

**Name:** Bruce Seeton Morton

**Date of Birth:** 10 June 1977

**Profession / Specialisation:** **Construction and Engineering Executive**

Professional Civil Engineer

Construction Management

Project Management

Transport Engineering

Pavement Engineering

**Nationality:** South African

**Years Experience:** 25 Years

**Professional Engineer Reg. No.:** 20040305 - Pr Eng, Int PE (SA)



## KEY QUALIFICATIONS

Bruce Morton is an experienced Construction and Engineering Executive. As a Professionally Registered Engineer he holds numerous qualifications including a Masters Degree in Transportation and Traffic Engineering from the University of California in Berkeley, USA.

Mr Morton is a construction and engineering specialist with extensive experience in project management and construction management, airport, road and rail design, traffic engineering and transportation planning in all modes of transport, transportation engineering and specialist auditing.

He is proficient in airport and road design, airport pavement rehabilitation and construction, road pavement design (paved and gravel), road construction, highway and airport design, interchanges and overpasses, problematic soils (dolomitic and collapsible) and rehabilitation through in-situ recycling.

	Involved in 85+ projects across 25+ countries on 5 continents	
USD 7.5 billion transport infrastructure designed	Engineering and Management	Managing 1750+ staff across 15 projects
	USD 5.2 billion construction managed	

He is also experienced in asphalt, bituminous and cement stabilized materials design and construction, road maintenance management, specialised materials testing and research, labour intensive construction and full scale accelerated pavement testing.

Mr Morton is competent in the evaluation of road and airport pavement conditions and consequent design of rehabilitation options and materials specifications. He is an expert in the use of non-destructive and in-situ testing methods related to pavement structural capacity analyses and the analysis of tyre-pavement interaction and overloading. He possesses specialist skills in the design of ultra-heavy loaded pavements and high traffic roads. He has gained valuable knowledge in borrow pit investigations, mass earthworks, asphalt and pavement materials, labour intensive construction methods, pavement rehabilitation and recycling, low volume road construction, pavement maintenance and management including pavement management systems (PMS), planning and design of the upgrading of paved and gravel roads. He serves on technical committees related to accelerated pavement testing and asphalt technology.

Mr Morton served as Chairman of Railway Engineering at the University of Pretoria in South Africa (Senior Lecturer) from 2006 - 2008. He is experienced in rail freight logistics and associated research into railways. Mr Morton's qualifications include a Bachelors Degree in Civil Engineering (1999) and a Masters Degree in Transportation (2001) (Cum Laude) from the University of Pretoria, South Africa. He also holds a Masters Degree in Transportation and Traffic Engineering from the University of California in Berkeley, United States of America (2002).

Mr Morton has published over a dozen technical papers including 3 international refereed papers to the Transportation Research Board and the Federal Aviation Administration.

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## EXPERIENCE SUMMARY

### *Experience footprint:*

Mr Morton has undertaken work on four continents and has extensive experience in projects in Africa. Country experience is highlighted in the global map below.



**Leadership:**

Mr Morton has held numerous leadership positions over the past 10 years in engineering and construction. From 2009 to 2012 lead the aviation sector of global engineering firm Aurecon, where he formed part of the Aurecon Leadership Group and was a member of audit and risks groups. From 2014 - 2015 Mr Morton was appointed as Executive Director managing a construction division of JSE-listed Basil Read with an annual turnover of in excess of USD 600 million.

In addition he was the chairman of Spraypave (Pty) Ltd a specialist bitumen production company with annual turnover of USD 20 million from 2014 to 2016. As Executive Director from 2014-2015 at Basil Read Mr Morton undertook the corporate responsibility of developing and managing the strategy formulation for Basil Read.

Mr Morton is currently a Director in 5 engineering and construction based companies world-wide as well as an equity an equity shareholder in a USD 1 billion toll road project in West Africa.

**Construction Management:**

As Managing Director of Basil Read Roads Division in 2016, Mr Morton oversaw the construction of 15 transport related projects within Sub-Saharan Africa, with a team of 20 directly reporting managers and 15 support staff (1750 estimated construction staff) with an annual turnover of USD 160 million. He is presently the appointed commercial manager on a USD 225 million road infrastructure project.

**Design and Project Management:**

He has undertaken the design and project management of infrastructure projects to a value in excess of USD 6.5 billion:

- Aviation and Multidisciplinary – 25+ projects design and managed to the value of USD 2 billion
- Rail – 10+ projects, USD 700 + million
- Road and Highways – 30+ projects, USD 3.5 billion

Mr Morton is an expert in the design of airside pavements and highway pavements and is proficient in the following design systems:

- AASHTO
- AUSTRoads
- South African Mechanistic Pavement Design
- FAA pavement design & US Corp of Army Engineers
- Empirical pavement design systems utilised in Africa, Europe, Australasia and North America.

**Contract Management:**

Mr Morton has acted as Contract Engineer on construction works in excess of USD 4.5 billion.

**Independent Engineer:**

Mr Morton has fulfilled the role of Independent Engineer and specialist pavement auditor on construction works in excess of USD 500 million.

