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FINAL SCOPING HERITAGE IMPACT ASSESSMENT: GAMMA - OMEGA 765Kv TRANSMISSION LINE

VOLUME 1

(For submission to HWC & SAHRA)

Report Prepared for PD Naidoo on behalf of Eskom Holdings

March 2009

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APPENDIX 6: OUTCOME OF THE CONSULTATION PROCESS

1. ISSUES RAISED IN RESPONSE TO THE EIA PROCESS PD Naidoo EIR: Issues and Response Report, October 2007

The following table of heritage related issues raised by IAP's during the EIA process has been extracted from PD Naidoo's GAMMA GRASSRIDGE 765KV TRANSMISSION POWER LINES ((X 2)) ENVIRONMENTAL IMPACT REPORT - ISSUES AND RESPONSE REPORT: OCTOBER 2007

NAME AND ORGANISATION	ISSUES RAISED	RESPONSE
Mr David Jacobus Joubert: *Haasfontein*	• The homestead on the farm Haasfontein is one of the few remaining examples of what farm homesteads in the area looked like in the late 1800's and early 1900's which is close to the tar road for people who are interested. The farm has a rich history, inter alia, a rock rampart built during the Anglo-Boer War to watch the enemy across a large area.	A controlled-exclusive surface survey and literature review has been undertaken to address potential impacts on cultural and heritage resources (EIR Volume 1, Sections 8.11 and 9.6). Furthermore, a Heritage Impact Assessment of the final route alignment and tower positions will be undertaken to identify site-specific resources that require protection, including buildings older than sixty years.
Ms Elizabeth Manong: *South African Heritage Resources Agency, Northern Cape*	• How will the proposed operation impact on the cultural heritage of the surrounding environment?	A controlled-exclusive surface survey and literature review has been undertaken to address potential impacts on cultural and heritage resources (EIR Volume 1, Sections 8.11 and 9.6). Furthermore, a Heritage Impact Assessment of the final route alignment and tower positions will be undertaken to identify site specific resources that require protection. The full report has been submitted to various SAHRA offices as requested by SAHRA during Scoping.
Ms Nolitha Ngcai: *South African Heritage Resources Agency, Eastern Cape*	• Heritage resources e.g. living heritage sites, graves older than 60 years, archaeological and palaeontological sites. • Living heritage sites includes both the intangible and tangible aspects.	A controlled-exclusive surface survey and literature review has been undertaken to address potential impacts on cultural and heritage resources, as defined by the National Heritage Resources Act, 1999 (Act 25 of 1999) (EIR Volume 1, Sections 8.11 and 9.6).
Miss Leonie Fouche: *Camdeboo Local Municipality*	• During the recent review of Camdeboo Municipality's IDP, the protection	A controlled-exclusive surface survey and literature review has been undertaken to address potential impacts on cultural and

	of the environment came to the fore and appropriate programmes were proposed; the Environment was included as a Developmental Priority in our 2006/07 IDP. • The Karoo is known for its rich cultural and unique natural heritage. The Plains of the Camdeboo contain valuable fossil deposits, some dating back more than 200 million years, and a number of historical sites, especially Khoi-San artefacts, tools and stone structures that bear silent witness to the peoples who once roamed the area, searching for food and shelter. Whilst these rich deposits and historical sites may not all be documented, we know that they exist and many are still to be discovered. • It is therefore our plea that all due care and consideration be given to the proposedinstallation of 765 Power Lines through our Municipal area: the damage to the natural environment and the negative visual impact of these structures are a real and valid concern and we will appreciate a THOROUGH investigation of the proposed route BEFORE any final decision is taken as to the positioning of the corridors and their installations. Damage must be limited to the absolute minimum and disturbed areas properly rehabilitated afterwards. Historical archaeological and paleontological sites that are discovered must be reported, recorded and protected at all costs. Traces of fossils and previous human settlements (specially old stone structures) must not be disturbed or destroyed - please.	heritage resources (EIR Volume 1, Sections 8.11 and 9.6). Furthermore, a Heritage Impact Assessment of the final route alignment and tower positions will be undertaken to identify site specific resources that require protection. The outcomes of this study have been considered in an integrated manner to determine a final alignment that has the least possible impacts on the environment.
Ms Mary Leslie *South African Heritage Resources Agency: Western Cape*	• In terms of the National Heritage Resources Act (No 25 of 1999) no archaeological of palaeontological sites may be disturbed without a permit. This means that before such sites are disturbed by exploration or mining it is incumbent on the mining developer, if it is not to find itself in contravention of the legislation, to ensure that an archaeological and if applicable a palaeontological assessment has been done and that appropriate mitigation has happened. • An accredited specialist can be contracted to either provide a Phase 1 (Archaeological) Impact Assessment Report or alternatively the specialist may provide a letter to the heritage authority to indicate that there is no necessity for any further assessment. This Phase 1 Impact Assessment Report will identify the archaeological sites and assess their significances. It will make recommendations (as indicated in section 38 of the Act) about the process (for example a Phase 2 mitigation). At the end of the process the heritage authority may give permission for destruction	A controlled-exclusive surface survey and literature review has been undertaken to address potential impacts on cultural and heritage resources (EIR Volume 1, Sections 8.11 and 9.6). Furthermore, once the final route alignment and tower positions have been determined a site-specific Heritage Impact Assessment will be undertaken to identify site-specific resources that require protection, disturbance or destruction, and therefore, permits from SAHRA.

	of the sites. If there are other heritage resources that may be impacted such as built structures over 60 years old, sites of cultural significance associated with oral histories, burial grounds and graves, graves of victims of conflict, and cultural landscapes or viewscapes that require protection, these must also be addressed. These will be addressed by Northern Cape PHRA (except for grave which will be addressed by us). Alternatively it may be more appropriate to conduct the full Heritage Impact Assessment (See Section 38 NHRA), which would include the archaeological and palaeontological components.	
Dr John Raimondo: *African Environmental Solutions*	• Section 6. 4 C ultural and h eritage r esources. T he aut hors s eem t o be unaware of t he r ecent "discoveries" by D r C yril H romnik of pr e-colonial Indo-Quena stone temples in the Karroo. He should be contacted at Tel. & fax: 021 689 4463 to check if similar structures are likely to be found in the areas covered by the corridor. His response should be included in the FSR so that if necessary relevant studies / investigations can be included. NB It is not enough to consider the Pylon sites, as implied on page 76, as the temples depend on lines of sight.	A controlled-exclusive surface survey and literature review has been undertaken to address potential impacts on cultural and heritage resources (EIR Volume 1, Sections 8.11 and 9.6). The corridors as currently indicated are 6 km wide, within which a 160m servitude must be acquired. A final alignment must still be determined. Thereafter, the micro-positioning of towers can occur, enabling the avoidance of sensitive areas. Furthermore, once the final route alignment and tower positions have been determined a site-specific Heritage Impact Assessment will be undertaken to identify site-specific resources that require protection, disturbance or destruction, and therefore, permits.
Rev. William A Thompson: *Methodist Church Minister- Preller Road, Uitenhage Springbok Flats*	• The church is situated in the above area. The members of the church are opposed tothe c orridor a s i t i s r ecently pr oposed. T hey s uggest t hat i t might be moved out of the valley area where it has been suggested (329 and 338). • The s ight of powerlines r unning i n t he m iddle of t raditional f arm l and i s the objection.	The final corridor will be selected based on integrated outcomes from a suite of Specialist Studies, including a controlled-exclusive surface survey and literature review (EIR Volume 1, Sections 8.11 and 9.6) and Visual Impact Assessment (EIR Volume 1,Sections 8.8 and 9.4) that address potential cultural heritage and visual impacts, respectively.
Dr Sarah Wurtz: *South African Heritage Resources Agency (SAHRA)*	• The proposed corridors for the Gamma-Grassridge Transmission Lines runs t hrough an a rea w here f ew or no pr ofessional s urveys o f archaeological sites or research projects have been undertaken. • The desktop study (2003) and scoping assessment (2006) by Ethembeni Cultural H eritage indicate t hat onl y a f ew s ites mainly r eported by t he public ar e k nown i n t he w ider v icinity of t he pr oposed c orridors. T hese	A controlled-exclusive surface survey and literature review has been undertaken to address potential impacts on cultural and heritage resources (EIR Volume 1, Sections 8.11 and 9.6). Furthermore, once the final route alignment and tower positions have been determined a site-

	sites include scatters of stone tools, a large number of rock painting sites and Iron Age sites. We would also expect there to be more Stone Age sites that have not yet been identified and perhaps graves and burial grounds. • The hi storical s tructures i n t he r egion t o be dev eloped ha ve no t b een assessed. • The recommendations that are made in the Draft Environmental Scoping report for r eview and comment (:76) are not sufficient t o pr otect t he heritage resources f the development area. • A comprehensive Phase 1 Archaeological Impact Assessment foot survey and assessment of other applicable heritage components must be undertaken for the full extent of the transmission lines. If any evidence of sites, graves or other features is found during development, construction or mining, an archaeologist must be alerted immediately. • A Phase 1 Palaeontological Assessment must also be undertaken as the palaeontological fossils and traces in this area may be important. • Phase 2 mitigation is being asked for (sampling through excavation and dating). • SAHRA will r equire t hat, i n t erms of s .38 (4) (b&c) of t he N ational Heritage R esources A ct, t he provisions of sections 3 5 an d 36 ap ply, a s appropriate. T he s pecialist will r equire a m itigation per mit f rom t he relevant Heritage Resources Authority. On receipt of a satisfactory mitigation (Phase 2) per mit r eport f rom t he ar chaeologist, t he her itage authority may make further recommendations in terms of these provisions. V ery r arely i f a site is of high her itage significance t he authority may request that it be conserved, that mini-site management plans, interpretive material and possibly protective infrastructure be established. More generally, permission is given for the destruction of the remainder of archaeological or palaeontological sites, after full recording	specific Heritage Impact Assessment will be undertaken to identify site-specific resources that require protection, disturbance or destruction, and therefore, permits from SAHRA.
	• Decision on Built Environment (e.g. structures over 60 years) and Cultural Landscapes must be made by the Eastern Cape and Northern Cape SAHRA Provincial Heritage offices (contact details given) to whom we will send this comment and the Draft Scoping Report.	A controlled-exclusive surface survey and literature review has been undertaken to address potential impacts on cultural and heritage resources (EIR Volume 1, Sections 8.11 and 9.6), including the built environment and cultural landscape. The full report has been sent to SAHRA Eastern Cape, SAHRA Northern Cape, Heritage Western Cape and SAHRA's head office in Cape Town, as requested by SAHRA

		during Scoping. However, where possible, Eskom would prefer to avoid buildings.
	• SAHRA currently has jurisdiction over the Archaeology and Palaeontology of the Northern and Eastern Cape, but not the Western Cape. Therefore decisions on the Archaeology, Palaeontology, Built Environment and Cultural Landscapes in the Western Cape, must be made by the Provincial Heritage Authority, Heritage Western Cape. We will send the relevant documentation and this comment to Heritage Western Cape (contact details given).	Noted, with thanks. A controlled-exclusive surface survey and literature review has been undertaken to address potential impacts on cultural and heritage resources (EIR Volume 1, Sections 8.11 and 9.6), including archaeology and palaeontology. The full report has been sent to SAHRA Eastern Cape, SAHRA Northern Cape, Heritage Western Cape and SAHRA's head office in Cape Town, as requested by SAHRA during Scoping.

2. ISSUES RAISED BY THE APPELLANTS IN RESPONSE TO THE EIA PROCESS as recorded by Mr Richard Summers:

The following are the issues raised by appellants during the EIA process and have been made available to this report by Nicolas Smith & Associates. Heritage issues are particularly highlighted. Ref: APPEAL IN TERMS OF SECTION 35(3) OF THE ENVIRONMENT CONSERVATION ACT, 73 OF 1989 (AS AMENDED) – 12 July 2006: Nicolas Smith & Associates]:

These are the issues were raised by homeowners, landowners and communities in the Witzenberg Municipal area and who have appealed against the record of decision (ROD) of 12 June 2006, issued by the Department of Environmental Affairs and Tourism.

Issue One

Inadequate identification/assessment of heritage impacts

"It is respectfully submitted that the heritage specialist studies undertaken as part of the EIRdo not adequately address the minimum requirements for a heritage impact assessment (HIA) required for a proposed linear development of this nature (set out in section 38 of the National Heritage Resources Act, 25 of 1999)"

"In particular there is no evidence to suggest that the Department has complied with the *proviso* to section 38(8) of the National Heritage Resources Act, which stipulates that "*the consenting authority must ensure that the evaluation* [i.e. an EIA undertaken in terms of the ECA] *fulfils the requirements of the relevant heritage resources authority in terms of subsection (3), and any comments and recommendations of the relevant heritage resources authority with regard to such development have been taken into account prior to the granting of the consent*."

"The level of heritage specialist input in the EIA process was limited to a Heritage Review, which in general terms implies a " scoping level" of heritage assessment and not a full heritage impact assessment ("HIA"). It is respectfully submitted that, in view of the nature and scale of proposed intervention in the landscape by the proposed transmission line, and the significance and sensitivity of the affected heritage contexts, the EIA process undertaken *in casu* should have complied with, as a bare minimum, the minimum requirements for HIA set out in section 38(3) of the National Heritage Resources Act. It is submitted that the level of heritage specialist input involved in the EIA process only partially complied with the abovementioned legal requirements."

"Further, it is submitted that the scope and expertise of heritage specialist input involved in the EIR did not provide a sufficient basis to inform appropriate decision-making with respect to the range and complexity of heritage issues relating to the proposed transmission line. The Appellants support this contention on the following grounds:

> The scope of study undertaken in the Heritage Review report was inadequate in that it was limited to the identification and mapping of potential archaeological and palaeontological sites, and buildings, graves, cemeteries, built structures and landscape features of historical significance."
>
> "The limited scope of study undertaken in the Heritage Review report provides for a very limited definition of heritage resources, which does not take into account the broad definition of heritage resources in the National Heritage Resources Act, in terms of which heritage resources are defined as places and objects of cultural significance for aesthetic, architectural, historical, scientific, social, spiritual, linguistic and/or technological reasons. Accordingly, this definition includes both tangible forms of heritage (e.g. archaeological remains and historical fabric), as well as intangible forms of heritage (e.g. the experiential qualities/character of a place, and cultural traditions, values and meanings associated with a place)."
>
> "The scope of study does not clearly take into account the broad criteria for assessing heritage significance of a place or object as outlined in section 3(3) of the National Heritage Resources Act, namely:
>
> The scope of study does not refer to the system for grading of heritage resources as outlined in the National Heritage Resources Act, namely:
>
> - Grade 1: significant within a national context;
> - Grade 2: significant within a provincial or regional context; and

- Grade 3: significant within a local context.

The Heritage Review report states that fieldwork and the desktop survey undertaken were severely limited and allowed for a cursory assessment only. It is submitted that any limitations to the survey information relating to archaeological and palaeontological sites should have been subject to professional opinion from experts within these disciplines."

"The Heritage Review report largely relies on a list of existing formally declared heritage sites and published survey information (e.g. Fransen & Cook (1980)). It is submitted that such survey information is generally regarded by heritage practitioners and heritage resources authorities as incomplete and limited, especially with respect those outlying areas of the Swartland, Boland and Karoo regions affected by the proposed transmission line. Further, the emphasis of such previous surveys is on the identification of heritage resources based on historical and architectural criteria rather than the intangible and contextual heritage criteria defined in terms of the National Heritage Resources Act."

The expertise of the specialist (The Agency for Cultural Resource Management) has not been established as the Agency is a consultancy specialising in the field of pre-colonial archaeology. In terms of the accreditation criteria of the Association of Heritage Practitioners in the Western Cape ("AHAP"), the Agency is accredited as a heritage specialist in precolonial archaeology. It is submitted, therefore, that the Agency does not have the relevant expertise to address the range and complexity of heritage issues involved in the project, namely historical archaeological, cultural landscape or intangible heritage issues. "

"Notwithstanding the fact that cultural landscapes provide the essential context for a range of heritage resources, which can take a variety of forms and are themselves a heritage resource, the Heritage Review report focuses on individual heritage resources (in the form of historical farmsteads, outspans, fortifications, routes, etc.) without sufficient consideration having been given to the cultural landscape context, whilst best practice in heritage management, as well as the recently published DEA&DP Guidelines for Involving Heritage Specialists in EIA processes (2005) recognizes cultural landscape analysis as a critical aspect in the identification and management of heritage resources.

The primary overarching heritage issue relating to the proposed transmission line is the potential impacts on varying cultural landscape contexts through which the transmission line will pass. Some of the significant cultural landscapes affected by the proposed project include the following:

- Palaeontological landscapes e.g. the fossil remains of the Great Karoo.
- Historical farmlands, e.g. Tulbagh Valley, which has a history of agricultural production and settlement dating to the late 17th century.
- Historical rural towns and missions settlements and associated settings, (e.g. the historical core of Tulbagh and the nearby Steinthal Mission).
- Pristine/natural or wilderness landscapes, e.g. adjacent proclaimed Nature Reserves and Fynbos/riverine areas.
- Historical farm werfs and their associated settings, e.g. Bartholomews Klip and Elandsfontein.
- Scenic/visual amenity landscape contexts, e.g. scenic route network.

The potential adverse heritage impacts of the proposed transmission line on the cultural landscape contexts have not been adequately assessed. The potential adverse impacts include *inter alia* the following:

- Incompatibility of an industrial land use within a rural or natural landscape context.
- Functional and visual-spatial severance of a cultural landscape context in terms of historical patterns of access, visual linkages and settings.
- Strong linearity of the proposal in relation to historical geometries and related settlement patterns.

- Over-scaled nature of the intervention in relation to the sense of fit of historical settlement patterns with their surroundings.

- Visual intrusion into scenic corridors, gateway conditions.

There is a degree of overlap between the visual and heritage issues of the proposed project, which should have involved the integration of the two specialist studies, especially in terms of addressing scenic resources and landscape character (including both natural and cultural attributes). It is submitted that the absence of such integration is due to the limited scope of the HIA with respect to the definition of heritage resources and insufficient consideration given to heritage related visual issues.

Further, the Visual Impact Assessment ("VIA") tends to focus on the natural physical elements of landscape character (e.g. landform and vegetation), with limited consideration being given to cultural attributes (e.g. historical patterns of land use and settlement, relationships between places and their settings). While the VIA addresses scenic route issues, it does not give sufficient attention to the range of potential visual-spatial impacts of the proposed project on the regional scenic network, including historical passes, gateway conditions and approach roads.

The proposed management recommendations of the Heritage Review are inadequate and/or inappropriate for the following reasons:

No clear indication is given to the preferred alternative routes from a heritage perspective.

Despite the very cursory nature of the assessment and the identification of potentially high to moderate negative impacts on a number of historical sites, no further detailed heritage assessment was recommended.

The Heritage Review recommends that suitable mitigation measures for historical sites be resolved at detailed planning and design stages. This is inappropriate in the context of where moderate to high negative heritage impacts have been identified, e.g. Bartholomews Klip (Section 1), Steinthal mission settlement near Tulbagh (Section 2) and Karoopoort Outspan (Section 3). In this regard, the "No-Go" option or modification to the proposal have not been sufficiently considered, as well as what specific methods of mitigation need to be considered in this regard.

The Heritage Review report states that the recommendations outlined in report should be subject to SAHRA approval, yet this recommendation has not been carried through into the EIR. It is submitted that this falls short of the requirements of section 38(8) of the National Heritage Resources Act which require that the decision-making authority consult with the relevant heritage authority prior to reaching a final decision.

The broader Tulbagh Valley is a landscape context of special cultural significance in terms of the following:

- It is an intact, representative and coherent agricultural landscape.

- It has a rich temporal and thematic layering of history.

- It has unique scenic qualities related to valley condition and interface between agricultural, natural mountain slopes and sheer mountain backdrop.

- It has a history of agricultural production and settlement spanning more than 300 years.

- It has a concentration of heritage places including historical farmsteads, the historical town of Tulbagh and the mission settlement of Steinthal.

- It is traversed by a number of regional and local scenic routes.

- It a number of architectural-historical set pieces, namely Church Street in Tulbagh, which is a provincial heritage site.

The Appellants submit that the proposed transmission line will undoubtedly have significant negative visual impacts on the surrounding area and inevitably will detract from the scenic and historical rural character of the area. In this regard, the VIA concludes that the central route through the Tulbagh Valley just south of the town of Tulbagh is preferred from a visual perspective due to the fact that it is aligned along existing infrastructure, e.g.

transmission lines and roads, is in close proximity to fewer towns, and is located along a valley floor which can more easily accommodate tall structures or changes to landform due to the presence of the mountain backdrop. However, without due consideration of the above mentioned cultural landscape qualities, the above conclusion cannot be substantiated on heritage grounds.

A recent heritage scoping study undertaken by CSD esign and Melanie Attwell Associates (2006) for the Schalkenbosch Golf Estate in the Tulbagh Valley identified a range of heritage resources located within the immediate vicinity of the town. The diagram (attached hereto as Annexure "E") gives an indication of the range of heritage resources likely to be affected by the preferred central route.

In summary, it is respectfully submitted that insufficient heritage and visual assessment has been given to this local cultural landscape context in order to assess the potential heritage/visual impacts of the proposed project. The Appellants submit that in view of the flawed and/or inadequate assessment of heritage impacts in the EIR, the ROD should be set a side on this basis alone."

3. Issues raised in the HIA Public Participation Process November - December 2008.

Table 1 : List of I&APs who requested registration 24 November 2008

Name	Affiliation	email address
Douglas McDonald	Klipdrift Farm	douglas.klipdrift@gmail.com
Mike Hunter	TRIF	mhunter@intekom.co.za
John Vesc	Rocky Valley	rockyvalley@telkomsa.net
Chris Wright	RV Environmental Forum	wright@wcaccess.co.za
Elizabeth Parker	Farmer	elizabeth@rapula.co.za
Natalie Becker		nataliebecker@telkomsa.net
Gayle MacWhannell		gaylemac@ezinet.co.za
Lex van Heerden		LexVanHeerDen@justice.gov.za
Nikki Riley		lionriver@vodamail.co.za
Brian and Erica Bax		erica@brinn.co.za
Brendon McHugh	Wild Olive Farm	info@wildolivefarm.com
Jan Theron	Agric Tu	jan@fisaasbos.co.za
Kenton Bagshaw		thebagshaws@paarlonline.co.za
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Table 2 : List of Attendees at the Public Meeting 24th November 2008, Morgansvlei Country Estate, Tulbagh

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Table 3 Public Comments on the Draft Scoping Heritage Impact Assessment (2008-9)

1.	**Esther A Jordan** **Hunters Retreat/Manley Wine Estate**	**Date of comment: 26/11/08**

A few comments after attending the meeting at Morgansvlei in Tulbagh on Tuesday 25 November.

(1) It would be so nice to have a 3D perspective of the Tulbagh Valley with the proposed pylons superimposed in their positions so that we can have a better understanding of exactly where these pylons will be located and a view of how they will look.

(2) I have always thought the pylons should be through the Karoo (beyond the Cedarberg) as, apart from "millions-of-years-old" fossils which only a very small percentage of people care about, there is nothing of much interest in the landscape so the pylons would not be the EYESORE they are going to be in our beautiful valley. Thousands of visitors come to Tulbagh yearly to stay in the guest houses, to taste and buy wine, to view all the places of interest including historical Church Street. Tourism has become increasing important to Tulbagh over the past 10 years and as a resident of over 14 years, and owner of a guest house and wine estate, I can attest to this fact. I can only imagine how European & British tourists and other nationalities including South Africans, will be horrified that these pylons were even allowed to be considered traversing across our most spectacular valley!

I am fortunate to live on the North side of the town but feel much concern for the owners of "Kloofzicht", "Schalkenbosch" & "Schoongezicht" etc and hope that most serious consideration will be given when deciding on the final route these pylons are expected to take, if at all.

2.	**John Veschini** **ETLAC**	**Date of comment: 18/11/08**

This is all unacceptable to me as an I&AP.

I insist that Eskom gives and opportuity to all IAAP's to view the document and comment for 30 days AFTER the presentation on 24 November, 2008 and comment if necessary during that period. We are not in the mindset to loose our valley to horrible power lines that will destroy our valley with these apparently typical Eskom tactics!

I insist that a hard copy be made available for the general public to view in a suitable local public place and that the availablity of such a document be advertised in the press.

If I cannot be given a chance to view the documentation within a reasonable period before commenting, I intend taking this matter up with the Minister and publishing my reasons in the local press.

NOBODY can view the documentation on the web site link provided - or I am plain stupid? I have tried several times and I am entirely computer literate.

The whole EIA process for this matter has been flawed by non compliance with the norms for EIA processes from my perspective.

Place the line under ground over this valley, or show me on paper why it cannot be done?

2.	**John Veschini** **ETLAC**	**Date of comment: 19/11/08**

It has taken me one and a half hours to download the PDF files with a DSL line. It will probably take me three time that long to peruse the documentation in all the split PDF files. Then, who knows how long it will take to comment on a jumble of files that are no longer in sequence.

This begs the question, as to how many people have a dsl connection?

This also begs the question as to how many people who are interested and who will be affected, could have access to the documentation in order to comment (those with dial up modems or no internet connection at all)?

This consultation process is and has always been severely flawed.

Eskom intends to 'bulldoze' this process through and of that I have no doubt and have never had any doubt. And to do this, Eskom is apparently placing any obstacle it can in the way of a proper community participative process.

I reiterate that I insist that hard copies be made available in public places serving the broader community and a period of thirty days be set aside for public comment.

This is the future of our valley we are talking about - the impact on tourism, the loss of a potential for long term sustainable jobs as a result of tourism spin-offs, the permanent destruction of a valley steeped in history, the probable destruction of the treasured heritage of the valley as a result of the former and the loss of jobs through much needed development, which will have no appeal to investors as a result of the impact of these 'horrific' power lines that are proposed to traverse this valley.

Bottom line.....

1.) 30 days for comment
2.) Place the line underground for the long term benefit of this community, the public of South Africa and Eskom in terms of maintenance costs and risk to the line and this nightmare may go away - or at least for the Tulbagh residents and to those needing power soon as a result of the apparently atrocious forward planning by Eskom that we have all been made aware of.

2. John Veschini **Date of comment: 12/12/08**
ETLAC

As you will see from the statements (attached) from the librarians of both libraries of Tulbagh (Ou Dorp and Witzenville), the documents were only delivered **today** by a Witzenberg Municipal official named Leroy.

Now I am wondering firstly, whether Kentridge is adaquately informed by his Consultants about the dates the documents were purported to have been delivered and secondly, why the document was delivered by one of our Municipal officials?

As far as I am concerned, 30 days for public participation MUST start from today 12 December at the very least and given the time of the year, I believe that a date of 30 January,2009, IS MOST APPROPRIATE and resonable.

For general information, a cursory glance at the Project Mapping document, it appears to me that the depiction of the power lines on the topography of the valley may be inaccurate and in fact the photos presented do not appear to depict the Tulbagh landscape at all (not our mountains or our landscape?) , aside from being so small and of such low resolution that it is difficult to look at them anyway.

This begs the question as to whether the power lines shown are in fact of the size that is intended to be placed (45m average - about the height of the Vodacom mast on Galgehuewel adjacent to Tulbagh and whether there may be a 'slight distortion' of the realities of how this power line will visually impact on the valley? The same may therefore apply to some of the other pages of the Project Mapping report and more especially of significance to the impact on the Ceres Valley and the Gydo pass as well and also Gouda?

I might also mention that none of us here in Tulbagh appear to have located these photographs on the CDR/CDRW disks that were provided. Once again in mitigation for an extension of time? This delay and the lack of information could well be interpreted as an attempt by Eskom to mislead the public or possibly to withhold information vital in determining the visual and landscape impacts in terms of the HIA. And, from my point of view, the same has occurred right from the beginning? The public have NOT been adequately consulted and most still have no idea as to what these power lines will look like or what effect they will have on our environment - not here in Tulbagh and or in the Ceres Valley, or Gouda either.

I note also that the route as depicted on a map issued to me by Eskom (see www.tulbagh.net) as being a portion of the route at the entrance to the Nuwekloof pass over the mountain range near to the diggings, has apparently moved close to Gouda on the new maps. That aspect will surely be considered by the appellants from Gouda and that community to be unacceptable? This begs the question as to why that community has not been consulted with as we were at the meeting of 24 November, 2008. Why were the appellants from Ceres also consulted separately (I do believe that those communities are not even aware of the Heritage Impact Assessment being done.

This is all unacceptable to me and I am sure most others.

2. John Veschini **Date of comment: 22/12/08**
ETLAC

I thank you for your conciliatory response in granting an extension of time.
However, further events and enlightenments have caused me to request that the period be extended to 30 January, 2008.

Kindly note the unanswered mail below to your consultant, as being one on my reasons. In this respect, we are having to attempt to do a proper computer model of the visual impact aspect, since Eskom or its consultants (both EIA and HIA) have failed to do this despite requests made by me and assurances that it would be done - or to provide sufficient information for it to be done by ourselves - which we shouldn't be having to do in the first place.

I have also become aware that Public meetings have not been held in all the towns or areas where the Heritage Impact of this power line could have a serious negative effect on the communities there. Four cases in point are Gouda, Wolseley, Ceres and Prince Alfred's Hamlet. I believe in all those areas, community organisations and individuals have appealed against the Record of Decision of the EIA let alone the fact that there are other members of the public who were not properly informed of the EIA process in the first instance. The HIA is a completely new application and as such I believe that the public along the entire route should have been thoroughly and properly informed but last and not least, the communities in the four towns listed below.

A further consideration is that this is not an appropriate time of the year to 'inform' the public?

For now, I will accept that the period has been extended to 12 January, 2008 and I await the response to my comments above in the hope that Eskom will be reasonable and transparent and by doing so, cause the 'broader' public to be justly informed in a manner that I believed the Honourable Minister expected when he requested that an HIA be done. I am happy to note that you are at your desk and not on holiday - as apparently your Consultant is?

I have read your disclaimer (Eskom Holdings Limited EMAIL LEGAL NOTICE) below but under the circumstances, I believe that this is all part of a public participation process and as such, all correspondence is vital to that process and should be read by all concerned.

2. John Veschini **Date of comment: 12/01/09**
ETLAC

Comments in terms of the National Heritage Resources Act (Act 25 of 1999) and request for a further extension of time

Herewith my initial comments in terms of the above Act for the Gamma Zenith HIA application.

We consider that the time given for comment is inconveniently timed (by design or otherwise) to coincide with the December Holiday period and 12 January, 2009 is a date to early to give proper comment. The time period should have been extended to 30 January, 2009 as requested.

Eskom or its consultants have failed to adequately consult with the community that could be affected by the line in terms of the laws governing an HIA application in terms of the Act. I am of the knowledge that ONLY the interested and affected parties in the Tulbagh were consulted. Most certainly, I&AP's in the Gouda, Upper Witzenberg, Ceres and Prince Alfred's Hamlet areas have apparently not been consulted. Since the HIA application is a separate issue to the original EIA application, I believe that all the communities should have been made aware of the HIA application by presentations in all the towns, along the route of the proposed power line and not just Tulbagh. I am aware that certain Appellants against the Line in the Ceres and Upper Witzenberg were not and still may not be aware of the HIA application at all.

Requests to Eskom and it's consultants to provide better photographs than those that were depicted in the Mapping Document placed in the local library (which were totally inadequate, hardly visible and doubted to be

accurate depictions of the proposed power line and the Tulbagh valley), or to suggest where they may be obtained in order that we could ascertain the visual impact adequately, or use to facilitate our own computer aided Visual Impact material has fallen on deaf ears. An email written to you prior to the initial 24 December, 2008 cut-off date requesting this information remains unanswered. In fact a few verbal requests by the writer to Mr. Groenewald of Eskom at various meetings – even whilst the EIA process was still underway - to provide an adequate computer generated model of the power line to properly inform the public – were easily agreed to but such a model has never been provided and we are now being forced to generate our own to inform the public but this task cannot be completed by 12 January, 2009.

The Scoping document refers to Critical Viewpoint Analysis and yet no such analysis is evident in the data discs provided where they could be properly analysed by magnification or in greater resolution, or in a format that could be disseminated to interest groups (by design or otherwise?). The said Critical Viewpoint Analysis photos in the document are misleading to the public for two reasons;

1. The viewpoint in respect the Gouda/Tulbagh/Wolseley/Ceres/P A Hamlet areas for instance, is taken from such a height so as to limit the real visual impact. The viewpoint should have been taken at ground level where the impact on people would be greatest and from various angles and critical locations such as Gouda village, on the R46 at the entrance to the Nuwekloof Pass, upon entering the Tulbagh Valley, looking west from where the line is expected to cross the road linking the R46 to Tulbagh, from the highest placed southern suburb of Tulbagh, from Tulbagh west (Witzenville) towards the Witzenberg Mountains, at Steinthal, Wolseley (if there is a possibility that the southern route is to be used), anywhere in the Upper Witzenberg valley, Prince Alfred's Hamlet looking north, east and south (if there is a possibility of the southern route being used) and Bellavista looking north and east (if there is a possibility of the southern route being used).
2. The power line structures depicted in the photographs do not appear to relate to the type and size of the intended power line structures and appear to rather be standard photos taken of 25m 400kv power lines such as those near Wolseley.

Attorneys acting on behalf of many of the appellants are on leave, you were apparently on leave, the Municipality is in recess, there were numerous public holidays in the periods given for comment and many of the community and I&AP's are away on holiday. Hardly the right time to start a 'consultative' process I would think?

This Power Line project is of immense importance to all who will suffer from the sight of it as well as other negative impacts – not least probable health issues. In a Tulbagh context, It is believed that the very nature of the valley, the scenic beauty, the appeal of the charming historical town, the sense of pride that this community has in its heritage, the architectural treasures and their place of pride, will be lost to posterity and will also be lost to this community forever - should this power line be allowed to visually impact on this environment and the sense of place and well-being that is enjoyed and cherished by all as it is now.

Eskom has used what I would term 'underhanded and bullying' tactics from day one of the EIA application process. Officials telling farmers "you can sign the Servitude document as your neighbour has signed" when in fact this was not true, was one of those tactics. Limiting the consultation to a select 'chosen few' whom they determined would be I&AP's such as farmers unions (who did not represent all the farmers) was another. Refusing to give information to a Tulbagh resident (myself in this case) as the Eskom official determined that since I was in town and not in the path of the intended power line and I had no right to the information, was another. When I suggested that he was making a mistake by his attitude, he displayed his arrogance in then suggesting that "I will have the whole lot signed up within a day or two anyway". Seemingly, an attempt to 'rush' this HIA application through with a flawed consultative process at this time of the year, was yet just another tactic to limit participation or consultation.

The current route map has apparently deviated substantially towards Gouda from initial route maps provided by Eskom and in fact will now traverse a residential area? That community had not been consulted about the impact of the power line then and now with the this HIA application either. Thus how can I&AP's in that area be determined in terms of the HIA application?

An airstrip that has been used for years by the farming community of the Tulbagh valley for their crop spraying needs, has not been indentified. The requirements of the Civil Aviation Authority regarding the lighting of structures over 50 meters and other power line identifying mechanisms for aircraft such as orange balls hanging from the lines, the possibility that the tops of the power line supports have to be painted in bright colours etc. are other negative visual cultural landscape and sense of place impacting aspects and aircraft warning mechanisms that have not been alluded to at all in the scoping document.

Most of the consultative process has revolved around the north and north centre of the valley of Tulbagh, on the assumption that only communities and I&AP's threatened by the Preferred Route need be consulted and provided for in the HIA documentation. Should the alternative route be chosen, will the communities on the south of the valley be consulted?

Hardly anyone in the path of the preferred route who stand to be visually impacted by the power lines in the Ceres, Prince Alfred's Hamlet and Gydo Pass areas as well as southwards in the Riebeek Valley, even know of the intended power line, the route it will take, how high it will be and what it would look like and no proper Critical Viewpoint Analysis documentation has been provided to those communities. They are being denied the opportunity to comment in terms of the HIA application, as they were in terms of the EIA application. This begs the question – If the alternative route is chosen and the existing corridor is used, will the communities of Wolseley, Ceres, Bellavista and Prince Alfred's Hamlet be consulted prior to that line being approved? Will Critical Viewpoint Analysis documentation be provided for them?

Nobody at the Witzenberg Municipality apparently knew about the HIA application until I made them aware of it. They are major role players. Were they specifically invited to attend the presentation on 24 November, 2008? Where they on the I&AP's list? I believe not?
Was every one or every organization who have appealed against the ROD invited as I&A Parties? I believe not?

Using the guidelines set out in the Act as below, my further comments are as follows;

NATIONAL HERITAGE RESOURCES ACT (ACT 25 OF 1999)
Cultural significance means historical, architectural, aesthetic, social, technological and or scientific value (NHRA 1999).
The NHR Act outlines the following broad criteria for assessing the heritage significance of a place: (such as Tulbagh and this valley in this instance)

1. Its importance in the community or pattern in South Africa's history.
2. Its possession of uncommon, rare or endangered aspects of South Africa's natural or cultural heritage.
3. Its potential to yield information that will contribute to an understanding of South Africa's natural or cultural heritage.
4. Its importance in demonstrating the principal characteristics of a particular class of South Africa's natural or cultural places or objects.
5 Its importance in exhibiting particular aesthetic characteristics valued by a community or cultural group.
6. Its importance in demonstrating a high degree of creative or technical achievement during a particular period.
7. Its strong or special association with a particular community or cultural group for social, cultural and or spiritual reasons.
8. Its strong or special association with the life or work of a person, group or organization of importance in the history of South Africa.
9. Sites of significance relating to the history of slavery in South Africa.

1. Its importance in the community or pattern in South Africa's history.

The importance of the history of the community of this valley and the town of Tulbagh is very high. Tulbagh and the Valley has a rich and cherished history spanning over 300 years since the arrival of the first settlers in the Dutch Colonial era and before then, with the indigenous communities such as the Obiqua and Zonqua tribes who resided in the area. This valley and town was hitherto hardly touched by modern innovations or interventions such as the proposed power line, and our abhorrence to this possibility cannot be understated.

2. Its possession of uncommon, rare or endangered aspects of South Africa's natural or cultural heritage.

The Town and valley possess historic monuments and many other surviving examples of the pre-1969 earthquake cultural and architectural history. The very appeal of the Town and many of the farms, is the almost intrinsic value of these buildings to not only the local, residents but to the broader public of the Republic of South Africa, for whom our cultural, architectural and historical heritage in entrusted into the care of this community and the Government of South Africa. The Government and many other benefactors went to great expense and effort to restore many of the buildings after the earthquake in an effort to preserve these structures for the benefit of all. This heritage is in danger of being relegated into obscurity, with the prospect of this ugly power line visually and physically impacting on this valley. The only appeal that this valley has to tourists from both this country and overseas, is its beauty and the chance to 'walk through a page in history'. I do not believe that anyone would even feel encouraged to visit this valley in a 'post power line' era. This will of course be devastating to a community where the unemployment rate is probably well over 40%, work is by and large seasonal and the opportunities for increased job and wealth creation probably rely solely on tourism and developments that would be stimulated by tourism (three of which are directly threatened by the power line) and be sustained by ongoing tourism. Moreover, the very appeal of the Cape Vernacular / historic theme that exists and which developers are endeavoring to maintain, is an indication of the 'buy in' by all to preserve the character of the valley. The Eskom power line will fly in the face of all of this.

The mountain ranges surrounding Tulbagh are of extreme natural beauty as a backdrop to the scenic beauty of this valley and all who benefit by looking at them and they are an integral part of the heritage of the valley. A

power line that will 'creep alongside and cross the mountains on both sides of the valley will spoil forever what we have taken for granted and what is so attractive to visitors and residents. The mountains form part of our sense of place and contentment. This will be destroyed with the visual and physical impact of the power line. Eskom has never shown any sensitivity to anything in my experience. The shortest and easiest route has always been preferred. I know of one instance whereby an old gun or cannon emplacement on the mountain, was destroyed by one of the existing power lines on the Witzenberg range.

First impressions last – so they say. My first impression of this valley and one which attracted me to the valley enough to migrate here to become a resident, was entering the Historical Nuwekloof pass and upon entering the valley from the Pass and seeing the pristine and beautiful valley open up before my eyes. What is proposed will destroy that welcoming sight for all time. Visitors will be welcomed by having to go under or alongside those monstrosities of power lines three times in the local context – once in the beginning of the lovely historic pass (designed and built by Thomas Baine), once upon entering the valley (one would have the power line in one's face for about two kilometers) and on the road to Tulbagh near to the fruit factory) where one would be caused to sense the real magnitude of the power line at ground zero (almost the equivalent of a 13 story building), as one goes under it. The visual and physical impact on the entrance to the Pass and valley will be soul destroying and a gross pollution of this environment and it should not be allowed to happen.

3. Its potential to yield information that will contribute to an understanding of South Africa's natural or cultural heritage.

Tulbagh and the valley is of such historical and cultural value and the potential for this rich heritage to be shared or imparted upon all South Africans and contribute to and understanding of South Africa's natural or cultural heritage, will be and is already immense. Tulbagh and the valley, must be seen to be appreciated and the benefits understood. Only as an attractive destination will South Africa and the world benefit by its preservation. A valley such as this one - straddled by horrible power lines could hardly attract visitors and the valley and the community would hardly be in a position to yield anything towards an broader South African understanding of our natural or cultural heritage when it fact the opposite will apply in the 'post power line era' – an apparent and total intransigence by the Government and Eskom towards cultural and natural heritage preservation?

4. Its importance in demonstrating the principal characteristics of a particular class of South Africa's natural or cultural places or objects.

Tulbagh, unique in its beauty and historical character, demonstrates without qualification an historical 'treasure chest' with an immense cultural heritage.
The valley is dotted with cultural places or objects, which of course will have little or no appeal and benefit to anyone if Tulbagh is not visited and appreciated. The visual and physical impact of the power line would ensure that the appeal of the town and the valley is diminished to such an extent that demonstrating what we have to anyone will be well nigh impossible.

5 Its importance in exhibiting particular aesthetic characteristics valued by a community or cultural group.

The aesthetic characteristics of this valley with its historical and protected buildings and monuments, represent a legacy of residents of Dutch / Hugenot from the Dutch Colonial era, as well as superb examples of Victorian architecture from the British Colonial era. The unspoilt mountains and the fynbos were enjoyed by the original inhabitants of the valley, where they resided, grazed their herds, hunted and left their mark with the many stone age implements left behind as witness to their occupation. This heritage is valued by appreciating and sensitive newcomers to the valley as well as actual descendents of these people who were here, or who came here long before the advent of power lines and other ugly harmful, unhealthy and un-aesthetic modern interventions into their lives and sense of well-being and of whom many still live here to this day. They of course value their heritage and their values should be protected.

6. Its importance in demonstrating a high degree of creative or technical achievement during a particular period.

One cannot argue that a high degree of creative or technical achievement during the per-colonial, the colonial periods and up to the present day, is apparent in this valley. Examples of design and workmanship in respect of many of the buildings in the valley bear testament to this. The effort to create tools, buildings with notable and sometimes unique design criteria, plaster moldings, gables, joinery and other achievements, illustrate the ingenuity of the residents of this valley. No other valley that I can think of, has such a concentrated indication of the talents of a community. We should be sensitive to this effort and not spoil it with an interposing of a grossly ugly power line.

7. Its strong or special association with a particular community or cultural group for social, cultural and or spiritual reasons.

Tulbagh is renowned for its association with the original historic Church that was built to satisfy the spiritual needs of the community and which formed the catalyst for the development of the town as we know it today. The descendents of the first organized religious groups still practice their religion in the new church on Van der Stel Steet to this day. There are other historic places of worship that have architectural social and cultural significance. Notable examples of institutions that were created to satisfy the spiritual needs of this community are the Steinthal Mission (whose property the power line is intended to traverse) and the cut stone Anglican church probably built by Italian prisoners of war. This is by and large a God-fearing community and religion forms the cornerstone of this community. I have no doubt that the quality of design and build of the various places of worship were inspired by the peace, tranquility, beauty and sense of place that the community felt in this environment. I do not believe that an ugly power line would honour these feelings or the efforts of the community to build such a sense of place. It should not be allowed in infringe on the spiritual ambiance which these religious grouping have enjoyed and wish to continue enjoying.

Kindly also accept this letter as a formal request to have the deadline for comment to be extended to 30 January, 2008

3. Niël de Jager **Date of comment: 12/01/09**
Chairman - T.R.I.F

Re: Eskom Gamma Omega 765kv Transmission Line

With reference to the scoping report the abovementioned was shown to the public by way of a presentation at Morgansvlei on the 24th November, 2008.

The new H.I.A. gives very valuable information on the area concerned, namely Tulbagh, but in general still contains very little information on the disastrous affect the proposed transmission line would have for the Tulbagh area from the entrance of the Nuwekloof Pass to the crossing of the Witzenberg Mountains.

You state on pages 107 to 110 (figure H1 to H4) a detailed location of the heritage sites in the area and further on pages 119, 121, 122 and 124 (figure H13, H15, H16 & H18) and again on pages 157, 159, 160 and 162 (figure J5, J7, J8 and J 10) valuable detail on the transmission line and again on page 181 (figure K1 and K2) a very informative overview but the disastrous impact that the line of pylons, of 45 metres in height, will have on the scenery and culture and the heritage of Tulbagh and the beautiful Tulbagh valley is not taken into consideration. The visual impact of the proposed transmission line is not so much that it would be seen from the village or a few heritage points but much more the complete destruction of the valley and its landscape.

The visual impact the pylons give any visitor when approaching the Nuwekloof Pass on the R46 or when approaching from Wolseley will be devastating.

The entire valley will have lost its pristine, natural and aesthetical character and beauty, and that irreparably so. Once this beauty has been destroyed there will be no way of any mitigation to reparation.

The contents of page 181 on its own are sufficiently convincing that the proposed power line should not be built through the Tulbagh Valley. Instead the southern alternative via Wolseley (the existing route) would have a much smaller visual impact than the preferred one (by Eskom) through the Tulbagh Valley. This, so much more, as on this alternative, two 400kv lines are already in existence and the visual impact of these two lines is already present.

The argument that veld fires would endanger the three lines and high winds at the crossing over the Witzeberg Mountains would hamper necessary repairs and maintenance works are not convincing.
How is it that fires and wind do not affect the existing line so perhaps it could be explained why this would be the case with the new line. In addition, the existing structures are already reached by maintenance servitudes and very little additional infrastructure and servitudes would need to be put in place.

<u>Tourism and Economy</u>

It is apparent that no thought or consideration was given to the town of Tulbagh as far as its tourism industry and economy are concerned. By placing the proposed power line on the preferred route, Tulbagh and its residents would suffer irreparable loss especially when taking into account that Tulbagh is dependent, heavily, on income produced by tourists. Tulbagh has no large industry to carry the town, and property values will be adversely affected by any reduction in tourism.

Development and growth of Tulbagh

It is by now a well known fact that developers have been given the go ahead to develop a golf estate and a lifestyle village to the south of Tulbagh. In addition to that there is another small development known as the "Digby" development. All three of these developments would be directly affected by such a power line passing so close and in fact through the golf estate.
In fact, the developers of the golf estate would not continue with such plans if this power line were to continue on its preferred route. Furthermore, I wish to point out that there is no room for development of Tulbagh to the north, east or west of the town as all these areas are occupied by long established export quality fruit farms. This leaves us only the southern areas for the town to develop. In addition, should these developments not take place numerous possible job opportunities would be lost and for Tulbagh that would be disastrous as our labour force is of a seasonal nature and we already have an unemployment situation of close to 50%. So it can be seen that development is the only answer for Tulbagh and its residents.

Visual Impact Models
Although it has been requested on numerous occasions for us to have some indication as to what this power line would look like, either in the form of an artist's impression or computer generated images, we have had no reaction from Eskom or the consultants. This has lead a group of people fromTulbagh to produce our own images with the assistance of programs such as Google Earth which are available to us. How is it then that Eskom has either not been able or unwilling to provide us with such visual information? Should you wish to see our projections they are available. No doubt Eskom will challenge the authenticity of these pictures which would then put the ball in their court to provide us with the correct information. Furthermore, although this information has been requested, Eskom has provided no indication of the placement and positioning of pylons for this power line. Therefore no one along the entire length of this power line has any idea of what this would look like and the visual impact it would have.

Further Investigation
Whilst browsing through the information contained on the compact discs that were handed out at the presentation at Morgansvlei on the 24th November, 2008, we notice the words "FURTHER INVESTIGATION REQUIRED" on many of the points raised throughout this study. It can therefore only be assumed that either Eskom has not done their homework or they are using this excuse to ride roughshod over the public by keeping them in the dark. We must then assume that the study has not been properly done and does not meet the legal requirements and the Record of Decision issued in 2006 was obtained fraudulently and it should therefore be set aside until ALL these "Further Investigations" have been properly researched.

