



Natanya Whitehorn

Environmental Practitioner

Summary

Natanya is as an environmental assessment practitioner (EAP) at Zutari. She specialises in environmental auditing and her expertise consists of risk assessment, environmental monitoring and social impact assessments (SIAs), including the study of human interaction with one another and the natural environment. She has experience in fieldwork for impact assessments, environmental monitoring as well as the public participation process (PPP), where, she has facilitated and translated at various landowner, stakeholder and public meetings and also gained experience in environmental compliance monitoring by working on a large construction project. Further significant experience includes her role as Project Manager (Environmental Lead) on various integrated environmental management (IEM) processes such as environmental impact assessments (EIAs), basic assessment reports (BARs) and the development of environmental management plans (EMPs).

She has previous working experience in geo-informatics and geographic information systems (GIS). She has more than a decade of experience working with GIS, which she has gained whilst working on projects for the government, local authorities as well as the private sector. She has also gained skills in spatial representation and interpretation through her involvement in the engineering environment. Natanya has specialised in spatial analysis, data processing and mapping while her technical responsibilities include inter alia the evaluation of data, digitising, editing and converting spatial data and non-spatial data from various formats and manipulating data in Esri ArcMap with extension (XTools, ET Geowizards, ET Geotools), ArcView 3.2 and Planet GIS. She has research experience on biodiversity, natural resources management, and human developmental issues and tutoring experience at a tertiary institution in the field of Information Science (IS).

Natanya obtained a Bachelor's degree (Honours) in Geography, majoring in Geo-Informatics and Strategic Environmental Planning, from the University of Johannesburg, South Africa, in 2002. She has also completed a South African Auditor and Training Certification Authority (SAATCA) Certified ISO 14001 Lead Auditors Course. She is a member of the International Association for Impact Assessment South Africa (IAIASa) as well as the Geo-Information Society of South Africa (GISSA).

Relevant experience

God's Window Skywalk, , Motsamay Tourism Group (Pty) Ltd, 08/2021 - 12/2024, Project Manager/Environmental Lead

Zutari was appointed to conduct an environmental impact assessment (EIA) and water use licence application (WULA) for the proposed construction of a skywalk and skybridge at God's Window in the Mpumalanga Province. These services are to ensure compliance with the National Environmental Management Act (Act No. 107 of 1998) (NEMA), National Water Act, 1998, as well as other associated or required environmental authorisations. Responsible for overall project management, including writing the inception, scoping, EIA and EMP reports. Also responsible for managing all specialists and sub-contractors as well as overall financial management of the environmental component of the project.

Environmental impact assessment (EIA) and water use licence application (WULA) for the Seriti Kriel LifeX Project – beneficiation plant, opencast mining and dragline walk, , Seriti Coal (Pty) Ltd, 04/2021 - 12/2022, Project Manager/Environmental Lead

Seriti Coal has a contract to supply Kriel Power Station with 8.5 Mtpa of coal through a contract which has been extended to 2039. To best service this contract Seriti commissioned a trade-off study into transporting coal by rail, overland conveyor and haul truck. This study was revisited with the exclusion of the rail option in the report mentioned above in which additional information such as the existence of a haul fleet and tip was included. Both

Qualifications

BA (Hons) Geography
BA Geography and Environmental Management

Professional registrations

Environmental Assessment Practitioner (EAP), Environmental Assessment Practitioners Association of South Africa (EAPASA)
Member, Geo-Information Society of South Africa (GISSA)
Member, International Association of Impact Assessment South Africa (IAIASa)

Specialisation

Environmental management and geographic information systems (GIS)

Years in industry

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Kriel Colliery and Kriel Power Station are situated near the town of Kriel in Mpumalanga. Zutari is the engineering consultants on the project reviewing the trade off study. Zutari was also appointed to conduct an environmental impact assessment (EIA) and water use licence application (WULA) for the proposed construction of a beneficiation plant at the Seriti Kriel opencast coal mine, proposed opencast mining of Pits 11 and 13 as well as the proposed dragline relocation walk at the Seriti Kriel opencast coal mine. These services are to ensure compliance with the National Environmental Management Act (Act No. 107 of 1998) (NEMA), National Water Act, 1998, as well as other associated or required environmental authorisations. Responsible for overall project management, including writing the inception, scoping, EIA and EMP reports. Also responsible for managing all specialists and sub-contractors as well as overall financial management of the environmental component of the project.

Master plan of the feeder roads and bridges – Polihali reservoir, LHWP Phase II, , Lesotho Highlands Development Authority (LHDA), 05/2021 - 10/2022, Environmental and Geospatial Lead

In order to investigate the impact of the inundation of the Polihali reservoir, and plan for mitigation measures to ensure that accessibility is restored to the effected communities, the Lesotho Highlands Development Authority (LHDA) appointed Zutari to develop a master plan of the feeder roads and bridges for the Polihali reservoir. The impounding of the Polihali reservoir will inundate the valleys of the Senqu, Mabunyaneng, Khubelu, Sehonghong and Mokhotlong rivers over considerable distances. A number of existing roads and tracks will be permanently submerged and shops, schools, other community services and agricultural activities will no longer be accessible. Responsible for coordinating all inputs into the infrastructure inventory and final options to be considered during the final master plan. Also responsible for all mapping relating to natural and social environmental sensitivities and features and their relevance feeding into the master plan.

Environmental impact assessment (EIA) and water use licence application (WULA) for Bierspruit Opencast Mining Project, South Africa, Limpopo, Anglo American Rustenburg Platinum Mines, 02/2019 - 05/2020, Project Manager/Environmental Specialist

Zutari was appointed to conduct an environmental impact assessment (EIA) and water use licence application (WULA) for the proposed Bierspruit Opencast development at the Amandelbult Mine complex near Thabazimbi in the Limpopo Province. These services are to ensure compliance with the National Environmental Management Act (Act No. 107 of 1998) (NEMA), National Water Act, 1998, as well as other associated or required environmental authorisations. Responsible for overall project management, including writing the inception and ESIA reports. Also responsible for managing all specialists and sub-contractors as well as overall financial management of the project.