**Technical Management:**

Mr Morton managed the Basil Read Roads Division in 2016 with Annual turnover of USD 160 million. He was previously responsible for all airport infrastructure projects undertaken in Africa and Middle East for Aurecon between 2009 and 2012. Prior to 2009 he was responsible for all pavement engineering works undertaken by Ninham Shand within Africa, developing the Pavement Engineering Business Unit from initiation in 2002 to a division designing and managing construction works to the value of USD 60 million annually within a 5 year period.

**Forensic Audit and Expert Witness:**

Due to Mr Morton's extensive construction and engineering experience he currently assists consultant and legal clients in forensic auditing of infrastructure projects within the built environment. He has also performed the role of expert witness on airport and pavement related contractual disputes and litigation.

**Business Development:**

Mr Morton has successfully tendered and negotiated in excess of USD 2 billion in consultancy and construction contracts. He was appointed in 2011 as Global Airports Leader for Aurecon, responsible for business development within airport infrastructure globally, including skills development, competency development and knowledge management.

He was appointed as Head of Basil Read Business Development in 2013 responsible for the sourcing of contracts for the Construction divisions and within a 6-month tenure secured in excess of USD 85 million in contracts.

As Chairman of SprayPave, Mr Morton was involved in the development and fabrication of the Technix Bitumen Reactor which was commissioned in 2016. This reactor positioned SprayPave at the technological peak of bitumen production capable of producing performance grade binders from existing penetration grade binders or bitumen and vacuum residues.

Mr Morton serves as a director on 5 companies operating within the built environment, providing strategic direction. He is currently an owner and director in B2Square, a company providing the first sustainable, oil-independent solutions to the bitumen industry.

In 2019 Mr Morton formed part of the seniors management team who successfully negotiated and contracted a USD 105 million highway construction contract in Ghana. he is currently assisting in the development of civil infrastructure projects in Africa and the Americas with a combined value of USD 550 million. He is a founding partner of the concession consortium for the development of a USD 1,2 billion toll road in West Africa.

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\* Terminology: In North America "bitumen" is referred to as "asphalt" while "asphalt" is referred to as "asphalt concrete".

**EMPLOYMENT RECORD**

2021 -	B2Square, Director
2018 -	APS Engineering, Director
2015-2017	Basil Read, Executive Officer: Roads Division
2015	Basil Read, Managing Director: Roads
2014	Basil Read, Executive Director
2013	Basil Read, Strategic Commercial Director – Special Projects and Construction
2011 - 2013	Aurecon, Global Airport Leader
2009 - 2011	Aurecon, Technical Director, Airports
2007 - 2009	Ninham Shand, Director (Executive)
2003 - 2007	Ninham Shand, Principal and Associate
2002	Council for Scientific and Industrial Research, Heavy Vehicle Simulator Engineer/Research Engineer/Project Manager/Specialist Consultant
05/2001 - 07/2002	Pavement Research Centre (PRC) University of California, Berkeley, United States of America
2001	Specialised Research Technologies, Consultant Engineer/Materials Investigator
2000 - 2001	University of Pretoria, Chair in Transportation, Pretoria, South Africa

**LEADERSHIP EXPERIENCE**

2021 -	Director, B2Square
2018 -	Director: APS Engineering
2015-2017	Basil Read: Executive Officer – Roads Division
2015	Basil Read: Managing Director – Roads Division
2014	Basil Read: Executive Director
2013	Basil Read: Strategic Commercial Director – Special Projects and Construction
2009 - 2012	Aurecon: Technical Director: Transportation and Head of Airports Section
2007 - 2009	Ninham Shand: Director Transportation

## EXPERIENCE RECORD

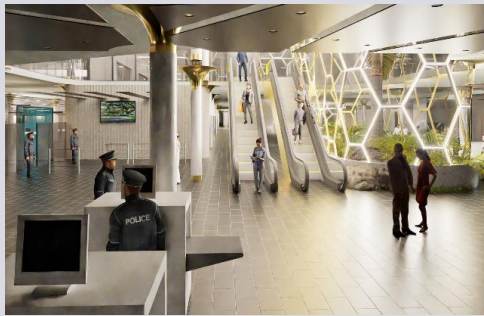
### Significant Projects: Airports

#### Cheddi Jagan International Airport – Terminal Expansion | Guyana, 2023



**Client:** Mowlem International for The Cooperative Republic of Guyana

**Description:** Development of a 4-phase expansion program for the expansion of the airport. Includes the construction of a 15,000 m<sup>2</sup> new arrivals terminal, relocation of Air Traffic Control Tower and Fire Station, reconfiguration of existing terminal into arrivals terminal, provision of two new aerobridges and 2 Code E apron stands and construction of construction of a Cargo Handling Facility.



The new terminal facility will provide direct access to the existing terminal landside as well as airside access through the existing concourse. The new terminal will provide large commercial retail facilities and incorporate newest processing technology including biometrics and full body scanning

**Construction Value:** Total value : 200 million estimated. Phase 1 – USD 80 Million

**Role:** Overall project management inclusive of design, financing and construction management

#### Rebuilding of Waterkloof Air Force Base | Gauteng, South Africa, 2006 - 2013



**Client:** Department of Public Works

**Description:** The airport was upgraded to international standards for continued future operational use for a period of 30 years. The design included all airside movement areas and services including a new hangar facility, Air Traffic Control Tower and Fire Station. The geotechnical design included dynamic compaction and the construction of largest fully instrumented raft foundations in Africa to mitigate dolomitic soil conditions and sinkhole formation.

