

Curriculum vitae: Mr R HEYDENRYCH

Name : **HEYDENRYCH, REUBEN**
Date of Birth : 27 October 1969
Profession/Specialisation : Environmental Management
Years with Firm : 5
Nationality : South African
Years experience : 23

Key qualifications

Reuben is employed as an environmental assessment practitioner in Aurecon's Tshwane office. He has extensive experience in the project management of various small and large-scale infrastructural and environmental projects.

He has been involved in environmental impact assessment (EIA) processes in South Africa and in various other African countries, as required by relevant national legislation and in terms of international requirements as EIA team leader and team member. These projects have included exemptions, scoping, and full EIAs for projects such as rezoning, filling stations, water and sewage pipelines, roads (national, provincial and municipal), residential developments, game lodges, telecommunications structures, mines, infrastructure in sensitive environments and industrial processes.

Reuben also has experience in environmental advisory services and strategic environmental management, including strategic environmental assessments (SEAs), environmental scans, environmental feasibility studies and environmental management frameworks (EMFs); environmental management programmes (EMPRs) for the construction and operational phases of infrastructure developments and environmental auditing, including due diligence assessments, ISO 14001 systems development and auditing, legal compliance and waste management audits.

He obtained a Masters in Philosophy: Environmental Management from the University of Cape Town (UCT), South Africa in 1993 and a Bachelors' Degree in Landscape Architecture from the University of Pretoria, South Africa, in 1991. Reuben is registered as a professional landscape architect with the South African Council for the Landscape Architectural Profession (SACLAP).

Employment record

04/2014 - Date	Aurecon, Associate and Environmental Practitioner
04/2013 - 03/2014	GIBB, Project Leader: Mega Projects
07/2011 - 03/2013	Aurecon, Associate and Environmental Practitioner
06/2008 - 06/2011	Arcus GIBB, Senior Environmental Scientist and Associate
03/2004 - 05/2008	Strategic Environmental Focus, Senior Project Manager, Unit Manager and Project Leader
08/2003 - 02/2004	Strategic Environmental Focus, Senior Environmental Manager
1999 - 08/2003	Environomics cc, Senior Consultant
05/1998 - 11/1999	Nissan South Africa, Group Environmental Manager
01/1996 - 04/1998	Department of Environmental Affairs and Tourism, Landscape Architect
07/1993 - 12/1995	Cave Klapwijk and Associates (CKA), Landscape Architect

Management experience

06/2009 - 06/2011	Second-in-command of the Sunninghill Environmental Business Unit of Arcus GIBB
2004 - 2006	Manager of the Environmental Impact Assessment Unit of Strategic Environmental Focus

Experience record

Khanyisa Power Station (Mpumalanga Province, South Africa) 02/2015 - Date. *Environmental Assessment Practitioner.* The project involved the application for amendment of an existing environmental authorisation for the expansion of the authorised capacity of 450 MW to 600 MW. Responsible for the

management of the environmental impact assessment process (EIA), amendment report and all specialist reports. Involved for 2 person-months. (ACWA Power).

Netcare Energy Policy (South Africa) 02/2015 - 05/2015. *Policy Writer.* The project entailed drafting an energy management policy for Netcare, a health service provider, towards the development of their environmental management system. Responsible for the drafting of policy. Involved for 0.1 person-months. (Netcare Limited).

Klipplaats 400 kV line deviation (Mpumalanga Province, South Africa) 01/2015 - Date. *Environmental Reviewer.* The project entailed environmental studies, water use license application and preliminary design for the Klipplaats 400 kV line deviation at the Tweefontein Coal Mine, the registered land owner of the farm Klipplaats 14IS in Mpumalanga. Responsible for the review and quality control of the basic assessment report and environmental management programme. (Glencore Xstrata Coal South Africa (Glencore South Africa (Pty) Ltd)).

National Transport Master Plan (NATMAP) (South Africa) 01/2015 - Date. *Reviewer.* The project involved the revision of the National Transport Master Plan, a strategic plan for transport development in South Africa developed by the Department of Transport. The initial draft document was developed in 2007 and was required to be revised to be accepted by the Department of transport and Cabinet. Responsible for data collection, presentation of the current status quo and revision of Chapter 8 (Energy and Environment). Involved for 0.5 person-months. (Department of Transport).

Feasibility study for Southern Energy's 2x330 MW coal fired power plant project (Zimbabwe) 01/2015. *Environmental Reviewer.* The project entailed a review of a feasibility study report for the construction of a proposed new 660 MW coal-fired power station near Hwange in Zimbabwe. Responsible for the review of the feasibility study against the performance standards of international development finance institutions. Involved for 0.1 person-months. (Southern Energy).

Uganda's detailed strategic implementation plan (SIP) (Uganda) 10/2014 - Date. *Environmental Specialist.* As a land-locked country, Uganda depends on regional road, rail and inland water transport systems for the transportation of goods. Majority of the import and export traffic passes through the Northern corridor to Mombasa, little using the Central corridor to Dar-es-Salaam in Tanzania. In order to strengthen the use of the Central Corridor, the National Transport Masterplan (NTMP) was implemented and adopted a multi-modal approach. Responsible for the compilation of report on environmental and social issues to be considered in project prioritisation. Involved for 0.2 person-months. (Ministry of Works and Transport (Uganda)).

ISO 14001 internal audit for the Matimba Power Station (Limpopo Province, South Africa) 08/2014. *Environmental Auditor.* The project comprised a second party internal environmental management systems (EMS) audit of the coal-fired Matimba Power Station in Lephalale. Responsible for environmental auditing against ISO 14001 and audit management system requirements. Involved for 0.25 person-months. (Eskom Generation: Matimba Power Station).

Environmental control officer (ECO) services for the construction of the KDS-Homestead power line (Northern Cape Province, South Africa) 07/2014 - Date. *Environmental Assessment Practitioner.* The project comprised the environmental monitoring of construction of the KDS-Homestead distribution power line in Kimberley. Responsible for the management and review of environmental monitoring deliverables. Involved for 0.1 person-months. (Eskom Distribution).

Environmental impact assessment (EIA) at the Komati Mill (Mpumalanga Province, South Africa) 06/2014 - Date. *Environmental Assessment Practitioner.* The project entailed environmental authorisation application and water use licence application (WULA) for the establishment of new cane fields at TSB Sugar's sugar mill near Malalane. Responsible for the management of the environmental impact assessment process (EIA). Involved for 2 person-months. (TSB Sugar).

Feasibility (FEL 3) development for the construction of a second Overvaal tunnel (Part 1) and the complete engineering (FEL 4) for Part 2 (Mpumalanga Province, South Africa) 06/2014 - Date. *Reviewer.* Aurecon was appointed for the feasibility (FEL 3) development in respect of the construction of the second Overvaal tunnel as well as the complete engineering (FEL 4) thereof. In addition to the development of the tunnel, Transnet SOC required to reinstate, upgrade and/or construct a ventilation system for the existing tunnel. The new tunnel needs to accommodate a double electrified signalled track. Responsible for the review of the environmental and social management plan (ESMP). Involved for 0.1 person-months. (Transnet SOC Johannesburg).

Environmental screening and general environmental advice to SAIL Mining (Gauteng Province, South Africa) 05/2014 - Date. *Environmental Advisor.* The project entailed environmental screening to determine the need for any environmental authorisations as well as providing general advice regarding the management of environmental risks on the site in Rosslyn (chrome, waste, stormwater and dust) and management of a dust monitoring programme. Responsible for drafting of an environmental screening report and provision of ad hoc environmental advice. Involved for 2 person-months. (SAIL Mining).

Bankable feasibility study (BFS) for a small hydropower scheme on the Nithi River in Central Kenya (Tharaka-Nithi County (Mt Kenya), Kenya) 04/2014 - 04/2014. *Environmental Impact Assessment (EIA) Reviewer.* The project entailed an environmental impact assessment (EIA) for the proposed hydro-electric project on the Nithi River, Mount Kenya. Responsible for reviewing the EIA deliverables of a local consultant appointed to undertake an EIA in order to ensure compliance with the requirements of the International Finance Corporation (IFC) and the Equator Principles (EPs). Involved for 2 person-months. (Frontier Investment Management).

