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SPECIALIST STUDY: HERITAGE IMPACT ASSESSMENT FOR THE INSTALLATION OF THE SIRIUS FIBRE OPTIC CABLE BETWEEN JOHANNESBURG AND YZERFONTEIN, GAUTENG, FREE STATE, EASTERN AND WESTERN CAPE PROVINCES



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EXECUTIVE SUMMARY

This report contains a heritage impact assessment (HIA) investigation in accordance with the provisions of Sections 38(1) and 38(3) of the *National Heritage Resources Act (25/1999)* for purposes of authorising the proposed installation of fibre optic cabling in the road reserves of the N1, N 9, N 2 and various provincial roads between Johannesburg (Gauteng) and Yzerfontein (Western Cape) via Bloemfontein, Aliwal North, Burgersdorp, Middelburg, Graaff-Reinet, George and Cape Town. This HIA investigation and report forms part of the process of obtaining the necessary environmental authorisations for the project. The project is located in the Gauteng, Free State, Eastern and Western Cape Provinces.

Fibre optic cable is the medium through which transmission equipment transmits data via light forms. The cable ducts are laid in trenches made through a system called micro-trenching, 300 mm wide and 800 mm deep, which are then covered by asphalt or soil (depending upon where they are laid) to reinstate the original surfaces. The size of the trenches and the installation process is designed to be done rapidly and to minimise any adverse impacts on the environment.

The ducts will be installed as follows:

- Overpasses: Horizontal directional drilling below the cross road formation will be employed for the installation of the ducts.
- Underpasses: The ducts will be routed through the base of the bridge parapets. Where this is not practical, horizontal drilling techniques will be employed to install the ducts under the cross road or railway line.
- River bridges and culverts: The crossing of riverbeds will be avoided. The ducts will be routed to pass over the bridge, using ducts in the bridge parapet, where available, or micro trenching in the surfaced shoulder of the road. In the case of conventional culverts (stormwater systems), the ducts will be routed to pass over the stormwater culvert barrel in the road side-fill where possible, or routed alongside the fill passed the bottom of the stormwater culvert.
- Interchanges and intersections: The duct will be routed along the outside boundary of the interchange precinct. In the case of at-grade intersections, the cable will be installed under the cross road by trenching or horizontal drilling, depending on traffic volumes.
- Urban areas: The ducts will be laid in trenches in the surfaced road sides or under the pavement.

The anticipated impacts on heritage resources are minimal and are associated with the construction phase of the project only. The cable will be installed underground and therefore there will be no impacts associated with its functioning. The cable will be laid in reserves of well-established roads, which represent a transformed and sterile environment where (apart from memorial crosses) no heritage features of any significance are extant.

This report is the main HIA report. Because of the minimal risk of impacts on archaeological and palaeontological heritage resources, separate archaeological and palaeontological investigation reports were not deemed necessary. Because part of the route has been covered by other heritage reports, information from these reports was used for this report.¹

The cable corridor includes the following roads with their medians (freeway section), road reserves, road verges, bridges, passes, viaducts, over- and underpasses, toll plazas etc:

- The N 1 between northern Johannesburg and Bloemfontein via Kroonstad, Ventersburg and Winburg
- The N 6 between Bloemfontein and Aliwal North via Reddersburg, Smithfield and Rouxville
- The R 58 provincial road between Aliwal North and Burgersdorp
- The R 391 and R 56 provincial roads between Burgersdorp and Middelburg via Steynsburg
- The N 9 between Middelburg and Blanco via Graaff-Reinet
- The R 404 provincial road between Blanco and the N 2
- The N 2 between George/Blanco and Cape Town
- The R 27 between Cape Town and the intersection with the R 315 provincial road
- The R 315 provincial road between the R 27 and Yzerfontein

¹ See Appendix 1

The cable corridor is located along streets in a number of urban areas and this may affect historic buildings and structures:

- Smithfield
- Rouxville
- Aliwal North
- Burgersdorp
- Steynsburg
- Middelburg
- Graaff-Reinet
- Blanco (George)
- Riviersonderend

The intended development comprises the installation of fibre optic cabling/ducting and this provided the following “triggers” for an HIA:

- Linear development longer than 300 meters
- Historic towns and villages that may be affected
- Alignment along certain existing historic roads
- The development is subject to authorisation through an Environmental Impact Report that includes cultural heritage issues

The general aim of any HIA is to ensure that the needs of socio-economic development are balanced by the needs to preserve significant heritage resources.

The HIA involves a thorough and focused assessment of mitigation and heritage impacts of the proposals, including the identification of appropriate management actions. It fulfils all the requirements of Section 38 (3) of the National Heritage Resources Act, namely the identification and mapping of heritage resources and the assessment of the significance thereof, an assessment of the positive and negative impacts of the proposals, the results of consultation with I&APs, the consideration of alternatives and plans for the mitigation of any adverse impacts.

The following method of work was applied:

- Desktop study using historic and contemporary 1:50 000 maps, published literature, unpublished reports
- Route surveys in September 2010 (for another project using sections of the same route), January and February 2011. Special attention was given to anything of significance in road reserves, historic structures in urban areas and rural villages and the age of existing bridges. The reserves on both sides of the roads were surveyed.

The purpose of this report is to identify and assess features of heritage significance, identify possible impacts and propose management measures to mitigate negative impacts. This information must enable the relevant heritage authority to decide on the approval of the proposed development as required in terms of Section 38 of the NHRA.

Heritage impacts are categorised as:

- Direct or physical impacts, implying alteration/destruction of heritage features within the project boundaries (e.g. memorial crosses) or damage (e.g. damage caused by vibrations and flying debris) to historic buildings
- Indirect impacts, e.g. restriction of access or visual intrusion concerning the broader environment
- Cumulative impacts that are combinations of the above

The impacts of the proposed development may affect heritage features (e.g. memorial crosses and bridges older than 60 years) during installation work, in case of which the impacts may be direct and physical. The impact will not be indirect and cumulative (associated with the functioning of the system) since the cabling will be buried.

Impact can be managed through one or a combination of the following measures:

- Mitigation

- Avoidance
- Compensation
- Enhancement (positive impacts)
- Rehabilitation
- Interpretation
- Memorialisation

Of the above measures, mitigation and avoidance apply.

This report complies as follows with the provisions of Section 38 (3) of the *National Heritage Resources Act* (Act 25 of 1999):

(a) Identification and mapping of heritage resources

(b) Cultural significance

(c) Predicted impacts

(f) Recommended impact management measures and alternatives (pre-installation)

See Table 1 (below). The various features (crosses, graves etc) have been named according to their location (e.g. farm name).

TABLE 1: Identification of heritage features, impacts and impact management measures

S 3(2) NHRA heritage resource	(a) Identification		(b) Significance	(c) Impact		(d) Recommended impact management, alternatives
	Site	GPS		Road section	Impact type, certainty and significance	
Buildings, structures, places and equipment of cultural significance	Springbokvlakte Cross	27° 7'18.14"S 27°31'37.45"E	Low local	N 1 Joburg-Kroonstad near Vredefort road reserve east side	Low to neutral (depends on cable location)	Mitigation: Photograph current situation, then remove memorial before trenching and installation and replace afterwards during surface rehabilitation.
	Roodepoort Cross	27°12'32.50"S 27°29'56.40"E	Low local	N 1 Joburg-Kroonstad near Vredefort, road reserve east side	Medium to neutral (depends on cable location)	Mitigation: Photograph current situation, then remove memorial before trenching and installation and replace afterwards during surface rehabilitation.
	Martina Cross	28°49'57.48"S 26°37'49.91"E	Low local	N 1 Winburg-Bloemfontein, road reserve east side	Medium to neutral (depends on cable location)	Mitigation: Photograph current situation, then remove memorial before trenching and installation and replace afterwards during surface rehabilitation.
	America Cross	28°54'56.90"S 26°26'54.74"E	Low local	N 1 Winburg-Bloemfontein, road reserve east side	Medium to neutral (depends on cable location)	Mitigation: Photograph current situation, then remove memorial before trenching and installation and replace afterwards during surface rehabilitation.

S 3(2) NHRA heritage resource	(a) Identification		(b) Significance	(c) Impact		(d) Recommended impact management, alternatives
	Site	GPS		Road section	Impact type, certainty and significance	
	Bloem Cross 2	29° 3'8.56"S 26°12'31.81"E	Low local	N1 median at Bloemfontein	No impact (located in median)	No action
	Bloem Cross 2	29° 3'45.71"S 26°11'43.08"E	Low local	N1 median at Bloemfontein	No impact (located in median)	No action
	Smithfield 1938 Trek monument	30°12'42.03"S 26°31'49.12"E	High local	T-junction of Edenburg and Rascher Roads (turn of N 6)	Damage during installation possible – low negative (depending on location of cable)	Avoid and monitor for any damage caused by dust, vibrations etc.
	Historic buildings Smithfield (various)	-	High local	Smithfield	Damage during installation possible – low negative to neutral	Avoid and mitigation: Photograph and document current situation before trenching. Monitor damage to structures and buildings during trenching, installation and surface rehabilitation.
	Commissiedrift Prayer Monument	30°16'46.68"S 26°39'6.07"E	High regional	N 6 Smithfield-Rouxville at Caledon River Bridge	Damage during installation possible – low negative (depending on location of cable)	Avoid and monitor for any damage caused by dust, vibrations etc.
	Kleinspruit Cross	30°21'42.82"S 26°45'53.78"E	Low local	N 6 Smithfield-Rouxville, against fence	No impact (against fence)	No action
	Historic buildings Rouxville (few)	-	High local	Rouxville	Damage during installation possible – low negative to neutral	Avoid and mitigation: Photograph and document current situation before trenching. Monitor damage to structures and buildings during trenching, installation and surface rehabilitation.
	Hertzog Bridge across Orange River, Aliwal North (1937)	30°41'9.01"S 26°42'19.64"E	High local	Aliwal North	Medium	Mitigation: Cable installation should be invisible, reversible and not seriously damage the bridge. Document (photograph) bridge sections before installation and photograph installation process. Prepare detailed design drawings that explain the cable installation method for purposes of authorisation by heritage authorities.
	Historic buildings Aliwal	-	High local	Smith and Grey streets	Damage during installation possible	Avoid and mitigation:

S 3(2) NHRA heritage resource	(a) Identification		(b) Significance	(c) Impact		(d) Recommended impact management, alternatives
	Site	GPS		Road section	Impact type, certainty and significance	
	North (various)				– low negative to neutral	Photograph and document current situation before trenching. Monitor damage to structures and buildings during trenching, installation and surface rehabilitation.
	Stormberg crosses (two metal crosses on poles)	30°51'15.21"S 26°25'9.61"E	Low local	R 58 Aliwal North-Burgersdorp, south road reserve	Damage or destruction during installation possible – low negative	Photograph current situation, then remove memorial before trenching and installation and replace afterwards during surface rehabilitation.
	Historic buildings Burgersdorp (various)	-	High local	Piet Retief, Taylor, Van der Walt, Coligny streets)	Damage during installation possible – low negative to neutral	Avoid and mitigation: Photograph and document current situation before trenching. Monitor damage to structures and buildings during trenching, installation and surface rehabilitation.
	Historic buildings Steynsburg (various)	-	Low local	Venter Street	Damage during installation possible – low negative to neutral	Avoid and mitigation: Photograph and document current situation before trenching. Monitor damage to structures and buildings during trenching, installation and surface rehabilitation.
	Historic buildings Middelburg (various)	-	High local	Du Plessis and Meintjies streets	Damage during installation possible – low negative to neutral	Avoid and mitigation: Photograph and document current situation before trenching. Monitor damage to structures and buildings during trenching, installation and surface rehabilitation.
	Andries Pretorius Monument Graaff-Reinet	32°13'51.47"S 24°32'8.72"E	High local	50 m west of road reserve	Probably no impact (outside road reserve)	Avoid and mitigation: Monitor for any damage during installation etc.
	1938 Trek monument, Graaff-Reinet	32°14'15.08"S 24°32'9.80"E	High local	30 m west of road reserve	Probably no impact (outside road reserve)	Avoid and mitigation: Monitor for any damage during installation etc.
	Camdeboo Heroes	32°14'46.90"S 24°32'15.83"E	High regional	Adjacent to western road	Damage during installation possible	Avoid and mitigation:

S 3(2) NHRA heritage resource	(a) Identification		(b) Significance	(c) Impact		(d) Recommended impact management, alternatives
	Site	GPS		Road section	Impact type, certainty and significance	
	Monument (2006), Graaff-Reinet			edge of northern entrance to town	– low negative to neutral	Photograph and document current situation before trenching. Monitor damage to structure during trenching, installation and surface rehabilitation.
	Historic buildings Graaff-Reinet (numerous, some of them declared heritage sites)	-	High local and regional	Caledon and Kerk streets	Damage during installation possible – medium/high negative to neutral	Avoid and mitigation: Photograph and document current situation before trenching. Monitor damage to structures and buildings during trenching, installation and surface rehabilitation.
	Doring River Bridge (1951)	33°50'3.13"S 22°26'41.29"E	Low local	N 9 Uniondale-George	Low	Mitigation: Cable installation should be invisible, reversible and not seriously damage the bridge. Document (photograph) bridge sections before installation and photograph installation process. Prepare detailed design drawings that explain the cable installation method for purposes of authorisation by heritage authorities.
	Four Passes Monument and Viewpoint	33°54'21.38"S 22°24'22.59"E	High local	N 9 Outeniqua Pass	Probably no impact (outside eastern road reserve)	Avoid and mitigation: Monitor for any damage during installation etc.
	Historic buildings Blanco (various)	-	Low local	R 404 Montagu Road	Damage during installation possible – low negative to neutral	Avoid and mitigation: Photograph and document current situation before trenching. Monitor damage to structures and buildings during trenching, installation and surface rehabilitation.
	Sakkie Oosthuizen Memorial	34°11'40.24"S 21°47'20.30"E	Low local	N 2 East of Gouritz River, south side	Low to neutral (depends on cable location)	Mitigation: Photograph current situation, then remove memorial before trenching and installation and replace

S 3(2) NHRA heritage resource	(a) Identification		(b) Significance	(c) Impact		(d) Recommended impact management, alternatives
	Site	GPS		Road section	Impact type, certainty and significance	
						afterwards during surface rehabilitation. Consult local farmer Christiaan Pienaar (044) 697-7044 about family members.
	Historic Buildings, Riviersonderend (few)	-	Low local	Main Road	Damage during installation possible – low negative to neutral	Avoid and mitigation: Photograph and document current situation before trenching. Monitor damage to structures and buildings during trenching, installation and surface rehabilitation.
	Rietvlei cross	33°50'49.41"S 18°29'29.24"E	Low local	R 27 Cross mounted against eastern road reserve fence	Probably no impact	Avoid
	Lime Kiln near Yzerfontein	33°20'10.35"S 18°12'38.69"E	Low local	North of R 315 adjacent to road reserve	Probably no impact (outside road reserve)	Avoid and mitigation: Monitor for any damage during installation etc.
Areas to which oral traditions are attached or which are associated with intangible heritage	None	-	-	-	-	-
Historical settlements and landscapes	Smithfield, Aliwal North, Burgersdorp, Steynsburg, Middelburg, Graaff-Reinet, Blanco, Riviersonderend	-	High local	-	Neutral	
Landscapes and natural features of cultural significance	None	-	-	-	-	-
Geological sites of scientific or cultural importance	None	-	-	-	-	None
Archaeological sites	Isolated Stone Age tools found in gravel of some road cuttings (e.g. north of Caledon River)	-	Low local	-	Neutral	Severely disturbed, highly altered and developed and partially disturbed environments. No significant impacts to pre-colonial material that need to be mitigated prior to construction, except in the case of significant chance finds (e.g. large scatters of

S 3(2) NHRA heritage resource	(a) Identification		(b) Significance	(c) Impact		(d) Recommended impact management, alternatives
	Site	GPS		Road section	Impact type, certainty and significance	
						archaeological material and hidden burial sites)
Graves and burial sites	Beestekraal cemetery	30°33'25.39"S 26°47'19.57"E	Medium local	N 6 Rouxville-Aliwal North, adjacent to northern road reserve	Probably no impact (outside road reserve)	Avoid and mitigation: Monitor for any damage during installation etc.
	Bultfontein cemetery	31°33'50.30"S 25° 0'18.83"E	Medium local	N 9 Middelburg-Graaff-Reinet	Probably no impact (outside road reserve)	Avoid and mitigation: Monitor for any damage during installation etc.
Features associated with labour history	None	-	-	-	-	
Movable objects	None	-	-	-	-	

(d) Social and economic benefits

The development will have no direct benefits related to the conservation of heritage resources (structures) since none will be directly and/or permanently affected.

The infrastructure is capable of transporting far in excess of the anticipated traffic requirements of the South African telecommunications market over the next 20 years.

This project is in line with the vision and mission of the Presidential National Commission on the Information Society and Development (ISAD).

(e) Public consultation

This is part of the EIA process.

(g) Mitigation during installation

- Monitoring for any damage caused by vibrations, dust, flying debris etc to historic buildings and structures
- Monitoring of hidden chance finds (graves, large scatters of archaeological material, bones etc) during trenching, installation and rehabilitation work

Findings

The proposed cable will be buried in road reserves, which represent severely disturbed, highly altered and developed and partially disturbed environments, some dating back to the late 1940s and early 1950s when many of the present road alignments were constructed. Road upgrading (e.g. resurfacing, widening) and maintenance (e.g. grass cutting) has further impacted on this type of environment and is still happening, e.g. sections of the Reddersburg-Smithfield road were being widened and resurfaced in February 2011.

The anticipated impact on the identified heritage resources will in general be low and reversible (where roadside memorials could be affected) or neutral to low negative (where historic buildings and structures are affected). Any possible damage to historic buildings and structures in urban areas (e.g. caused by vibrations, dust, flying debris etc) can be minimised through proper monitoring. Although roadside memorials are illegal, they are an emerging part of the cultural landscape and have emotional memories for people.

Bridges, viaducts, pedestrian crossings and overpasses (often indicating the age of roads) were constructed in the 1950s, 1960s and the 1970s (some after 2000) and therefore fall outside the 60-years protection clause. Notable exceptions are

- The Hertzog Bridge across the Orange River at Aliwal North. This bridge was opened in 1937 and therefore falls inside the 60-years protection clause.
- The Doring River Bridge between George and Uniondale. This bridge dates to 1951 and therefore falls just inside the 60-years protection clause.

The nature and significance of what has been found in terms of heritage is not of such importance that the proposed project should be suspended or stopped, or that alternatives for the proposed cable route should be investigated.

RC de Jong states that there are no compelling reasons not to proceed with the proposed project and recommends that it can be authorised in terms of NHRA Section 38, provided that the below measures are adopted to manage foreseen and unforeseen adverse impacts before and during installation work.

Recommendations

It is recommended that the heritage agencies and authorities authorise the proposed development with the following conditions:

1. Trenching activities must be monitored for the occurrence of any significant sub-surface archaeological material (historic waste disposal sites, burials, large concentrations of artefacts, bones etc) and similar hidden/buried chance finds. Should something of significance be discovered, the work should be suspended and the developer should request an investigation by an accredited archaeologist.
2. Where roadside memorials (crosses) could be affected, the current situation must be photographed, then removal of memorial (and any plaques etc) before trenching and installation and replacement afterwards during site rehabilitation.
3. Where the identified two historic bridges (Hertzog Bridge and Doring River Bridge), and any other bridges older than 60 years, are affected, the cable installation should be invisible, reversible and not seriously damage the bridge. Bridge sections should be documented (photographed) before installation and the installation process should be photographed. The heritage authority may request more detailed design drawings that explain the cable installation method.
4. Where other historic buildings and structures could be affected, the current situation must be documented (photographed) to create a benchmark for monitoring damage to the structures (e.g. by vibrations, dust, flying debris) during trenching, installation and rehabilitation. Should any significant damage take place, the provincial heritage resources authority should be contacted.
5. The above recommendations must be included in the Environment Management Programme for the proposed project.



RC DE JONG
Principal Investigator

Date: 8 March 2011

1. REPORT CONTEXT

1.1 General notes

1. The structure of this report is based on:
 - SOUTH AFRICAN HERITAGE RESOURCES AGENCY, Heritage Impact Assessment: Notification of intent to develop (form)
 - DEPARTMENT OF ENVIRONMENTAL AFFAIRS AND DEVELOPMENT PLANNING, PROVINCIAL GOVERNMENT OF THE WESTERN CAPE, 2005, Guideline for involving heritage specialists in EIA processes (document)
 - DEPARTMENT OF ENVIRONMENT AFFAIRS AND TOURISM, Integrated Environmental Management Guidelines
 - SOUTH AFRICAN HERITAGE RESOURCES AGENCY, 2006, *Minimum standards: Archaeological and palaeontological components of impact assessment reports* (unpublished).
 - WORLD BANK, *Environmental Assessment Sourcebook Update No 8, September 1994: Cultural Heritage in Environmental Assessment*.
 - PROVINCIAL HERITAGE RESOURCES AUTHORITY GAUTENG, 2010, *Report requirements for HIA reports* (unpublished).
 - Best-practice HIA reports submitted by Cultmatrix and other heritage consultants
2. This report is informed by the *National Heritage Resources Act (25/1999)* (NHRA) and is consistent with the various ICOMOS charters for places of cultural significance.
3. Recommendations contained in this application do not exempt the applicant from complying with any national, provincial and municipal legislation or other regulatory requirements, including any protection or management or general provision in terms of the NHRA.
4. Rights and responsibilities that arise from this report are those of the applicant and not that of heritage consultant. The heritage consultant assumes no responsibility for compliance with conditions that may be required by SAHRA in terms of this report.
5. The heritage consultant assumes no responsibility whatsoever for any loss or damages that may be suffered as a direct or indirect result of information contained in this application. Any claim that may however arise is limited to the amount paid to the heritage consultant for services rendered to compile this report.
6. Although all possible care is taken to identify all sites of cultural importance during the survey of study areas, the nature of archaeological and historical sites are as such that it always is possible that hidden or subterranean sites could be overlooked during the study. The heritage consultant will not be held liable for such oversights or for costs incurred as a result thereof.