Conclusion
Although several requests from various affected parties to extend the deadline from the 12th January to the 30th January, 2009 we have had no success in this matter. The reason for requesting this extension is that this has come upon us during the holiday season at which time the consultants and attorneys have all been on leave and we have therefore not been able to contact certain people when it was necessary.

The above list of objections and appeals is by no means complete and we are entering the above under duress merely to make our voice heard on behalf of the ratepayers of Tulbagh and this must not be considered the final list of objections in this matter. Several of our residents are still on leave and on their return we reserve the right that they too may enter their appeals on their return. Further correspondence in this matter shall therefore be forthcoming.

4. Niki de Wolf-Van Kooij **Date of comment: 12/01/09**
Owner of Schoonderzicht Farm

I appeal, both in a personal capacity, and as the owner of the historic Schoonderzicht Farm and Moniki Chocolatier in Tulbagh against the decision to build the Power Line along the 'preferred' route. I propose that an alternative route must be utilized, outside of Tulbagh.

As the owner of Schoonderzicht -a farm that has been declared a national monument- I am extremely concerned about the negative impact the proposed Eskom power line will have on the future prospects of our valley and in particular the extremely negative effect it will have on the historic value and the growth of Tourism in Tulbagh and surroundings. I do not understand the decision to site this power line right through the heart of the historic valley as it will destroy the valley and the growing tourism industry.

I also want to object to the EIA process Eskom has followed so far. The process has been inadequate and unfair. For one we have been lied to by Eskom consultants before we bought this farm. Eskom has assured us the power lines would not have any impact on Schoonderzicht Farm. We know now the pylons are going to cross right over historic Steinthal who is our neighbor. Schoonderzicht and Steinthal will be impacted immensely.
I also want to make note of the fact that Eskom has not made any effort to show residents what the pylons will look like and where exactly they will be sited. I requested several times to point out exactly where each power pylon will be; especially since Schoonderzicht Farm is so close to the existing pylons. Up to today Eskom has not taken the effort to inform me where the pylons will be positioned exactly.

Further: It has been impossible for me (and other residents of Tulbagh) to download the HIA Scoping Report (due to the size of the documents). A hard copy was finally delivered sometime over the Christmas Holidays at the library. Obviously this is a time when a lot of people are on holiday or are extremely busy. Eskom has taken advantage of this by setting the deadline in the middle of this busy season. Like many other Tulbagh residents, I have not been able to go through all the documentation. I therefore request that the public comment period be extended at least a month.

5. George Mills **Date of comment: 25/1/08**
Chairman Tulbagh Tourism

You may recall that we spoke at your presentation in Tulbagh yesterday afternoon. As present Chairman of Tulbagh Tourisnm and a farm owner in the Tulbagh Valley I am concerned about the adverse effect which the proposed Eskom power line will have on the future prospects of our valley and in particular the very negative effect it will have on the growth of Tourism.
Whilst I can understand Eskom's requirement to upgrade its transmission capability to meet growing demand, I do call into question its decision to site its power line right through the heart of our beautiful valley, bisecting some of the finest architecture and scenery that South Africa has to offer.
It should be noted that Tourism is probably the single, largest employer in the Tulbagh Valley and indeed as a proportion of local GDP it is proportionately far more important to Tulbagh than to the neighbouring towns of Wolseley and Ceres; who have more agricultural and industrial based economies which are far less threatened by the presence of giant power lines.

During my time of involvement in Tulbagh Tourism (4 years in total with 2 as Chairman) Visitor numbers to our Valley have more than doubled. Conversely, agricultural activity has declined and indeed many farm owners in the valley are diversifying into Agri-Tourism in order to improve future viability.

Recent Tourism developments have included the complete upgrading of Rijks Boutique Hotel to 5 star status, the Development of Hunter's Retreat, the restoration of many of the buildings in Van Der Stel Street, the developments at the farmsteads and tourism businesses at Schoonderzicht and Kloofzich (both directly impacted by the proposed routing). Most significantly, however, is the imminent development of the Schalkenbosch Conservancy, Golf Estate and luxury Hotel Complex.

This Billion Rand plus development has full governmental approval and its development is critically threatened by the proposed siting of the Eskom Power Line through the middle of this estate. I have no doubt that Peter Jackson and his developers and investors have put their case to you directly. Suffice to say that the loss of this massive capital project and the subsequent loss of tourism related income would have a devestating effect on Tulbagh's long term social and economic development.
The main focus of my arguement is that the Social and Environmental Impact Assessment, carried out in 2002, was conducted at a time when Tourism was far less important to Tulbagh's social and economic environment and way before the ROD at Schalkenbosch. In the past 5 years the local economy has been transformed by the growth of tourism and therefore the 2002 study is no longer relevant.

Should the assessment study have been conducted today then I suspsect that the routing recomendation would most ceratainly have been modified to take into account the considerable impact that the proposed route would have on the future growth of Tourism in Tulbagh.
Furthermore the recent Heritage Impact Assessment report, whilst important in its own right; it is of little relevance when considered within the context of the EIA conducted 6 years previously.I appeal, both in a personal capacity and as Chairman of Tulbagh Tourism, against the decision to build the Power Line along the 'preferred' route.

I propose that an alternative route be utilised, thereby removing (or at least reducing) the adverse impact on Tulbagh's thriving Tourism Industry.Alternatively, a new Social and Environmental Impact Study must be carried in order to reassess the viability of the preferred route given how critically important Tourism has become to Tulbagh's community and its fragile economy since the initial findings of 2002.

6. RW Summers **Date of comment: 12/01/09**
On behalf of Mrs. Elizabeth Parker

***RE*: SCOPING REPORT: *HERITAGE IMPACT ASSESSMENT FOR THE PROPOSED GAMMA – OMEGA 765kV TRANSMISSION LINE* DATED NOVEMBER 2008**

1. We refer to the above matter and confirm that we act for:

1.1. several landowners and communities in the Tulbagh Valley (which area is directly affected by the proposed transmission line); and

1.2. Elandsberg Farms (Pty) Ltd (duly represented herein by Mrs. Elizabeth Parker, who is instructing us in this instance), which is the registered owner of Elandsberg Farms and the Elandsberg Nature Reserve (the latter are located near Hermon and in the vicinity of the southern alternative route for the proposed transmission lines).

2. This letter contains our clients' comments on the *Scoping Report: Heritage Impact Assessment for the proposed Gamma – Omega 765kV Transmission Line* dated November 2008 (referred to herein as the "HIA Scoping Report").

3. On the whole, the comments contained herein are equally relevant to each of our clients. Where, however, our comments relate exclusively to the potential impact of the proposed transmission lines on the Tulbagh Valley or Elandsberg Farms, this will be apparent from the text of this document.

4. Our clients' comments are set out under several discrete headings below and in no particular order of relevance.

Limitations of the pre-determined route selection

5. One of the principal flaws of the heritage impact assessment ("HIA") scoping process undertaken by Cape Archaeological Survey (with specialist input from Baumann & Winter Heritage Consultants and Beuster, Clarke & Associates) relates to the exclusive reliance upon the route selection predetermined historically in connection with the applicant's application for authorisation in terms of section 22 of the Environment Conservation Act, 73 of 1989 (referred to herein as the "EIA process"). The HIA Scoping Report states that the "route alternatives considered as part of this heritage study are the alternatives selected and evaluated in terms of the EIA process."[1] It is therefore clear that the HIA Scoping Report was only based upon the four routes as proposed in the EIA process.

6. Whilst the HIA Scoping Report states that the route selection, as part of the EIA process, "was based on the principle of having the least potential impact on the social and biophysical environment, particularly in terms of ecological and visual impacts"[2], the fact is that the assessment of environmental (including heritage) impacts as part of the EIA process was inadequate and fundamentally flawed. The flaws in the EIA process have already been ventilated comprehensively in the appeal prepared by Nicholas Smith & Associates in 2006.

7. The limitations to the EIA process are also immediately apparent from the Heritage Management Plan itself (attached to the Environmental Impact Report dated March 2002 produced during the EIA process), which states as follows:

"The following constraints, assumptions and limitations apply to the heritage review.

- The review was <u>severely constrained by a limited field study</u>, which only allowed a cursory assessment of the proposed routes.

- The field study <u>focused only on the archaeological status of the proposed routes</u>, and to a limited extent on the historical status of the proposed routes."[3] (Emphasis added).

[1] Page 14.

[2] Page 14.

[3] Paragraph 3.0.

8. Moreover, and with regard to the inadequate assessment of heritage impacts during the EIA process, the HIA Scoping Report records the position of the applicable heritage resources authority, Heritage Western Cape, as follows:

"… the heritage study was inadequate on the basis that it was only a cursory assessment, did not give sufficient consideration to historical, built environment and palaeontological resources, selected only particular locations within the various sections for reasons that are not clearly indicated and did not provide necessary mitigation measures. HWC thus requested that a detailed HIA of the proposed transmission line be undertaken to address a range of heritage issues including archaeology, paleontology, the built environment, the cultural landscape, sense of place, visual impacts, scenic routes as well as possible issues around cultural and spiritual association."[4]

9. Section 2 of the National Environmental Management Act, 107 of 1998 ("NEMA") is directly relevant to the appropriate consideration of all relevant environmental factors as it provides *inter alia* that "[e]nvironmental management must be integrated, acknowledging that all elements of the environment are linked and interrelated, and it must take into account the effects of decisions on all aspects of the environment and all people in the environment by pursuing the best practicable environmental option."[5] It is submitted that the "best practicable environmental option" contemplated in section 2 of NEMA can only be achieved if the environmental assessment process is undertaken in a holistic and integrated manner.

10. In other words, it is critical that the environmental assessment process is informed and guided by appropriate environmental (including heritage) informants at the earliest stages of the assessment process. The EIA process followed in this instance, however, was based upon pre-determined route alternatives, which failed to take adequate account of the possible impacts on heritage resources and in terms of which relevant and appropriate heritage criteria and informants played no part in the original selection of the various alternative routes.

11. The importance of an integrated and holistic consideration of heritage considerations is borne out in the relevant guideline documentation. For example, the Western Cape provincial Department of Environmental Affairs and Development Planning's *Guideline for Involving Heritage Specialists in EIA Processes*, dated June 2005 ("the Guideline") recognizes the critical need for integrated and holistic environmental assessment by emphasizing that "heritage specialist input should occur at the earliest possible stage in the project cycle, to guide and add value to the proposed project and to identify major heritage issues or potential fatal flaws".

12. The Guideline also stipulates, as one of the *Heritage Management Principles & Concepts*, the "need for integrated, inclusive and holistic approaches" which recognizes heritage as "an integral component of economic, environmental and spatial planning." Furthermore, with regard to *Principles and Concepts Specific to Heritage Specialist Input* within EIA processes, the Guideline states that "it is <u>critical</u> that heritage specialist input is not undertaken in isolation of the broader EIA process. Close interaction with the EIA practitioner and, where appropriate, other specialists involved in the EIA process is important." (Emphasis added).

13. The Guideline also points out that "problems often occur with the timing of heritage specialist input, which typically occurs at a late stage, particularly in the EIA process when the opportunities to add value to a project proposal are limited. The management of heritage impacts thus tends to be restricted to purely mitigation measures." This is clearly the case with regard to this proposed project. The initial heritage management plan was based upon pre-determined route alternatives, which were unilaterally identified by the applicant without adequate specialist heritage input.

14. In view of the above, it is submitted that the route selection utilised for the purposes of the EIA process was not based upon an appropriate identification, consideration and assessment of heritage impacts. In view of the fact that the assessment of heritage impacts for present purposes was limited to the (inadequate) identification of route alternatives undertaken for the EIA, it follows that the HIA Scoping Report is similarly flawed. By restricting the scope of study to the four pre-determined alternatives the same flaws in the EIA process have been perpetuated in the HIA process. It is submitted that the HIA Scoping Report has made no attempt to address these limitations by identifying alternative routes (see the comments in the section immediately eblow).
15. It is submitted further that the flaws in the identification, consideration and assessment of heritage impacts at the appropriate point in time (ie at the outset of the planning phase of a proposed development) cannot be cured by attempts at an *ex post facto* rationalization of a deficient EIA process.

[4] Page 11.

[5] Section 2(4)(b) of NEMA.

16. Rather, and pursuant to the statutory requirements contained in section 38 of the National Heritage Resources Act, 25 of 1999 ("NHRA") and section 2 of NEMA, the identification and assessment of heritage informants was required to have been undertaken at the earliest possible stage of the project. In other words, heritage input should have informed and complemented the EIA process and, specifically, the identification of the most appropriate alternative routes. In this instance, however, the inadequate heritage specialist input during the process of route selection in the EIA phase has compromised the EIA process. The perpetuation of that flaw by relying upon the predetermined routes has therefore circumscribed the efficacy of the HIA Scoping Report in a manner that renders the scoping process indefensible (particularly insofar as the aforementioned statutory requirements are concerned).

17. It is submitted therefore that the HIA scoping process is conceptually flawed and inconsistent with both statutory requirements and the Guideline. The scope of the study and the consideration of ways to mitigate adverse impacts on heritage resources have been unlawfully circumscribed by the predetermined route alignments. As stated above, a defensible process of route selection, based upon all relevant environmental and heritage informants, appears to have been fundamentally constrained by the flaws in the EIA process as well as the fact that a key factor informing the selection of alternative routes was for the proposed transmission line "to follow, as far as possible, [the] existing 400kV transmission lines."[6]

18. Notwithstanding the 10km buffer zone suggested in the HIA Report, it is the selection of the route alignment and not merely the assessment thereof that should have been informed by specialist heritage input at the outset of the process.

The failure to consider alternatives

19. Section 38(3) of the NHRA includes a set of minimum requirements for heritage impact assessment. Section 38(2)(f) of the NHRA states the following:

> "The responsible heritage resources authority must specify the information to be provided in a report required in terms of subsection (2) (a): Provided that the following must be included:
> (f) if heritage resources will be adversely affected by the proposed development, the consideration of alternatives..." (Emphasis added).

20. The Guideline provides the following with regard to *Clarifying Appropriate Development Alternatives*:

> "Alternatives considered in the EIA process can include *location* and/or *routing* alternatives, *layout* alternatives, *process* and/or *design* alternatives, *scheduling* alternatives or *input* alternatives. Any development proposal may include a range of possible alternatives from some or all of these various categories of alternatives. The *"no-go"* alternative in EIA provides a benchmark against which to evaluate potential impacts of the proposed project alternatives. The heritage specialist should be involved in the selection of appropriate development alternatives, which clearly respond to significance of heritage impacts.
>
> Alternatives are best considered in the pre-application and early stages of the EIA, where the proposal has greater flexibility and opportunities to avoid or prevent significance impacts are more easily achievable." (Underlining supplied).

21. In this regard, the HIA Scoping Report states that "[a]lternatives are limited to the alternatives assessed as part of the EIA process. Heritage specialist input was not involved in the selection of routes during the EIA scoping phase"[7]. (Emphasis added).

22. For similar reasons to those set out in the preceding section, it is submitted that in order to comply with the requirements of NEMA and the NHRA, the HIA Scoping Report should expressly identify alternative routes with a less significant impact (than the predetermined routes utilised for the purposes of the EIA process), based upon an integrated and holistic consideration of relevant environmental and heritage informants. Where applicable, and subject to specialist input, this might require a departure from the predetermined routes in order to ensure *inter alia* that the disturbance of landscapes and sites that constitute the nation's cultural heritage is avoided, or where such disturbance cannot be altogether avoided, is minimised and remedied.

[6] Page 14.

[7] Page 19

The failure to consider materially relevant information

23. In addition, the alterative route alignments for the 765kV transmission line utilized for the purposes of the HIA Scoping Report fail to take into account the document entitled *Report on Alternatives* prepared by Eskom in 2004. In terms of the latter document, Eskom amended the original route alignments apparently in order to take into account concerns then raised by certain interested and affected parties in the Tulbagh Valley. The final route identified by Eskom in the *Report on Alternatives* as the preferred route differs markedly from the proposed alternative route alignments that formed the basis of the EIA process.

Limited scope of study

24. With reference to the scope of the HIA scoping study, we would like to point out that the scope of the study was limited to the "identification, mitigation and management of heritage resources that are older than 60 years, prehistoric resources that are older than 100 years and paleontological resources that are older than 1000 years"[8]. However, according to section 2 of the NHRA, ''heritage resource'' is defined as meaning "any place or object of cultural significance". ''Cultural significance'', for the purposes of the NHRA, means "aesthetic, architectural, historical, scientific, social, spiritual, linguistic or technological value or significance".
25. It is clear from the above that the scoping of heritage resources should not be limited by age-based considerations, but that <u>all</u> places or objects of cultural significance should be investigated. Insofar as the scoping process is not amended to ensure that the subsequent impact assessment phase of the HIA process adequately considers the potential impacts on all heritage resources (as defined in the NHRA), it is submitted that the HIA process will have been unlawfully circumscribed.
26. Whilst it is recognised that the nature and scope of linear developments such as the project under consideration potentially presents some practical difficulties for the consultants tasked with undertaking the detailed assessment of impacts on certain aspects of the environment, such as palaentological and archaeological resources, these difficulties (perceived or real) cannot be relied upon to avoid compliance with the overall objectives of environmental impact assessment and integrated environmental management.

27. It is submitted that the consultants have nevertheless purported to rely upon the linear nature of the development in question for the purpose of limiting the scope of the HIA study. In this regard, the HIA Scoping Report states that "[t]he assessment does not consider the ancillary project infrastructure and components such as access roads, borrow pits, soil dumps, etc."[9]. Moreover, the HIA Scoping Report states that " [t]hese components will be assessed in detail during the design phase should the project be implemented." In other words, it is anticipated by the consultants who undertook the HIA scoping study that these "ancillary" aspects of the proposed development will only be assessed <u>after</u> authorisation has been granted for the proposed development and, presumably, only once construction of the proposed transmission lines is in progress.

28. It is submitted that the approach contemplated in the HIA Scoping Report is inconsistent with the principles of environmental impact assessment, which principles apply with equal force to heritage impact assessment, such as the process currently under consideration. In commenting on the legislative framework contained in the Environment Conservation Act (which historically regulated the undertaking of EIA in South Africa and in terms of which the EIA process for the proposed project was undertaken), Davis J held in *Silvermine Valley Coalition v Sybrand Van Der Spuy Boerderye* that "…an EIA fits into a scheme which has been set up to ensure that official approval is granted before certain land can be put to specific uses as defined." [10] The specific uses referred to by the Court were the activities identified by the Minister of Environmental Affairs and Tourism in GNR1182 in *Government Gazette* 18261 of 5 September 1997 (the so-called "identified activities").

29. In other words, the objective of the impact assessment process is to identify and assess all potential impacts on the environment (including cultural heritage) associated with a particular activity <u>before the activity is undertaken</u>. The critical purpose of impact assessment, therefore, is to place all relevant information regarding environmental impacts and the significance thereof before the relevant decision-making authority in order for that authority to determine whether or not the activity in question should be allowed to proceed. It follows therefore that insofar as it is intended that aspects of the potential environmental impacts will be assessed only after the project has been authorised, such an approach falls foul of applicable legislative requirements.

[8] Page 8.

[9] Page 19

[10] 2002 (1) SA 478 at 488B.

30. The HIA Scoping Report correctly identifies the project components as comprising "the Transmission lines, pylons and ancillary infrastructure including access roads."[11] The aspects of the proposed development which are referred to in the HIA Scoping Report as ancillary to the transmission line in fact form an integral component of the proposed project. Moreover, it is possible that the construction of access roads could have an equally significant (if not greater) impact on heritage resources and cultural landscapes than the construction of pylons and transmission lines. It is therefore submitted that such "ancillary" components cannot be viewed, for the purposes of the assessment process, as distinct components which can be assessed in different phases. Insofar as the HIA Scoping Repot excludes the assessment of ancillary activities associated with the proposed transmission lines then such study falls foul of applicable statutory requirements.

Cumulative impacts

31. The HIA Scoping Report has failed to identify and address the issue of the potential cumulative impacts associated with other transmission lines (both existing and proposed) in the Western Cape. The issue of cumulative impacts is critical to ensure that environmental (incluiodng cultural heritage) impacts are assessed in a defensible manner, consistent with applicable legislative requirements and best practice.

32. The need to consider potential cumulative impacts is particularly important in light of the comments made by one of the applicant's representatives, Mr. Grunewald, at the public participation meeting on 24 November 2008, where he stated that one of the existing 400kV lines, which traverse the Elandsberg Farms and Nature Reserve, would be upgraded in the near future to a 765kV transmission line. It is not clear from the HIA Scoping Report or any other documentation in the public domain whether or not this will be the case or what the implication is for the proposed transmission lines which are the subject of these comments.

33. It is submitted that the assessment of the cumulative impacts will need to form a discrete component of the further studies to be undertkane as part of the HIA process and before any final decision is rendered by either Heritage Western Cape or the Minister of Environmental Affairs & Toursim.

Significance of the environment

Tulbagh Valley

34. It is clear from the findings in the HIA Scoping Report that the impact of the proposed transmission line upon the Tulbagh Valley will be severely detrimental from a heritage perspective. However, the HIA Scoping Report still fails to idnetify a significant amount of potential heritage impacts with high significance in the broader Tulbagh region, as is evident from a the document prepared by an independent heritage specialist, Mr. Henry Aikman, on behalf of our clients in the Tulbagh Valley. A copy of the document prepared by Mr. Henry Aikman is annexed hereto marked as annexure "**A**".

Elandsberg Farms

35. The impact of the proposed transmission line upon Elandsberg Farms is deemed in the HIA Scoping Report to be of medium to high significance. It is our view that this is incorrect, as the Elandsberg Nature Reserve has been declared a provincial nature reserve as well as a Natural Heritage Site and is a core site for the conservation of Renosterveld, of which less than 4 percent remains. In addition, the Elandsberg Farms are considered to be highly significant from a cultural heritage perspective due to their association with Sir John Henry de Villiers, Chief Justice of the Cape Colony. In this regard, our clients have therefore consulted an independent heritage specialist, Mr. Ashley Lillie who has assessed the heritage impact upon the cultural landscape of the Elandsberg Farms, the Elandsberg Nature Reserve and surrounding area. A copy of the heritage statement is annexed hereto marked as annexure "**B**".

36. In addition, we attach hereto a letter dated 30 December 2008 from Dr John Manning of the South African National Biodiversity Insitute and an email dated 5 January 2009 from Professor L Mucina (copies of which are annexed hereto marked as annexure "**C**" and "**D**" respectivley.)

Public participation process

37. The relevance of the description in the HIA Scoping Report of the public participation process undertaken historically in connection with the EIA process is not clear.[12] Notwithstanding the fact that the EIR prepared pursuant to the EIA process creates the impression of a comprehensive stakeholder engagement and

[11] Page 22.

[12] Cf. the second bullet point on page 17.

consultation process, the public participation process was inadequate (as more fully set out in the appeal prepared by Niocholas Smith & Associates dated July 2006).

38. Section 38(3)(e) of the NHRA states as follows:

"The responsible heritage resources authority must specify the information to be provided in a report required in terms of subsection (2) (a): Provided that the following must be included:

(e) the results of consultation with communities affected by the proposed development and other interested parties regarding the impact of the development on heritage resources..." (Underlining supplied).

39. It follows therefore that comprehensive stakeholder consultation is required in the context of an HIA process. This mandatory requirement is underscored by the overarching relevance and applicability of section 2(4) of NEMA, which states inter alia that:

"(*f*) The participation of all interested and affected parties in environmental governance must be promoted, and all people must have the opportunity to develop the understanding, skills and capacity necessary for achieving equitable and effective participation, and participation by vulnerable and disadvantaged persons must be ensured."

(*g*) Decisions must take into account the interests, needs and values of all interested and affected parties, and this includes recognising all forms of knowledge, including traditional and ordinary knowledge."

40. The Department's Guideline states as one of the Heritage Management Principles & Concepts, the "need to recognise the essential role of the community in identifying and safeguarding heritage resources."

41. Notwithstanding the legal requirements in relation to public participation, on page 18 of the HIA Scoping Report, the following is recorded: " Further consultation to be undertaken as part of the HIA process will include targeted consultation with the appellants in the form of discussion sessions and open house meetings." (Underlining supplied). In addition, the HIA Scoping Report states, under the heading *Limitations to the Study*, that "public consultation is limited to consultation with the appellants of the EIA process."[13]

42. It is our submission that this method of applying only " targeted consultation" does not comply with the unambiguous requirements contained in section 38 of the NHRA and section 2 of NEMA, respectively, that an HIA process *must include* the results of consultation with communities affected by the proposed development. It is not sufficient to rely on the public participation process undertaken during the EIA phase of the project, which process took place some years ago, as the basis for the HIA. A public participation process which only targets selected individuals, in this case, only the parties who appealed against the Record of Decision issued in terms of section 22 of the Environment Conservation Act, is fatally flawed and does not comply with the pervasive obligations as set out in both the NHRA and section 2 of NEMA.

43. It is critically important that in connection with a project of this nature, where the impact of the proposed development on heritage resources is likely to be significant, that a thorough public participation process is undertaken, which ensures the participation by vulnerable and disadvantaged persons, who are (in any event) very likely to provide valuable information on the heritage resources of the proposed project area. Insofar as this is not done, it is our opinion that any decision taken by a decision-maker on the HIA Scoping Report will, in all likelihood, be susceptible to being set aside on review, because "irrelevant considerations were taken into account or relevant considerations were not considered" (Cf. section 6(2)(e)(iii) of the Promotion of Administrative Justice Act, 3 of 2000).

44. Finally, with regard to the public participation process undertaken to date, we are to record that the process has been managed in an ad hoc manner to the detriment of effective engagement with stakeholders. In support of this contention we record that the HIA Scoping Report was only made available at the Tulbagh libraries on Friday, 12 December 2008 notwithstanding the fact that a representative from PD Naidoo & Associates at the public participation meeting on 24 November 2008, acknowledging the difficulties experienced in downloading the documentation from the internet and undertaking to make a hard copy of the HIA Report available to the public. The failure to make hard copies of the HIA Scoping Report available timeously has therefore impeded our client's ability to assess the contents of the HIA Scoping Report and formulate their substantive comments in an appropriate manner.

45. We wish to note that, due to the difficulties experienced in downloading the documentation from the internet, an undertaking was made by the representative from PD Naidoo & Associates at the public participation meeting on 24 November 2008, to make the report available to the public at both public libraries in Tulbagh. Despite this undertaking, a hard copy of the HIA Scoping Report was only made available on Friday, 12 December 2008. The failure to do so in a timely manner resulted in the extension of the public comment period to Monday, 12 January 2008.

[13] Page 19

Way forward

46. It is submitted that, notwithstanding the comprehensive nature of the HIA Scoping Report, there are still several critical issues that need to be investigated further. Any final decision on appeal that is rendered in the interim without such issues being addressed would be premature. In this regard the HIA Scoping Report states that "the findings and recommendations arising from this heritage study will need to be integrated with the EIA findings and recommendations. In this regard heritage issues will need to be balanced against social-economic, ecological issues as well as issues of viability and feasibility."[14]

47. This intention serves to comply with the principle of integration which must be complied with in order to satisfy the requirements of section 2 of NEMA. Be that as it may, the HIA Scoping Report does not indicate how the proposed integration with the findings and recommendations of the EIA process will be given effect to. More importantly, it is not clear how this could be achieved in a defensible manner if it is not based upon a more contemporaneous identification and (holistic) assessment of socio-economic and environmental considerations.

48. Finally, we note that the HIA Scoping Report is in fact a scoping report and that a "two phased public process is envisaged related [sic] to the scoping and impact assessment phases of the HIA process." In order to ensure that the process complies with the requirements of *inter alia* the Promotion of Administrative Justice Act, we anticipate that all interested and affected parties, including our clients, will be provided with an opportunity to comment on any deliverables produced as a result of the subsequent stage of the HIA process (i.e. the impact assessment phase). In this regard, we specifically draw your attention to the judgment in *Earthlife Africa (Cape Town) v Director-General: Department of Environmental Affairs and Tourism and Eskom Holdings Limited*[15] which is authority for the proposition that where the substantive content of a draft EIA report is substantially overtaken by the content of a final version of the report, and where it is clear that new facts are to be placed before the decision-maker, then interested and affected parties must be given the opportunity to make representations on the new aspects not previously addressed in its submissions in relation to draft reports.

49. For the purposes of the on-going HIA process, it is therefore incumbent upon Eskom and its consultants, in a situation where material new information is included in reports prepared in connection with the HIA process, that those reports be circulated to <u>all</u> interested and affected parties for analysis and comment <u>before</u> the information in question is submitted to the Minister for the purposes of a final appeal decision.

50. We record further that the HIA Scoping Report indicates that further consultation with our clients and other interested and affected parties will be undertaken as part of the HIA process. We look forward to engaging constructively with the applicant and its specialist consultants at such further consultations in order to ensure that our clients concerns are taken into account in an appropriate manner.

Conclusions

51. We note that by virtue of further specialist studies undertaken at the behest of the Minister, as a direct result of an appeal having been lodged against the Department of Environmental Affairs and Tourism's record of decision dated 12 June 2006, the Southern Route is once again under consideration. It is evident from the heritage statement prepared by Ashley Lillie that the heritage significance of the Elandsberg Farms and Elandsberg Nature Reserve is clearly high. Insofar as the Southern Route remains a feasible alternative it is submitted that the location of the route needs to be re-aligned further to the south in order to avoid any negative heritage impact on our client's properties, for the reasons as set out above. This will need to form part of the further studies that the HIA Scoping report recognizes are required to be undertaken.

6. RW Summers on behalf of Mrs. Elizabeth Parker **Date of comment: 20/12/08**

(Submitted by: Henry Aikman)

[14] Page 19-20.

REVIEW OF GAMMA-OMEGA TRANSMISSION LINE HERITAGE IMPACT ASSESSMENT

As instructed a review of the Heritage Impact Assessment (HIA) prepared by Baumann & Winter for environmental consultants PD Naidoo has been undertaken. Henry Aikman the principal of Aikman Associates: Heritage Management who undertook the review is an architect and accredited member of the Association of Heritage Assessment Practitioners: Western Cape (AHAP) and has extensive experience in the field of cultural landscape analysis and heritage impact work at many scales.

The review undertakes strongly endorses the conclusion reached by the consultants viz. that the potential heritage impact of the Main Alternative alignment on the Tulbagh Valley will be high. The identification of the Tulbagh Valley as a High Level Heritage Hotspot Areas and therefore to be considered as a no-go option is also supported. The review finds however that the analysis that led to these conclusions was not thorough enough and that the findings could be more firmly motivated.

The review involved an assessment of Sections A-L of the Scoping Report: Heritage Impact Assessment for the Proposed Gamma-Omega 765Kv Transmission Line: November 2008.

The review considers each section of the HIA in detail and provides a conclusion and recommendations.

SECTION A: INTRODUCTION

In the first paragraph it is stated that…*The HIA serves to inform the decision-making process relating to Sections 29, 35, 36 and 38 of the National Heritage Resources Act (NHRA Act 25:1999) pertaining to the identification, mitigation and management of heritage resources that are older than 60 years, prehistoric resources that are older than 100 years and palaeontological resources that are older than 1000 years…*No explanation of why this limitation has been introduced is provided in the HIA and it would appear to be in conflict with Section 38 of the NHRA. This Section of the NHRA makes no aged-based distinction between heritage resources and requires that all heritage resources are assessed. The earlier study was flawed because of the limitation of its scope. This cannot again be repeated.

On page 18 of the HIA landscape architect AW Spirn is quoted…*The forms we see on the surface of the landscape are a sum of all these processes; both natural and cultural; the patterns they produce are juxtaposed, interwoven and overlain. This surface structure is thus in flux.* This position, endorsed in the HIA contradicts the aged -based position stated above.

It is also questioned why consultation has been limited to the appellants. Section 38(3)(e) of the NHRA requires that an HIA should include…*the results of consultation with communities affected by the proposed development…*The HIA consultants have had no consultation with the Drakenstein Heritage Foundation or the Swartland Heritage Foundation. Both these bodies are registered with the provincial heritage authority, Heritage Western Cape (HWC) and it is unlikely that HWC would be prepared to consider a scoping report without their comment. In addition a number of properties within the study area have been transferred in the lengthy period since the EIA public participation process was carried out and the new owners should be provided an opportunity to comment.

SECTION C: OVERVIEW OF THE STUDY AREA

The review limits comment on this section of the HIA to the so-called Mountain Region with the Tulbagh Valley and Agter Witzenberg Valley its key heritage components.

The overview fails to identify extensive areas of Swartland Renosterveld that have survived in the valley and only records that the vegetation falls within the Fynbos Biome. The shale soils of the valley floor that support renosterveld are the essential resource that has made cereal production and stock farming viable. This threatened veld type is rare because of historical agricultural exploitation and the failure to identify the remnants is a serious omission and points to the superficiality of the landscape analysis.

The town of Tulbagh is at the centre of a productive agricultural landscape, which is not limited to north of the town as stated in the HIA (pg. 30). A feature of the town is its agricultural setting and its relationship to the surrounding mountains: the Winterhoek, Solderberg, Saronsberg, Obiqua and Witsenberg with distant views to the south towards Mostertshoek and Bains Kloof. Productive farmland encircles the town. The agricultural landscape to the north is one characterised by vineyards and orchards while the landscapes to the east, west

and south of the town are pastures for grazing stock and or cereal production. The HIA landscape analysis fails to identify the rich variety of landscapes in the valley and the unique character of the town's setting.

In the description of the "settlement hierarchy" mention is made of the historical farm werfs Schalkenbosch, Sagtevlei and Edenhof". While it is accepted that these names were included as examples of the many historical farmsteads in the valley, the HIA fails to identify an important settlement pattern viz. that there are a series of farmsteads on the foot slopes of the surrounding mountains each sited at the entrance to a kloof (also incidentally often at the point where the shale derived soils meet the poor sandstone soils of the mountains). Their siting from the early 18th Century was designed to exploit the water emerging from the kloofs and harnessing it into flood irrigation systems. When viewed from the centre of the valley this pattern is immediately apparent. Apart from a few farms on the valley floor at its well-watered northern end like Twee Jongegezellen and Theuniskraal all the historical farms are on the foot slopes of the mountains. A few new farmsteads have been created on the foot slopes in the last 10 years on the western side of the valley (one constructed illegally). This pattern dating from the earliest grants at the beginning of the 18th Century is a unique pattern that remains intact. The failure to identify this is a weakness in the HIA and again underlines the HIA's superficiality.

SECTION E: HISTORICAL OVERVIEW

The palaeontological and archaeological overview is detailed and useful but the historical overview is little more than a general history lesson and a meaningless academic exercise. The purpose of an historical overview in an HIA is to highlight the cultural processes that have helped shape the landscape that is being analysed. On one level this is recognised in the HIA. In Section A of the HIA where it is stated…*The forms we see on the surface of the landscape are a sum of all these processes; both natural and cultural; the patterns they produce are juxtaposed, interwoven and overlain.* The Historical Overview fails to provide the basis for a thorough analysis of the landscape.

There is no reference in the sub-section on the 18th Century to the settlers' farming practices and how these shaped the entire Swartland and Tulbagh Valley viz. burning of renosterveld, ploughing, growing cereal crops reliant on winter rain and raising livestock on the fallow lands. No mention is made of the introduction of exotic trees to replace trees felled by the settlers and of the extensive irrigation systems that they built. The sub-section on the 19th Century fails to note the increasing prosperity of the settlers and the building of more substantial and architecturally significant farmsteads.

While the emancipation of slaves is noted, no mention is made of the physical consequences of this. It led to the establishment of mission stations like the one at Hermon and Steinthal in the Tulbagh Valley. These stations had a distinctive built form. Emancipation also led to the construction of rows of farm workers' cottages related to the farmsteads creating another distinctive pattern still visible in the valley.

Although the overview noted the extension of the railway through the Tulbagh Valley and from Wolseley to Ceres and Prince Alfred's Hamlet it failed to link this historical development to two of the most significant landscape transformations that took place at the end of the 19th Century. Without the railway these would not have been possible. In the 1880s the vine disease phylloxera struck the Western Cape and this led directly to the establishment of the export fruit industry. The discovery of diamonds created the need for timber to support the mining industry and commercial forests were established by the Cape Colonial Government and farmers.

Both activities caused major transformations of the landscape discernible today. The entire northern end of the Tulbagh Valley, Agter Witsenberg and large areas of the Koue and Warm Bokkeveld now produce fruit. Fruit production led to the establishment of the valley's largest landscape feature, the Del Monte cannery near the town of Tulbagh. Pine plantations stretch from the Waterval Forest Station on the western side of the Tulbagh Valley to Kluitjieskraal south of Wolseley where there are sawmills. There are plantations of gum and pine stretching from Weltevrede to Boontjiesrivier.

No mention is made of the role of Gouda as a cattle collection point and meat- processing centre on the railway line to the front line of the Anglo-Boer War. It remains such a centre today with stock auction yards and cold storage facilities.

No mention is made of the increasing mechanisation of cereal production from the post-WWI period. Steeper and more stony parts of the valley could be brought under cultivation. A comparison of historical aerial photographs reveals the steady increase of cultivated land until a point was reached in the 1980s when further extensions became unviable.

The Overview is silent on the other significant historical changes to the landscape that have also taken place more recently. Extensive areas that formerly supported cereal production have been put under vines and olives: Morgansvlei, Bianco, Schalkenbosch, Tulbagh Mountain Vineyards, Buck's Ridge, Weltevrede and GrooteVallei.

As can be seen the Overview has failed to chart the evolution of the landscape over the last 300 years and therefore the analysis of its present state is consequently weak. The Tulbagh Valley landscape is a rich mosaic shaped by cultural and natural processes that are dynamic.

SECTION H: STATEMENT OF HERITAGE SIGNIFICANCE

A number of structures older than 60 years have not been mapped on the western side of the Tulbagh Valley. These include structures on some of the earliest grants: Slagterspad, Oude Tol, Kloofzicht and Lemberg.

The landscape typologies presented in the HIA indicate a lack of understanding of the cultural processes that have shaped the Tulbagh Valley landscape. This lack was highlighted in the comment on Section E.

There should be typologies for the early and late 20th Century productive landscapes viz. fruit and more recently vineyards and olive groves as well as commercial forestry. This production had a more profound and significant impact on the landscape character of the Tulbagh Valley than…*Mid 20th Century racial segregation and post-apartheid housing*. These two typologies out of the 8 listed have only really impacted on the town itself and then only on a very limited basis.

The typologies need to be reassessed and developed from a more comprehensive understanding of the area's landscape evolution.

SECTION H3 Statement of Significance-Historical Built Environment and Landscape Settings

This sub-section of the HIA again highlights the inadequacy of the landscape evaluation commented on above. In the final paragraph on page 104 mention is made of the…*high scenic quality of the farmland landscape…Lower mountain slopes such as those at Paardeberg and Kasteelberg and the upper Tulbagh Valley are intact, distinctive and highly representative of the Cape Winelands Cultural Landscape which is regarded as having national and potentially international heritage significance…*This analysis is supported as the landscape of the wine farms of the upper Tulbagh Valley like Twee Jongegezellen, Montpellier, Theuniskraal and Saronsberg is clearly a component of the serial landscape referred to in the HIA. This area is however at the well-watered far northern end of the valley and remote from the proposed transmission line corridors. It is odd that this landscape is identified while there is no identification of the landscape forming the setting of the town of Tulbagh and clearly part of the study area. The landscape around the town is very different in character to the landscape of Twee Jongegezellen and has been used for dry-land cereal production and stock rearing for over 300 years. Its rolling fields, windbreaks, storage dams and groves of gums make it a distinctive landscape that frames and forms the setting of the town of Tulbagh. The dramatic seasonal changes to the landscape give it a vivid quality. It has not been identified as being of heritage significance in this sub-section, which is a serious omission. This again reveals a lack of appreciation of the landscape character of the study area and the inadequacy of the analysis.

SECTION I: OVERALL HERITAGE INDICATORS

In this section of the HIA eleven *guiding principles* relating to the location of transmission lines across sensitive cultural landscapes are listed. The key principle from a heritage perspective is set out…*Areas of distinctive landscapes should be avoided. Careful consideration should be taken to respect scenic quality, historical landscapes and townscapes, sense of remoteness, sense of place including the location character of buildings and places and the visual setting of historical settlements and farm werfs.* This principle is strongly supported but it does rely on careful landscape analysis, which as has been set out above is lacking in the HIA.

SECTION K: IDENTIFICATION OF HOT SPOT AREAS

Upper Tulbagh Valley and farmstead settings

Because of the inadequacy of the landscape analysis in the HIA reference is made only to the…*possible Grade 2 rural landscape to the north of the town*[16]. The distinctive landscape surrounding and forming the setting to the town is again not mentioned and no grading is provided. It is put forward that a more thorough analysis would identify this landscape as being of Grade 2 significance.

The only farmsteads listed as being affected are Edenhof, Sagtevlei and Schalkenbosch. This too reveals the inadequacy of the analysis. Schoonderzicht (1796) lying to the east of Steinthal, a Provincial Heritage Site is not listed although the transmission line would be far closer to this important complex to the aforementioned farmsteads. Again the inadequacy of the analysis is revealed. The Witsenberg farmstead is in close proximity to Schoonderzicht and was in fact sited at the base of the historical Witsenberg Pass is also not listed but will also be affected.

The HIA's finding that…*the alignment of the main alternative across the Tulbagh Valley has been identified as a high level hotspot area subject to further investigation*…is strongly supported. Further analysis must be preceded by a more comprehensive landscape analysis.

SECTION L: CONCLUSIONS AND RECOMMENDATIONS

The conclusion that the potential heritage impact of the Main Alternative alignment on the Tulbagh Valley will be high is strongly endorsed. The implication that High Level Heritage Hotspot Areas is a no-go option is supported.

FINDINGS OF THE REVIEW

The landscape analysis that was carried out in the HIA has failed to identify the unique character of the landscape setting of the town of Tulbagh. Although the conclusions reached in the HIA are endorsed it is felt that without a more thorough analysis and motivation for reaching the conclusion the HIA is weak and could be challenged.

6. RW Summers on behalf of Mrs. Elizabeth Parker **Date of comment: 12/01/09**
(Submitted by: Ashley Lillie - Heritage Specialist)

BACKGROUND

The properties that are the subject of this report are known as Elandsberg Farms and Elandsberg Nature Reserve and are situated near Hermon, Western Cape.

A scoping report in respect of a discrete heritage impact assessment has been compiled in respect of a proposal to erect a 765kV transmission line through the general area. The so-called "southern alternative" route of the line is across the property. The current proposal is to utilise the "central route", some distance away and which would not affect the properties.

LOCATION

[16] Identified as part of the Cape Winelands Cultural Landscape

Elandsberg Farms lie between the R44 road and the Elandskloof Mountains, close to Hermon.

The components of Elandsberg Farms that are most directly affected are the farms known as Bartholomies Klip[17].

The farms in question were the historical cadastral entities Paarl farms 17, 18 & 19. Farm 17 includes the homestead known as Bosplaats.

HISTORICAL BACKGROUND

Bartholomies Klip (Farm 18) was granted to Frans Joosten in 1714. It may be presumed that he had already lived on the site for some time, as notwithstanding the grant being registered on 28 August, he had been murdered earlier in the year by his wife, Maria Mouton, with the aid of two slaves, including her lover Titus of Bengal[18].

The house that stands on the site of Joosten's farm includes some very old fabric that may be part of his homestead.

The neighbouring farm, long known as Bosplaats (sometimes Boschplaats), was granted to Coenraad Basson in 1833. It had clearly been occupied for some time as the diagram framed at the time indicates a well-developed farm including a house and adjacent garden surrounded by oak trees.

[17] The name of the farm, as reflected on survey diagrams, is "Bartholomies Klip". The farm is now known as "Bartholmeus Klip" and the guest house operated on the property has that name. The Scoping report under discussion also uses the name "Bartholomews Klip" and "Bartholomeusklip".

[18] Shell, Robert *Children of bondage – a social history of the slave society at the Cape of Good Hope, 1652-1838*, p. 317. See also Toerien, Barend J *Die wegraak van Frans Joosten*

After various changes in ownership the farms were bought by Sir John Henry de Villiers, Chief Justice of the Cape Colony (later Lord de Villiers, first Baron de Villiers of Wynberg[19]). He acquired Bosplaats in 1892, and the neighbouring properties in 1895. Amongst other activities on the farms he bred mules on Bosplaats. De Villiers was at the farm "high up on the slopes of the mountain behind Hermon" when the policeman tasked with advising him of the death of King Edward (in 1910) found him[20].

It was in all probability de Villiers who built the existing house at Bartholomeus Klip, considering the nature of the materials (it is 'late Victorian' in character).

The farms remained in the ownership of the de Villiers family until the 3rd Baron (Arthur Percy, who had moved to New Zealand) sold to R H Parker in 1937. Parker was a businessman and later Chairman of Old Mutual from 1954 until his death in 1963[21]. The properties were acquired by Elandsberg Farms (Pty) Ltd from Parker's estate.

Dale Parker, of Elandsberg Farms, approached Cape Nature Conservation in 1971 with a view to establishing a Private Nature Reserve ("PNR") on Bartholomeus Klip. In approaching the Director, Dr Hey, Parker was particularly concerned that the area proclaimed should remain a reserve in perpetuity.

The Elandsberg Private Nature Reserve as first declared covered 2,800 hectares. This was increased by 430 hectares when additional land was acquired specifically for that purpose in 1978.

Also in 1978, and only after very considerable effort on the part of Dale Parker, plans by the State to expropriate the farm for an Armscor factory were modified, and although parts of the nature reserve were eventually expropriated, the factory was subsequently built mostly on adjoining property of less sensitivity.

In 1979 Dale Parker made representations to the Department of Nature and Environmental Conservation for the recognition of the need to ensure that no disturbance should be allowed of Private Nature Reserves either by the owner, other than normal maintenance, or by any outside interests such as quarrying, road building, powerlines, pipelines, canals, or transmission masts by state or local authorities. He argued that in cases of unavoidable development by state bodies they should take appropriate steps to minimise the effect the projects would have on PNRs. In particular, he made a case for mandatory independent environmental impact studies in such instances and, in ground-breaking court action, was able to establish that threatened natural veld was as valuable, if not more valuable, than developed farmland. This decision was later the basis for the resistance to the Armscor developments at De Hoop.

Parker in his dealings with the Department stressed that every encouragement and incentive should be given to efforts by the landowner to conserve the country's rapidly dwindling floral heritage. He considered that in some cases the PNR could be the forerunner of a provincial reserve at a later date. This has in fact happened at Elandsberg, where Elandsberg Nature Reserve was proclaimed as a provincial nature reserve on 22 September 2008 (Proclamation no. 15/2008, Western Cape).

DESCRIPTION OF THE PROPERTY

The components of Elandsberg Farms under discussion are essentially uncultivated renosterveld extending to the adjoining Hawequa Nature Reserve. The farms include two old homesteads, Bosplaas and Bartholomeus Klip, together with their associated farmyards.

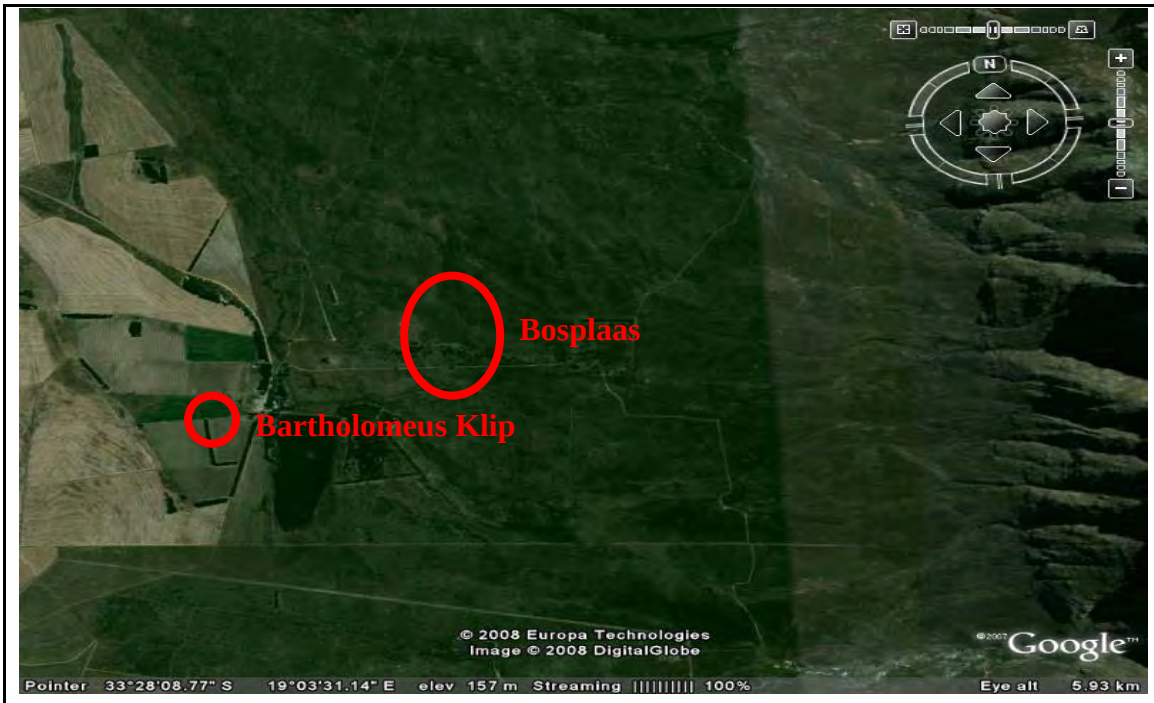
The conserved land on the property reflects what has been described by experts[22] as constituting the single most important site for the conservation of west coast lowland renosterveld. The total number of indigenous plant species already recorded is well over 800, with 30 of these being listed in the Red Data book of threatened plants.