Feasibility study investigating the upgrading the 98 km Thaba Tseka – Taung - Mokhotlong road to a bituminous surfacing standard (Lesotho) 04/2014 - 07/2014. *Environmental Specialist.* The project entailed a pre-feasibility assessment of the proposed upgrading of the Thaba Tseka - Mokhotlong dirt road to a tarred road. Responsible for reviewing the environmental issues relevant to the proposed upgrading of the road, including a site visit and a review of an environmental impact assessment (EIA) undertaken on the same project in 2006. Involved for 0.5 person-months. (Lesotho Ministry of Public Works and Transport).

Contamination assessment of selected Transnet properties (Regional, South Africa) 03/2014 - 03/2015. *Environmental Reviewer.* The project comprised contamination assessment of various sites to identify environmental contamination as well as compile site assessment reports and financial model for the closure and rehabilitation of these sites - included various specialist studies. Responsible for the review and quality control of the contaminated site Assessment report. Involved for 0.1 person-months. (Transnet SOC).

Foskor integrated water and waste management plan (IWWMP) (KwaZulu-Natal Province, South Africa) 03/2014. *Internal Reviewer.* The project involved an internal review of a draft integrated water and waste management plan (IWWMP) for the installation of a proposed expansion to the phosphate handling facilities in Richards Bay. Responsible for conducting an internal review. Involved for 0.1 person-months. (Foskor).

Feasibility study of the Nyamagasani II Hydropower Project (Kasese Province, Uganda) 02/2014 - 12/2014. *Environmental Impact Assessment (EIA) Reviewer.* The project comprises a feasibility study and environmental and social impact assessment (ESIA) for the 5 MW Nyamagasani II Hydropower Project, located on the Nyamagasani River. The feasibility study includes geotechnical; hydrological (daily flows and floods); environmental and social, including resettlement action plan (RAP) and environmental management plan (EMP); civil and hydraulics; mechanical, electrical and interconnection, flow measurements and economic studies. Responsible for reviewing the EIA deliverables of a local consultant appointed to undertake the EIA in order to ensure compliance with the requirements of the International Finance Corporation (IFC) and the Equator Principles (EPs). Involved for 2 person-months. (Frontier Investment Management).

AFGRI Mill ISO 14001 certification audit (Mpumalanga Province, South Africa) 11/2013 - 06/2014. *Lead Environmental Auditor.* The project entailed a third party Stage 1 ISO 14001 certification audit for AFGRI Mill in Kinross. Responsible for conducting the Stage 1 ISO 14001 certification audit of the environmental management system (EMS). Involved for 0.1 person-months. (AFGRI Milling).

Port of Saldanha Expansion Project (Western Cape Province, South Africa) 11/2013 - 03/2014. *Project Leader.* The project involved environmental impact assessment (EIA) processes and atmospheric emission licence for the installation of a third tippler at the Port of Saldanha. The project also included a scoping and environmental impact report (EIR) process for the expansion of the port (the latter was suspended prior to submission of the draft scoping report). Responsible for the finalisation and submission of the basic assessment report (BAR) for the third tippler, responding to the interested and affected parties' (I&AP's) comments and authority liaison to ensure a timeous authorisation, and post-authorisation amendment of the authorisation and response to appeals by interested parties. Involved for 4 person-months. (Transnet SOC Limited).

Epol Rustenburg Feed Mill ISO 14001 certification audit (North West Province, South Africa) 09/2013.

Lead Environmental Auditor. The project entailed a third party Stage 1 ISO 14001 certification audit for the Epol Feed Mill in Rustenburg. Responsible for conducting the Stage 1 ISO 14001 certification audit of the environmental management system (EMS). Involved for 0.1 person-months. (Epol).

Ekurhuleni smart metering feasibility study (Gauteng Province, South Africa) 09/2013 - 10/2014. *Environmental Specialist.* The project entailed a feasibility study for the implementation of a smart grid project, entailing the installation of smart electricity meters for a pilot project of 3 000 users for Ekurhuleni Metropolitan Municipality (EMM). Responsible for undertaking an environmental screening exercise to identify potential environmental and social impacts and review environmental authorisation requirements. Involved for 0.25 person-months. (Ekurhuleni Metropolitan Municipality (EMM)).

Third party ISO 14001 audit reports (Various provinces, South Africa) 04/2013 - 03/2014. *Internal Reviewer.* The project comprised an internal review of a range of third party ISO 14001 audit reports for various clients throughout South Africa. Involved for 0.1 person-months. (Various clients).

Nuclear-1 environmental impact assessment (EIA) (Western and Eastern Cape Provinces, South Africa) 04/2013 - 03/2014. *Project Leader.* The project entailed an environmental impact assessment (EIA) process for the proposed Nuclear-1 Power Station. Responsible for project management, responding to stakeholder comments, and authority liaison, review of approximately 30 specialist reports and providing overall strategic guidance of the EIA process. Involved for 10 person-months. (Eskom Generation).

Visual assessment of Springfontein Wind Farm (Free State Province, South Africa) 06/2012. *Visual Impact Assessment (VIA) Specialist.* The project entailed a visual impact assessment (VIA) of the proposed wind farm near Springfontein. Responsible for the site visit, quality control of deliverables and revision of the VIA report. Involved for 0.5 person-months. (Savannah Environmental (Pty) Ltd).

Nuclear-1 environmental impact assessment (EIA) (Western and Eastern Cape Provinces, South Africa) 06/2012 - 04/2013. *Senior Environmental Scientist.* The project entailed an environmental impact assessment (EIA) for a proposed Generation III nuclear power station with a maximum generation capacity of 4 000 MW to be located at one of three alternative sites in the Eastern and Western Cape. Aurecon was contracted to assist GIBB with the revision of the revised draft environmental impact report (EIR) and to respond to stakeholder comments on this report. Responsible for the revision of the EIR, responding to stakeholder comments, and authority liaison. Involved for 5 person-months. (Arcus GIBB).

Environmental advice for the construction of a remote apron stand at OR Tambo International Airport (ORTIA) (Gauteng Province, South Africa) 04/2012 - 05/2012. *Senior Environmental Scientist.* The project involved providing environmental advice regarding the interpretation of legal requirements for the commencement of construction of the remote apron stand at OR Tambo International Airport (ORTIA) in Kempton Park. Responsible for the review of legal requirements and drafting of a report on the recommended way forward. Involved for 0.5 person-months. (Airports Company South Africa (ACSA)).

ABSA Project X (Gauteng Province, South Africa) 04/2012 - 11/2013. *Due Diligence Assessor.* Aurecon was part of a professional team involved in the conversion and upgrading of an existing factory building and office block of 24 000 sqm in Waltloo into a call centre, administration building, canteen, two large gate houses and security buildings and a data centre. Aurecon provided structural, civil, fire, wet services, roads and landscaping services on the project. Responsible for the site visit and the compilation of the environmental due diligence assessment (EDDA). Involved for 0.25 person-months. (ABSA).

Port of Richards Bay capacity expansion conceptual study (FEL 1) (KwaZulu-Natal Province, South Africa) 03/2012 - 11/2012. *Reviewer.* The port facilities in Richards Bay reached operational capacity necessitating expansion. The key objectives of the conceptual (FEL 1) and pre-feasibility (FEL 2) studies were to determine the requirements for all land, rail, terminal, port and marine service engineering options to facilitate the expansionary development of the terminal ports. Aurecon's services included rail infrastructure, bulk materials handling (BMH), civil and structural infrastructure, port structural engineering, marine and berth engineering, earthworks, geotechnical and electrical engineering, utilities, health and safety, environmental and solid waste. Responsible for the internal review of report deliverables, including an environmental and community interface report and a sustainability report. Involved for 0.5 person-months. (Transnet SOC).

