Project.* Project management of an irrigated cotton production project for Twickenham Platinum Mine. This project will ensure that the community benefit from the excess water that is available from the mine activities.
- ♦ *Grasvally Chrome (Pty) Ltd Sylvania Platinum [proposed] Project, Limpopo Province, South Africa:* Soil, land use and agricultural potential assessment.
- ♦ *Jeanette Gold mine project [reviving of historical mine], Free State, South Africa:* Soil, land use and agricultural potential assessment.
- ♦ *Kangra Coal Project, Mpumalanga, South Africa:* Soil conservation strategies proposed to mitigate the impact of the project on the soil and agricultural potential.
- ♦ *Richards Bay Integrated Development Zone Project, South Africa* [future development includes an additional 1500 ha of land into industrial areas on the fringes of Richards Bay]: natural resource and agricultural potential assessment, including soil, water and vegetation.
- ♦ *Exxaro Belfast Coal Mine [proposed] infrastructure development projects* [linear: road and railway upgrade | site-specific coal loading facilities]: soil, land capability and agricultural potential assessment.
- ♦ *Marikana In-Pit Rehabilitation Project of Aquarius Platinum, South Africa:* soil, land capability and land use assessment.

- ♦ *Eskom Bighorn Substation proposed upgrades, South Africa: soil, land capability and agricultural potential assessment.*
- ♦ *Exxaro Leeuwpan Coal Mining Right Area, South Africa: consolidation of all existing soil and agricultural potential data. Conducted new surveys and identified and updated gaps in historic data sets.*
- ♦ *Banro Namoya Mining Operation, DRC: soil, land use and agricultural scientist for field survey and reporting of soil potential, current land use activities and existing soil pollution levels, including proposed project extension areas and progressive soil and land use rehabilitation plan.*
- ♦ *Kumba Iron Ore's Sishen Mine, Northern Cape, South Africa: soil, land use and agricultural scientist | Western Waste Rock Dumps [proposed] Project: soil, land use and agricultural potential assessment, including recommendations regarding stripping/stockpiling and alternative uses for the large calcrete resources available.*
- ♦ *Vetlaagte Solar Development Project, De Aar, South Africa: soil, land use and agricultural scientist. Soil, land use and agricultural potential assessment for proposed new 1500 ha solar development project, including soil management plan.*

CURRICULUM VITAE

Jenna Lavin

Tel: 083 619 0854 (c)

E-mail address: jenna.lavin@ctsheritage.com

ID number: 8512050014089

Address: 103 D'Urban St, Bothasig, Cape Town

EDUCATION:

Tertiary

- 2014 M.Phil in Conservation of the Built Environment (University of Cape Town)
- Not completed as of 2019
- 2011 Continued Professional Development Course in Urban Conservation Management (University of Cape Town) Part I and Part II
- 2010 M.Sc. with Distinction in Archaeology (University of Cape Town)
Title: *Palaeoecology of the KBS member of the Koobi Fora Formation: Implications for Pleistocene Hominin Behaviour.*
- 2007 B.Sc. Honours in Archaeology (University of Cape Town)
Title: *The Lost Tribes of the Peninsula: An Investigation into the historical distribution of Chacma baboons (*Papio ursinus*) at the Cape Peninsula, South Africa.*
Koobi Fora Field School, Rutgers University (U.S.A.)/ National Museums of Kenya
- 2006 B.Sc. Archaeology (University of Cape Town)
B.Sc. Environmental and Geographic Science (University of Cape Town)

Secondary

- 1999-2003 Rustenburg High School for Girls
Firsts in English, Afrikaans, Mathematics HG, Biology HG, History HG, Entrepreneurship.

EMPLOYMENT HISTORY:

PROFESSIONAL DEVELOPMENT

Environmental and Heritage Management:

- **Director: Heritage for CTS heritage and member of OpenHeritage NPC.**

July 2016 to present

I am a member of the senior management of the company. I am responsible for project management and quality control on all of our heritage-related projects. I provide specialist heritage expertise when required and assist with the drafting of management plans, NIDs, heritage impact assessments and other specialist heritage reports. I liaise with clients, authorities and other specialists to ensure the highest quality product from CTS Heritage. I manage the budgets and financial compliance for all our projects and for the business in general.