[19] It is worth noting that de Villiers was the only South African elevated to the Peerage for his services to the country.

[20] Walker, Eric A *Lord De Villiers and his times – South Africa 1842-1914*, p. 172

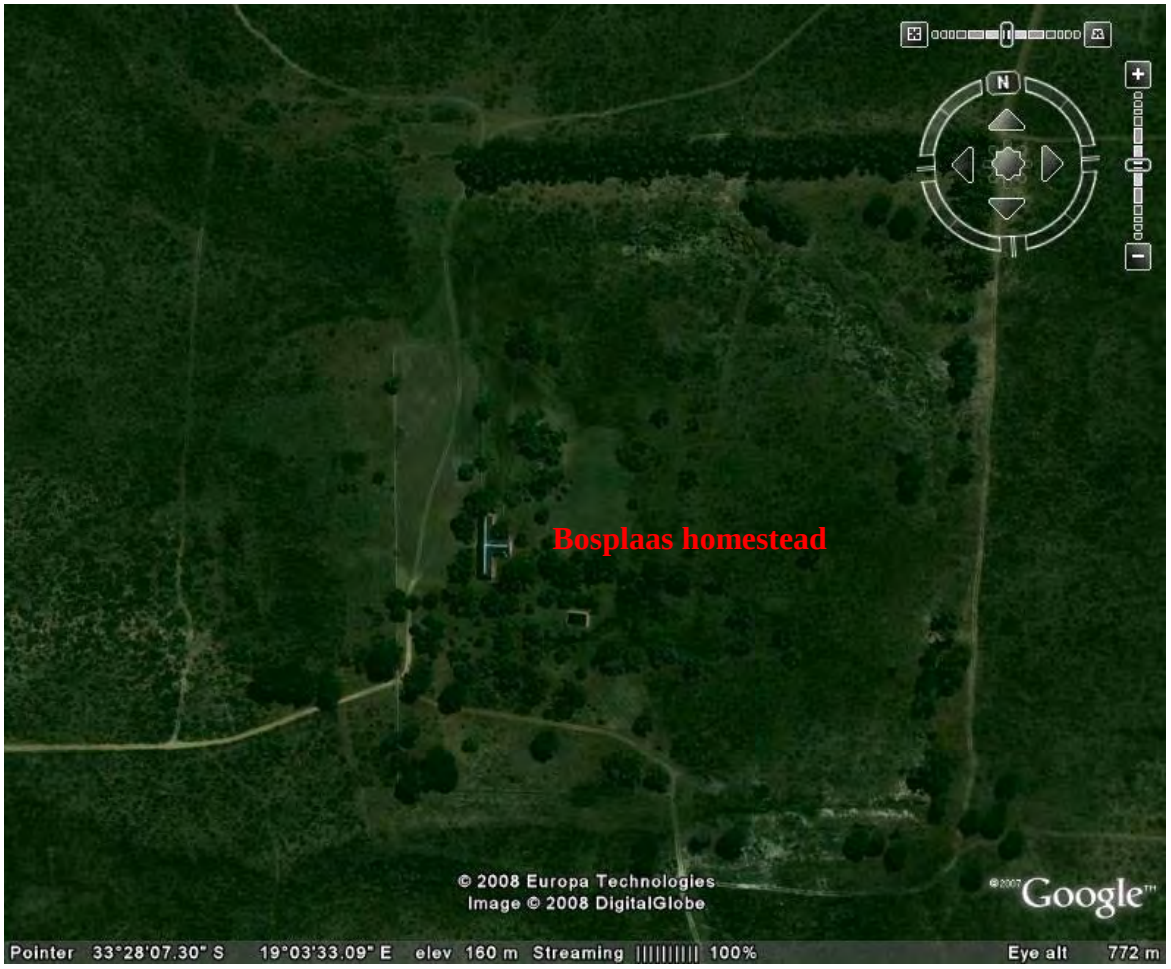
[21] Simons, Phillida Brooke *Old Mutual 1845-1995*

[22] *Notes on the vegetation of Elandsberg Farms*, Nick Helme, 27 July 1999



Bosplaas is a fine example of an early Cape house with werf and richly-planted environs. The position of the complex and its relationship to both near and distant landscape features is noteworthy. It is extremely unusual for a house of this type to have survived largely intact. The additional survival of the old context makes this a very rare part of our cultural landscape.

The surviving building in its remote context provides an increasingly unusual example of the remote existence of early farmers in the Swartland.



The Bartholomeus Klip homestead is a 'late Victorian' house with verandah. The house is both typical and a fine example of the type, having the good detailing of the better type farmhouses of the period.

The house was converted for use as a guest house in the mid-1990s. This work was undertaken with great care, ensuring that the essence of the original has been retained, including the patina so often lost in such undertakings.

STATEMENT OF SIGNIFICANCE

Bosplaas

Bosplaas is an excellent example of an early Swartland homestead. The house is of a rare type and in excellent condition. The extended werf with its mature oak trees dates to the early history of the complex. Bosplaas was owned by Lord de Villiers and actively farmed by him.

In both intrinsic and associational terms Bosplaas is an important part of South Africa's cultural history.

Bartholomeus Klip

Bartholomeus Klip is a fine example of a late Victorian farmstead; well executed and essentially intact.

In its present form the house was probably built for Lord de Villiers, onetime owner of the farm, and thus reflects a close association with one of the foremost figures in South Africa's history.

The association of the farm with one of the early Cape's most famous murders, itself an important part of the history of slavery, is noteworthy.

Elandsberg Nature Reserve

The farm is a generally recognised site of very high conservation importance containing very scarce fauna and flora. The property is a proclaimed provincial nature reserve as well as a designated Natural Heritage site (No. 81). The combination of both cultural and natural heritage makes this property one of considerable heritage significance.

HERITAGE GRADING AND FORMAL PROTECTION

The portion of Elandsberg Farms under discussion warrants a heritage grading of Grade 2 and as such should be submitted to Heritage Western Cape for consideration for declaration as a Provincial Heritage site.

It should be noted that both Bosplaas and the Bartholomeus Klip homesteads would appear, in their own right, to warrant Grade 2 heritage status.

IMPACT OF EXISTING ESKOM 400KV TRANSMISSION LINES

It is apparent that the existing 400kV powerlines make an unacceptable impact on the heritage significance of the Elandsberg Nature Reserve. While the masts are not particularly visible from the Bartholomeus Klip homestead, the same is not true of Bosplaas.

Notwithstanding the mountain backdrop to the masts close to Bosplaas, the masts are highly visible and intrude into what is otherwise a landscape of unspoilt natural and cultural significance.

Documentation provided reflects that the impact of the existing lines on the nature reserve as a whole consistently draws negative comment from visitors.

IMPACT OF PROPOSED 765KV TRANSMISSION LINE

It is noted that the "southern alternative" route for the proposed 765kV transmission line passes along a route crossing Elandsberg Farms.

The document *Scoping Report: Heritage Impact Assessment for the proposed Gamma – Omega 765Kv transmission line* by Mary Patrick, dated November 2008, considers the heritage implications of the proposals. Specifically, the following references are noted: Section J (*Heritage issues and concerns*), at page 143; a following Figure J6 (incorrectly numbered page 89); page 174, where the possible impact of the proposals on Elandsberg Farms is discussed; and Section L (*Conclusions and recommendations*), at page 186, identifies the affected property as a 'heritage hotspot' in the medium-high category.

In Section J (*Heritage issues and concerns*), at page 143, the report correctly notes the landscape typology that is critical to both an understanding of the importance of the heritage resource and therefore the sensitivity of the receiving environment. The heritage significance is correctly identified, noting the "sense of remoteness in terms of isolated farm werf settings within a private [now provincial] nature reserve and wilderness mountain backdrop." The respective farmsteads are graded. The report identifies Bartholomeus Klip as being Grade 3A. Given the scale of the proposed project under review in the report, it is understandable that the heritage consultants were not in a position to identify the associational importance of the connection with Lord de Villiers, a factor that substantially increases the heritage significance of the site. The report identifies Bosplaas as being a Grade 2 resource, which is reinforced by subsequent analysis reflected above.

The note in the column headed *heritage issues, concerns and comments* correctly identifies the "potential impact of the southern alternative on the historical werf setting of the Bosplaas in particular its remote natural setting." The suggestion that "the dark backdrop of the Elandskloof has an ability to absorb potential visual impacts" is however hardly borne out by the existing masts (as illustrated above). The significantly larger proposed new masts will have a far greater negative impact on the sense of place of the property.

The report further notes that the "southern alterative follows an existing transmission line". As already noted, the existing line has an unacceptably high impact on the Nature Reserve. It would appear that mitigation rather than exacerbation ought to be the response in this respect.

The applicable note on figure J6 (incorrectly numbered page 89) notes "issues and concerns" of the possible visual impact on Bosplaas. The same reservations relating to the ability of the mountain backdrop to absorb the impact apply.

On page 174 the subject property is identified as a hot spot area, being one of the critical viewpoints digitally modelled to determine potential visual impacts (it is noted that in discussing this aspect of the study the report states that "it is envisaged that further critical viewpoint analyses will need to be undertaken during the impact assessment phase of the study depending on visual heritage issues raised during the scoping process").

The report notes: "An initial concern identified was the visual impact of the alignment of the southern alternative on the Bosplaas and Bartholomewsklip farmsteads. However, critical viewpoint analyses related to these homesteads indicates a medium and low impact respectively."

The report continues: "Consideration needs to be given to the suggested Grade 2 heritage status of the Bosplaas homestead and also the fact that the proposed southern alternative is located between two existing 400kV transmission lines."

In summary, the report notes that "the alignment of the southern alternative on the Bosplaas homestead has been identified as a medium to low heritage spot." Issue is here taken with the aforementioned conclusions of the report. The visual impact report (*Gamma–Omega Transmission Line – Heritage Impact Assessment – Project Mapping*, undated report prepared by Cape Archaeological Survey, et al. See "Section 3 – Visual Impact: Critical Viewpoints") in fact reflects an overall impact of medium high (see diagram Section 3 – A8-2). It must furthermore be noted that nowhere does the report appear to comment on the impact of the proposed transmission line on the Elandsberg Nature Reserve as a whole (which would appear to warrant Grade 2 status as such). Rather, the report only focuses on the homesteads; clearly an unfortunate omission.

Section L (*Conclusions and recommendations*) at page 186 identifies the affected property as a 'heritage hotspot' in the medium-high category. The implication of this identification from a heritage management perspective is correctly identified in the report in that this requires serious consideration of "no-go" implications or more suitable alternative alignment at the landscape setting and individual site scale in order to avoid significant adverse impacts on the landscape. In this instance the ecological significance of the properties would appear to further highlight the need for such reconsideration rather than acting as a counter-consideration in terms of mitigation.

CONCLUSION

While the existing transmission lines and masts are not an ever-present experience on parts of the Reserve, it is apparent that the very significantly larger masts required for the new transmission line would permanently intrude into the experience of this significant heritage site and the conservation value of the property. Should any of the other proposed routes be rejected for whatever reason, it ought to be abundantly clear that the "southern alternative" route, to the extent that it crosses Elandsberg Farms, should similarly be considered unacceptable on a site that warrants protection as a Provincial Heritage Site.

It is clear that Elandsberg Farms has considerable heritage significance. Should the Scoping Phase therefore result in the selection of the Southern Alternative as the preferred option, considerable attention will need to be given in the impact assessment phase of the HIA process (ref p. 186 of the *Scoping Report*) to the "no-go" portions of the farm and therefore possible mitigation by way of realignment away from the area of concern. The nature of the landscape and presence of significant individual heritage resources (the farmsteads) would appear to indicate, at the very least, the need for possible re-routing of the Southern Alternative in this instance.

6. RW Summers on behalf of Mrs. Elizabeth Parker **Date of comment: 30/12/08**
(Submitted by: Dr John Manning - Senior Specialist Scientist)

The Elandsberg Nature Reserve, which has entered into a landmark Stewardship Agreement with CapeNature, is a core conservation area for two localised and highly endangered vegetation types in the southwestern Cape:

1. **Swartland Alluvium Fynbos**. *Status*: Critically Endangered. *Target conservation*: 30%. *Actual conservation*: 10%. *Transformed*: 75%.
2. **Swartland Alluvium Renosterveld**: *Status:* Vulnerable. *Target conservation*: 26%. *Actual conservation*: <1% (only Elandsberg). *Transformed:* 40%. (Mucina & Rutherford 2006)

Conclusions:

1. Agricultural transformation of these two vegetation types has already proceeded to the stage where the National Conservation Targets cannot be met.

2. An unpublished list of flowering plant species recorded on Elandsberg Nature Reserve (Parker & Manning, unpublished) at present includes 822 spp., primarily from these two vegetation types, among them several species entirely or predominantly endemic to the Reserve.

3. The areas Swartland Alluvium Fynbos and Renosterveld conserved on Elandsberg Nature Reserve represent a significant component of any realistic attempt to meet the National Conservation Targets and no further transformation of these vegetation types in the Reserve can be countenanced.

6. RW Summers on behalf of Mrs. Elizabeth Parker **Date of comment: 05/01/09**

(Submitted by: Prof Ladislav Mucina – Dept of Botany & Zoology, Univ of Stellenbosch)

I have heard upsetting news about a proposal made by Eskom to build a direct powerline through Elandsberg Nature Reserve. This news is really alarming since this nature reserve, through your unprecedented care and enthusiasm, became one of the prime localities of nature conservation in Western Cape. The Elandsberg Reserve is home to largest patch of very rare Swartland Alluvial Fynbos and houses also some patches of shale renosterveld, full of species of conservation interest – rare and endemic! The local endemism on the reserve is remarkable and makes this locality very important!

Here, in my capacity of Professor in Ecology and the senior author and editor of the Vegetation Map of South Africa and active researcher in the field of vegetation ecology, plant taxonomy and conservation I would like to express my deepest concern about the planned interefence into fragile ecosystems of the Elandsberg Reserve, and suggest that an alternative route for the powerline, through less sensitive and valuable areas, will be considered.

7. AD Silberberg **Date of comment: 05/01/09**

Director: Tulbagh Heritage Agency

OBJECTION TO PROPOSED 765KVA POWERLINE ROUTE TRAVERSING TULBAGH AREA

We act as agents and represent several parties concerned with preserving the heritage of the Tulbagh area

Having reviewed the detailed report of the Heritage Impact Assessment we have been asked to lodge an objection to the following proposals

1 The need for a 765KVA line from Mapumalanga to the Western Cape and

2 The proposed route of the powerlines through the Tulbagh area

1.1 This matter has been in progress for several years now and was started long before last years power crises. This in effect means that Eskom was proposing to build at great cost a 765 KVA power line to transmit electrical power to the Western Cape that **it in fact it did not have.** The coal fired generating plants were unable to supply the needs of Gauteng and were not in a position to supply the Cape

This is rather like building a bridge to nowhere and if this is an example of the Eskom planning process it hardly inspires confidence in anything that Eskom plans.

At the presentation meeting held at Morgansvlei we were assured that Eskom would develop nuclear generating plants in the Western Cape effectively doubling Koeberg's capacity to 3600 Mega watts. Yet barely two weeks later news reports intimated that Eskom was shelving the entire nuclear programme. This raises the question once again if Eskom has any idea at all of what it proposes.

1.2 It appears that if one takes into consideration Eskom's apparent determination to proceed with this powerline project that the Company's incompetence is only exceeded by it's arrogance.

1.3 It is a no brainer that in view of the instability and fluctuations in the price of coal it is not rational and logical to put all your eggs in the fossil fuel generation basket. To only develop coal fired systems in Mapumalanga and then route power over 1500 kilometers to the Western Cape indicates a severe lack of strategic planning competence. Furthermore there will be ongoing security problems to protect these lines from possible sabotage.

1.4 It is logical that there should be diversification to different sources of power generation as well as geographic dispersion

1.5 Eskom should reconsider its decision and proceed as a matter of urgency to construct nuclear power plants in the Western Cape

1.6 If this takes place there will be no need to proceed with a 765 KVA line as there will be less need to transmit power to the Cape and the existing 400KVA line will be adequate to be used for balancing national; demand and supply

2.1 If however in spite of all the logical reasons Eskom still arrogantly continues to go ahead with the 765KVA line it should follow the same route of the present 400KVA line. The reasons given for the need to divert the line through the Tulbagh are ill-considered and feeble. It will be far simpler to overcome these problems and use the existing route

In conclusion we call on you to abandon this ill-conceived project to construct a 765KVA line and proceed with the construction of nuclear plants that will eliminate the need for the line

To adapt Eskom's Kentridge Mahkanya's footnote to his emails

"What will the world be like if everyone adopted Eskom's pitiful management planning style?"

8. Anel Powell **Date of comment: 09/01/09**
Cape Times – Senior Metro Writer

Could you please email me a copy of the report for the Gamma Omega transmission line that was out for public comment until December 24 last year?

When will a decision be made on the proposed transmission lines?

8. Anel Powell **Date of comment: 12/01/09**
Cape Times – Senior Metro Writer

The deadline for comment on the Heritage Impact Assessment closes today. But the Tulbagh Action Committee has written to Eskom asking for it to be extended to January 30.
Will this deadline be extended?
Will Eskom release visuals of what the proposed pipeline will look like in the landscape? The Action Group has argued that there have not been any graphics of what the pylons will look like in the actual environment?
What is the estimated cost of the project?

9. J de Villiers/F Swanepoel **Date of comment: 12/01/09**
I & AP

We are registered as I & AP's regarding this proposed power line.
We attended the presentation of the HIA held at Morgansvlei towards the end of last year.

I am writing to you in my capacity as an architect practicing in the Tulbagh Valley as well as my capacity as the owner of a smallholding to the South of the R46 near the Tulbaghweg Station and the Nuwekloof Pass. Over the last 4 years Francois Swanepoel (co-owner of the property) and myself have invested a huge amount of money on this property in order to establish a guesthouse. Tourism and architecture are thus our main spheres of business. The views (mainly of the Nuwekloof pass and the hill behind the brick factory and towards Groot Winterhoek) from our property have been hugely instrumental in the success of this tourism venture. Our venture has grown over the past years and we now permanently employ 3 (previously disadvantaged) people from the village of Tulbagh. It is a fact that they, in turn, support quite a number of people on the salary which we pay them. As an architect I also have first-hand experience of the importance the architectural heritage and the natural beauty holds for this area - it is the life blood of this valley and the main reasons for both local and foreign investment in Tulbagh.

With this I am hoping to strengthen previous arguments that Eskom's proposed power line across the Tulbagh Valley will have a serious negative impact on the life-blood of this area (and the adjacent areas of Prince Alfred's hamlet, Gouda, Riebeek Kasteel, etc.).

Besides this, I would also like to comment on the so-called HIA which was presented to us at Morganslvei Estate. **Our comments are provisional and under duress, given that we have had insufficient time, insufficient information and more especially since the period for comments coincided with the December holiday period which has made it difficult for us (and others who do not have the privilege of a home computer with a CD-Rom) to adequately grasp the impact this power line will have on our lives and the heritage of this area.**

1. Firstly I must (also) insist that Eskom grants an extention to the deadline for the submission of comments to 30 January 2009 seeing as many people were unable to comment during this festive season and also due to the fact that the information was not made available to the public as promised at the presentaiton.

2.. The presentation was a waste of time in my view. The visual impact of the proposed line was not presented to the attendees (nor is it included in the material given to us). Nowhere could one get an idea of the actual scale of the pylons in relation to the major features of the valley or the actual effect of these on the views from various points in the valley or from major roads leading into Tulbagh or through the valley or the Nuwekloof Pass. There were very colourful maps with bright colour-coded "contours" representing some theoretical formula of the effective visual height of the line in relation to ones distance from it… I am afraid this does not do it! I am sure that Eskom spent a substantial amount of our money on this impact assessment and one would think that the kind of expertise they appointed would have at least come up with some realistic 3D presentaions of the vallley with the REAL SIZE LINE super-imposed in 3D on it…..

3. What is worse is that the presentation was, in fact, misleading. When asked for a photograph of one of these new pylons, we were shown a photograph of a pylon taken somewhere in the winelands (judging from the vegetation in the background (fruit orchard, vines, etc.)) THIS AFTER WE WERE TOLD IN THE PRESENTAION THAT THE ONLY EXISTING PYLONS OF THIS (PROPOSED) SIZE ARE NEAR DE AAR / SOMEWHERE IN THE KAROO.) When I pointed this out to one of the representatives at the presentaiotn they admitted that the picture showed a "normal" pylon and not one of the large proposed ones. WHAT IS THE USE!?

4. I must also point out that the heritage of this valley does not only consist of a few homesteads which have been selected by Eskom's consultants. The fact of the matter is that the ENTIRE VALLEY is an important heritage area. A few facts to consider is that this valley was (for many decades) the only gateway to the interior. The first pass (remnants are still visible) through the mountains was at Roodezand / Oude Kloof. The first (and still the only) railway line linking the Cape with the interior is though this valley. My argument is that this unsightly power line will impact on these **historical routes** as much as they will on the views from selected homesteads, etc. The valley is also home to a number of well-preserved blockhouses along the above-mentioned railway line.

5. One encouraging thing I did notice is that the Heritage Impact Assessment does state / indicate that the line will have a "VERY HIGH HERITAGE IMPACT" where it passes through the Tulbagh Valley.

So now all we can hope for is that this actually means something to the "Power(s) that be"….

6. For what it is worth, we share the opinion of some other I & AP's that Tulbagh's economy and the livelihood of many will be negatively affected if this power line goes ahead as planned / proposed.

It makes no sense whatsoever to erect ANOTHER POWER LINE IN ANOTHER POSITION across the same valley. (There is already on near Wolseley, cutting across the Boontjies River area). It also makes no sense to take it through a fairly well-populated valley where tourism and agri-tourism is the main industry and where one finds one of the highest concentrations of historical routes and buildings.

7. The power line should be re-routed to cross a less sensitive area to the north or it should be taken along at ground level (much like one would do a pipeline…) or taken underground in sections.

In the greater scheme of things (the billions being borrowed by Eskom for expansion, the huge scale of the total length of the new distribution network being planned across the country and the end-users' imminent rate hikes) this will surely not break Eskom's bank. I must comment that the scar which will potentially be left on the natural vegetation if the line is taken underground on the mountain slopes concerns me - I was thus wondering if it will be at all possible (and maybe a little less expensive) if the line (cables?) were put in a dark coloured pipe (black, olive green?) running above ground…. Just an "out of the box suggestion?"… This might be better than a scar across the (protected) Rhenosterbos.

8. We are not sure how many people are aware of the huge Eskom power station which was built (it must have been in the 80's) ENTIRELY UNDERGROUND. We had the privilege of visiting it in the 80"s - the scale of this underground power station is awe-inspiring to say the least. It is hidden beneath the earth near the Oliviershoek / Van Reenen Passes in the Northern Kwazulu-Natal Drakensberg - mainly to protect the views in this pristine area.

Taken from randwater.co.za: *"This section of the scheme is used to generate electricity as a hydroelectric power station has been built within the mountains of the Drakensberg. This power station, known as the Drakensberg Pumped Storage Scheme, is managed by Eskom and electricity that is produced here is fed into the national electricity grid. At peak periods (morning & afternoon) when electricity is need, water is dropped from the Driekloof Dam, through the hydroelectric turbines, and into the Kilburn Dam. In quite periods the water is pumped back from the Kilburn Dam and into the Driekloof Dam. When the Driekloof Dam is full water flows over a weir and into the Sterkfontein Dam, where it is stored. The Sterkfontein Dam has a surface area of 67 square kilometres, an average depth of 93 metres, and a total storage capacity of 2,62 billion cubic metres. "*

Surely if a whole power sation can be built underground (IN SOUTH AFRICA), Eskom can do SOMETHING to save this valley!!!

That much for our preliminay comments.

10. Mike Hunter **Date of comment: 25/11/08**

1. The presentation was well prepared, but for the lay person two major questions were left unanswered.

(a) It was of paramount importance to show the visual effect of the proposed new power line as it traversed the Tulbagh valley but this was not done. One cannot make objective comment without seeing this.

(b) Which of the paths the route of the lines will take? From the perspective of retaining the historical and tourist value of the valley, the Southern alternative route, where the existing pylons stand, would be the least intrusive. The preferred route would have seriously detrimental consequences for the Tulbagh valley as a whole.

Hopefully concerned parties will be given the opportunity to view the perspective referred to in "A" above before any decision is taken in the matter

11. Chris Wright **Date of comment: 12/01/09**

The original date given for submissions was December 24th. But we heard subsequently that this had been extended to January 12th. However I have not received official notification of this extension and attempts to confirm it or otherwise have been unsuccessful. It would seem that your offices have been closed? This seems to be a thoroughly unsatisfactory situation. It is quite impossible to collect information for meaningful comments when everyone is on holiday. I was involved in another EIA recently and this was recognised. In view of the Christmas period an extra four weeks was allowed for comment – in this case it would take us at least to the end of January.

Additionally public meetings only seem to have been held in the Tulbagh area. Why? What about the Reibeek Valley, Gouda etc. There has been virtually no publicity. Is this public participation?

In the circumstances therefore my comments are provisional and under duress, given that I have had insufficient time, insufficient information and more especially since the period for comments coincides with the December holiday period (whether by design or not).

There is no doubt that the country needs electricity. But much of the area round Cape Town is a priceless asset to the county. If major projects like this power line are allowed to proceed the asset will be irretrievably destroyed. Tourists will severely diminish and the wealth they bring with them will disappear. So we could get electricity – but at the expense of large numbers of people and the general quality of the environment. It is obvious that consideration should be given to placing large lengths of the line underground.

From the point of view of the Riebeek Valley it is clear that the more southerly of the two favoured routes would be preferable. But this route would have an adverse effect on Bartholomeus Klip and its associated game reserve as well as other properties. So if the line must go over ground could it go even further south and so avoid this problem?

12. Wendy Upcott **Date of comment: 22/01/09**

I don't know what the cutoff date for input is, but my comments are as follows:

1 .I am very concerned about the negative visual impact of huge pylons close to our town, also about potential health risks of living near them.

2. I do not think the people of the village are generally aware of what Eskom's plans are - certainly I wasn't until relatively recently.

3. I am sure that they are also not aware how the line(s) will disfigure our unspoiled landscape - at no juncture has Eskom given any proper scale drawings which will show us what we are in for.

4. I am of the opinion that it will negatively impact tourism, from which I make a living, by destroying the unspoiled ambience of this lovely valley.

5. I also think it will have a negative impact on our property prices not to mention future investment in our town.

6. I would certainly never have bought in Tulbagh had I known of these plans, which I believe date back to 2001.

7. Why can't the existing route through the valley be followed?

13. John du Toit **Date of comment: 25/11/08**

14. Peter Jackson **Date of comment: 25/11/08**

In association with

CAS BEUSTER CLARKE & ASSOCIATES BAUMANN & WINTER HERITAGE CONSULTANTS in association with Harriet Cliff

COMMENT FORM

Name: PETER JACKSON SCHALKENBOSCH.

Comment: IT IS CLEAR THAT THE FINDINGS OF THE "NEW" HERITAGE ASSESMENT AGAIN INDICATE THAT THE CENTRAL ROUTE THROUGH THE TULBAGH VALLEY IMPACTS THE GREATEST ON THE HERITAGE VALUE OF TULBAGH AND ITS RESIDENTS AND THAT THE EXISTING WOLESLY ROUTE HAS THE LEAST HERITAGE IMPACT.

IT IS EQUALLY CLEAR THE ORIGINAL EIA DID NOT TAKE INTO ACCOUNT THE SOCIO ECONOMIC IMPACTS OF R1,2BILLION INVESTMENT AND ± 600 SUSTAINABLE JOBS THAT THE APPROVED GOLF COURSE AND CONSERVATION ESTATE. THERE ARE ALSO OTHER SIGNIFICANT DEVELOPMENTS CREATING SUSTAINABLE EMPLOYMENT. THE DEMOGRAPHICS OF TULBAGH HAVE CHANGED SIGNIFICANTLY IN THE LAST 6 YEARS WITH A SUBSTANTIAL INVESTMENT BEING MADE IN RESTORATION AND REHABILITATION.

IT IS ALSO NOTED THAT THE PROPOSED CENTRAL ROUTE WILL BE BUILT THROUGH A 1000 HA CONSERVANCY PLACED UNDER CAPE NATURE STEWARDSHIP AND CONTAINING RED BOOK SPECIES AND IDENTIFIED BY BWI & KIRSTENBOSCH AS ENVIRONMENTALLY SENSITIVE AND ENDANGERED.

THE CHOICE OF THE CENTRAL ROUTE WILL SOVEREIGN IMPACT ON THE GROWTH OF TULBAGH AND ITS TOURIST POTENTIAL.

15. John Haddad **Date of comment: 25/11/08**

WWW.esrom.co.za
elmf

*NB HEALTH CONCERNS

GAMMA-OMEGA 765kV Transmission Line

PDNA

HERITAGE IMPACT ASSESSMENT

In association with

CAS BEUSTER CLARKE & ASSOCIATES BAUMANN & WINTER HERITAGE CONSULTANTS in association with Harriet Clift

COMMENT FORM

Name: JOHN HADDAD 0823452258

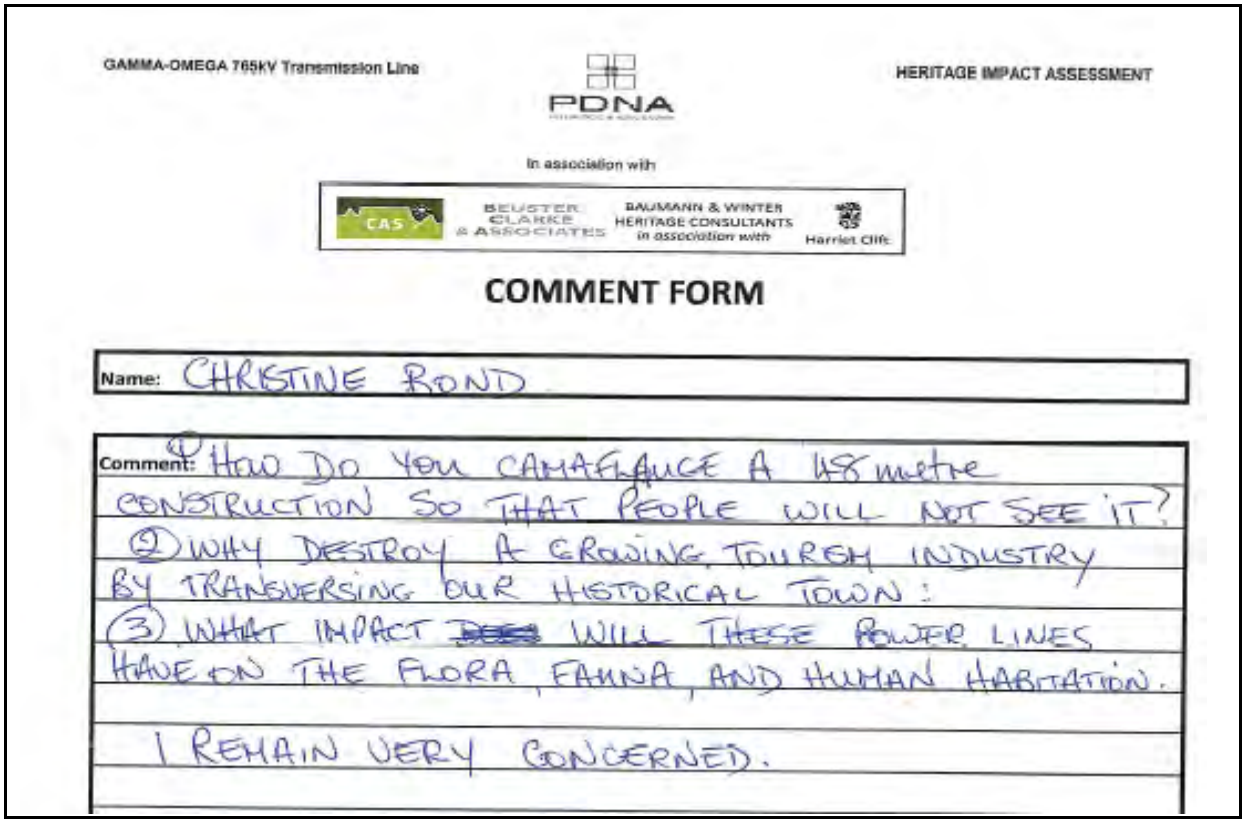
Comment: What are the health implications on the population living nearly the power lines. How far does one need to be to the lines for them to be a health risk. Please send as much info in this regard as possible.

Thanks

John Haddad

Email john.haddad@mamgolding.co.za

16. Christine Bond **Date of comment: 25/11/08**



GAMMA-OMEGA 765kV Transmission Line

PDNA

HERITAGE IMPACT ASSESSMENT

In association with

CAS BEUSTER CLARKE & ASSOCIATES BAUMANN & WINTER HERITAGE CONSULTANTS in association with Harriet Cliff

COMMENT FORM

Name: CHRISTINE ROND

Comment: ① HOW DO YOU CAMAFLAUGE A 45 metre CONSTRUCTION SO THAT PEOPLE WILL NOT SEE IT?
② WHY DESTROY A GROWING TOURISM INDUSTRY BY TRANSVERSING OUR HISTORICAL TOWN:
③ WHAT IMPACT ~~DOES~~ WILL THESE POWER LINES HAVE ON THE FLORA, FAUNA, AND HUMAN HABITATION.

I REMAIN VERY CONCERNED.

17. J. Clarke on behalf of H. Aikman **Date of comment: 31/12/08**
Tulbagh Valley Heritage Foundation

PROPOSED G AMMA-OMEGA 7 65Kv T RANSMISSION LINE: SC OPING R EPORT: H ERITAGE I MPACT ASSESSMENT: NOVEMBER 2008

At th e m eeting of t he E xecutive C ommittee of t he TVHH held on 8 D ecember 2008 it w as r esolved t hat t he conclusion reached by the consultants Baumann & Winter in the abovementioned Heritage Impact Assessment be endorsed viz. that the potential heritage impact of the Main Alternative alignment on the Tulbagh Valley will be high. It was agreed that the consultants had correctly identified the Tulbagh Valley as a High Level Heritage Hotspot Area. The implication flowing from this is that the Main Alternative alignment should be considered as a no-go option is also supported.

Please note that the TVHF has applied for registration with the provincial heritage authority, Heritage Western Cape and has requested the opportunity to address the Built Environment and Landscapes Committee when the HIA is considered.

Appendix 1

GAMMA-OMEGA 765 Kv TRANSMISSION LINE

Heritage Management Plan

Prepared By:

The Agency for Cultural Resource Management
Specialists in Archaeological Studies and Heritage Resource Management

On Behalf Of:

PD Naidoo & Associates

&

Pba International Ltd

December
2001

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1.0 INTRODUCTION

1.1 Background

PD N aidoo & Associates and P ba l nternational, r equested the A gency for Cultural Resource Management to undertake a her itage review of t he proposed Eskom T ransmission G amma-Omega 765kV T ransmission Li ne between t he proposed Gamma (Victoria West) an d O mega su bstation (Koeberg) si tes, as a basis for the Environmental Management Plan for the project.

Known as the Cape Strengthening Programme, the proposed project includes a range o f s ervices that w ill i mprove t he r eliability of electricity su pply t o t he Western Cape.

The ai m o f t he st udy w as to asse ss t he potential i mpact t hat the proposed 765kV-Transmission l ine w ill hav e on ar chaeological, pal aeontological an d historical sites along the proposed routes.

2.0 TERMS OF REFERENCE

The terms of reference for the heritage review were:

1. to i dentify si tes of ar chaeological, pal aeontological and cu ltural st atus in t he study area;

2. to assess the likelihood of sensitive sites in the study area; and

3. to i dentify m easures t o pr otect from co nstruction d amage an y valuable archaeological, pal aeontological and cu ltural si tes that may ex ist i n t he proposed powerline route.

3.0 CONSTRAINTS ASSUMPTIONS AND LIMITATIONS

The following co nstraints, assu mptions and l imitations apply t o t he h eritage review.

- The r eview was severely co nstrained by a l imited field st udy, w hich al lowed only a cursory assessment of the proposed routes.

- The field st udy f ocused onl y on t he ar chaeological st atus of t he pr oposed routes, and to a limited extent on the historical status of the proposed routes.

- Information on the palaeontological (fossil) status of the proposed routes was obtained from Dr Roger Smith of the Department of Karoo Palaeontology at the South African Museum (Cape Town) and from Dr Dave Roberts of the Council for Geoscience (Cape Town) and it is assumed that this information is correct.

4.0 OPPORTUNITIES AND BENEFITS

The proposed Eskom Transmission Gamma-Omega 765kV project presents considerable opportunities and benefits for heritage specialists. These include:

- the opportunity to identify and record previously unknown heritage sites.

- the opportunity to identify mitigatory measures to protect and maintain any valuable archaeological, palaeontological and historical sites that may exist in the proposed routes.

5.0 THE STUDY AREA

The study area for the project is illustrated in Map 5a.

Four routes are proposed. These include:

- the **Central Route**: this being the total route from the proposed Gamma substation to the proposed Omega substation, including the proposed new route over the Agter Witsenberg area;

- the **Central Alternative**: this being the short section through the Agter Witsenberg area;

- the **Northern Alternative**: this being the section deviating to the north in Section 3 and joining at the Gydo Pass; and

- the **Southern Alternative**: this being the section following the existing 400 Kv lines past Ceres and Wolsley.

6.0 STUDY APPROACH

6.1 Method

In order to address the objectives of the heritage review, the following method has been followed:

- a 4-day site assessment of the proposed routes.
- a desk top review.
- consultation with specialists.

7.0 LEGISLATION

Archaeological and palaeontological sites, graves/cemeteries, battlefield sites, and buildings, structures and features over 60 years old, are protected under the National Heritage Resources Act (No. 25 of 1999).

According to the Act, it is an offence to destroy, damage, excavate, alter or remove from its original place, or collect, any archaeological, palaeontological and historical material or object, without a permit issued by the South African Heritage Resources Agency (SAHRA).

8.0 RESULTS OF THE FIELD REVIEW AND DESK TOP STUDY

8.1 Archaeological sites

28 location sites in Sections 1-5 of the proposed routes were visited and searched for archaeological remains.

8.1.1 Section 1

Four locations were searched in Section 1.

No archaeological remains were located, but relatively large numbers of Middle Stone Age[1] (MSA) and Early Stone Age[2] (ESA) artefacts have been found during a number of heritage impact assessments undertaken in the Swartland and Berg River region (Hart 1987; Kaplan 1988, 1999, 2000a,b, 2001a,b,c,d).

[1] A term referring to the period between 200 000 and 20 000 years ago.
[2] A term referring to the period between 2 million and 20 000 years ago.

Two Later Stone Age[3] (LSA) sites occur on the farm Groot Oliphantskop, the site of the proposed Gamma substation (Kaplan 1996). Two Khoisan skeletons were also excavated from a large sand dune on the farm about 50 years ago (Kaplan 1996).

Large parts of Section 1 are currently heavily farmed, resulting in low archaeological visibility.

Voelvlei and Driebos Shelters (between the Central Route and the Southern Alternative), are located in the Voelvlei Mountains overlooking Voelvlei Dam. The upper levels of Voelvlei Shelter are radiocarbon dated to between 300 and 400 years ago (Smith et al 1991) and a dating to the early period of European contact was confirmed by the finding of a glass bead, a lump of lead, a fragment of an iron nail and a copper bead.

8.1.2 Section 2

Four locations were searched in Section 2, including one in the Central Alternative.

Bushman rock paintings are well known in the Koue Bokkeveld region of Section 2, particularly those depicting colonial imagery (Johnson et al 1959; Yates et al 1993). The Koue Bokkeveld was unusual in terms of early Cape history, in that unlike many other areas from which the Khoisan quickly disappeared, there was sustained contact in the region between remnants of the Khoisan and colonists throughout the eighteenth century (Penn 1987).

No archaeological remains were located during the Section 2 field review.

8.1.3 Section 3

Six locations were searched in Section 3. These included the farms Lower Stinkfontein, Platfontein and four unknown farms along the proposed Central Route.

Relatively large numbers of MSA tools, and some LSA tools were found on the farm Lower Springfontein. A few MSA few tools were located on the farm Platfontein.

The proposed Northern Alternative was not searched for archaeological remains.

No detailed archaeological studies have been undertaken in the Section 3 study area.

[3] A term referring to the last 20 000 years of precolonial history in southern Africa.

8.1.4 Section 4

Five locations were searched in Section 4. These included the farms Klipfontein, Swaerskraal, Spitzkop, Fortuin and Bon Espirange. A few MSA tools were located on the farms Swaerkraal and Fortuin.

No detailed studies have been undertaken is this area (David Morris McGregor Museum, Kimberley, pers. comm.).

8.1.5 Section 5

Nine locations were searched in Section 5. These included the farms Gabriels Baken, Phaisant Kraal, Tyboschfontein, Montana, Steenrotsfontein, La-De-Da, Vindragersfontein, Buffels Valley and Rietpoort.

Archaeological remains were located at four of the nine sites visited; at Phaisant Kraal, Steenrotsfontein, La-De-Da, and Buffels Valley. These included a handful of mainly MSA and some ESA tools, but a discreet, low density scatter of LSA tools and some ostrich eggshell were located on the farm La-De-Da.

According to David Morris of the McGregor Museum in Kimberley (pers. comm.), no heritage impact assessments have been undertaken in Sections 5 or 4 of the study area. But other studies have shown that scatters of stone tools are abundant around Victoria West and in the Upper Karoo and the Orange River Scheme (Goodwin & Van Riet Louw 1926; Jansen 1926; Humphreys 1979; Sampson 1972, 1984).

The Karoo in Sections 4 and 5 rocks are shot through by dolerite dykes, where the raw material hornfels/indurated shale is ubiquitous and superabundant and an excellent source for making stone tools (Parkington 1984).

Bushman rock paintings and rock engravings have also been recorded at Pampoempoort near Victoria West and in the Karoo National Park (Morris pers. comm.).

8.2 Palaeontological sites

According to Dr Roger Smith of the Department of Karoo Palaeontology at the South African Museum in Cape Town, Sections 2-5 in the study area all fall within sensitive fossil bearing deposits.

8.2.1 Section 1

According to Dr Dave Roberts of the Council for Geoscience in Cape Town, Section 1 comprises the Malmesbury Group of deposits. Body fossils of Malmesbury age are known from elsewhere (e.g. Namibia), but the geological setting (deep water turbodites) of Section 1 is highly unfavourable for body or plant fossils. No fossils of any sort have yet been found in the Malmesbury Group (Roberts pers. comm.).

8.2.2 Section 2

Section 2 falls within the Bokkeveld Formation, which is an extremely sensitive area for invertebrate fossils dating to about 380-410 million years ago. Extensive outcroppings in Ceres, Gydo Pass and Tulbach have produced rich fossil remains (Smith pers. comm.).

8.2.3 Section 3 and 4

Section 3 and 4 falls in the Whitehill and Ecca Group of deposits respectively, which are rich fish and plant fossil-bearing deposits. Extensive outcroppings of these deposits occur around the Matjiesfontein and the De Doorns area, but extending further inland too, toward Sutherland and Komsberg (Smith pers. comm.).

8.2.4 Section 5

Section 5 is located in the Karoo Supergroup, made up primarily of sandstones and shale (known as the Beaufort Group). The area around Beaufort West for example, is the richest collecting ground for mammal and reptile-like fossils (or Karoo vertebrates) in the world. The fossils found in this area are approximately 250 million years old.

The upper escarpment, kopjes, ancient river valleys and washouts, are all sensitive areas and considered to be highly collectable fossil sites (Smith pers. comm.).

Fossils have been found on a number of farms in the study area, including Rietfontein, Waaikraal, Kuilspoort, La-De-Da and Spitskop. Vindragersfontein is a well-known locality where extensive collections have been done (Smith pers.

comm.). The Karoo National Park outside Beaufort West is also well known for its rich diversity of fossils

8.3 Historical sites

Historical sites refer to buildings, graves, cemeteries, built structures and features in the landscape which have historical significance.

8.3.1 Section 1

The Groot Oliphantskop homestead is located on the site of the proposed Gamma substation (Kaplan 1996). Built with `opgekleide' walls, possibly around the late eighteenth or early nineteenth century, the farmhouse currently retains a T-form shape, but was originally L-shaped or even straight. Also of interest is a building behind the main house with riet ceilings, reputed to be older than the main house. (Kaplan 1996).

Despite being altered both internally and externally over time, the farm complex is considered conservation worthy (David Hart, South African Heritage Resources Agency, pers. comm.).

Additional historical features on the farm include two stone lined wells and an old cemetery.

The Mamre Road also passes through the farm, and although not a declared national monument, has been declared conservation-worthy by the South African Heritage Resources Agency (Hart pers. comm.).

According to the addendum to the Gamma-Omega draft scoping report (2001:34-35) the old transport route over the Porseleinberg may be impacted by the proposed Central Route. No evidence of the route was noted during the field study, and the route has most likely been destroyed by farming and related activities.

The Central Route also passes over a dilapidated Cape Dutch thatched-roof farmhouse on the farm Koomandsdrif on the Porseleinberg Road.

The proposed Central Route in Section 1 passes south of nearby Sonquasdrift, a ford across the Berg River that was used by the Dutch as was one of the routes used to gain access to the mountains and the Tulbach valley to the east. It remained an important Dutch outpost in the eighteenth century (Deacon 1993). In May 1701, it was attacked by the Ubiqua Khoikhoi who drove away most of the Dutch cattle (Smith et al 1991).

Bushmans Rock near Gouda is a prominent flat topped sandstone outcrop situated alongside the railway line (in the Central Route). It is here, at the entrance to Tulbach Kloof, in 1738, that the head and right hand of Ettienne Barbier, a Dutch renegade, was staked on a pole, as a warning to offenders, not to undermine the authority of Cape Dutch rule (Mossop n.d.).

The Southern Alternative in Section 1 will very likely impact on the `sense of place' of the historic farm Bartholomeus Klip. The earliest buildings on the farm, including the Cape Dutch homestead known as Bosplaas, date to around the 1700's. The outbuildings on the farm, which include the stone built sheds and storerooms, were constructed around the 1800's. According to farm manager, Mike Gregor (pers. comm.), visitors to the guest farm already comment on the unsightly feature of the existing 400 Kv Transmission line.

8.3.2 Section 2

The farm Elandsfontein on the Op Die Berg-Citrusdal road, occurs in the proposed Northern Alternative. The farm complex may be significant, and a number of buildings, including the homestead, have been renovated and restored.

Sensitive historical sites were also visited at Steinthal and Slagterspad (Tulbach) in the Central Alternative and Central Route respectively.

The Steinthal mission settlement was established for freed Cape slaves in 1843 (Dominee Dreyer, pers. comm.). It has the customary thatched and whitewashed cottages, several of which are in bad condition. Most of the buildings were destroyed in the earthquake of 1969 (Fransen and Cooke 1980). The remaining building (currently the community library) was declared a national monument in 1999.

The addendum to the Gamma-Omega draft scoping report (2001:34-35) reports that there are historically sensitive sites in the Agter Witsenberg mountains, including a VOC canon (dated ± 1734), and the remains of a British fort. According to Dominee Dreyer (pers. comm.), the old wagon trail to Wuppertal is also located in the mountains behind Steinthal.

In 1658, Sergeant Jan van Harwarden led an expedition on behalf of Jan van Riebeek to find a way through the mountains in order to access the fabled gold fields of Monomotapa. Thus Slagterspad (or Oude Kloof) between Gouda and Tulbach was built, and is reputed to be one of the oldest mountain passes in the country (Mossop n.d).

8.3.3 Section 3

The Karoopoort Outspan (declared a national monument in 1981), is located alongside the Southern Alternative on the R46. The outspan, comprising a werf wall enclosing two buildings (a thatched roof langhuis and a large rectangular outhouse with tin roof), was used by early travellers to the north and was described by Burchell (1822).