Environmental audit of the Matola Coal Terminal (TCM) (Maputo, Mozambique) 03/2012. *Environmental Audit Team Leader.* The project entailed an environmental audit of the operation of the Matola Coal Terminal (TCM) in Maputo. Responsible for one site audit and the compilation of the audit report. Involved for 0.25 person-months. (Grindrod Limited).

Saldanha Tank Farm (Western Cape Province, South Africa) 03/2012 - 03/2013. *Visual Impact Assessment (VIA) Specialist.* The project involved a visual impact assessment (VIA) for a proposed oil storage facility at Saldanha. Responsible for project management and quality control of deliverables. Involved for 1 person-month. (WorleyParsons).

Ingula pumped storage scheme (Gauteng Province, South Africa) 12/2011 - Date. *Environmental Reviewer.* The project comprised environmental compliance audits against the requirements of the Ingula pumped storage scheme's water use licence (WUL) and integrated water use licence (IWUL). Responsible for the review of integrated waste and water management plan (IWWMP). Involved for 0.1 person-months. (Eskom Holdings SOC).

Visual opinion for Witberg (Western Cape Province, South Africa) 11/2011 - 01/2012. *Visual Impact Assessment (VIA) Specialist.* The project involved giving an opinion on the visual impact of an access road to the proposed Witberg Wind Farm near Matjiesfontein. Responsible for the site visit and the compilation of a brief opinion on the expected visual impacts. Involved for 0.25 person-months. (Arcus GIBB).

Pre-feasibility study of Mulepe-1 Diamond Mine (Lunda Norte Province, Angola) 11/2011 - 05/2012. *Senior Environmental Scientist.* Aurecon was appointed to carry out the pre-feasibility study of the hydropower potential in three rivers surrounding De Beers' Mulepe-1 Concession. The project consisted of the measurement of flows in the rivers, rainfall/runoff hydrological modelling, environmental fatal flaw analysis, site reconnaissance, preliminary geological evaluation and determination of the hydropower potential. Aurecon determined the optimal and most cost effective solution for the supply of reliable clean energy to the mine. Responsible for the compilation of the screening report. Involved for 0.5 person-months. (De Beers Consolidated Mines (DBCM)).

Revision of the initial report for Langehoogte Wind Farm (Western Cape Province, South Africa) 10/2011. *Senior Environmental Scientist.* The project entailed the revision of the visual impact assessment (VIA) for the Langehoogte Wind Farm near Caledon. Responsible for report revision based on peer review comments. Involved for 0.5 person-months. (Arcus GIBB).

Engineering design (FEL 4) for Nacala Port (Nampula Province, Mozambique) 10/2011 - 11/2013. *Senior Environmental Scientist.* Aurecon was appointed for the complete on-shore port front-end-engineering design (FEED) for the Nacala Port, consisting of bulk materials handling (BMH), bulk earthworks, rail embankment and utilities and transportation infrastructure. Aurecon undertook a number of general functions during its detailed design, including verifying and updating the design criteria documents generated during the Nacala Port front-end loading 3 (FEL 3) study and the engineering design to achieve the requirements for the construction phase. Responsible for review of engineering reports and designs and strategic advice on environmental issues and implications of the design for the environmental authorisation. Involved for 1 person-month. (Vale Moçambique Limitada).

Environmental impact assessment (EIA) for St. Helena Wind Farm (Western Cape Province, South Africa) 09/2011 - 11/2011. *Senior Environmental Scientist.* The project comprised a visual impact assessment (VIA) of the St. Helena Wind Farm near Saldanha as part of the environmental impact assessment (EIA) phase. Responsible for project management and quality control of deliverables. Involved for 0.5 person-months. (Arcus GIBB).

Environmental impact assessment (EIA) for the Nuclear-1 Power Station (Eastern and Western Cape Provinces, South Africa) 08/2011 - Date. *Senior Environmental Scientist.* The project entailed an environmental impact assessment (EIA) for the Nuclear-1 Power Station. Responsible for presentation to the Department of Environmental Affairs and Tourism's (DEAT's) independent review panel. Involved for 0.5 person-months. (Arcus GIBB).

Environmental basic assessment for the return water pipeline at Mponeng Gold Mine (Gauteng Province, South Africa) 07/2011 - 02/2013. *Senior Environmental Scientist.* Aurecon was appointed to do the tender design for the replacement of the existing return water pipeline that feeds into the Mponeng process plant in Carletonville. The project included a 4 km pipeline with a 400 mm diameter. Responsible for project management and quality control of deliverables. Involved for 1 person-month. (AngloGold Ashanti).

Scoping phase for St. Helena Wind Farm (Western Cape Province, South Africa) 01/2011 - 06/2011. *Senior Environmental Scientist.* During the scoping phase of this project, a visual impact assessment (VIA) was prepared for the St. Helena Wind Farm near Saldanha. Responsible for project management and quality control of deliverables. Involved for 1 person-month. (Just Energy).

Scoping phase for Langehoogte Wind Farm (Western Cape Province, South Africa) 01/2011. *Senior Environmental Scientist.* The project entailed a visual impact assessment (VIA) for the Langehoogte Wind Farm near Caledon. Responsible for report based on peer review comments. Involved for 1 person-month. (SAGIT Energy Ventures).

Scoping phase for Wolseley Wind Farm (Western Cape Province, South Africa) 01/2011. *Senior Environmental Scientist.* This project entailed a visual impact assessment (VIA) for the proposed Wolseley Wind Farm near Wolseley. Involved for 1 person-month. (SAGIT Energy Ventures).

Tau Tona pipeline basic assessment (BA) (Gauteng Province, South Africa) 07/2010 - 04/2012. *Senior Environmental Scientist.* The project entailed an environmental basic assessment (BA) for a pipeline at Tau Tona Gold Mine in Carletonville. Responsible for project management and quality control of deliverables. Involved for 1 person-month. (AngloGold Ashanti).

Visual impact assessment (VIA) for Langebaan boathouse for the 4 Special Forces Regiment (Western Cape Province, South Africa) 07/2010 - 09/2010. *Senior Environmental Scientist.* The project entailed an environmental impact assessment (EIA) and a visual impact assessment (VIA) for the National Environmental Management Act (NEMA), Section 24G, application for the authorisation of a boathouse construction for the 4 Special Forces Regiment at Langebaan. Responsible for the compilation of VIA. Involved for 2 person-months. (Department of Public Works (DPW)).

Basic assessment (BA) and Section 24G rectification assessment of the Vaal River pipeline (North West Province, South Africa) 11/2009 - 03/2014. *Senior Environmental Scientist.* The project entailed an environmental basic assessment (BA) for the installation of a water pipeline on the Vaal River Gold Mine in Orkney. Responsible for project management and quality control of deliverables. Involved for 1 person-month. (AngloGold Ashanti).

Lesotho MCA Health Infrastructure Programme 2010 (Maseru, Lesotho) 10/2009 - Date. *Health, Safety and Environment (HSE) and Environmental Management (EM) Manager.* This project involved the provision of programme management, construction supervision and environmental management services for the health infrastructure programme in Lesotho. This included the design of the National Reference Laboratory (NRL) and blood transfusion centre, the design of student and staff hostels at existing Lesotho Hospital, and the construction of 138 new health centres and 14 new outpatient departments (OPDs). Responsible for liaising between client and contractor to facilitate resolution of outstanding construction to address health, safety and environmental (HSE) issues. Involved for 2 person-months. (Millennium Challenge Account (MCA) - Lesotho).

Mokolo Crocodile Water Augmentation Project (MCWAP) (Limpopo Province, South Africa) 09/2009 - Date. *Reviewer.* The project entailed comprehensive engineering services for the Mokolo Crocodile Water Augmentation Project (MCWAP), including the construction of two major bulk raw water transfer systems and associated infrastructure. The MCWAP supplies raw water to meet the demands of the new power station in Lephalale, mines and industry, and domestic users. The main components of the scheme are abstraction weirs, pump stations, pipelines and balancing storage. Responsible for the independent review of a draft basic assessment report (BAR). Involved for 0.25 person-months. (Trans-Caledon Tunnel Authority (TCTA)).