Environmental and social impact assessment and resettlement action plan for Zones 2 and 3 of the Lesotho Lowlands Bulk Water Supply Scheme, Lesotho, Lesotho Water Commission, 06/2018 - 03/2019, Project Manager/Environmental Specialist

Zutari was appointed as an independent consulting firm to undertake the environmental and social impact assessment (ESIA) and resettlement action plan (RAP) for the proposed Zone 2 and 3 of the Lesotho Lowlands Bulk Water Supply (LLBWSS). Responsible for overall project management, including writing the inception and ESIA reports. Also responsible for managing all specialists and sub-contractors as well as overall financial management of the project.

Scoping and environmental impact assessment (EIA) for the Brixton reservoir and tower, South Africa, Gauteng, Johannesburg Water (JW), 02/2017 - 12/2018, Senior Environmental Consultant

Zutari was appointed to undertake an innovative, design-led thinking approach to the installation of a reservoir and tower in Brixton, Johannesburg. The project involves undertaking a scoping and environmental impact assessment (EIA) process, due to the preferred site's location on a ridge that was identified as highly sensitive by the Gauteng Department of Agriculture and Rural Development. The project also involved an extensive public consultation process. Responsible for overall project management of the environmental component, including writing the scoping and EIA reports, as well as compiling the environmental management programme.

Various overhead lines (OHL) for Mogalakwena Local Municipality, South Africa, Limpopo, Mogalakwena Local Municipality, 05/2015 - 06/2018, Geographic Information Systems (GIS) Support Expert

Zutari was appointed for the detailed design and construction supervision of 11 kV and 33 kV overhead lines in the Mogalakwena municipal area due to difficulty accessing the existing lines for maintenance. Sensitive features in terms of the Limpopo conservation plan were identified on both the proposed alternative route and the existing route. Responsible for geographic information systems (GIS) support to the project team.

Design concept for South Dunes Beach, South Africa, KwaZulu-Natal, Transnet National Ports Agency (TNPA), 08/2017 - 06/2018, Project Manager/Senior Environmental Consultant

Zutari has been appointed for the provision of the design concept for South Dunes Beach at the Port of Richards Bay. Responsible for overall project management, coordination of specialist inputs and environmental inputs.

Botswana-South Africa (BOSA) Transmission Interconnector Project, South Africa and Botswana, Southern African Power Pool (SAPP), 04/2016 - 04/2018, Environmental Consultant

The Botswana-South Africa (BOSA) Transmission Interconnector Project entails the construction of approximately 560 km of 400 kV transmission line between Botswana and South Africa to alleviate congestion on the Matimba-

Phokoje-Insukamini line, increase the power transfers within the Southern African Power Pool (SAPP) network, increase stability in the power pool and improve system control, adequacy and reliability. Zutari was appointed to provide transaction advisory services, including a scoping study and a feasibility study up to the project implementation phase, which included procurement of an engineering, procurement and construction (EPC) firm and project financial close. Zutari's services focussed on the collection of data and information, techno-economic and financial analysis, market review and analysis, evaluation of analytical results, advice on institutional and legal framework, reporting and liaising with client and sponsor management committees. Responsible for providing environmental support to project team.

Rooiwal photovoltaic (PV) facility, South Africa, Gauteng, New GX Metsena Joint Venture, 02/2017 - 02/2018, Project Manager/Environmental Consultant/Geographic Information Systems (GIS) Expert

Zutari undertook a basic assessment process and the design of a 20 MW solar park in Tshwane. While conducting the basic assessment, the need for specialist investigations were discovered and hence a heritage impact assessment and ecological and wetland assessment were also included. Responsible for overall project management, review of reports and geographic information systems (GIS).

Section 24G environmental application for Nkomazi Game Reserve, South Africa, Mpumalanga, Nkomazi Game Reserve, 08/2016 - 12/2017, Geographic Information Systems (GIS) Support Expert

Zutari was appointed to assist the client in processing a Section 24G application for the construction of a luxury lodge consisting of 12 tents near the Komati River as well as the establishment of a waterhole and an airstrip in the Nkomazi Game Reserve. The application considers the effects of the tents on the surrounding environment with the aim of determining issues, potential impacts and alternatives in terms of environmental impact. Responsible for providing geographic information systems (GIS) support to project team.

Merino photovoltaic (PV) power plant, South Africa, Free State, EAB-Astrum Energy (Pty) Ltd, 08/2011 - 11/2017, Project Manager/Geographic Information Systems (GIS) Support Expert

The project entailed the construction of a photovoltaic (PV) power plant that will produce approximately 6 MW of electricity. In total, roughly 27 000 PV modules will be utilised to produce the approximately 6 MW of energy fed into the existing 22 kV power lines at the Merino Hydro Power Plant. The Merino Hydro Power Plant, which is the only generator on the existing line, generates a maximum capacity of 3.45 MW of energy, leaving sufficient capacity for the PV power plant. Responsible for obtaining environmental authorisation (EA), overall project management and providing geographic information systems (GIS) mapping requirements.

Pre-feasibility study for the Mandela Gateway to Kruger, South Africa, Mpumalanga, Thebe Tourism Group, 09/2017 - 11/2017, Senior Environmental Consultant

The proposed Mandela Gateway to Kruger Project is located on the 1 400 ha Lisbon Estate, which is a keystone property that links Sabi Sand Game Reserve and the Kruger National Park into an ecological corridor of wildlife movement. Lisbon citrus farm, which was one of the first land claims post 1994, had fallen into disrepair and no source of income was generated. Zutari was appointed for the project management, architectural, quantity surveying (QS), engineering, environmentally sustainable design (ESD), environmental and town and traffic planning for the pre-feasibility study, which can be used by the client to stimulate investor interest. Responsible for environmental screening and reporting.