**Construction Value:** USD 380 million

**Role:** Consortium Leader for Design Phases, Contract Engineer for Construction Phase

### Kumasi International Airport – Phase II and III | Ghana, 2018 - 2023



**Client:** Nurizon International

**Description:** The existing passenger terminal will be demolished and replaced with a new modern terminal, including a new aircraft rescue and firefighting facility, and air traffic control tower, ancillary buildings as well as upgraded parking, access road and landscaping.

The runway will be extended from its current length of 1,525m to 2,510 m to accommodate Code C aircraft, with spatial safeguarding for future Code E operations.

Taxiways and aprons will be upgraded, along with associated drainage systems and navigation aids

**Construction Value:** USD 185 million

**Role:** Pavement Design Specialist and Project Management of all civil works (Landside and Airside)

### Kumasi International Airport – Phase II and III | Ghana, 2018 - 2023



**Client:** Nurizon International

**Description:** The development of a new terminal facility and associated improvement to the airside infrastructure at the Kumasi International Airport. The airside scope of works includes runway extensions and strengthening, runway strip construction, taxiway and apron construction, new drainage system, security fencing and upgraded airfield lighting system to compliment the new 10,000 m<sup>2</sup> terminal facility.

**Construction Value:** USD 86.25 million

**Role:** Pavement Design Specialist and Project Management

### Howard Hamilton International Airport – Various Projects | Turks and Caicos, 2023



**Client:** BHM Construction International (UK) Limited

**Description:** The development of various airside and landside upgrades at the airport. These include, runway repairs and upgrades, rubber removal, AGL upgrades, terminal construction, aprons and taxiways expansions

**Construction Value:** USD 400 million (estimated)

**Role:** Pavement Engineering, Airport Design and Project Management

New Takoradi International Airport – Concept Development | Ghana, 2019 - 2022



**Client:** Bigen

**Description:** The project development of a new Takoradi International Airport on Greenfields site. The scope of works include the concept design of the full airside facility to accommodate Category 3C aircraft providing for inter-regional air traffic as a result of the growing aviation traffic generated within sub-Saharan Africa as part of Ghana Aviation Plan. Scope included the geometric and pavement engineering design of the associated airport as part of the business case

**Construction Value:** USD 200 million

**Role:** Airport Design

Waterkloof Air Force Base - Airbus A400M Strategic Airlift Facility | Gauteng, South Africa, 2006 - 2013



**Client:** Department of Public Works

**Description:** The project scope entailed the development of the complete squadron facilities and hangars, aprons and taxiways for the Airbus A400M Strategic Airlift Facility. The project included the design, tender documentation, project management and supervision of the construction of 2 main maintenance hangars, 2 minor maintenance hangars and 4 storage hangars (each hangar 65m length x 65m width x 24m height) and logistics, operations and maintenance buildings for the new squadron.

**Construction Value:** USD 173 million

**Role:** Consortium Leader

St Helena International Airport, St Helena, 2013 - 2016



**Client:** DFID UK Government

**Description:** Design, build and operate contract for the construction of new airport on St Helena Island. Major works include 27,000 m<sup>2</sup> of concrete paving, 8 million m<sup>3</sup> of rock fill, a 4,000 m<sup>2</sup> airport terminal, and 6 million litre bulk fuel installation. During the construction process over 70,000 tons of goods and equipment was shipped from Walvis Bay to St Helena

**Construction Value:** USD 488 million.

**Role:** Pavement Design Specialist

## Conceptual Design of the Relocation of Tete International Airport | Tete, Mozambique, 2014 - 2015



**Client:** Rio Tinto

**Description:** The project included the conceptual design of the relocation of Tete International Airport. Facilities to be relocated included all airside facilities with extensions to runway and taxiways to accommodate Code D aircraft. Landside facilities designed included all bulk services, ICAO buildings, access roads and new passenger terminals and parking facilities.

**Construction Value:** USD 195 million

**Role:** Project Director

### Significant Projects: Roads

## Development, Finance, Construction and Operation of Dakar To St Louis Highway | Senegal, 2018 - date



**Client:** Government of Senegal, Agreoute

**Description:** As a founding member of Trac<sup>2</sup> responsible for the bid for the development of the toll road concession over a 25 year period with the Senegal government. The projects involves the construction and operation of a circa 200 km toll road extending from Dakar to St Louis.

The works include the provision of a Greenfields four-lane single carriageway grade separated road with central concrete barrier. The design includes for the construction of:

- 6 x major interchanges
- 9 x toll stations
- 19 over passes
- 16 under pass bridge structures
- 2 x Direct Access Service Stations

The works will be completed in 8 sections over 5 years with operations of the first toll road sections to commence in 2026

**Project Value:** circa. USD 1.2 billion

**Role:** Consortium Technical Leader, Partner in Trac<sup>2</sup>

**N3 Toll Road – Independent Engineers | Free State/Kwa-Zulu Natal, South Africa, 2003 - 2013**



**Client:** N3 Toll Company/South African National Roads Agency

**Description:** Independent Engineer representing both the Concessionaire and SANRAL to assist as independent advisors on the road during the concession period. Scope of services extended to all aspects of civil engineering but predominantly focuses on the maintenance and upgrading of the N3 road infrastructure and review of the toll model for the 25 year duration of the toll road contract.

