



# Stephen Townshend

## Geographic Information Systems (GIS) Analyst

### Qualifications

BSc Geography

### Specialisation

Geographic information systems (GIS)

### Years in industry

8.25

Stephen is a GIS analyst at Aurecon with more than seven years' experience in spatial analysis and cartography. His duties include the capturing and manipulation of spatial data to be used in mapping and spatial analysis, as well as the production of high quality maps.

His additional skills include the production of photo-simulations (also known as photo-montages), which combines the spatial component of GIS with the graphical component of digital photo manipulation to produce a spatially accurate representation of potential changes to the landscape before it occurs. Photo-simulations are commonly used together with spatial analysis and mapping as decision support tools that are of particular relevance to visual impact assessments (VIAs).

Stephen holds a Bachelor of Science degree in Geography from University of Pretoria in South Africa.

## Experience

### **Dragline relocation pre-feasibility study at Landau Colliery, Mpumalanga Province, South Africa, Anglo Operations Proprietary, 01/2016 - 10/2016, GIS Analyst**

The dragline excavator at Kromdraai section was proposed to be moved to the Navigation section, requiring the construction of a temporary road of approximately 20 km. The dragline relocation would ensure that the staff currently employed at Landau would retain their employment instead of having to be retrenched when the current operations of Landau would come to an end. Responsible for using a geographic information system to integrate all spatial information and data from various engineering and environmental advisory disciplines to generate maps for all stages of consultation and reporting.

### **Sibanye Gold photovoltaic plant environmental impact assessment (EIA), Gauteng Province, South Africa, Sibanye Gold Shared Services, 12/2015 - 08/2016, GIS Analyst**

Aurecon managed the environmental impact assessment (EIA) process required for authorising the proposed photovoltaic facility in terms of the National Environmental Management Act. Sibanye Gold, a mining company, intends to develop the project to gain greater independence from Eskom. The project will provide power exclusively to Sibanye Gold. The generated electricity may be used at any one of its mines in the Westonaria / Carletonville region. Responsible for using a geographic information system to integrate all spatial information and data from various engineering and environmental advisory disciplines to generate maps for all stages of consultation and reporting.



**Construction of Roads at Ga-Seleka Village and community involvement, Limpopo Province, South Africa, Exxaro Coal, 10/2015 - 08/2016, GIS Analyst**

Exxaro Grootegeluk Mine, together with Lephalale Local Municipality (LLM) and Roads Agency Limpopo (RAL), intends to upgrade two district roads that traverse the various communities of Lephalale and to provide for the development of various long-term economic and employment opportunities. These upgrades also form part of Exxaro's Social and Labour Plan (SLP) objectives. Responsible for using a geographic information system to integrate all spatial information and data from various engineering and environmental advisory disciplines to generate maps for all stages of consultation and reporting.

**Amandelbult Opencast Mine, Limpopo Province, South Africa, 2016, GIS Analyst**

Anglo American Platinum proposes extending existing mine operations through the mining of shallow platinum group element (PGE) reefs within the Amandelbult Mining Right Boundary. The majority of the reefs envisaged for mining lie within the 1:100-year flood line of the Crocodile River. The proposed Life of Mine is approximately 3.3 years, with rehabilitation taking place thereafter over a period of approximately 2 years. Responsible for using a geographic information system to integrate all spatial information and data from various engineering and environmental advisory disciplines to generate maps for all stages of consultation and reporting.

**Steve Tshwete asset management, Mpumalanga Province, South Africa, Steve Tshwete Local Municipality, 06/2014 - 12/2015, GIS Analyst**

The Steve Tshwete Local Municipality (STLM) appointed Aurecon to provide asset management support services to ensure the effective and efficient management of the municipality's assets. It specifically entails gathering and updating data for municipal infrastructure and the creation of a spatial register for these assets. Responsible for cleaning and updating of existing shapefiles.

**Nacala Development Corridor, Mozambique, Mott Macdonald, 2014, GIS Analyst**

The project involved thematic mapping of a range of spatial entities and data to better inform a broad-scale assessment of several inter-connected development corridors in the northern provinces of Mozambique, focussing mainly on rail capacity and connections to the Nacala port and working-age population densities (past, present and future) at or near development nodes. Responsible for using a geographic information system to generate broad-scale maps to represent spatial and conceptual connections between known developmental factors using available data to provide better decision support for targeted investment.

**Gamma-Kappa-Omega transmission line, Western Cape Province, South Africa, LEAP Landscape Architect & Environmental Practitioner, 2012 - 2013, GIS Analyst**

The proposed transmission line aimed to connect the Gamma substation with the Kappa substation and the Kappa substation to the Omega substation. The proposed alignment options traversed relatively large distances and impacted on many known heritage sites. Responsible for using a geographic information system to overlay the proposed alignment data with existing spatial data of known sites of historical importance and other useful topographical data. Also responsible for producing a working map series booklet of entire route to aid heritage specialists in conducting numerous site inspections and assessments.

**Dassiesklip wind energy facility, Western Cape Province, South Africa, Savannah Environmental Pty (Ltd), 2009, GIS Analyst**

The project entailed a proposed wind farm of approximately 20 turbines. Responsible for using a geographic information system to generate sensitivity mapping and spatial analysis data to establish the extent of visual impact of the proposed development to the surrounding region. Also responsible for the composition of realistic photo-simulations to better illustrate visual impact.



**Cookhouse wind energy facility, Eastern Cape Province, South Africa, Savannah Environmental Pty (Ltd), 2009, GIS Analyst**

The project entailed a proposed wind farm of approximately 50 turbines. Responsible for using a geographic information system to generate sensitivity mapping and spatial analysis data to establish the extent of visual impact of the proposed development to the nearby town of Cookhouse and the surrounding region. Also responsible for the composition of realistic photo-simulations to better illustrate visual impact.

**Koeberg transmission line, Western Cape Province, South Africa, 2009, GIS Analyst**

The proposed transmission line aimed to connect the Koeberg Nuclear Power Station to existing transmission substations with an additional line to strengthen then electricity supply network in the region. Several alignments were assessed separately to establish which option carried the least visual impact. Responsible for using a geographic information system to generate sensitivity mapping and analysis data to establish preferred alignment and writing the visual impact assessment (VIA) component of the project's environmental impact assessment (EIA). Also responsible for composing realistic photo-simulations using panoramas taken during site visit.