Design and construction supervision for the Mokolo Crocodile Water Augmentation Project (MCWAP), South Africa, Limpopo, Trans-Caledon Tunnel Authority (TCTA), 09/2009 - 08/2017, Geographic Information Systems (GIS) Support Expert

Extensive augmentation of water supply in the Lephalale region is required for the development of the Medupi Power Station and related coal mining and industrial activities. The infrastructure is being developed in two phases. Phase 1 comprises a 4.5 MW pump station and 43 km of up to 1.1 m diameter pipeline, delivering approximately 40 Mm³/a at a rate of 1.6 m³/s from the Mokolo Dam. This will be constructed parallel to and tying in with infrastructure supplying Grootegeluk Mine, Matimba and Medupi Power Stations and Lephalale Municipality. Phase 2 will comprise an abstraction weir in the Crocodile River, de-gritting channels with high and low lift pump stations, and a 160 km of pipeline with break pressure and balancing reservoirs. The abstraction weir has a capacity of 25.5 m³/s, and the estimated pump capacities for the low lift and high lift pumps will be 3.6 MW and 15 MW, based on an initial demand of 5.4 m³/s. The 160 km of pipeline consists of a 30 km rising main and a 120 km gravity main. Pipe diameters range from 1m to 2.3 m. The final configuration of Phase 2 is yet to be confirmed. Responsible for providing general geographic information systems (GIS) assistance to the project team and compiling maps specifically designed for the land acquisition process.

Transaction management services for the Mauritius Light Rapid Transit (MLRT) system, Mauritius, Aurecon Singapore, 10/2012 - 08/2017, Environmental Consultant

The Government of Mauritius is committed to build a light rapid transit (LRT) system serving the city areas between Port Louis and Curepipe in order to relieve the main road arteries and to review its existing bus network with the aim of achieving an efficient multi-modal public transport network. Zutari was appointed, as a partner to lead agency Singapore Cooperation Enterprise (SCE) and the Singapore Mass Transit Corporation (SMRT), to provide transaction management advisory services for the development of the Mauritius LRT system. This included

advisory services for transport and traffic planning, engineering and business case/financial planning. Responsible for environmental specialist coordination and liaison.

Olifants River Water Resources Development Project, Phase 2 (ORWRDP-2), South Africa, Limpopo, Trans-Caledon Tunnel Authority (TCTA), 09/2009 - 06/2017, Geographic Information Systems (GIS) Support Expert

The second phase of the Olifants River Water Resources Development Project (ORWRDP-2) is an extensive water resource development project to supply water for domestic and industrial (mining) use in Limpopo. The project was divided into two main schemes. The first scheme comprised a 70 km-long pumping main from the Flag Boshielo Dam to Mokopane, including three 6 MW pump stations en route. The second scheme consisted of the abstraction and distribution of water from the De Hoop Dam to various end points. Both schemes were monitored and controlled from a single remote control point with all elements linked via approximately 180 km of fibre optic cable. Zutari's scope included the tender design and documentation, detailed design, construction supervision, contract administration, preparation of an environmental management plan (EMP), environmental impact assessments (EIAs) and a water quality baseline study. Responsible for providing general geographic information systems (GIS) assistance to the project team and compiling maps specifically designed for the land acquisition process.

Viljoenskroon substation transmission basic assessment (BA), South Africa, Free State, Eskom Free State Operating Unit, 08/2015 - 06/2017, Project Manager/Environmental Consultant/Geographic Information Systems (GIS) Expert

Zutari was appointed to undertake a basic assessment (BA) and general authorisation for various small infrastructure improvements in the Viljoenskroon and Vierfontein areas. The improvements involved the construction of a new switching station, substations, distribution lines, and the decommissioning of distribution lines. Responsible for overall project management, public participation, review of reports and geographic information systems (GIS). Duties included the compilation of a basic assessment report (BAR) and environmental management programme (EMPr), addressing comments received from the public and landowners, requesting extension from competent authority, revision of specialist reports and commenting on authority and specialist interactions.

Construction of Siphofaneni Bridge - St Phillips Road: Phases I, II, and III, Swaziland, Delegation of the European Union to the Kingdom of Swaziland, 06/2009 - 12/2016, Geographic Information Systems (GIS) Support Expert

Zutari was appointed for the preliminary and detailed design, tender documentation and environmental impact assessment (EIA) for the construction of the Siphofaneni Bridge - St Phillips Road: Phases I, II, and III. The project entailed the construction of a new 300 m two lane bridge over the Usutu River, a 1 km link from the MR8 on the MR14 up to existing junction to St Phillips Road, a 23 km link from the MR14 junction to St Phillips Road as well as a 7.7 km link from St. Phillips Road to the MR8 over the Usutu River. These links were upgraded from the existing gravel roads to an appropriate standard that provides all weather access to the existing and new cane growers. This upgrading also provides improved access for the administrative centre at St. Phillips. Responsible for geographic information systems (GIS) assistance to the project team.

Exxaro Grooteegeluk roads building feasibility study, South Africa, Limpopo, Exxaro Coal, 04/2014 - 12/2016, Geographic Information Systems (GIS) Support Expert

Exxaro Grooteegeluk Mine, in collaboration with the Lephalale Municipality and Eskom, agreed to upgrade three district roads that traverse the various communities of Lephalale and to provide for the development of various long-term economic and employment opportunities. The identified roads for the upgrade included provincial roads D3102 and D3114. Zutari undertook feasibility study to investigate the implementation of labour intensive construction (LIC) methods during the upgrading as well as the implementation of entrepreneurial and local economic development initiatives. Responsible for geographic information systems (GIS) support to the social project team for the Exxaro Grooteegeluk Mine roads upgrade feasibility study and social baseline assessment.