We have recently been involved in developing the online map for the National Resistance and Liberation Heritage Route with DAC, contributing to the Stellenbosch Municipal Heritage Survey

among other large-scale projects. In addition, in 2018 we completed over 100 HIA's and Heritage Screening Assessments across South Africa.

Through OpenHeritage, I have been intimately involved with the development, and successful implementation of a digital heritage objects management system for the National Museum in Kenya as well as Tristan da Cunha. We are in the process of rolling out the same system to the new Lesotho National Museum.

- **Assistant Director for Policy, Research and Planning at Heritage Western Cape (HWC).**

August 2014 to June 2016

As a member of the management structure of HWC, I was responsible for the drafting of new heritage related policy, the grading and declaration of Provincial Heritage Sites, the development of Conservation Management Plans, facilitating the development of inventories of heritage resources through local authorities as well as managing the development of the Western Cape's Heritage Information Management System (HIMS). I was also responsible for managing the project to nominate the Modern Human Origins proposed World Heritage Site.

I performed the role of Acting Deputy Director for HWC from April to December 2015, including financial management responsibilities, problem solving and the training of new staff.

- **Heritage Officer for Palaeontology and for the Mpumalanga Province at the South African Heritage Resources Agency (SAHRA).**

January 2013 to June 2014

Responsibilities include managing palaeontological permit applications in terms of Section 35 of the NHRA and development applications in terms of Section 38 of the NHRA. Projects included the development of a National Palaeotechnic Report identifying significant palaeontological deposits throughout SA, as well as developing professional relationships between SAHRA and the Palaeontological Society of South Africa (PSSA) and the Geological Society of South Africa (GSSA). During this time, I was part of the team that developed the digitised National Palaeontological Sensitivity Map, the first of its kind in the world.

- **Heritage Officer for Archaeology, Palaeontology and Meteorites at Heritage Western Cape (HWC).**

September 2010 to December 2012

HWC is a Public Entity that forms part of the Heritage Resource Management Component of the Provincial Governments' Department of Cultural Affairs and Sport (DCAS). Projects included the declaration of Pinnacle Point and the West Coast Fossil Park as Provincial Heritage Sites (PHSs), the management of the development of the Baboon Point PHS Conservation Management Plan as well as an educational outreach program as part of the DCAS MOD Centre Project.

- **Heritage Officer for the Archaeology, Palaeontology and Meteorites Unit of the South African Heritage Resources Agency (SAHRA) as part of a three month contract.**

January 2010 to March 2010

- **Environmental Control Officer, Amathemba Environmental Management Consulting**

Part time: 2007 to 2009

Field Work Experience:

- 2016-present Various archaeological field assessments for specialist archaeological assessments and heritage impact assessments
- 2010-2016 Various archaeological field assessments on behalf of HWC and SAHRA
- 2008-2009 Field Assistant, Dr. D. Braun, Elandsfontein Excavation Locality, University of Cape Town (UCT)
Field Assistant, Dr. D. Braun, Koobi Fora Research Project (Kenya), Rutgers University, New Jersey
- 2006 Field Assistant, Damiana Ravasi (PhD), Zoology Department, University of Cape Town.
- 2005 Research Assistant, Dr. Becky Ackerman, Archaeology Department, University of Cape Town
- 2004 Field Assistant, Prestwich Place Excavation Locality, Archaeology Contracts Office, UCT

Teaching Positions:

- 2019 Guest Lecturer, Introduction to South African Heritage Legislation, UCT MPhil: Conservation of the Built Environment
- 2017 Guest Lecturer, South African Heritage Legislation, George Washington University Heritage Management Field School
- 2016 Guest Lecturer, South African Heritage Legislation, Archaeology Honours Course, University of Cape Town
- 2015 Guest Lecturer, South African Heritage Legislation, Archaeology Honours Course, University of Cape Town
- 2014 Guest Lecturer, South African Heritage Legislation, Archaeology Honours Course, University of Cape Town
- 2013 Guest Lecturer, South African Heritage Legislation, Archaeology Honours Course, University of Cape Town
- 2010 Teaching Assistant, Langebaanweg Field School, Arizona State University
- 2009 Demonstrator, Archaeology in Practice, University of Cape Town (AGE3013H)
Demonstrator, Introduction to Geography, Earth and Environmental Science, University of Cape Town (GEO1009F)
Teaching Assistant, Koobi Fora Field School (Kenya), Rutgers University, New Jersey
Lecturer, Introduction to Geography, Earth and Environmental Science: Supplementary Course, University of Cape Town (EGS1004S)
Demonstrator, Elandsfontein Honours Field School, University of Cape Town (AGE4000W)
- 2008 Demonstrator, Introduction to Geography, Earth and Environmental Science, University of Cape Town (ERT1000F)
Demonstrator, Elandsfontein Honours Field School, University of Cape Town (AGE4000W)
Teaching Assistant, Koobi Fora Field School (Kenya), Rutgers University, New Jersey

Conferences and Papers

- 2017 ASAPA, Pretoria, RSA: *“Using Heritage Data to Guide Responsible Development: Tools to ensure high quality recording of heritage sites”*
ICAHM, Bagomoyo, Tanzania: *“OpenHeritage: Development and implementation of national heritage management systems - Lessons from South Africa, Namibia and Kenya”*
- 2016 ICAHM, Salalah, Oman: *“Straight to the (Baboon) Point: A look at the Conservation of Archaeological Landscapes in South Africa using Baboon Point as a Case Study”*
- 2015 Leakey Foundation, Sonoma County, San Fransisco, USA: *““Straight to the (Baboon) Point: A look at the Conservation of Archaeological Landscapes in South Africa using Baboon Point as a Case Study”*
- 2012 PSSA, Johannesburg, RSA: *“SAHRIS Palaeosensitivity Map - Methodology and Implementation”*

Other

In 2013 I was asked to join the panel of judges for the Ministerial awards for Heritage in the Western Cape. From 2013 to July 2014, I was a member of the Heritage Western Cape Archaeology, Palaeontology and Meteorites Committee and I currently sit on the Heritage Western Cape Inventories, Gradings and Interpretations Committee.

In November 2013, I was awarded a bursary from the Department of Arts and Culture to complete a Masters in Philosophy in Conservation of the Built Environment through the UCT Faculty of Engineering and the Built Environment in 2014 and 2015. I was in the process of finalising this degree in 2017, however the arrival of my son has temporarily halted my progress.

I am a paid up member of the Association for Southern African Professional Archaeologists (ASAPA), the Association of Professional Heritage Practitioners (APHP) and I have been a member of the Executive Council of APHP since 2014.

In June 2017, I was selected as Chair of APHP. I am a member of the Palaeontological Society of South Africa (PSSA) and ICOMOS South Africa, for which I am Vice-President of the Board. I am also a member of the International Committee for Archaeological Heritage Management (ICAHM), a committee of UNESCO.

I am an active participant in a not-for-profit company called OpenHeritage which is dedicated to opening access to heritage resources through digital innovation. To this end, we have been involved in a number of projects including Wikipedia Training with Africa Centre, the development and implementation of a Collections Management System for the National Museums of Kenya and the development of a digital Inventory of the Vernacular Architecture of the Eastern Cape.

Referees

Mary Leslie
mleslie.za@gmail.com
082 733 2611

Laura Robinson
ctht@heritage.org.za
083 463 4765

Wendy Black
wblack@iziko.org.za
021 481 3883

Janette Deacon
janette@conjunction.co.za
082 491 5067

Andrew Hall
waitabout191@gmail.com
(Currently based in Oman)



ENVIRONMENTAL PLANNING AND DESIGN

Name JONATHAN MARSHALL
Nationality British
Year of Birth 1956
Specialisation Landscape Architecture / Landscape & Visual Impact Assessment / Environmental Planning / Environmental Impact Assessment.

