

**Heritage impact assessment for the
PROPOSED UPGRADE OF SECTION 10 OF THE N11 NATIONAL ROAD,
MIDDELBURG TO LOSKOP DAM, MPUMALANGA PROVINCE**

HERITAGE IMPACT ASSESSMENT FOR THE PROPOSED UPGRADE OF SECTION 10 OF THE N11 NATIONAL ROAD, MIDDELBURG TO LOSKOP DAM, MPUMALANGA PROVINCE

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Prepared for:

LIDWALA Consulting Engineers

Project Manager: Mr R Retief

Postal Address: P O Box 4221, Northcliff, 2115
Tel: 087 351 5145
Fax: 011 793 5476
E-mail: RRetief@lidwala.com

Prepared by:

J van Schalkwyk (D Litt et Phil), Heritage Consultant

ASAPA Registration No.: 168

Principal Investigator: Iron Age, Colonial Period, Industrial Heritage

Postal Address: 62 Coetzer Avenue, Monument Park, 0181
Mobile: 076 790 6777
Fax: 012 347 7270
E-mail: jvschalkwyk@mweb.co.za

Declaration:

I, J.A. van Schalkwyk, declare that I do not have any financial or personal interest in the proposed development, nor its developers or any of their subsidiaries, apart from the provision of heritage assessment and management services.



J A van Schalkwyk (D Litt et Phil)
Heritage Consultant
January 2012

EXECUTIVE SUMMARY

HERITAGE IMPACT ASSESSMENT FOR THE PROPOSED UPGRADE OF SECTION 10 OF THE N11 NATIONAL ROAD, MIDDELBURG TO LOSKOP DAM, MPUMALANGA PROVINCE

The South African National Roads Agency Limited (SANRAL) propose to rehabilitate Section 10 of the N11, from north of Middelburg to north of Loskop Dam. The total distance is approximately 50 km.

In accordance with Section 38 of the NHRA, an independent heritage consultant was appointed by **Lidwala Consulting Engineers** to conduct a Heritage Impact Assessment (HIA) to determine if any sites, features or objects of cultural heritage significance occur within the boundaries of the area where it is planned to upgrade the road.

The cultural landscape qualities of the region essentially consist of one component. The first is a rural area in which the human occupation is made up of a pre-colonial element (Stone Age and Iron Age) as well as a much later colonial (farmer and industrial) component.

The aim of the survey was to locate, identify, evaluate and document sites, objects and structures of cultural significance found within the area in which it is proposed to upgrade the road.

The cultural landscape qualities of the region essentially consist of one component. The first is a rural area in which the human occupation is made up of a pre-colonial element (Stone Age and Iron Age) as well as a much later colonial (farmer and industrial) component.

- A number of memorials commemorating people who have died in accidents on the road, occur sporadically along the road. Where memorials are affected, the current situation must be photographed, then remove the memorial (and any plaques etc.) before construction work and installation and replace afterwards.
- Old A-frame telephone poles occur for sections along the route. These are older than 60 years. Where the telephone poles are affected, the current situation must be photographed, after which they can be removed.
- A road bridge that is older than 60 years. If there is to be an impact on it, it should be documented beforehand.

Based on current information regarding sites in the surrounding area, all sites known to occur in the study region are judged to have Grade III significance and therefore would not prevent the proposed development for continuing after the implementation of the proposed mitigation measures and its acceptance by SAHRA.

Therefore, from a heritage point of view we recommend that the proposed development can continue. However, we request that if archaeological sites or graves are exposed during construction work, it should immediately be reported to a heritage practitioner so that an investigation and evaluation of the finds can be made.



J A van Schalkwyk
Heritage Consultant
January 2012

TECHNICAL SUMMARY

Property details						
Province	Mpumalanga & Limpopo					
Magisterial district	Middelburg & Groblersdal					
Topo-cadastral map	2529AD, 2529CB, 2529CD					
Closest town	Middelburg					
Farm name	Various					
Portions/Holdings	-					
Coordinates	End points (approximate)					
	No	Latitude	Longitude	No	Latitude	Longitude
	1	S 25.73446	E 29.46333	2	S 25.37530	E 29.34379

Development criteria in terms of Section 38(1) of the NHR Act	Yes/No
Construction of road, wall, power line, pipeline, canal or other linear form of development or barrier exceeding 300m in length	Yes
Construction of bridge or similar structure exceeding 50m in length	No
Development exceeding 5000 sq m	No
Development involving three or more existing erven or subdivisions	No
Development involving three or more erven or divisions that have been consolidated within past five years	No
Rezoning of site exceeding 10 000 sq m	No
Any other development category, public open space, squares, parks, recreation grounds	No

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GLOSSARY OF TERMS AND ABBREVIATIONS

TERMS

Study area: Refers to the entire study area as indicated by the client in the accompanying Fig. 1 & 2.

Stone Age: The first and longest part of human history is the Stone Age, which began with the appearance of early humans between 3-2 million years ago. Stone Age people were hunters, gatherers and scavengers who did not live in permanently settled communities. Their stone tools preserve well and are found in most places in South Africa and elsewhere.

Early Stone Age	2 000 000 - 150 000 Before Present
Middle Stone Age	150 000 - 30 000 BP
Late Stone Age	30 000 - until c. AD 200

Iron Age: Period covering the last 1800 years, when new people brought a new way of life to southern Africa. They established settled villages, cultivated domestic crops such as sorghum, millet and beans, and they herded cattle as well as sheep and goats. These people, according to archaeological evidence, spoke early variations of the Bantu Language. As they produced their own iron tools, archaeologists call this the Iron Age.

Early Iron Age	AD 200 - AD 900
Middle Iron Age	AD 900 - AD 1300
Late Iron Age	AD 1300 - AD 1830

Historical Period: Since the arrival of the white settlers - c. AD 1840 - in this part of the country

ABBREVIATIONS

ADRC	Archaeological Data Recording Centre
ASAPA	Association of Southern African Professional Archaeologists
BP	Before Present
CS-G	Chief Surveyor-General
EIA	Early Iron Age
ESA	Early Stone Age
LIA	Late Iron Age
LSA	Later Stone Age
HIA	Heritage Impact Assessment
MSA	Middle Stone Age
NASA	National Archives of South Africa
NHRA	National Heritage Resources Act
PHRA	Provincial Heritage Resources Agency
SAHRA	South African Heritage Resources Agency

HERITAGE IMPACT ASSESSMENT FOR THE PROPOSED UPGRADE OF SECTION 10 OF THE N11 NATIONAL ROAD, MIDDELBURG TO LOSKOP DAM, MPUMALANGA PROVINCE

1. INTRODUCTION

The South African National Roads Agency Limited (SANRAL) propose to rehabilitate Section 10 of the N11, from north of Middelburg to north of Loskop Dam. The total distance is approximately 50 km.