1.2 Purpose of the report

The purpose of this report is to identify and assess features of heritage significance, identify possible impacts and propose management measures to mitigate any further negative impacts. This information must enable the relevant heritage authority to decide about the approval of the existing development as required in terms of Section 38 of the NHRA.

The below table lists and describes the three general categories of heritage impact assessment studies and reports, which offices are involved (i.e. to which SAHRA or provincial offices reports should be submitted) and which type of response is required from these offices.

TABLE 2: Applicable category of heritage impact assessment study and report

Type of study and report	Aim	SAHRA office involved	Requested SAHRA response
Screening: Not this report	The aim of the screening investigation is to provide an informed heritage-related opinion about the proposed development by an appropriate heritage specialist. The objectives of this investigation are to screen potential heritage issues through a site inspection, to develop a broad understanding of heritage policy-related context, to review any existing data on the history and heritage significance of the site, to check if the site has any formal heritage status, to discuss the proposed development with heritage contacts and to scan the development proposals. The result of this investigation is a brief statement indicating potential heritage impacts/issues and the need for further investigation.	-	-
		-	-
		-	-
Scoping (basic assessment): Not this report	The aim of the scoping investigation is to analyse heritage issues and how to manage them within the context of the proposed development. The objectives are to assess heritage significance (involving site inspections and basic desktop and archival research); to identify the need for further detailed inputs by heritage specialists, to consult with local heritage groups and experts, to review the general compatibility of the development proposals with heritage policy and to assess the acceptability of the proposed development from a heritage perspective. The result of this investigation is a heritage scoping report indicating the presence/absence of heritage resources and how to manage them in the context of the proposed development.	-	-
		-	-
		-	-
Full HIA: This report	The aim of the full HIA investigation is to analyse and recommend heritage management mitigation measures and monitoring programmes. The objectives are to analyse heritage issues, to research the chronology of the site and its role in the broader context, to undertake a comprehensive assessment of heritage significance, to analyse the nature and scale of the proposed development, to consult with local heritage groups and experts as part of the broader EIA stakeholder engagement process, to establish the compatibility of the proposed development with heritage and other statutory frameworks and to assess alternatives in order to promote heritage conservation issues.	Gauteng, Free State and Eastern Cape Provincial Heritage Resources Authority, Heritage Western Cape	Approval
		SAHRA Archaeology, Palaeontology and Meteorites Unit	Comments
		SAHRA Built Environment Unit	Comments

1.3 Terms of reference

- To survey the road reserve well as the surrounding environment
- To identify and map heritage resources that have been and may be affected directly
- To assess the cultural significance of these heritage resources
- To assess the impact of the proposed fibre optic cable installation on these heritage resources
- To assess the benefits of conserving heritage resources in relationship to the socio-economic benefits of the project
- To provide the public with an opportunity to comment on the heritage aspects of the project
- To consider alternatives if heritage resources will be affected in a negative manner
- To determine methods to manage any further negative impacts

1.4 History of the report

This report is the first draft report and has not been preceded by other reports for this particular project. However, it includes sections of a Cultmatrix HIA report for another proposed fibre optic cable between Somerset West and East London.

1.5 Legal context of the report

ACT	COMPONENT	IMPLICATION	RELEVANCE	COMPLIANCE
S 34	Impacts on buildings and structures older than 60 years	Permit for alterations, destruction, demolition	Doring River Bridge (1951)	Permit for alterations. Authorisation in terms of HIA application should include approval to install cable against bridge.
		Permit for alterations, destruction, demolition	Historic buildings and structures in towns and cities	No permanent alteration but temporary impact of cable installation must be monitored
	S 35	Impacts on archaeological and palaeontological heritage resources	None	Permits for mapping, sampling and destruction if necessary if significant deposits are found during trenching and installation
	S 36	Impacts on graves	None	Permits for excavation and relocation should sub-surface human burials be found
	S 37	Impacts on public monuments	None present (crosses are private monuments)	-
	S 38	Developments requiring an HIA	Development is listed activity	Full HIA
NEMA	EIA Regulations	Activities requiring an EIA	Development is subject to an EIA	HIA is part of EIA
Other	-	-	-	-

1.6 Planning context of the report

No information was available.

1.7 Development criteria in terms of Section 38 of the NHRA

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

1.8 Property details

1.8	Property details	
1.8.1	Name and location of property	N 1 between Johannesburg and Bloemfontein; N 6 between Bloemfontein and Aliwal North, provincial roads between Aliwal North and Middelburg via Burgersdorp and Steynsburg, N 9 between Middelburg and Blanco (George), N 2 between George and Cape Town, R 27 and R 315 between Cape Town and Yzerfontein
1.8.2	Erf or farm numbers	-
1.8.3	Magisterial districts	-

1.8	Property details	
1.8.4	Major towns affected	Reddersburg, Smithfield, Rouxville, Aliwal North, Burgersdorp, Steynsburg, Middelburg, Graaff-Reinet, Blanco (George), Riviersonderend, Cape Town, Yzerfontein
1.8.5	Local authority	-
1.8.5	Current use	Road transport
1.8.5	Current zoning	Transport
1.8.5	Predominant land use of surrounding properties	Agricultural, residential
1.8.9	Total length of cable route	1816 km

1.9 Property ownership

1.9	Property owners	
1.9.1	Farm	-
1.9.2	Name and contract address	-
1.9.3	Telephone number	-
1.9.4	Fax number	-
1.9.5	E-mail	-

1.10 Developer

1.10	Developer	
1.10.1	Name and contact address	-
1.10.2	Telephone number	-
1.10.3	Fax	-
1.10.4	E-mail	-

1.11 Environmental practitioner

1.11	Environmental Specialist	
1.11.1	Name and contact address	Stuart Gower-Jackson, Jeffares and Green (Pty) Ltd Consulting Engineers, PO Box 1109, Sunninghill 2157
1.11.2	Telephone number	(011) 807-0660
1.11.3	Fax	(011) 807-6107
1.11.4	E-mail	Gower-JacksonS@jgi.co.za

1.12 Heritage assessment practitioners

Specialist (1)		
1.12.1	Name and contact address	Dr RC de Jong, 129 Malherbe Street, Capital Park, Pretoria 0084
1.12.2	Qualifications and field of expertise	PhD (Cultural History) UP (1990), Post-Graduate Museology Diploma UP (1979), generalist heritage management specialist with experience in museums and heritage since 1983
1.12.3	Relevant experience in study area	HIA for East London-Somerset West fibre optic cable
1.12.4	Telephone number	(082) 577-4741
1.12.5	Fax number	(086) 612-7383
1.12.6	E-mail	cultmat@iafrica.com

2. DEVELOPMENT CONTEXT

2.1 Development site/area location and boundaries

This report contains a heritage impact assessment (HIA) investigation in accordance with the provisions of Sections 38(1) and 38(3) of the *National Heritage Resources Act* (25/1999) for purposes of authorising the proposed installation of fibre optic cabling in the road reserves of the N1, N 9, N 2 and various provincial roads between Johannesburg (Gauteng) and Yzerfontein (Western Cape) via Bloemfontein, Aliwal North, Burgersdorp, Middelburg, Graaff-Reinet, George and Cape Town. This HIA investigation and report forms part of the process of obtaining the necessary environmental authorisations for the project. The project is located in the Gauteng, Free State, Eastern and Western Cape Provinces.



FIGURE 1: Fibre optic cable route

2.2 Description of distinguishing regional features

2.2.1 Environmental features

The project is located in a transportation environment that has been transformed through road-making activities and has left few features of natural significance.

2.2.2 Heritage features

TABLE 3: Heritage features

S 3(2) NHRA heritage resource	DESCRIPTION
Buildings, structures, places and equipment of cultural significance	Bridges, mountain passes, freeways, roads, urban areas etc.
Areas to which oral traditions are attached or which are associated with intangible heritage	Roadside memorial crosses, other memorials close to road
Affected historical settlements and landscapes	Smithfield, Rouxville, Aliwal North, Burgersdorp, Steynsburg, Middelburg, Graaff-Reinet, Blanco (George), Riviersonderend
Landscapes and natural features of cultural significance	Historic farmland
Geological sites of scientific or cultural importance	None
Archaeological and palaeontological sites	No significant sites inside road reserve
Graves and burial grounds	Not inside road reserve
Areas of significance related to labour history	None
Movable objects	None

2.2.3 Description of history and heritage of cable route

The below table lists the various sections between Johannesburg and Yzerfontein in terms of their history (when they were constructed) and heritage (heritage resources associated with the section); also the various urban areas through which the cable will be routed.

TABLE 4: Cable route history and heritage

SECTION	HISTORY	HERITAGE RESOURCES
N 1 Joburg-Vaal River	Dual-carriage freeway constructed (dates on bridges) in the late 1970s and early 1980s	None
N 1 Vaal River-Kroonstad	Constructed (dates on bridges) between 1968 and 1978, partial dual-carriage section south of Vaal in 1987-1988, Kroonstad bypass constructed 1967-1968	Springbokvlakte and Roodepoort crosses
N 1 Kroonstad-Bloemfontein	Single-carriage road constructed and improved 1970-1978, some bridges reconstructed 2010	Martina and America crosses
N 1 Bloemfontein	Dual-carriage bypass constructed 1974-1976	Bloem 1 and 2 crosses in median
N 6 Bloemfontein-Reddersburg	Single-carriage road constructed and improved late 1980s	None
Reddersburg	Town founded 1861	No historical buildings and structures along Van Riebeeck Street (N 6)
N 6 Reddersburg-Smithfield	Single-carriage road improved 1979-1980, currently being widened and resurfaced	None
Smithfield	Town founded in 1849	1938 Trek Monument and various historic buildings along Rascher Street (N 6)
N 6 Smithfield-Rouxville	Single-carriage road improved 1979-1981	Commissiedrift prayer monument 2006 (Caledon River) and Kleinspruit cross
Rouxville	Town founded in 1864	Various historic buildings along N 6 through town
N 6 Rouxville-Aliwal North	Single-carriage road improved 1979-1981	Beestekraal cemetery
Aliwal North	Town founded 1849	Hertzog Bridge (1937) and various historic buildings along Barkly, Smith and Grey streets