Independent engineering audits for the South African National Roads Agency Limited (SANRAL) and the N3 Toll Concession (N3TC) (Regional, South Africa) 09/2009 - Date. *Environmental Specialist.* The South African National Roads Agency Limited (SANRAL) signed a 30-year concession contract with the N3 Toll Concession (N3TC) to maintain and upgrade the section of National Route 3 (N3) between Cedara and Heidelberg. Aurecon was appointed as the independent engineer to oversee and audit the contract, including reviewing all designs, audit construction work, maintenance work and the toll plaza operations as well as environmental audits of the environmental system implementation. Responsible for auditing and monitoring of the environmental system. (South African National Roads Agency Limited (SANRAL) and N3 Toll Concession (Pty) Ltd (N3TC)).

De Hoek Cement Factory (Western Cape Province, South Africa) 2009. *Senior Environmental Scientist.* The project entailed basic assessments (Bas) for upgrades to the Pretoria Portland Cement's (PPC's) De Hoek Cement Factory in Malmesbury. Responsible for project management and quality control of deliverables. Involved for 2 person-months. (Pretoria Portland Cement (PPC)).

Mulilo Coal-fired Power Station (Limpopo Province, South Africa) 2009. *Senior Environmental Scientist.*

The project involved an environmental impact assessment (EIA) process of the proposed Mulilo Coal-fired Power Station near Musina. Responsible for project management and quality control of deliverables. Involved for 2 person-months. (Mulilo Power (through Parsons Brinkerhoff)).

Watershed-Mmabatho distribution power line (North West Province, South Africa) 2009. *Senior Environmental Scientist.* The project entailed an environmental basic assessment (BA) for the Watershed-Mmabatho distribution power line. Responsible for project management and quality control of deliverables. Involved for 1 person-month. (Eskom Distribution).

Apollo-Lepini distribution power line (Gauteng Province, South Africa) 2009. *Senior Independent Reviewer.* The project entailed an environmental impact assessment (EIA) of the Apollo-Lepini distribution power line. Responsible for reviewing applicable legislation and projects against EIA legislation requirements. Involved for 1 person-month. (Envirolution Consulting).

Medupi Landfill Site Project (Limpopo Province, South Africa) 2009. *Senior Independent Reviewer.* The project entailed an environmental impact assessment (EIA) of the Medupi Landfill Site Project in Lephalale. Responsible for the review of EIA documentation. Involved for 1 person-month. (Envirolution Consulting).

Tumelo distribution power line (Gauteng Province, South Africa) 2009. *Senior Environmental Scientist.* The project entailed an environmental impact assessment (EIA) process of the Tumelo distribution power line near Kagiso. Responsible for project management and quality control of deliverables. Involved for 1 person-month. (Eskom Distribution).

OR Tambo International Airport (ORTIA) Midfield Development (Gauteng Province, South Africa) 2009. *Senior Environmental Scientist.* The project entailed the provision of a strategic advisory team (SAT) to the Airports Company South Africa (ACSA) for the Midfield Development at OR Tambo International Airport (ORTIA) in Kempton Park. Involved for 1 person-month. (Airports Company South Africa (ACSA)).

Westgate-Tarlton-Kromdraai distribution power line (Gauteng Province, South Africa) 2009. *Senior Environmental Scientist.* The project entailed an environmental impact assessment (EIA) of the Westgate-Tarlton-Kromdraai distribution power line. Responsible for project management and quality control of deliverables. Involved for 2 person-months. (Eskom Distribution).

Mokopane Integration Project (Limpopo Province, South Africa) 2008 - 2009. *Senior Independent Reviewer.* The project entailed an environmental impact assessment (EIA) of the Mokopane Integration Project, including transmission lines and substations. Responsible for the independent review of the EIA documentation and the compilation of a review report. Involved for 1 person-month. (Savannah Environmental (Pty) Ltd).

Greater Port Harcourt (Rivers State, Nigeria) 2008 - 2010. *Senior Environmental Scientist.* The project comprised a strategic environmental assessment (SEA), generic environmental management plan (EMP) and the development of terms of reference (TOR) for the environmental impact assessments (EIAs) for Greater Port Harcourt. Responsible for the compilation of the SEA. Involved for 3 person-months. (Rivers State Government of Nigeria and Greater Port Harcourt Development Authority (GPHDA)).

Second party ISO 14001 environmental management systems (EMSs) audits (Mpumalanga and Western Cape Province, South Africa) 2008 - 2010. *Environmental Auditor.* The project entailed second party ISO 14001 environmental management systems (EMSs) audits, including three-day second party comprehensive EMSs audits of coal-fired power stations in Mpumalanga, a pumped storage scheme in KwaZulu-Natal and gas turbine plants in the Western Cape. Responsible for environmental auditing. Involved for 2 person-months. (Eskom Generation).

Namakwa Sands basic assessment processes for co-generation power plants (South Africa) 2008 - 2009. *Senior Environmental Scientist.* The project involved basic assessment processes for the installation of co-generation power plants at mines and industrial facilities across South Africa, for the generation of electricity from waste gas. The projects enable the project initiator to earn carbon credits through the clean development mechanism (CDM) in terms of the Kyoto Protocol under the United Nations Framework Convention on Climate Change (UNFCCC). Responsible for project management and quality control of deliverables. Involved for 2 person-months. (Promethium Carbon/Prana Energy).

Kalukundi Copper-Cobalt Project (Katanga Province, Democratic Republic of the Congo) 2008 - 2009. *Senior Environmental Manager.* The project entailed environmental services for the proposed copper and

cobalt mine in the Kolwezi District in the Eastern Democratic Republic of the Congo (DRC). Responsible for field surveys, an environmental impact assessment (EIA) and an environmental management plan (EMP). Involved for 3 person-months. (Africo Resources).

Nuclear power station (Eastern and Western Cape Provinces, South Africa) 2008 - 2009. *Senior Environmental Scientist.* The project, implemented by the Generation Division of Eskom Holdings Limited, entailed a detailed environmental impact assessment (EIA), including the screening and selection of a suitable site for the nuclear plant, and a scoping process. The project also included social and biophysical specialist studies, public consultation and legal and nuclear technology studies. Responsible for the compilation of the environmental impact report (EIR) and environmental management plan (EMP). Involved for 9 person-months. (Eskom Generation).

Environmental management programme (EMPR) for Finsch Mine (Northern Cape Province, South Africa) 2008 - 2009. *Project Leader/Senior Environmental Scientist.* The project entailed updating the environmental management programme (EMPR) to consolidate various guidelines and operating procedures. Responsible for the updating of the EMPR. Involved for 1 person-month. (De Beers).

Development of a master plan for Matjhabeng (Welkom) Local Municipality (Free State Province, South Africa) 2008 - 2009. *Senior Environmental Scientist.* The project involved the compilation of the environmental portion of the status quo assessment, critical interventions and master plan for the municipality. Responsible for the development of environmental components of the master plan. Involved for 2 person-months. (Latitude Management Services).

Strategic environmental technical support team for the Gautrain Project (Gauteng Province, South Africa) 2008 - 2009. *Senior Environmental Scientist.* The project entailed the provision of a strategic environmental technical support team to the Gauteng Provincial Government (GPG) for the R20 billion Gautrain Project. Technical support was provided during the construction and operational phases of this flagship transport service project. Responsible for the environmental monitoring of contractor activities; the review of the environmental snag list; attendance and advice to the monthly provincial environmental committee (PEC) and the environmental management committee (EMC) meetings and coordination and management of annual external environmental audits. Involved for 6 person-months. (Gautrain).

Environmental management plan (EMP) for Eskom Transmission (Western Cape Province, South Africa) 2008. *Senior Environmental Scientist.* The project comprised the compilation of an environmental management plan (EMP) for the construction and operational phases of the Perseus-Gamma, and Hydra-Gamma 765 kV transmission power lines, an extension to the Hydra Substation, turn-ins of the Beta-Hydra 765 kV transmission power line to Perseus and the upgrading of the Perseus Substation. Responsible for the review of project documentation and the EMP. Involved for 1 person-month. (Eskom Transmission).