8.3.4 Section 4 and 5

No known historical sites occur in the proposed Central route (David Morris, McGregor Museum, Kimberley, pers. comm.). Unknown South African Anglo-Boer war graves may, however, occur in the study area.

9.0 `RED FLAG' AND `NO GO' AREAS

A sensitivity map for cultural heritage resources is illustrated in Map 5.

9.1 Archaeology

9.1.1 Section 1

The Porseleinberg is regarded as a Moderate to High `Red Flag' area.

9.1.2 Section 2

The Bokkeveld, Agter Witsenberg and Ceres mountains are regarded as Moderate to High `Red Flag' areas.

9.1.3 Section 3

The low-lying mountains on the western boundary of Section 3 are regarded as a Moderate `Red Flag' area.

9.1.4 Section 4

The Komsberg and Moordernaars Karoo are regarded as a Moderate to High `Red Flag' area.

9.1.5 Section 5

The mountainous areas of the Great Karoo are regarded as a Moderate to High `Red Flag' area.

9.2 Palaeontology

9.2.1 Section 1

No `Red Flag' or `No Go' areas occur in Section 1 (Dave Roberts pers comm.).

9.2.2 Section 2

Section 2 is regarded as a Moderate to High `Red Flag' area (Roger Smith, pers. comm.).

9.2.3 Section 3

Section 3 is regarded as a Moderate to High `Red Flag' area (Roger Smith, pers. comm.).

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9.2.4 Section 4

Section 4 is regarded as a Moderate to High `Red Flag' area (Roger Smith, pers. comm.).

9.2.5 Section 5

Section 5 is regarded as a Moderate to High `Red Flag' area (Roger Smith, pers. comm.).

9.3 Historical

9.3.1 Section 1

Groot Oliphantskop, Koomandsdrif, Bartholomeus Klip and Bushmans Rock are all regarded as Moderate to High `Red Flag' areas.

9.3.2 Section 2

Slagterspad/Oude Kloof, Steinthal, the Agter Witsenberg, and the Ceres Mountains, are regarded as Moderate to High `Red Flag' areas.

9.3.3 Section 3

The Karoopoort Outspan is regarded as a `Red Flag' area.

9.3.4 Section 4

No `Red Flag' or `No Go' areas occur in Section 4.

9.3.5 Section 5

No `Red Flag' or `No Go' areas occur in Section 5.

10.0 IMPACT DESCRIPTION AND ASSESSMENT

A summary of the significance of the archaeological, palaeontological and historical impacts is presented in Tables 1,2 and 3.

Impact assessment descriptions of the archaeological, palaeontological and historical impacts are presented in Tables 4-30.

10.1 Section 1

Archaeology - other than the Porseleinberg, the potential impacts in Section 1 are regarded as Low.

Palaeontology - the potential impacts in Section 1 are regarded as Low.

Historical - other than the farms Groot Oliphantskop and Koomandsdrif, and Bushmans Rock and Slagterspad/Oude Kloof in the Central Route, and Bartholomeus Klip farm in the Southern Alternative, the potential impacts in Section 1 are regarded as Low.

10.2 Section 2

Archaeology - the potential impacts in Section 2 are regarded as High-Medium.

Palaeontology - the potential impacts in Section 2 are regarded as High

Historical - the potential impacts in Section 2 are regarded as High-Medium.

10.3 Section 3

Archaeology - the potential impacts in Section 3 are regarded as High-Low.

Palaeontology - the potential impacts in Section 3 are regarded as High.

Historical - other than the Karoopoort Outspan in the Southern Alternative, the potential impacts in Section 3 are regarded as Low.

10.4 Section 4

Archaeology - the potential impacts in Section 4 are regarded as High-Low.

Palaeontology - the potential impacts in Section 4 are regarded as High.

Historical - the potential impacts in Section 4 are regarded as Low.

10.5 Section 5

Archaeology - The potential impacts in Section 5 are regarded as High-Low.

Palaeontology - The potential impacts in Section 5 are regarded as High.

Historical - The potential impacts in Section 5 are regarded as Low.

11.0 RECOMMENDED MANAGEMENT ACTIONS

With regard to the archaeological heritage, the following management actions, to be included in the Environment Management Plan, are required.

1. The tower positions in Sections 2-5 should be checked by a professional archaeologist.

2. All proposed new access roads in Sections 2-5 should be checked by a professional archaeologist.

3. All proposed borrow pits and quarries should be checked for archaeological remains.

4. Methods of mitigation could also be determined following pegging of the final route and discussion with the Environmental Control Officer (ECO).

5. A full-time Environmental Control Officer (ECO) is required along the route alignment during vegetation clearing.

6. The ECO is to be briefed by a professional archaeologist what to look out for, particularly during bush clearing.

7. Contractors, staff and plant operators should also be briefed what to look out for, particularly during bush clearing and the construction phase of the project.

8. Heritage remains uncovered or disturbed during bush clearing and earthworks should not be disturbed until inspected by the ECO and a professional archaeologist.

9. Heritage remains should be verified by the ECO during the course of bush clearing.

10. Should any human remains be disturbed, exposed or uncovered during earthworks, these should immediately be reported to the consultant archaeologist, or the office of the South African Heritage Resources Agency (SAHRA) in Cape Town. Contact Mrs Mary Leslie on (021) 462 4502.

    Burial remains should be treated sensitively at all times. Human remains should not be removed until inspected by a professional archaeologist.

With regard to the palaeontological heritage, the following management actions, to be included in the Environment Management Plan, are required.

1. A pre-digging survey of the preferred route, all proposed new access roads and tower site locations, in Sections 2-5, is required.

2. All excavation trenches/cuttings, borrow pits and quarries in Sections 2-5 are to be inspected for fossil remains.

3. Dr Roger Smith of the Department of Karoo Palaeontology at the South African Museum in Cape Town (021 424 3330) should be consulted further with regard to the potential palaeontological impacts arising out of the proposed project.

4. Methods of mitigation could also be determined following pegging of the final route and discussion with the Environmental Control Officer.

With regard to the historical heritage, the following management actions, to be included in the Environment Management Plan, are required.

1. Mr David Hart, Acting Regional Manager of SAHRA, is to be consulted with regard to potential impacts arising out of the proposed project.

   These include possible impacts on the `sense of place' on the farms Groot Oliphantskop, Koomandsdrif and Bartholomeus Klip in Section 1, Elandsfontein and Steinthal in Section 2, and the Karoopoort Outspan in Section 3.

   Mr Hart can be contacted on (021) 462 4502.

2. Additional methods of mitigation can be determined following the planning and design of the preferred route.

The above recommendations are subject to approval of the South African Heritage Resources Agency.

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Appendix 2

iLifa leMveli leNtshona Koloni
Erfenis Wes-Kaap
Heritage Western Cape

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Tel: 021 483 9685
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Cape Town, 06 June 2007

Mr. Ernest Grunewald
Senior Consultant: Land & Rights
Eskom Transmission
P.O. Box 1091
Johannesburg
Ernest.Grunewald@eskom.co.za

Dear Mr. Grunewald,

Re: PROPOSED CONSTRUCTION OF A 765KV ESKOM TRANSMISSION POWER LINE BETWEEN THE PROPOSED GAMMA (VICTORIA WEST) AND OMEGA (KOEBERG) SUBSTATIONS

Our telephonic discussion on 22nd of May 2007, an e-mail of the same date, the subsequent meeting we had at our offices in Cape Town (29 May 2007), together with the archaeologist for the project, Mr. J. Kaplan and the second e-mail you sent on the 30th of May 2007 refers.

Heritage Western Cape (HWC) is the Provincial Heritage Resources Authority, established in terms of the National Heritage Resources Act (Act 25 of 1999) in January 2003. HWC, as a public entity, is mandated to promote co-operative governance between national, provincial and local authorities for the identification, conservation and management of heritage resources. On the basis of its jurisdiction, HWC notes the following:

1. The Department of Environmental Affairs and Tourism issued a Record of Decision (ROD) on 12 June 2006. This ROD [Ref: 12/2/20/99/10 (A24/16/3/190/10)] was based on the following:
    a. The Environmental Impact Report (EIR) of March 2002, which included various specialists' reports, i.e. Heritage Management Plan.
    b. The proposed powerline, about 550kms in length, is intended to provide to meet the electricity demands of South Africa, which has had various challenges regarding the provision of electricity.
    c. The Gamma-Omega 765kV transmission powerline is a major component of the Cape Strengthening Programme being undertaken by Eskom Transmission. It is aimed at improving the reliability of the existing network and to upgrade the capacity of the network to the Western Cape to meet the increased demand for reliable supply of electricity.
2. Within the 30-day appeal period, a total of about 61 appeals were received. Some of the appeals were based on the fact that there were concerns with the inadequate heritage assessment done for the proposed powerline.
3. Eskom Transmission had earlier engaged Mr. J. Kaplan of the Agency for Cultural Resource Management (ACRM) to assess the potential heritage impacts of the proposed powerline. In return, he produced a document titled Heritage Management Plan. This report was not adequate on the basis of some the following reasons:

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Straatadres: Protea Assuransie-gebou, Groentemarkplein, Kaapstad, 8000 • **Posadres:** Privaatsak X9067, Kaapstad, 8001 • **Tel:** +27 (0)86 142 142 • **Fax:** +27 (0)21 483 9842 • **E-pos:** hwc@pgwc.gov.za

a. Review of the proposed routes was severely constrained, and therefore, only a cursory assessment was undertaken. No reasons are given for such constraint. The heritage assessment only took four days.
b. Major focus was on the archaeological heritage, and only to a less extent about historical, built environment and palaeontological resources.
c. The decision to select particular locations within various sections was not clearly indicated. It is therefore difficult, if not impossible, to assess whether the study covered all the various potential impacts on heritage resources.
d. The route assessed, even though the assessment was not adequate, provides an indication that archaeological, historical and palaeontological heritage would be affected in one way or the other. Detailed mitigation measures are not provided.

4. South African Heritage Resources Agency (SAHRA) was approached for comment on the proposed powerline from 2001. Details supplied by Eskom Transmission to HWC clearly indicate that there were a number of communication exchanges between the consultants (PD Naidoo & Associates) and SAHRA.
    a. On the 2nd of August 2001, SAHRA requested a Phase 1 Archaeological Impact Assessment (AIA) and provided a description of what this study should entails when they were requested to define what the Phase 1 AIA means.
    b. On the 3rd of April 2002, SAHRA commented further:
        i. "Given the magnitude of this project, and the potential of such a powerline to severely negatively impact the heritage value of its surrounding area, it is requested that a recognised heritage practitioner form part of the team dealing with the EIA. The heritage issues that need to be addressed involve issues ranging from archaeology, palaeontology, the built environment, the cultural landscape, visual impacts, sense of place, scenic routes as well as possible issues around cultural or spiritual association".

        It seems that by this time (3rd of April 2002), Eskom Transmission had already commissioned Mr. J. Kaplan to produce the Heritage Management Plan, which is dated December 2001.
    c. There seems to have been no final comment made by SAHRA on the application, after reviewing the Heritage Management Plan. This is an indication that Eskom Transmission fulfilled the requirements of the law as far as heritage resources are concerned, by consulting with SAHRA, in the absence of the Provincial Heritage Resources Authority (PHRA) – in this case HWC that only came into existence in 2003. It should be noted that this was during the lacuna period, whereby SAHRA could not comment.

From the above information, HWC comments as follows:

1. A detailed Heritage Impact Assessment (HIA) would have to be undertaken. This HOA should discuss heritage ranging archaeology, palaeontology, the built environment, the cultural landscape, visual impacts, sense of place, scenic routes as well as possible issues around cultural or spiritual association, as initially requested by SAHRA in 2002.
2. Included in the HIA, a palaeontologist must provide a Palaeontological Impact Assessment (PIA) – only desktop study, of the powerline route. The Phase 1 AIA to assess archaeological impacts must also be part of the HIA.
3. The compiled HIA must be submitted to HWC for comment.
4. The HIA should use the Heritage Management Plan compiled by Mr. Kaplan as the benchmark.
5. A Virtual Impact Assessment (VIA) was undertaken during the previous EIA process, which the current ROD was based. The HIA should assess the validity of this VIA,

considering the changes to the route that have been made since the study was carried out. If it is deemed to be still adequate, then it must be submitted to HWC together with the HIA.

6. HWC supports a conditional ROD, rather than a suspension of the current ROD dated 12 June 2006. The conditional ROD must indicate that Eskom should re-assess the potential heritage impacts of the Gamma-Omega powerline by compiling the HIA. Such assessment should form part of the Environmental Management Plan (EMP). The EMP will then have to be approved by DEAT, in consultation with HWC, before construction of the line can commence.

Please do not hesitate to contact me if you have any enquiries with regards to the above.

Yours faithfully,

Ndukuyakhe Ndlovu
Senior Heritage Officer: Archaeologist

Cc: JC Agenbach, DEAT, cagenbach@deat.gov.za; Fax: 012 320 7539
Mmamoloko Seabe, Land & Rights Manager (Eskom), Jeanette.Seabe@eskom.co.za

APPENDIX 4: PHOTOGRAPHIC SURVEY

MORPHOLOGICAL ZONE	LANDSCAPE SETTING AND HERITAGE RESOURCE
A. SWARTLAND	
	A.1 GROOT OLIPHANTSKOP
	A.2 KOEBERG

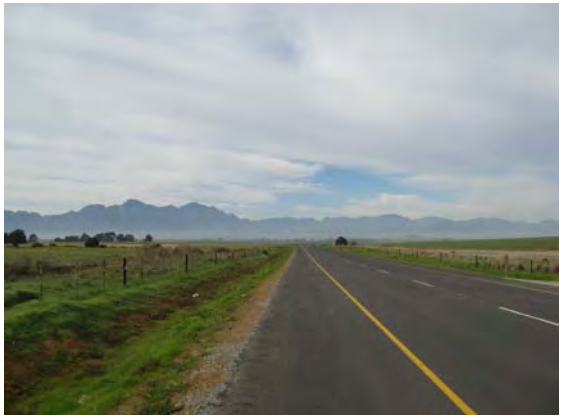
Undulating topography typical of Swartland

Botterberg homestead

Philadelphia town

View of Swellengift from old Cape Road

Distant views of Table Mt along Old Cape Road

MORPHOLOGICAL ZONE	LANDSCAPE SETTING AND HERITAGE RESOURCE
A. SWARTLAND continued	A.3 PAARDEBERG SLOPES  Views along the R302 towards Paardeberg Existing transmission line crossing the R302 with Paardeberg in background
	A.4. MALMESBURY FOOTHILLS View from the R46 towards Malmesbury foothills
	A.5 KASTEELBERG-PORSELEIN BERG

MORPHOLOGICAL ZONE	LANDSCAPE SETTING AND HERITAGE RESOURCE
A. SWARTLAND continued	A.6 BOTMASKOOF PASS View across Malmesbury Foothills from base of Botmaskloof Pass View across Berg River Valley from base of Botmaskloof Pass
	A.7 BERG RIVER CORRIDOR Klein Eikeboom homestead Eikeboom outbuilding Bosplaas homestead
	A.8 ELANDSKLOOF-BARTHOLOMEUSKLIP Bosplaas Nature Reserve Bosplaas homestead (front) Bosplaas homestead (rear)
	A.9 ELANDSKLOOF PASS

MORPHOLOGICAL ZONE	LANDSCAPE SETTING AND HERITAGE RESOURCE
A. SWARTLAND continued	A.10 NUWEKLOOF PASS Nuwekloof Pass Base of the Nuwekloof Pass at entrance to Tulbagh Valley
B. MOUNTAIN REGION	
	B.1 TULBAGH VALLEY View from western approach road to Tulbagh showing approximate location of proposed transmission line

MORPHOLOGICAL ZONE	LANDSCAPE SETTING AND HERITAGE RESOURCE
B. MOUNTAIN REGION continued	B.1. TULBAGH VALLEY continued View from eastern approach road to Tulbagh showing approximate location of proposed transmission line Witzenberg backdrop to Tulbagh Valley
	B.2 WOLSELEY VALLEY Existing transmission line through the Wolsley Valley

MORPHOLOGICAL ZONE	LANDSCAPE SETTING AND HERITAGE RESOURCE
B. MOUNTAIN REGION continued	B.3 WITZENBERG PASS
	B.4 WITZENBERG VALLEY Existing transmission line through the Witzenberg Valley
	B.5 GYDO PASS View from Gydo Pass over Ceres Valley

MORPHOLOGICAL ZONE	LANDSCAPE SETTING AND HERITAGE RESOURCE
B. MOUNTAIN REGION continued	B.5. GYDO PASS continued Top of the Gydo Pass showing approximate location of proposed transmission line
	B.6. GYDO VALLEY Views of the Gydo Valley and approximate location of proposed transmission line

MORPHOLOGICAL ZONE	LANDSCAPE SETTING AND HERITAGE RESOURCE
B. MOUNTAIN REGION continued	B.7. CERES FARMLAND

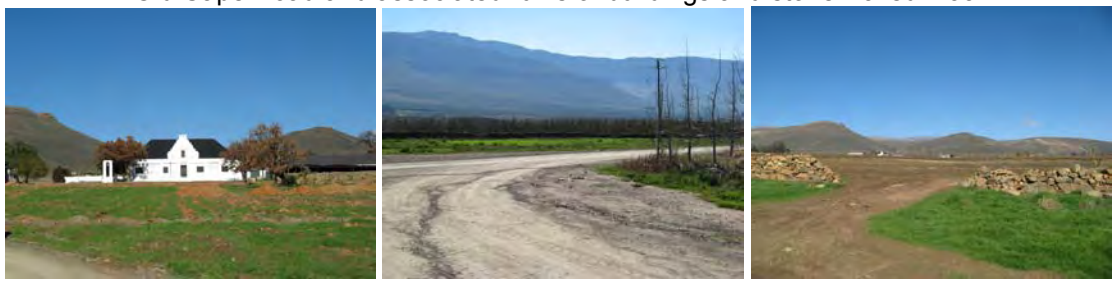
View from the R303 showing approximate location of proposed transmission line through Ceres Farmlands

Existing transmission line through Bella Vista

MORPHOLOGICAL ZONE	LANDSCAPE SETTING AND HERITAGE RESOURCE
B. MOUNTAIN REGION continued	B.8 THERONSPASS Existing transmission line parallel to Therons Pass
B.9 HOTTENOTSKLOOFPASS	 Historical building at base of Hottentotskloof Pass

MORPHOLOGICAL ZONE	LANDSCAPE SETTING AND HERITAGE RESOURCE
B. MOUNTAIN REGION continued	B.10 BO-SWAARMOED VALLEY

Old Cape Road and associated ruins of buildings and stone walled kraal



Matjiesfontein homestead and surrounding landscape setting

MORPHOLOGICAL ZONE	LANDSCAPE SETTING AND HERITAGE RESOURCE
C. CERES KAROO	
	C.1 KAROOPOORT

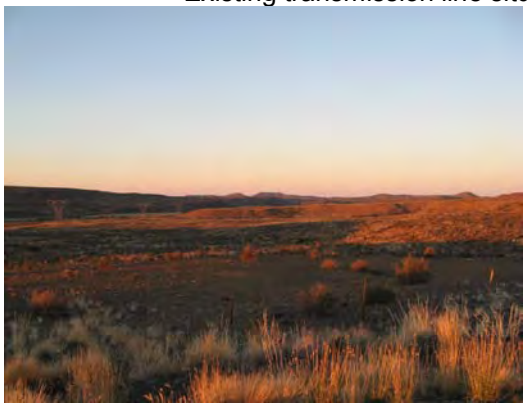
Views towards Karoopoort from Old Cape Road along the Bo-Swarmoed Valley
Existing transmission line through the Karoopoort

Old toll house and surrounding landscape setting
Existing transmission line through the Karoopoort

LANDSCAPE SETTING	HERITAGE RESOURCE
C.CERES KAROO continued	C.2. PLATKOP OUTSPAN

Existing transmission line parallel to historical route through the Ceres Karoo

Platfontein homestead and associated graveyard

MORPHOLOGICAL ZONE	LANDSCAPE SETTING AND HERITAGE RESOURCE
D. MOODENAARS KAROO	
D.1 SMITWINKEL LOAN FARM	
E. GREAT KAROO	
E.1 MERWEVILLE	Existing transmission line situated within 5km of Merweville  View of Merweville from approach road off the N1
E.2 BEAUFORTWEST	
E.3 THREE SISTERS	

APPENDIX 5: HISTORICAL CHRONOLOGY

SECTION 1: Melkbosstrand to Witsenberg Mountain range

Period	Role/Theme	Associations/ People/Events Activities/Elements/Buildings	Nature of significance	Material evidence Physical/Documentary
Precolonial	Traditional hunting and grazing territory for indigenous groups	The study area has a long history of human occupation. Stone artefacts dating to the Early Stone Age (700 000 years ago) and the Middle Stone Age (150 000 – 30 000 years ago) have been found in agricultural fields, along river banks and mountain slopes. From 30 000 years ago the area was populated by people who lived in caves and shelters and hunted wild animals and gathered wild plant foods (Bushmen or San). At about 2000 years ago, Khoekhoe or herders moved into the region. The Khoekhoen herds competed directly with the wild game for grazing and gradually the Bushmen were displaced, moving to mountainous areas unsuited to the Khoekhoe and their herds.	The tension between groups of indigenous people is indicative of the competition for natural resources.	Rock painting sites at Wemmershoek Dam and Bainskloof, as well as possible sites on Paarl Mountain have been reported. The tension between the Bushmen and the Khoekhoe is illustrated by the names by which the Khoekhoe called the Bushmen. 'Oubiqua' or 'Sonkwa' in the Khoekhoen language meant 'murder'. The collective name given to the Bushmen by the Khoekhoe, San, is also a derogative term[1].
Dutch 17th century	Traditional grazing land of Khoekhoe. Arena for stock trading between Khoekhoe and VOC representatives and (illegal) freeburghers.	Gonnema's kraal was thought to be in the vicinity of present day Riebeeck Kasteel.	Landscape forming interface between Bushmen, Khoekhoe and VOC stock traders and illegal stock farmers.	An archaeological site at Voëlvlei dam shows evidence of trade between freeburghers and indigenous groups.
		1700 VOC outposts established at Sonquasdrift, Riebeeck Kasteel and Vogel Vlei (Voëlvlei) and in the Tulbagh area. Just beyond the Pass. The purpose of these outposts were (i) acquire cattle and stock from Khoekhoe (ii) to defend the settlements from possible attacks. By 1705 these outposts were closed as they no longer had a role to play. The outposts no longer had contact with cattle owning Khoekhoe, who were in any case no longer presented a military threat. The outposts were then granted as farms.	Mountain passes, such as Du Toit's Kloof , Sebastiaans Kloof, Elands Kloof Pass and the Roodezands Kloof, in all likelihood had their roots in Khoekhoe and Bushman paths across the mountains.	Khoekhoen kraals have been difficult to locate: society was characterised by high mobility. Whatever ephemeral evidence may have remained would be destroyed through subsequent ploughing and development of agricultural fields. Place names such as Sonquasdrift, Hawequa- and Obiqua Mountain remain as testimony to the indigenous inhabitants of the region.

[1] The relationship between the Dutch and the Bushmen was marked with mutual aggression. The Bushmen, already under environmental pressure from the Khoekhoen herds, fiercely defended what was increasing becoming their last strongholds. When the stock farmers started encroaching into the interior, they were attacked and their cattle stolen. During much of the 18th century commandos were organised by freeburghers, to punish (effectively massacre) Bushmen groups that were seen to be harassing farming settlements.

		1700 – 1714 expansion of stock farmers into Tulbagh area.	It was common for established farmers to acquire farms in the outlying areas for the purpose of grazing their stock. It was usual for land that was not situated close to water to be granted as loan farms (under the Dutch) or in quitrent (under the English) and to be used to graze stock.	
Dutch: 18th century	Expansion of settlements into the interior – shifting of the settlement boundaries	1743 establishment of Church at Swartland. Church was built on land of Widow vd Westhuisen, Welvergenoegd). Parsonage built 1771.	Malmesbury established as a church town to service farmers of the Swartland area.	
		1743 establishment of church town at *Roodezand* in *Het Land van Waveren* (Tulbagh). The church was completed in 1748. The original parsonage was replaced in 1769. Although small, a town had already been established by the end of the 18th century with Church Street as its main axis.	Tulbagh established as church town to service farmers of the Hantam region.	Early farms in the Tulbagh area *Kruisvallei, Meulstroom* and *Dennelaan* (Aikman n.d.)
		c1800, town at Swartland, very small, consisting of only church, parsonage and a handful of houses.		
	Establishment of administrative centres	In 1804 Tulbagh was proclaimed a drostdy and its district extend northwards to the Hantam. Renamed Tulbagh in honour of Governor at the Cape, Ryk Tulbagh.		Drostdy was originally situated just to the north of the village of Tulbgh.
		1819 Worcester was initially proclaimed a sub-drostdy of Tulbagh. After a storm in 1822 the drostdy was shifted to Worcester. Tulbagh downgraded.		
British: 1806 – 1850		1827 Malmesbury proclaimed a town, and church ground subdivided and put up for sale and officially named in 1829 by Sir Lowry Cole.	Development of Malmesbury as town dating to 19th century	
		Early 19th century Cloovenburg, Allesverlooren, Goedgedacht granted in the vicnity of Riebeeck West.	White werf walls of Allesverlooren and Cloovenburg landmarks	
	Establishment of	Abolition of slavery in 1824 lead to the liberation of slaves at the	Profound effect on the	Mamre, Hermon, Saron, Steinhal

	Mission villages	Cape in 1834. Steinthal was established in 1843 by the Rhenish Mission Society on the original farm *Witzenberg.*	architecture of the landscape. Prior to the abolition of slavery, slaves were housed either in the dwelling house (17th century) or in a separate building within the werf (18th and early 19th century). After the abolition, small cottages were built to house the freed slaves. On the farms, these cottages were removed from the werf. Many freed slaves chose to move to a number of mission stations rather than return to the farms on which they had previously lived[2].	
	Formalisation of road network	c1850 The establishment of the Road Management Board		
1851 – 1900		1855 proposal to use part of farm Allesverloren to establish a church town. Congregation finally formed in 1858.	Mid Victorian village develops at Riebeeck West[3].	
		1858 Philadelphia established as a church town to service the needs of the farming community at Koeberg. Portion of the farm Dassenberg acquired for this purpose. Permission was only granted in 1863.		
	Establishment of rail network	1863 Railway line form the Cape reached Wellington		
		1863 separate parish established at Riebeeck Kasteel.		
		1866 Diamonds discovered in Kimberly	Demand for timber in construction of railway line as well as in mining operations lead to plantings of gum and pine in the Tulbagh valley (Aikman n.d.) Wood also important as source of packaging material during the 19th century.	Commercial forests along mountain slopes of Tulbagh and Wolseley (Aikman n.d.)

[2] The success of the Moravian mission stations largely paved the way for similar mission stations under the auspices of Mission Societies.

[3] Divisional maps c1880 show original village at Riebeeck West as 'Ribeeck Kasteel'. No village shown at present site of Riebeeck Kasteel.

		1870 Mission station associated with the DRC Wellington established at Hermon on the farm Rondeklip		Described by Attwell & Jacobs (2003) as 'Capsule of late 19th century rural life'
		1873 Railway line reaches Tulbagh		
		Bulpin (2001) states that Gouda was established on a farm of the same name and that it had its origins in a railway siding and station called Porteville road.		Payne & Dixon Military survey 1809 shows a 'cross roads' at the approximate location of Gouda. Near the foot of the Roodezand Pass. It is possible that this served as an informal outspan before attempting the pass. More research is needed to confirm this.
1900 – end of WWII		During the Anglo-Boer War, a number of blockhouses were built to protect the railway line. The most southerly on these blockhouses are found to the north of Wellington.		
Post WWII				
Apartheid era c1950	Racial segregation legislated	Group Areas Act	Separate urban development	eg Wesbank and Malmesbury; Wizenville and Tulbagh
		1971 the Voelvlei dam was completed.		
Post-apartheid	Repeal of discriminatory apartheid laws	Reconstruction and Development Programme implemented	RDP housing developments on outskirts of towns	Eg Chris Hani township outside Tulbagh

Section 3, 4 & 5: Ceres to Victoria West

Period	Role	Associations/ People/Events Activities/Elements/Buildings	Nature of significance	Material evidence Physical/Documentary
Precolonial	Grazing land and hunting grounds for indigenous groups.	The name 'Karoo' has its roots in the Khoisan word meaning 'place of great dryness. The Karoo consists of various regions: Ceres Karoo, Tanqua Karoo, Roggeveld, Mordenaars Karoo and the Koup. In the late 16th century, conditions in the Karoo became drier and herders and hunter gatherers who lived in the region moved out. By the late 17th century, conditions improved, but only the hunters moved back. The herders had established themselves in the more water rich southern Karoo and the coastal plains.		Recorded in historic descriptions as 'Caro'. Rock painintgs and engravings are found in some areas of the Karoo. This art form continued in to the 19th century. Rock engravings found at Nelspoort. Finger paintings at Stolshoek, Beaufort West.
Dutch: 1652- 1806		During the initial period of settlement at the Cape, interaction between the Khoekhoe and the freeburgher were kept to a minimum and it was illegal for freeburghers to trade with the Khoekhoe. In addition to stockfarmers from the Cape (freeburghers) invading the Karoo from the south west; stockfarmers (Xhosa) from the east were also moving into the interior.		
	Grazing land of Khoekhoe and itinerant stock farmers and hunting grounds of the Bushmen Landscape of resistance and competition for resources	By 1745 itinerant stock farmers had already expanded into the Bokkeveld and Hantam regions. Farmers followed the lifestyle of the Khoekhoe, constantly on the move with their herds. Resistance by Bushmen to the expansion of the trek farmers into the Karoo was particularly fierce between 1785 and 1795 with the establishment of more permanent farm settlements. Trekfarmers were effectively driven out of the Koup until the end of the 18th century.	Farms without exception were laid out around water sources, alienating indigenous groups to access to water. As was the case in the Overberg, slaves were in very short supply and the shortfall was made up by local Khoisan[4].	Hooyvlakte registered as a loan farm in 1760 to Jacob de Clerq. The farm was situated at the Gamka fontain, the Gamka River until 1860 was perennial, and an additional 4 springs were situated close by at the Kuils River. De Clerq established a fruit farm along the banks of the Gamka River. A system of leiwater furrows irrigated the trees. Some of these furrows may even date to the 1760s. Dried fruit was sold in Cape Town. He had numerous slaves and according to Vivier (1968) a large bushmen encampment to the west of the Gamka

[4] Dutch period Commandos, established initially to protect farmers from the attacks of Bushmen raiders, evolved into little more than raids stealing women and children to be used as indentured labour on frontier farms. During the British occupations, Bushmen were lured to the farms by promises of food, gifts of tobacco and beads.

				River provided some of the seasonal labour.
British: 1806 – 1850		1818 new administrative centre established at Beaufort (West) on the farm Hooyvlakte. Existing farm buildings converted into dwellings. The farm werf situated towards the north of the village served as temporary drostdy.	The Karoo, although fertile, is prone to drought. Permanent settlement of the region has only been a feature of the 19th century with towns being established near permanent water sources.	Beaufort West Town hall c1866 was first to be built in the Karoo.
		1818 Mission station established on farm Kookfontein, Beaufort West, but abandoned after only 3 years		
		1836 merino wool sheep introduced to the Karoo by Arthur Kinnear. Becomes and important economic product.		
		1837 Beaufort West is the first Municipality to be established		
		1843 church town established at Victoria West on portions of the farms *Zeekoeigat* and *Kapoksfontein*. Town situated around fresh water springs.	Well known as best region for sheep farming.	
		1848 town of Ceres established on the farm Rietvalley. Economy based on dried fruit	Association with Andrew Geddes Bain and Charles Bell.	
1851 – 1900		1855 Divisional Council established at Victoria West		
		1856 Mfecane. Increase in numbers of Xhosa living along the Gamka River		Stone walled kraals associated with 19th century Xhosa communities
		1859 Victoria West and surrounding lands get municipal status. Mention of a 'Hottentot' location near the town of Victoria West.		
		1860s Drought causes economical depression	Prior to this, sheep farming was main agricultural activity	
		1866 Diamonds discovered in Kimberly		
		1864 Ceres becomes a municipality		

		Start of the Ostrich Feather Boom		
		1874 Prince Alfreds Hamlet established on portion of the farm Wagenboomsrivier. Was originally an outspan at foot of the Gydo Pass from where the road continues into the Kouebokkeveld		
		1875 rail link from Cape Town to Ceres	Ceres develops as centre of fruit growing district	
		1880 railway line from Cape Town reaches Beaufort West		
		Height of the Ostrich feather industry boom.		
		1886 Gold discovered at the Witwatersrand. The railway line bypassed Victoria West at this stage. Development of stage coach routes through the Karoo Poort to Victoria West. Ceres and Victoria West important stopovers on the route.		See Hall and Mazell (2005) for colonial period paintings in the Swartruggens Mountains possibly related to stage coaches.
		1891 gold discovered nearby Prince Alfreds Hamlet – short lived.		
		1893 Wolseley was established as a railway centre for the surrounding agricultural areas.		
1900 – end of WWII		During the Anglo Boer War (1899-1901) a line of blockhouses were constructed along the railway line.		2 Blockhouses at Wolseley, Laingsburg, Dwyka, Leeuw Gamka Beaufort West and Victoria West
		1904 railway branch from Calvinia completed to Victoria West		
		1904 Merweville established as a church town to service the trek farmers of the Koup region. The church[5] was built of the farm, Van de Byl's Kraal (owned by Jacobus Johannes le Seuer van de Byl). Van de Byl's Kraal was only acquired by the DR Church in 1904. A 'coloured' settlement developed alongside Merweville. A stone building served as church, which was converted into a consistory	Merweville was named in honour of Ds Pieter vd Merwe who was minister at Beaufort West (1897-1899).	The Koup (area for which Merveville is the centre) has its roots in the Khoisan word 'goup' meaning caulfat, and may refer to the event when the rain is plentiful and the game and stock become fat and sleek.

[5] The church served as a school when not in use as church. The parsonage was built in 1906. A new Church and church hall were built in 1914 and 1916. A new school building was built in 1911.

		in 1923 when a new church building was erected.		
		1912 Railway branch from Wolseley via Mitchell's Pass to Ceres opened		
		1913 Ostrich feather industry crashed. Many farmers bankrupt.	Return to sheep farming as main agricultural activity	
		1929 Railway line extended from Ceres to Prince Albert Hamlet		
Post WWII		1950 dam built of the Gamka River Boom in the wool price		
Apartheid era c1950	Racial segregation legislated	Group Areas Act	Historical labour pools on outskirts of towns eg Kookfontein outside Beaufort West become formalised as so-called 'non-white residential group areas	
		1979 establishment of the Karoo National Park		
Post-apartheid	Repeal of discriminatory apartheid laws	Reconstruction and Development Programme implemented		RDP housing developments on outskirts of towns

Appendix 6:

- Extracts of Issues raised during the EIA Process – Heritage related concerns -**page 33-36**

- Issues raised by appellants in response to the EIA process recorded by Richard Summers (Environmental Lawyer of behalf of the appellants) – **page 37- 41**

- Public comment on the draft Scoping HIA 2008/9 – **page 44-79**

Appendix 6: to Volume 1

Public Comment 2008-9
Final Scoping Heritage Impact Assessment
Gamma-Omega Transmission Line

Submitted to HWC & SAHRA

March 2009

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SECTION M: HIA PUBLIC PARTICIPATION PROCESS

General Introduction

The background to the public participation process has been outlined in Section D of this Report

This section (Section M) records the outcome of the public participation process undertaken as part of the Scoping HIA between November 2008 and January 2009. The public consultation process was limited to the sixty-one appellants who had previously raised their objections during the Environmental Impact Assessment conducted in 2002, at the direct request of Minister Marthinus van Schalkwyk MP (Vide Appendix 3). Section D of this report summarizes the appellants concerns and objections, specifically in relation to heritage issues. Their objections range from challenging Eskom that the EIA process was legally flawed and that the Heritage Impact Assessment, that formed a component of the original EIA, was inadequate.

Heritage Western Cape (HWC) was established in 2003, when the South African Heritage Resources Agency (SAHRA) devolved power to them as a commenting authority to conserve and protect South Africa's heritage resources as part of the National Estate. SAHRA requested that HWC review the Gamma- Omega EIA. They concluded that a more detailed HIA needed to be undertaken and their Record of Decision (ROD 6 June 2007) in which lists a series of recommendations that would be required to finalize the HIA component of the project. (Vide Appendix 2).

Public Consultative Process

As part of the 2008-2009 consultative process, the HIA team met with Richard Summers, the environmental attorney who represents the majority of the appellants. The proposed HIA process and its planned milestones were discussed with him and several appellants who also attended the meeting. The HIA was implemented as a two phased approach, as a draft HIA for submission to the appellants for comment, and a final scoping HIA that include their comments regarding the HIA findings presented to them at a public meeting. On completion of the draft scoping report it was placed on the PDNA internet based FTP site on 6th November 2008, and shortly thereafter it was made available on Eskom's website. Notifications were sent to all parties together with an invitation to attend a public presentation which was to be held on 24th November, 2008, at Morgansvlei Country Estate, just outside of the town of Tulbagh. A total of thirty-six interested and affected parties attended this meeting of which fourteen represented the original appellants. Members of DEAT were also present at the meeting. An attendance register for this meeting is attached in Appendix 6 of this report.

At this meeting presentations were made on the background to the study as well as on how the proposed transmission line fits into Eskom's plans for strengthening the power grid to the Western Cape. This was followed by poster presentations by each of the specialists, who were able to answer questions about their various components of the HIA. Copies of the report were also made available on compact disc and distributed to the public.

At this meeting it was agreed that the period for public comment would extend until 24th December 2008. Requests were made for hard copies of the documentation to be placed in two libraries in Tulbagh. Due to a logistics problem the documents sat

for a period in Ceres and only reached the intended libraries on 12th December 2008. As a result of this, requests were made to extend the period for comment until 31st January 2009. This request was granted.

There were requests for a more detailed visual model of the transmission line and its towers through the Tulbagh valley which would require a further public presentation. In discussions with DEAT it was felt that this would not add particular value or influence the outcome of the study conclusions and as a result has never implemented.

The comments received during the public consultation were collated into a matrix and divided into various categories for ease of response. This matrix, as well as the full transcript of the appellants comments, are included as **Appendix 6**.

Synthesis of the public comment suggests that the major objection to the transmission line relates to the visual impact that it will have on the cultural landscape, which in turn is perceived by the public as a major obstacle in the development of tourism and the economic growth of certain communities along the transmission line.

A further public consultation meeting was held with DEAT on 19th February 2009, at which it was confirmed that, after inclusion of the comments and responses by the appellants into the Draft Scoping HIA Report could now be finalized and be submitted to Heritage Western Cape (BELCOM & APM Committees). Once comment from these authorities was obtained, they would be included into a final Scoping HIA Report to be submitted to the Minister. Any entertainment of additional public comment would be directed to DEAT and be dealt with at the discretion of the Minister.

This consultation process completes the first phase of a two phase HIA process. The current specialist report is submitted as a final scoping report and does not include mitigation measures but recommends that more suitable alternatives need to be determined for the Swartland and Mountain Regions and that this be subject to an integrated HIA/EIA process.

Matrix of Final Comments and Responses (Attached below)

Attached below is a matrix of comments from the public together with final comments and responses from Eskom Holdings, The Visual Impact Assessment Specialist and the Heritage Impact Assessment Specialist.

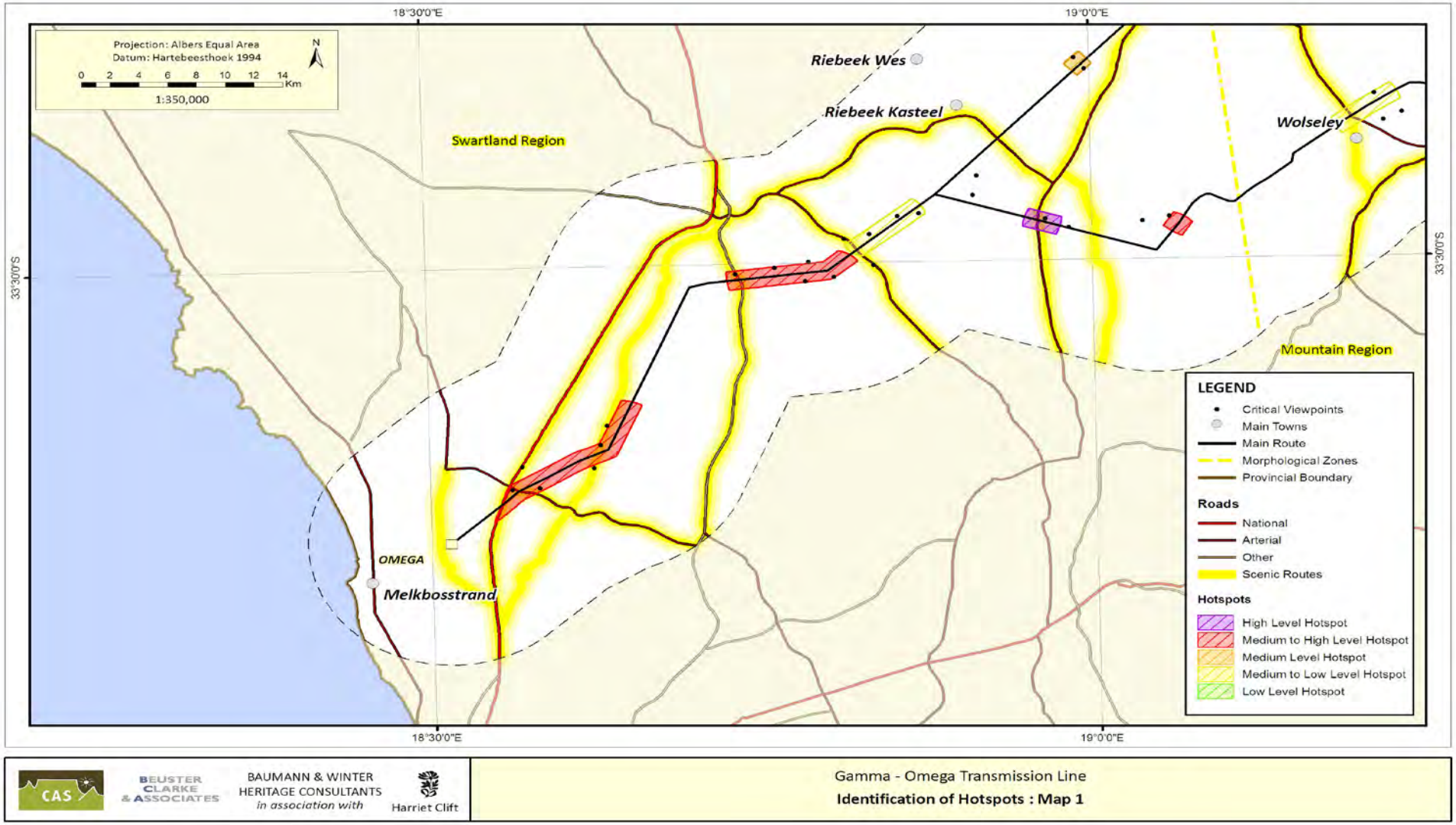


Figure K.1: Identification of Heritage Hotspots

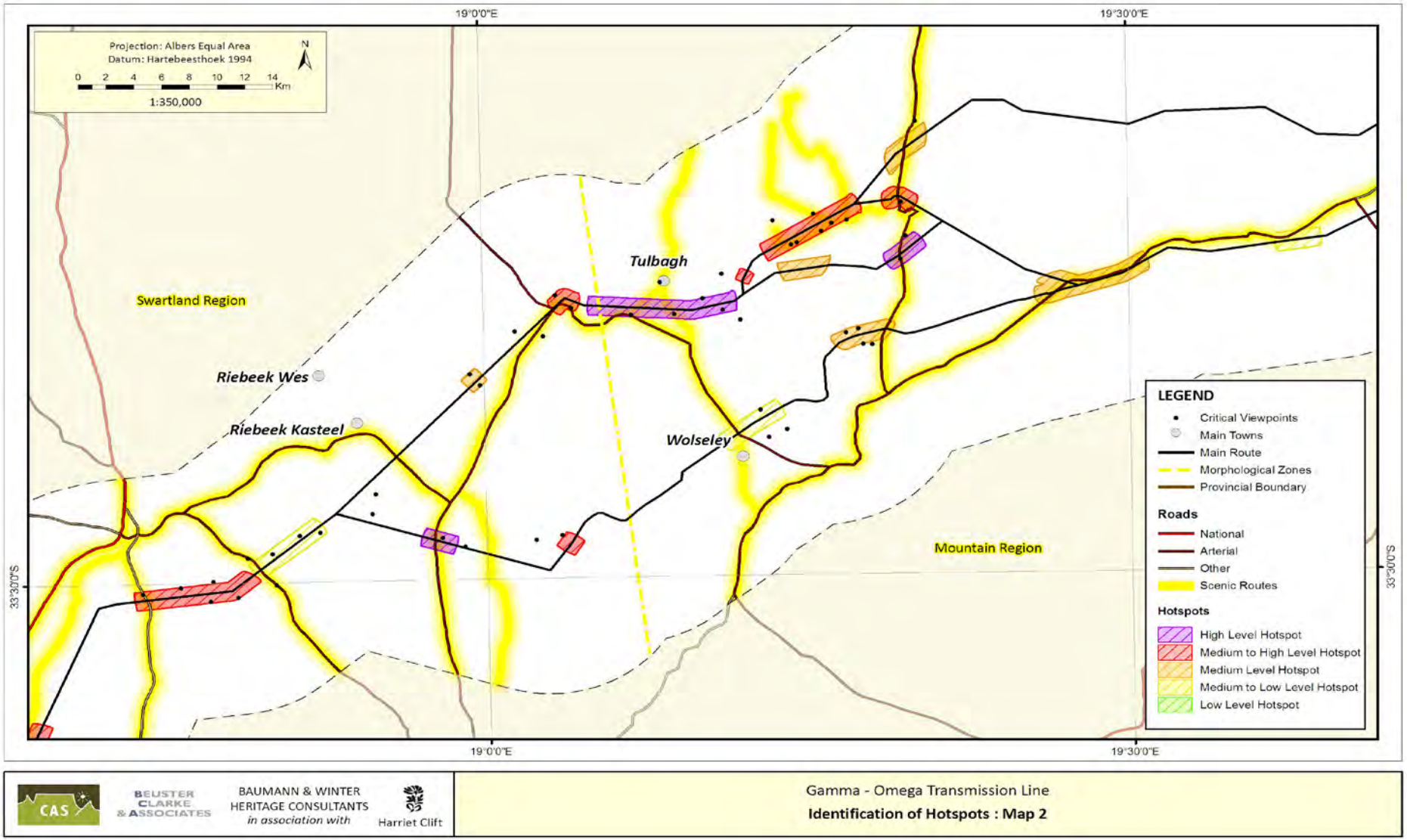


Figure K.2: Identification of Heritage Hotspots

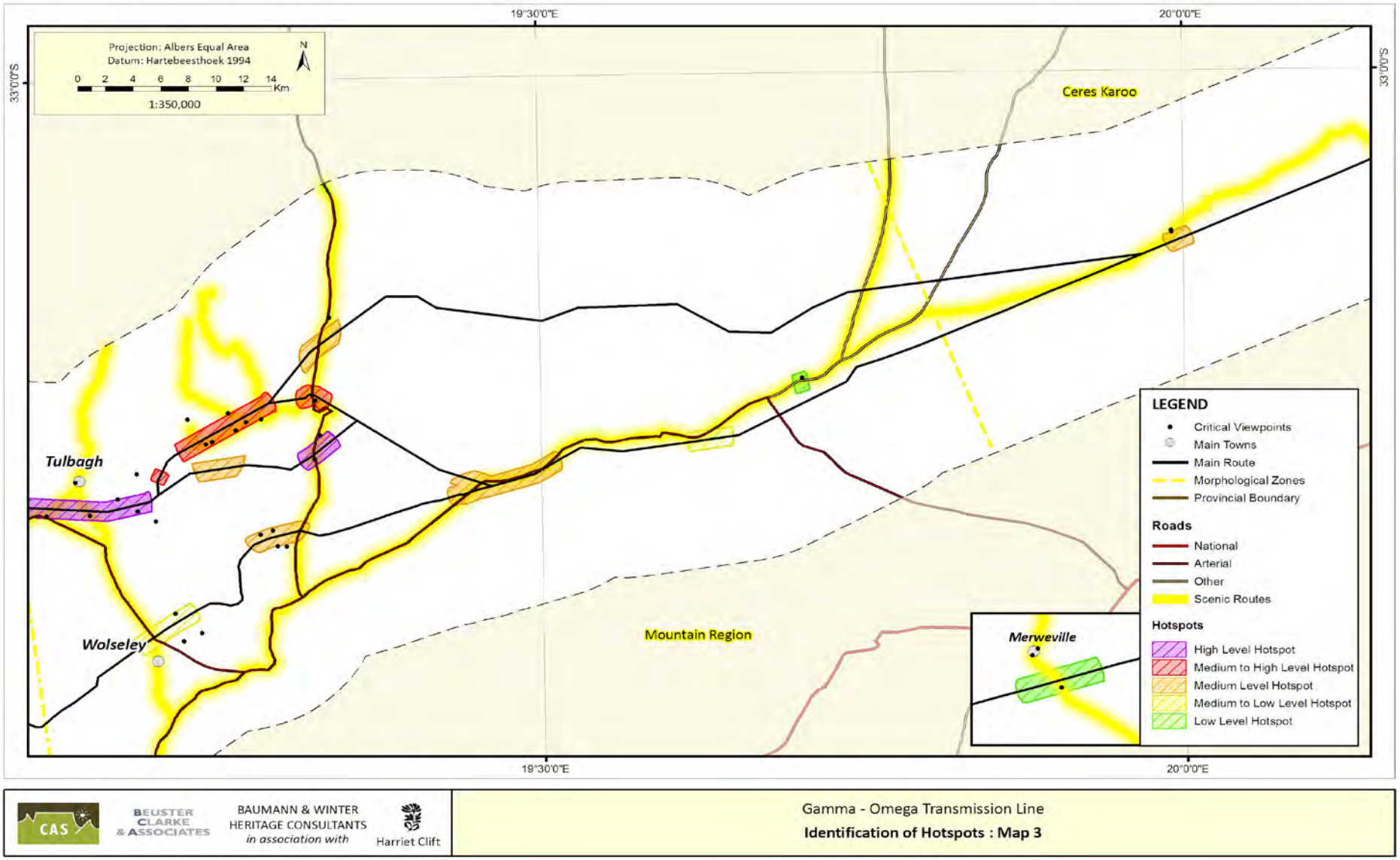


Figure K.3: Identification of Heritage Hotspots

SECTION J: HERITAGE ISSUES AND CONCERNS

This section deals exclusively with issues concerning the built environment and scenic landscape. Palaeontological and archaeological concerns are listed separately in Section K under 'hotspots'.