Basic assessment report (BAR) for the Ga-Rankuwa Cemetery, South Africa, Gauteng, City of Tshwane Metropolitan Municipality (CTMM), 01/2015 - 12/2016, Project Manager/Environmental Practitioner/Geographic Information Systems (GIS) Expert

Zutari was appointed to conduct the environmental basic assessment process for the proposed expansion of the existing Ga-Rankuwa cemetery as it had reached full capacity. Responsible for overall project management, public participation, compilation of reports and geographic information systems (GIS).

Environmental authorisation (EA) for Khanyisa Power Station, South Africa, Mpumalanga, ACWA Power Africa Holdings, 01/2015 - 12/2016, Geographic Information System (GIS) Support Expert

The project involved applying for the amendment of the environmental authorisation (EA) for the proposed Khanyisa Power Station and the amendment of authorisations for associated infrastructure, including a water supply pipeline, substation and transmission line. Zutari commissioned specialist studies, including air quality, stormwater, waste, noise and traffic, to address the potential environmental and social impacts of the project; compiled an amendment report summarising the change in these impacts; undertook the public participation/stakeholder engagement process and applied for the amendment of the water use licence application (WULA). Further applications included a scoping and environmental impact assessment (EIA) process for

repositioning the substation and 400 kV transmission line and a basic assessment for repositioning a water supply pipeline. Responsible for geographic information systems (GIS) support to the project team.

Waste management licence applications for Rooiberg landfill, South Africa, Limpopo, Department of Environmental Affairs (DEA), 01/2014 - 12/2016, Geographic Information Systems (GIS) Support Expert

The Department of Environmental Affairs (DEA) undertook a study, commissioned in 2007, which identified unlicensed municipal waste disposal facilities in South Africa. From the 581 sites that were identified, 341 were disposal facilities that needed to be licensed. Zutari was appointed to conduct and manage the waste management licence applications on behalf of all affected municipalities. The scope involved solid waste management, transfer of skills to officials, legal compliance, environmental impact assessment (EIA) and environmental management. Responsible for geographic information systems (GIS) support to the project team.

Technical feasibility study for the Botterkloof and Merino II Hydro Power Plants, South Africa, Free State, NuPlanet (Pty) Ltd, 01/2007 - 08/2016, Environmental Practitioner/Geographic Information Systems (GIS) Support

NuPlanet appointed Zutari to undertake a technical feasibility study, preliminary geotechnical investigations and the preliminary design of hydropower stations near Bethlehem. These power stations would use the increased flow from the Lesotho Highlands Water Project (LHWP) and would be cascading schemes. Two of the power stations generate in the order of 4.2 MW each, whilst a third station generates 3.1 MW. All three stations are typical run-of-river installations with proposed 8 m-high diversion weirs, headrace canals and penstocks. Zutari also received a separate appointment to undertake the environmental studies required for the development of all three schemes and the provision of the necessary support to the client for the statutory water use licence applications (WULAs). Responsible for obtaining environmental authorisation (EA) and providing geographic information systems (GIS) support.

Hatherley Cemetery expansion basic assessment, South Africa, Gauteng, City of Tshwane Metropolitan Municipality (CTMM), 01/2015 - 07/2016, Project Manager/Environmental Practitioner/Geographic Information System (GIS) Expert

Zutari was appointed to conduct the environmental basic assessment process for the proposed expansion of the existing Hatherley cemetery in Mamelodi as it had reached full capacity. Responsible for overall project management, public participation, compilation of reports and geographic information systems (GIS).

Basic assessment report (BAR) for the Mabopane Cemetery expansion, South Africa, Gauteng, City of Tshwane Metropolitan Municipality (CTMM), 01/2015 - 06/2016, Project Manager/Environmental Practitioner/Geographic Information Systems (GIS) Expert

Zutari was appointed to conduct the environmental basic assessment process for the proposed expansion of the existing Mabopane cemetery as it had reached full capacity. Responsible for overall project management, public participation compilation of reports and geographic information systems (GIS).

Klipplaats 400 kV line deviation, South Africa, Mpumalanga, Glencore Xstrata Coal South Africa (Glencore South Africa (Pty) Ltd, 05/2014 - 05/2016, Geographic Information Systems (GIS) Support Expert/Report Reviewer

The project involved environmental studies, water use licence application (WULA) and preliminary design for the Klipplaats 400 kV line deviation at the Tweefontein Coal Mine. Responsible for geographic information systems (GIS) support to the project team as well as document review.

Extension of the Sunderland Ridge wastewater treatment works (WWTW), South Africa, Gauteng, City of Tshwane Metropolitan Municipality (CTMM), 01/2007 - 03/2016, Environmental Control Officer (ECO)

Zutari 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 all environmental site inspections, the compilation of inspection and process reports, attending the monitoring and liaison committee's (MLC's) meetings and assisting with the compilation of an operational environmental management plan (EMP).

Landau dragline relocation concept study, South Africa, Mpumalanga, Anglo American Coal South Africa, 03/2015 - 03/2016, Geographic Information Systems (GIS) Support Expert

Zutari's environmental team conducted a desktop screening level assessment for the various route alignments against existing geographic information systems (GIS) databases/policies from relevant departments. Responsible for GIS support to the project team.

Boston and Ouhout environmental impact assessment (EIA), South Africa, Free State, NuPlanet (Pty) Ltd, 04/2010 - 12/2015, Project Manager

The project entailed an environmental impact assessment (EIA) class application for environmental authorisation (EA) for the construction of two hydropower schemes. Responsible for obtaining EA and providing geographic information systems (GIS) mapping requirements.

Shisha River bridge basic assessment (BA), South Africa, Limpopo, Gibb Engineering and Science/South African National Parks (SANParks), 03/2014 - 12/2015, Project Manager/Geographic Information Systems (GIS) Expert

Zutari was appointed to provide environmental services for the basic assessment (BA) of the proposed repair and upgrading of the Shisha River low level bridge located on the S57 near Sirheni Bushveld Camp in the northern section of the Kruger National Park.