SECTION	HISTORY	HERITAGE RESOURCES
R 58 Aliwal North-Burgersdorp	Single-carriage road improved early 1960s	Stormberg crosses
Burgersdorp	Town founded 1847	Various historic buildings along Piet Retief, Van der Walt and Coligny streets
R 391 and R 56 Burgersdorp-Steynsburg	Single-carriage road improved 1950s	None
Steynsburg	Town founded 1874	Various historic buildings along Venter Street
R 56 Steynsburg-Middelburg	Single-carriage road improved early 1960s	None
Middelburg	Town founded 1852	Numerous historic buildings along Du Plessis and Meintjies streets
N 9 Middelburg-Graaff-Reinet	Single-carriage road improved early 1960s; Lootsberg Pass constructed 1943	Bultfontein cemetery
Graaff-Reinet	Town founded 1786	Pretorius (1943), Trek (1938) and Heroes' (2006) monuments, numerous historic buildings along Caledon and Kerk streets including DR church
N 9 Graaff-Reinet-Aberdeen	Single-carriage road improved mid-1950s	None
N 9 Aberdeen-Willowmore	Single-carriage road improved early 1960s	None
N 9 Willowmore-Uniondale	Single-carriage road improved early to mid-1950s	None
N 9 Uniondale-Blanco (George)	Single-carriage road improved early to mid-1950s	Doring River Bridge (1951), Four Passes monument (Outeniqua Pass)
Blanco (George)	Town established 1860	Various historic buildings along R 404
N 2 Blanco-Mossel Bay	Dual-carriage freeway constructed 1969-1982	None
N2 Mossel Bay - Riversdale	Single-carriage road with historical alignment that has been continuously improved (no dates on bridges were observed)	Sakkie Oosthuizen memorial
Riversdale	Town founded in 1838	None
N 2 Riversdale-Heidelberg	Single-carriage road in the process of being widened and upgraded	None
N 2 Heidelberg-Swellendam	Reconstruction of single-carriage road and laying of pipes	None
N 2 Swellendam-Riviersonderend	Single-carriage road realigned in the 1970s and 1980s	Large sections of the original alignment (including various bridges built in the mid-1940s) have been left intact alongside the new alignment
N 2 Riviersonderend-Caledon	Single-carriage historic alignment that has been continuously upgraded in the course of time	None
N 2 Caledon-Grabouw	Single-carriage historic alignment that has been continuously upgraded in the course of time (such as the dual-carriage Houwhoek Pass)	None
N 2 Grabouw-Somerset West	Dual-carriage road 1970s	None
N 2 Somerset West-Cape Town	Dual-carriage freeway mid-1960s	None
Cape Town	Founded 1652	N2 will probably connect with N 1 and R 27 at the Foreshore (Oswald Pirow Street), no features of heritage significance
R 27 Cape Town-Table View	Dual-carriage road constructed 1970s, recently changed to accommodate BRT system	Rietvlei cross
R 27 Table View-R 315 intersection	Single-carriage road constructed 1970s	None
R 315 to Yzerfontein	Single-carriage road constructed 1970s	Lime kiln in road reserve
Yzerfontein	Former fishing village transformed into modern holiday town	None

2.3 Development description

2.3	Development description	
2.3.1	Nature of development	<p>Fibre optic cable is the medium through which transmission equipment transmits data via light forms. The cable ducts are laid in trenches made through a system called micro-trenching, 300 mm wide and 800 mm deep, which are then covered by asphalt or soil (depending upon where they are laid) to reinstate the original surfaces. The size of the trenches and the installation process is designed to be done rapidly and to minimise any adverse impacts on the environment.</p> <p>The ducts will be installed as follows:</p> <ul style="list-style-type: none"> • Overpasses: Horizontal directional drilling below the cross road formation will be employed for the installation of the ducts. • Underpasses: The ducts will be routed through the base of the bridge parapets. Where this is not practical, horizontal drilling techniques will be employed to install the ducts under the cross road or railway line. • River bridges and culverts: The crossing of riverbeds will be avoided. The ducts will be routed to pass over the bridge, using ducts in the bridge parapet, where available, or micro trenching in the surfaced shoulder of the road. In the case of conventional culverts (stormwater systems), the ducts will be routed to pass over the stormwater culvert barrel in the road side-fill where possible, or routed alongside the fill passed the bottom of the stormwater culvert. • Interchanges and intersections: The duct will be routed along the outside boundary of the interchange precinct. In the case of at-grade intersections, the cable will be installed under the cross road by trenching or horizontal drilling, depending on traffic volumes. • Urban areas: The ducts will be laid in trenches in the surfaced road sides or under the pavement.
2.3.2	Impacts on heritage value of site and contents	Neutral to low negative
2.3.3	Structures older than 60 years affected by proposed development	Hertzog and Doring River bridges (directly), historic buildings and structures (indirectly)
2.3.4	Rezoning or change of land use	No
2.3.5	Construction work	Yes: Micro-trenching
2.3.6	Total floor area of proposed development	-
2.3.7	Extent of land coverage of development	Not available
2.3.8	Earth moving and excavation	Yes: Micro-trenching
2.3.9	Number of storeys	-
2.3.10	Maximum height above ground level	-
2.3.11	Monetary value development	Not available
2.3.12	Time frames	Urgent



FIGURE 2: Impression of the N 1 Johannesburg-Vaal River section



FIGURE 3: Change from dual-carriage freeway to single-carriage road on N 1 north of Kroonstad



FIGURE 4: N 1 dual-carriage freeway Kroonstad bypass



FIGURE 5: Kroonstad-Ventersburg section of the N 1



FIGURE 6: Ventersburg streetscape (lacking any historic buildings and structures) along the N 1

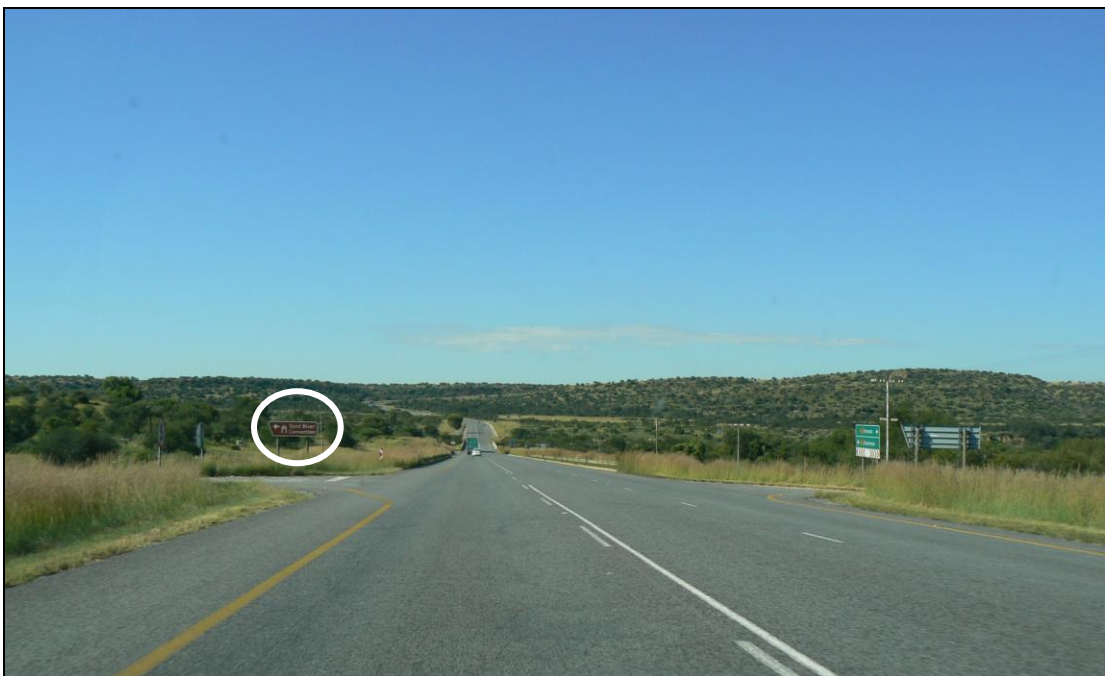


FIGURE 7: N1 Sand River valley section – the Sand River Convention Monument (road sign circled) is far outside the road reserve



FIGURE 8: N1 north of Verkeerdevlei Toll Plaza (arrow)



FIGURE 9: N1 dual-carriage bypass section at Bloemfontein



FIGURE 10: N 6 between Bloemfontein and Reddersburg



FIGURE 11: N 6 through Reddersburg' along this section no buildings and structures of heritage significance occur



FIGURE 12: The N 6 between Reddersburg and Smithfield is being widened and rebuilt



FIGURE 13: N 6 section between Smithfield and Rouxville



FIGURE 14: N 6 section between Rouxville and Aliwal North



FIGURE 15: R 58 between Aliwal North and Burgersdorp



FIGURE 16: R 56 between Steynsburg and Middelburg with the hills named Teebus (left of centre) and Koffiebus (right of centre)



FIGURE 17: N 9 between Middelburg and Graaff-Reinet



FIGURE 18: N 9 between Graaff-Reinet and Aberdeen



FIGURE 19: N 9 between Aberdeen and Willowmore at the Beervlei Dam

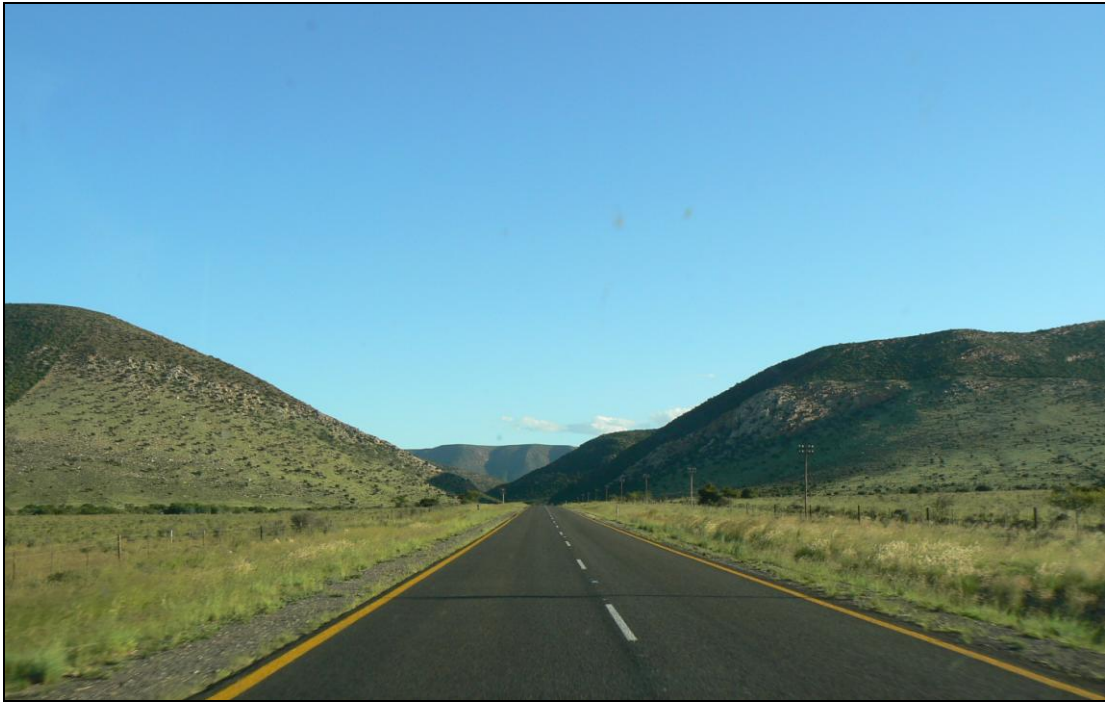


FIGURE 20: N 9 between Willowmore and Uniondale at the Gharrieport Pass



FIGURE 21: N 9 between Uniondale and the Outeniqua Pass



FIGURE 22: N 2 dual-carriage freeway between George and Mossel Bay near the Great Brak River