**Construction Value:** USD 1.15 Billion

**Role:** Project Director & Pavement Engineering Specialist

**Finance, Design and Construction of the Tema – Aflao Road – Phase 1 | Ghana, 2018 - date**



**Client:** BHM International UK

**Description:** Design and Construction of a new 167 km 6-lane expressway extending from Accra to the Togo border. Design includes interchanges and 2 lane service roads within urban regions in addition to the construction of a new drainage system and 30 bridges. Major bridges include the 600 m bridge over the Volta river and the viaduct extending across the Lome estuary. APS provided overall technical and design management services, costing and programming works and overall concept development for the project

**Construction Value:** USD 1.25 billion (total), Phase 1 - USD 220 million

**Role:** Project Manager and Specialist Pavement Engineer

**Upgrading of Road R23 – Greylingstad to Platrand | Mpumalanga, South Africa, 2013 - 2015**



**Client:** South African National Roads Agency

**Description:** Upgrading of the rural road R23 over a distance of 65 km. The upgrade includes the strengthening of the existing pavement, widening and provision of climbing lanes, vertical realignment of road sections, reconstruction of 6 bridges and widening of 13 major drainage structures. Surfacing consisted of modified asphalt concrete designed for ultra-heavy loads.

**Construction Value:** USD 105.6 million

**Role:** Managing Director

Rehabilitation of TR 31 from Ashton to Montagu | Western Cape Province, South Africa, 2015 - 2017



**Client:** Western Cape Government, Transport and Public Works

**Description:** The project entails the complete rehabilitation of the Cogmans Kloof Pass from Montagu to Ashton. The works include 13.4 km of new roadworks, 3 major realignments requiring significant blasting operations, 4 bridge structures and the new Ashton Cable Arch Bridge of over 100 m length and mass of 6,500 tons. The accommodation of traffic requires the construction of the bridge off-centre which will be jacked into position on the final alignment as one of the final phases of the project.

**Construction Value:** USD 63.25 million

**Role:** Executive Officer/Managing Director

Construction of Redhouse Chelsea Interchange | Eastern Cape, South Africa, 2014 - 2015



**Client:** South African National Roads Agency

**Description:** The project scope was for the construction of a new interchange to facilitate access from the national road network to the adjacent community and developments including a new shopping mall. Works included the construction of 5 major bridges, frontage roads, access roads, pedestrian facilities and associated services.

**Construction Value:** USD 34.5 million

**Role:** Managing Director

**Significant Projects: Rail**

FEL2: Expansion of the Northern Cape-Saldanha Bay Ore Export | Western Cape, South Africa, 2011-2012



**Client:** Transnet and Mining Companies

**Description** The project scope included the study of the expansion of the Northern Cape-Saldanha Bay ore export channel beyond the current contract capacity of 60 Mtpa, to accommodate both iron-ore and manganese ore commodities. In the pursuit of finding an expansion solution for the targeted 92 Mtpa throughput, Aurecon developed a base solution involving as a cornerstone, an 84 slot timetable, combined with higher utilisation of slots and longer (360 wagon) ore trains, higher efficiencies and reduction in GFB traffic. The proposed FEL-2 solution strategy incorporates infrastructure upgrades to the rail and port in addition to the introduction of an integrated co-ordinated control centre and an iron ore consolidation yard for the new entrants. The infrastructure upgrade is complemented by new 15 locomotives and longer 360



wagon trains. Responsible for project management, project co-ordination and financial control of a team of 95 engineers working on 3 continents with monthly design fee of USD 0.85 million.

**Construction Value:** USD 3.4 Billion

**Role:** Project Manager

### *Significant Projects: Ports*

#### Port of Ngquru Construction of Admin Craft Basin | Eastern Cape, South Africa, 2015



**Client:** Transnet Capitol Projects

**Description:** The project was for the construction of a new admin craft basin including breakwater, finger jetty and administrative buildings platform. Works include the dewatering of the portion of the bay through use of the breakwater and GSR membrane followed by mass excavation and reflooding of basin.

**Construction Value:** USD 34.5 million

**Role:** Managing Director

### *Significant Projects: Industrial*

#### Development of Industrial Business Parks | Uganda, 2022



**Client:** Uganda Investment Authority

**Description:** Development of Industrial Business Parks for Pader, Nebbi, Rukungiri, Madi-Okollo Districts in Uganda. The project objective is the provision of critical infrastructure at each business park based on a phased development of a sustainable agri-business for the processing of agricultural products in each district and its immediate surrounding areas. The parks are self-financing repaying the initial investment over a 15-year period while created circa 300,000 job opportunities are the next 25 years.