Environmental impact assessment (EIA) at the Komati Mill, South Africa, Mpumalanga, TSB Sugar, 06/2014 - 12/2015, Geographic Information Systems (GIS) Support Expert

Zutari was appointed to conduct a basic environmental assessment of an agricultural area for the proposed establishment of sugar cane fields at TSB Sugar's Komati Mill. Responsible for geographic information systems (GIS) support to the project team.

Eskom Vaaldam basic assessment report (BAR), South Africa, Free State, Eskom, 04/2014 - 10/2015, Project Manager/Geographic Information Systems (GIS) Support Expert

Zutari was appointed to conduct the basic assessment (BA) for the proposed Vaaldam 88 kV power line near Deneyssville to the T-off near Clydesdale.

Environmental impact assessment (EIA) for Esiama gas-fired generation plant, Ghana, Western and Ashanti Region, Aggreko, 04/2015 - 07/2015, Environmental Practitioner

Zutari was appointed for the updating and completion of the environmental impact assessment (EIA) process for the 140 MW gas-fired generation plant in Esiama, including specialist studies for air quality, noise, ecology and waste. An environmental permit was granted by the Ghana Environmental Protection Agency (EPA).

Environmental impact assessment (EIA) for the Swaziland Rail Link Project, South Africa and Swaziland, Transnet Capital Project (TCP), 02/2013 - 06/2015, Geographic Information Systems (GIS) Support Expert

Zutari was appointed to provide environmental services for the required environmental impact assessment (EIA) of the proposed Swaziland Rail Link, which runs from Davel to Nerston in Mpumalanga, through Swaziland, to Nsezi in Richards Bay, KwaZulu-Natal. The aim of the project is to unlock the potential of a multinational strategic rail corridor and divert general freight traffic off the dedicated heavy haul Richards Bay coal line. The project activities included the upgrading of existing railway sections, the construction of a new rail link from Lothair to Sidvokodvo in Swaziland and the construction of new rail yards. Responsible for all geographic information systems (GIS) functionalities on the project.

Basic assessment (BA) for conference facilities and guest accommodation in Irene, South Africa, Gauteng, University of South Africa (UNISA), 02/2010 - 09/2014, Project Coordinator

The project entailed engineering services for the basic environmental assessment of the construction of conference facilities and guest accommodation, including paved parking, at the UNISA Park in Irene. Responsible for geographic information systems (GIS) mapping requirements and project coordination.

Environmental impact assessment (EIA) for the Sigma-Theta power line, South Africa, KwaZulu-Natal, Eskom, 10/2010 - 08/2014, Geographic Information Systems (GIS) Support Expert

The increased demand in load centres in KwaZulu-Natal necessitated the strengthening of the transmission network. Zutari was appointed as the independent environmental practitioner to undertake the environmental impact assessment (EIA) for the construction of the 400 kV line between the proposed Isundu substation near Pietermaritzburg to the proposed Mbewa substation near Epangeni. The project provided for the strengthening of the network and, in particular, to provide for the demand increase at load centres in Pietermaritzburg and Empangeni.

Nkomazi environmental management framework (EMF), South Africa, Mpumalanga, Nkomazi Local Municipality, 01/2014 - 07/2014, Geographic Information Systems (GIS) Support Expert

The project entailed compiling an environmental management framework (EMF) for the Nkomazi Local Municipality, located south of the Kruger National Park. The environmental status quo, strengths, weaknesses, opportunities and threats (SWOT) analysis and EMF phases were done, delivering environmental management zones, each with a set of management guidelines.

Basic assessment (BA) for the 88 kV Pangaea/Kanga power lines, South Africa, Mpumalanga, Eskom, 05/2013 - 06/2014, Project Manager/Geographic Information Systems (GIS) Support Expert

Eskom proposed the establishment of two 88 kV substations, Pangaea and Kanga, in conjunction with two 88 kV loop-in-loop-out lines from the existing 88 kV Erasmus-Arbor line in order to ensure electric supply for the upcoming Kusile Railway Line. The railway line will be constructed as a private siding, which is needed to transport limestone to the Kusile Power Station. Zutari was appointed to conduct a basic assessment (BA) as well as a Level 1 wetland assessment to determine the extent of wetland or wet areas that are related to the proposed routes chosen for the construction of the Pangaea and Kanga 88 kV power lines. Responsible for overall project management and geographic information systems (GIS) functionalities on the project.

Upgrading and replacement of a bulk water pipeline along Simon Vermooten Road, South Africa, Gauteng, City of Tshwane Metropolitan Municipality (CTMM), 06/2006 - 02/2014, Geographic Information Systems (GIS) Support

The project involved the upgrading of the Simon Vermooten Road to a two carriageway road in both directions, which required the relocation of the existing 625 mm nominal diameter steel pipeline. The scope of work involved the supply, delivery and installation of a new 700 mm nominal diameter steel pipeline between Lynnwood and Waltloo Roads as well as the supply, delivery and installation of a 400 mm nominal diameter steel pipeline Waltloo and Stormvoël Road. Zutari carried out the preliminary and detailed design, including a site survey, geotechnical investigations, tender documentation and adjudication, construction supervision and project management, contract administration and record drawings and environmental services. Responsible for all geographic information systems (GIS) support.

Monograph study for the Limpopo River Basin, South Africa, Mozambique, Botswana and Zimbabwe, Limpopo Water Course Commission (LIMCOM)/Deutsche Gesellschaft für Internationale Zusammenarbeit, 02/2012 - 02/2014, Geographic Information Systems (GIS) Support to Social Team

The project comprised the compilation of essential information regarding water resources, land use, environmental and water quality, infrastructural and climate change, on the Limpopo River Basin. The information is required for the development of Limpopo River Basin Integrated Water Resources Management (IWRM) strategy for the sustainable management of the basin. The study collects, collates and compiles key information that is necessary for scenario development and ultimately an IWRM plan. The data feeds to the Limpopo River Basin Management Information System (LIMIS) that is used for the long-term monitoring of the impacts of economic and social development of the water resources of the basin.