FIGURE 23: N 2 between Gouritz River and Mossel Bay



FIGURE 24: N 2 between Albertinia and the Gouritz River



FIGURE 25: N 2 between Riversdale and Albertinia at the Goukou River Bridge



FIGURE 26: N2 Riversdale bypass



FIGURE 27: N 2 between Heidelberg and Riversdale



FIGURE 28: N2 Heidelberg bypass



FIGURE 29: N 2 upgrade between Riviersonderend and Heidelberg



FIGURE 30: Old N 2 alignment between Riviersonderend and Heidelberg with bridges constructed in the mid-1940s

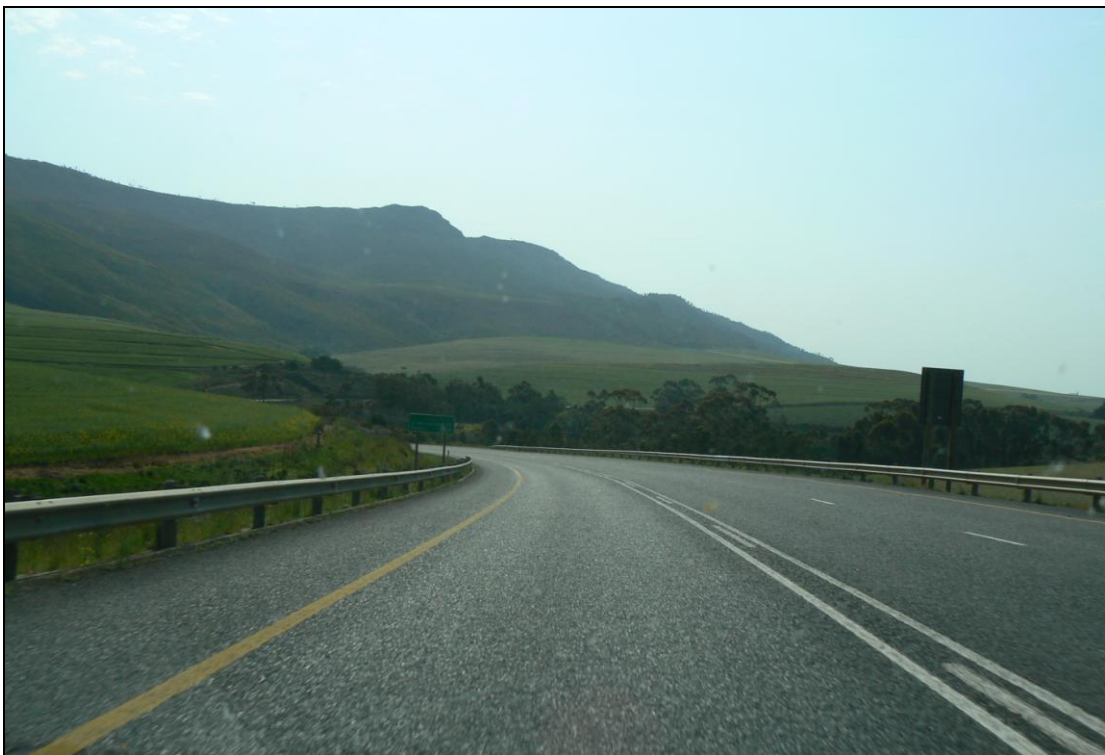


FIGURE 31: N 2 between Caledon and Riviersonderend



FIGURE 32: Houw Hoek Pass



FIGURE 33: Sir Lowry's Pass



FIGURE 34: N 2 section at Somerset West (left) and Strand (right)



FIGURE 35: R 27 (Marine Drive), Paardeneiland section



FIGURE 36: Table View section of the R 27 with one of the completed BRT stations



FIGURE 37: R 27 between the R 315 intersection and Blaauwberg



FIGURE 38: Entrance to Yzerfontein

3. HERITAGE IMPACT ASSESSMENT

3.1 Approach

3.1.1 Definitions and assumptions

The following aspects have a direct bearing on the investigation and the resulting report:

- *Cultural (heritage) resources* are all non-physical and physical human-made occurrences, as well as natural occurrences that are associated with human activity. These include all sites, structures and artefacts of importance, either individually or in groups, in the history, architecture and archaeology of human (cultural) development.
- The *cultural significance* of sites and artefacts is determined by means of their historical, social, aesthetic, technological and scientific value in relation to their 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.
- The *value* is related to concepts such as *worth, merit, attraction or appeal*, concepts that are associated with the (current) usefulness and condition of a place or an object. Hence, in the development area, there are instances where elements of the place have a high level of significance but a lower level of value.
- It must be kept in mind that significance and value are not mutually exclusive, and that the evaluation of any feature is based on a combination or balance between the two.
- Isolated occurrences: findings of artefacts or other remains located apart from archaeological sites. Although these are noted and samples are collected, it is not used in impact assessment and therefore do not feature in the report.
- Traditional cultural use: resources which are culturally important to people.
- All archaeological remains, artificial features and structures older than 100 years and historic structures older than 60 years are protected by the relevant legislation, in this case the National Heritage Resources Act (NHRA) (Act No. 25 of 1999). No archaeological artefact, assemblage or settlement (site) and no historical building or structure older than 60 years may be altered, moved or destroyed without the necessary authorisation from the South African Heritage Resources Agency (SAHRA) or a provincial heritage resources authority. Full cognisance is taken of this Act in making recommendations in this report.
- The guidelines as provided by the NHRA (Act No. 25 of 1999) in Section 3, with special reference to subsection 3, and the Australian ICOMOS Charter (also known as the Burra Charter) are used when determining the cultural significance or other special value of archaeological or historical sites.
- It should be kept in mind that archaeological deposits usually occur below ground level. Should artefacts or skeletal material be revealed at the site during construction, such activities should be halted, and it would be required that the heritage consultants would be required to be notified in order for an investigation and evaluation of the find(s) to take place (*cf.* NHRA (Act No. 25 of 1999), Section 36 (6)).

3.1.2 Limiting/Restricting factors

The investigation has been influenced by the following factors related to the overall HIA:

- Unpredictability of buried archaeological remains (absence of evidence does not mean evidence of absence)

3.1.3 Field work

Route surveys were conducted in September 2010 (for another project using sections of the same route), January and February 2011. Special attention was given to anything of significance in road reserves, historic structures in urban areas and rural villages and the age of existing bridges. The reserves on both sides of the roads were surveyed.

3.1.4 Desktop study

- Published literature
- Aerial images (contemporary)
- Archival records
- Maps (historical and contemporary)

3.1.5 Verbal information

- Ms Celeste Booth, archaeologist, Albany Museum, Grahamstown, 26 February 2011

3.2 General issues of site and context

3.2.1 Context		
x	<i>(check box of all relevant categories)</i>	<i>Brief description/explanation</i>
x	Urban environmental context	<ul style="list-style-type: none"> • Toll road • Provincial road • Towns • Villages • Farmland •
x	Rural environmental context	
x	Natural environmental context	
Formal protection (NHRA)		
	Is the property part of a protected area (S. 28)?	No
	Is the property part of a heritage area (S. 31)?	No
Other		
	Is the property near to or visible from any protected heritage sites?	Yes: Historic buildings in Graaff-Reinet
	Is the property part of a conservation area or special area in terms of the Zoning Scheme?	No
x	Does the site form part of a historical settlement or townscape?	N 1, N 2, N 6, N 9, provincial roads and towns
x	Does the site form part of a rural cultural landscape?	Farm land
	Does the site form part of a natural landscape of cultural significance?	No
	Is the site within or adjacent to a scenic route?	No
x	Is the property within or adjacent to any other area which has special environmental or heritage protection?	Crosses various rivers
	Does the general context or any adjoining properties have cultural significance?	Yes: Historic cities, towns and villages

3.2.2 Property features and characteristics		
	<i>(check box if YES)</i>	<i>Brief description</i>
x	Have there been any previous development impacts on the property?	Yes: Historic roads and upgraded roads
x	Are there any significant landscape features on the property?	Hills and streams
	Are there any sites or features of geological significance on the property?	No
	Does the property have any rocky outcrops on it?	No
x	Does the property have any fresh water sources (springs, streams, rivers) on or alongside it?	Various rivers are crossed
	Does the property have any sea frontage?	No
	Does the property form part of a coastal dune system?	No
	Are there any marine shell heaps or scatters on the property?	No
	Is the property or part thereof on land reclaimed from the sea?	No

3.2.3 Heritage resources on the property		
	<i>(check box if present on the property)</i>	<i>Name / List / Brief description</i>
Formal protections (NHRA)		
	National heritage site (S. 27)	No
	Provincial heritage site (S. 27)	No
	Provisional protection (s.29)	No
	Place listed in heritage register (S. 30)	No
General protections (NHRA)		
	structures older than 60 years (S. 34)	No
	archaeological site or material (S. 35)	No
	palaeontological site or material (S. 35)	No
	graves or burial grounds (S. 36)	No
	public monuments or memorials (S. 37)	No
Other		
x	Any heritage resource identified in a heritage survey (state author and date of survey and survey grading/s)	Memorial crosses along N 4 (Cultmatrix May 2010 HIA report regarding Pretoria-Skilpadhek fibre optic cable)
	Any other heritage resources (describe)	No

3.2.4 Property history and associations		
	<i>(check box if YES)</i>	<i>Brief description/explanation</i>
	Provide a brief history of the property (e.g. when granted, previous owners and uses).	See 2.2.3
	Is the property associated with any important persons or groups?	Yes
	Is the property associated with any important events, activities or public memory?	Yes

3.2.4 Property history and associations		
	Does the property have any direct association with the history of slavery?	No
	Is the property associated with or used for living heritage?	No
	Are there any oral traditions attached to the property?	Memorial crosses

3.3 Impacts and impact management measures

3.3.1 Historic buildings and structures

S 3(2) NHRA heritage resource	(a) Identification		(b) Significance	(c) Impact		(d) Recommended impact management, alternatives
	Site	GPS		Road section	Impact type, certainty and significance	
Buildings, structures, places and equipment of cultural significance	Historic buildings Smithfield (various)	-	High local	Smithfield (Kerk Street)	Damage during installation possible – low negative to neutral	Avoid and mitigation: Photograph and document current situation before trenching. Monitor damage to structures and buildings during trenching, installation and surface rehabilitation.



FIGURE 39: Various shops, houses and other historic buildings border on Smithfield’s main thoroughfare (Kerk Street)

S 3(2) NHRA heritage resource	(a) Identification		(b) Significance	(c) Impact		(d) Recommended impact management, alternatives
	Site	GPS		Road section	Impact type, certainty and significance	
Buildings, structures, places and equipment of cultural significance	Historic buildings Rouxville (few)	-	High local	Rouxville (Damage during installation possible – low negative to neutral	Avoid and mitigation: Photograph and document current situation before trenching. Monitor damage to structures and buildings during trenching, installation and surface rehabilitation.