Eskom Komati Water Scheme pipeline and power line project (Mpumalanga Province, South Africa) 2008. *Project Manager.* The project entailed scoping and an environmental impact assessment (EIA) for the proposed Eskom Komati Water Scheme pipeline and power line project. Responsible for the EIA. Involved for 3 person-months. (Eskom Generation).

Crude acrylic acid (CAA) tank (Free State Province, South Africa) 2008. *Project Manager.* The project entailed a scoping and an environmental impact assessment (EIA) process for the installation of a crude acrylic acid (CAA) tank at Sasol's site in Sasolburg. Responsible for project management and quality control of deliverables. Involved for 1 person-month. (Sasol).

Alluvial Diamond Prospecting (Northern Cape Province, South Africa) 2008. *Reviewer.* Pico Diamonds environmental management plan (EMP) for Alluvial Diamond Prospecting in the Richtersveld National Park. Responsible for review of scoping and environmental impact assessment (EIA) reports. Involved for 1 person-month. (South African National Parks (SANParks) through Cameron Cross Inc.).

Kliprivier Nature Estate (Limpopo Province, South Africa) 2008. *Reviewer.* The project comprised a scoping report for the proposed Kliprivier Nature Estate on Portions 4 and 8 of the farm Kliprivier 464 KQ, and Portion 10 of the farm Rhenosterfontein 465 KQ. Responsible for review of scoping and environmental impact assessment (EIA) reports. Involved for 1 person-month. (Dabchick Consultancy Limited).

Delta Apron at OR Tambo International Airport (ORTIA) (Gauteng Province, South Africa) 2008. *Project Leader/Senior Environmental Scientist.* The project comprised a basic assessment for the upgrading of the Delta Apron at OR Tambo International Airport (ORTIA) in Kempton Park. Responsible for the environmental impact assessment (EIA). Involved for 2 person-months. (Airports Company South Africa).

(ACSA)).

Millsite Development in Krugersdorp (Gauteng Province, South Africa) 2007 - 2008. *Project Manager.* The project comprised scoping and an environmental impact assessment (EIA) for the proposed Millsite Development in Krugersdorp. Responsible for client liaison, team management, financial management and quality control. Involved for 2 person-months. (Rand Leases).

Hendrina-Prairie-Marathon transmission line (Mpumalanga Province, South Africa) 05/2007 - 06/2008. *Project Manager.* The project comprised an environmental impact assessment (EIA) for the proposed 185 km-long, 400 kV Hendrina-Prairie-Marathon transmission line between Hendrina and Nelspruit. Responsible for project management and quality control of deliverables. Involved for 43 person-months. (Eskom Transmission).

Backlog of the environmental impact assessment (EIA), scoping and exemption applications in terms of the Environment Conservation Act, 1989 (Act No. 73 of 1989) (Limpopo and Mpumalanga Provinces, South Africa) 2007 - 2008. *Reviewer.* The project involved the backlog of the environmental impact assessment (EIA), scoping and exemption applications in terms of the Environment Conservation Act, 1989 (Act No. 73 of 1989), on behalf of the Limpopo Department of Economic Development, Environment and Tourism (LDEDET) and the Mpumalanga Department of Agriculture and Land Administration (MDALA). Responsible for the review of environmental scoping and impact assessment reports. Involved for 2 person-months. (Department of Environmental Affairs and Tourism (DEAT)).

Mmamabula-Delta 400 kV transmission lines (Limpopo Province, South Africa) 05/2007. *Reviewer.* The project entailed an environmental impact assessment (EIA) process for the four proposed 400 kV Mmamabula-Delta transmission lines in Lephalale. Responsible for site visits, review of EIA documentation, client liaison and general project management. Involved for 1 person-month. (Haygon Safaris (Pty) Ltd).

Extension of Sunderland Ridge wastewater treatment works (WWTW) (Gauteng Province, South Africa) 01/2007 - 12/2011. *Senior Environmental Scientist.* Aurecon was appointed to provide the engineering services for the extension of the Sunderland Ridge wastewater treatment works (WWTW) to 95 Ml/d. The purpose of the project was to provide a feasibility study for the 30 Ml/d extension; licence applications; environmental impact assessments (EIAs) and the relevant authorisations for the 30 Ml/d extension and process design of the extension. Responsible for project management and quality control of deliverables. Involved for 0.5 person-months. (City of Tshwane Metropolitan Municipality (CTMM)).

Dome Paradise Township (North West Province, South Africa) 2007. *Reviewer.* The project entailed scoping and environmental impact assessment (EIA) reports for the proposed Dome Paradise Township on Portions 19 and 37 of the Farm Rietpoort 518 IQ. Responsible for the review of scoping and EIA reports. Involved for 1 person-month. (Advocate Jaco Venter).

Orlando Dam Intersection in Soweto (Gauteng Province, South Africa) 2007. *Project Leader/Senior Environmental Manager.* The project entailed environmental scoping for the proposed Orlando Dam Intersection, a mixed-use redevelopment at the former Orlando Power Station site in Soweto, including an environmental impact assessment (EIA). Responsible for client liaison, team management, financial management and quality control. Involved for 2 person-months. (Johannesburg Property Company (JPC)).

Development of Comet in Boksburg (Gauteng Province, South Africa) 2007. *Project Manager.* The project comprised scoping and an environmental impact assessment (EIA) for the proposed Comet Extension, including eight commercial and light industrial developments. Responsible for client liaison, team management, financial management and quality control. Involved for 2 person-months. (Urban Dynamics).

Abattoir Waste Management Guideline Manual (AWM Guideline Manual) document and standard environmental management plan (EMP) (South Africa) 2007. *Project Manager.* The project involved the provision of an Abattoir Waste Management Guideline Manual (AWM Guideline Manual) and a standard environmental management plan (EMP) for the evaluation of environmental impact assessment (EIA) applications. Responsible for client liaison, team management, financial management, quality control and presentations to stakeholders. Involved for 2 person-months. (Gauteng Department of Agriculture and Rural Development (GDARD)).

Limpopo Wildlife Estate (Limpopo Province, South Africa) 2007. *Reviewer.* The project entailed a scoping report for the proposed Limpopo Wildlife Estate on portions of the farms Modena 13 MS, Parma 40 MS and Pontdrift 12 MS in Limpopo. Responsible for the review of scoping and environmental impact assessment (EIA) reports. Involved for 1 person-month. (South African National Parks (SANParks) through

Cameron Cross Associates).

Lesotho rehabilitation and conservation strategy (Lesotho) 2007. *Project Manager.* The project entailed supplemental field studies and beneficiary analysis related to a proposed rehabilitation and conservation strategy for the wetlands in the highlands of Lesotho, including an environmental impact assessment (EIA). Responsible for client liaison, team management and financial management. Involved for 2 person-months. (Lesotho Department of Water Affairs).

Shopping centre and residential development on the Farm Klipriviersdal (Gauteng Province, South Africa) 2007. *Reviewer.* The project involved a scoping and an environmental impact assessment (EIA) application for a proposed shopping centre and residential development on the Farm Klipriviersdal 371 in Meyerton. Responsible for the review of EIA documentation and report writing. Involved for 1 person-month. (Rand Merchant Bank (RMB)).

Emalahleni integrated municipal environmental programme (IMEP) (Mpumalanga Province, South Africa) 2007. *Senior Environmental Scientist.* The project entailed the auditing of legal compliance for the Emalahleni Local Municipality's integrated municipal environmental programme (IMEP) in Witbank. Responsible for an audit of environmental legal compliance. Involved for 0.5 person-months. (Emalahleni Local Municipality).