Qualifications

Education Diploma in Landscape Architecture,
Gloucestershire College of Art and Design,
UK (1979)
Environmental Law, University of KZN
(1997)

Professional Registered Professional Landscape Architect (South Africa)
Chartered Member of the Landscape Institute (UK)
Certified Environmental Assessment Practitioner of South Africa.
Member of the International Association of Impact
Assessment, South Africa

Languages

| | | |
|---------------------------|---|-----------|
| <u>English</u> - Speaking | - | Excellent |
| - Reading | - | Excellent |
| - Writing | - | Excellent |

Contact Details

Post: PO Box 2122
Westville
3630
Republic of South Africa

Phone: +27 31 2668241, Cell: +27 83 7032995

Key Experience

Jon qualified as a Landscape Architect at Cheltenham (UK) in 1979. He has been a Chartered Member of the Landscape Institute (UK) since 1986. He is also a registered Landscape Architect and Environmental Assessment Practitioner of South Africa.

During the early part of his career (1981 – 1990) he worked with Clouston (now RPS) in Hong Kong and Australia. During this period he was called on to undertake visual impact assessment input to numerous environmental assessment processes for major infrastructure projects. This work was generally based on photography with line drawing superimposed to illustrate the extent of development visible.

He worked in the United Kingdom (1990 – 1995) for major supermarket chains including Sainsbury's and prepared CAD based visual impact assessments for public enquiry for new store development. He also prepared the VIA input to the environmental statement for the Cardiff Bay Barrage for consideration by the UK Parliament in the passing of the Barrage Bill.

His more recent VIA work in Africa (1995 to present) includes a combination of CAD and GIS based work for a new international airport to the north of Durban, new heavy industrial operations, overhead electrical transmission lines, mining operations, a number of commercial and residential developments as well as numerous renewable energy projects.

VIA work undertaken during the last twelve months includes assessments for several proposed Eskom power lines / substations and numerous solar and wind energy projects.

Relevant Landscape & Visual Impact Assessment (LVIA) Projects

1. **Paulputs CSP Power Tower project** – LVIA for a 200MW CSP power tower facility near Pofadder in the Northern Cape.
2. **Karoshhoek Solar Valley** – LVIA for nine CSP projects including power tower and parabolic trough projects in the Karoshhoek Solar Valley near Upington in the Northern Cape.
3. **Noupoort CSP** – LVIA for two CSP parabolic trough facilities close to Noupoort in the Northern Cape.
4. **Sol Invictus Solar** – LVIA for four 150MW photovoltaic solar arrays near Aggeneys in the Northern Cape for a private client
5. **Tshivhaso Power Station** – LVIA for a proposed new 600MW power station including associated infrastructure and dumps near Lephalale in the Limpopo Province for a private client.
6. **Woodhouse Solar** – LVIA for two 100MW photovoltaic solar arrays near Vryburg in the North West Province for a private client.
7. **Saldanha Eskom Network Strengthening Project** – LVIA for major improvements to Eskom's electrical infrastructure between Langebaan and Saldanha in the Western Cape for Eskom.
8. **Albany Solar Array** – LVIA for two 75MW photovoltaic solar arrays near Upington in the Northern Cape.
9. **Mpophomeni Shopping Centre** – LVIA for a proposed new shopping center to the south of Midmar Dam in KwaZulu Natal for a private client.
10. **Gunstfontein Wind Farm** – LVIA for a 200MWnd farm near Sutherland in the Northern Cape for a private client.
11. **Hennenman Solar Array** – LVIA for a proposed solar array in the Free State for a private client.
12. **Moorreesburg Wind Farm** – LVIA for a proposed wind energy project in the Western Cape for a private client.
13. **Lethabo Solar Array** – LVIA for a proposed solar array at the Lethabo Power Station in the Free State for Eskom.
14. **Tutuka Solar Array** – LVIA for a proposed solar array at the Tutuka Power Station in Mpumalanga for Eskom.
15. **Majuba Solar Array** – LVIA for a proposed solar array at the Majuba Power Station in Mpumalanga for Eskom.
16. **Isundu 765 / 400Kv Sub Station** - LVIA for a proposed major substation in KwaZulu Natal for Eskom.
17. **Bhangazi Lake Tourism Development** – Visual impact assessment for a proposed lodge development within the Isimangaliso Wetland Park World Heritage Site. This work is ongoing.
18. **Quarry Development for the Upgrade of Sani Pass** – Visual Impact Assessments for two proposed quarry developments on the edge of the uKhalamba-Drakensburg World Heritage Site.
19. **Mtubatuba to St Lucia Overhead Power Line** – Visual Impact Assessment for a proposed power line bordering on the Isimangaliso Wetland Park World Heritage Site for