FIGURE 40: A few historic buildings front on the N 6 in Rouxville

S 3(2) NHRA heritage resource	(a) Identification		(b) Significance	(c) Impact		(d) Recommended impact management, alternatives
	Site	GPS		Road section	Impact type, certainty and significance	
Buildings, structures, places and equipment of cultural significance	Hertzog Bridge across Orange River, Aliwal North (1937)	30°41'9.01"S 26°42'19.64"E	High local	Aliwal North	Medium	Mitigation: Cable installation should be invisible, reversible and not seriously damage the bridge. Document (photograph) bridge sections before installation and photograph installation process. Prepare detailed design drawings that explain the cable installation method for purposes of authorisation by heritage authorities.



FIGURE 41: Opened in 1937, the Hertzog Bridge across the Orange River at Aliwal North is a landmark protected in terms of Section 34 (older than 60 years) of the NHRA

S 3(2) NHRA heritage resource	(a) Identification		(b) Significance	(c) Impact		(d) Recommended impact management, alternatives
	Site	GPS		Road section	Impact type, certainty and significance	
Buildings, structures, places and equipment of cultural significance	Historic buildings Aliwal North (various)	-	High local	Smith and Grey streets	Damage during installation possible – low negative to neutral	Avoid and mitigation: Photograph and document current situation before trenching. Monitor damage to structures and buildings during trenching, installation and surface rehabilitation.



FIGURE 42: The former magistrate's and post office (1896) on the corner of Grey and Smith streets is one of Aliwal North's most important historical buildings

S 3(2) NHRA heritage resource	(a) Identification		(b) Significance	(c) Impact		(d) Recommended impact management, alternatives
	Site	GPS		Road section	Impact type, certainty and significance	
Buildings, structures, places and equipment of cultural significance	Historic buildings Burgersdorp (various)	-	High local	Piet Retief, Taylor, Van der Walt, Coligny streets)	Damage during installation possible – low negative to neutral	Avoid and mitigation: Photograph and document current situation before trenching. Monitor damage to structures and buildings during trenching, installation and surface rehabilitation.



FIGURE 43: Various historic buildings front on Piet Retief and other streets in Burgersdorp

S 3(2) NHRA heritage resource	(a) Identification		(b) Significance	(c) Impact		(d) Recommended impact management, alternatives
	Site	GPS		Road section	Impact type, certainty and significance	
Buildings, structures, places and equipment of cultural significance	Historic buildings Steynsburg (various)	-	Low local	Venter Street	Damage during installation possible – low negative to neutral	Avoid and mitigation: Photograph and document current situation before trenching. Monitor damage to structures and buildings during trenching, installation and surface rehabilitation.



FIGURE 44: Historic buildings along Venter Street in Steynsburg

S 3(2) NHRA heritage resource	(a) Identification		(b) Significance	(c) Impact		(d) Recommended impact management, alternatives
	Site	GPS		Road section	Impact type, certainty and significance	
Buildings, structures, places and equipment of cultural significance	Historic buildings Middelburg (various)	-	High local	Du Plessis and Meintjies streets	Damage during installation possible – low negative to neutral	Avoid and mitigation: Photograph and document current situation before trenching. Monitor damage to structures and buildings during trenching, installation and surface rehabilitation.



FIGURE 45: The Methodist Church on the corner of Meintjies and Loop streets is one of the many historic buildings in Middelburg

S 3(2) NHRA heritage resource	(a) Identification		(b) Significance	(c) Impact		(d) Recommended impact management, alternatives
	Site	GPS		Road section	Impact type, certainty and significance	
Buildings, structures, places and equipment of cultural significance	Historic buildings Graaff-Reinet (numerous, some of them declared heritage sites)	-	High local and regional	Caledon and Kerk streets	Damage during installation possible – medium/high negative to neutral	Avoid and mitigation: Photograph and document current situation before trenching. Monitor damage to structures and buildings during trenching, installation and surface rehabilitation.



FIGURE 46: The Dutch Reformed Church (top) and the Drostdy Hotel (bottom), both declared heritage sites, are amongst the many historic buildings lining the streets of Graaff-Reinet

S 3(2) NHRA heritage resource	(a) Identification		(b) Significance	(c) Impact		(d) Recommended impact management, alternatives
	Site	GPS		Road section	Impact type, certainty and significance	
Buildings, structures, places and equipment of cultural significance	Doring River Bridge (1951)	33°50'3.13"S 22°26'41.29"E	Low local	N 9 Uniondale-George	Low	Mitigation: Cable installation should be invisible, reversible and not seriously damage the bridge. Document (photograph) bridge sections before installation and photograph installation process. Prepare detailed design drawings that explain the cable installation method for purposes of authorisation by heritage authorities.



FIGURE 47: Doring River Bridge with date inscription

S 3(2) NHRA heritage resource	(a) Identification		(b) Significance	(c) Impact		(d) Recommended impact management, alternatives
	Site	GPS		Road section	Impact type, certainty and significance	
Buildings, structures, places and equipment of cultural significance	Historic Buildings, Riviersonderend (few)	-	Low local	Main Road	Damage during installation possible – low negative to neutral	Avoid and mitigation: Photograph and document current situation before trenching. Monitor damage to structures and buildings during trenching, installation and surface rehabilitation.



FIGURE 48: One of the historic buildings along the N 2's western approach to Riviersonderend

S 3(2) NHRA heritage resource	(a) Identification		(b) Significance	(c) Impact		(d) Recommended impact management, alternatives
	Site	GPS		Road section	Impact type, certainty and significance	
Buildings, structures, places and equipment of cultural significance	Lime Kiln near Yzerfontein	33°20'10.35"S 18°12'38.69"E	Low local	North of R 315 adjacent to road reserve	Probably no impact (outside road reserve)	Avoid and mitigation: Monitor for any damage during installation etc.

3.3.2 Roadside memorials

S 3(2) NHRA heritage resource	(a) Identification		(b) Significance	(c) Impact		(d) Recommended impact management, alternatives
	Site	GPS		Road section	Impact type, certainty and significance	
Buildings, structures, places and equipment of cultural significance	Springbokvlakte Cross	27° 7'18.14"S 27°31'37.45"E	Low local	N 1 Joburg-Kroonstad near Vredefort road reserve east side	Low to neutral (depends on cable location)	Mitigation: Photograph current situation, then remove memorial before trenching and installation and replace afterwards during surface rehabilitation.
	Roodepoort Cross	27°12'32.50"S 27°29'56.40"E	Low local	N 1 Joburg-Kroonstad near Vredefort, road reserve east side	Medium to neutral (depends on cable location)	Mitigation: Photograph current situation, then remove memorial before trenching and installation and replace afterwards during surface rehabilitation.
	Martina Cross	28°49'57.48"S 26°37'49.91"E	Low local	N 1 Winburg-Bloemfontein, road reserve east side	Medium to neutral (depends on cable location)	Mitigation: Photograph current situation, then remove memorial before trenching and installation and replace afterwards during surface rehabilitation.
	America Cross	28°54'56.90"S 26°26'54.74"E	Low local	N 1 Winburg-Bloemfontein, road reserve east side	Medium to neutral (depends on cable location)	Mitigation: Photograph current situation, then remove memorial before trenching and installation and replace afterwards during surface rehabilitation.
	Bloem Cross 2	29° 3'8.56"S 26°12'31.81"E	Low local	N1 median at Bloemfontein	No impact (located in median)	No action
	Bloem Cross 2	29° 3'45.71"S 26°11'43.08"E	Low local	N1 median at Bloemfontein	No impact (located in median)	No action
	Commissiedrift Prayer Monument	30°16'46.68"S 26°39'6.07"E	High regional	N 6 Smithfield-Rouxville at Caledon River Bridge	Damage during installation possible – low negative (depending on location of cable)	Avoid and monitor for any damage caused by dust, vibrations etc.
	Kleinspruit Cross	30°21'42.82"S 26°45'53.78"E	Low local	N 6 Smithfield-Rouxville, against fence	No impact (against fence)	No action
	Stormberg crosses (two metal crosses on poles)	30°51'15.21"S 26°25'9.61"E	Low local	R 58 Aliwal North-Burgersdorp, south road reserve	Damage or destruction during installation possible – low negative	Photograph current situation, then remove memorial before trenching and installation and replace afterwards during surface rehabilitation.

S 3(2) NHRA heritage resource	(a) Identification		(b) Significance	(c) Impact		(d) Recommended impact management, alternatives
	Site	GPS		Road section	Impact type, certainty and significance	
Buildings,						
	Sakkie Oosthuizen Memorial	34°11'40.24"S 21°47'20.30"E	Low local	N 2 East of Gouritz River, south side	Low to neutral (depends on cable location)	Mitigation: Photograph current situation, then remove memorial before trenching and installation and replace afterwards during surface rehabilitation. Consult local farmer Christiaan Pienaar (044) 697-7044 about family members.
	Rietvlei cross	33°50'49.41"S 18°29'29.24"E	Low local	R 27 Cross mounted against eastern road reserve fence	Probably no impact	Avoid



FIGURE 49: Inaugurated in 2005 next to the N 6 at the Caledon River (arrow), this monument commemorates a healing and praying ceremony held on 24 and 25 September in connection with fatal accidents on the N 6



FIGURE 50: One of the two metal roadside crosses on the farm Stormberg along the R 58



FIGURE 51: The Sakkie Oosthuizen memorial commemorates a tragic road accident that took place in 1999

3.3.3 Monuments

S 3(2) NHRA heritage resource	(a) Identification		(b) Significance	(c) Impact		(d) Recommended impact management, alternatives
	Site	GPS		Road section	Impact type, certainty and significance	
Buildings, structures, places and equipment of cultural significance	Smithfield 1938 Trek monument	30°12'42.03"S 26°31'49.12"E	High local	T-junction of Edenburg and Rascher Roads (turn of N 6)	Damage during installation possible – low negative (depending on location of cable)	Avoid and monitor for any damage caused by dust, vibrations etc.

S 3(2) NHRA heritage resource	(a) Identification		(b) Significance	(c) Impact		(d) Recommended impact management, alternatives
	Site	GPS		Road section	Impact type, certainty and significance	
Buildings,	Andries Pretorius Monument Graaff-Reinet	32°13'51.47"S 24°32'8.72"E	High local	50 m west of road reserve	Probably no impact (outside road reserve)	Avoid and mitigation: Monitor for any damage during installation etc.
	1938 Trek monument, Graaff-Reinet	32°14'15.08"S 24°32'9.80"E	High local	30 m west of road reserve	Probably no impact (outside road reserve)	Avoid and mitigation: Monitor for any damage during installation etc.
	Camdeboo Heroes Monument (2006), Graaff-Reinet	32°14'46.90"S 24°32'15.83"E	High regional	Adjacent to western road edge of northern entrance to town	Damage during installation possible – low negative to neutral	Avoid and mitigation: Photograph and document current situation before trenching. Monitor damage to structure during trenching, installation and surface rehabilitation.
	Four Passes Monument and Viewpoint	33°54'21.38"S 22°24'22.59"E	High local	N 9 Outeniqua Pass	Probably no impact (outside eastern road reserve)	Avoid and mitigation: Monitor for any damage during installation etc.