**Construction Value:** USD 400 million

**Role:** Project Manager

\* all monetary values adjusted to 2024 values

**Project Experience Summary** (values adjusted to 2024 monetary value)

Project Description	Role	Year	Construction Value (USD mil)	Client
<b>Airports</b>				
Chaddi Jagan International Airport Terminal – Concept Development   Guyana	Engineering Specialist	2023	85	CJIA Authority
Howard Hamilton International Airport – Concept Development   Turks and Caicos Islands	Engineering Specialist	2023	400	BHMC
Takoradi International Airport – Concept Development   Ghana	Engineering Specialist	2021	200	GAC (Bigen)
Helistop for Nelson Mandela Children's Hospital   South Africa	Engineering Specialist	2020	1.2	Nelson Mandela Children's Hospital (CKR Consulting)
London Heathrow Airport – Repairs to Taxiways   United Kingdom	Engineering Specialist	2019	4.6	Dyer and Butler (Nurizon)
Kumasi International Airport   Ghana	Engineering Specialist	2018	86.25	Contracta (Nurizon)
St Helena International Airport   St Helena	Engineering Specialist	2015	488	DFID
Principe International Airport Upgrade   São Tomé and Príncipe	Project Director	2013	8.28	HBD STP - Investimentos Turísticos, Unipessoal, Lda.,
OR Tambo International Airport - Pavement Rehabilitation of Selected Aprons and Taxiways   South Africa	Project Director	2012	13.8	Airports Company South Africa
Upington International Airport: MRO Facility: Preparation of Business Plan for Aircraft Storage and Maintenance Facilities   South Africa	Project Director	2012	46	Airports Company South Africa
Mmamabula Energy Project – Airfield   Botswana	Engineering Specialist	2012	9.2	CIC Energy

Upgrade of existing Ndjili Airport   Democratic Republic of the Congo	Project Director	2012	82.8	Airports Company South Africa (ACSA) / RVA and Government of the Democratic Republic of Congo
Landing Strip for MeerKAT Satellite Project (SKA)   South Africa	Project Director	2012	6.2	Square Kilometre Array (SKA) South Africa
Construction Supervision of the Rehabilitation of Aircraft Movement Areas at Uige Airport   Angola	Project Director	2012	39	National Company of Airport Exploration & Air Navigation
Sikhuphe International Airport - Project Management   Swaziland	Project Director	2012	420	Swaziland Ministry of Economic Planning and Development
São Tomé International Airport   São Tomé and Príncipe	Specialist	2011	276	Equator Investments
Huambo Airside Pavements: Reconstruction of runway and airside pavements   Angola	Project Director	2011	46	Zagope
Dundo and Saurimo Airports   Angola	Project Director	2011	19	Zagope
Nacala Airport Runway Reconstruction - Geotechnical Investigations and Pavement Design   Mozambique	Engineering Specialist	2011	35	Oderbrecht
Runway Extension and ATS Tower at Polokwane International Airport   South Africa	Project Director	2011	9.8	Gateway Airports Authority Limited
Rehabilitation of Hosea Kutako International Airport   Namibia	Engineering Specialist	2011	20.25	Namibia Airports Company
Design and Preparation of bidding documents for the upgrading and rehabilitation of Mejametalalana Airport   Lesotho	Project Director	2010	7	Lesotho Ministry of Public Works & Transport
Design and supervision of Inhambane Airport's landside area   Mozambique	Engineering Specialist	2010	9.2	Aeroportos de Moçambique (ADM)
Conceptual Design of Facilities Upgrade of Moshoeshoe International Airport   Lesotho	Project Director	2010	155	Lesotho Department of Public Transport and Civil Aviation Authority
Design and documentation for the upgrading and rehabilitation of Mejametalalana Airport   Lesotho	Project Director	2010	5.35	Department of Public Transport

Maintenance and Remedial Works to Concrete and Asphalt Hardstands and Taxiways at Bloemspuit Air Force Base   South Africa	Project Director	2009	5	Department of Public Works/South African Air Force
Bloemfontein International Airport: Reconstruction and rehabilitation of airside pavements   South Africa	Engineering Specialist	2008	20.7	Ndodana Consulting Engineers
Kimberley and Upington Airports: maintenance to airside and landside facilities   South Africa	Engineering Specialist	2006	8.7	Ndodana Consulting Engineers
Swartkops Air Force Base: Rehabilitation of Main Runway   South Africa	Project Director	2006	4.3	Department of Public Works (DPW)
Design of Cape Town International Airport Apron   South Africa	Engineering Specialist	2003	9.2	Airports Company South Africa
Rehabilitation Design of Runways and Taxiways at the East London and Port Elizabeth Airports   South Africa	Engineering Specialist	2002	9.2	Manong and Associates
<b>Highways and Roads</b>				
West Bank Demerara to East Bank Essequibo Road Linkage Project   Guyana	Project Director	2023	425	BHMCi
Design for Upgrading of Road D3333 and D3370   South Africa	Pavement Engineer	2023	8.5	Roads Agency Limpopo
Special Maintenance of Roads D626 and D625 in Maubane   South Africa	Pavement Engineer	2023	1.5	North West Department of Public Works and Transport
Rehabilitation of the Karee Military Base – Civil   South Africa	Pavement Engineer	2022	16.5	Department of Public Works
Design and Supervision of Road D3180 from Mahakasi to R529 Shamfana   South Africa	Pavement Engineer	2022	5.8	Roads Agency Limpopo
Construction of Lobethal to Tisane Access Road   South Africa	Pavement Engineer	2021	2.3	Makhuduthamaga Municipality
Special Maintenance of Road R104 from Majakaneng to Hartebeespoort as well as Appurtenant Works   South Africa	Contract Engineer	2022	5.8	North West Department of Public Works and Transport
Rehabilitation of the Karee Military Base – Civil   South Africa	Engineering Specialist	2022	11.6	Department of Public Works
Ga-Kgapane Extension 12 (Mooiplaas 434-Lt) – Professional Services for Civil Engineering Bulk Infrastructure   South Africa	Pavement Engineer	2021	7.6	Greater Letaba Municipality
Construction of Drainage Channel along Solomon Mahlangu Drive, Mamelodi Extensions 4 & 5   South Africa	Contract Engineer	2021	3.5	City of Tshwane Metropolitan Municipality