Engineering services for a new Sasko bakery in Woodmead, South Africa, KwaZulu-Natal, Pioneer Food Group, 04/2007 - 02/2014, Geographic Information Systems (GIS) Expert/Environmental Practitioner

The project entailed the provision of full planning and engineering services for the development of Sasko's new bakery in Woodmead. Zutari provided architectural, project management, civil, structural, electrical, mechanical, fire and wet services engineering for the new bakery complex, including an ancillary administration block, a washbay and a workshop.

Vaal River Eastern Subsystem Augmentation Project (VRESAP), South Africa, Gauteng, Trans-Caledon Tunnel Authority (TCTA), 12/2004 - 12/2013, Environmental Practitioner/Geographic Information Systems (GIS) Support

Zutari was appointed for the design and construction supervision of the Vaal River Eastern Sub-system Augmentation Project (VRESAP), an emergency water transfer scheme that abstracts water from the Vaal Dam and pumps it to the Knoppiesfontein division structure over a distance of 115 km. From the division structure the water is gravitated to the Bosjesspruit and Trichardtsfontein Dams. The project, with a design capacity of 5.4 m³/s, comprised abstraction works in the Vaal Dam, a low-lift pump station and a high-lift pump station as well as a rising main. It also included a 10 Ml surge tank to control dynamic transients, a concrete division structure at Knoppiesfontein, a number of road and rail crossings and various pipeline appurtenances such as in-line isolation valves and air valve and scour installations. Cathodic protection of the pipeline and a sophisticated control and instrumentation (C&I) system were also provided. Responsible for geographic information systems (GIS) support, overseeing all environmental aspects of the project, and the compilation and submission of 28 borrow pit closure plans to the Department of Minerals and Energy (DME).

Closure of a sludge dam and overflow facility for Rand Water, South Africa, Gauteng, Rand Water, 07/2007 - 07/2013, Environmental Practitioner/Geographic Information Systems (GIS) Support

The embankment of the old sludge dam adjacent to the Zuikerbosch pumping station failed a couple of years ago and sludge was discharged into the Vaal River. Zutari was appointed to inspect and register the dam as a "dam with a safety risk" in the Category II as well as for the design of the closure and decommissioning of the sludge dam and overflow facility. The scope of works included surveying, geotechnical investigation, environmental impact assessment (EIA), design, reporting and supervision. Responsible for public participation, obtaining environmental authorisation (EA) for exemption application and providing general geographic information systems (GIS) support to the project team.

Mokolo Crocodile (West) Water Augmentation Study, South Africa, Limpopo, Department of Water and Sanitation (DWS), 03/2007 - 07/2013, Geographic Information Systems (GIS) Support

This Mokolo Crocodile River (West) Water Augmentation Scheme will provide water to strategic users in the Lephalale area, such as Sasol, Eskom and various coal mines. The client had a need to conduct a feasibility study to determine the best option for supplying the area with water. It included supply from Mokolo Dam and transferring water from the Crocodile River to the growth hot spots around Lephalale, 130 km to the north. The project also entailed a single 1.9 m diameter rising main covering a distance of 115 km. Responsible for providing general geographic information systems (GIS) assistance to the project team.

Raising of North Boundary Dam, Carletonville, South Africa, Gauteng, AngloGold Ashanti, 02/2009 - 04/2013, Environmental Practitioner/Geographic Information Systems (GIS) Support

The project entailed providing assistance to the client with the re-evaluation of the North Boundary Dam's capacity and making recommendations to reduce overflow, especially during rainy seasons to avoid polluting the downstream river system. Following the feasibility studies in 2008, Zutari was appointed to undertake the detailed design, tender process and construction supervision for the raising of the dam in Carletonville. Zutari also carried out the environmental impact assessment (EIA) for the raising of the dam in an advisory capacity. Responsible for obtaining environmental authorisation (EA) and providing general geographic information systems (GIS) support throughout the project team.

Basic assessment (BA) for the duplication of the Vlakfontein-Mamelodi water supply pipeline, Phase 2, South Africa, Gauteng, Rand Water, 07/2007 - 04/2013, Geographic Information Systems (GIS) Support

The project entailed conducting a basic assessment (BA) and compiling an environmental management plan (EMP) to obtain the necessary environmental authorisation (EA) for the construction of a water supply pipeline for Phase 2 from Vlakfontein in Benoni to the southern boundary of the Rietvlei Nature Reserve.

De Hoop Dam borrow pit closure, South Africa, Limpopo, Vela VKE/Department of Water and Sanitation (DWS), 01/2011 - 01/2013, Project Manager/Environmental Practitioner

Zutari was appointed to conduct the closure of the De Hoop Dam borrow pit by means of formally requesting the Department of Mineral Resources (DMR) to authorise the closure of the subject borrow pit. Material for road construction was sourced from this borrow pit using an open cast method.

Expansion of the iron ore line from Sishen to the Port of Saldanha, South Africa, Western Cape, Transnet Capital Projects, 09/2009 - 12/2012, Geographic Information Systems (GIS) Support Expert

The Sishen-Saldanha ore line is an 861 km-long, single, heavy-haul railway line used for exporting iron ore from the mines in the Sishen area to the Port of Saldanha. The project involved the upgrading of the iron ore line from 38 Mtpa to 47 Mtpa (Phases 1A and 1B), and a further expansion from 47 Mtpa to 60 Mtpa by 2012 (Phase 1C). The rail upgrade plans included an increase in rolling stock (wagons and locomotives), the upgrading of electricity infrastructure, the construction of additional train passing loops and a 32 km rail link to service the new Sishen South mine. Infrastructure at the bulk terminal at the Port of Saldanha comprises two rotary tipplers, four stacker-reclaimers, two shiploaders and 25 conveying systems, providing the terminal with a capacity to offload 10 000 t/h onto a ship. The infrastructure is expected to be expanded to accommodate the expansion to 83 Mtpa.