FIGURE 52: 1938 Great Trek commemoration memorial, Smithfield



FIGURE 53: Andries Pretorius memorial (1943) just north of Graaff-Reinet



FIGURE 54: 1938 Great Trek commemoration memorial, Graaff-Reinet



FIGURE 55: Inaugurated in 2006, this memorial at the northern entrance to Graaff-Reinet commemorates the “fallen heroes” of the Camdeboo region

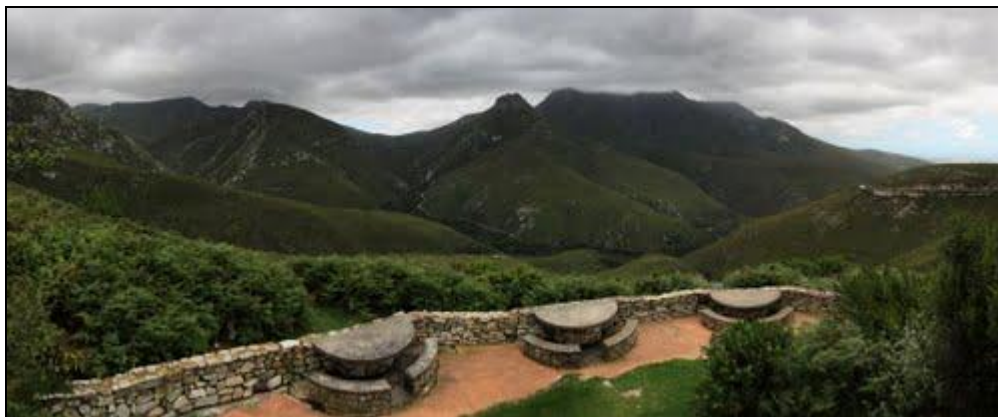


FIGURE 56: Four Passes monument and viewpoint, Outeniqua Pass

3.3.4 Graves and cemeteries

S 3(2) NHRA heritage resource	(a) Identification		(b) Significance	(c) Impact		(d) Recommended impact management, alternatives
	Site	GPS		Road section	Impact type, certainty and significance	
Graves and burial sites	Beestekraal cemetery	30°33'25.39"S 26°47'19.57"E	Medium local	N 6 Rouxville-Aliwal North, adjacent to northern road reserve	Probably no impact (outside road reserve)	Avoid and mitigation: Monitor for any damage during installation etc.
	Bultfontein cemetery	31°33'50.30"S 25° 0'18.83"E	Medium local	N 9 Middelburg-Graaff-Reinet	Probably no impact (outside road reserve)	Avoid and mitigation: Monitor for any damage during installation etc.



FIGURE 57: Cemetery on the farm Beestekraal adjacent to the N 6 road reserve

3.3.5 Summarised impact assessment

TABLE 5: Identification of heritage features, impacts and impact management measures

S 3(2) NHRA heritage resource	(a) Identification		(b) Significance	(c) Impact		(d) Recommended impact management, alternatives
	Site	GPS		Road section	Impact type, certainty and significance	
Buildings, structures, places and equipment of cultural significance	Springbokvlakte Cross	27° 7'18.14"S 27°31'37.45"E	Low local	N 1 Joburg-Kroonstad near Vredefort road reserve east side	Low to neutral (depends on cable location)	Mitigation: Photograph current situation, then remove memorial before trenching and installation and replace afterwards during surface rehabilitation.
	Roodepoort Cross	27°12'32.50"S 27°29'56.40"E	Low local	N 1 Joburg-Kroonstad near Vredefort, road reserve east side	Medium to neutral (depends on cable location)	Mitigation: Photograph current situation, then remove memorial before trenching and installation and replace afterwards during surface rehabilitation.
	Martina Cross	28°49'57.48"S 26°37'49.91"E	Low local	N 1 Winburg-Bloemfontein, road reserve east side	Medium to neutral (depends on cable location)	Mitigation: Photograph current situation, then remove memorial before trenching and installation and replace afterwards during surface rehabilitation.

S 3(2) NHRA heritage resource	(a) Identification		(b) Significance	(c) Impact		(d) Recommended impact management, alternatives
	Site	GPS		Road section	Impact type, certainty and significance	
America Cross	28°54'56.90"S 26°26'54.74"E	Low local	N 1 Winburg-Bloemfontein, road reserve east side	Medium to neutral (depends on cable location)	Mitigation: Photograph current situation, then remove memorial before trenching and installation and replace afterwards during surface rehabilitation.	
Bloem Cross 2	29° 3'8.56"S 26°12'31.81"E	Low local	N1 median at Bloemfontein	No impact (located in median)	No action	
Bloem Cross 2	29° 3'45.71"S 26°11'43.08"E	Low local	N1 median at Bloemfontein	No impact (located in median)	No action	
Smithfield 1938 Trek monument	30°12'42.03"S 26°31'49.12"E	High local	T-junction of Edenburg and Rascher Roads (turn of N 6)	Damage during installation possible – low negative (depending on location of cable)	Avoid and monitor for any damage caused by dust, vibrations etc.	
Historic buildings Smithfield (various)	-	High local	Smithfield	Damage during installation possible – low negative to neutral	Avoid and mitigation: Photograph and document current situation before trenching. Monitor damage to structures and buildings during trenching, installation and surface rehabilitation.	
Commissiedrift Prayer Monument	30°16'46.68"S 26°39'6.07"E	High regional	N 6 Smithfield-Rouxville at Caledon River Bridge	Damage during installation possible – low negative (depending on location of cable)	Avoid and monitor for any damage caused by dust, vibrations etc.	
Kleinspruit Cross	30°21'42.82"S 26°45'53.78"E	Low local	N 6 Smithfield-Rouxville, against fence	No impact (against fence)	No action	
Historic buildings Rouxville (few)	-	High local	Rouxville	Damage during installation possible – low negative to neutral	Avoid and mitigation: Photograph and document current situation before trenching. Monitor damage to structures and buildings during trenching, installation and surface rehabilitation.	
Hertzog Bridge across Orange River, Aliwal North (1937)	30°41'9.01"S 26°42'19.64"E	High local	Aliwal North	Medium	Mitigation: Cable installation should be invisible, reversible and not seriously damage the bridge. Document (photograph) bridge sections before installation and photograph installation process. Prepare detailed design drawings that explain the cable	

S 3(2) NHRA heritage resource	(a) Identification		(b) Significance	(c) Impact		(d) Recommended impact management, alternatives
	Site	GPS		Road section	Impact type, certainty and significance	
						installation method for purposes of authorisation by heritage authorities.
	Historic buildings Aliwal North (various)	-	High local	Smith and Grey streets	Damage during installation possible – low negative to neutral	Avoid and mitigation: Photograph and document current situation before trenching. Monitor damage to structures and buildings during trenching, installation and surface rehabilitation.
	Stormberg crosses (two metal crosses on poles)	30°51'15.21"S 26°25'9.61"E	Low local	R 58 Aliwal North-Burgersdorp, south road reserve	Damage or destruction during installation possible – low negative	Photograph current situation, then remove memorial before trenching and installation and replace afterwards during surface rehabilitation.
	Historic buildings Burgersdorp (various)	-	High local	Piet Retief, Taylor, Van der Walt, Coligny streets)	Damage during installation possible – low negative to neutral	Avoid and mitigation: Photograph and document current situation before trenching. Monitor damage to structures and buildings during trenching, installation and surface rehabilitation.
	Historic buildings Steynsburg (various)	-	Low local	Venter Street	Damage during installation possible – low negative to neutral	Avoid and mitigation: Photograph and document current situation before trenching. Monitor damage to structures and buildings during trenching, installation and surface rehabilitation.
	Historic buildings Middelburg (various)	-	High local	Du Plessis and Meintjies streets	Damage during installation possible – low negative to neutral	Avoid and mitigation: Photograph and document current situation before trenching. Monitor damage to structures and buildings during trenching, installation and surface rehabilitation.
	Andries Pretorius Monument Graaff-Reinet	32°13'51.47"S 24°32'8.72"E	High local	50 m west of road reserve	Probably no impact (outside road reserve)	Avoid and mitigation: Monitor for any damage during installation etc.

S 3(2) NHRA heritage resource	(a) Identification		(b) Significance	(c) Impact		(d) Recommended impact management, alternatives
	Site	GPS		Road section	Impact type, certainty and significance	
	1938 Trek monument, Graaff-Reinet	32°14'15.08"S 24°32'9.80"E	High local	30 m west of road reserve	Probably no impact (outside road reserve)	Avoid and mitigation: Monitor for any damage during installation etc.
	Camdeboo Heroes Monument (2006), Graaff-Reinet	32°14'46.90"S 24°32'15.83"E	High regional	Adjacent to western road edge of northern entrance to town	Damage during installation possible – low negative to neutral	Avoid and mitigation: Photograph and document current situation before trenching. Monitor damage to structure during trenching, installation and surface rehabilitation.
	Historic buildings Graaff-Reinet (numerous, some of them declared heritage sites)	-	High local and regional	Caledon and Kerk streets	Damage during installation possible – medium/high negative to neutral	Avoid and mitigation: Photograph and document current situation before trenching. Monitor damage to structures and buildings during trenching, installation and surface rehabilitation.
	Doring River Bridge (1951)	33°50'3.13"S 22°26'41.29"E	Low local	N 9 Uniondale-George	Low	Mitigation: Cable installation should be invisible, reversible and not seriously damage the bridge. Document (photograph) bridge sections before installation and photograph installation process. Prepare detailed design drawings that explain the cable installation method for purposes of authorisation by heritage authorities.
	Four Passes Monument and Viewpoint	33°54'21.38"S 22°24'22.59"E	High local	N 9 Outeniqua Pass	Probably no impact (outside eastern road reserve)	Avoid and mitigation: Monitor for any damage during installation etc.
	Historic buildings Blanco (various)	-	Low local	R 404 Montagu Road	Damage during installation possible – low negative to neutral	Avoid and mitigation: Photograph and document current situation before trenching. Monitor damage to structures and buildings during trenching, installation and surface rehabilitation.