Senqu Sources Protected Area strategic environmental assessment (SEA) (Lesotho) 2006 - 2008. *Project Leader/Senior Environmental Manager.* The project entailed a strategic environmental assessment (SEA) for the proposed Senqu Sources Protected Area with the aim of establishing a network of formally protected areas in the Maloti Drakensberg Region. Responsible for client liaison, team management, financial management, quality control and fieldwork. Involved for 2 person-months. (Maloti Drakensberg Transfrontier Project (MDTP)).

Flood control of the Apies River in Pretoria (Gauteng Province, South Africa) 2006 - 2007. *Project Manager.* The project comprised environmental scoping for proposed flood control berms in the Apies River floodplain between Wonderboompoort and the Bon Accord Dam. Responsible for client liaison, team management, financial management and quality control. Involved for 2 person-months. (BKS Group (Pty) Ltd).

K'Shani Golf and Nature Reserve near Nelspruit (Mpumalanga Province, South Africa) 2006 - 2007. *Project Manager.* The project entailed an environmental impact assessment (EIA) process in terms of the National Environmental Management Act's (NEMA's) EIA regulations for the proposed 2 300 ha K'Shani Golf and Nature Reserve near Nelspruit. Responsible for project management and quality control of deliverables. Involved for 4 person-months. (K'Shani Golf and Nature Reserve (Pty) Ltd).

Eskom Kudu Integration Project (South Africa and Namibia) 2006 - 2007. *Project Leader/Senior Environmental Scientist.* The project entailed an environmental impact assessment (EIA) for the Eskom Kudu Integration Project for a proposed 400 km-long, 400 kV electricity transmission line from the Kudu Combined Cycle Gas Turbine (CCGT) power station in Oranjemund, Namibia, through the Northern Cape, to Vredendal in the Western Cape, South Africa. Responsible for leading the EIA, client liaison, team management, financial management and quality control. Involved for 3 person-months. (Eskom).

Ispat brick making plant (South Africa) 2006. *Project Manager.* The project entailed an environmental impact report (EIR) for a brick making plant at Ispat Iscor site. Responsible for client liaison, team management, financial management and quality control. Involved for 1 person-month. (Clay Fusion Technologies (Pty) Limited).

Upgrade of Ispat Galvanising plant in Vanderbijlpark (Gauteng Province, South Africa) 2006. *Project Manager.* The project entailed environmental scoping for the upgrading of the galvanising plant at Ispat Iscor. Responsible for client liaison, team management, financial management and quality control. Involved for 1 person-month. (Iskor).

Environmental implementation plan (EIP) for Pretoria (Gauteng Province, South Africa) 2006. *Project Manager.* The project entailed the development of a second edition environmental implementation plan (EIP), in terms of the National Environmental Management Act (NEMA) (No. 107 of 1998). Responsible for client liaison, team management, financial management and quality control. Involved for 1 person-month. (Department of Trade and Industry (DTI)).

Environmental impact assessment (EIA) regulations training manual (Gauteng Province, South

Africa) 2006. *Senior Environmental Manager.* The project entailed the development of a presentation for a series of information seminars on environmental impact assessment (EIA) regulations in terms of the National Environmental Management Act (NEMA) (No. 107 of 1998) in Pretoria. Responsible for preparation of presentations and interpretation of legal requirements. Involved for 1 person-month. (Department of Environmental Affairs and Tourism (DEAT)).

Viking Bay Development (Gauteng Province, South Africa) 2006. *Project Manager.* The project comprised an environmental impact assessment (EIA) for the new hotel, residential golf estate and game farm development at Viking Bay, adjacent to the Vaal Dam. Responsible for client liaison, team management, financial management and quality control. Involved for 1 person-month. (Tribid Investments).

Variant alignment for the Gautrain (Gauteng Province, South Africa) 2006. *Reviewer.* The project entailed several environmental impact assessment (EIA) reports and the environmental management plan (EMP) for the proposed variant alignment of the Gautrain through the Centurion area. Responsible for the review of the EIA reports, the EMPs and other related documents, quality control, client liaison and financial management. Involved for 3 person-months. (Centurion Association for a Reasonable Environment (WeCARE)).

ISO 14001 auditing (Various venues, South Africa) 2005 - 2011. *Technical Expert.* The project comprised ISO 14001 auditing for the South African National Accreditation System (SANAS), including witnessing of the conduct of the ISO 14001 Certification Body auditors during audits and the assessment of certification body management systems and documentation. Responsible for the assessment of the competence of accredited environmental auditors. Involved for 3 person-months. (South African National Accreditation System (SANAS)).

Huddle Park Golf & Recreation Estate (Gauteng Province, South Africa) 2005 - 2008. *Project Leader/Senior Environmental Scientist.* The project entailed an environmental impact assessment (EIA) for the Huddle Park Golf & Recreation Estate in Johannesburg. Responsible for the EIA, client liaison, team management, financial management and quality control. Involved for 4 person-months. (Tiyani Consortium).

Menlyn Roads Project: upgrading of the National Route 1 (N1) highway in the eastern part of Pretoria (Gauteng Province, South Africa) 2005 - 2006. *Project Manager.* The project entailed an environmental impact assessment (EIA) for the Menlyn Roads Project, including the upgrading of municipal roads and the National Route 1 (N1) highway in the eastern part of Pretoria. Responsible for project management and quality control of deliverables for the municipal and national road upgrades. Involved for 4 person-months. (City of Tshwane Metropolitan Municipality/South African National Roads Agency Limited (SANRAL)).

Water pipeline between the Vaal Dam and Secunda (Gauteng and Mpumalanga Provinces, South Africa) 03/2005 - 07/2005. *Project Manager.* The project was concerned with an environmental impact assessment (EIA) for a 115 km, 1.9 m diameter water pipeline between the Vaal Dam and Secunda, as part of the Vaal River Eastern Subsystem Augmentation Project (VRESAP). Responsible for client liaison, team management, financial management and quality control. Involved for 2 person-months. (Trans-Caledon Tunnel Authority (TCTA)).

Widening of Addo Road in Port Elizabeth (Eastern Cape Province, South Africa) 2005. *Project Manager.* The project entailed environmental scoping for the widening of Addo Road (Road MR 450) in Port Elizabeth. Responsible for client liaison, team management, financial management and quality control. Involved for 1 person-month. (PD Naidoo & Associates (PNA)).

Widening of 14th Avenue in Johannesburg (Gauteng Province, South Africa) 2005. *Project Manager.* The project entailed environmental scoping for the widening of 14th Avenue in Johannesburg. Responsible for client liaison, team management, financial management and quality control. Involved for 2 person-months. (Arup).

Statue of Freedom in Port Elizabeth (Eastern Cape Province, South Africa) 2005. *Environmental Manager.* The project comprised environmental feasibility/risk assessment for the Statue of Freedom in Port Elizabeth. Responsible for report writing and assessment of alternative sites. Involved for 1 person-month. (KPMG Consortium - GAPP Architects).

Socio-Economic Impact Assessment and Risk Management, Integrated Environmental Management Information Series 22 and 23 (Gauteng Province, South Africa) 2005. *Editor and Project Manager.* The project entailed the editing and project management of the Integrated Environmental Management Information Series 22 and 23 documents, namely the Socio-Economic Impact Assessment and the Risk

Management documents, for the Pretoria area. Responsible for management of sub-consultants, quality and financial management and report writing. Involved for 1 person-month. (Department of Environmental Affairs and Tourism (DEAT)).

Environmental Assessment of International Agreements, Integrated Environmental Management Information Series 19 (South Africa) 2005. *Co-author with James Cross.* The project involved compiling the Environmental Assessment of International Agreements, Integrated Environmental Management Information Series 19 document. Responsible for management of sub-consultants, quality and financial management and report writing. Involved for 0.5 person-months. (Department of Environmental Affairs and Tourism (DEAT)).

Water pipeline from Driefontein Dam to Duvha Power Station (Mpumalanga Province, South Africa) 2004. *Environmental Manager.* The project comprised environmental scoping for a water pipeline from Driefontein Dam to Duvha Power Station in Emalehleni. Responsible for site visits, environmental impact assessments (EIAs), report writing and public participation. Involved for 3 person-months. (Eskom).