Environmental impact studies (EISs) were also needed for the establishment of new infrastructure. The plan was to reclaim an additional 50 ha within Saldanha Bay. The shipping channel would be deepened and the material recovered would be used for the construction of new shipping berths. Responsible for geographic information system (GIS) support to the project team.

Laudium-Iliso pipeline environmental support, South Africa, Gauteng, Iliso Consulting, 05/2008 - 06/2011, Environmental Practitioner/Geographic Information Systems (GIS) Support

The project entailed a basic assessment (BA) in terms of the National Environmental Management Act's (NEMA's) environmental impact assessment (EIA) regulations for the installation of a 700 mm internal diameter potable water pipeline over a distance of 600 m. Responsible for public participation, obtaining environmental authorisation (EA), fulfilling the environmental control officer (ECO) function and providing general geographic information system (GIS) support to the project team.

Environmental management system (EMS) for Automotive Supplier Park (ASP) in Rosslyn, South Africa, Gauteng, Supplier Park Development Company (SPDC), 02/2007 - 06/2011, Environmental Practitioner/Geographic Information Systems (GIS) Support

This project entailed the implementation of an environmental management system (EMS) at the Automotive Supplier Park (ASP) in Rosslyn, Pretoria. The project was one of the Gauteng Provincial Government's Blue IQ initiatives aimed at delivering strategic infrastructure in the South African automotive industry to stimulate sustainable economic growth and job creation in the province. Responsible for all geographic information systems (GIS) support.

Basic assessment (BA) for the upgrading of the Valhalla reservoir, South Africa, Gauteng, City of Tshwane Metropolitan Municipality (CTMM), 10/2006 - 11/2010, Environmental Practitioner

The project entailed a basic environmental assessment for the authorisation of the construction of a new reservoir adjacent to an existing reservoir in Valhalla, Pretoria. Responsible for obtaining environmental authorisation (EA) and providing geographic information systems (GIS) support.

Laudium and Waterkloof pipelines, South Africa, Gauteng, City of Tshwane Metropolitan Municipality (CTMM), 10/2006 - 07/2010, Environmental Practitioner

The project consisted of a basic assessment (BA) in terms of the National Environmental Management Act's (NEMA's) environmental impact assessment (EIA) regulations for the removal of the existing 700 mm diameter pipeline and the replacement thereof with a new pipeline, over a distance of 1.5 km. Responsible for all the environmental control officer (ECO) duties during construction.

Basic assessment (BA) for the Rand Water R5 pipeline between Rietvlei Dam and Mamelodi, Phase 2, South

Africa, Gauteng, Rand Water, 01/2009 - 01/2010, Geographic Information Systems (GIS) Support Expert

The project entailed conducting a basic assessment (BA) and compiling an environmental management plan (EMP) to obtain the necessary environmental authorisation (EA) for the construction of a water supply pipeline for Phase 2 from the Rietvlei Nature Reserve to Mamelodi.

Upgrading of Riverview wastewater treatment works (WWTW), South Africa, Mpumalanga, Emalahleni Local Municipality, 10/2008 - 10/2009, Environmental Practitioner/Geographic Information Systems (GIS) Support

The effluent from the Riverview wastewater treatment works (WWTW) has to comply with the special limit discharge standards applicable to the upper Olifants River. It was recommended that the existing WWTW be retrofitted and the reliable treatment capacity of the facility be improved to increase the present design capacity of 11 Ml/d to 14 Ml/d to make provision for the higher organic loading received and the expected increase in flow due to future growth. The project scope included work on the inlet screen, primary settling tanks (PSTs), sludge pump station, aerators, bio-filters, final clarifiers, return pump station and humus pump station. Responsible for public participation, obtaining environmental authorisation (EA) for exemption application and providing general geographic information systems (GIS) support to the project team.

Overhead power line from Ha Lejone to Lihobong Mine, Lesotho, Lihobong Mining Development Company (LMDC), 09/2006 - 08/2008, Environmental Practitioner

The project entailed the environmental impact assessment (EIA) for a 40 km 132 kV overhead power line from the Ha Lejone substation to the Lihobong Diamond Mine to supply electricity to the mine. The mine operated on power supplied from generators, which was costly since it is dependent on the fuel price. The preferred alternative was the design and construction of an overhead supply, seen against the projections on extension of the life of the mine. Responsible for providing geographic information systems (GIS) support for the EIA process, report compilation and submission for final authorisation.

Basic assessment (BA) for the upgrading of the Jericho Bridge 4062, South Africa, Mpumalanga, Department of Water and Sanitation (DWS), 01/2007 - 01/2008, Environmental Practitioner/Geographic Information Systems (GIS) Support

The project entailed a basic environmental assessment and report compilation for authorisation of the construction for the Jericho Bridge in Ermelo, which was to accommodate a 1:50 year flood. Responsible for obtaining environmental authorisation (EA) and the compilation of reports.

Rietfontein weir environmental management plan (EMP), South Africa, Mpumalanga, Department of Water and Sanitation (DWS), 04/2006 - 12/2007, Environmental Practitioner

The project consisted of the re-instatement of storage capacity by means of dredging and landfilling 25 000 m² of silt to provide an approach canal at the outlet pipes. The scope entailed a plan of study for scoping, the compilation of the scoping reports and an environmental management plan (EMP). Responsible for obtaining environmental authorisation (EA) and providing geographic information systems (GIS) support.