Eskom.

20. **St Faiths 400/132 kV Sub-Station and Associated Power Lines** - Visual Impact Assessment for a proposed new major sub-station and approximately 15km of overhead power line for Eskom.
21. **Clocolan to Ficksburg Overhead Power Line** – Visual Impact Assessment for a proposed power line for Eskom.
22. **Solar Plant Projects including Photovoltaic and Concentrating Solar Power Plants** – Numerous projects for Eskom and private clients in the Northern Cape, Limpopo, Mpumalanga and the Free State.
23. **Moorreesburg Wind Farm.** Visual impact assessment for a proposed new wind farm in the Western Cape.
24. **AngloGold Ashanti, Dokyiwa (Ghana)** – Visual Impact Assessment for proposed new Tailings Storage Facility at a mine site working with SGS as part of their EIA team.
25. **Camperdown Industrial Development** - Visual Impact Assessment for proposed new light industrial area to the north of Camperdown for a private client.
26. **Wild Coast N2 Toll Highway** – Peer review of VIA undertaken by another consultant.
27. **Gamma to Grass Ridge 765kv transmission line** – Peer review of LVIA undertaken by another consultant.
28. **Gateway Shopping Centre Extension (Durban)** – Visual Impact Assessment for a proposed shopping centre extension in Umhlanga, Durban.
29. **Kouroussa Gold Mine (Guinea)** – Visual impact assessment for a proposed new mine in Guinea working with SGS as part of their EIA team.
30. **Mampon Gold Mine (Ghana)** - Visual impact assessment for a proposed new mine in Ghana working with SGS as part of their EIA team.
31. **Telkom Towers** – Visual impact assessments for numerous Telkom masts in KwaZulu Natal
32. **Dube Trade Port, Durban International Airport** – Visual Impact Assessment for a new international airport.
33. **Sibaya Precinct Plan** – Visual Impact Assessment as part of Environmental Impact Assessment for a major new development area to the north of Durban.
34. **Umdloti Housing** – Visual Impact Assessment as part of Environmental Impact Assessment for a residential development beside the Umdloti Lagoon to the north of Durban.
35. **Tata Steel Ferrochrome Smelter** - Visual impact assessment of proposed new Ferrochrome Smelter in Richards Bay as part of EIA undertaken by the CSIR.
36. **Diamond Mine at Rooipoort Nature Reserve near Kimberley** – Visual impact assessment for a proposed diamond mine within an existing nature reserve for De Beers.
37. **Durban Solid Waste Large Landfill Sites** – Visual Impact Assessment of proposed development sites to the North and South of the Durban Metropolitan Area. The project utilised 3d computer visualisation techniques.
38. **Hillside Aluminium Smelter, Richards Bay** - Visual Impact Assessment of proposed extension of the existing smelter. The project utilised 3d computer visualisation techniques.
39. **Estuaries of KwaZulu Natal Phase 1 and Phase 2** – Visual character assessment and GIS mapping as part of a review of the condition and development capacity of eight