South Africa's heritage resources, also described as the 'national estate', comprise a wide range of sites, features, objects and beliefs. However, according to Section 27(18) of the National Heritage Resources Act (NHRA), Act 25 of 1999, no person may destroy, damage, deface, excavate, alter, remove from its original position, subdivide or change the planning status of any heritage site without a permit issued by the heritage resources authority responsible for the protection of such site.

In accordance with Section 38 of the NHRA, an independent heritage consultant was appointed by **Lidwala Consulting Engineers** to conduct a Heritage Impact Assessment (HIA) to determine if any sites, features or objects of cultural heritage significance occur within the boundaries of the area where it is planned to upgrade the road.

This HIA report forms part of the Environmental Impact Assessment (EIA) as required by the EIA Regulations in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998) and is intended for submission to the South African Heritage Resources Agency (SAHRA).

2. TERMS OF REFERENCE

2.1 Scope of work

The scope of work for this study consisted of:

- Conducting of a desk-top investigation of the area, in which all available literature, reports, databases and maps were studied.
- A visit to the proposed development area.

The objectives were to

- Identify possible archaeological, cultural and historic sites within the proposed development area;
- Evaluate the potential impacts of construction, operation and maintenance of the proposed development on archaeological, cultural and historical resources;
- Recommend mitigation measures to ameliorate any negative impacts on areas of archaeological, cultural or historical importance.

2.2 Limitations

- The unpredictability of buried archaeological sites and graves.

Table 1: Applicable category of heritage impact assessment study and report.

Type of study	Aim	SAHRA involved	SAHRA response
Heritage Impact Assessment	The aim of a full HIA investigation is to provide an informed heritage-related opinion about the proposed development by an appropriate heritage specialist. The objectives are to identify heritage resources (involving site inspections, existing heritage data and additional heritage specialists if necessary); assess their significances; assess alternatives in order to promote heritage conservation issues; and to assess the acceptability of the proposed development from a heritage perspective.	Provincial Heritage Resources Authority	Comments on built environment and decision to approve or not
	The result of this investigation is a heritage impact assessment report indicating the presence/ absence of heritage resources and how to manage them in the context of the proposed development. Depending on SAHRA's acceptance of this report, the developer will receive permission to proceed with the proposed development, on condition of successful implementation of proposed mitigation measures.	SAHRA Archaeology, Palaeontology and Meteorites Unit	Comments and decision to approve or not

3. HERITAGE RESOURCES

3.1 The National Estate

The NHRA (No. 25 of 1999) defines the heritage resources of South Africa which are of cultural significance or other special value for the present community and for future generations that must be considered part of the national estate to include:

- places, buildings, structures and equipment of cultural significance;
- places to which oral traditions are attached or which are associated with living heritage;
- historical settlements and townscapes;
- landscapes and natural features of cultural significance;
- geological sites of scientific or cultural importance;
- archaeological and palaeontological sites;
- graves and burial grounds, including-
 - ancestral graves;
 - royal graves and graves of traditional leaders;
 - graves of victims of conflict;
 - graves of individuals designated by the Minister by notice in the Gazette;
 - historical graves and cemeteries; and
 - other human remains which are not covered in terms of the Human Tissue Act, 1983 (Act No. 65 of 1983);
- sites of significance relating to the history of slavery in South Africa;
- movable objects, including-
 - objects recovered from the soil or waters of South Africa, including archaeological and palaeontological objects and material, meteorites and rare geological specimens;
 - objects to which oral traditions are attached or which are associated with living heritage;

- ethnographic art and objects;
- military objects;
- objects of decorative or fine art;
- objects of scientific or technological interest; and
- books, records, documents, photographic positives and negatives, graphic, film or video material or sound recordings, excluding those that are public records as defined in section 1(xiv) of the National Archives of South Africa Act, 1996 (Act No. 43 of 1996).

3.2 Cultural significance

In the NHRA, Section 2 (vi), it is stated that “cultural significance” means aesthetic, architectural, historical, scientific, social, spiritual, linguistic or technological value or significance. This is determined in relation to a site or feature’s uniqueness, condition of preservation and research potential.

According to Section 3(3) of the NHRA, a place or object is to be considered part of the national estate if it has cultural significance or other special value because of

- its importance in the community, or pattern of South Africa's history;
- its possession of uncommon, rare or endangered aspects of South Africa's natural or cultural heritage;
- its potential to yield information that will contribute to an understanding of South Africa's natural or cultural heritage;
- its importance in demonstrating the principal characteristics of a particular class of South Africa's natural or cultural places or objects;
- its importance in exhibiting particular aesthetic characteristics valued by a community or cultural group;
- its importance in demonstrating a high degree of creative or technical achievement at a particular period;
- its strong or special association with a particular community or cultural group for social, cultural or spiritual reasons;
- its strong or special association with the life or work of a person, group or organisation of importance in the history of South Africa; and
- sites of significance relating to the history of slavery in South Africa.

A matrix was developed whereby the above criteria were applied for the determination of the significance of each identified site (see Appendix 1). This allowed some form of control over the application of similar values for similar sites.

4. STUDY APPROACH AND METHODOLOGY

4.1 Extent of the Study

This survey and impact assessment covers the area as presented in Section 5 and as illustrated in Figures 1 & 3.

4.2 Methodology

4.2.1 Preliminary investigation

4.2.1.1 Survey of the literature

A survey of the relevant literature was conducted with the aim of reviewing the previous research done and determining the potential of the area. In this regard, various anthropological, archaeological, historical sources and heritage impact assessment reports were consulted – Bergh 1999, Cloete 2000, Coetzee 1976, Delius 2007, Delius & Hay 2009; Mason 1962; Praagh 1906. Other sources are unpublished reports, mostly scoping studies and HIAs done in the region (Van Schalkwyk 2009).

- Information on events, sites and features in the larger region were obtained from these sources.

4.2.1.2 Data bases

The *Heritage Atlas Database*, the *Environmental Potential Atlas*, the *Chief Surveyor General (CS-G)* and the *National Archives of South Africa (NASA)* were consulted.

- Database surveys produced a number of sites located in the larger region of the proposed development. The original Title Deed for the farm could not be traced.

4.2.1.3 Other sources

Aerial photographs and topocadastral and other maps were also studied - see the list of references below.