Upgrading of Roads from Gravel to Surfaced in Ekangala Ward 103 and 104   South Africa	Contract Engineer	2020	7.5	City of Tshwane Metropolitan Municipality
Construction of Maruleng Low Level Bridges   South Africa	Contract Engineer	2020	3.5	Maruleng Municipality
Construction of Mahatlane Bridge   South Africa	Contract Engineer	2020	<1	Collins Chabane Municipality
Reconstruction of Iridium Street   South Africa	Pavement Engineer	2019	3.5	Johannesburg Roads Agency
Upgrading of Mosa Road (Makoko)   South Africa	Design Engineer	2019	11.6	Mbombela Municipality
Paving of Tsila to Thithi Road	Design Engineer	2019	5.8	Mbombela Municipality
Patch and Repair of Sections of Road D609   South Africa	Design Engineer	2019	4.8	North West Department of Public Works and Transport
Rehabilitation of Road D415 Gopane   South Africa	Pavement Engineer	2018	4.9	North West Department of Public Works and Transport
BelAir Mine Haul Road Design: Alufer Mining	Pavement Engineer	2018	6.5	Brute Ltd/Nurizon Consulting
Development, Finance, Construction and Operation of Dakar To St Louis Highway   Senegal	Partner/Contract Engineer	2018	1 392	Government of Senegal/Agreroute
Nkwe Platinum Mine: Community Access Road Upgrade   South Africa	Pavement Engineer	2018	1.75	Nkwe Platinum Mine
Rehabilitation of Road D1263 from Brits to Sonop   South Africa	Contract Engineer	2018	14	North West Department of Public Works and Transport
Upgrading of Polokwane Streets	Pavement Engineer	2018	40	Polokwane Local Municipality (Sejagobe Engineers)
Finance, design and construction of the Tema – Aflao Road – Phase 1   Ghana	Pavement Specialist/Commercial Specialist	2018	250	BHM (Nurizon International)
Rehabilitation of National Route 3 between Cedara and Mooi River	Executive Officer	2017	60	N3 Toll Concession Company
Management and Execution of Routine Road Maintenance Contracts on selected RISFSA Classes 1&2 Provincial Roads in Vereeniging Region of Gauteng Province	Executive Officer	2017	25	Gauteng Department of Public Works and Transport

Construction of the Musina Ring Road on National Route N1	Executive Officer	2016	75	South African Roads National Agency Limited
Construction of the Polokwane Eastern Ring Road on National Route N1	Executive Officer	2016	81	South African Roads National Agency Limited
Upgrading of National Route R61 from Biziya to Mthatha	Executive Officer	2015	67	South African Roads National Agency Limited
Upgrading of Murchinson to Marburg Interchange   South Africa	Managing Director	2015	45.2	South African Roads National Agency Limited
Upgrading of N5 Haldon Interchange   South Africa	Managing Director	2015	13.3	South African Roads National Agency Limited
Upgrading of Kroonstad to Parys   South Africa	Managing Director	2015	11.6	Free State Department of Transport
Construction of Itezhi-Tezhi Road   Zambia	Managing Director	2015	40.6	Build Trust Construction
Gonubie Main Road Upgrading   South Africa	Managing Director	2015	14.5	Buffalo City Municipality
Construction EN221 Gaza Road   Mozambique	Director	2014	61.5	Opway
Assessment, Detailed Design, Construction Documentation and Construction Monitoring of Repairs/Reseal of N18 from NC/NW Boundary to Mafikeng   South Africa	Project Director	2013	26.7	South African National Roads Agency Limited:
Upgrading and rehabilitation of Section 3 of National Route N17   South Africa	Project Director	2012	70	South African National Roads Agency Limited
Doubling and Upgrading of Simon Vermooten Road between Waltloo Road and Lynnwood Road   South Africa	Project Director	2012	27.3	City of Tshwane
Upgrading of William Nicol Drive from the Indaba Hotel to the Proposed PWV6 Interchange   South Africa	Engineering Specialist	2012	17.4	Gauteng Department of Transport
Preliminary Design of the Proposed Frontage Road and 8-lane Dual Carriageway of PWV9   South Africa	Engineering Specialist	2008	278	Gauteng Department of Transport
Rehabilitation of Road P85/1 between Bela-Bela and National Route N1 in the Limpopo Province   South Africa	Engineering Specialist	2008	11.8	Roads Agency Limpopo
Upgrading of Jericho Dam Access Road to Bituminous Standards   South Africa	Engineering Specialist	2007	8.1	Department of Water Affairs and Forestry