S 3(2) NHRA heritage resource	(a) Identification		(b) Significance	(c) Impact		(d) Recommended impact management, alternatives
	Site	GPS		Road section	Impact type, certainty and significance	
	Sakkie Oosthuizen Memorial	34°11'40.24"S 21°47'20.30"E	Low local	N 2 East of Gouritz River, south side	Low to neutral (depends on cable location)	Mitigation: Photograph current situation, then remove memorial before trenching and installation and replace afterwards during surface rehabilitation. Consult local farmer Christiaan Pienaar (044) 697-7044 about family members.
	Historic Buildings, Riviersonderend (few)	-	Low local	Main Road	Damage during installation possible – low negative to neutral	Avoid and mitigation: Photograph and document current situation before trenching. Monitor damage to structures and buildings during trenching, installation and surface rehabilitation.
	Rietvlei cross	33°50'49.41"S 18°29'29.24"E	Low local	R 27 Cross mounted against eastern road reserve fence	Probably no impact	Avoid
	Lime Kiln near Yzerfontein	33°20'10.35"S 18°12'38.69"E	Low local	North of R 315 adjacent to road reserve	Probably no impact (outside road reserve)	Avoid and mitigation: Monitor for any damage during installation etc.
Areas to which oral traditions are attached or which are associated with intangible heritage	None	-	-	-	-	-
Historical settlements and landscapes	Smithfield, Aliwal North, Burgersdorp, Steynsburg, Middelburg, Graaff-Reinet, Blanco, Riviersonderend	-	High local	-	Neutral	
Landscapes and natural features of cultural significance	None	-	-	-	-	-
Geological sites of scientific or cultural importance	None	-	-	-	-	None
Archaeological sites	Isolated Stone Age tools found in gravel of some road cuttings (e.g. north of Caledon River)	-	Low local	-	Neutral	Severely disturbed, highly altered and developed and partially disturbed environments. No significant impacts to pre-

S 3(2) NHRA heritage resource	(a) Identification		(b) Significance	(c) Impact		(d) Recommended impact management, alternatives
	Site	GPS		Road section	Impact type, certainty and significance	
						colonial material that need to be mitigated prior to construction, except in the case of significant chance finds (e.g. large scatters of archaeological material and hidden burial sites)
Graves and burial sites	Beestekraal cemetery	30°33'25.39"S 26°47'19.57"E	Medium local	N 6 Rouxville-Aliwal North, adjacent to northern road reserve	Probably no impact (outside road reserve)	Avoid and mitigation: Monitor for any damage during installation etc.
	Bultfontein cemetery	31°33'50.30"S 25° 0'18.83"E	Medium local	N 9 Middelburg-Graaff-Reinet	Probably no impact (outside road reserve)	Avoid and mitigation: Monitor for any damage during installation etc.
Features associated with labour history	None	-	-	-	-	
Movable objects	None	-	-	-	-	

3.4 Social and economic benefits

The development will have no direct benefits related to the conservation of heritage resources (structures) since none will be directly and/or permanently affected.

The infrastructure is capable of transporting far in excess of the anticipated traffic requirements of the South African telecommunications market over the next 20 years.

The socio-economic benefits are associated with the creation of a sport and recreation opportunity and the retention and creation of jobs.

This project is in line with the vision and mission of the Presidential National Commission on the Information Society and Development.

3.5 Consultation with affected communities

This is part of the EIA process.

3.6 Identification of other risk sources

The following project actions could impact negatively on any potential archaeological and historical sites and remains.

The actions are likely to occur during the trenching phase:

- Exposure or uncovering of more objects and artefacts

3.7 Key mitigation and enhancement measures before and during installation

See Table 5 for a summary of mitigation measures.

3.8 Consideration of alternatives

The nature and significance of what has been found in terms of heritage is not of such importance that the proposed project should be suspended or stopped, or that alternatives for the proposed cable route should be investigated.

3.9 Summarised findings and recommendations

The proposed cable will be buried in road reserves, which represent severely disturbed, highly altered and developed and partially disturbed environments, some dating back to the late 1940s and early 1950s when many of the present road alignments were constructed. Road upgrading (e.g. resurfacing, widening) and maintenance (e.g. grass cutting) has further impacted on this type of environment and is still happening, e.g. sections of the Reddersburg-Smithfield road were being widened and resurfaced in February 2011.

The anticipated impact on the identified heritage resources will in general be low and reversible (where roadside memorials could be affected) or neutral to low negative (where historic buildings and structures are affected). Any possible damage to historic buildings and structures in urban areas (e.g. caused by vibrations, dust, flying debris etc) can be minimised through proper monitoring. Although roadside memorials are illegal, they are an emerging part of the cultural landscape and have emotional memories for people.

Bridges, viaducts, pedestrian crossings and overpasses (often indicating the age of roads) were constructed in the 1950s, 1960s and the 1970s (some after 2000) and therefore fall outside the 60-years protection clause. Notable exceptions are

- The Hertzog Bridge across the Orange River at Aliwal North. This bridge was opened in 1937 and therefore falls inside the 60-years protection clause.
- The Doring River Bridge between George and Uniondale. This bridge dates to 1951 and therefore falls just inside the 60-years protection clause.

The nature and significance of what has been found in terms of heritage is not of such importance that the proposed project should be suspended or stopped, or that alternatives for the proposed cable route should be investigated.

RC de Jong states that there are no compelling reasons not to proceed with the proposed project and recommends that it can be authorised in terms of NHRA Section 38, provided that the below measures are adopted to manage foreseen and unforeseen adverse impacts before and during installation work.

It is recommended that the heritage agencies and authorities authorise the proposed development with the following conditions:

Trenching activities must be monitored for the occurrence of any significant sub-surface archaeological material (historic waste disposal sites, burials, large concentrations of artefacts, bones etc) and similar hidden/buried chance finds. Should something of significance be discovered, the work should be suspended and the developer should request an investigation by an accredited archaeologist.

1. Where roadside memorials (crosses) could be affected, the current situation must be photographed, then removal of memorial (and any plaques etc) before trenching and installation and replacement afterwards during site rehabilitation.
2. Where the identified two historic bridges (Hertzog Bridge and Doring River Bridge), and any other bridges older than 60 years, are affected, the cable installation should be invisible, reversible and not seriously damage the bridge. Bridge sections should be documented (photographed) before installation and the installation process should be photographed. The heritage authority may request more detailed design drawings that explain the cable installation method.
3. Where other historic buildings and structures could be affected, the current situation must be documented (photographed) to create a benchmark for monitoring damage to the structures (e.g. by vibrations, dust, flying debris) during trenching, installation and rehabilitation. Should any significant damage take place, the provincial heritage resources authority should be contacted.
4. The above recommendations must be included in the Environment Management Programme for the proposed project.

APPENDIX 1: INFORMATION SOURCES USED IN THIS REPORT

Databases

Environmental Potential Atlas, Department of Environmental Affairs and Tourism.
Heritage Sites Database, Pretoria
SAHRA database of Archaeological Impact Assessment reports (2009)

Literature

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Aerial photos

Google Earth

Internet Sources

www.sahra.org.za : List of declared national and provincial heritage sites and registered sites

APPENDIX 2: GLOSSARY OF TERMS

Cultural significance (Burra Charter)

Aesthetic, historic, scientific, social or spiritual importance, meaning or noteworthiness for past, present or future generations

Cultural significance is embodied in the place itself (intrinsic significance), its fabric, setting, use, associations, meanings, records, related places and related objects.

Cultural significance is assessed in terms of the following criteria, some of which are embodied in the NHRA:

- Historic value: Material or intangible evidence resulting from changing social, political and environmental circumstances or conditions
- Rarity: Unique or unusual features also possess rarity value, apart from their age. Section 34 of the NHRA provided general protection for all structures older than 60 years. This does not imply that recently erected structures cannot possess rarity, or for that matter cultural value.
- Scientific value: Indicates research potential (the capacity to yield more knowledge)
- Typical: Indicates that the feature is a good example of a certain class or type of heritage resource
- Aesthetic: Other than artistic or architectural expression, aesthetic value can also be evident in craftsmanship, technique, visual cohesion (harmony), visual evidence of permanence and stability, setting etc.
- Technological: Indicates value in terms of a technological achievement
- Personal/Community: Indicates value in terms of association with a certain person, community, organisation or cultural group
- Landmark: A sense of place or belonging involves the physical and visual relationship between a feature and its environment.
- Condition (material integrity): Indicates substantial evidence of authentic fabric with minor degree of lost or obliterated fabric; also refers to a structure's restoration potential
- Sustainability: The potential for lasting economic viability (use) and the perpetuation of the original use or part thereof.

Heritage resources/features (NHRA)

Any place or object of cultural significance, including:

(a) places, buildings, structures and equipment of cultural significance;

(b) places to which oral traditions are attached or which are associated with living heritage;

(c) historical settlements and townscapes;

(d) landscapes and natural features of cultural significance;

(e) geological sites of scientific or cultural importance;

(f) archaeological and palaeontological sites;

(g) graves and burial grounds, including—

(i) ancestral graves;

(ii) royal graves and graves of traditional leaders;

(iii) graves of victims of conflict;

(iv) graves of individuals designated by the Minister by notice in the *Gazette*;

(v) historical graves and cemeteries; and

(vi) other human remains, which are not covered in terms of the Human Tissue Act, 1983 Act No. 65 of 1983);

(h) sites of significance relating to the history of slavery in South Africa;

(i) movable objects, including—

(i) objects recovered from the soil or waters of South Africa, including archaeological and palaeontological objects and material, meteorites and rare geological specimens;

(ii) objects to which oral traditions are attached or which are associated with living heritage;

(iii) ethnographic art and objects;

(iv) military objects;

(v) objects of decorative or fine art;
(vi) objects of scientific or technological interest; and
(vii) 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).

Heritage significance (NHRA)

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

Historic period

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

Impact

A description of the effect of an aspect of the development on a specified component of the biophysical, social or economic environment within a defined time and space

Impact assessment

Issues that cannot be resolved during screening (Level 1) and scoping (Level 2) and thus require further investigation

Intangible heritage

Defined in terms of the UNESCO Convention for the Safeguarding of the Intangible Cultural Heritage (2003) as:

- Oral traditions and expressions, including language as a vehicle of the intangible cultural heritage;
- Performing arts;
- Social practices, rituals and festive events;
- Knowledge and practices concerning nature and the universe;
- Traditional craftsmanship.

The "intangible cultural heritage" means the practices, representations, expressions, knowledge, skills – as well as the instruments, objects, artefacts and cultural spaces associated therewith – that communities, groups and, in some cases, individuals recognize as part of their cultural heritage. This intangible cultural heritage, transmitted from generation to generation, is constantly recreated by communities and groups in response to their environment, their interaction with nature and their history, and provides them with a sense of identity and continuity, thus promoting respect for cultural diversity and human creativity.

Visual and social impact assessments as part of an HIA are directly associated with intangible cultural heritage.

Iron Age

Early Iron Age (EIA)	AD 200 - AD 1000
Late Iron Age (LIA)	AD 1000 - AD 1830

Issue

A question that asks what the impact of the proposed development will be on some element of the environment

Maintenance

Keeping something in good health or repair

Management actions

Actions that enhance benefits associated with a proposed development or avoid, mitigate, restore, rehabilitate or compensate for the negative impacts

Preservation

Conservation activities that consolidate and maintain the existing form, material and integrity of a cultural resource

Reconstruction

Re-erecting a structure on its original site using original components

Rehabilitation

Re-using an original building or structure for its historic purpose or placing it in a new use that requires minimal change to the building or structure characteristics and its site and environment.

Restoration

Returning the existing fabric of a place to a known earlier state by removing additions or by reassembling existing components

SAHRA - South African Heritage Resources Agency

Stone Age

Early Stone Age (ESA)	2 000 000 - 150 000 Before Present
Middle Stone Age (MSA)	150 000 - 30 000 BP
Late Stone Age (LSA)	30 000 - until c. AD 200

Value

Worth, conservation utility, desirability to conserve etc in terms of physical condition, level of significance (importance), economy (feasibility), possible new uses and associations/comparisons with similar features elsewhere