- Information of a very general nature was obtained from these sources.

4.2.2 Field survey

The area that had to be investigated was identified by **Lidwala Consulting Engineers** by means of maps. The site was surveyed by travelling the total distance in both directions.

5. DESCRIPTION OF THE AFFECTED ENVIRONMENT

5.1 Site location and description

The site consists of Section 10 of the N11 National Road, going north from Middelburg, past Loskopdam, over a total distance of approximately 50 km (Fig. 1).

As can be expected with a study area ranging across such a long distance, the environment changes drastically when travelling from south to north. The south forms part of a highveld area typified by an undulating landscape. Going down the escarpment to the middle veld, the area is typified by mountains and a mixed bushveld type of vegetation.

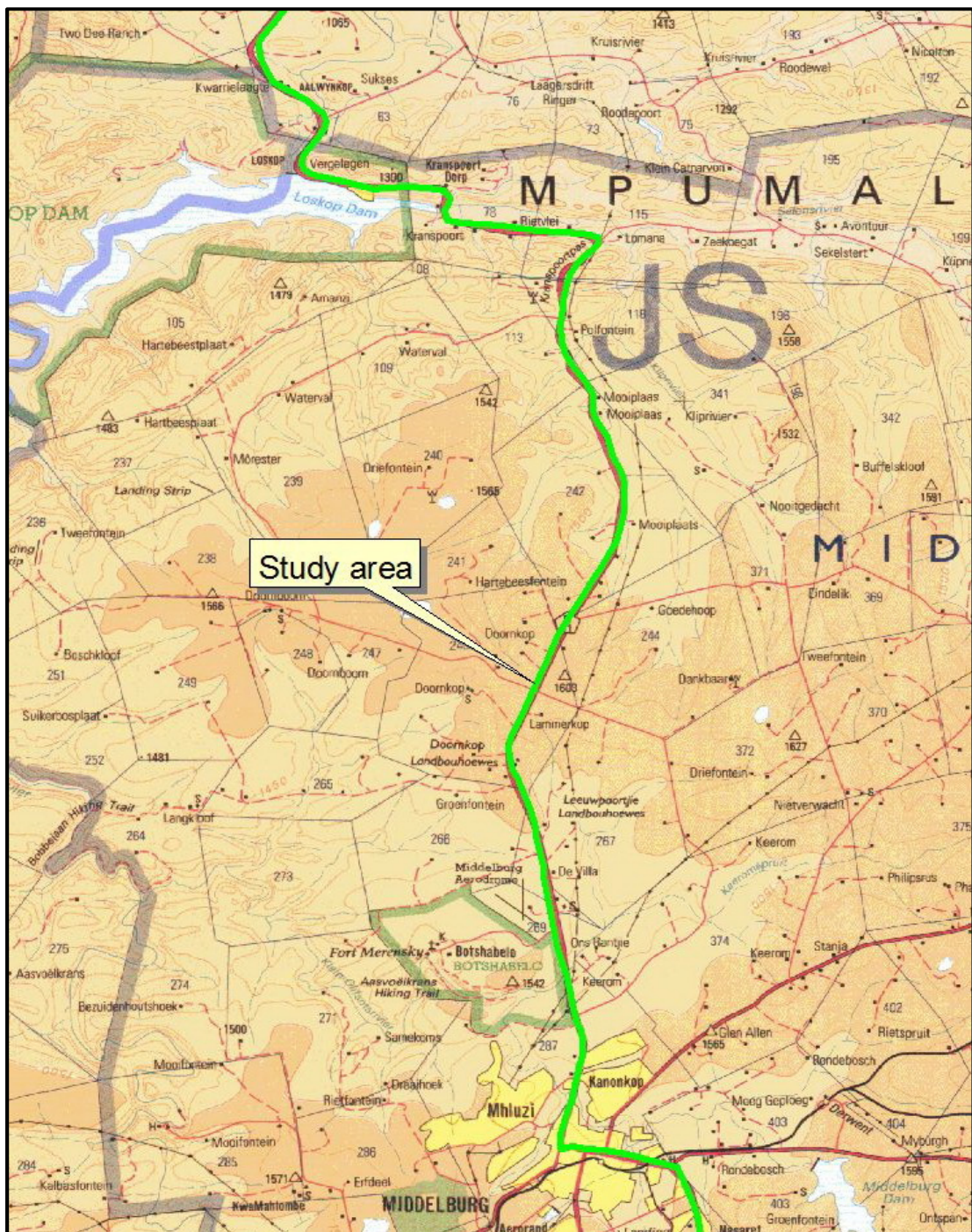


Fig. 1. Location of the study area in regional context.
(Map 2528: Chief Surveyor-General)



Fig. 2. Views over the study area.

5.2 Project description

The South African National Roads Agency Limited (SANRAL) propose to rehabilitate Section 10 of the N11, from north of Middelburg to north of Loskop Dam. The total distance is approximately 50 km.

The road works will include the following activities:

- Widening of the existing road
- Adding overtaking lanes where required, e.g. the Kranspoort Pass
- Upgrading existing culverts
- Possible upgrading of the bridges.