Maintenance and Reseal / Asphalt Overlay of 25km of 4-lane National Route R30 from Virginia to Welkom   South Africa	Project Director	2006	7.8	South African National Roads Agency Limited
Upgrading of Gravel Roads S647 (23km) and S1381 (9km) to a Bitumen Standard   South Africa	Engineering Specialist	2006	6.5	Free State Department of Transport
Upgrading and Rehabilitation of National Route N2 between Soutwerke and Colchester   South Africa	Engineering Specialist	2005	11.2	South African National Roads Agency
Rehabilitation of Road D1235 from Northam to Brits   South Africa	Engineering Specialist	2004	6.4	Roads Agency Limpopo
Upgrading of Road P277/1 in Thohoyandou   South Africa	Engineering Specialist	2004	6.6	Roads Agency Limpopo
Paardeberg Road/P10-2 Interchange   South Africa	Engineering Specialist	2004	6.4	Free State Department of Transport
Extension of Elgin and Constantia Roads in Pomona   South Africa	Engineering Specialist	2004	10.2	Gauteng Department of Transport
Design and Construction of the Klip/Kruisfontein Intermodal Facility   South Africa	Engineering Specialist	2004	7.25	City Of Tshwane
Overlay of Rivonia / Buccleuch Interchange   South Africa	Engineering Specialist	2003	9	South African National Roads Agency Limited
<b>Rail/Ports</b>				
FEL2: Expansion of the Northern Cape-Saldanha Bay Ore Export Channel   South Africa	Project Director	2012	3 422	The Mining Companies and Transnet
Gautrain Rapid Rail Link   South Africa	Engineering Specialist	2007	156	Bombela Consortium
<b>Industrial</b>				
Civil Design Package of Paarde Valley PV2 Farm in De Aar   South Africa	Project Director	2025	5	Ablon/Total Energies
Civil Design package of Sonvanger PV Farm in Theunissen   South Africa	Project Director	2025	4.8	Ablon/Total Energies
Industrial Business Parks   Uganda	Engineering Specialist	2022	400	Uganda Investment Authority

Specialist/Studies/Pavement Management				
Umgeni Water: Technical Engineering Review: Greater Mpofana Bulk Water Scheme: The Construction of a 13.2 km Rising Main from Rosetta Water Treatment Works to Bruntville   South Africa	Engineering Specialist	2020	<1	Bowmans
Lepelle-Nkumpi Municipality: Technical Review of Various Infrastructure Projects and Appointments   South Africa	Engineering Specialist	2019	<1	Bowmans
Technical Assessment of Capricorn District Municipality Project WSIG Projects  South Africa	Engineering Specialist	2018	<1	Bowmans
Expert Witness – Principe International Airport	Engineering Specialist	2018	<1	Aurecon
Analysis of Various Clay-Fired Brick Pavers for Industrial Usage   South Africa	Engineering Specialist	2011	<1	Corrobrick
Visual condition assessment of the unpaved road network   South Africa	Engineering Specialist	2009	<1	North West Department of Public Transport, Roads and Safety
Visual Condition Assessment of Paved and Unpaved Roads and the Provision of Pavement Management Strategy   South Africa	Engineering Specialist	2007	<1	Matatiele Municipality
Umshwathi visual assessment and pavement management system   South Africa	Engineering Specialist	2007	<1	Umshwathi Municipality
N1 Platinum Toll Road – Specialist Review   South Africa	Engineering Specialist	2006	44.1	Mclarens Toplis Loss Adjusters
Life Cycle Cost Analysis of the Gauteng to Durban Freight Corridor   South Africa	Study Leader	2005	<1	n/a
Provision of a Pavement Management System   South Africa	Engineering Specialist	2005	<1	Ukhahlamba District Municipality
Specialist Review of the Brakfontein Haulage Road Pavement Design   South Africa	Engineering Specialist	2004	5.9	Brakfontein Mine
Economic Feasibility Study of the Upgrading of a Gravel Road to Low Volume Paved Road   South Africa	Engineering Specialist	2004	<1	Makana Municipality
Development of a Roads Master Plan   South Africa	Engineering Specialist	2004	<1	Maluti-A-Phofung Local Municipality

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## EDUCATION

2002	MS (Transportation and Traffic Engineering), University of California, Berkeley, United States of America
2001	MEng (Transportation) (Cum Laude) University of Pretoria, South Africa
1999	BEng (Civil) (First Class) University of Pretoria, South Africa

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## ACADEMIC EXPERIENCE

### *University of Pretoria, South Africa*

Senior Lecturer - Chair of Railway Engineering (2006 - 2008)

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## RESEARCH SUPERVISION

Tshwane University of Technology (TUT), Pretoria, South Africa. 2006. External moderator for MJ Cilliers. Thesis titled "Establishing uncertainty limits for selected test methods in civil engineering laboratories"