Table 1 below lists in matrix form the heritage issues and concerns related to the potential impact of the transmission lines on the landscape settings and individual heritage resources identified. Such heritage issues and concerns can be summarized as follows:

- The impact of the lines and pylons on historic farm werfs and their settings, including views to and from such werfs.

- The impact on historic townscapes and approaches towards them, including views both to and from such townscapes and the possible severance factor related to these key visual linkages.

- The impact on identified scenic landscape qualities and on historical scenic routes particularly when the transmission lines run parallel to scenic routes. These impacts are accentuated in the open expansive landscapes associated with the Swartland region and the Karoo where the visual absorption capacity is relatively low.

- The impact on historical mountain passes such as the Nuwekloof Pass, Theronsberg Pass and Gydo Pass. Some of these mountain passes have a rugged wilderness quality, a sense of an environment unchanged over time which would be impacted on by transmission lines and the message of development and changes associated with them.

- Associated with the above are the remote wilderness areas such as the Witzenberg Valley and the potential impacts the transmission lines would have on these pristine landscapes and the sense of isolation and remoteness associated with them.

- Transmission lines, by their nature, provide linkage and connectivity and impact on the sense of isolation and remoteness associated with both the mountainous areas and the Karoo. They will also impact on the sense of continuity and slow and incremental change associated with the historical farmland areas and their embedded werfs and homesteads.

Table 1: Heritage Significance, Issues and Concerns

MORPHOLOGICAL ZONE	CULTURAL LANDSCAPE	LANDSCAPE TYPOLOGY	HERITAGE SIGNIFICANCE	HERITAGE ISSUES, CONCERNS & COMMENTS
A. SWARTLAND	A.1. GROOT OLIPHANTSKOP	• Historical farm werf and setting	• Historical and architectural value of the Groot Oliphantskop homestead dating to the late 18th or early 19th C. Also of significance is a possible earlier building behind the homestead, 2 stone lined wells and cemetery (Kaplan 1996 In Kaplan 2001). Historical scenic value of Mamre Road which passes through the farm. Possible GRADE 3A	• Potential impact of the proposed GAMMA substation on the setting of the Groot Oliphantskop homestead. The substation is part of a separate EIA process. Refer to Figure 36.
	A.2. KOEBERG	• Historical townscape • Productive farmland • Historical farm werf • Scenic landscape • Historical scenic route	• Philadelphia town circa 1864. Sense of containment within a topographical dish. Historical role as a place of worship for the Koeberg farming community. Distinctive townscape qualities in terms of its relatively introverted nature. Probably the smallest formally laid out *kerkdorp* in the Cape. Architectural value of its collection of intact and representative historical buildings. Sense of remoteness away from major centres and being by-passed by the N7. Possible GRADE 3B • Collection of historical farm werfs and associated rural settings related to the Old Cape Road and Diep River, e.g. Botterberg and Swellengift. Possible GRADE 3B • Representative, intact and distinct rural landscape in terms of its productive agriculture, distinctive settlement pattern, undulating topography and experiential qualities of Old Cape road. Possible GRADE 3C.	• Potential impact of the transmission line on the setting of Philadelphia but given the introverted nature of the town impacts may be reduced. • Potential impact of the transmission line on the setting of the Botterberg farm werf (listed in Fransen 2004) particularly in terms of views towards the homestead from the R304. As a general guideline the line should not protrude above the height of the ridgeline of the rise on which the farm werf is located. • Potential severance impact of the transmission line on critical views towards Philadelphia from the N7. • Potential impact of the transmission line on the setting of the Swellengift farm werf particularly in terms of views towards the homestead from the Old Cape Road. The line should thus not protrude above the ridgeline of the topographical backdrop of the farm werf. • Severance impact of the transmission line on scenic landscape qualities especially where it crosses the Old Cape Road and Diep River. The line then runs parallel to the road for a distance of about 1km. However, the line will be screened from view from the road due to topographical conditions. Further mitigating factors are that views are westwards towards the river rather than eastwards towards direction of line. Refer to Figure 37.

G.3 MICRO

At a micro-scale, variations in landform and features such as rocky outcrops and folds in the landscape can be utilised to mitigate the visual impact of pylons and transmission lines from scenic routes, historical settlements and farm werfs.

Careful consideration needs to be

given to the alignment and orientation of adjacent historical farms werfs in the alignment of transmission lines. Historical farm werfs traditionally have a symmetrical arrangement with a strong visual axis usually centred on the front gable of the homestead. Transmission lines should be routed behind these historical homesteads and their associated visual axis. They should never be allowed to bisect such visual axes.

In historical cultural landscapes a pattern is evident in terms of the relationship between wagon routes, watercourses and the location of farm werfs which are often marked by clumps of trees. Every effort should be made to avoid any penetration of pylons and transmission links into these bands of historical and scenic significance.

Where transmission lines are aligned within or adjacent to an existing servitude the pylons should be positioned at similar intervals to reduce the visual impact. Consideration needs to be given, however, to the cumulative impact of such groupings.

The photographs (1-31) and analysis below provide and record of heritage resources in their context

PHOT0 1: BOTTERBERG HOMESTEAD

Botterberg homestead & view from stoep showing approximate position of transmission line. The Botterberg (or Botberg) homestead dated 1788 has high local heritage value – a good 3B, perhaps even a 3A. Altered and stripped of many original features, yet it still reveals a complex layering. Werf has an important relationship with its agricultural and outlook towards the north. A row of gum trees on the eastern side of the werf screen the line from view from inside the werf and also towards the werf from the road. However, views from the werf northwards will be affected by the proposed transmission line.

PHOTO 2: PHILADELPHIA

View from N7 showing Philadelphia, rolling wheatfields and Botterberg showing approximate position of line.

PHOTO 3: SWELLENGIFT FARM WERF

View from Old Cape Road towards the werf showing approximate position of transmission line.

PHOTO 4: DISTANT VIEWS OF TABLE MOUNTAIN FROM OLD CAPE ROAD

MORPHOLOGICAL ZONE	LANDSCAPE SETTING	LANDSCAPE TYPOLOGY	HERITAGE SIGNIFICANCE	HERITAGE ISSUES, CONCERNS & COMMENTS
	A.3. PAARDEBERG SLOPES	• Historical productive farmland • Historical farm werf • Scenic landscape • Transition zone: threshold conditions (wilderness vs cultivated) • Historical scenic route	• Collection of historical farm werfs and associated rural settings with a high concentration of buildings older than 60 years related to the slopes of the Paardeberg, e.g. Eendrag homestead (Possible GRADE 3A). • Representative qualities of the Paardeberg slopes in terms of a combination of wilderness and cultivated landscape qualities, riverine corridors and homestead settings. • Distinctive threshold condition between the Swartland and Cape Winelands Cultural Landscapes. • Scenic landscape qualities of the R304 and R45 especially where views open up towards the Paardeberg and views towards homestead settings within the scenic corridor. Possible GRADE 3B. Paardeberg slopes: Possible GRADE 3B	• Potential severance impact of the transmission line on the integrity of the landscape, especially where it crosses the R302 and the R45, as well as the main connecting routes which traverse this landscape. A possible mitigating factor is that the line crosses these routes at right angles. The dark green backdrop provided by the Paardeberg is also a possible mitigating factor. • Potential impact of the transmission line on historical homestead settings situated within proximity of the line, e.g. the werfs of Die Slot and Eendrag which are situated on 18th century freehold grants. Site inspection reveals that certain micro-conditions of topography and aspect will shield the line from view from Eendrag homestead. • Undulating topography has a potential to mitigate potential visual impacts. However, impacts will be accentuated where the proposed line crosses ridgelines. Refer to Figure 38.

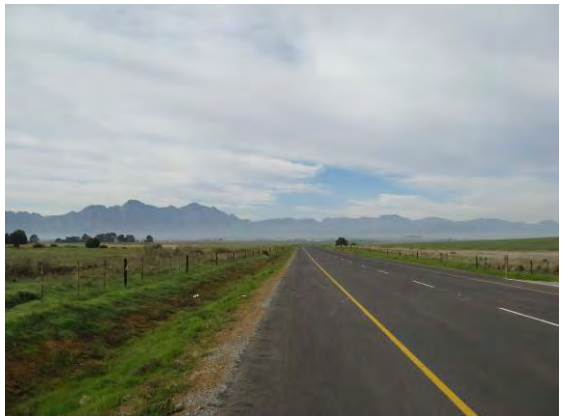


PHOTO 5: VIEWS TOWARDS PAARDEBERG SLOPES FROM THE R302

PHOTO 6: EENDRAG HOMESTEAD

Eendrag homestead has high local heritage value, i.e. a suggested Grade 3A in terms of its intactness and representivity. Micro-conditions in terms of topography and aspect shield the transmission line from view. The werf's relationship with its setting is northwards towards Malmesbury and not in the direction of the transmission line to the south.

ZONE	SETTING			
	A.4. MALMESBURY FOOTHILLS (between Paardeberg and Porseleinberg)	• Historical productive farmland • Historical farm werf • Scenic landscape • Historical scenic route • Mountain backdrop	• Scenic landscape qualities especially as viewed from the R45 and R46 with long views towards the Groot Winterberg and near views towards the Paardeberg and Porseleinberg. An intact, representative Swartland cultural landscape. Possible GRADE 3C. • Collection of historical farm werfs and associated rural settings with a dispersed pattern of buildings older than 60 years and more concentrated against the slopes of the Kasteelberg, e.g. Dassenheuwel (possible GRADE 3B) and Kersefontein (possible GRADE 3C)	• Potential impact of the transmission line on the integrity of the landscape with an absence of tree belts to absorb visual impacts. • Distance from the R46 ensures that the transmission line will have low visibility from this route. • Transmission line bisects an old freehold grant incorporating the historical homesteads of Dassenheuwel and Kersefontein homesteads. • Green backdrop of the Porseleinberg is mitigating factor on a broader landscape scale. Refer to Figure 39.

PHOTO 7: VIEWS FROM THE R46 ACROSS THE MALMESBURY FOOTHILLS

PHOTO 8: KERSEFONTEIN HOMESTEAD

Conservation-worthy homestead and setting, i.e. suggested Grade 3B. Micro-conditions in terms of topography, aspect, tree planting shield the transmission from view from the werf. Views from the house are westwards and will not be interrupted by the transmission line. The werf is relatively contained by buildings and tree planting.

PHOTO 9: DASSENHEUWEL FARM WERF

Showing approximate position of line in relation to farm werf. Not possible to gain direct access to the site. Only possible to inspect from the gate located at some distance away. Homestead appears to be contain historical fabric, possibly Grade 3C. The line will have a visual impact on the homestead setting but will not be located within the immediate or dominant view shed.

MORPHOLOGICAL ZONE	LANDSCAPE SETTING	LANDSCAPE TYPOLOGY	HERITAGE SIGNIFICANCE	HERITAGE ISSUES, CONCERNS & COMMENTS
	A5. KASTEELBERG SLOPES	• Historical townscape • Historical productive farmland setting • Historical farm werf • Wilderness mountain setting • Scenic landscape	• Highly representative and intact historical townscapes of **Riebeek Kasteel** (1866) and **Riebeek West** (1855) with spectacular rural settings against the slopes of the Kastelberg overlooking the Berg River Valley. • Historical layering of Riebeeck West (originally known as Riebeeck Kasteel) and its potential role as the site of an 18th century VOC outpost. • Collection of historical farms werfs located against the slopes of the Kasteelberg, e.g. Allesveloren **Kasteelberg slopes**: Possible GRADE 3A	• Both the main and southern alternatives will not impact the settings of Riebeeck West and Riebeeck Kasteel due to their distance from the proposed lines and south-east facing aspect away from the lines. Ridgeline to the south of Riebeeck Kasteel shields views towards the northern line.
	A.6. BOTMASKLOOF PASS	• Historical scenic route • Productive farmland • Wilderness mountain setting • Threshold condition between two distinct landscapes	• High scenic landscape qualities of the Botmaskloof Pass with views across the Berg River Valley towards the Groot Winterberg and providing a dramatic threshold between two rural landscape settings, i.e. the Malmesbury Foothills and Berg River Valley. **Botmaskloof Pass**: Possible GRADE 3B	• Transmission line will not impact the Botmaskloof Pass.

MORPHOLOGICAL	LANDSCAPE	LANDSCAPE TYPOLOGY	HERITAGE SIGNIFICANCE	HERITAGE ISSUES, CONCERNS & COMMENTS

ZONE	SETTING			
	A.7. BERG RIVER CORRIDOR	• Historical productive farmland • Historical farm werf • Scenic landscape • Historical scenic route	• Representative and fairly intact historical farmland context with a collection of historical homesteads and intensive pattern of cultivation related to the Berg River, e.g. Eikeboom GRADE 3A Klein Eikeboom GRADE 3B Bosplaas GRADE 3C (DHS 2006). • Role of the Berg River as an early colonial settlement boundary. • Anglo-boer war blockhouse strategically located at a river-railway crossing. (Possible GRADE 2). • Sonquasdrift (GRADE 2) in terms of its role as a VOC outpost and important cross over point along the Berg River, and its highly intact and representative historical werf. • Scenic qualities of the R44 with distant views towards mountains. Berg River Corridor: Grade 3C	• Southern alternative is in close proximity to the Eikeboom homesteads situated at an important confluence of the R44, the railway line and river. • Southern alternative is also in close proximity to a blockhouse located at a railway-river crossing. • Main alternative is in close proximity to the historical Bosplaas homestead and its riverine setting. It is also within approximately 2km of Sonquasdrift. Refer to Figure 40.

PHOTO 10: KLEIN EIKEBOOM HOMESTEAD, EIKEBOOM OUTBUILDING AND BOSPLAAS HOMESTEAD

PHOTO 11: EIKEBOOM HOMESTEAD & BLOCKHOUSE showing approximate position of line.

The alignment of the southern alternative in relation to the Klein Eikeboom and Eikeboom homesteads is very problematic, particularly in term of its alignment through the riverine setting of the Eikeboom homestead and associated blockhouse. Line is likely to be clearly visible from the werf and above the height of the existing trees.

MORPHOLOGICAL ZONE	LANDSCAPE SETTING	LANDSCAPE TYPOLOGY	HERITAGE SIGNIFICANCE	HERITAGE ISSUES, CONCERNS & COMMENTS
	A.8. ELANDSBERG-BARTHOLOMEUS KLIP NATURE RESERVE	• Wilderness landscape (Provincial Nature Reserve) • Historical farm werf • Scenic remote landscape	• A cultural and natural landscape of high heritage value in terms of its representivity, rarity and intactness. Possible GRADE 2 • Two historical farm werfs of high heritage value. Bartholomeusklip (GRADE 3A) and Bosplaas (GRADE 2) (DHS 2006) - Bosplaas is an excellent example of an early Swartland homestead in terms of its intactness, its excellent condition and its relationship with and integrity of its natural setting. Its remote context being an unusual example of the remote existence of the early farmers of the Swartland. Its association with a foremost figure in SA history, Lord de Villiers who owned and actively farmed the property. - Bartholomeusklip homestead is a fine example of a late Victorian homestead in terms of its intactness and detailing. Its association with Lord de Villiers for whom the house was probably built and also the association of the farm with the history of slavery. • Sense of remoteness in terms of isolated farm werfs set within a provincial nature reserve and wilderness mountain backdrop. • Elandsberg Nature Reserve comprising the largest patch of very rare Swartland Alluvial Fynbos and patches of shale renosterveld with species of conservation interest in terms of being rare and endemic (Prof Ladislav Mucina, Dept of Botany & Zoology, Univ. of Stellenbosch 2008) Elandsberg Nature Reserve, which has entered into a landmark Stewardship agreement with Cape Nature, is a core conservation area for two localised and highly endangered vegetation types in the SW Cape, i.e. Swartland Alluvium Fynbos and Swartland Alluvium Renosterveld (Dr John Manning, Senior Specialist Scientist of the National Biodiversity Institute 2008)	• Major concern regarding the alignment of the southern alternative through the Nature Reserve and its interference with an fragile ecosystem (Prof. Ladilav Mucina, Dept of Botany & Zoology, Univ. of Stellenbosch 2008) • Areas of the Swartland Alluvium Fynbos and Renosterveld conserved on Elandsberg Nature Reserve represent significant component of any realistic attempt to meet national conservation targets. No further transformation of these sensitive vegetation types can be accepted (Dr John Manning, Senior Specialist Scientist of the National Biodiversity Institute 2008) • Potential visual impact of the southern alternative on the integrity of a significant cultural and natural landscape. The two existing 400kV lines through the property have a high visual impact. The backdrop of the Elandsberg does not serve to mitigate this impact. This visual impact will be exacerbated by the addition of significantly larger pylons between the existing lines. • Potential visual impact of the southern alternative on the setting of the Bosplaas homestead, in particular its remote natural setting. The visual impact of the existing pylons in close proximity to the homestead needs to be taken into account. However, inspection of the site by the HIA heritage and visual consultants reveals that the primary viewshed of Bosplaas homestead will not be affected. Refer to Figure 41.

MORPHOLOGICAL	LANDSCAPE	LANDSCAPE TYPOLOGY	HERITAGE SIGNIFICANCE	HERITAGE ISSUES, CONCERNS & COMMENTS

ZONE	SETTING			
A.9. ELANDSKLOOF PASS	• Historical route • Relic landscape • Wilderness mountain landscape	• Historical role of the pass as a transport route dating to the 18th C. Fell into disuse in the mid 19th C and has minimal access.	• Potential impact of the southern alternative on the Elandskloof Pass need to take into account that the historical route is no longer use, has minimal public access and follows an existing transmission line. Refer to Figure 41.	

PHOTO 12: ELANDSBERG NATURE RESERVE AND BOSPLAAS HOMESTEAD

IP HOMESTEAD

PHOTO 15: VIEW FROM BOSPLASS HOMESTEAD

View from the back garden of Bosplaas homestead. The pylons are mostly screened from view by oak trees. The pylons are not situated within the predominant view catchment from or towards the werf. The existing pylons have minimal impact on the Bosplaas homestead itself.

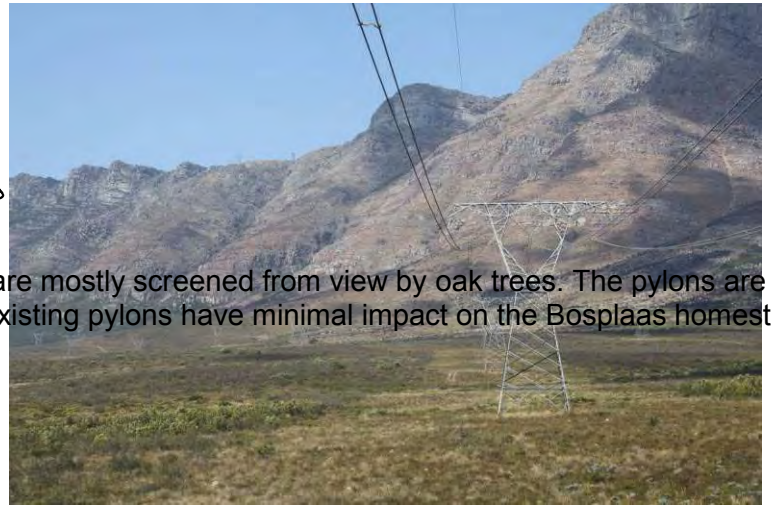


PHOTO 14: ELANDSBERG NATURE RESERVE

Showing double line of pylons through the reserve

MORPHOLOGICAL ZONE	LANDSCAPE SETTING	LANDSCAPE TYPOLOGY	HERITAGE SIGNIFICANCE	HERITAGE ISSUES, CONCERNS & COMMENTS

A.10. NUWEKLOOFPASS	• Historical scenic route • Relic landscape • Wilderness mountain setting	• High visual aesthetic quality providing a major threshold condition between the two valley systems. • Historical value of the work of Thomas Bains and associated structural remains. • Historical value in terms of its role as an important access route dating to the 18th century. Nuwekloofpass: Possible GRADE 3A	• Potential visual-spatial impacts of the main alternative on the point of entry into the pass. • Care must be taken not to impact the historical remains of the pass constructed by Bain. Refer to Figure 42.	

PHOTO 16: STONEWORK OF THE OLD BAINS' PASS THROUGH NUWEKLOOF

MORPHOLOGICAL ZONE	LANDSCAPE SETTING	LANDSCAPE TYPOLOGY	HERITAGE SIGNIFICANCE	HERITAGE ISSUES, CONCERNS & COMMENTS

B. MOUNTAIN REGION	B.1. TULBAGH VALLEY	• Historical townscape • Historical productive farmland • Historical farm werf • Scenic landscape • Mission settlement • Historical scenic route network • Natural landscape • Forested landscape • Gated residential estate	• distinctive, intact and representative pattern of settlement spanning 300 years comprising the historical town of Tulbagh located at the centre of gravity within a productive valley landscape and contained by the Winterhoeks, Solderberg, Saronberg, Obiqua and Witzenberg mountains. Also in terms of its patterns of historical homesteads located predominantly on the footslopes of the surrounding mountains and at the entrance to the kloofs. • igh historical value of Tulbagh in terms of its origins as a church town c1743. Its high concentration of provincial heritage sites along Church Street. The positive relationship between the town and its surrounding agricultural landscape and dramatic mountain backdrop (PHS). • Enduring role of agricultural production in the Valley spanning some 300 years and resulting in two very distinctive agricultural landscapes: 1) the well watered amphitheatre bowl to the north with an intensively cultivated pattern of orchards, vineyards and windbreaks, and concentration of homesteads; and 2) the extensive undulating plains to the south with its wheatfields, grazing lands and groves of gum trees (now interspersed with vineyards) and a dispersed pattern of homesteads.	• The severance impact of the main alternative on a Grade 1 landscape as it traverses the valley floor and mountain backdrops. Its intrusion into an intact Valley system which has no other infrastructural intrusions of this scale. • The severance impact of the main alternative on the approach roads to Tulbagh from the south. • Views from the town, especially Church Street will not be negatively impacted. Main alternative traverses a plateau which is visually discrete from the view shed related to the town itself. • Potential impact of the main alternative on a number of historical homestead settings e.g. Edenhof barn (1900s) and Sagtevlei barns and homestead (c1900). • Potential impact of the main alternative on the historical approach road to Schalkenbosch homestead (c1798). The homestead itself is situated approximately 2km away from the line and is shielded by Sagtevleiberg. • Potential impact of the main and central alternatives on the mountain setting of the Tulbagh Valley, in particular the dominant wilderness qualities of the Witzenberg. The dark green backdrop of the Witzenberg is a mitigating factor on macro scale. • Potential impact of the central alternative on setting of the mission settlement of Steinthal. Refer to Figure 43.

MORPHOLOGICAL ZONE	LANDSCAPE SETTING	LANDSCAPE TYPOLOGY	HERITAGE SIGNIFICANCE	HERITAGE ISSUES, CONCERNS & COMMENTS
	B.1. TULBAGH		• Historical role of Steinthal as a 19th C	• Potential impact of the central alternative on the

VALLEY continued			mission settlement and its association with the Mamre/Saron/Hermon as a collection of mission stations in the region. Also in terms of its links with the history of slavery. Church is PHS. • A concentration of historical farm werfs of high heritage value e.g. Schalkenbosch PHS Sagtevlei possible GRADE 3B Edenhof possible GRADE 3C Schoonderzicht PHS Tweejongegezellen possible Grade 2 Klipfontein, Montpellier, Wolwefontein (PHS) • The experiential qualities of the historical scenic route network through the Valley comprising the R46, which forms part of a broader regional route network, and provides a major point of entry into the Valley at the confluence between two river systems and the base of the Nuwekloof Pass. Also in terms of the localised route network that leads off the R46 and traverses the centre of the Valley towards the centre of gravity (Tulbagh town). • Of ecological/scientific value in terms of areas of Swartland Renosterveld classified as rare and endangered Also in terms of areas of Breede Shale Renosterveld and Breede Shale Fynbos classified as vulnerable and poorly conserved, e.g. Edenhof Conservation Estate (Cape Nature Stewardship 2008) and other adjoining properties contiguous with Wizenberg Nature Reserve (Cape Nature).	Schoonderzicht homestead and Witzenberg homestead which is situated at the base of the Witzenberg Pass. • The main alternative traverses the Edenhof Conservancy Estate. Concern regarding its impact on a sensitive ecosystem and also the experiential qualities of this natural landscape.
MORPHOLOGICAL ZONE	LANDSCAPE SETTING	LANDSCAPE TYPOLOGY	HERITAGE SIGNIFICANCE	HERITAGE ISSUES, CONCERNS & COMMENTS
	B.1 TULBAGH		Tulbagh Valley: possible GRADE 1	

VALLEY continued

The suggested boundaries of this possible Grade 1 landscape include the amphitheatre bowl of the Valley including Tulbagh, Steinthal and its agricultural setting to the north. It should be extended to the south of the town to include Schalkenbosch homestead and its associated cultural and natural landscape. The undulating plains of the southern wheatfields have a high contextual value in terms of forming part of a prominent Valley system and agricultural setting of the town. In terms of its gateway conditions it should form part of a buffer zone to a possible Grade 1 landscape comprising the Tulbagh Valley. However, this buffer zone should exclude the approved Schalkenbosch Golf Estate situated adjacent to the south-eastern approach road to Tulbagh.

World Heritage Site status:
In terms of the World Heritage Site serial nomination process for the Cape Winelands Landscape, a provisional list of some 20 potential core sites was presented at a symposium held last year. Tulbagh and Upper Breede River Valley were among the sites listed. However, boundaries regarding the extent of this possible WHS were not provided (Presentation by Hannetjie du Preez, Chief Director of the Department of Arts & Culture, 10th October 2008)

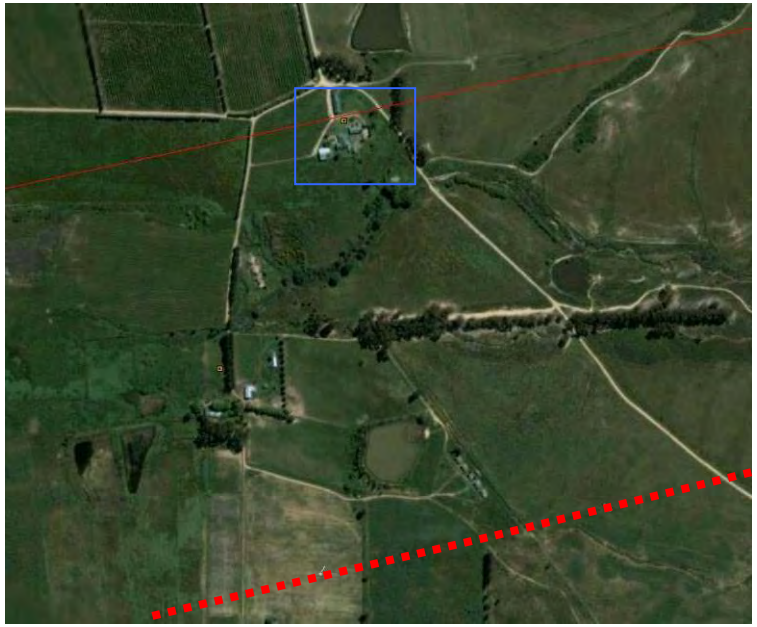


PHOTO 17: SAGTEVLEI BARN & HOMESTEAD

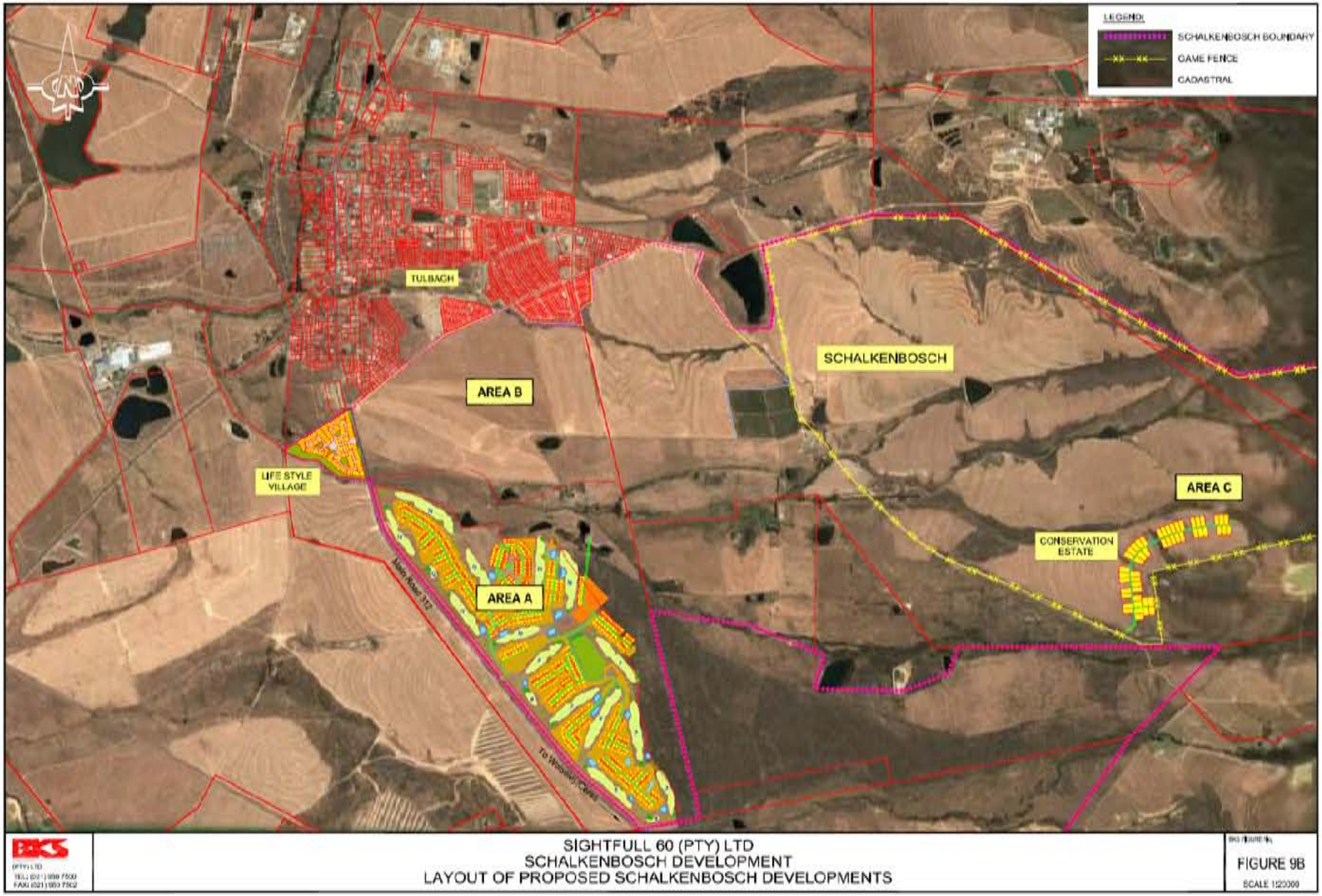
Showing approximate position of main alternative.

PHOTO 18: STEINTHAL CHURCH

Main alternative is likely to be shielded from view by existing tree planting. However, of concern is the potential visual impact of the central alternative on views from this heritage resource towards the Witzenberg Mountain.

PHOTO 19: TULBAGH VALLEY

Plateau from which the Tulbagh Valley is can be viewed and across which the main alternative is aligned.



SCHALKENBOSCH GOLF ESTATE

The main alternatives traverses the middle of an approved Golf Estate located on the south-east approach road to Tulbagh.

ZONE	SETTING			
	B.2. WOLSELEY VALLEY	• Historical town • Historical productive farmland • Wilderness mountain setting • Historical scenic route • Planted forest landscape • Military installations	• andscape of some heritage value in terms of collection of historical homesteads on the slopes of the Witzenberg and views from the R46. Less legible qualities than the upper and lower reaches of the Valley. Partly degraded by existing transmission lines. • olseley c1893 has limited heritage value in terms of its built environment qualities. However, it is strategically located at the confluence two scenic routes and valley systems and its cultivated riverine setting to the south-east has heritage value. Agricultural and riverine setting south-east of Wolseley: Possible GRADE 3C	• Potential impact of the southern alternative on the landscape settings of a number of historical homesteads. Refer to critical viewpoint analysis. • Severance impact of the southern alternative on the scenic route qualities of the R46. • Potential impact of the southern alternative on wilderness mountain setting related to the Witzenberg and associated Nature Reserve. However, the green backdrop of the Witzenberg is an important mitigation factor on a macro valley scale. • The southern alternative follows an existing 400kw transmission line. Potential accumulative impacts need to be taken into account. • Potential absorption capacity of the existing forested landscape. However, the continuing role of the plantation needs to be determined. Refer to Figure 44.
	B.3. WITZENBERG PASS	• Relic landscape • Remote landscape • Wilderness mountain landscape • Threshold condition	• ense of remoteness of the pass and its role as a hiking trail. • hysical remains of historical pass subject to further investigation. • istorical role of the pass c1780s in providing most direct line between Tulbagh and the Koue Bokkeveld. • Threshold condition between the Tulbagh Valley and KoueBokkeveld.	• Potential impact of the central alternative on the historical, experiential and recreational role of the Witzenberg Pass. • Potential impacts of the central alternative on the Witzenberg Pass needs to take into account that the route follows an existing transmission line. Refer to Figure 45.

MORPHOLOGICAL ZONE	LANDSCAPE SETTING	LANDSCAPE TYPOLOGY	HERITAGE SIGNIFICANCE	HERITAGE ISSUES, CONCERNS & COMMENTS
	B.4. WITZENBERG VALLEY	• Productive farmland • Historical farm werf	• Unique valley landscape in terms of its sense of containment and remoteness of rural settlement within relatively	• Potential severance impact of both the central and main alternatives through the valley. Relatively contained and highly intact valley setting which has

		• Remote rural settlement • Wilderness mountain setting	pristine wilderness surroundings. • Collection of historical homesteads, namely Ouplaas, (possible GRADE 3C), Perdekloof, Slagboom (possible GRADE 3C) and Rosendale. Ouplaas and Sagboom have contextual value in terms of their location at the historical entry points to the Valley. Witzenberg Valley: possible GRADE 3B	limited capacity to absorb visual impacts. Refer to Figure 45.

PHOTO 20: WITZENBERG VALLEY

Existing 32kV transmission line through the Valley

MORPHOLOGICAL ZONE	LANDSCAPE SETTING	LANDSCAPE TYPOLOGY	HERITAGE SIGNIFICANCE	HERITAGE ISSUES, CONCERNS & COMMENTS
	B.5. GYDO PASS	• Historical scenic route	• Threshold condition at the top of the	• Potential severance impact of the central and main

	• Wilderness mountain setting	pass marking entry into the Koue Bokkeveld. • Historical significance being built c1848 in the position of an existing route (cattle route) • Oustanding scenic qualities in terms of views over the Ceres Valley. Gydo Pass: Possible GRADE 3A	alternatives on the experiential qualities of top and base of the pass, respectively. Refer to Figure 45.
B.6. GYDO VALLEY	• Scenic landscape • Wilderness mountain setting • Productive farmland. • Remote rural settlement • Historical farm werf	• Relatively unique valley landscape in terms of its sense of containment and remoteness of rural settlement within pristine wilderness surroundings. • The experiential qualities of the R303 through the Valley. Possible GRADE 3B • Its collection of conservation-worthy historical homesteads, e.g. Boplaas PHS Wadrift possible GRADE 3A,B Molenrivier possible GRADE 3C Die Erf possible GRADE 3A/B Gydo Valley: Possible GRADE 3B	• Potential severance impact of the northern alternative through the valley. Relatively contained and intact valley setting which has limited capacity to absorb visual impacts. Refer to Figure 46.

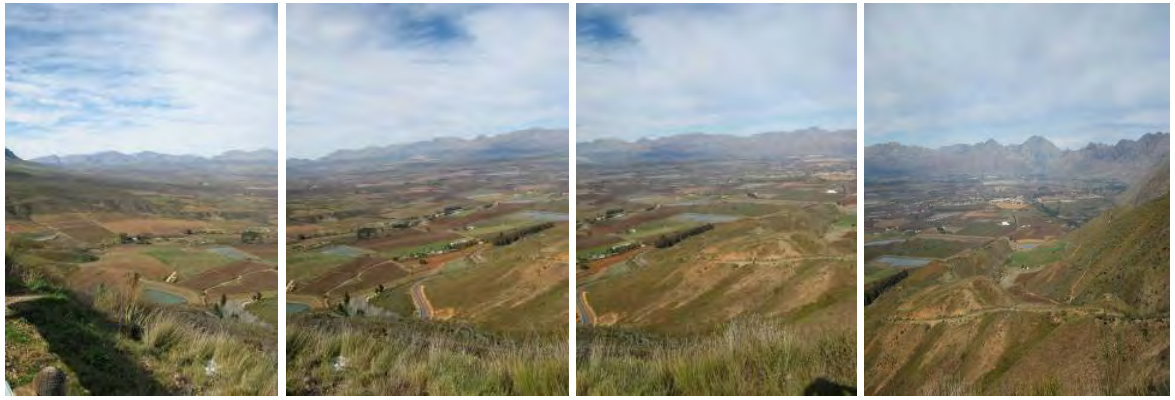


PHOTO 21: VIEW FROM THE TOP OF GYDO PASS OVER THE CERES BASIN

PHOTO 22: GYDO VALLEY

Showing the approximate location of the northern alternative through the Valley where it crosses the R303

MORPHOLOGICAL ZONE	LANDSCAPE SETTING	LANDSCAPE TYPOLOGY	HERITAGE SIGNIFICANCE	HERITAGE ISSUES, CONCERNS & COMMENTS

B.7. CERES VALLEY	• Historical productive farmland • Historical farm werf context • Wilderness mountain landscape • Historical scenic route	• A distinctive pattern of rural settlement and cultivation forming an “arc” at the western edge of the Ceres Basin with the backdrop of the Witzenberg. • A collection of historical homesteads, e.g. **Blouberg/Skoonvlei** possible GRADE 3A **Koelfontien** possible GRADE 3C Rietvlei possible GRADE 3B Langfontein possible GRADE 3A • Relatively degraded context to the east of the R303 and railway line with industrial activities, urban expansion and bisected by existing transmission lines. **Ceres Farmlands**: possible GRADE 3C	• Potential severance impact of the southern alternative across a productive agricultural landscape. However, it follows an existing 400kV transmission line. • Potential impact of the main alternative on an intact agricultural landscape situated at the base of the Gydo Pass. Also concern that the line crosses a ridgeline and will be viewed in silhouette • Potential impact of the main and southern alternatives on homestead settings, in particular Blouberg/Skoonvlei which is situated in proximity to southern alternatives and Koelfontein which is situated within proximity to the main alternative. Refer to Figure 47.

PHOTO 23: CERES VALLEY

Views from the R303 showing approximate position where the southern alternative crosses the R303 and existing 400KV lines through Bella Vista

PHOTO 24: BLOUBERG HOMESTEAD

View from the front of the homestead showing the impact of the existing lines viewed in silhouette.

PHOTO 25: KOELFONTEIN HOMESTEAD & MILL SITUATED AT THE BASE OF THE GYDO PASS.

PHOTO 26: KOELFONTEIN RURAL CONTEXT

Views towards the position of the main alternative. Concern that the line will protrude above the ridgeline and be viewed in silhouette.

MORPHOLOGICAL ZONE	LANDSCAPE SETTING	LANDSCAPE TYPOLOGY	HERITAGE SIGNIFICANCE	HERITAGE ISSUES, CONCERNS & COMMENTS
	B.8. THERONSBERG PASS	• Historical scenic route • Wilderness mountain setting • Remote rural settlement • Threshold condition	• Threshold condition between the Warmbokkeveld and the Ceres Karoo. • Historical role of the pass as a major link to the interior. • Historical association of Leeufontein farm with Theronsberg Pass as 18th and 19th century informal outspan/stopover point. Theronsberg Pass: Possible GRADE 3B	• Potential visual impact of the main alternative in close proximity to the pass and also the point at which it crosses the base of the pass. The distance of the existing line further away from the road has substantially less visual impact. Refer to Figure 48.
	B.9. HOTTENTOTS KLOOF PASS	• Historical scenic route • Wilderness mountain setting • Remote rural settlement • Threshold condition	• Threshold condition between the Warmbokkeveld and the Ceres Karoo. • Association with the farm Hottentotskloof and its role as an outspan during the 18th/19th C Hottentotskloof Pass: Possible GRADE 3B	• Topographical conditions and distance from the road mitigates the potential impact of the proposed transmission line.

PHOTO 27: VIEW FROM THERONS PASS SHOWING THE EXISTING 400KV TRANSMISSION LINE

PHOTO 28: HISTORICAL BUILDING SITUATED AT THE BASE OF THE HOTTENTOTSKLOOF PASS

ZONE	SETTING			
	B.10. BO-SWAARMOED VALLEY	• Historical farm werf • Remote rural settlement • Wilderness landscape setting • Relic landscape • Historical route	• Distinctive valley landscape in terms of its sense of containment and remoteness. • Historical and architectural value of Matjiesriver (possible GRADE 3B) and Uitkomst (possible GRADE 3A/B) homesteads. • Old road and associated ruins at the base of the Hottentotskloof Pass (possible GRADE 3C) Bo-Swaardmoed Valley: Possible GRADE 3B	• Topographical conditions and orchards screen the main alternative from view from the Matjiesrivier homestead. • Potential severance impact of the main alternative on the old road and associated ruins at the base of the Hottentotskloof Pass. Refer to Figure 49.
C. CERES KAROO	C.1. KAROOPOORT OUTSPAN	• Relic landscape • Historical scenic route/outspan/tollhouse • Threshold condition • Wilderness landscape setting	• High historical and architectural value of the tollhouse and its association with a 18th/19th C outspan. A declared Provincial Heritage Site. • Historical role as gateway to the Karoo. • Representative, intact and distinctive landscape in terms of the historical tollhouse, old route, associated orchards and its riverine and kloof setting. • Confluence between historical routes to the interior and Sutherland, and the related role of Sutherland as an astronomical research station of international significance i.e. SALT. Karoopoort outspan and tollhouse: DECLARED PHS	• Care must be taken that the main alternative does not impact the Karoopoort. It should not be visible from the Karoopoort, i.e. old tollhouse and associated orchards, road and mountain setting. • Negative impact of existing lines on the Karoopoort. Care must be taken that the main alternative does not contribute to this negative impact. • Proposed substation, although not covered in this brief, should not be visible from the old toll house nor from the road. Refer to Figure 50.

Old Cape Road and associated ruins of buildings and stone walled kraal

Matjiesfontein homestead and surrounding landscape setting

PHOTO 29: BO-SWARMOED VALLEY

Views towards Karoopoort from Old Cape Road along the Bo-Swarmoed Valley
Existing transmission line through the Karoopoort

Old toll house and surrounding landscape setting
Existing transmission line through the Karoopoort

PHOTO 30: KAROOPOORT OUTSPAN & TOLLHOUSE

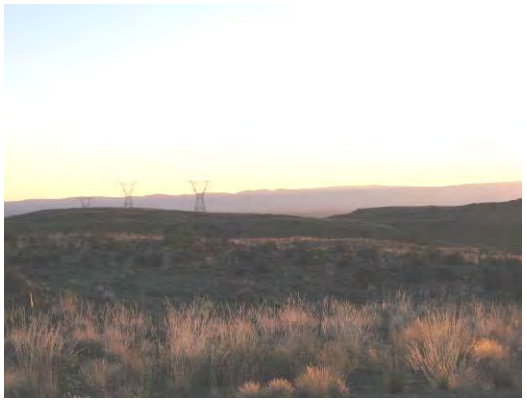
MORPHOLOGICAL ZONE	LANDSCAPE SETTING	LANDSCAPE TYPOLOGY	HERITAGE SIGNIFICANCE	HERITAGE ISSUES, CONCERNS & COMMENTS
	C.2. PLATKOP OUTSPAN	• Burial ground • Historical route/outspan • Historical farm werf • Remote arid landscape	• Role as an historical stopover point situated on the edge of a 19th century outspan. Location at river crossing emphasising the significant role of water in arid conditions. Sense of isolation and scale. • Archaeological potential in terms of historical layering. • Historical buildings illustrating simple vernacular type. Constructed of local stone, mud plaster and lime wash. Associated specimen trees. • Association of the settlement with the Platkop kopje as topographical landmark set in a flat plain. • Formally laid out graveyard (26 adults/13 children) with associated cypress trees, typical of a 19th century cemetery landscape. Earliest dated grave 1860s. Long history of usage. Possible association of graveyard to use of the road by wagon travel. Evidence of ongoing care and maintenance suggesting custodianship. Use of local stone for grave markers. Requiring further investigation. Platkop outspan: possible GRADE 3B	• Main alternative and associated infrastructure should not be visible from the settlement or graveyard and not disrupt the visual relationship between the settlement and the Platkop Kopjie. Refer to Figure 51.
D. MOODENAARS KAROO	E.2. SMITSWINKEL LOAN FARM	• Remote arid landscape • Historical farm	• Strategic position at base of escarpment and associated river. • Potential archaeological potential in terms of historical layering. Building older than 60 years subject to further investigation	• Potential severance impact of proposed central line through old loan farm. • Close proximity of main alternative to buildings older than 60 years. • Follows existing 400kV transmission line. Refer to Figure 52.

Existing transmission line parallel to historical route through the Ceres Karoo

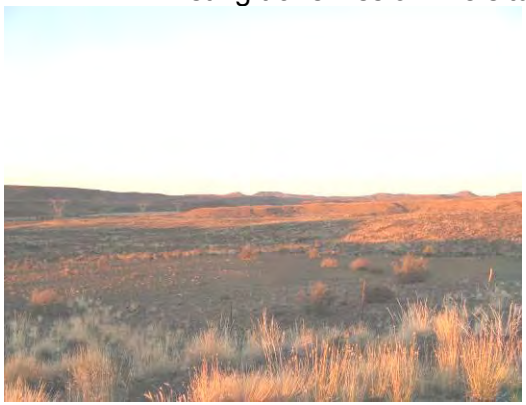
Platfontein homestead and associated graveyard

PHOTO 31: PLATFONTEIN HOMESTEAD AND GRAVEYARD

MORPHOLOGICAL ZONE	LANDSCAPE SETTING	LANDSCAPE TYPOLOGY	HERITAGE SIGNIFICANCE	HERITAGE ISSUES, CONCERNS & COMMENTS
E. GREAT KAROO - KOUP	G.1. MERWEVILLE	• Historical townscape • Associated landscape • Scenic landscape • Remote arid landscape • Historical scenic route	• Role of Merweville at the centre of the Koup which is a distinctive Karoo landscape. • Significance as an early 20th century regional centre within a remote and arid setting and sense of topographical containment. • Well preserved historical architecture and graveyard and the landmark quality of the stone church (Provincial Heritage Site). • Historical place of conflict from the 18th century Khoisan/stock farmer Commando raids to Anglo Boer War. Merweville historical core: Possible GRADE 3B	• Proposed transmission line will have minimal impact on the setting of Merweville as it runs in a discrete valley behind the town and is located some distance away, i.e. 3.5km from the town.