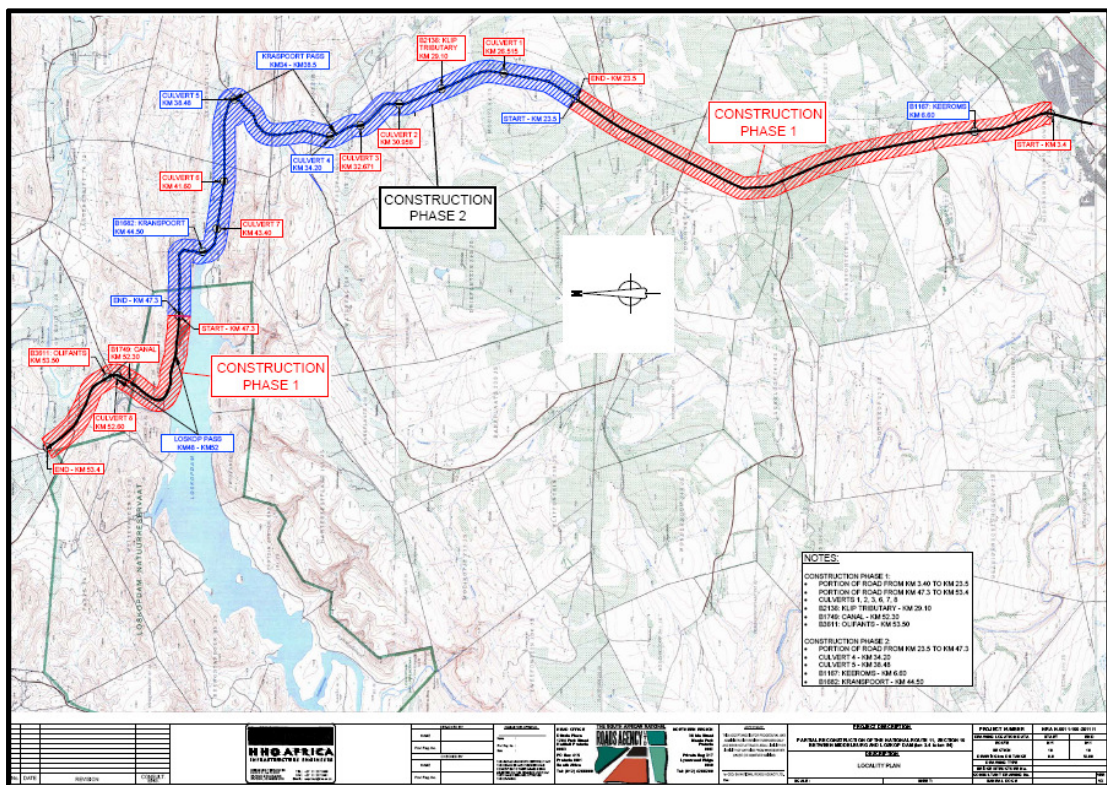


Fig. 3. The development site.

5.3 Overview of the region

The cultural landscape qualities of the region essentially consist of a rural setup. In this the human occupation is made up of a pre-colonial element consisting of limited Stone Age occupation and Late Iron Age occupation, as well as a much later colonial (farmer) component.

Human occupation of the larger geographical region took place since Early Stone Age (ESA) times. This is evidenced by the scattered stone tools found in a secondary context (open surface material), where they have been exposed in gravel terraces by rivers and streams, especially in the region just to the north of Loskop Dam. Normally this material is viewed to have a low significance and the localities where they are found are referred to as find spots rather than sites.

As this region was probably too cold and it does not have many rock shelters, occupation during Stone Age times remained low, resulting in very few sites dating to this period occurring in the region.

Iron Age people started to settle in southern Africa c. AD 300, with one of the oldest known sites at Silver Leaves, south east of Tzaneen dating to AD 270. However, Iron Age occupation of the eastern highveld area (including the study area) did not start much before the 1500s. Some sites dating to the Late Iron Age is known to exist to the north west of the study area.

As this was a period signified by high stress levels, people tended to settle in towns, usually located on hill tops for protection. The villages were laid out in complex manner and different areas were demarcated by stone walled enclosures.

White settlers moved into the area during the first half of the 19th century. They were largely self-sufficient, basing their survival on cattle/sheep farming and hunting. Few towns were established and it remained an undeveloped area until the discovery of coal. During the Anglo-Boer War, a number of skirmishes occurred in the larger area, especially in the vicinity of the railway line to Mozambique.

The town of Middelburg was established in 1866 and was originally called Nazareth. In 1873 it was renamed Middelburg (Raper 2004).



Fig. 4. Heritage features found in the environment. Botshabelo Mission Station and some old graves.

5.4 Identified heritage sites

Based on the above sources and the field visit, the following heritage sites, features and objects were identified in the proposed development area (Fig. 5):

5.4.1 Stone Age

- No sites, features or objects of cultural significance dating to the Stone Age were identified in the study area.

5.4.2 Iron Age

- No sites, features or objects of cultural significance dating to the Iron Age were identified in the study area.

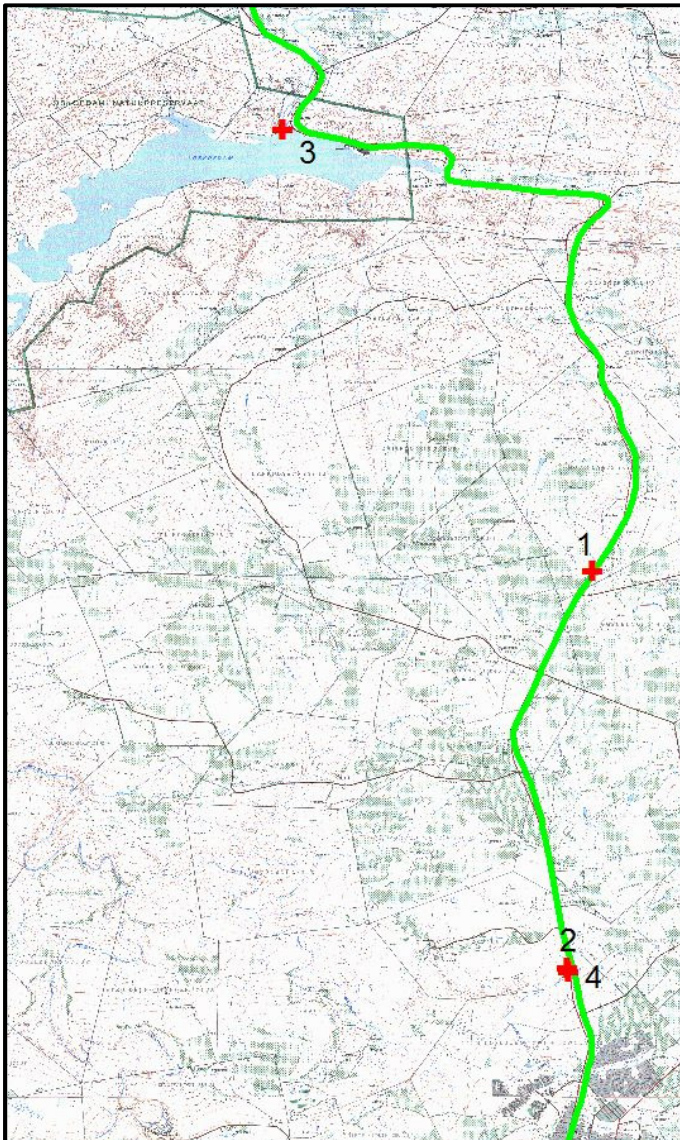


Fig. 5. Layout of the study area showing the identified sites.
(Map 2529AD, 2529CB, 2529CD: Chief Surveyor-General)

5.4.3 Historic period

The following sites, features and objects dating to the historic period were identified in the study area:

Location	No. 1	S 25.56988	E 29.46499
	No. 2	S 2570590	E 29.45650
Description	A number of memorials to people who has died in accidents on the road have been identified next to the road. Although memorials are illegal, they are an emerging part of the heritage landscape and have sentimental and emotional memories for people.		
Significance	Grade III		
Mitigation			

Where memorials are affected, the current situation must be photographed, then remove memorial (and any plaques etc.) before construction work and installation and replaced afterwards.