Tshwane University of Technology (TUT), Pretoria, South Africa. 2006. External moderator for KL Tshivhase. Thesis titled "Moisture sensitivity of selected foamed bitumen treated materials"

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## MEMBERSHIPS

Registered as a Professional Engineer at the Engineering Council of South Africa

Registered as an International Professional Engineer

Member of the Institute of Directors of South Africa

Steering Committee Member of the Society for Asphalt technology

Committee member for the International Accelerated Pavement Testing Group (2002)

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## RESEARCH PROJECTS

1. Morton BS, 2001. ***Evaluation of the Rehabilitation Process of Flexible Pavements***. CALTRANS, USA.
  2. Morton BS, 2001. ***Study into the Effect of use of Recycled Asphalt Pavement (RAP)***. CALTRANS/LTPP, USA.
  3. Morton BS, 2000. ***CAL/ AAPT Goal 3 - Study of Aggregate Base Material***. California, USA.
  4. Morton BS, 2000. ***Foamed Asphalt Study - Status Quo and Technology Application***. California, USA.
  5. Morton BS, 2000. ***Seasonal Testing of Pavements***. LTPP/TRB, USA.
  6. Morton BS, 1999. ***Research of Deep In-Situ Recycling and Foamed Tar***. THRIP/University of Pretoria, South Africa.
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## HONOURS AND AWARDS

CALTRANS/CSIR Bursary for International Studies (University of California, Berkeley), 2000

Best Student in Masters in Transportation, University of Pretoria, South Africa, 1999

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## PUBLICATIONS/PRESENTATIONS

1. Morton B, Horak E, Hartmann A, 2023. ***Innovation and technology transfer on the Tema Expressway, Ghana***. 13<sup>th</sup> Conference of Asphalt Pavements of Southern Africa.
  2. Morton B, Horak E, Marais H, Hofsink W, van Aswegen E, 2015. ***Premature failures of asphalt wearing courses on newly constructed crushed stone base course***. 11<sup>th</sup> Conference of Asphalt Pavements of Southern Africa.
  3. Morton B, Horak E, van Niekerk G, 2011. Holistic Pavement Design Incorporating Environmentally ***Friendly Material Utilization on Sinkhole Prone Runway Reconstruction***. 10<sup>th</sup> Conference of Asphalt Pavements of Southern Africa.
  4. Morton B, Horak E, Emery S, 2010. ***Roughening Up a Wet Pavement Surface***. South African Road Federation Conference.
  5. Morton B, 2007. ***A Life Cycle Cost Analysis of the Gauteng to Durban Freight Corridor: Maintenance Costing***. Paper published and presented at the South African Transport Conference held in Pretoria, South Africa.
  6. Morton B, 2007. ***A Life Cycle Cost Analysis of the Gauteng to Durban Freight Corridor: Infrastructure Costing***. Paper published and presented at the South African Transport Conference held in Pretoria, South Africa.
  7. Morton B, 2004. ***Foamed Tar Stabilisation: State of the Art Review and Long Term Pavement Performance Incorporating New Accelerated Pavement Testing Method***. 8<sup>th</sup> Conference of Asphalt Pavements of Southern Africa.
  8. Morton B, 2006. ***A Life Cycle Cost Analysis of the N3 Freight Corridor: Introduction to Study***. Paper published and presented at the South African Transport Conference held in Pretoria, South Africa.
  9. Morton B, 2004. ***The Effect of Axle Load Spectra and Tyre Inflation Pressures on Standard Pavements Design Methods***. 8<sup>th</sup> Conference of Asphalt Pavements of Southern Africa.
  10. Morton B, 2003. ***The Use of Foamed Tar for the Construction of Flexible Pavement using the Existing Unpaved Road Structure***. 8<sup>th</sup> Annual TRB Conference on Low Volume Roads.
  11. Morton B, 2002. ***Heavy Vehicle Simulator Operations: Protocol for The Instrumentation, Data Collection and Data Storage***. TR - 2002/21. CSIR Transportek, South Africa.
  12. Morton B, 2002. ***First Level Analysis Report: Comparative Testing Of HVS Mk III And HVS Mk IV+ on Road D2388 near Cullinan***. CR - 2002/81. CSIR Transportek, South Africa.
  13. Morton B, 2002. ***Foamed Asphalt: A Review of the Basic Principles***. Pavement Research Center. University of California, United States of America.
  14. Morton B, 2002. ***The Application of Foamed Tar Technology to Labour Intensive Construction of Low Volume Roads***. Paper published and presented at the 2002 South African Transport Conference held in Pretoria, South Africa.
  15. Morton B, 2002. ***Foamed Tar Technology: An Innovation in Pavement Stabilization***. Federal Aviation Administration Technology Transfer Conference held in Atlantic City, United States of America.
  16. Morton B, 2002. ***Investigation of the Foamability of Tar and Characterization and Optimisation of Foamed Tar***. Paper published in the International Journal of Road Materials and Design.
  17. Morton B, 2001. ***The Foamability of Tar and the Engineering Properties of Foamed Tar Mixes***. Master in Engineering Dissertation, University of Pretoria, South Africa.
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