Existing transmission line situated within 5km of Merweville



Existing transmission line situated within 5km of Merweville

PHOTO 32: VIEW OF MERWEVILLE FROM APPROACH ROAD OFF THE N1

MORPHOLOGICAL ZONE	LANDSCAPE SETTING	LANDSCAPE TYPOLOGY	HERITAGE SIGNIFICANCE	HERITAGE ISSUES, CONCERNS & COMMENTS
	E.2. BEAUFORT	• Historical townscape	• Historical core containing a	• Proposed main alternative is situated some

WEST	• Regional growth centre • Threshold condition	concentration of conservation worthy buildings. • Confluence of major routes associated with its historical role as a 19th century regional administrative centre. • Historical layering of the town in terms of its origins as an 18th century farm and evolution of the town. • Historical and social value of the cemetery typically situated on the edge of the town to the south. • Setting within a shallow basin bounded Karoo National Park to the north and at the base on the escarpment to the Winterveld. Beaufort West historical core: possible GRADE 3A	distance, i.e. 3.5km away from the town to the south and follows the approximate alignment of the existing transmission line.
E.3. THREE SISTERS	• Remote and arid landscape • Scenic landscape	• Regional topographical landmark situated at the confluence of major routes across the Karoo, including the railway line. Possible GRADE 3C	• Topographical landmark is not impacted by the proposed transmission line.

SECTION K: IDENTIFICATION OF HOT SPOT AREAS

This section of the report provides the basis for the identification of heritage hot-spots from a palaeontological, archaeological, cultural landscape and historical built environment perspective, which will be subject to further analysis during the impact assessment phase of the HIA process. Based on a combination of known and potential heritage values and visual issues, heritage hot-spots have been categorised in terms of the following:

- High level
- Medium level
- Low level
- Subject to further investigation in terms of heritage significance. This last category mostly concerns historical farmsteads older than 60 years where heritage significance has not yet been determined.

Most of the key heritage issues and concerns identified in the previous sections of the report have been tested by way of critical viewpoint analyses, with the exception of the palaeontological and archaeological resources, which were ranked according to geological and landscape/topography criteria. Figure K1 shows the distribution of these resources along the study corridor.

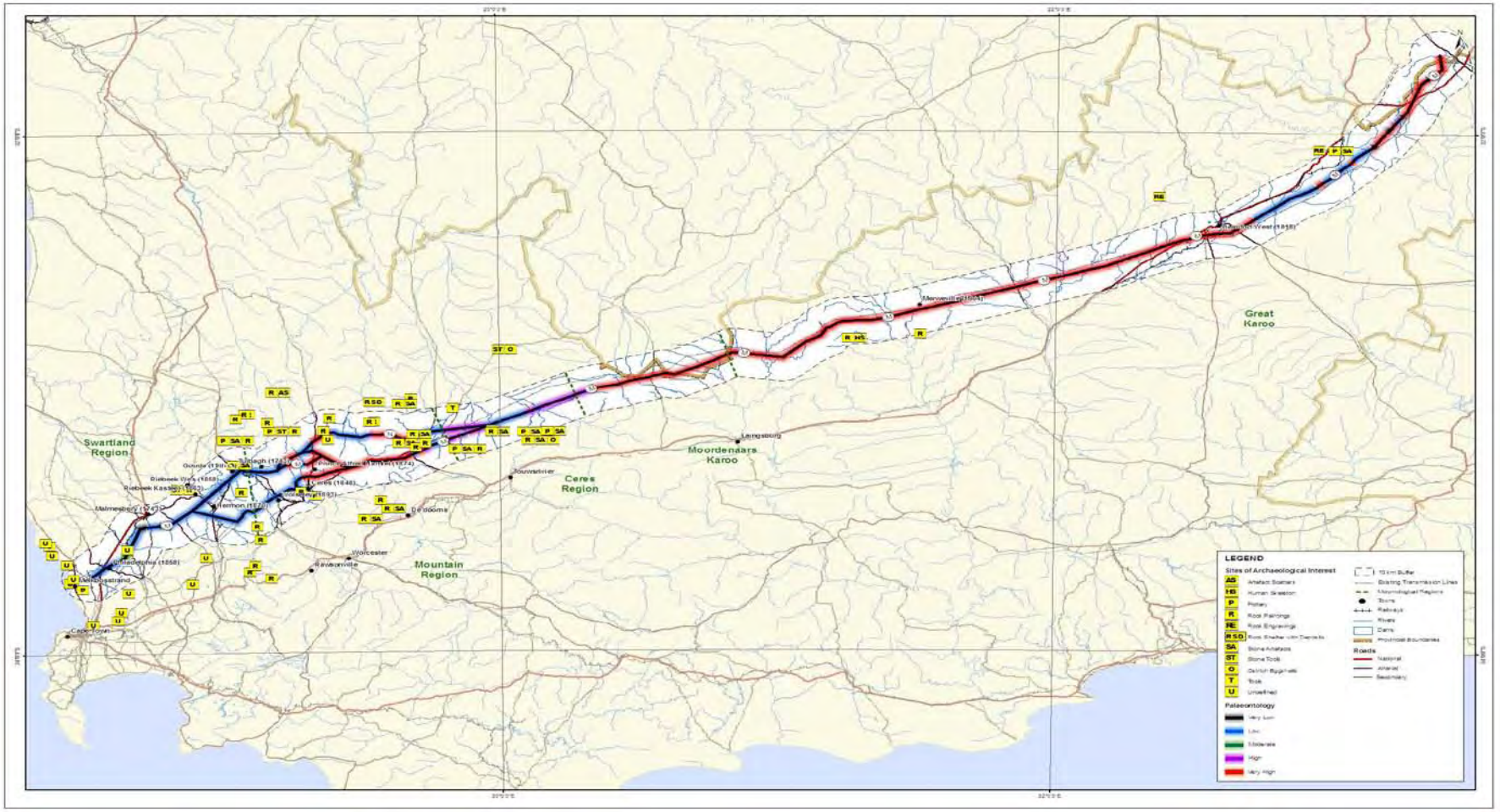
K.1 PALAEONTOLOGY

There are Significant ***Palaeontological*** resources, covering the time span 450 million years before the present, which have been identified in the study corridor and the proposed transmission line will traverse formations that contain both important, and rare, species of fish, non marine sharks, water scorpions and therapsid. In some areas, notably along the northern route, one of only two known fossil localities from the uppermost Bokkeveld subunit, the Karoopoort Formation exists. The southern alternative route which runs from Porseleinberg across the Elandskloofberge, Tulbagh Valley, Skurweberge and then northeastwards across the Warm Bokkeveld to join the alternate new route (blue) near Theronsberg Pass contains key "red flag" fossiliferous units such as the Cederberg Formation and the lower Bokkeveld Group are found along this route and have a **High to Very High** palaeontological significance.

The palaeontological significance of the route from the Witsenberg Range across the Gydo Pass (Central Alternative) is **Very High** because it intersects "red flag" fossiliferous units such as the Cederberg Formation and the Lower Bokkeveld Group. The central alternative route would take the powerline close to or across the Gydo Pass north of Prince Alfred Hamlet, a well-known "hotspot" for Bokkeveld Group fossils (notably in the Gydo and Voorstehoek Formations). This central route is therefore *more* significant in palaeontological terms than the new alternative route running to the south.

The Nothern Alternative route traverses geological formations, with the principal exceptions of the Dwyka Group and Witpoort Formation, that are consistently fossiliferous, and the overall palaeontological significance of this route is therefore **High** to **Very High**. Key "red flag" sections of palaeontological sensitivity include:the Bokkeveld Group north of Gydo Pass. The Bokkeveld Group north of Baviaansberg, the lower Witteberg Group (Weltevrede Subgroup) north of Karwarrieberg, the lower Ecca Group (Prince Albert, Whitehill and Collingham Formations), the Bokkeveld Group north of Baviaansberg, the lower Witteberg

Figure K1 Map showing the distribution of Hot Spot areas for palaeontology and archaeology (see also Section 1 of the project map book)



Group (Weltevrede Subgroup) north of Kwarrieberg and the lower Ecca Group (Prince Albert, Whitehill and Collingham Formations) of the southern Ceres Karoo.

Providing that sampling and appropriate mitigation measures are undertaken, the proposed development over these geological formations offers the opportunity to improve recording and sampling of Western Cape Province fossils over a lengthy geological transect (*c*. 500km). This project should ultimately benefit our understanding of Western Cape palaeontological heritage resources and provide new fossil material from remote or under-collected areas and formations.

K.2 ARCHAEOLOGY

Important Early, Middle and Late Stone Age ***Archaeological*** sites exist along the proposed routes which are of **High** archaeological sensitivity and will require further investigation. These heritage resources cover an important part of our prehistoric past and fall within a time frame within the 2 000 years before the present. Key "hot spots" along the Main route include sites that contain stone tools, rock art and pottery are found at Berg en Dal, Amandelboom, Koedoesfontein, Courtlands Kloof, Klipkraal, Fontein's Kop, Zand Rivier, Vaalkloof, Platfontein, Smousberg, Melkbos Kraal, Brewelsfontein, Zand Rivier and Stinkfontein

Along the Central route at Brits and Voelvlei stone tool scatters and rock art sites exist which are worthy of further investigation. A similar cultural footprint exists along the North route at Vaalfontein, Nooitgedacht, Ebenezer, Zwartkop, Kommando, Guarrieberg, Witklippies, Loch Lynne, Hoop-en-Uitkomst, Karoopoort Outspan, Onderlangkloof, De Vallei, Platteklip 177 and along the South route at Mitchell's Pass and Bergtoppe.

In total thirty-one archaeological "hot spots" are located close to the poropsed routes and all will require further investigation prior to the construction of the transmission line. This would provide a rare opportunity to understand, and more accurately date sites of prehistoric habitation in remote areas.

K.3 CULTURAL LANDSCAPE AND HISTORICAL BUILT ENVIRONMENT

Approximately 60 ***Critical Viewpoints*** have been digitally modelled to determine potential visual impacts on a range of heritage contexts. The selection of these critical viewpoints was based on the following aspects:

- The nature and degree of significance and sensitivity of the affected heritage context with an emphasis on those heritage contexts of possible Grade 2, 3A, 3B and 3C heritage status. Heritage contexts comprising a concentration of heritage resources were also prioritized.

- The need to determine the degree of visual impacts on a range of influencing factors such as distance from the transmission line, view shed and visual absorption capacity. Also the need to determine the degree of visual impacts on a range of heritage contexts such as scenic routes, farmstead settings, townscape settings as well as their degree of intactness and ability to accommodate change without adverse impacts.

- The need to provide the basis for a comparative assessment of the alternative routes through the study corridor, in particular the alternative routes through the Mountain Region.

Critical viewpoint modelling was not necessary in cases where the visual impacts of the transmission line on heritage resources are obvious. In this regard, assumptions were made regarding the relatively high visual impacts on heritage resources located within a 500m buffer zone of the proposed transmission line.

It is important to note that the significance of visual impacts needs to be balanced against nature and degree of heritage significance. For example, high visual impacts on a historical farmstead will have a significantly reduced heritage impact if the degree of heritage significance of the historical farmstead is relatively minor. Furthermore, in the case of numerous of the historical farmsteads affected by the proposed transmission line, it will be important to assess in more detail the visual setting of the farmstead in terms of its orientation, axes, view cones, foreground and backdrop conditions and planting patterns.

It is envisaged that further critical viewpoint analyses will need to be undertaken during the impact assessment phase of the study depending on visual heritage issues raised during the scoping process.

K.3.1. SWARTLAND REGION

- **Koeberg and farmstead settings**

  There are concerns regarding the alignment of the main alternative through the Koeberg landscape setting.

  The main alternative runs within 420m of the **Botterberg farmstead** and pylons will be partially to fully visible within the dominant view of the homestead from the R304. There is no significant mountain back drop therefore silhouetting of the pylons will occur. Therefore, the potential visual impact of the main alternative on the landscape setting of the Botterberg farmstead and related scenic route qualities of the R304 will be **very high.** Refer to **Figure A2-1: Section 3 of the HIA map book** for critical viewpoint analysis related to Botterberg farmstead. Consideration needs to be given to the possible Grade 3B heritage status of this farmstead and its relationship with its setting.

  The main alternative runs within approximately 580m of **Philadelphia** town. Pylons will be partially to fully visible and viewed in silhouette. The potential visual impact on the views from the town to the north-east is thus **very high**. Consideration needs to be given to the possible Grade 3B heritage status of the town and its relationship with its setting. Consideration also needs to be given to the introverted nature of the town and the significance of its landscape setting to the north-east. Refer to **Figure A2-2** for critical viewpoint analysis related to the town.

  Related to the above, the main alternative crosses the **N7** at an angle that prolongs visual impact. The pylons will be partially to fully visible and viewed in silhouette from the N7. Travelling south, the distance between the line and N7 decreases which will increase the potential visual impact. The potential visual impact of the main alternative on scenic qualities of the N7, particularly in terms of critical views towards Philadelphia is thus **medium to high**. Refer to **Figure A2-6** for critical viewpoint related to N7.

  The main alternative runs within 1km of the **Swellengift farmstead** and pylons will be partially to fully visible. There is very little mountain backdrop to provide screening of pylons and most will be viewed in silhouette. This will have a potential **medium to high** visual impact on views of the homestead from the Old Cape Road. Consideration needs to be given to the possible Grade 3B heritage status of the farmstead and its relationship with its setting, and also the possible Grade 3C heritage status of the Old Cape Road

and associated experiential qualities. Refer to **Figure A2-3** for critical viewpoint analysis related to views of the Swellengift farmstead from the Old Cape Road.

The main alternative crosses the Old Cape Road and then runs parallel to the road for a distance of about 2km. The line runs within 1000m of the road and pylons will be partially to fully partially visible. The potential visual impact on the Old Cape Road is thus **high**. Consideration needs to be given to the Grade 3C heritage status of the Old Cape Road and its experiential qualities. Refer to Figure **A2-4 and A2-5** for critical viewpoint analyses related to Old Cape Road.

In summary, the alignment of the main alternative through the Koeberg landscape setting has been identified as a **medium to high level heritage hot spot.**

- **Paardeberg slopes and farmstead settings**

There are a number of concerns regarding the alignment of the main alternative through the slopes of the Paardeberg.

The main alternative crosses the **R302** at right angles but at a point where views open up towards the Paardeberg slopes and where there is very little mountain backdrop, which means that silhouetting of the pylons will occur. The potential visual impact on the R302 over a distance of 500m (perhaps longer) will be **high**. Refer to **Figure A3-1** for critical viewpoint analysis related to the R302. Consideration needs to be given to the possible Grade 3B heritage status of the R302 and its experiential qualities related to a Grade 3B landscape context.

A number of **historical farmsteads**, i.e. older than 60 years, are located within the 500 to 1000m buffer of the main alternative. The potential visual impact of the main alternative on these homestead settings will be **high to very high**. Refer **Figures A3-2, A3-3, A3-4 and A3-5** for critical viewpoints analyses related to the **Eendrag**, **Klipfontein, Papkuilsfontein** and **Rheboksdams** farmsteads, respectively. The significance of these potential visual impacts on these historical farmsteads is subject to further investigation of their heritage significance and associated landscape settings.

Consideration also needs to be given to the overall possible Grade 3B heritage status of the Paardeberg slopes.

In summary, the alignment of the main alternative through the Paardeberg slopes has been identified as a **medium to high heritage spot** and **area subject to further investigation.**

- **Malmesbury foothills and farmstead settings**

The potential visual impact on a number of **historical homesteads,** i.e. older than 60 years, will be **high**. Refer to **Figures A4-3, A4-4 and A4-5** for critical viewpoint analyses related to the **Tweekuil, Kersefontein** and **Dassenheuwel** farmsteads, respectively. The significance of these visual impacts on these historical farmsteads is subject to further investigation in term of the heritage significance and associated landscape settings.

In summary, the alignment of the main alternative through the Malmesbury foothills has been identified as an **area subject to further investigation**. Furthermore, visual impacts on the R45 and its Grade 3B heritage status still to be determined in terms of critical viewpoint analyses, particularly in terms of views towards the Paardeberg slopes.

- **Berg River Corridor and farmstead settings**

  There are concerns regarding the alignment of the southern alternative through the historical Berg River corridor, namely the impact on the agricultural and riverine settings of a number of important historical homesteads.

  The southern alternative will have a **very high** visual impact on the **Eikeboom and Klein Eikeboom farmsteads.** Refer to **Figure A7.8** for critical viewpoint analysis related to Eikeboom farmstead. Consideration needs to be given to their respective Grade 3A and 3B heritage status and their associated landscape settings.

  Figure A7-1 illustrates a **very high** visual impact of the main alternative on the **Bosplaas** farmstead overlooking the Berg River. Consideration needs to be given to its Grade 3C heritage status. The alignment of the main alternative will also have a potential very high visual impact on the Constantia farmstead which is located across the river from the Bosplaas farmstead. Refer to **Figure A7-2** for critical viewpoint analysis related to Constantia farmstead. However the heritage significance of the **Constantia farmstead** is subject to further investigation.

  In summary, the alignment of the southern alternative in close proximity to the Eikeboom homesteads and their associated settings has been identified as a **high level heritage hotspot**. The alignment of the main alternative in close proximity to the Bosplaas and Constantia farmsteads has been identified as a **medium level heritage spot** and **area subject to further investigation.**

- **Elandskloof-Bartholomewsklip Plains**

  An initial concern identified was the visual impact of the alignment of the southern alternative on the **Bosplaas and Bartholomewsklip farmsteads**. However, critical viewpoint analyses related to these homesteads indicates a **medium and low** visual impact, respectively.

  Consideration needs to be given to the suggested Grade 2 heritage status of the Bosplaas homestead and also the fact that the proposed southern alternative is located between two existing 400kV transmission lines.

  In summary, the alignment of the southern alternative on the Bosplaas homestead has been identified as a **medium to low heritage spot**.

- **Nuwekloof Pass**

  The alignment of the main alternative will have a potential **high to medium** visual impact on the Nuwewater and Doornboom farmsteads, respectively. Refer to **Figures A7-3 and A7-4** for critical viewpoint analyses relating Nuwewater and Doornboom farmsteads respectively. These are older than 60 years but subject to further investigation in terms of their heritage significance.

  In summary, the alignment of the main alternative on the Nuwewater and Doornwater farmsteads has been identified as an **area subject to further investigation**. The visual impact of the alignment of the main alternative through the base of the Nuwekloof Pass is **subject to critical viewpoint analysis**.

K.3.2. MOUNTAIN REGION

- **Upper Tulbagh Valley and farmstead settings**

  The alignment of the main alternative is situated more than 2km from the town of Tulbagh, in particular, Church Street. The visual impact from the town itself will be low to negligible. Refer to **Figure B1-1** for critical viewpoint analysis related to the town of Tulbagh. Furthermore, the possible Grade 2 rural landscape situated to the north of the town will not be directly affected by the alignment of the main alternative.

  A key concern is the **high** visual impact of the alignment of the main alternative across the valley floor and **major approach roads to Tulbagh and its rural setting to the north**. Refer to **Figures B1-6 and B1-7** for critical viewpoint analysis related to these approach roads. A key consideration is the indirect impact that this will have on the experiential qualities of the Upper Tulbagh Valley as a whole and its potential Grade 2 heritage status.

  As stated in the EIA (2002) and the VIA (2001) a further concern at a broader valley scale is the visual impact (silhouette effect) of the main alternative and central alternative on the mountain crest conditions related to the **Witzenberg Mountain** and the role of this relatively pristine wilderness mountain landscape in relation to the possible Grade 2 heritage status of the Upper Tulbagh Valley.

  At a site scale, a number of individual historical farmsteads will be negatively affected by the main alternative through the Valley. A number of **historical homesteads older than 60 years** are located within the 500m buffer of the main transmission line. While the heritage significance of all these historical homesteads has not yet been determined, they include the **Edenhof barn and Sagtevlei farmsteads** which are of suggested Grade 3B heritage status. The potential visual impact of the main alternative on these two homesteads will be **medium to high**. Refer to **Figure B1-5** for the critical viewpoint analysis related to the Sagtevlei farmstead.

  Of some concern is the **high** visual impact of the main transmission line on the approach road to **Schalkenbosch farmstead**. Refer to **Figure B1-3** for critical viewpoint analysis related to the approach road to Schalkenbosch. Consideration needs to be given to the possible Grade 2 heritage status of this farmstead and the experiential qualities of this approach road. The main alternative will have a low to negligible visual impact on the viewshed of the Schalkenbosch farmstead. Refer to **Figure B1-2** for critical viewpoint analysis related to Schalkenbosch farmstead.

  A key concern of the EIA regarding the central alternative was potential social impacts on Steinthal village. A critical viewpoint analysis from **Steinthal village** indicates that most of the pylons in the dominant view will not be visible. While pylon visibility increases greatly as the line traverses the mountain in the east, this impact will be **medium to low**. Refer to Figure 6.31 for critical viewpoint analysis related to Steinthal village.

  An overall key consideration is that alignment of the main alternative through the Valley traverses a relatively unaltered rural landscape in terms of existing transmission lines.

  In summary, the alignment of the main alternative across the Tulbagh Valley has been identified as a **high level heritage hotspot area subject to further investigation.**

- **Lower Wolsley Valley and farmstead settings**

  The southern alternative traverses the lower section of the Tulbagh-Wolsley Valley, which is of some concern in terms of its potential **medium to high** visual impact on the R46 and thus the impact on the overall experiential qualities of the scenic route **(R62)** through the Valley. Consideration needs to be taken account of the possible Grade 3B/C status of this section of the R46 as well as the fact that this particular heritage context has already been altered by the presence of two existing 400kV transmission lines. The proposed southern alternative is situated between the two existing lines.

  Also of concern is the **medium to high** visual impact of the southern alternative on the settings of a **collection of historical farmsteads**, i.e. older than 60 years, located on the lower slopes of the Witzenberg Mountains. The degree of heritage significance of these historical farmsteads still needs to be determined. Consideration also needs to be given to the fact that their settings have already been modified by the presence of two existing 400kV transmission lines located either side of the southern alternative.

  Refer to **Figure B 2-1** for critical viewpoint analysis related to **Olyfrivier farmstead**, which is located 2km away from the transmission line and will result in a **negligible** visual impact.

  Refer to **Figure B2-2** for the critical viewpoint analysis related to **Vaalhuis farmstead**, which indicates that the southern alternative will have a **medium** visual impact.

  Refer to **Figure B2-3** for critical viewpoint analysis related to the **Boontjiesriver farmstead**, which indicates that the southern alternative will have a **high** visual impact.

  In summary, the alignment of the southern alignment through the lower section of the Wolsely Valley has been identified as a **medium level heritage hotspot area subject to further investigation.**

- **Witzenberg Valley and farmstead settings**

  A key concern is the **high to very high** potential visual impact of the proposed central alternative on the major **road network** through the Valley and the potential severance impact on the highly intact experiential qualities and of the Valley as a whole and its suggested Grade 3B heritage status. Refer to the **Figures B4-1, B4-2, B4-3, B4-4, B4-5, B4-6 and B4-7** for critical viewpoint analyses of the visual impact of the central alternative on the route network through the Valley.

  Also of concern is the potential **high** visual impact of the alignment of the central alternative on historical farmsteads, namely the **Slagboom farmstead** which is located within 800m of the proposed transmission line. Refer to **Figure B4-4** for critical viewpoint analysis of the impact of the proposed central line on the Slagboom farmstead. The heritage status of this farmstead still needs to be determined but it possess historical landmark status in terms of its location at the entrance to the valley.

  The alignment of the main alternative through the southern section of the Valley will have potentially less visual impact in terms of being located some distance from the main route network through the valley and farmsteads older than 60 years, and also towards one end of the valley rather than bisecting the central core of the valley. Nevertheless, in terms of the small scale and highly intact experiential qualities of the Valley as a whole, the potential visual impact of the main alternative is still of some concern.

In summary, the alignment of the central alternative through the Witzenberg Valley has been identified as a **medium to high level heritage hotspot.** The alignment of the main alternative has been identified as a **medium level heritage hotspot.**

- **Gydo Valley and Pass**

  A concern is the potential **medium to high** visual impact of both the northern and central alternatives on the experiential qualities of Gydo Valley and its possible Grade 3C heritage status. Refer to **Figures B 5-3 and B 5-4** for critical viewpoints related to the impact of the northern and central alternatives on the R 303 through the Valley, respectively.

  The key concern is the potential **medium to high** visual impact of the central alternative on the experiential qualities on the Gydo Pass and its suggested Grade 3A heritage status. **Figure B5-4** illustrates the medium to high visual impact of the central alternative on the top of the pass as it enters the Gydo Valley. **Figures B5-2 to B5-4** illustrate the high to very high visual impact of the main alternative on the base of the Gydo Pass.

  In summary, the alignment of the northern alternative through the Gydo Valley has been identified as a **medium level hotspot**. The alignment of the central alternative at the top of the Gydo Pass has been identified as a **medium to high level heritage hotspot.** The alignment of the main alternative at the base of the Gydo Pass has also been identified as a **medium to high level heritage hotspot.**

- **Ceres Valley and farmstead settings**

  Of some concern is the potential **medium** visual impact of the southern alternative on the experiential qualities of the agricultural context and scenic route network related to Ceres Valley. Consideration needs to be given to the fact that this heritage context has already been altered by the presence of two existing 400kV transmission lines and that the proposed southern line is situated between these two existing lines.

  Of concern is the potential **medium to high** visual impact of the proposed southern line on the landscape settings of a number of historical farmsteads located within the Ceres farmlands. At least 5 historical farmsteads i.e. older than 60 years are located within the approximate 500m buffer of the southern alternative. By comparison, at least 7 historical farmsteads, i.e. older than 60 years, are located within the approximate 500m buffer of the main alternative. The nature of degree of heritage significance of these historical homesteads within these respective buffer zones still needs to be determined. Consideration needs to be given to the fact the settings of the farmsteads within the 500km buffer of the southern alternative have been altered by the presence of two existing 400kV transmission lines.

  Refer to Figures **B7-1 to B7-4** showing critical viewpoint analyses of respective visual impacts of the southern alternative on Waterval, Kelsyville, Skoonvlei and Blouberg farmsteads.

  In summary, the alignments of both the main alternative and southern alternative through Ceres farmlands have been identified as **medium level heritage hotspots** and **areas subject to further investigation.**

- **Therons Pass**

  Of concern is the **medium to high** visual impact of the proposed main line on the experiential qualities of the Therons Pass and its related Grade 3B heritage status, particularly in terms of the proximity of the proposed line to the road and also the strategic point at which it crosses the base of the pass. Consideration needs to be given to the fact that this heritage context has already been altered by two existing transmission lines, albeit located some distance further away from the Therons Pass than the proposed main alternative.

  In summary, the main alternative in relation to the Therons Pass has been identified as a **medium level heritage hotspot.**

- **Bo-Swaarmoed Valley**

  Of concern is the potential **medium** visual impact of the main line on the landscape setting of the old road and associated ruins at the base of the Hottentotskloof Pass and its related Grade 3C heritage status.

  In summary, the main alternative in relation to the Bo-Swaarnoed Valley has been identified has a **medium to low heritage hotspot**.

K.3.3 CERES KAROO

- **Karoopoort Outspan/tollhouse**

  It should be emphaised that this is a Grade 2 heritage site and is of high heritage significance. However, the alignment of the main alternative is situated more than 1.8km from the site. The mountain backdrop prevents silhouetting and two 400kV lines run between the viewpoint and the proposed line. The overall potential visual impacts on the Karoopoort outspan and tollhouse and related landscape setting will be low. Refer to Figure 6.55 for critical viewpoint analysis related to this heritage resource.

  In summary, the alignment of the main alternative in relation to the Karoopoort Outspan/tollhouse has been identified as a **low to negligible heritage hotspot.**

- **Platfontein**

  Of concern is the potential **medium to high** visual impact of the proposed main line on the landscape setting of Platfontein farmstead/outspan and associated graveyard and its Grade 3A/3B heritage status. Refer to **Figures C2-1 C2-2** illustrating the high to medium visual impact of the transmission line on this particular heritage resource.

  In summary, the alignment of the main alternative in relation to the Platfontein farmstead and associated graveyard has been identified as a **medium to high level heritage hotspot.**

K.3.4. GREAT KAROO

- **Merweville**

The main alternative runs within 2.4km of the town and is situated between two existing 400kV lines. The topographical setting of the town blocks most of the line from view with pylons only becoming visible to the south-west at a distance of 2.5km and beyond. The overall visual impact on the town is therefore negligible. Refer to **Figure E1-1** for critical viewpoint analysis related to the town.

In summary, the alignment of the main alternative in relation to Merweville has been identified as a **low level heritage hotspot.**

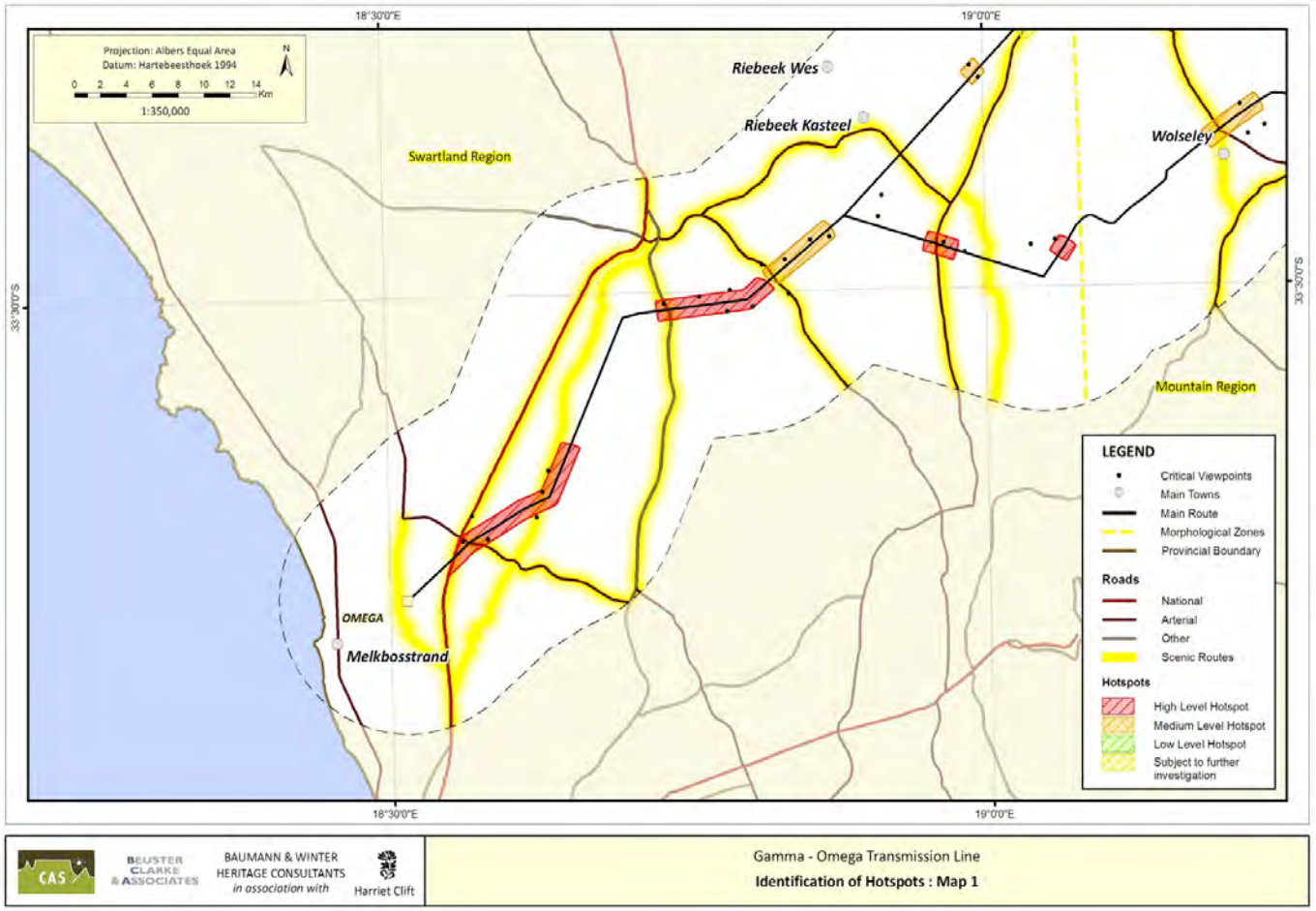


Figure K1.1: Identification of Heritage Hotspots

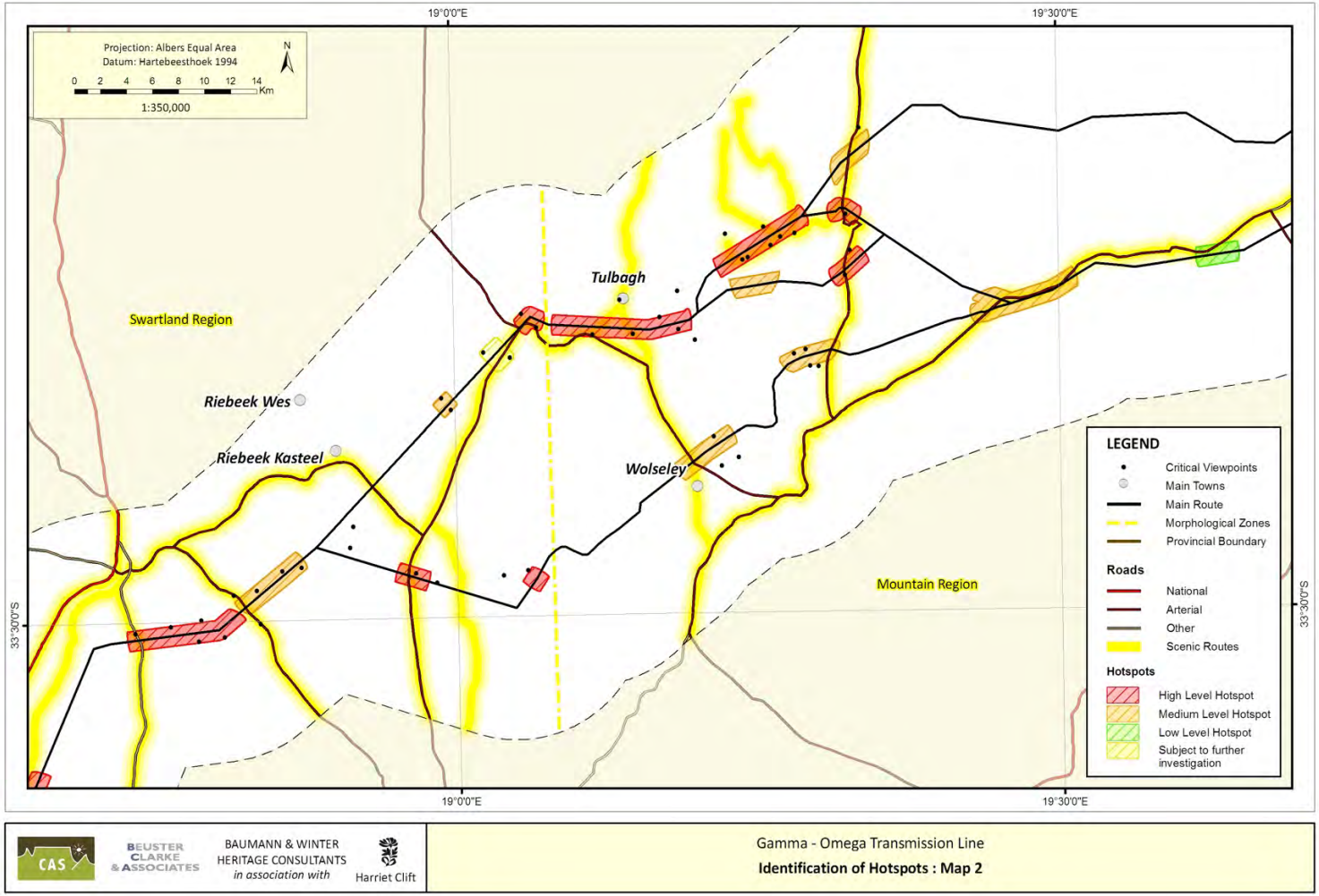


Figure K1..2: Identification of Heritage Hotspots

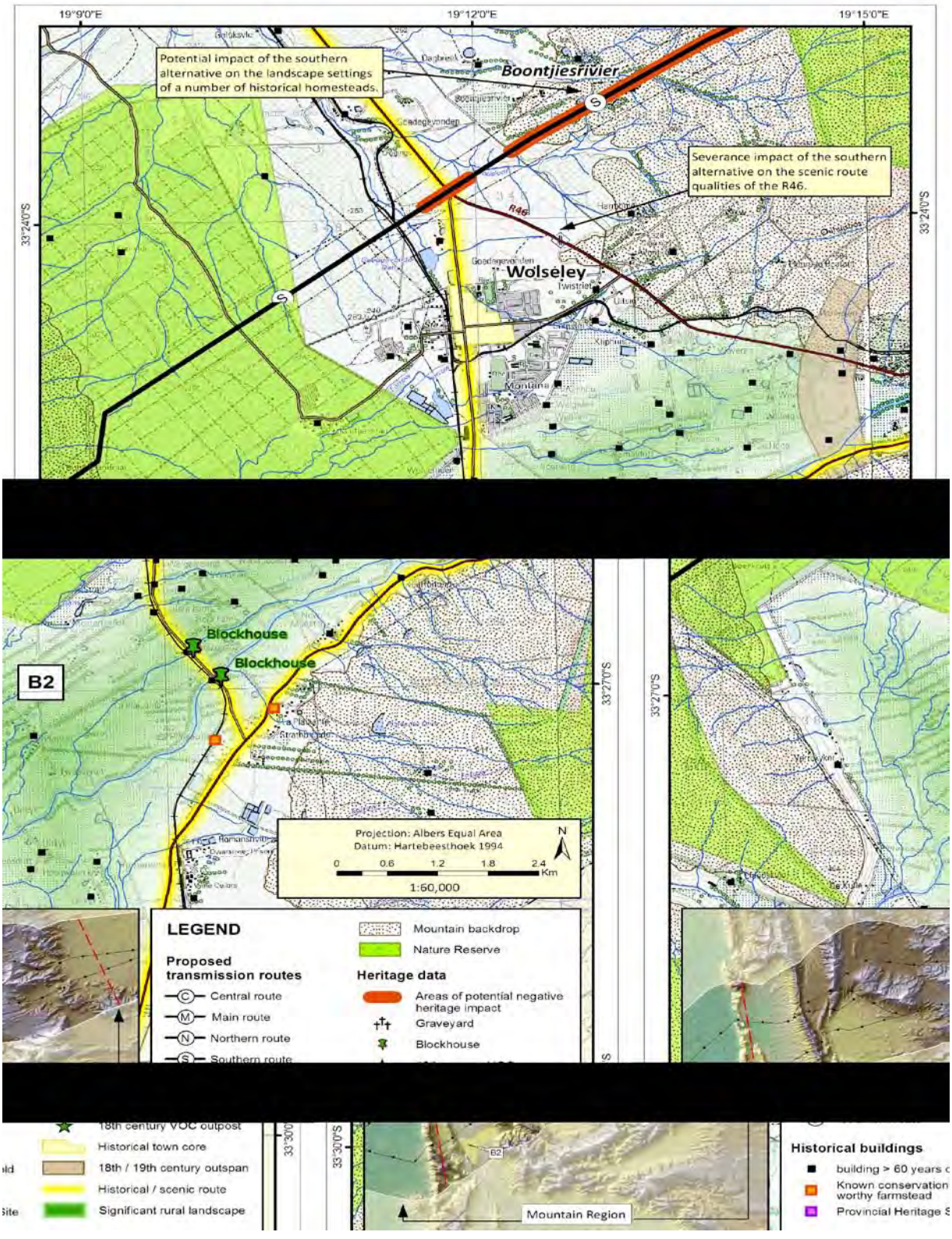


Figure J9: Wolseley Valley – Issues and Concerns

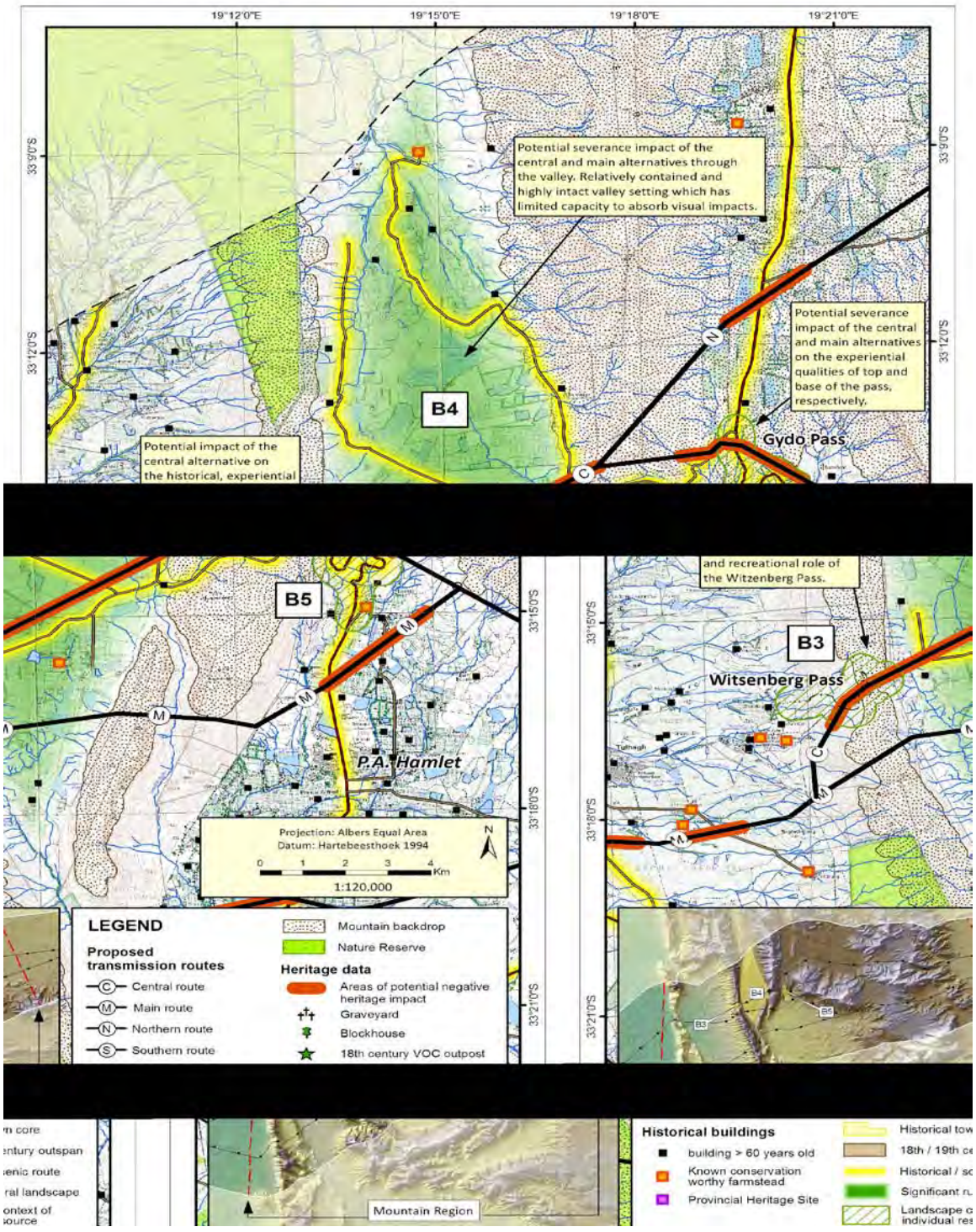
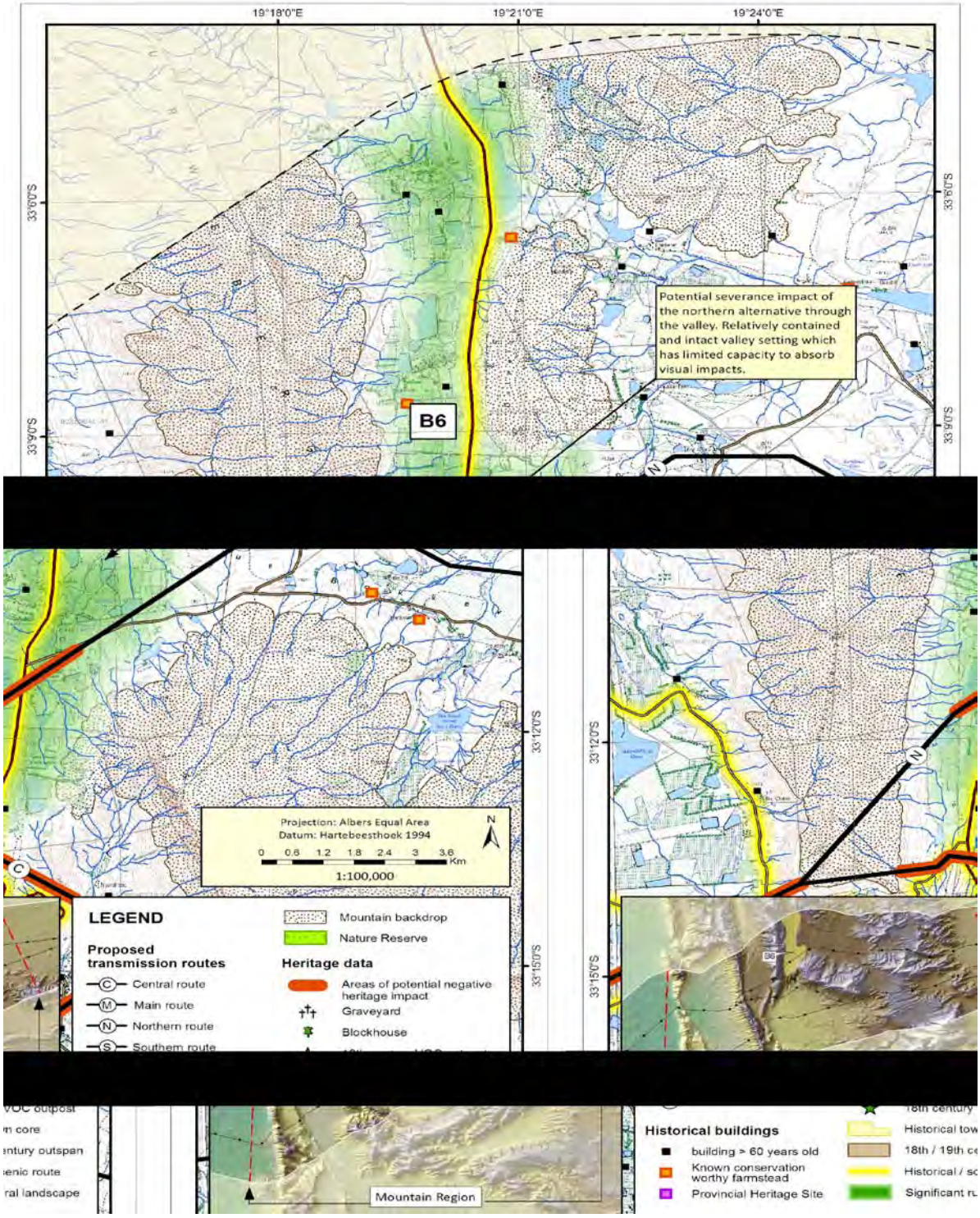


Figure J10: Witzenberg Pass, Witzenberg Valley and Gydo Pass – Issues and Concerns



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EXECUTIVE SUMMARY

This is a specialist heritage report submitted as part of an Environmental Impact Assessment, in terms of Section 38(8) of the National Heritage Resources Act (Act 25 of 1999). It is submitted to Heritage Western Cape (HWC) for comment and to the Department of Environment Affairs and Development Planning for authorization. Because of issues raised by the public and the generally heritage-sensitive nature of parts of the terrain, the comments of HWC are regarded as highly significant.

This report is an extended Scoping Phase 1 Heritage Impact Assessment (HIA) undertaken in terms of the provisions of Sections 38, 35 and 36 of the National Heritage Resources Act. It serves to identify key heritage resources, informants, and issues relating to the palaeontological, archaeological, built environment and cultural landscape; and sets the heritage related informants necessary to address the evaluation of impacts and related remediation and assessment of alternatives during the Phase 2 Heritage Impact Assessment HIA process.

The report is triggered by the application by Eskom Holdings for the Gamma Omega Transmission line.

The research was undertaken by Cape Archaeological Survey cc, for PD Naidoo & Associates (Pty) Ltd, on behalf of their client Eskom Holdings, and concludes an extended scoping phase for the heritage-related assessment of the Gamma-Omega Transmission Line.