Fig. 6. Examples of roadside memorials.

Location	No. 3	S 25.41811	E 29.35885
Description			
Dam wall, built in 1934-1938 and raised in 1979. Forms the basis of Loskop Irrigation Scheme.			
Significance	Grade III		
Mitigation			
It is very unlikely that the proposed upgrade would have an impact on this feature.			



Fig. 7. Loskop Dam wall.

Location	No. 4	S 25.70724	E 29.45683
Description			
Bridge over the Keeromspruit, built in 1951.			
Significance	Grade III		
Mitigation			
It is very likely that the proposed upgrade would have an impact on this feature. It is therefore proposed that it is documented before			



Fig. 8. Views of the Keeromspruit bridge.

Location	Along route		
Description			
Old A-frame type of telephone poles. Occur over large sections of the route, inside of the road reserve. Most of these are older than 60 years.			
Significance	Grade III		
Mitigation			
Where the poles are affected, the current situation must be photographed, after which they can be removed.			



Fig. 9. Old telephone poles in the region.

6. SITE SIGNIFICANCE AND ASSESSMENT

6.1 Heritage assessment criteria and grading

The NHRA stipulates the assessment criteria and grading of archaeological sites. The following categories are distinguished in Section 7 of the Act:

- **Grade I:** Heritage resources with qualities so exceptional that they are of special national significance;
- **Grade II:** Heritage resources which, although forming part of the national estate, can be considered to have special qualities which make them significant within the context of a province or a region; and
- **Grade III:** Other heritage resources worthy of conservation on a local authority level.

The occurrence of sites with a Grade I significance will demand that the development activities be drastically altered in order to retain these sites in their original state. For Grade II and Grade III sites, the applicable of mitigation measures would allow the development activities to continue.

6.2 Statement of significance

Based on current information regarding sites in the surrounding area, all sites known to occur in the study region are judged to have **Grade III significance** and therefore would not prevent the proposed development for continuing after the implementation of the proposed mitigation measures and its acceptance by SAHRA.

6.3 Impact assessment

Impact analysis of cultural heritage resources under threat of the proposed development, are based on the present understanding of the development.

6.3.1 Impacts during construction

Issue	Impact on heritage sites and features
Potential impact	Discovery of previously unknown heritage sites or features during construction can halt work in the vicinity of the finds
EMP	Management measures to be included in the EMP for actions to be taken on uncovering unknown sites and features

7. RECOMMENDED MANAGEMENT MEASURES

Heritage sites are fixed features in the environment, occurring within specific spatial confines. Any impact upon them is permanent and non-reversible. Those resources that cannot be avoided and that are directly impacted by the proposed development can be excavated/recorded and a management plan can be developed for future action. Those sites that are not impacted on can be written into the management plan, whence they can be avoided or cared for in the future.

7.1 Objectives

- Protection of archaeological, historical and any other site or land considered being of cultural value within the project boundary against vandalism, destruction and theft.
- The preservation and appropriate management of new discoveries in accordance with the NHRA, should these be discovered during construction activities.

The following shall apply:

- Known sites should be clearly marked in order that they can be avoided during construction activities.
- The contractors and workers should be notified that archaeological sites might be exposed during the construction activities.
- Should any heritage artefacts be exposed during excavation, work on the area where the artefacts were discovered, shall cease immediately and the Environmental Control Officer shall be notified as soon as possible;
- All discoveries shall be reported immediately to a heritage practitioner so that an investigation and evaluation of the finds can be made. Acting upon advice from these specialists, the Environmental Control Officer will advise the necessary actions to be taken;
- Under no circumstances shall any artefacts be removed, destroyed or interfered with by anyone on the site; and
- Contractors and workers shall be advised of the penalties associated with the unlawful removal of cultural, historical, archaeological or palaeontological artefacts, as set out in the National Heritage Resources Act (Act No. 25 of 1999), Section 51. (1).

7.2 Control

In order to achieve this, the following should be in place:

- A person or entity, e.g. the Environmental Control Officer, should be tasked to take responsibility for the heritage sites and should be held accountable for any damage.
- Known sites should be located and isolated, e.g. by fencing them off. All construction workers should be informed that these are no-go areas, unless accompanied by the individual or persons representing the Environmental Control Officer as identified above.
- In areas where the vegetation is threatening the heritage sites, e.g. growing trees pushing walls over, it should be removed, but only after permission for the methods proposed has been granted by SAHRA. A heritage official should be part of the team executing these measures.

8. CONCLUSIONS

The aim of the survey was to locate, identify, evaluate and document sites, objects and structures of cultural significance found within the area in which it is proposed to upgrade the road.

The cultural landscape qualities of the region essentially consist of one component. The first is a rural area in which the human occupation is made up of a pre-colonial element (Stone Age and Iron Age) as well as a much later colonial (farmer and industrial) component.

- A number of memorials commemorating people who have died in accidents on the road, occur sporadically along the road. Where memorials are affected, the current situation

must be photographed, then remove the memorial (and any plaques etc.) before construction work and installation and replace afterwards.

- Old A-frame telephone poles occur for sections along the route. These are older than 60 years. Where the telephone poles are affected, the current situation must be photographed, after which they can be removed.
- A road bridge that is older than 60 years. If there is to be an impact on it, it should be documented beforehand.

Based on current information regarding sites in the surrounding area, all sites known to occur in the study region are judged to have Grade III significance and therefore would not prevent the proposed development for continuing after the implementation of the proposed mitigation measures and its acceptance by SAHRA.

Therefore, from a heritage point of view we recommend that the proposed development can continue. However, we request that if archaeological sites or graves are exposed during construction work, it should immediately be reported to a heritage practitioner so that an investigation and evaluation of the finds can be made.

9. REFERENCES

9.1 Data bases

Chief Surveyor General
Environmental Potential Atlas, Department of Environmental Affairs and Tourism.
Heritage Atlas Database, Pretoria.
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SAHRA Archaeology and Palaeontology Report Mapping Project (2009)

9.2 Literature

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9.3 Maps and aerial photographs

1: 50 000 Topocadastral maps: 2529AD, 2529CB, 2529CD
Google Earth

APPENDIX 1: CONVENTIONS USED TO ASSESS THE SIGNIFICANCE OF HERITAGE RESOURCES

Significance

According to the NHRA, Section 2(vi) the **significance** of heritage sites and artefacts is determined by its aesthetic, architectural, historical, scientific, social, spiritual, linguistic or technical value in relation to the uniqueness, condition of preservation and research potential. It must be kept in mind that the various aspects are not mutually exclusive, and that the evaluation of any site is done with reference to any number of these.