Development of a lodge for the Automotive Supplier Park (ASP) (Gauteng Province, South Africa) 2004. *Project Leader/Environmental Manager.* The project entailed environmental considerations for the development of a lodge at the Automotive Supplier Park (ASP) in Rosslyn. Responsible for client liaison, team management, financial management and quality control. Involved for 2 person-months. (PD Naidoo & Associates (PNA)).

Desilting of Alberton Dam (Gauteng Province, South Africa) 2004. *Project Leader/Environmental Manager.* The project involved environmental scoping and an environmental management plan (EMP) for the desilting of the Alberton Dam. Responsible for client liaison, team management, financial management and quality control. Involved for 2 person-months. (SRK Consulting).

Extensions to Clover Hill in Bronkhorstspuit (Gauteng Province, South Africa) 2004. *Environmental Manager.* The project entailed environmental scoping for the Clover Hill Extensions 1 - 4, adjacent to the Bronkhorstspuit Dam. Responsible for public participation (stakeholder engagement) and report writing. Involved for 2 person-months. (Clover Hill Developments (Pty) Ltd).

Development of a shopping centre on agricultural holdings (Gauteng Province, South Africa) 2004. *Environmental Manager.* The project entailed environmental scoping for the development of a shopping centre on Holdings 34 and 35 in Kempton Park, Pretoria. Responsible for report writing, site assessment of alternative sites and the public participation process (PPP). Involved for 2 person-months. (AJP Group).

Access road for The Innovation Hub (Gauteng Province, South Africa) 2003. *Environmental Manager.* The project involved environmental scoping for the access road to the Innovation Hub in Pretoria. Responsible for report writing, site assessment and public participation process (PPP) meetings. Involved for 3 person-months. (Arup).

Dunkeld West Filling Station in Johannesburg (Gauteng Province, South Africa) 2003. *Environmental Manager.* The project entailed environmental scoping for a filling station in Dunkeld West, Johannesburg. Responsible for site visits, environmental impact assessments (EIAs), report writing and public participation. Involved for 3 person-months. (Seedprop Consolidated Investments).

Environmental scoping for the upgrading of the Sinter Plant at Iscor (Gauteng Province, South Africa) 2003. *Environmental Manager.* The project entailed environmental scoping for the upgrading of the Sinter Plant at Iscor in Vanderbijlpark. Responsible for site visits, environmental impact assessments (EIAs), report writing, public participation and sub-consultant management. Involved for 3 person-months. (Iscor Flat Steel).

Electricity supply cables between Pretoria North Substation and Annlin Extension 19 (Gauteng Province, South Africa) 2003. *Environmental Manager.* The project involved environmental scoping for the installation of electricity supply cables between Pretoria North Substation and the proposed Annlin Extension 19. Responsible for report writing, site assessment of alternative sites and the public participation process (PPP). Involved for 2 person-months. (Moolman Group).

National environmental management bills (South Africa) 2003. *Assistant/Report Writer.* The project involved costing of the promulgation of a series of six national environmental management bills, including the Air Quality Amendment Bill, the Biodiversity Bill, the Protected Areas Amendment Bill and the National Environmental Management Act's (NEMA's) 1st and 2nd Amendment Bills. Responsible for the management

of sub-consultants, report writing and stakeholder liaison. Involved for 2 person-months. (Department of Environmental Affairs and Tourism (DEAT)).

Telecommunications tower for the Council of Scientific and Industrial Research (CSIR) (Gauteng Province, South Africa) 2003. *Environmental Control Officer (ECO).* The project entailed an environmental management plan (EMP) for the construction of a 40m-tall concrete microwave telecommunications tower at the Council for Scientific and Industrial Research (CSIR). Responsible for on-site monitoring of environmental effects of construction work. Involved for 1 person-month. (Telkom).

Development of an environmental management system (EMS) for Nelspruit (Mpumalanga Province, South Africa) 2003. *Project Leader/Environmental Manager.* The project was concerned with the development of an environmental management system (EMS) for the Mbombela Local Municipality in Nelspruit. Responsible for client liaison, team management, financial management, quality control and training of client representatives. Involved for 2 person-months. (Mbombela Local Municipality).

Revision of the National Environmental Management Act (NEMA), 1998 (Act No. 107 of 1998) (South Africa) 2003. *Environmental Manager.* The project included the revision of Chapter 5 of the National Environmental Management Act (NEMA) (Act No 107 of 1998), which deals with environmental impact assessment (EIA) and integrated environmental management (IEM) procedures. Responsible for report writing, stakeholder engagement, preparation of presentations and other project documentation. Involved for 1 person-month. (Department of Environmental Affairs and Tourism (DEAT)).

Development of an environmental policy for Nelspruit (Mpumalanga Province, South Africa) 2003. *Project Leader/Environmental Manager.* The project entailed the development of an environmental policy for the Mbombela Local Municipality in Nelspruit. Responsible for client liaison, team management, financial management and quality control. Involved for 0.5 person-months. (Mbombela Local Municipality).

Alexandra Renewal Project (ARP) in Johannesburg (Gauteng Province, South Africa) 2002. *Environmental Manager.* The project delivered a report on the environmental management framework (EMF) for the Alexandra Renewal Project (ARP) in Johannesburg. Responsible for field data. Involved for 1 person-month. (Gauteng Department of Agriculture and Rural Development (GDARD)).

Environmental management framework (EMF) for Centurion (Gauteng Province, South Africa) 2002. *Project Assistant.* The project comprised the development of an environmental management framework (EMF) for the Loch Vaal region in Centurion. Responsible for field work and report writing. Involved for 2 person-months. (Gauteng Department of Agriculture and Rural Development (GDARD)).

Rehabilitation of cutting (South Africa) 2002. *Environmental Manager.* The project involved the rehabilitation of a cutting at the house of Mr Naas Grimbeek at the Hartebeespoort Dam. Responsible for site inspections and the development of a rehabilitation plan. Involved for 1 person-month. (Naas Grimbeek).

Road upgrades for Madikwe Game Reserve (North West Province, South Africa) 2002. *Environmental Manager.* The project included fieldwork, public participation, the development of an environmental management plan (EMP) and environmental scoping of roads and the bulk water supply system at Madikwe Game Reserve. Responsible for fieldwork assessment, public participation (stakeholder engagement) and report writing. Involved for 2 person-months. (Eco Assessments CC).

Brits/Doreen Roads filling station in Pretoria (Gauteng Province, South Africa) 2002. *Environmental Manager.* The project entailed the development of a filling station on the corner of Brits Road and Doreen Road in Akasia, Pretoria. Responsible for fieldwork assessment, public participation (stakeholder engagement) and report writing. Involved for 2 person-months. (Gerneke & Potgieter).

Buffer Zone projects (South Africa) 2002. *Environmental Manager.* This project entailed Phases 1 and 2 of the Buffer Zone projects for the Gauteng Department of Agriculture and Rural Developments (GDARD), which provides guidelines for the authorisation of developments in proximity to activities that cause pollution, including landfill sites, sewage treatment plants (STPs), industries and mine dumps. Responsible for report writing and fieldwork. Involved for 2 person-months. (Gauteng Department of Agriculture and Rural Development (GDARD)).

Marion Island research base in the South Atlantic Ocean (Western Cape Province, South Africa) 2002. *Environmental Manager.* The project entailed environmental scoping for the research base on Marion Island. Responsible for public participation (stakeholder engagement), report writing and the development of an environmental management plan (EMP). Involved for 1 person-month. (Department of Environmental

Affairs and Tourism (DEAT)).

National Forest Inventory (NFI) for the Eastern Cape (Eastern Cape Province, South Africa) 2002. *Environmental Assistant.* The project entailed data gathering and database population of the National Forest Inventory (NFI). Responsible for data gathering and capturing and stakeholder liaison. Involved for 1 person-month. (Department of Water Affairs (DWA)).