The report identifies, maps and assesses heritage resources and landscapes along the proposed route of the transmission line as required in terms of Section 38(3); and describes and evaluates the potential impact of the proposal on affected parts of the Western and Northern Cape.

The proposed route extends for more than 500 kms in a north-easterly direction from the Omega node near Melkbosstrand towards Riebeeck Kasteel, the mountainous region between Tulbagh and Wolseley to Ceres, the Moordenaars Karoo, Beaufort West and the Gamma node south of Victoria West (see location plan, figure A2).

The section identified as the **Main Alternative** is the preferred option for Eskom Holdings.

The most sensitive sections extend from a point south of Riebeeck Kasteel to the region between Tulbagh and Wolseley, and the Ceres Karoo. This report focuses in particular on the heritage impact of four alternative routes through these sections, namely the Main, Southern, Central and Northern Alternatives (see route alignment alternatives, figure A3).

This report forms part of the series of specialist studies undertaken in terms of the Environmental Impact Assessment undertaken by PD Naidoo (Pty) Ltd in 2002; and as such all environmental and related management decisions regarding the final location of the transmission line, should be made in conjunction with the EIA report.

The sensitive heritage/cultural resources and cultural landscapes affected by the Transmission Line are identified in the following areas:

- The Swartland
- The Tulbagh Valley
- The Kouebokkeveld
- The Warmbokkeveld
- The Ceres Basin
- Karoopoort, and
- The Karoo.

The cultural resources include palaeontological, archaeological and historic features such as individual buildings, towns, farms, historic passes, rural, scenic and wilderness landscapes. Conclusions are identified as a series of "red flags" or heritage and visually sensitive areas showing the potential adverse impact that the transmission line will have on these heritage resources. Hotspots have been categorized for all fields of specialization from potential high levels of significance implying a potential "no go" decision to low levels involving low to no levels of mitigation. These are further identified within the report under Methodology.(See Section A5)

All specialist findings in relation to the routes have been identified and the impacts on heritage resources are ranked. The Heritage Impact Assessment has included palaeontological, archaeological, built environment and cultural landscape findings.

The report reaches the following conclusions:

1. ***Palaeontologica*l** resources identified in the study corridor

Main Alternative

The Main proposed route is of **Low** palaeontological significance.

Southern Alternative

This route which runs from Porseleinberg across the Elandskloofberge, Tulbagh Valley, Skurweberge and then northeastwards across the Warm Bokkeveld has **High to Very High** palaeontological significance on account of its key "red flag" fossiliferous units found in the area.

Central Alternative

The palaeontological significance of the route from the Witzenberg Range across the Gydo Pass is **Very High.** It intersects "red flag" fossiliferous units such as the Cederberg Formation and the Lower Bokkeveld Group. The central alternative route would take the powerline close to or across the Gydo Pass north of Prince Alfred Hamlet, a well-known "hotspot" for Bokkeveld Group fossils (notably in the Gydo and Voorstehoek Formations). This central route is therefore *more* significant in palaeontological terms than the new alternative route running to the south.

Northern Alternative

The palaeontological significance if the northern alternative route is **High** to **Very High**. Key sections of palaeontological sensitivity include:

- The Bokkeveld Group north of Gydo Pass
- The Bokkeveld Group north of Baviaansberg
- The lower Witteberg Group (Weltevrede Subgroup) north of Kwarrieberg
- The lower Ecca Group (Prince Albert, Whitehill and Collingham Formations)
- The Bokkeveld Group north of Baviaansberg
- The lower Witteberg Group (Weltevrede Subgroup) north of Kwarrieberg
- The lower Ecca Group (Prince Albert, Whitehill and Collingham Formations) of the southern Ceres Karoo.

2. Findings affecting ***Archaeological*** sites.

Main Alternative

This area is of **High** archaeological sensitivity and will require further investigation. This alternative will act on significant Middle and Late Stone Age archaeological resources near Gouda and Riebeeck West, and in the eastern section near Karoopoort.

Southern Alternative

This area is of **High** archaeological sensitivity and will require further investigation. It affects the western part of the Southern route, in the Groot Winterhoek and Witzenberg Mountains, which contain Early and Middle Stone Age and rock art resources close to Tulbagh, Gouda and Ceres.

Central Alternative

The western part of the central route close to Skurweberge is of **High** archaeological significance, which will require further investigation. It contains Middle Stone Age resources, which are of considered to be of significance.

Northern Alternative

The northern route contains Middle Stone Age archaeological sites and is considered to have overall **Medium to High** archaeological significance.

Conclusions

The proposed Gamma –Omega Transmission Line will impact on significant palaeontological and archaeological resources. However, many impacts can be mitigated by field sampling and analysis without negatively destroying the cultural resources and landscape.

3. Findings affecting the ***Built Environment*** and ***Cultural Landscape***

The proposed site traverses a range of landscape settings of heritage value. Heritage hot-spots have been "red flagged" based on the identification and assessment of landscape settings of special heritage value, individual heritage sites and places and routes embedded within them, as well as the potential visual impacts that line will have on these heritage resources.

Main Alternative

This affects a range of landscape settings of special heritage value. Heritage hotspots of medium to high level that require further investigation have been identified as the following:

Koeberg	Medium-high significance
Paardeberg Slopes	Medium to high/further investigation
Malmesbury Foothills	Medium/further investigation
Berg River Corridor	Medium/further investigation
Nuwekloof Pass	Medium-high
Tulbagh Valley	High
Witzenberg Valley	Medium
Gydo Valley & Pass	High
Ceres Farmland	Medium/further investigation
Theronsberg Pass	Medium
Bo Swaarmoed Valley	Medium to low
Platfontein Outspan	Medium to high
Karoopoort	Medium to low

Southern Alternative

Berg River Corridor	High/further investigation
Elandskloof/Bartholomeusklip	Medium-high
Wolseley Valley	Medium-low/further investigation
Ceres Farmlands	Medium/further investigation

Central Alternative

Tulbagh Valley	Medium-High
Gydo Valley & Pass	Medium-high

Northern Alternative

Gydo Valley & Pass	Medium

Conclusions

Built environment resources will be negatively impacted and there are sections of both the primary route, and alternatives, which are highly problematic from a cultural landscape and historical built environment perspective in terms of their potential **high to medium high impacts.** These are located within the Swartland and Mountain Regions

extending from Oliphantskop to Theronsberg Pass which constitute approximately 112km or 20% of the entire study corridor. Realignment of both these alternatives would be required in order to adequately mitigate their impacts. It is thus recommended that this section of the study corridor be subject to further assessment.

Within approximately 458km or 80% of the study corridor through extensive Karoo landscapes, potential heritage impacts on the cultural landscape will be of a **low to medium level.** The mitigation of these impacts could be accommodated through minor adjustments to the alignment and also detailed measures at a site-specific level. Consideration should thus be given to the conditional endorsement of this major section of the study corridor in order that strategic planning including the satisfaction of EMP requirements can proceed without unnecessary delay.

Recommendations

This report recommends appropriate approaches to high, medium and low-level impacts and issues needing further investigation. These responses range from "no-go" approaches to high level heritage hotspot areas to appropriate mitigation in medium and low level hotspot areas.

We recommend that the methodologies, findings and conclusions in this report be endorsed by Heritage Western Cape in order to further guide impact assessment and the proposal of remediation and mitigation to be undertaken in the Phase 2 Heritage Impact Assessment.

SECTION A: INTRODUCTION

A1 BACKGROUND

Eskom Holdings is proposing the construction of approximately 550kms of transmission line called the Gamma-Omega 765kVPower line from the Koeberg (Gamma) Substation in the Western Cape to Victoria West (Omega). This is in order to provide a reliable medium and long-term energy source for the Western Cape and beyond. The components of the proposal include transmission lines, pylons and supporting infrastructure including access roads.

This is an extensive project crossing a large area of the Western and parts of the Northern Cape including areas of considerable heritage sensitivity. The application triggers Section 38(8) of the National Heritage Resources Act (NHRA). An Environmental Study has been underway since 2002 in terms of the Environmental Conservation Act when a report was submitted to the National Department of Environmental Affairs and Tourism.

In June 2006, the National Department of Environmental Affairs and Tourism (DEAT) granted Eskom Holdings authorization for the proposed transmission power line in terms of Regulations R1162 and R1183 (as amended) promulgated under Sections 21, 22, 26 and 28 of the Environment Conservation Act (ECA; Act 73 of 1989).

The decision was based on the 2002 Environmental Impact Assessment (EIA) report, which included various specialist studies, as well as a report on the investigation of different alternatives to accommodate issues raised by the community.

DEAT concluded at the time, that the proposed activity would not lead to any net substantial detrimental impact on the environment, and that potential detrimental impacts resulting from this activity could be mitigated to acceptable levels. In terms of the different alternative alignments considered during the EIA process, authorization was granted for the alternative alignment described as the **Main Alternative**. (For an outline of the Alternatives and the routes they traverse see Section B).

As part of the EIA a specialist heritage report was submitted by the Agency for Cultural Resource Management (December 2001). A copy of this report is included as **Appendix 1.**

Specific conditions of the EIA approval included the development and implementation of a site-specific environmental management plan (EMP) for the design, construction and operational phases of the development. The EMP was also required to address a number of environmental issues, including, *inter alia,* the "Protection of any heritage sites likely to be impacted by the development should such sites be found during any phase of the project to follow" (ROD dated June 2006).

The EMP was also required to address the proposed management actions listed in Section 11.0 of the heritage specialist report prepared by the Agency for Cultural Resource Management, dated December 2001 (see above).

Arising out of this report, within the 30-day appeal period, a total of 61 appeals were lodged to the Minister of DEAT. Issues raised by the appellants included the following:

- The lack of public consultation;
- Inadequate description and assessment of alternatives; and
- Inadequate identification and assessment of heritage impacts. Concerns were raised regarding the heritage study was that it focused on individual heritage resources without sufficient consideration of broader cultural landscape issues.

- Inadequate identification and protection of sensitive culture landscapes

As part of the EIA appeal process, comment was obtained from the Provincial Heritage Authority of the Western Cape, Heritage Western Cape (HWC). HWC requested a detailed HIA for the proposed transmission line be undertaken to address a range of heritage issues including archaeology, paleontology, the built environment, the cultural landscape, sense of place, visual impacts, scenic routes as well as possible issues around cultural and spiritual association. Refer to: HWC letter of comment dated June 2007. (See **Volume 1 Appendix 2)**

As the line also traverses the Northern Cape Province, the Heritage Impact Assessment, will need to be submitted to the relevant heritage authority for this province, the South African Heritage Resource Authority (SAHRA).

The Minister of DEAT Mr M van Schalkwyk, also required that the draft HIA be made available to the appellants and that they should be given an opportunity to comment on the report. The completed HIA, including a full report on the consultative process must be submitted to the Minister prior to a decision being made on the appeal. Refer to **Volume 1 Appendix 3**: Minister of DEAT letter dated September 2008.

PD Naidoo appointed Cape Archaeological Survey in 2008, on behalf of their client, Eskom Holdings, to undertake a Heritage Impact Assessment (HIA) for the Gamma-Omega 765 Kv Transmission Line. The HIA is undertaken in terms of Section 38(8) of the National Heritage Resources Act, also serves to inform the decision-making processes relating to Sections 29, 27,34, 35 and 36 of the NHRA.

It includes the requirements contained in Section 38(3) of the Act pertaining to the identification assessment mapping and review of the impact of the proposal on the heritage resources, archaeological and palaeontological resources as defined by the Act, as well as impact on existing Provincial Heritage Sites.

A2 THE SITE

The site is located along the proposed Gamma-Omega transmission line that is approximately 550km in length between the existing Omega Substation east of Koeberg (Western Cape) and the planned new Gamma Substation near Victoria West (Northern Cape). For most of the central and eastern sections the new powerline will follow an existing line from the Ceres Karoo, through to the Victoria West area. In the more mountainous western sector, between Malmesbury and the Ceres Karoo, several alternative routes for the new power line have been proposed. A location map of the proposed route and the alternate new routes is given in **Figure A1**. For convenience the 550km route has been subdivided by Eskom into five sections, numbered from 1 to 5 from West to East (see **Figure A 2**). In the more problematic, mountainous western sections, between Malmesbury and the Ceres Karoo, 1: 250 000 topographical maps depict an alternate new line (blue) as well as alternative northern (brown), central (orange) and southern (yellow) routes.

The route passes through several morphological zones, which are made up of the Swartland and Mountains region, the Ceres and Moordenaars Karoo and the Great Karoo and the route is described in relation to each of these zones.

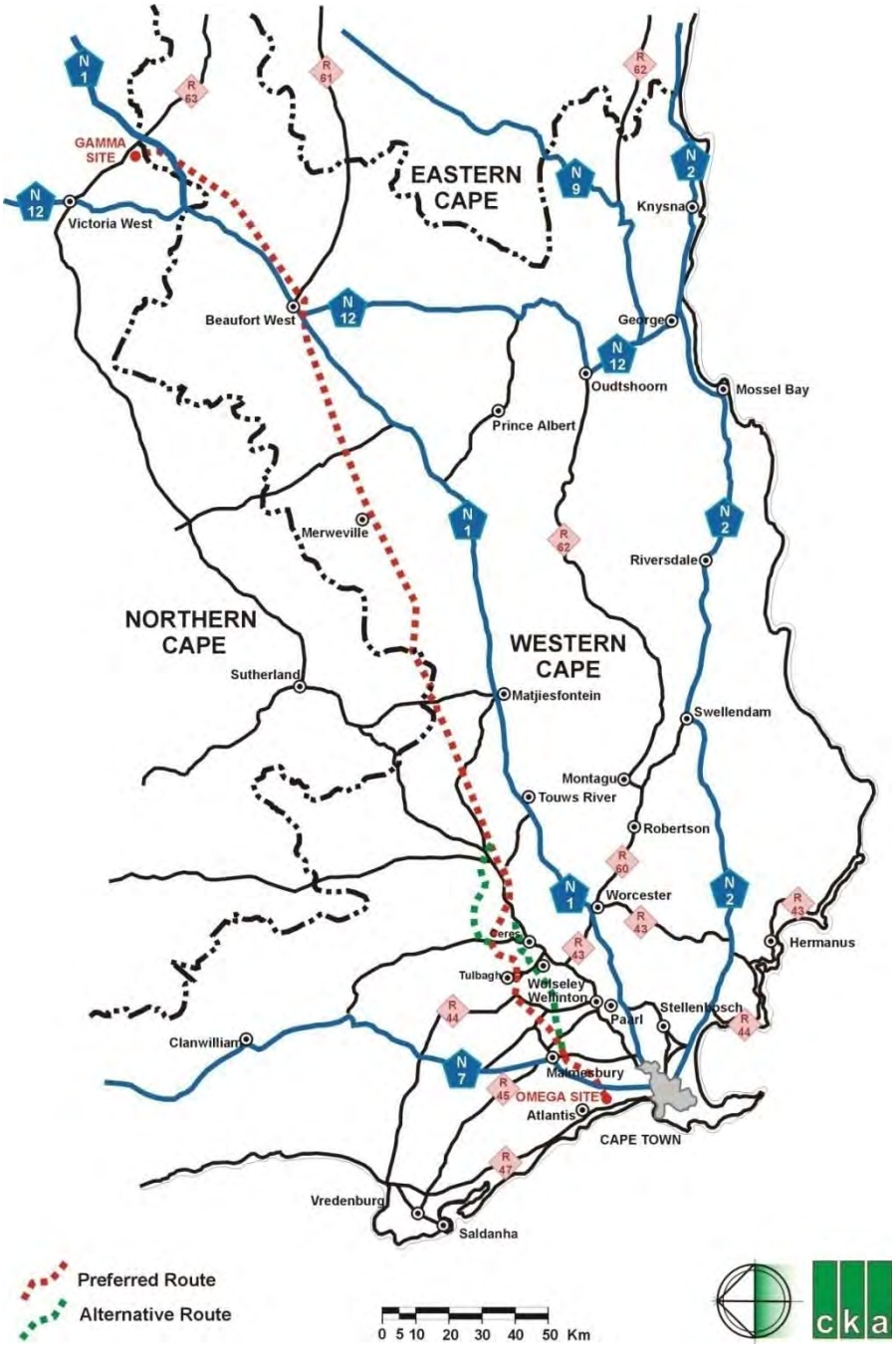


Figure A1: Locality Plan showing the proposed routes for the Gamma-Omega Line

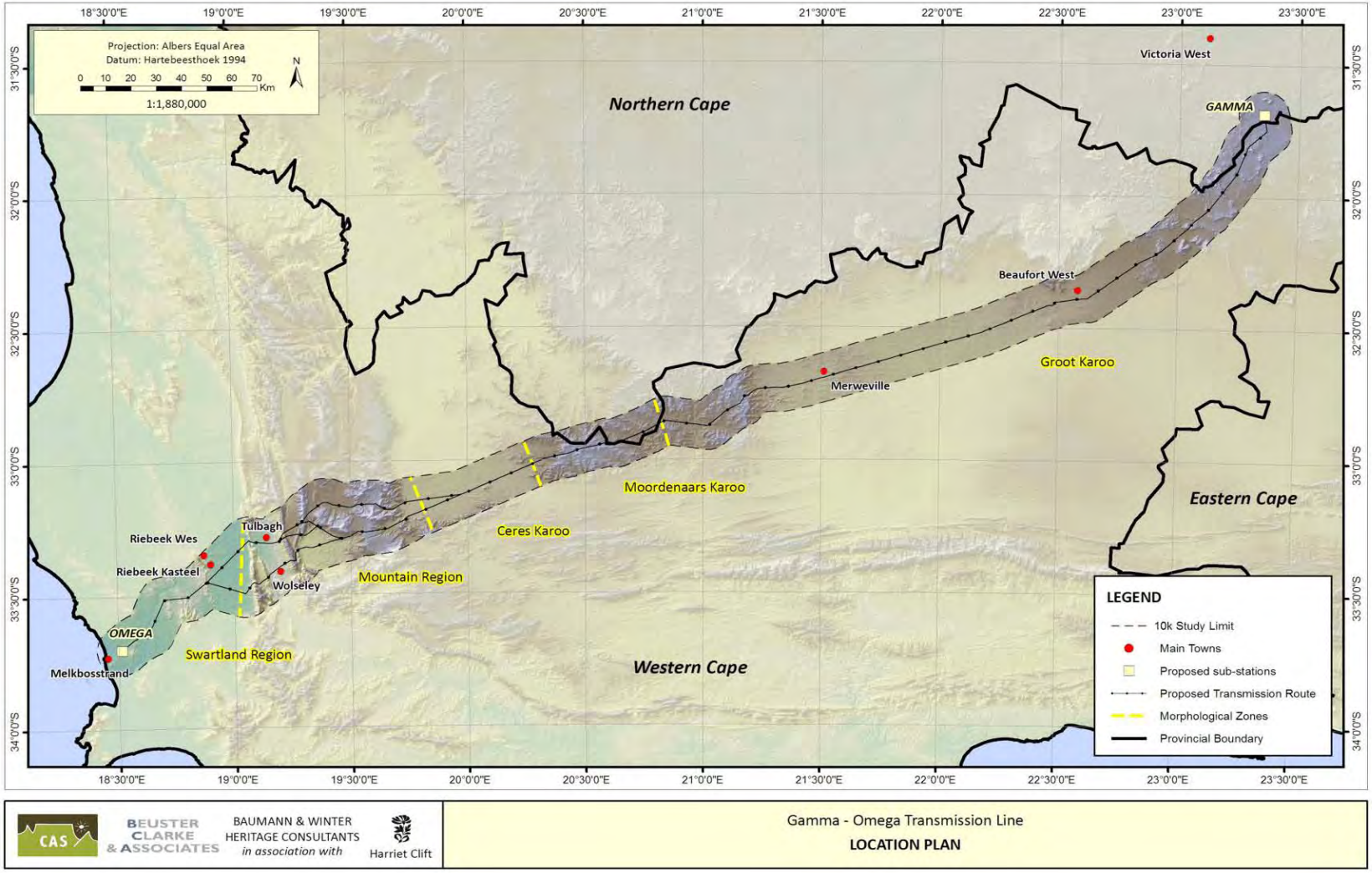


Figure A2: Location Plan which shows the five sections of the study area defined by morphological type (BCA 2008)

A3 TERMS OF REFERENCE

Statutory terms of reference and scope of work

The report is submitted in terms of the Requirements of Section 38(8) of the National Heritage Resources Act (Act 25 of 1999) (NHRA).

As a result, the report is submitted as a specialist study in terms of the Environmental Impact Assessment requirements contained in the Environmental Conservation Act, and the National Environmental Management Act (NEMA).

The overall statutory terms of reference are to meet the requirements set out in Sections 38, 27(16,18), 34(1), and 35(1,3,4) of the NHRA. In particular Sections 38(8), Section 38(1) and Section 38(3) have application.

Requirements contained in Section 38(3) include:

- The identification and mapping of heritage resources.
- The assessment of the significance of heritage resources in terms of the criteria prescribed in the NHR A
- An assessment of the negative and positive impacts of the proposed development on such resources and an evaluation of such importance relative to the sustainable social and economic benefits to be derived from the development.
- The outcome of consultation with Interested and Affected parties (I&APs) regarding the impact of the development on heritage resources.
- If heritage resources will be adversely affected then the consideration of alternatives.

In addition, an archaeological and palaeontological desktop study together with assessment are required in order to review known sites, with comment on the significance of these sites. (Section 35). It should be noted that the parts of the study area which have already been studied have indicated very rich deposits of fossil-baring material and archaeological artifacts and that the potential for finding additional sites is high.

In order to assess heritage sites, the requirements for work for the specialist built environment and cultural landscape study included the following:

- The formulation of assessment criteria based on the criteria and grading system outlined in the NHR Act and the DEA&DP.
- A historical overview of the origins and patterns of human occupation, settlement and land uses
- The identification of morphological or landscape character zones to be used as the basis for developing an appropriate analytical framework to address heritage issues at various scales.
- The identification and mapping of potential and known built environment and cultural landscape resources at various scales
- The formulation of statements of heritage significance of built environment and cultural landscape resources at various as well as more specific cultural landscape assessment criteria reference to above.
- The identification of heritage informants for the proposed transmission line with specific reference to addressing cultural landscape issues.
- The identification of heritage issues and concerns, or “red flag” areas which need to be subject to further investigation in terms of their potential heritage impacts.

- The detailed assessment of heritage impacts of the alternative routes
- The integrating the findings and recommendations of the VIA in terms of a potential overlap between cultural landscape and visual issues.
- The participation in a targeted consultation with the appellants in the form of discussion sessions and open house meetings.
- The recommendation of a preferred alternative route from a heritage perspective and necessary heritage management actions including possible modifications to the proposals and mitigation measures to be undertaken during the planning, construction and operational phases.

The HIA is being undertaken in two phases - heritage scoping (this report) and the impact assessment mitigation and decision regarding alternatives phase.

This report forms part of an extended heritage scoping study and therefore focuses on the identification, mapping and significance of heritage resources affected by the proposed alternatives and the "red flagging" of key heritage issues and concerns requiring detailed assessment during the impact assessment phase of the study.

A4 PROJECT TEAM

A range of heritage specialists undertook the required work in order to identify and assess the heritage resources - both tangible and intangible, along the study corridor. The details and scope of work of each of the team members are outlined below. Their findings and recommendations have been incorporated into the main body of the report and referenced accordingly, and their reports included. They include:

- **Principal Consultant :** Mary Patrick, Cape Archaeological Survey (CAS)
- **Cultural Landscape:** Sarah Winter and Nicolas Baumann, Heritage Consultants
- **Visual Scoping:** Tassie Clarke, Beuster, Clarke & Associates
- **Colonial Period Desktop Study:** Harriet Clift
- **Pre Colonial Period Desktop Study:** Professor Andrew Smith
- **Palaeontological Desktop Study:** Dr John Almond, Natura Viva cc
- **Public Consultation:** Mr Ken Haumann, PD Naidoo & Associates

On completion of the project the specialist consultants committed themselves to the findings and recommendations of this HIA report in relation to the following:

(1) The overall report as adequately reflecting their individual inputs as defined in their terms of reference and their field of expertise.

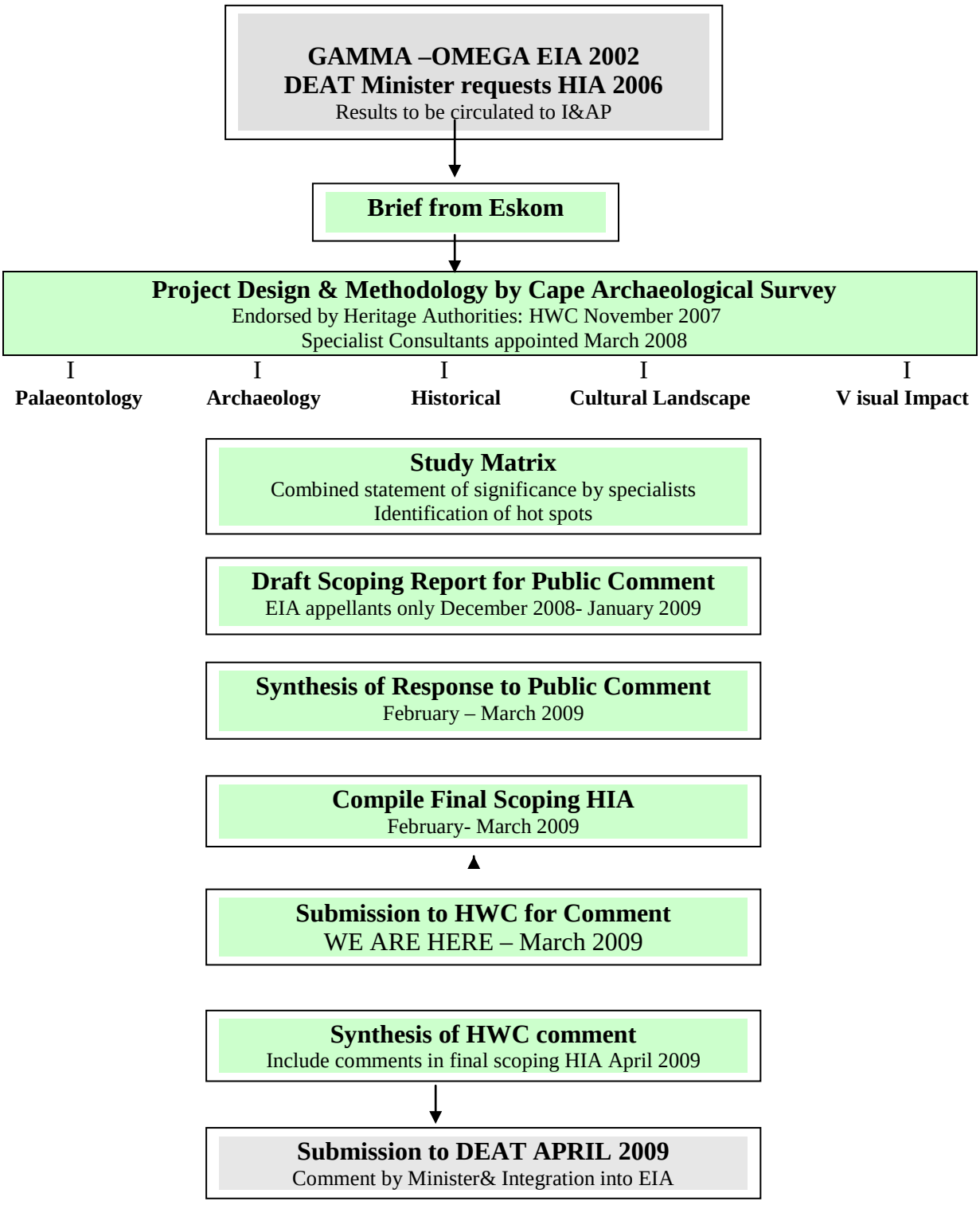
(2) The identification of areas of conflict or convergence between the overall findings and recommendations and those of the respective specialist inputs.

The Position Statement is contained in Section N of this report.

A5 STUDY METHODOLOGY

The methodology used in the heritage study (HIA) is set out in diagram 1 and has included the following:

PROJECT DESIGN & METHODOLOGY



A5.1. A Multidisciplinary Approach to address the range of heritage issues flagged by the proposed development including:

- Palaeontology
- Archaeology
- Architectural History
- Historical Research
- Landscape character analysis
- Visual impact assessment and view shed analysis
- Social history

A5.2. Specialist Methodologies: Identification and related criteria

A5.2.1. Paleontology and Archaeology

A GIS data recording exercise was undertaken for palaeontological sites older than 1000 years, archaeological sites older than 100 years, as well as buildings and settlement footprints older than 60 years based on topographical map information dating to 1945 (Union map series, GIS data University of Texas, Council for Geoscience Pretoria – Sheets 3318 Cape Town, 3319 Worcester, 3320 Ladismith, 3220 Sutherland, 3222 Beaufort West, and 3122 Victoria West). Archaeological data sheets stored at Iziko Museum and the University of Cape Town were used to identify known sites across the study corridor. On the basis of this information, four ecological zones were identified in the study area each of which would have produced a distinct human response by prehistoric people living in the landscape. The zones are described under their unique headings:

1. Coast at Melkbosstrand: this area has the largest number of recorded sites, mostly due to its proximity to Cape Town, and the amount of coastal development that has taken place over the past 30 years. Large numbers of shell middens existed along the beach before houses were constructed. It is also the location of Duinefontein, the prehistoric location first sampled before Koeberg Power Station was built.

2. Inland Plain or Swartland: primarily a shale-based substrate that has provided the geological basis for the higher nutrition soils needed for grain agriculture. It also has the only perennial river system (Berg River) within the study area. Prior to colonial farming, indigenous grasses would have been attractive to aboriginal herders and their stock.

3. Cape Fold Mountains: a rugged sandstone formation that has created numerous caves and rock shelters inhabited by prehistoric people. This is where the largest number of rock paintings have been recorded.

4. Karoo: a dry area of open plains with an escarpment formed from the easterly extension of the Cape Fold Belt. Prehistoric hunters would have had territories focussed on the available surface water points, and follow the migrations of large herds of springbok. It is here that rock engravings are to be found.

A5.2.2. Identification of Heritage and cultural landscapes

Use of Cultural Landscapes Typologies and Heritage Assessment Criteria

The focus of the heritage and cultural landscape specialist study (Baumann and Winter 2009) is the assessment of the impact of the proposed transmission line on the cultural

landscape. The concept of the cultural landscape does not appear in the NHRA and is thus briefly defined followed by a set of definitions and criteria relating to the assessment of significance of cultural landscapes.

Definition of terms

In terms of the definitions relating to heritage resource, place and cultural significance, a working definition of cultural landscape can be stated as:

> *"A place of cultural significance, which engenders qualities relating to its aesthetic, architectural, historical, scientific, social, spiritual, linguistic, technological, archaeological or palaeontological value."*

Cultural landscapes provide the essential context for a range of heritage resources, which can take a variety of forms and are themselves a heritage resource in their right. It could be regarded as the tapestry within which all other heritage resources are embedded and which gives them their sense of place and meaning. The concept of cultural landscape gives spatial and temporal expression to the processes and products of interaction of people with the environment. It may thus be conceived as a particular configuration of topography, vegetation cover, land use and settlement pattern, which establishes some coherence of natural and cultural processes. UNESCO identifies three broad categories of cultural landscapes:

- **Designed landscapes** clearly defined and created intentionally by man.

- **Organically evolved landscapes** usually result from an initial social, economic, administrative and/or religious imperative and develop their current form by association with and in response to the natural environment. Such landscapes reflect the process of evolution in their firm and component features. They fall into two sub-categories, i.e. relic and continuing cultural landscapes:

  - A relic landscape in which the evolutionary process came to an end at some time in the past either abruptly or over a period. Its significant distinguishing features are however still visible in material form.

  - A continuing landscape, which retains an active social role in contemporary society closely associated with traditional ways of life, and in which the evolutionary process is still in progress. At the same time it also exhibits material evidence of its evolution over time.

- **Associated cultural landscape,** where powerful religious, artistic or cultural associations with the landscape are significant, rather than with historical physical fabric, which may be insignificant or even absent.

The large majority of landscapes affected by the transmission line are organically evolved landscapes. To aid understanding and appropriate heritage management this broad umbrella terms is divided into a number of sub-categories:

- Historical townscape
- Historical farm werf
- Scenic landscape
- Pristine natural landscape
- Wilderness mountain landscape
- Productive agricultural landscape
- Remote arid landscape

- Relic landscape

Heritage Assessment Criteria

The NHR Act outlines the following broad criteria for assessing the heritage significance of a place including landscapes.

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

The above criteria incorporate historical, aesthetic, scientific and social values, as well as the values of rarity and representivity

Methodology for identifying heritage and cultural landscape resources

Secondary source materials provided the basis for an historical overview. Maps dating from the 17th century provided information used to plot the expansion of settlement and land use over time, and to identify and map known and potential heritage resources, including historical routes, VOC outposts, outspans, military installations, and agricultural and urban settlements, among others. This historical/spatial information was initially recorded on 1:50 000 topocadastral maps and then digitized into GIS.

A one-day fieldtrip was undertaken of the proposed alignment through the Swartland region (Section 1) and the proposed alternative alignments through the Tulbagh-Ceres region (Section 2).

A further two-day fieldtrip was undertaken of the proposed alignment through the Ceres Karoo (Section 3), Moodenaars Karoo (Section 4) and Great Karoo (Section 5) regions.

Fieldwork included the photographic recording and mapping of potential/known heritage resources, issues and concerns. Fieldtrip work was limited to sections of the route accessible by car via the primary and secondary road network. Due to the 500km extent of and a concentration of known and potential heritage resources within the study corridor, it was not possible to physically inspect every potentially affected heritage resources. In many cases, physical inspection was not deemed necessary, as sufficient digital information was available in terms of visual and heritage issues to make certain assumptions.

Based on the desktop and field surveys, **heritage resources** were mapped and assessed in terms of their significance at two scales of analysis, i.e. at the broader cultural landscape and individual element scales. The criteria and grading system used in this assessment is

based on the criteria outlined in the NHR Act but have been developed further as outlined by Baumann and Winter (2002) and endorsed by HWC in 2005. Section G of the report specifically addresses the definition of the term cultural landscape as well as the landscape typologies and criteria used for the cultural landscape assessment. For each of the study sections, heritage resources have been mapped and are accompanied by statements of heritage significance including suggested gradings.

Guiding principles relating to the location of the transmission lines across sensitive cultural landscapes were formulated addressing a range of heritage issues. These principles are identified in Section G.3 of the report.

Potential heritage issues and concerns along the proposed alignments have been identified. Similarly to the findings of the EIR (2002), certain heritage issues and concerns relating to the construction and operation phases of the proposed transmission line are generic while others will be specific to an area or heritage resource.

Scenic Landscapes

A central concern related to the study area is what constitutes 'scenic' and to what extent value can be attached to different scenic landscapes. While the term is obviously to a degree subjective an attempt is made here to define the term as it is used in the specific context of this study to assist in the heritage management process.

Chambers (2001) defines scenic as 'including attractive natural landscapes'. Synonyms include 'panoramic, picturesque, attractive, beautiful, striking, impressive, spectacular and breathtaking'. Antonyms include 'dull and dreary'

For the purposes of this study the following broad categorization is used to assess cultural landscapes of which scenic landscapes constitute a major element.

- **Intact, authentic landscapes**. Landscapes which are regarded as organically evolving landscapes in terms of the UNESCO classification and which are relatively undisturbed in terms of visual intrusions.

- **Distinctive, vivid landscapes**. Landscapes which have distinct qualities in terms of comparison with other landscapes; landscapes which have a dramatic visual quality; landscapes which are legible or easily understood in terms of their natural and cultural associations.

- **Representative landscapes**. Landscapes which are particularly representative of the region of which they form a part; that reveal a combination of characteristics and qualities which may be regarded as representing the quintessential character of the region(s).

Criteria for Assessing Vulnerability

The vulnerability of heritage resources is based on a number of factors:
- Past damage and the irreversibility thereof
- Irreplaceability or non-renewability
- Ability to accommodate growth and change
- Inherent fragility
- Degree of protection
- Attitudes to conservation
- Conservation awareness

- Presence of local heritage management framework
- Pressures for growth and change

The premise underlying this assessment is that the cultural landscape is dynamic and continues to evolve. Continuous change and evolution of the landscape is inevitable and necessary. However, there is a need to ensure that heritage significance of its past evolutionary process are not degraded or lost by change. By assessing the vulnerability of heritage resources, conservation objectives can be formulated to prevent, minimize, rehabilitate or ameliorate past or future damage or loss.

A5.3 Assessment of heritage impacts

The following criteria were compiled by Chand Environmental Consultants and are adapted from T Hacking, AATS – Envirolink[i]:

The significance of environmental impacts is a function of the environmental aspects that are present and to be impacted on, the probability of an impact occurring, and the consequence of such an impact occurring before and after implementation of proposed mitigation measures.

Extent (Spatial Scale)

Ranking criteria		
L	**M**	**H**
Impact is localized within site boundary	Widespread impact beyond site boundary; Local	Impact widespread far beyond site boundary; Regional/national

This takes into consideration:
- Access to resources; amenity
- Threats to lifestyles, traditions and values
- Cumulative impacts, including possible changes to land uses at and around the site.

Duration

Ranking criteria		
L	**M**	**H**
Quickly reversible, less than project life, short term (0-5 years)	Reversible over time; medium term to life of project (5-15 years)	Long term; beyond closure; permanent; irreplaceable or irretrievable commitment of resources

This takes into consideration:

- Cost – benefit economically and socially (e.g. long or short term costs/benefits)

\

Intensity (Severity)

Type of Criteria	Negative			Positive		
	H-	M-	L-	L+	M+	H+
Qualitative	Substantial deterioration, death, illness or injury, loss of habitat/ diversity or resource, severe alteration or disturbance of important processes.	Moderate deterioration, discomfort, partial loss of habitat/ biodiversity/ resource or slight or alteration	Minor deterioration, nuisance or irritation, minor change in species/habitat/diversity or resource, no or very little quality deterioration	Minor improvement, restoration, improved management	Moderate improvement, restoration, improved management, substitution	Substantial improvement, substitution
Quantitative	Measurable deterioration Recommended level will often be violated (e.g. pollution)	Measurable deterioration Recommended level will occasionally be violated	No measurable change; Recommended level will never be violated	No measurable change; Within or better than recommended level.	Measurable improvement	Measurable improvement
Community response	Vigorous	Widespread complaints	Sporadic complaints	No observed reaction	Some support	Favourable publicity

This takes into consideration:

- Cost – benefit economically and socially (e.g. high net cost = substantial deterioration)
- Impacts on human-induced climate change
- Impacts on future management (e.g. easy/practical to manage with change or recommendation)

Status

This involves describing whether the impact is positive, negative or neutral for each parameter. Based on a synthesis of the information contained in Sections 3.1 - 3.5 above, the specialist is required to assess the significance of potential impacts in terms of the criteria outlined below.

Significance

The significance of impacts shall be assessed both with prescribed mitigation actions. The significance of the identified impacts on components of the affected environment shall be determined as Probability X Consequence:

Significance				
Probability	**H**	**Medium**		**High**
	M			
	L	**Low**		**Medium**
		L	**M**	**H**
		Consequence		

Degree of Confidence in Predictions

State the degree of confidence in the predictions, based on the availability of information and specialist knowledge.

Probability of Occurrence

Ranking criteria		
L	**M**	**H**
Unlikely; low likelihood; Seldom No known risk or vulnerability to natural or induced hazards.	Possible, distinct possibility, frequent Low to medium risk or vulnerability to natural or induced hazards.	Definite (regardless of prevention measures), highly likely, continuous High risk or vulnerability to natural or induced hazards.

This describes the likelihood of the impact actually occurring.

Grading Criteria

The NHRA ct makes provision for a three-tier system for grading heritage resources, namely:

- Grade 1: significant within a national context
- Grade 2: significant within a provincial or regional context
- Grade 3: significant within a local context

As most heritage resources are deemed to be of local heritage value, this category is broken down into various sub-categories according to their relative intrinsic, associational and contextual value, i.e. Grade 3A, 3B and 3C.

A5.4 VISUAL IMPACT ASSESSMENT

Methodology affecting the Visual Impact Study included the following:

Determining the Visual Absorption Capacity (VAC) of the landscape, i.e. the ability to absorb development based on factors such as landscape variability, vegetation and feature height, and slope. Using Land Cover data and a Digital Elevation Model, these three elements were determined, and combined to provide a VAC score which is presented as a data layer which can be analysis with other layers in GIS.

Performing the Viewshed Analysis for the study area, i.e. the topographically defined extent which indicates all possible areas of the landscape to which a proposed structure is visible. Local variation in topography, vegetation cover and man-made structures will cause local obstruction of views within this extent. The resultant layers can be analysed with other layers in GIS to determine areas to which pylons are visible or hidden.

Carrying out and mapping the Critical Viewpoint Analysis. For critical viewpoints identified within the study area, a finer analysis was carried out. This included :

- The generation of additional localised viewsheds using the critical viewpoint as the observer point (source) at 0 meters (ground level), 24 meters (half the pylon height), and 48 meters (full pylon height) using a 20 meter DEM.
- The generation of observer distance zones at 500 meters (maximum impact), 1000 meters, 2000 meters and 5000 meters (negligible impact).

- The generation of line of sight profiles from critical viewpoint to selected pylons within the 5000 meter zone.

- Data for each critical viewpoint was imported into Google Earth to provide a 3-dimensional picture of the visual impact from the critical viewpoint. The accumulated information was used to score the visual impact of each critical viewpoint, and the data and results were mapped on A2 maps.

- The critical viewpoint analysis has provided the main source of integration between the heritage and visual studies. The selection of critical view points was based on heritage issues, e. g. visibility of pylons from scenic routes and historical passes, farmsteads, townscapes, burial grounds, etc. In some cases, it was not necessary to undertake a critical viewpoint analysis given the proximity of the heritage resource to the proposed pylon, i.e. less than 500m and the likelihood of this resulting in a high negative impact. Importantly, while a pylon may have a high visual impact on a heritage resource, the degree of significance of this impact from a heritage perspective is dependent on the nature and degree of significance of the affected heritage resource.

- Based on a synthesis of the heritage and visual analyses referred to above, "hot spot" areas within the study corridor have been identified for further investigation during the next stage of heritage assessment process.

A5.5. ASSESSMENT METHODOLOGY

Divisions of Geographical Sections into study areas

For the purposes of the heritage assessment, the route has been divided into the following Sections

- The Swartland Region (Section 1),
- The Mountain Region (Section 2),
- The Ceres Karoo Region (Section 3),
- The Moodenaars Karoo (Section 4) and the
- The Great Karoo (Section 5).

Selection and assessment of route alternatives

The route alternatives considered as part of this heritage study are the alternatives selected and evaluated in terms of the EIA (2006). These are illustrated in Figure 5. Route selection was based on the lowest potential impact on the social and biophysical environment, particularly in terms of ecological and visual impacts.

The key principle therefore guiding the route selection was to follow, as far as possible, existing 400 kV transmission lines. This specialist scoping study (HIA) provides a comparative analysis of the different alternatives routes from a historical built environment and cultural landscape perspective. However, while these heritage issues were not adequately taken into account during the route selection process, it is necessary to determine whether or not the proposed alternatives presented or sections therefore can be accommodated without detrimental impact on the cultural landscape and built environment.

Extending the definition of the study corridor

The study corridor has been defined as a 5-10km buffer zone either side of the proposed transmission line. The previous study corridor assessed in terms of the EIA process, was a 500m strip either side of the proposed transmission line. Importantly, a strong caveat to the various mitigation measures recommended in the EIA specialist studies was that the route alignments do not move beyond the study area evaluated. This has implications for the extent to which the proposed alternatives can be shifted to accommodate heritage issues without possibly triggering a new EIA process.

Defining the study sections

Due to the linear nature and extent of the study area, the EIA delineated the study corridor into five sections or regions (see above). This is despite the fact that there is interdependence between the sections and the study corridor as a whole. Despite this concern the same methodology has been used in this HIA. These various sections include:

A5.4 Fieldwork

- The documentary base information was followed up by a number of fieldwork sessions. A one day fieldtrip was undertaken of the proposed alignment through the Swartland region (Section 1) and the proposed alternative alignments through the Tulbagh-Ceres region (Section 2). A further two day fieldtrip was undertaken of the proposed alignment through the Ceres Karoo (Section 3), Moodenaars Karoo (Section 4) and Great Karoo (Section 5) regions.
- A photographic survey was undertaken over a period of time as part of a series of field trips. This was in order to records scenic views and the historic buildings and their contexts as well as to facilitate the assessment of the significance of the landscape and the resultant identification of sensitive areas or hot spot. For the full photographic record see **Appendix 4.**

- Subsequent to the public open house meeting held in November 2008, more detailed fieldtrips were undertaken of the Swartland and Mountain regions, in order to clarify issues and concerns with heritage hotspots. Fieldtrip work was limited to sections of the route accessible by car. Due to the 500 km extent of the study corridor, it was not possible to physically inspect every potentially affected heritage resource. In many cases, physical inspection was not deemed necessary as sufficient documentary information was available to certain assumptions regarding the heritage and visual issues involved.

A5.5. Mapping of heritage resources:

Based on desktop information and fieldwork, heritage resources and their contexts have been mapped and assessed at various scales. Some 25 landscape settings of special heritage value located within the study corridor have been identified and unpacked in terms of their landscape typology, nature and degree of significance and sensitivity. The assessment criteria and grading system used in this regard are based on those outlined in the NHR Act and developed further by Baumann & Winter (2002) with specific reference to the term cultural landscape. (See Section A5.2.2).

Due to the extent of the study area and detailed level of mapped information, a HIA map book has been produced at A2 size incorporating all the figures. It maybe required that the reader cross reference to this map book for further more detailed information, especially in terms of the analyses of critical view points and identification of heritage hotspots. The maps

are based on the topographical series for the Western and Northern Cape and This map book, which is produced at a scale of 1: 555 000, is submitted as a supplementary report together with this report to HWC and the appropriate authorities.

A5. 6. HERITAGE INFORMANTS

Guiding principles relating to the location of the transmission lines from a cultural landscape and built environment perspective were formulated to provide an analytical framework for the assessment process. These guiding principles are addressed in **Section H** of the report.

A5.7. IDENTIFYING HERITAGE ISSUES AND CONCERNS

Heritage issues and concerns relating to each landscape setting have been identified and mapped. These include potential impacts of the transmission line on the integrity of the landscapes of special heritage values as well as the settings of individual heritages embedded within them. **(see Section J)**

A5.8. INTEGRATION OF HIA AND VIA

A major limitation of the previous HIA and VIA was the lack of integration of visual and heritage issues. Beuster Clarke Associates were appointed to conduct a VIA as part of an integrated visual-heritage study. The new VIA has included the determination of the visual absorption capacity (VAC) of the landscape and viewshed analysis using advanced 3D modeling in Google and GIS tools as identified in the methodology above.

- Furthermore, the VIA has also included a finer grained critical viewpoint analysis. At least 60 critical viewpoints were identified to establish the degree of visibility of the pylons from the observer point at 0 meters (ground level) 24 meters (half the pylon height), and 48 meters (full pylon height) using a 20m DEM. Observer distance zones were generated at 500 meters (maximum impact), 1000 meters, 2000 meters and 5000 meters (negligible impact). Line-of-sight profiles were also generated from critical viewpoints to selected pylons within the 5000m zone. Mitigating effects of background screening were also taking into account. Data for each critical viewpoint was also imported into Google Earth to provide a 3-dimensional picture of the visual impact from the critical viewpoint. The accumulated information was used to score the visual impact of each critical viewpoint, and the data and results were mapped on A2 maps. The critical viewpoint analysis has provided the main source of integration between the heritage and visual studies. The selection of these critical view points was based on heritage issues, e.g. visibility of pylons from scenic routes and historical passes, homesteads, townscapes.

- The conclusions of this detailed analysis are based on a combination of potential visual impact and the nature and degree of significance of an affected heritage resource. Importantly however, the overall conclusions made in this specialist scoping report are not based solely on the outcome of this critical viewpoint analysis. Firstly, not all the issues and concerns identified in this report have been subject to a detailed critical viewpoint analysis using 3D modelling and GIS tools, especially in terms of dealing with the broader landscape issues. Secondly, in many cases observations in this field of certain micro-conditions such as topography, tree planting and site orientation allowed for further conclusions to be made in terms of potential visual impacts.

A5.9. IDENTIFICATION OF HERITAGE HOT SPOTS

Based on a synthesis of the heritage and visual issues referred to above, heritage "hot spots" areas along the proposed alignments have been identified which have various implications from a heritage management perspective including "no-go", mitigation and further investigation.