Matrix used for assessing the significance of each identified site/feature

1. Historic value				
Is it important in the community, or pattern of history				
Does it have strong or special association with the life or work of a person, group or organisation of importance in history				
Does it have significance relating to the history of slavery				
2. Aesthetic value				
It is important in exhibiting particular aesthetic characteristics valued by a community or cultural group				
3. Scientific value				
Does it have potential to yield information that will contribute to an understanding of natural or cultural heritage				
Is it important in demonstrating a high degree of creative or technical achievement at a particular period				
4. Social value				
Does it have strong or special association with a particular community or cultural group for social, cultural or spiritual reasons				
5. Rarity				
Does it possess uncommon, rare or endangered aspects of natural or cultural heritage				
6. Representivity				
Is it important in demonstrating the principal characteristics of a particular class of natural or cultural places or objects				
Importance in demonstrating the principal characteristics of a range of landscapes or environments, the attributes of which identify it as being characteristic of its class				
Importance in demonstrating the principal characteristics of human activities (including way of life, philosophy, custom, process, land-use, function, design or technique) in the environment of the nation, province, region or locality.				
7. Sphere of Significance		High	Medium	Low
International				
National				
Provincial				
Regional				
Local				
Specific community				
8. Significance rating of feature				
1.	Low			
2.	Medium			
3.	High			

APPENDIX 2. RELEVANT LEGISLATION

All archaeological and palaeontological sites, and meteorites are protected by the National Heritage Resources Act (Act no 25 of 1999) as stated in Section 35:

(1) Subject to the provisions of section 8, the protection of archaeological and palaeontological sites and material and meteorites is the responsibility of a provincial heritage resources authority: Provided that the protection of any wreck in the territorial waters and the maritime cultural zone shall be the responsibility of SAHRA.

(2) Subject to the provisions of subsection (8)(a), all archaeological objects, palaeontological material and meteorites are the property of the State. The responsible heritage authority must, on behalf of the State, at its discretion ensure that such objects are lodged with a museum or other public institution that has a collection policy acceptable to the heritage resources authority and may in so doing establish such terms and conditions as it sees fit for the conservation of such objects.

(3) Any person who discovers archaeological or palaeontological objects or material or a meteorite in the course of development or agricultural activity must immediately report the find to the responsible heritage resources authority, or to the nearest local authority offices or museum, which must immediately notify such heritage resources authority.

(4) No person may, without a permit issued by the responsible heritage resources authority-

- (a) destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or palaeontological site or any meteorite;
- (b) destroy, damage, excavate, remove from its original position, collect or own any archaeological or palaeontological material or object or any meteorite;
- (c) trade in, sell for private gain, export or attempt to export to the Republic any category of archaeological or palaeontological material or object, or any meteorite; or
- (d) bring onto or use at an archaeological or palaeontological site any excavation equipment or any equipment which assist in the detection or recovery of metals or archaeological and palaeontological material or objects, or use such equipment for the recovery of meteorites.

In terms of cemeteries and graves the following (Section 36):

(1) Where it is not the responsibility of any other authority, SAHRA must conserve and generally care for burial grounds and graves protected in terms of this section, and it may make such arrangements for their conservation as it sees fit.

(2) SAHRA must identify and record the graves of victims of conflict and any other graves which it deems to be of cultural significance and may erect memorials associated with the grave referred to in subsection (1), and must maintain such memorials.

(3) No person may, without a permit issued by SAHRA or a provincial heritage resources authority-

- (a) destroy, damage, alter, exhume or remove from its original position or otherwise disturb the grave of a victim of conflict, or any burial ground or part thereof which contains such graves;
- (b) destroy, damage, alter, exhume, remove from its original position or otherwise disturb any grave or burial ground older than 60 years which is situated outside a formal cemetery administered by a local authority; or
- (c) bring onto or use at a burial ground or grave referred to in paragraph (a) or (b) any excavation equipment, or any equipment which assists in the detection or recovery of metals.

(4) SAHRA or a provincial heritage resources authority may not issue a permit for the destruction or damage of any burial ground or grave referred to in subsection (3)(a) unless it is satisfied that the applicant has made satisfactory arrangements for the exhumation and re-interment of the contents of such graves, at the cost of the applicant and in accordance with any regulations made by the responsible heritage resources authority.

APPENDIX 3: DOCUMENTATION OF A BRIDGE ON THE N11 ROAD BETWEEN MIDDELBURG AND LOSKOP DAM, MPUMALANGA PROVINCE

Introduction

It is the intention of the South African National Roads Agency Limited (SANRAL) to upgrade National Route N11 between Middelburg and Loskop Dam in Mpumalanga Province. The roadwork would include:

- Upgrading of the road bed;
- Upgrading of culverts/bridges.

South Africa's heritage resources, also described as the 'national estate', comprise a wide range of sites, features, objects and beliefs. According to Section 27(18) of the National Heritage Resources Act (NHRA), Act 25 of 1999, no person may destroy, damage, deface, excavate, alter, remove from its original position, subdivide or change the planning status of any heritage site without a permit issued by the heritage resources authority responsible for the protection of such site.

During a Phase 1 heritage survey of this section of the road (Van Schalkwyk 2012), three bridges were identified. Two of these, across the Olifants River and the Kranspoort River, date to 1972 and 1960 respectively. The third bridge, across the Keeromspruit dates to 1951. As the intention is to upgrade the road and its bridges, it was decided to evaluate this latter bridge to determine its significance as well as document it in anticipation of the developer requesting a permit from SAHRA for its alteration/destruction.

Identification

Site name:

Keeromspruit Bridge

Location:

The identified bridge is located on the farm Toevlugt 269JS/Middelburg Town and Townland 287JS (Coordinates: S 25.70724, E 29.45683) in the Middelburg Magisterial District of Mpumalanga Province. It is located approximately 7 km north of the centre of the town of Middelburg on the N11 towards Loskop Dam and Groblersdal (Fig. 2).

The bridge crossing the Keerom Spruit, which flows from east to west, has the number 1167 and is dated to 1951 (see Fig. 2).