Upgrading of Rietfontein Nature Reserve, South Africa, Gauteng, Johannesburg City Parks (JCP), 06/2007 - 09/2007, Environmental Control Officer (ECO)

The Rietfontein Nature Reserve in Paulshof is recognised as a developed park in northern Johannesburg and is known for its indigenous green space. The existing infrastructure on site is largely used as an educational centre to teach school children about the conservation of ecosystems. With the focus on conservation and outdoor recreation, eco-tourism opportunities do exist to generate income from the facilities and activities offered at the Rietfontein Nature Reserve. The proposed developments are seen to further draw on such opportunities for both Johannesburg City Parks (JCP) and the community it serves. Responsible for the communication of environmental management plan (EMP) components and requirements to the contractors and sub-contractor as well as EMP planning, implementation and inspection during the construction phase.

Basic assessment (BA) for the McHardy stream diversion, South Africa, Gauteng, De Beers Group, Cullinan Diamond Mine, 07/2006 - 09/2007, Environmental Practitioner

The project consisted of a basic assessment (BA) in terms of the National Environmental Management Act's (NEMA's) environmental impact assessment (EIA) regulations for the diversion of the McHardy stream through the Cullinan Diamond Mine grounds to establish separation of polluted runoff from mining activities and unpolluted natural stormwater flow. Responsible for obtaining environmental authorisation (EA) and geographic information systems (GIS) support.

Proposed new coal-fired power station in the northern Free State, South Africa, Free State, Eskom Generation, 03/2006 - 09/2007, Environmental Practitioner

The project comprised the construction of a 4 200 MW greenfield, which was previously undeveloped, and a coal-fired power station as well as the construction and operation of associated infrastructure, including a high-voltage (HV) yard, water treatment and supply facilities, an ash management system, coal transportation, storage and handling facilities and service roads. Responsible for providing assistance with the public participation process (PPP).

Basic assessment (BA) for the upgrading of the Khutala pump station, South Africa, Mpumalanga, Department of Water and Sanitation (DWS), 03/2007 - 08/2007, Geographic Information Systems (GIS) Support

The project entailed a basic environmental assessment for the authorisation of the upgrading and replacement of water mains at the Khutala pump station in Kriel to ensure increased capacity and reduced operating costs of the facility. Responsible for providing geographic information systems (GIS) support to the project team.

Proposed new coal-fired power station in the Witbank area, South Africa, Mpumalanga, Eskom Generation, 01/2005 - 01/2006, Environmental Practitioner

Zutari was appointed as lead consultants for a comprehensive environmental impact assessment (EIA) for the construction and operation of a coal-fired power station and its associated infrastructure in Witbank. The power station would comprise six generating units fuelled by coal, with a total nominal electricity generation capacity of approximately 5 400 MW. Various ancillary infrastructure was also present, including a high-voltage (HV) yard within the power station precinct; water supply pipelines; water and wastewater treatment facilities; temporary electricity supply during construction; ash disposal systems; coal stockyard and handling facilities; storage and handling facilities; conveying systems for ash and coal; rail and/or road transport of sorbent; access roads and storage dams. Responsible for providing assistance with the public participation process (PPP).

Upgrading of the Muela Hydropower Station, Lesotho, Lesotho Highlands Water Commission (LHWC), 01/2009 - Click or tap to enter a date., Environmental Practitioner/Geographic Information Systems (GIS) Support

The project consisted of a social and resettlement study focussing particularly on the social impacts of the anticipated construction and related resettlement, including the compilation of an HIV/Aids management programme that could be implemented during the project implementation phase. Responsible for assistance in terms of the environmental impact assessment (EIA) and general geographic information systems (GIS) support.

Thune Dam examination for the possible construction of dams, Botswana, South-East District, Government of Botswana, 01/2009 - Click or tap to enter a date., Geographic Information Systems (GIS) Support

Many towns, villages and settlements throughout Botswana were experiencing water shortage problems as the growing demand placed an increasing burden on groundwater resources, which are of limited extent, with recharge that cannot keep up with abstraction. The Government of Botswana responded to this by examining the possibility of constructing dams for conjunctive use by means of groundwater resources. Responsible for providing geographic information systems (GIS) support.

Due diligence assessment for the development of Bishop's Glen into a residential golf estate, South Africa, Free State, Golf Data, 01/2008 - Click or tap to enter a date., Geographic Information Systems (GIS) Support

The project entailed a due diligence assessment for Golf Data (a leading South African company in the field of golf course design) to obtain part of the Bishops Glen RE/273 property near Bloemfontein to develop a residential golf estate of approximately 600 units. Responsible for environmental sensitivity mapping.

Relocation and protection of Petronet utility, South Africa, Gauteng, Transnet, 01/2007 - Click or tap to enter a date., Environmental Practitioner

The project consisted of an environmental impact assessment (EIA) for the relocation and protection of an existing Petronet utility, which would be affected by the Gautrain Rapid Rail Link (GRRL). Responsible for liaising with the Department of Agriculture and Environmental Affairs (DAEA), bio-physical and socio-economic data gathering, public participation process (PPP), the compilation of an environmental impact report (EIR) and the environmental management plan (EMP) and site inspections.

Basic assessment (BA) of dams in Benoni, South Africa, Gauteng, Ekurhuleni Metropolitan Municipality (EMM), 01/2009 - Click or tap to enter a date., Project Manager

The project involved a basic assessment (BA) for the widening of the Kleinfontein Dam spillway in Benoni. Responsible for geographic information systems (GIS) mapping requirements and project management.

Anheuser-Busch InBev (AB InBev) greenfields brewery, Ghana, Accra, Anheuser-Busch InBev (AB InBev), 01/2018 - Click or tap to enter a date., Senior Environmental Consultant

Zutari has been appointed to conduct a geotechnical investigation and fatal flaw analysis to inform the decision of purchasing a greenfields site in Ghana for the new Accra brewery. Responsible for environmental inputs and review of the fatal flaw analysis.