- estuary landscapes for the Town and Regional Planning Commission. The project was extended to include all estuaries in KwaZulu Natal.
40. **Signage Assessments** – Numerous impact assessments for proposed signage developments for Blast Media.
 41. **Signage Strategy** – Preparation of an environmental strategy report for a national advertising campaign on National Roads for Visual Image Placements.
 42. **Zeekoegatt, Durban** - Computer aided visual impact assessment. Acted as advisor to the Province of KwaZulu Natal in an appeal brought about by a developer to extend a light industrial development within a 60 metre building line from the National N3 Highway.
 43. **La Lucia Mall Extension** - Visual impact assessment using three dimensional computer modelling / photo realistic rendering and montage techniques for proposed extension to shopping mall for public consultation exercise.
 44. **Redhill Industrial Development** - Visual impact assessment using three dimensional computer modelling / photo realistic rendering and montage techniques for proposed new industrial area for public consultation exercise.
 45. **Avondale Reservoir** - Visual impact assessment using three dimensional computer modelling / photo realistic rendering and montage techniques for proposed hilltop reservoir as part of Environmental Impact Assessment for Umgeni Water.
 46. **Hammersdale Reservoir** - Visual impact assessment using three dimensional computer modelling / photo realistic rendering and montage techniques for proposed hilltop reservoir as part of Environmental Impact Assessment for Umgeni Water.
 47. **Southgate Industrial Park, Durban** - Computer Aided Visual Impact Assessment and Landscape Design for AECI.
 48. **Sainsbury's Bryn Rhos (UK)** - Computer Aided Visual Impact Assessment/ Planning Application for the development of a new store within the Green Wedge North of Swansea.
 49. **Ynyston Farm Access (UK)** - Computer Aided Impact Assessment of visual intrusion of access road to proposed development in Cardiff for the Land Authority for Wales.
 50. **Cardiff Bay Barrage (UK)** - Concept Design, Detail Design, Documentation, and Visual Input to Environmental Statement for consideration by Parliament in the debate prior to the passing of the Cardiff Bay Barrage Bill. The work was undertaken for Cardiff Bay Development Corporation.
 51. **A470, Cefn Coed to Pentrebach (UK)** - Preparation of frameworks for the assessment of the impact of the proposed alignment on the landscape for The Welsh Office.
 52. **Sparkford to Ilchester Bye Pass (UK)** - The preparation of the landscape framework and the draft landscape plan for the Department of Transport.
 53. **Green Island Reclamation Study (Hong Kong)** - Visual Impact Assessment of building massing, Urban Design Guidelines and Masterplanning for a New Town extension to Hong Kong Island.
 54. **Route 3 (Hong Kong)** - Visual Impact Assessment for alternative road alignments between Hong Kong Island and the Chinese Border.
 55. **China Border Link (Hong Kong)** - Visual Impact Assessment and initial Landscape Design for a new border crossing at Lok Ma Chau.
 56. **Route 81, Aberdeen Tunnel to Stanley (Hong Kong)** - Visual Impact Assessment for alternative highway alignments on the South side of Hong Kong Island.

I. Specialist Expertise

IRIS SIGRID WINK

| | |
|-------------------------------|---|
| Profession | Civil Engineer (Traffic & Transportation) |
| Position in Firm | Associate |
| Area of Specialisation | Manager: Traffic & Transportation Engineering |
| Qualifications | PrEng, MSc Eng (Civil & Transportation) |
| Years of Experience | 15 Years |
| Years with Firm | 5 Years |

SUMMARY OF EXPERIENCE

Iris is a Professional Engineer registered with ECSA (20110156). She joined JG Afrika (Pty) Ltd. in 2012. Iris obtained a Master of Science degree in Civil Engineering in Germany and has more than 15 years of experience in a wide field of traffic and transport engineering projects. Iris left Germany in 2003 and has worked as a traffic and transport engineer in South Africa and Germany. She has technical and professional skills in traffic impact studies, public transport planning, non-motorised transport planning and design, design and development of transport systems, project planning and implementation for residential, commercial and industrial projects and providing conceptual designs for the abovementioned. She has also been involved with transport assessments for renewable energy projects and traffic safety audits.