Evaluation:

A matrix was developed whereby the criteria as set out in Sections 3(3) and 7 of the NHRA, No. 25 of 1999, were applied for the site. This allowed some form of control over the application of similar values for similar sites. Three categories of significance are recognized: low, medium and high. In terms of Section 7 of the NHRA, all the sites currently known or which are expected to occur in the study area are evaluated to have a grading as identified in the table below.

1. Historic value	
Is it important in the community, or pattern of history	No
Does it have strong or special association with the life or work of a person, group or	No

organisation of importance in history			
Does it have significance relating to the history of slavery			No
2. Aesthetic value			
It is important in exhibiting particular aesthetic characteristics valued by a community or cultural group			No
3. Scientific value			
Does it have potential to yield information that will contribute to an understanding of natural or cultural heritage			No
Is it important in demonstrating a high degree of creative or technical achievement at a particular period			No
4. Social value			
Does it have strong or special association with a particular community or cultural group for social, cultural or spiritual reasons			No
5. Rarity			
Does it possess uncommon, rare or endangered aspects of natural or cultural heritage			No
6. Representivity			
Is it important in demonstrating the principal characteristics of a particular class of natural or cultural places or objects			No
Importance in demonstrating the principal characteristics of a range of landscapes or environments, the attributes of which identify it as being characteristic of its class			No
Importance in demonstrating the principal characteristics of human activities (including way of life, philosophy, custom, process, land-use, function, design or technique) in the environment of the nation, province, region or locality.			No
7. Sphere of Significance			
	High	Medium	Low
International			
National			
Provincial			
Regional			Yes
Local			Yes
Specific community			
8. Significance rating of feature			
1.	Low		Yes
2.	Medium		
3.	High		

Statement of significance

As no information could be obtained from any source on the construction of the bridge, the following approach was used to determine its significance:

- A review of the technology and materials used in the construction of the bridge was done.
- The history of the larger region was reviewed to determine if any event of historical, cultural or political significance could be linked to the bridge.
- A review was done of other bridges on the N11 to determine how many “older” ones are still in existence.

From the above information it was determined that this bridge does not exhibit any remarkable construction techniques, nor can they be linked to any event or person and that similar bridges are still to be found along the route. The only aspect with regard to the significance of this particular bridge is that it is currently older than 60 years, and therefore has general protection under Section 34: Structures older than 60 years of the NHRA.

Based on the above the bridge is viewed to have Grade III and have low significance on a regional level.

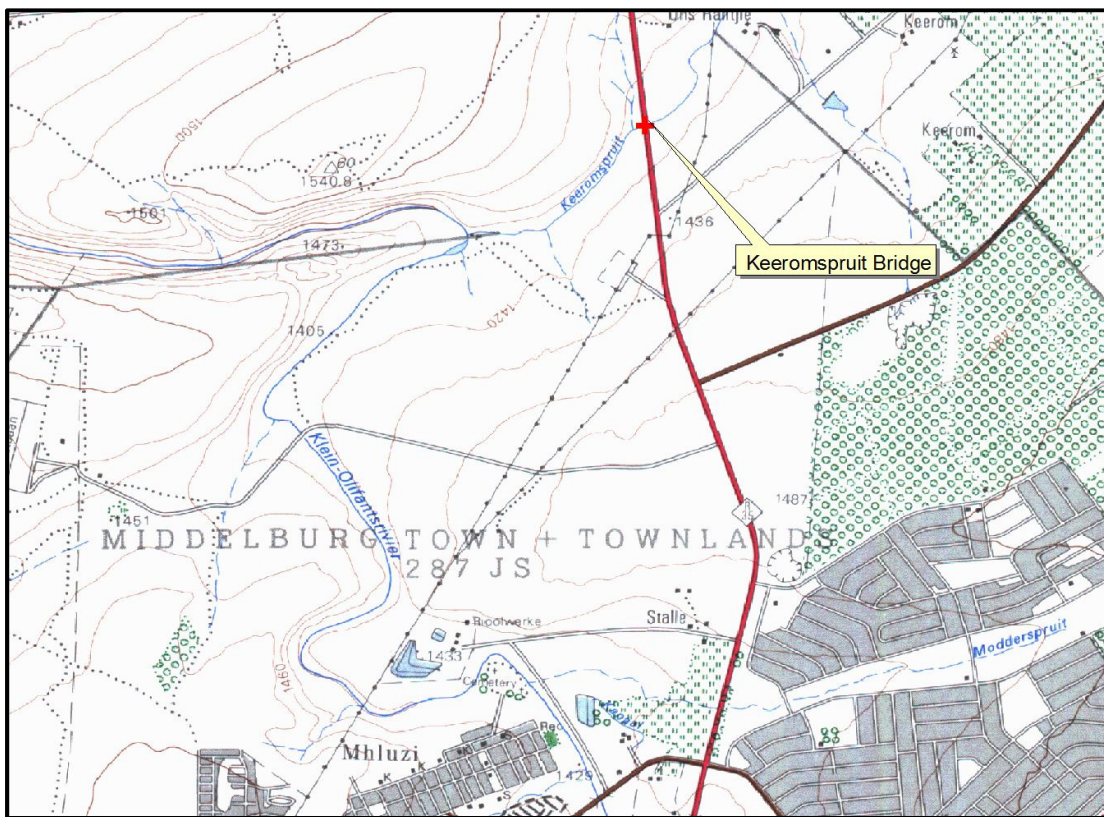


Fig. 1. Location of the Keeromspruit bridge.



Fig. 2. The identification number of the bridge.

Classification

The Keeromspruit Bridge can be classified as a **multiple span** bridge as the superstructure extends from one vertical support, called abutment, to another, crossing over three intermediate supports columns.

Materials

The material used in the construction of the bridge is largely cast concrete. The latter technique, although used to some extent prior to that, came into 'fashion' only during the Second World War as iron and for that matter all metals was declared a strategic resource. The use of iron was limited to the minimum and was only used for guide rails and other railings, as well as for reinforcing the concrete.