Gauteng Communication Network Strategy (GAUCONS) (Gauteng Province, South Africa) 2002. *Environmental Manager.* The project entailed the development of the Gauteng Communication Network Strategy (GAUCONS), a decision-support and administration system for the authorisation of telecommunications masts in Johannesburg. Responsible for report writing and stakeholder liaison. Involved for 3 person-months. (Gauteng Department of Agriculture and Rural Development (GDARD)).

Declaration of the Prince Edward Islands (PEI) as a world heritage site (Prince Edward Islands (PEI)) 2001. *Environmental Manager.* The project entailed a motivation report for the declaration of the Prince Edward Island (PEI) as a world heritage site (WHS). Responsible for report writing and management of consultants. Involved for 2 person-months. (Department of Environmental Affairs and Tourism (DEAT)).

Environmental management framework (EMF) for the Loch Vaal area (Gauteng Province, South Africa) 2001. *Environmental Manager.* The project included a report on data gathering and fieldwork, and an environmental management framework (EMF) for the Loch Vaal area in Centurion. Responsible for the compilation of the EMF document. Involved for 2 person-months. (Aurecon).

Makgabetlwane water pipeline (North West Province, South Africa) 2001. *Environmental Manager.* The project entailed environmental scoping of a water pipeline at Makgabetlwane. Responsible for public participation (stakeholder engagement) and report writing. Involved for 1 person-month. (Munayi Malaka Engineers).

Development of Alberton Waterfront (Gauteng Province, South Africa) 2001. *Environmental Manager.* The project entailed environmental scoping for the development of the Alberton Waterfront. Responsible for fieldwork assessment, public participation (stakeholder engagement) and report writing. Involved for 2 person-months. (Odyssey Development and Construction).

Midrand Estates Development (Gauteng Province, South Africa) 2000. *Environmental Manager.* The project entailed an environmental impact assessment (EIA) of the proposed Midrand Estates development. Responsible for fieldwork, site assessment and report writing. Involved for 2 person-months. (Eco Assessments).

Cellular phone mast sites for Cell C (National, South Africa) 1999 - 2002. *Environmental Manager.* The project entailed exemption applications of approximately 300 cell phone mast sites for the Cell C network. Responsible for site visits, assessments and reporting. Involved for 6 person-months. (Aurecon).

Development of a Cell Phone Code of Practice (South Africa) 1999. *Assistant.* The project entailed the development of a South African Code of Practice, including environmental considerations for the planning and management of telecommunications structures. Responsible for report writing and providing of general project assistance. Involved for 2 person-months. (South African Bureau of Standards (SABS)).

Nissan environmental management system (EMS), Pretoria (Gauteng Province, South Africa) 1998 - 1999. *Group Environmental Manager.* The project entailed the implementation and certification of ISO 14001 compliant environmental management system (EMS). Responsible for company-wide coordination of EMS implementation, environmental auditing, training, general advice, strategic review of EMS performance and reporting to top management. Involved for 18 person-months. (Nissan South Africa).

Information management system (IMS) directorate for Pretoria (Gauteng Province, South Africa) 1998. *Project Assistant.* The project comprised the development of an information management system (IMS) directorate, namely the Forest Regulation of the Department of Water Affairs (DWA). Responsible for report writing, conducting interviews, reporting and the monitoring of templates. Involved for 2 person-months. (Department of Water Affairs (DWA)).

Environmental management system (EMS) for Johannesburg (Gauteng Province, South Africa) 1998. *Project Leader and Senior Environmental Manager.* The project entailed the development of an ISO 14001 environmental management system (EMS) for the De Beers Research and Development Centre (DebTech). Responsible for client liaison, team management, financial management, quality control and initial review of

client's environmental impacts and aspects. Involved for 1 person-month. (De Beers Research and Development Company (DebTech)).

National strategy for the development of integrated environmental management (IEM) (South Africa) 1998. *Assistant.* The project involved the development of a discussion document, namely a national strategy for the development of integrated environmental management (IEM). Responsible for report writing and management of sub-consultants and stakeholders. Involved for 3 person-months. (Department of Environmental Affairs and Tourism (DEAT)).

Environmental impact assessment (EIA) for Marion Island (Western Cape Province, South Africa) 1997 - 1998. *Environmental Manager.* The project comprised an environmental impact assessment (EIA) of the proposed tourism to Marion Island. Responsible for site visits, data collection, specialist study coordination and report writing. Involved for 3 person-months. (Department of Environmental Affairs and Tourism (DEAT)).

ISO 14001 certification and surveillance audits (Various provinces, South Africa) 1997 - 1998. *Environmental Auditor.* The project entailed ISO 14001 certification and surveillance audits of four companies in various provinces of South Africa. Responsible for environmental auditing. Involved for 0.5 person-months. (South African Bureau of Standards (SABS)).

Environmental management system (EMS) for Antarctica (Antarctica) 1995. *Environmental Auditor.* The project entailed the development of an environmental management system (EMS) for the South African National Antarctic Expedition's (SANAE's) IV Base. Responsible for environmental auditing. Involved for 0.5 person-months. (Department of Environmental Affairs and Tourism (DEAT)).

Environmental impact assessment (EIA) for Letsibogo Dam (Botswana) 1994 - 1995. *Environmental Assistant.* The project entailed an environmental impact assessment (EIA) of the Letsibogo Dam on the Motloutse River in north eastern Botswana. Responsible for report writing, quality control and review of the sub-consultant's deliverables. Involved for 4 person-months. (Cave Klappwijk & Associates (CKA)).

Open cast coal mining rehabilitation (Mpumalanga Province, South Africa) 11/1991 - 01/1992. *Researcher.* The project entailed fieldwork for the rehabilitation of open cast coal mining, including vegetation monitoring and soil compaction monitoring on Amcoal's open cast coal mines. Responsible for the collection of field data. Involved for 2 person-months. (Amcoal).

Research supervision

2005: External Examiner for a Landscape Architectural Masters Dissertation, University of Pretoria

Education

1993 : MPhil Environmental Management, University of Cape Town (UCT), South Africa
1991 : BL Landscape Architecture, University of Pretoria, South Africa

Career enhancing courses

2012 : Project Management, Aurecon
2007 : Implementation of ISO 17021 (Conformity Assessment), South African National Accreditation System (SANAS)
2005 : Certification Body Assessor Workshop, South African National Accreditation System (SANAS)
1998 : Waste Management, Technikon Pretoria, South Africa
1996 : Environmental Auditing, University of Potchefstroom, South Africa
1996 : Environmental Law, University of Potchefstroom, South Africa
1996 : Environmental Management System, University of Potchefstroom, South Africa
1993 : Introduction to Public Participation, Environmental Evaluation Unit

Professional affiliations

Professional Landscape Architect, South African Council for the Landscape Architectural Profession (SACLAP)

Languages

	Reading	Writing	Speaking
English	Excellent	Excellent	Excellent
Afrikaans	Excellent	Excellent	Excellent

Publications

Heydenrych R, and Nortje E, 2013. "An EIA for a Nuclear Power Station in a Sensitive but Degraded Natural and Cultural Environment". Paper presented at the International Association for Impact Assessment (IAIA) South Africa National Conference, Thaba Nchu, Free State, September 2013.

Heydenrych R, 2007. "Lessons learnt in the implementation of the new EIA regulations". Paper presented at the Assessing Environmental Impacts Conference. The Business Zone.

Heydenrych R, 2007. "Lessons Learnt in the Implementation of the New EIA Regulations". Paper presented at the Assessing Environmental Impacts Conference. The Business Zone.

Heydenrych R, and Heunis M, 2006. "The Role of Geographical Information Systems (GIS) in EIAs under the New Regulations". Paper at International Quality and Productivity Center (IQPC) Conference "Successfully conduction Environmental Impact Assessments".

Claassen P, and Heydenrych R, 2002. "Environmental Considerations for the Planning and Management of Telecommunications Structures". Assistant Author SABS 0262-0 Draft Code of Practice.

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By my signature below I certify the correctness of the information above and my availability to undertake this assignment.

Signature of Staff Member

Date