PROFESSIONAL REGISTRATIONS & INSTITUTE MEMBERSHIPS

| | | |
|---------------|---|---|
| PrEng | - | Registered with the Engineering Council of South Africa No. 20110156 Registered Mentor with ECSA for the Cape Town Office of JG Afrika |
| MSAICE | - | Member of the South African Institution of Civil Engineers |
| ITSSA | - | Member of ITS SA (Intelligent Transport Systems South Africa) |
| SAWEA | - | Member of the South African Wind Energy Association |
| SARF | - | South African Road Federation: Committee Member of Council |

EDUCATION

1996 - Matric – Matric (Abitur) – Carl Friedrich Gauss Schule, Hemmingen, Germany
1998 - Diploma as Draughtsperson – Lower Saxonian State Office for Road and Bridge Engineering
2003 - MSc Eng (Civil and Transportation) – Leibniz Technical University of Hanover, Germany

SPECIFIC EXPERIENCE

JG Afrika (Pty) Ltd (Previously Jeffares & Green (Pty) Ltd)

2016 – Date
Position – Associate

- **Coega West Windfarm** – Transportation and Traffic Management Plan for the Coega Windfarm in Coega, Port Elizabeth – Client: Electrawinds Coega
- **Traffic and Parking Audits** for the Suburb of Groenvallei in Cape Town – Client: City of Cape Town Department of Property Management.
- **Road Safety Audit** for the Upgrade of N1 Section 4 Monument River – Client: Aurecon on behalf of SANRAL
- **Sonop Windfarm** – Traffic Impact Assessment for the Sonop Windfarm, Coega, Port Elizabeth – Client: Founders Engineering
- **Universal Windfarm** - Traffic Impact Assessment for the Universal Windfarm, Coega, Port Elizabeth – Client: Founders Engineering
- **Road Safety Audit** for the Upgrade of N2 Section 8 Knysna to Wittedrift – Client: SMEC on behalf of SANRAL
- **Road Safety Audit** for the Upgrade of N1 Section 16 Zandkraal to Winburg South – Client: SMEC on behalf of SANRAL
- **Traffic and Road Safety Studies** for the Improvement of N7 Section 2 and Section 3 (Rooidraai and Piekenierskloof pass) – Client: SANRAL
- **Road Safety Appraisals** for Northern Region of Cape Town – Client: Aurecon on behalf of City of Cape Town (TCT)
- **Traffic Engineering Services** for the Enkanini Informal Settlement, Kayamandi - Client: Stellenbosch Municipality
- **Lead Traffic Engineer** for the Upgrade of a 150km Section of the National Route N2 from Kangelala to Pongola in KwaZulu-Natal, Client: SANRAL
- **Traffic Engineering Services** for the Kosovo Informal Settlement (which is part of the Southern Corridor Upgrade Programme), Client: Western Cape Government
- **Traffic and Road Safety Studies** for the proposed Kosovo Informal Housing Development (part of the Southern Corridor Upgrade Program), Client: Western Cape Government.
- **Road Safety Audit** Stage 3 – Upgrade of the R573 Section 2 between Mpumalanga/Gauteng and Mpumalanga/Limpopo, Client: AECOM on behalf of SANRAL
- **Road Safety Audit** Stage 1 and 3 – Upgrade of the N2 Section 5 between Lizmore and Heidelberg, Client: Aurecon on behalf of SANRAL
- **Traffic Safety Studies** for Roads Upgrades in Cofimvaba, Eastern Cape – Client: Cofimvaba Municipality
- **Road Safety Audit** Stage 1 and 3 – Improvement of Intersections between Olifantshoek and Kathu, Northern Cape, Client: Nadeson/Gibb on behalf of SANRAL
- **Road Safety Audit** Stage 3 – Upgrade of the Beacon Way Intersection on the N2 at Plettenberg Bay, Client: AECOM on behalf of SANRAL
- **Traffic Impact Assessment** for a proposed Primary School at Die Bos in Strand, Somerset West, Client: Edifice Consulting Engineers
- **Road Safety Audit** Stage 1 and 3 – Improvement of R75 between Port Elizabeth and Uitenhage, Eastern Cape, Client: SMEC on behalf of SANRAL