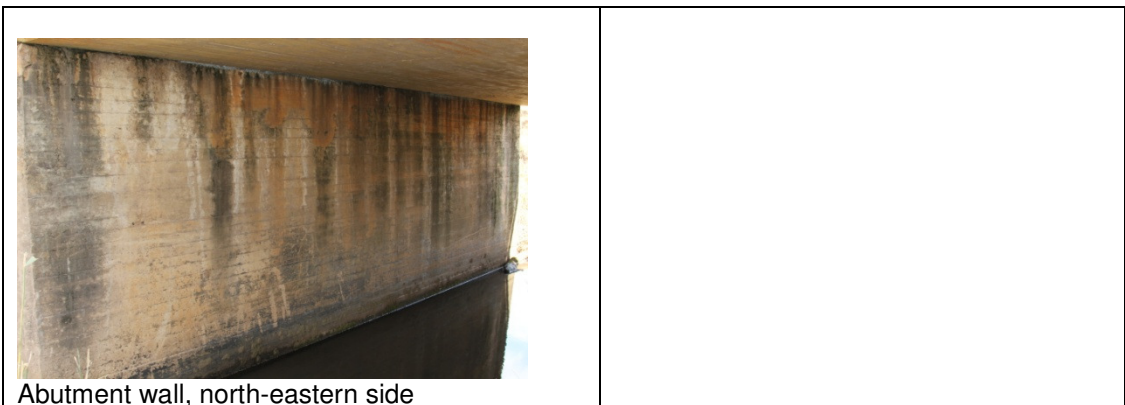
Bridge elements

The various elements making up the bridge will be discussed and illustrated in alphabetic order by first defining it, then describing it and lastly by illustrating it.

Abutment Wall:

- Part of a structure which supports the end of a span or accepts the thrust of the arch; it often supports and retains the approach embankment.

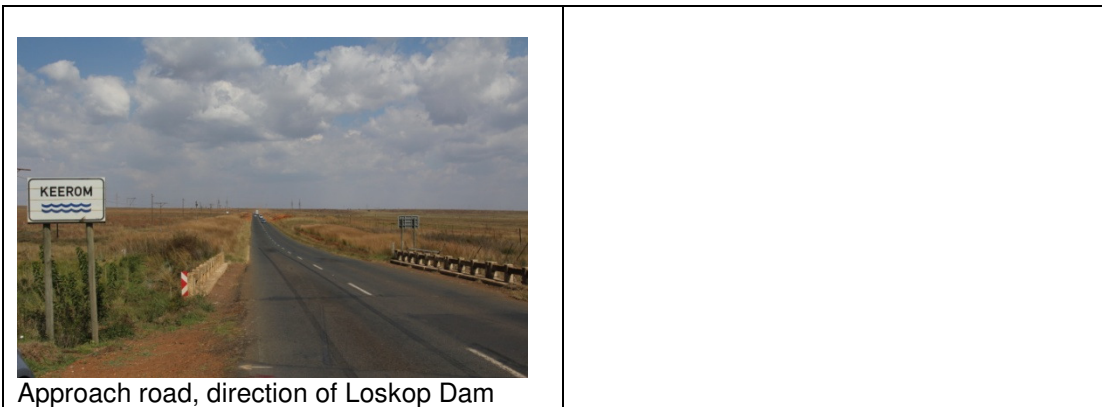
The walls are constructed from concrete that was cast in slabs. The abutment walls are currently below water level and most likely going down to the bedrock. The height of the two abutment walls (to water level) is 2,75 m and it is 9 m wide.



Approach Road:

- The road leading up to the bridge on both sides.

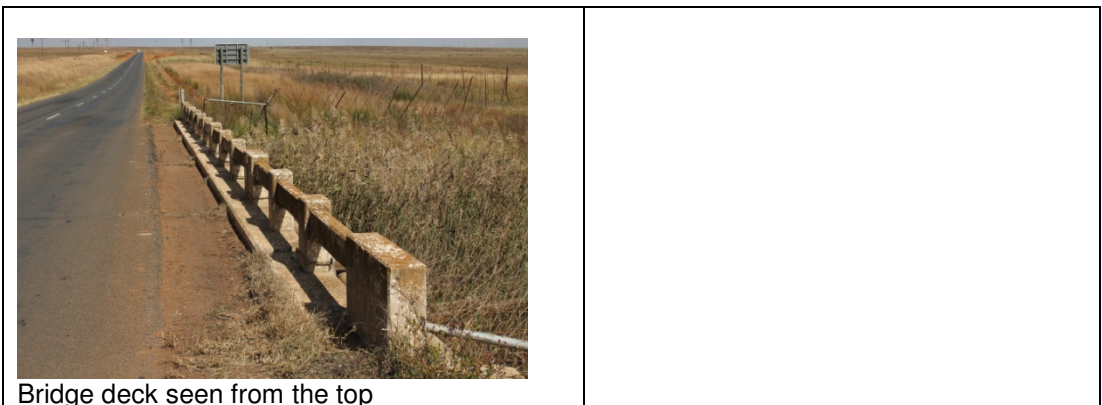
The approach road runs between Middelburg and Loskop Dam and is still frequently used even though it is in poor condition.



Bridge Deck:

- The roadway portion of the bridge that carries the traffic.

The bridge deck consists of four concrete slabs reinforced by girders. The top layer of the bridge deck consists of concrete, which is also part of the construction of the bridge and is then covered with a layer of tarmac. The total length of the bridge deck is approximately 20 m.



Columns:

- Vertical structure member used to support the load of the bridge deck.

Three columns support the bridge deck. It is from cast concrete and is set at a slight angle to the bridge deck in order to be parallel to the stream bed. The foundation of the column is boat shaped to accommodate the flow of water.



The location of the columns

Embankment:

- Angled grading of the ground, leading up to the bridge.

Formed by packing down soil to achieve the necessary height and then sloping down gradually the further away one moves from the river.

<p>As this is a very low bridge there is actually little need for an embankment.</p>	
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Guide rail:

- A low railing alongside the outer edge of a bridge deck used to protect vehicles and pedestrians from going too close to the edge.

The guide rail is a raised platform of concrete, edged with angle iron that runs the length of the bridge. It is about 10cm high and about 30cm wide.



The guide rail

Pylon:

- A monumental vertical structure marking the entrance to a bridge or forming part of a gateway.

This bridge has two similar pylons – on the north-eastern and south-western corners of the bridge. It is 77 x 55 cm in size.

*Railing:*

- Consists of a structure made up of a number of upright sections or stanchions, on which horizontal railings are suspended.

The railings themselves are made of cement and consist of a number of uprights and a single horizontal pole attached to them. The railings are cast in solid concrete and forms an integral part of the bridge deck.

*Revetment:*

- A facing of masonry or stones to protect an embankment from erosion.

The revetment walls are constructed from cast concrete. Each wall base has a length of approximately 4,2 m and a height of approximately 1,5m. The base of the wings has a foundation that possibly extends down to the bedrock and is currently beneath the water line.



South-eastern revetment

Conservation Issues

The bridge show large cracks in the revetment walls as well in some of the pillars.