A5.10. PUBLIC PARTICIPATION PROCESS

The public process was limited to the appellants of the EIA process. As part of this process, the draft specialist scoping report prepared by the HIA team dated October 2008 was made available for public comment and presented at a public open house meeting held in November last year. This report does not deal separately with the outcome of this public scoping process including a range of legal issues raised by Interested and Affected Parties (I&APs) and their legal representative. .

For further information on this process see Sections D and Sections M of this report as well as Appendix 6

A6. LIMITATIONS TO THE STUDY

The Study Area

This study area is limited to the alternatives assessed in the EIA process. Heritage specialist input was not involved in the selection of routes during the EIA scoping phase. From a cultural landscape perspective it would have been important for the selection of alternatives to be undertaken within a broader regional context rather than being limited to a set of predetermined alternatives. Despite this limitation, this has not precluded the alternatives or sections thereof assessed in terms of this specialist study from being recommended as "no-go" options.

Ancillary project infrastructure and components such as access roads, borrow pits, soil dumps, etc were not assessed. These components will be assessed in detail during the design phase should the project be implemented.

Related infrastructure

The assessment does not consider the ancillary project infrastructure and components such as access roads, borrow pits, soil dumps, etc. It is envisaged that these will be assessed in detail during the impact assessment phase and design phase should the project be implemented.

Links between the 5 sections

The interdependence between the 5 sections and the study corridor as a whole while recognised, is not studied. The 5 -section method used in the previous study has also been used in this HIA.

Limitations with regard to the extent

Although a broad linear study (20km) was originally assessed at desktop level during EIA scoping phase, the most suitable route alignments were further investigated during the assessment phase.

The study area was thus reduced to within a 500 m buffer either side of the proposed transmission line. For the purposes of this heritage study, the definition of the study corridor is identified as a 10km buffer either side of the proposed transmission line.

Mitigation measures

A strong requirement contained in the recommendations made in the EIA specialist studies was that the Eskom Transmission implements the various mitigation measures as part of the Environmental Management Plan (EMP); and that the route alignments do not move beyond the study corridor evaluated. The same principle applies to this heritage study.

According to the EIR, the first level of mitigation was implemented in terms of the route selection. Route selection was based on the principle of having the least potential impact on the social and biophysical environment, particularly in terms of ecological and visual impacts. In this regard, the key principle that guided the route selection was to follow, as far as possible, existing 400 kV transmission lines. This principle guided the selection and evaluation of the four different potential route alignments through Section 4. The route alternatives considered as part of this heritage study are the alternatives selected and evaluated in terms of the EIA process. These are illustrated in **Figure A3**.

Limitations with regard to the original VIA.

A separate VIA was conducted as part of the original EIA process. A major limitation of this study was that it assessed the preferred main alternative only and therefore did not include a comparative assessment of the alternatives from a visual aesthetic perspective. Another major limitation was the lack of integration of visual and heritage issues especially given that impact on heritage resources are more than likely to be of a visual nature. In order to address this concern, Beuster Clarke Associates were appointed in terms of this HIA process to conduct a VIA as part of an integrated visual-heritage study.

Limitations with regard to Public Participation

The EIA public participation process included workshops, open house meetings and targeted discussions with I&APs at a national, provincial, regional and local level. It included Public Open Days to enable one on one interaction with the study team members, Environmental Review Forum Workshops held in Ceres and Beaufort West, landowner consultation in terms of EIA and land negotiation (which is separate to the EIA) primarily with Farmers' Associations. Site visits and discussions with I&APs along the route resulted in the identification of alternatives during the scoping phase which were further evaluated during the assessment phase of the EIA. I&APs were also given the opportunity to comment on various reports produced during the EIA process.

Time lapses between the initial start of the project in November 1999 and the restart of the Scoping Phase in July 2001 necessitate a revision of the consultation process to ensure continuity of the process.

Further consultation to be undertaken as part of the HIA process will include targeted consultation with the appellants in the form of discussion sessions and open house meetings. A two phased public process is envisaged related to the scoping and impact assessment phases of the HIA process.

Qualitative Assessments

The assessment of cultural landscapes based on aesthetic and visual criteria cannot be determined in absolute terms. Subjectivity cannot be excluded from the assessment

process. As stated in the VIA (2001) there is a great variation in the evaluation of the visual and aesthetic landscape based on different experiences, social level and cultural background.

The assessment of the palaeontological and archaeological resources also cannot be determined in absolute terms: a more precise evaluation can only be undertaken when the final route is confirmed and sampling techniques implemented.

Integration into the EIA

It should be noted that the findings and recommendations arising from this heritage study will need to be integrated with the EIA findings and recommendations. In this regard heritage issues will need to be balanced against social-economic, ecological issues as well as issues of viability and feasibility.

A7 STRUCTURE OF THE SCOPING HIA REPORT

The report is structures as follows:

Section A (This section): This section presents a broad introduction to the site, a brief overview of the assessment criteria, and an outline of the area of expertise and contribution made by the team members.

Section B: This section provides a description of the study area and of the receiving environment with a background history to the proposed development

Section C: This section provides an overview to the Study Area and seeks to describe the nature and character of the natural and cultural receiving environments as well as provide a basic historical archaeological and background palaeontological.

Section D : Provides a brief explanatory background to the Public Participation Process which is more fully outlined in Section M (Public Consultation). Public comments arising out of the EIA process, the views of appellants represented by Mr R Summers, and the comments and objections arising out of the public presentations of the HIA November 2008 are contained in Appendix 6, attached to this report

Section E : Provides a general historical overview, which addresses palaeontological, archaeological and the spatial, temporal and thematic layering of the cultural landscape. This has been used as a framework to evaluate the heritage significance of resources found in the study corridor.

Section F: This section addresses Visual Impact Assessment (VIA) criteria used for the current HIA study in order to assess the impact of the proposed Gamma Omega Transmission line on the surrounding landscape and forms.

Section G : This section of the report provides an overview of the findings and recommendations of the EIA; including the previous VIA.

Section H : Provides Statement of Heritage Significance: The heritage significance of various resources found in the study corridors is unpacked and the emerging heritage informants are discussed.

Section I: This section of the report provides the overall heritage indicators pertaining to the location of transmission lines across culturally sensitive landscapes.

Section J: This section deals with heritage issues and concerns and provides a list of the range of landscape settings, typologies, sites and places of cultural significance across the study area. It seeks to summarise the nature of heritage significance of the different cultural landscapes as well as the individual heritage sites and places embedded within them.

Section K : This section seeks to summarise the nature of heritage significance of the different cultural landscapes as well as define the Hot Spot Areas embedded within these landscapes. These include areas of paelontogical archaeological, cultural landscape and built environment heritage significance.

Section L: This section contains the conclusions and recommendations made by the various HIA consultants, which are discussed in this report and should be regarded as provisional insofar as they relate to the proposed development of the Gamma-Omega Transmission Line, which is subject to further analysis in terms of the EIA process.

Section M: Records the 2008/09 Public Consultation Process.

Section N: Concludes with a position statement for the Final Scoping HIA

Section O: Contains a full bibliography for each of the HIA consultant's reports including references to source material analysed from Museums, and the State Archives.

Section P: Appendices to Volume 1. These are the following:

Volume 1: SCOPING REPORT

Appendix 1: Gamma Omega Heritage specialist report prepared by the Agency for Cultural Resource Management (December 2001)

Appendix 2: HWC letter of comment (June 2007)

Appendix 3: Minister of DEAT letter (September 2008)

Appendix 4: Project Photographic Record Built Environment & Scenic Routes

Appendix 5: Evolution of the Historical Landscape

Appendix 6: Public Consultation (2008-2009)

Volume 2: SPECIALISTS REPORTS

Appendix 7: Eskom Gamma - Omega 765KV Transmission Power Line**:** Desktop Palaeontological Heritage Assessment (John Almond)

Appendix 8: Eskom Gamma - Omega 765Kv Transmission Line: Archaeological Desktop Survey (Andy Smith)

Appendix 9: Evolution of the Historical Landscape (Harriet Clift)

Appendix 10: Heritage Scoping Study of Proposed Gamma – Omega Transmission Power Line: Specialist Built Environment & Landscape Study (Sarah Winter)

Appendix 11: G amma - Omega Transmission Li ne: V isual I mpact A ssessment (Tassie Clarke)

[i] **Hacking (1998):**

SECTION B: DESCRIPTION OF THE PROPOSED DEVELOPMENT

The project under review involves the construction of an approximate 520km Eskom Gamma-Omega 765kV transmission power line from the proposed Gamma (Koeberg) substation in the Western Cape to the proposed Omega (near Victoria West) substation in the Northern Cape (**Figure B1**).

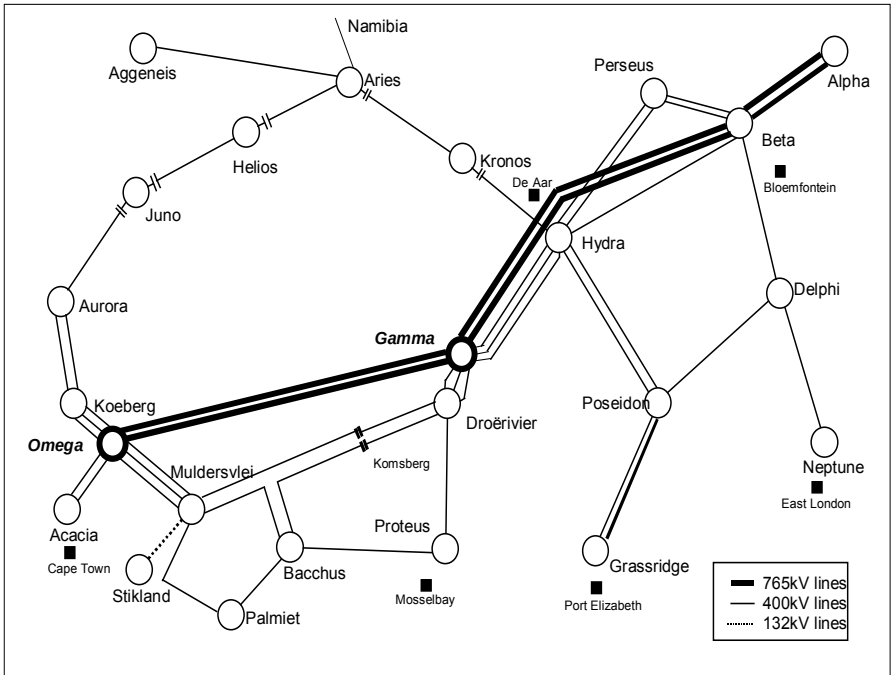


Figure B1: Diagram showing the proposed 765 kV over-lay scheme (Cape Strengthening Unpublished Report prepared by Eskom Holdings Appendix 3A: 2002)

Due to the increasing pressure to provide a reliable medium and long terms electricity supply to the Western Cape, Eskom Transmission has proposed the Cape Strengthening Programme to improve the reliability and capacity of the transmission network to the Western Cape. As part of the strategy to do so, Eskom Transmission has proposed to development the proposed Gamma-Omega line. The project components will consist of the Transmission lines, pylons and ancillary infrastructure including access roads.

The project alternatives as contained in the Environmental Impact Report are the following:

- **The "do-nothing" alternative**. The EIR report concluded that with increasing economic activity and demand for electricity in the Western Cape, the regional impact of electricity failures would be significant and increasingly severe.

- **Alternative sources of power generation.** The EIR report concluded that alternative power generation initiatives need to be considered separate from transmission initiatives and were thus not included as part of the scope of work for the EIA. Part of the rationale given was there is no certainty on the future of these generation alternatives and given the lengthy planning timeline required for a project of this magnitude the EIA for the route selection needed to be undertaken.

- **Design alternatives.** The 765kV line is the largest in terms of capacity, having three times the capacity of the 400kV line currently used on this route. The servitude width is 80m as opposed

to the 55m for the 400kV line, and the height different is of the order of 10m. As with the 400kV transmission lines, there is always a visual impact, some areas being more sensitive than others.

- **The option of taking the transmission line underground** will address this impact but there are other issues that need to be considered:

    - The cost of underground is approximately 20 times more expensive than the equivalent overhead lines.
    - Servitude requirements are far more onerous.
    - The servitude would effectively be sterilized for any land uses, including most agricultural applications.

Two design alternatives have been proposed for this project, the Cross Rope suspension type and the Guyed Suspension type. These are illustrated in **Figures B2 and B3** below**.** Through more difficult terrain when the route changes direction at a 30 degree angle, there will be need to use self supporting towers as illustrated in **Figure B4**.

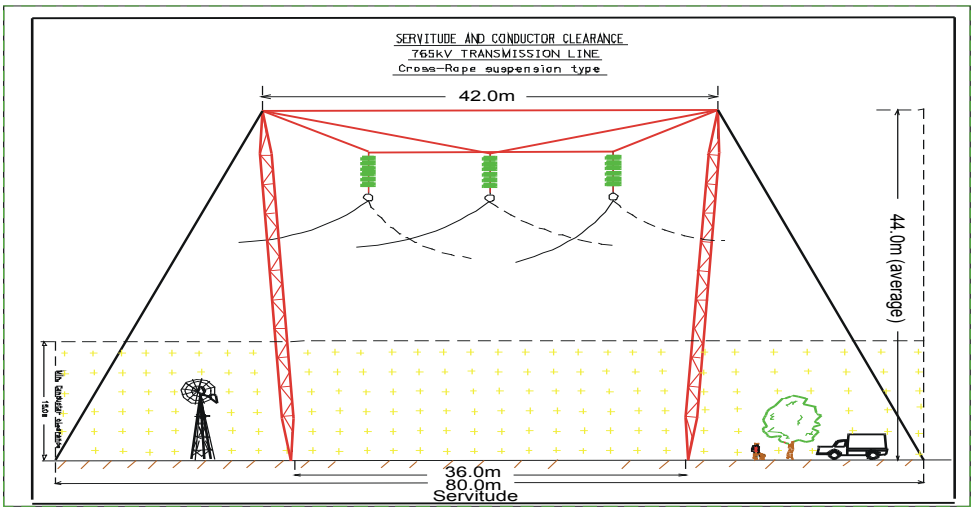


Figure B2: Cross Rope Suspension Type (PDNA EIR report 2002

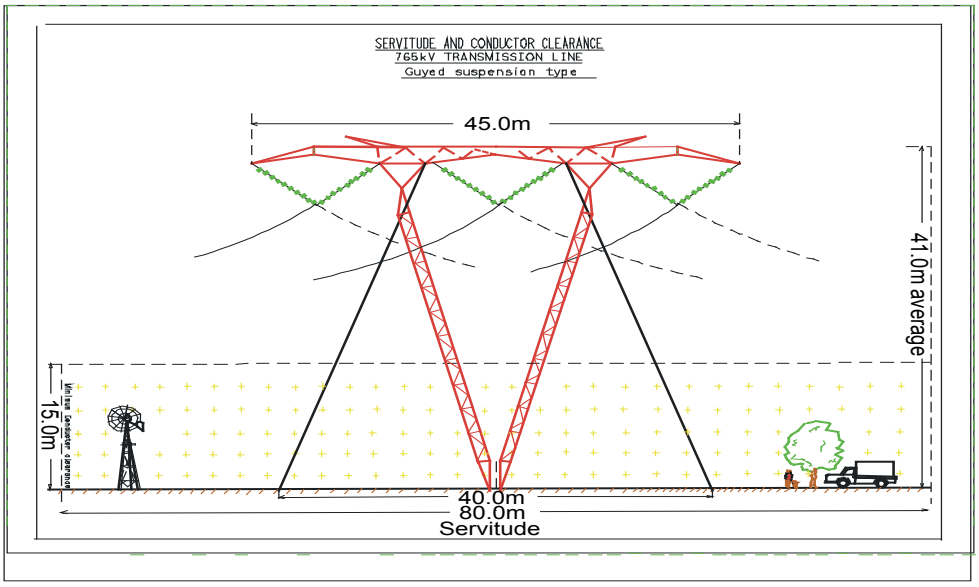


Figure B3: Guyed Rope suspension type (PDNA EIR report 2002)

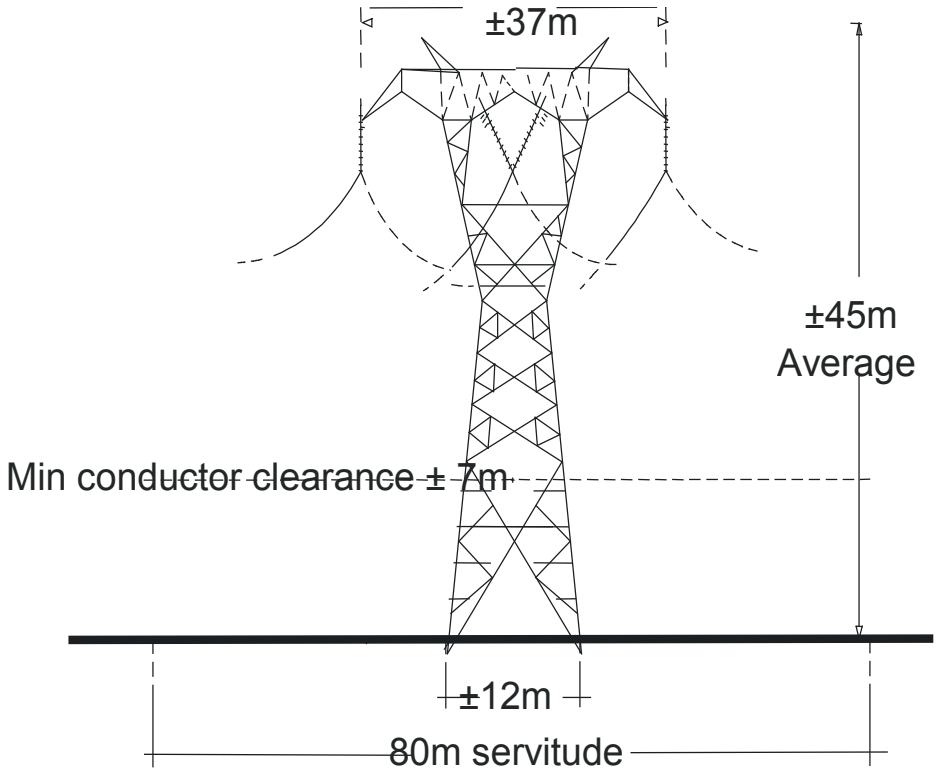


Figure B4: Self-supporting tower (PDNA EIR report 2002)

Construction

Access roads and construction camps. Access roads will be required to transport personnel to site and for maintenance purposes. In areas that are inaccessible materials are brought in by helicopter. Construction camps will need to be developed in strategic positions where they provided the optimum access to as much of the construction route as possible.

Construction. Large scraper equipment will be used to establish the access roads. Construction takes place in phases. The foundations of the towers are laid first, followed by the assembly of the towers on the ground, then the erection of the towers and finally the stringing of the conductors. These operations are not always continuous and each phase would involve a return to the site by the contractors. Once the construction is complete, this same representative will ensure that all restoration work has been completed satisfactorily. The landowner will be asked to sign a release form, providing written confirmation that rehabilitation was completed to his satisfaction. All areas that will be disturbed such as construction camps, access roads and the construction area around the pylons will be stripped of topsoil that is stockpiled for later use.

Decommissioning. Decommissioning of a major Transmission line has yet to be undertaken in South Africa. It is assumed that the physical removal of the lines and pylons will be a reversal of the construction phase and that a rehabilitation program of the land will need to be undertaken.

- **Historical alignments**. According to the draft EIR report (2001) in the late 1980s and early 1990s preliminary planning was undertaken to assess the options for new routes to the Western Cape. Based on factors of cost, terrain, access and environment, these investigations concluded that it was feasible to construct a 765kV transmission line along routes to the north, via Clanwilliam and Piketberg. Due to the relatively open and even terrain the technical design requirements of the transmission line would be easier. Shorter, more direct routes to the south,

via Ceres and Tulbagh involved mountainous terrain and were also more densely inhabited. However, preference was given to the routes to the south due to the additional distance (approximately 170km) of the routes to the north and additional infrastructure required as a result which would add significant cost to the project, i.e. a further estimated R500 million.

- **Alignment alternatives.** Various route alignments were identified and assessed during the Scoping Phase of the EIA process undertaken in 2001. **Figure A3** depicts all the alternatives investigated. Some were eliminated after discussions with Interested and Affected Parties and specialist investigations. Of particular importance is the study area through Ceres and Tulbagh which has particular topographical, social and heritage constraints.

- In terms of the EIA process undertaken in 2001, the Main alternative was identified preferred alternative. For the purposes of this HIA process, all the various route alternatives are to be reassessed from a heritage perspective.

It should be noted that where the alternative alignment for the new 765kV transmission line follows the alignment of an existing 400kV transmission line, a 60 m buffer between the two transmission lines will need to be established. Furthermore, the proposed new 765kV transmission line is not intended to replace the existing 400kV transmission line. Rather the proposed new 765kV transmission line is intended to augment the existing capacity provided by existing transmission power lines.

SECTION C: OVERVIEW OF THE STUDY AREA

C1. Introduction

This section seeks to briefly describe the historical origins, nature and character of the receiving environment.

Purpose

The overall purpose is defined as follows:

- To provide a general background into the long term historical origins of the receiving environment To define context or " place" in the sense of how settlements – both prehistoric and historic, routes and farm werfs relate to each other and to other aspects of the historical and natural environment.
- To understand the past, the trajectory of change and/or continuity, which has brought the environment to its present state and which provides the catalyst or indicator of the ability and capacity to accommodate future change.
- To provide the 'big picture' which can serve as a basis or framework for evaluating interventions and into which a range of interest groups can add their interpretation and views.

C1. 2. Historical Overview of the Study area

The following is a brief summary of the research into pre-historical and historical environment undertaken by specialists in the areas affected by this report. This work is more fully explored in the Specialist Reports forming part of Volume Two of this HIA.

This material is intended to add depth in historical terms to the defining and the understanding of context and place

The sites affected by the proposal are extensive, not only in the area they traverse, but in time, extending from contemporary heritage colonial and precolonial heritage to deep time extending back (in terms of the palaeontological period), to 540 million years

This review is drawn from the work of Dr John Almond who undertook the palaeontological research, Professor Andrew Smith who undertook the prehistoric research and Ms Harriet Clift who undertook the historical research in relation to the development and expansion of colonial settlement at the Cape in the 17th, 18th and 19th centuries. The architectural history of the villages and towns that developed along the settlers expansion routes was compiled by Mrs Sarah Winter and Dr Nicolas Baumann.

Mrs Tassie Clark completed the visual impact assessment and provided a view shed analysis on how the transmission lines and towers will be seen from various landscapes along the route Full reports and Assessments are contained in Volume Two of this Report

C1.3. General special assessments for the following periods undertaken described the following:

:

- **PALAEONTOLOGICAL PERIOD (540- 1million BP)** covers fifty or more geological formations representing a high proportion of the geological stratigraphic record of the

Western Cape. The majority of these units are potentially fossiliferous ranging in age from C ambrian t o R ecent, representing app roximately 540 m illion y ears' of palaeontological history. The fossil remains of trilobites, water scorpions, fresh water mollusces, pol len, sp ores and pet rified trees have been r ecorded from v arious sections of the proposed route.

- **PREHISTORIC (ARCHAEOLOGICAL) P ERIOD (I m illion - 2 000 B P)** represents discrete, often widely dispersed cultural material in ecological zones which reflect different prehistoric responses to the landscape. In co stal regions they are characterized by large s hell m iddens. I n t he I nland P lain, pr imarily a s hale-based substrate, i ndigenous grasses would ha ve been attractive to abo riginal herders and their st ock and pr ovide access to t he onl y per ennial r iver s ystem, t he Berg R iver, which was also neede d f or i ntroduction o f grain ag riculture. I n the Cape Fol d Mountains a rugged sandstone formation created numerous caves and rock shelters inhabited by prehistoric people and t he l argest co ncentration o f r ock paintings in Southern A frica a re r ecorded t here. The K aroo, m ade up o f open pl ains with an escarpment f ormed f rom t he easterly ex tension o f the C ape Fol d B elt w ould have provided P rehistoric hunters with i ndividual t erritories with acce ss to su rface w ater points, and al low t hem t o follow t he m igrations of l arge her ds of sp ringbok. R ock engravings are found in this zone.

A previous archaeological survey by the Agency for Cultural Resource Management (ACRM) (Kaplan 2001) provided a preliminary report on the Gamma-Omega route which noted the potential for archeological sites along the power line. Archaeological sites were f ound at most o f the pl aces visited, w ith t he ex ception of S ection 2, al though mention w as made of rock a rt i n t he K ouebokkeveld. K aplan (2001: 5) st ates: " Large parts of S ection 1 (Swartland) ar e cu rrently hea vily f armed, r esulting i n l ow archaeological visibility". H owever, r ecent work by Fauvelle-Aymar *et al* (2006) and Arthur (2008), su ggest that t hese l ow visibility archaeological si tes may be t he onl y vestige of a pr evious pastoral occupation. S imilarly, Sampson (in press) has noted that in t he S eacow R iver V alley her der k raals with l ow sh erd co unt t end t o be a way f rom main dr ainage ch annels, nev ertheless these sites are i mportant ex amples of the archaeological si gnature o f t he a rea. Fo r t he p urpose o f this research four eco logical zones were not ed i n the study ar ea and ar e descr ibed a s the **Coast zo ne** at Melkbosstrand, the **Inland P lain** or S wartland, t he **Cape Fol d M ountains** and t he **Karoo.**

THE HISTORIC PERIOD

- **EARLY CO LONIAL P ERIOD (17th-18th century):** describes the se ttlement a t t he Cape of Good Hope which originated as a refreshment station to supply the ships of the Dutch East India Company (VOC) en route to the East. There was no intention of developing the Cape as a colony of the Netherlands and as a consequence land use in t he early 1700s was centered around providing land for Fr eeburghers to graze their herds of livestock in areas beyond the settlement boundary, namely along the Liesbeeck River, the Table Valley, Stellenbosch and Paarl.

- **COLONIAL E XPANSION P ERIOD (18th- 19th century):** by t he 1740s, t he farming communities (agricultural as well as stock), had ex panded so f ar beyond t he boundaries of the settlement at the Cape that churches were built at Malmesbury and in T ulbagh and s mall v illages sprang up ar ound t hese ch urches. Freeburgher farmers expanded into the Bokkeveld and Hantam regions, beyond the Witzenberg mountains and by 1770, t wo t hirds of t he farmers subsisted t hrough st ock farming

alone. These farmers were in direct competition with the indigenous Khoekhoen for grazing and water and the end of the 18th Century, the Khoekhoen were no longer the major suppliers of fresh meat to the refreshment station, this role having been taken over by the stockfarmers.

Under British rule, the Cape was actively colonised and administration centres were established and urbanisation encouraged. Under the British administration, a number of mission stations[1] were established. These mission stations initially provided refuge for dispossessed Khoekhoen, and after emancipation, ex-slaves.

The following towns along the affected routes were established in the nineteenth century as part of British Colonial expansion. Because of their origins these towns are likely to possess buildings and sites of heritage significance.

Town Name	Type of town	Established
Beaufort West	Drostdy	1818
Kookfontein/ Beaufort West	Mission station	1818 – c1820
Hermon	Mission station	1833
Victoria West	Church	1843
Ceres		1848
Riebeeck West	Church	1858
Riebeeck Kasteel	Church	1863
Philadelphia	Church	1858
Prince Alfred's Hamlet	Outpsan for Gydo Pass?	1874
Wolsley	Railway centre	1893
Gouda	Railway siding	Late 19th century

C2 Character Analysis and a Sense of Place

Characterisation should thus be regarded as being as fluid and dynamic as the landscape, townscape and environment. Character analysis contributes to informed decision-making by providing information regarding discussions about the implications of proposed changes to the historical, scenic and natural environment. It should thus be regarded as a tool for positive spatial planning (Conservation Bulletin, 47, 2004/5, English Heritage).

Sense of place is generally regarded as the quality created by aspects of scale, colour, texture, landform, enclosure and, in particular, land use. According to Lynch "it is the extent to which a person can recognise or recall a place as being distinct from other places as having a vivid, or unique, or at least a particular character of its own" (1981 In CKA 2001).

The natural physical and cultural historical elements under this section are described according to the broad morphological zones.

C3 The Morphological Zones

The proposed transmission line traverses five morphological zones each of which has a number of sub categories as identified in the table below. These zones are the same as the broad landscape types identified in the VIA (2001) and EIA (2002) which was based primarily on terrain morphological and socio-demographic factors. Aspects related to the

[1] It has been said that the British with the mission stations accomplished what the Dutch could not with the commando system: pacify the Khoisan (Penn: Karoo National Park Display)

cultural historical environment have been added to provide a broader description of the cultural landscape likely to be affected by the transmission lines.

Landscape Types

Table C2: Identification of Landscape Types (PDNA 2002)

Section 1	'The Swartland'	The Omega site through to Gouda
Section 2	'The Mountain Region'	Includes the Tulbagh, Agter-Witsenberg and Ceres valleys
Section 3	'The Ceres Karoo'	The flat lands immediately east of the Mountain Region
Section 4	'Moordenaars Karoo'	The Komsberg area between Sutherland and Laingsburg
Section 5	'The Great Karoo'	Includes the Droërivier sub-station (Beaufort West), the Victoria capacitor station and the Gamma site near Victoria West

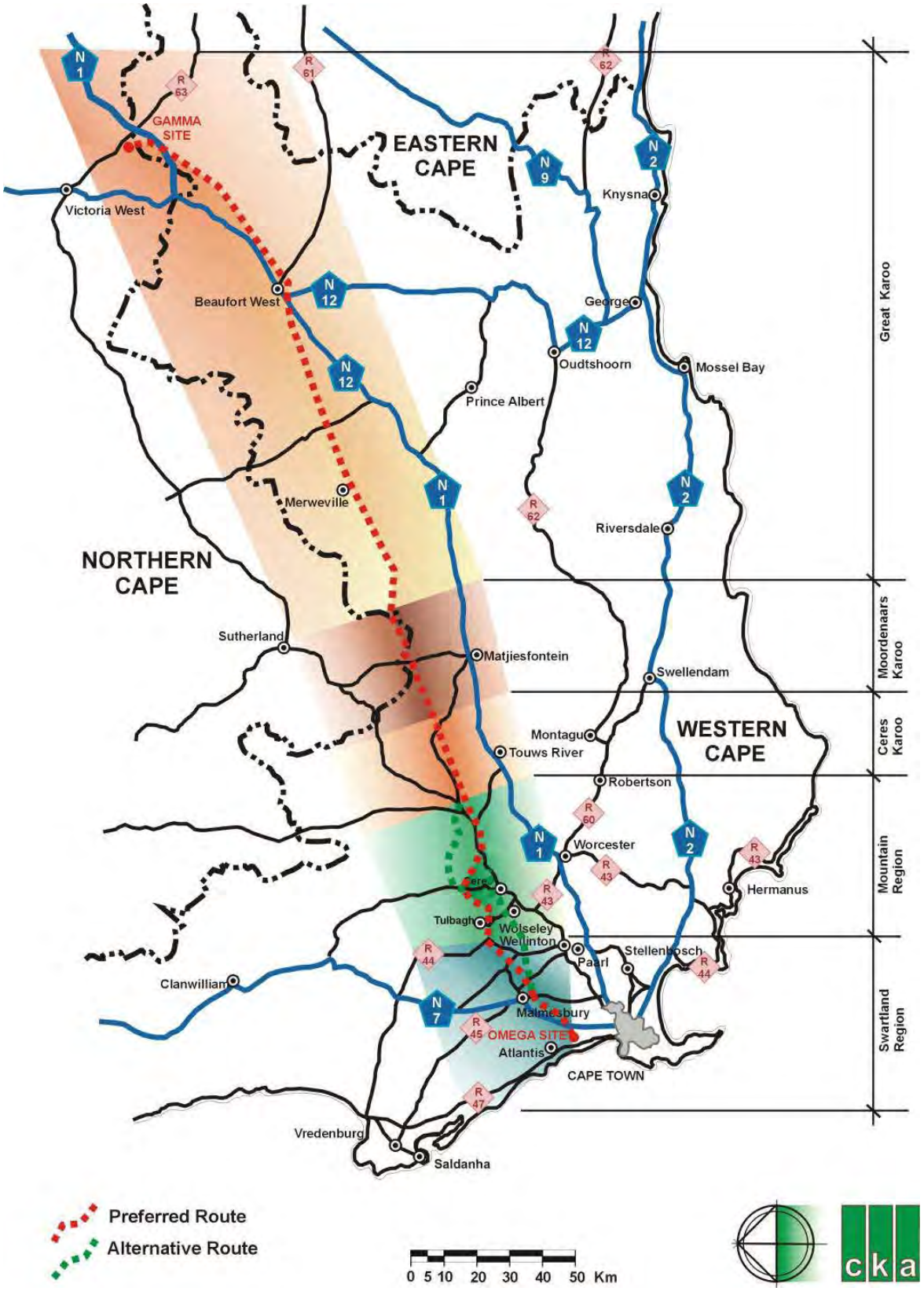


Figure C1: Broad morphological zones /landscape character types (CKA 2001)

Regions

C4 SWARTLAND REGION

- **Overall character**

The area is characterised by the broad open expansive nature of the landscape particularly to the west, and the scattering of rural villages and farm werfs. The rural and agricultural character is relatively intact and uncluttered by industrial or urban intrusions.

Sense of place aspects related to this region is primarily a function of its extensive rural, agricultural nature and the sparse nature of the settlement pattern.

It is a relatively flat, undulating landscape traversed by a number of historical routes. Rural villages and farm werfs are embedded in this landscape and a sense of fit, or visual harmony is evident in the extent to which the built form and the movement routes have responded to the natural and physical environment over time. It is not a vivid landscape, particularly with regard to the coastal plateau, but it does have a character distinct from the other regions within the study area.

- **Landform, vegetation and land use**

The region lies to the west of the Cape folded mountains such as the Great Winterhoekberge and the Limiet and Slanghoek mountain ranges. The proposed route crosses a relatively uniform landscape that comprises a flat to gently undulating topography that slopes from the mountain ranges in the east to the flat coastal plain in the west. The only dominant topographical features within the central part of the region are Perdeberg and Porseleinberg (CKA 2001).

The vegetation falls within the Fynbos Biome. It consists of a mixture of West Coast Renosterveld and Sand Plain Fynbos. Most of this vegetation has been ploughed up for wheatfields and viticulture. On the Sand Plain Fynbos smallholdings are used for pasture, mainly for horses. The carrying capacity for grazing is low (CKA 2001).

- **Visual Considerations**

Views within the landscape are extensive and only interrupted in the east by the Cape Mountains. The rolling and undulating landscape interrupts these views at a local level when viewed from localised depressions. The landscape does, however, create a generally uninterrupted viewshed that extends often beyond a distance of five kilometres (CKA 2001).

Visual quality is the visual significance given to a landscape determined by cultural values and the landscape's intrinsic physical properties (Smardon et al, 1986 In CKA 2001). While many factors contribute to a landscape's visual quality they can ultimately be grouped under three headings: vividness, intactness and unity. As indicated above, the gently undulating landscape does not contain any specific visual features and cannot be described as vivid (CKA 2001). The nature of the landscape and the response of the pattern of settlement and movement infrastructure do, however, reveal an intact and unified character.

- **Cultural historical considerations**

The area contains a number of settlements, farm werfs, and routes of substantial historical, architectural, aesthetic and contextual significance. They include the Groot Oliphantskop homestead dating from the late 18th or early 19th century, Philadelphia with its distinctive townscape qualities dating from 1864 and the range of historical farm werfs related to the

Old Cape Road and Diep River. The combination of wilderness, cultivated landscape and riverine corridor with homestead settings as evident on the Paardeberg Slopes contributes to a cultural landscape of considerable heritage significance.

To the east the relatively intact historical townscapes of Riebeeck Kasteel and Riebeeck West with their dramatic settings against the slopes of the Kasteelberg overlooking the Berg River Valley contribute to a cultural landscape of high significance.

The R45 and R304 are scenic routes with high scenic landscape qualities especially where views open upwards towards the Paardeberg with the location of historical homestead settings embedded within the scenic corridor.

To the east the Bothmaskloof Pass with extensive views across the Berg River Valley provides a dramatic threshold between two rural landscapes. Elandskloof Pass has high historical value as a transport route dating to the 18th century. Nuwekloof Pass has heritage significance in terms of the association with Thomas Bain and the extensive evidence of the physical fabric related to the earlier route. It also has high visual aesthetic quality, providing a dramatic threshold condition between the Berg River and Tulbagh Valley contexts.

C5 MOUNTAIN REGION

- **Overall Character**

The area is characterised by the broad deep valleys with a long history of settlement and agricultural production dating to the early 18th century, surrounded by steep sided mountains. It is a landscape dramatically different from the Swartland Region with its gently undulating landscape and sparse relatively isolated settlement pattern. The settlement pattern in this region is more compact and nodal. Tulbagh, in particular, has a high concentration of provincial heritage sites and is a townscape of high cultural historical significance.

- **Landform, vegetation and land use**

The landform consists primarily of steep sided mountains of the Cape Fold Belt with lower valleys such as the Tulbagh Valley between them. The vegetation falls within the Mountain Fynbos of the Fynbos biome. Vegetation is generally low except where it has been replaced with orchards and agro-forestry (CKA 2001).

Land use is characterised by a landscape that consists of highly developed agriculture on the valley floors with some grazing higher up on the mountain plateaus. Small historical towns such as Tulbagh, Wolsely, Ceres and Prince Alfred Hamlet are located primarily on the valley floor at the threshold of mountain passes (CKA 2001).

- **Visual considerations**

The surrounding mountains provide the major visual focal element when viewed from lower elevations such as the valley floor which is occupied by a historical settlement pattern. Visual quality is considered high. During the winter season, when the mountain peaks are often covered in snow, the high scenic value of the landscape contributes substantially to the role of the area as a tourism destination. The high visual quality is due in a large part to the very diverse topography of the dramatic mountain ranges with scenic mountain passes and the fertile agricultural valleys associated with the Agter Witsenberg and Warm Bokkeveld (CKA

2001). These visual elements, and the associated settlement pattern and network of historical routes have created a quality that is vivid and one that unifies the landscape.

- **Cultural historical considerations**

The cultural landscape of the region, characterized by the enduring role of agricultural production in the Valley spanning some 300 years and the associated rural settlement pattern, has high heritage significance. Tulbagh, in particular, with the positive relationship with its agricultural setting to the north and the dramatic mountain backdrop, and its high concentration of provincial heritage sites, has high heritage value of regional significance.

In terms of settlement hierarchy, there are also a number of historical farm werfs such as Schalkenbosch, Sagtevlei and Edenhof and the mission settlement at Steinthal.

The region is also characterised by a number of historical mountain passes such as the Witzenberg, Gydo, Therons and Hottentoskloof passes which have high heritage significance in terms of their dramatic remote wilderness character and their historical roles dating from the mid-19th century.

C6 CERES KAROO REGION

- **Overall character**

The area is characterised by the vast openness of the landscape, the low Karoo vegetation and the distant mountains, which establish a frame for the expansiveness of the landscape. It is dramatically different in character to the previous mountainous region with its diverse topography and compact nodal settlement pattern.

- **Landform, vegetation and land use**

The landform is located east of the Kwarrieberg and north of the Bontberg. The proposed route of the transmission crosses a relatively low lying and flat landscape that gently slopes from the east to the northwest. The vegetation consists of Lowland Succulent Karoo of the Succulent Karoo Biome (CKA 2001). It represents extremely arid vegetation cover, which contributes to the sparse nature of the landscape. The lack of summer rain results in almost no grasses being prevalent in this vegetation type. Resulting from the nature of this vegetation land uses comprise predominantly stock grazing and game farming.

- **Visual considerations**

Views within the region are extensive and open for several kilometres. They are truncated by the mountains to the south and west. The visual quality has a relatively visually undisturbed character. The only major visual intrusion is the existing 400 KVA line that introduces an industrial image into a primarily rural landscape. The extended views and the uniformity of the low Karoo vegetation provide a relatively monotonous appearance in terms of the lack of visual diversity. It is not a vivid landscape but is regarded as a unified and intact landscape.

- **Cultural historical considerations**

Cultural historical considerations relate to historical routes to the interior, the location of outspans dating to the late 18th, early 19th century, historical farm werfs, 19th century graveyard and the remote, wilderness quality of the landscape. The Platkop outspan was a

historical stopover point at a river crossing, emphasizing the significant role of water in arid conditions. In isolated conditions historical buildings illustrate a simple vernacular typology, consisting of local stone, mud, plaster and lime wash. Settlement pattern and hierarchy and the resultant cultural landscape are related primarily to the alignment of historical routes and the location of outspans.

C7 MOORDENAARS KAROO REGION

- **Overall Character**

The area is characterized by a rolling, undulating topography, low vegetation and a sparse and isolated nature of the human settlement pattern. It is a vast empty expansive and rural landscape, imbued with the quintessential qualities of the Karoo.

- **Landform, vegetation and land use**

The region consists of gently undulating to steeply rolling topography at a higher elevation than the Ceres Karoo and is situated between the Great Escarpment to the north and the Swartberg to the south.

The proposed route passes through the steeply undulating topography of the Koedoesberge, the Klein Roggeveldberge and the lower lying Moordenaars Karoo. Soils are generally very shallow and stony derived from the Beaufort Group shales and sandstones within the Great Nama Karoo area. Vegetation consists mainly of the Escarpment Mountain Renosterveld of the Fynbos Biome, the Great Nama Karoo of the Nama Karoo Biome and the Upland Succulent Karoo of the Succulent Karoo Biome. The vegetation is generally very sparse and low throughout the region (CKA 2001).

- **Visual Considerations**

Visual quality is established by the undulating nature of the topography and the undisturbed, unspoilt nature of the landscape. The only visual intrusions are the existing transmission lines and the scattered farmsteads and associated access routes. The combination of these attributes, contribute to a rural pastoral character. The visual quality can be described as both unified and rural.

- **Cultural historical considerations**

The landscape is remote and arid with no strongly evident settlement pattern. A possible historical loan farm is located at a strategic position at the base of the escarpment, associated with the river.

C8 GREAT KAROO REGION

- **Overall character**

The area constitutes the largest of the regions within the study area as it extends from the Klipfontein se Berge to the intersection of the R63 and the N1 near Victoria West. The overall character is rural and pastoral, a dramatically open and expansive landscape with a perceived sense of minimal human intervention. On one level a few scattered farmsteads and remote towns and associated access routes constitute the major components of a

relatively pristine, uncultivated cultural landscape. A sense of timelessness prevails. This is in contrast to the N1 corridor, railway line and regional route network and the regional role of Beaufort West.

- **Landforms, vegetation and land use**

The proposed route of the transmission lines consists of two components. The first extends from Klipfontein se Berge to Beaufort West and comprises the irregular plains of the large flat basin formed between the escarpment in the north and the Cape Fold Belt Mountains in the south. The second component stretches from Beaufort West to Victoria West where the landscape becomes more undulating and with more diverse features such as the low mountains of the Karoo National Park and the peaks around Renosterkop and Restvale. The geology is predominantly sandstone and shales with the soils marginally deeper than the region discussed in the previous section. The resulting vegetation is generally low throughout the region, verging from dwarf shrubs, succulents, and Acacia Karoo trees in dry riverbeds in the Central Lower Nama Karoo to dwarf shrubs and a few trees in the Great Nama Karoo to mainly shrubs and grasses in the Upper Nama Karoo. It constitutes a complete mix of grass and shrub dominated vegetation types with a few Acacia Karoo trees in the dry riverbeds. Resulting land uses are limited primarily to small stock farming (CKA 2001).

- **Visual Considerations**

Views are open and extensive for most of the area, especially the section from Klipfontein se Berge to Beaufort West. The section from Beaufort West to Victoria West is more undulating and the views therefore more restricted. The landscape is relatively featureless and cannot be described as vivid. It is, however, regarded as unified and intact.

- **Cultural historical considerations**

The landscape is remote and arid and punctuated with the urban settlements of Merweville and Beaufort West. Merweville is located at the centre of the Koup with constitutes a distinctive Karoo landscape. Its significance is related to its role as an early 19th century regional centre located in a remote and arid landscape setting. The town reveals a well-preserved historical architecture. The stone church has landmark significance and is a provincial heritage site. Beaufort West has a historical core containing a concentration of conservation worthy buildings. It is located at the confluence of major routes which are associated with its historical role as a regional administrative centre. The origins of the town evolve from its role as an 18th century farm. The cemetery on the edge of the town to the south has historical and social value. At the broader scale cultural historical significance relates to the role of the area in the historical conflicts, from the 18th century between the Khoisan and Settler Commandos to the Anglo Boer War.

SECTION D: BACKGROUND TO THE PUBLIC PARTICIPATION PROCESS

Introduction

Records of public concerns and objections include the following:

- Comments and appeals arising out of the EIA (2002) process)

When the Scoping Phase of the EIA was undertaken in 2002, there were 61 appellants who had raised objections and concerns regarding the proposal, largely on the grounds of the impact of the proposal on heritage resources, cultural landscapes, and related tourism and economic matters.

- Comments and appeals arising out of the HIA Public presentation held in Tulbagh in November 2008

The public consultation process was limited to the 61 appellants who had previously raised their objections during the Environmental Impact Assessment conducted in 2002.

A brief summary of the appellants' concerns and objections are included below.

For a full list of comments and concerns, see **Appendix 6.**

These concerns and objections cover a wide field, from concerns that the EIA process was legally flawed, to a claim that the original Heritage Impact Assessment (2002), which formed a component of the original EIA, was inadequate, and matters of more specific adverse impacts on certain areas. For a detailed list of concerns, see **Appendix 6.**

Section M of this report outlines the public participation process in detail and includes a list of comments together with recent responses from the specialists affected and Escom Holdings.

Public Consultation Process

Response to the EIA

Issues in response to the EIA (2002) affecting heritage resources as contained in the Environmental Impact Report (PD Naidoo: GAMMA GRASSRIDGE 765KV TRANSMISSION POWER LINES: ENVIRONMENTAL IMPACT REPORT - ISSUES AND RESPONSE REPORT: OCTOBER 2007) included the following:

- Concerns regarding impacts on individual farms
- Concerns regarding impact on the contextual environment
- Impact on living heritage
- Fossil and archaeological deposits
- Impact on areas where there have been no heritage surveys
- Processes affecting the management decisions of palaeontological resources
- Inadequate identification and assessment of heritage impacts
- Inadequate assessment of cultural landscapes
- Lack of recognition of scenic amenity

- Lack of potential adverse heritage impacts of the proposed transmission line on the cultural landscape contexts.

Response to the HIA presentation

Between 2007 and 2008, the HIA team met with a representative for the majority of the appellants.

The following steps were identified as necessary for the HIA process:

- The HIA as a two-phased approach, first as a draft HIA for submission to the appellants
- A final scoping phase including their comments and responses where applicable to be submitted to the relevant authorities.

A public presentation was held at a meeting on 24 November 2008 at Morgansvlei, Tulbagh. At the meeting it was decided that the public would be invited to comment until 24 December 2008.This was subsequently extended until 31 January 2009.

Subsequent to this meeting further comments, objections and appeals were submitted by heritage practitioners acting on behalf of appellants and by parties individually. These are contained in **Appendix 6** of this report.

A further public consultation meeting was held with DEAT on 19 February 2009, at which it was confirmed, that, after inclusion of the comments and responses by the appellants into the Draft Scoping HIA Report, it could now be finalized and be submitted to Heritage Western Cape (BELCOM & APM Committees).

For a list of attendees and issues raised during the public participation process, including comments and issues raised by Mr Richard Summers on behalf of the appellants, also see Appendix 6 of this report.

SECTION E: PALAEONTOLOGICAL AND ARCHAEOLOGICAL IDENTIFICATION AND ASSESSMENT

INTRODUCTION

The sites affected by the proposal are extensive not only in the area they traverse but in time, extending from pre-colonial (archaeological) heritage to deep time extending back (in terms of the palaeontological period), to 540 million years.

This is drawn from the work of Dr John Almond who undertook the palaeontological research, Professor Andrew Smith who undertook the prehistoric and archaeological research.

A previous archaeological survey by the Agency for Cultural Resource Management (ACRM) (Kaplan 2001) provided a preliminary report on the Gamma-Omega route which noted the potential for archeological sites along the power line.

E.1 THE FORMATION OF THE EARTH'S PLANTS AND ANIMALS AND THE EMERGENCE OF PREHISTORIC AND COLONIAL HUMAN OCCUPATION OF THE LANDSCAPE

This section of the reports provides an overview of the proposed routes in relation to the formation of the earth surface over the last 540 million years, the evolution of the earth's plants and animals and the cultural behavior of prehistoric and modern humans. The routes, described as sections 1- 5, including the alternate routes are colour coded and used as a guide in each of the specialists reports. They represent a number of key events in the earth's history and the development of the evolving cultural landscape.

- **PALAEONTOLOGICAL PERIOD (540- 1million BP)** covers fifty or more geological formations representing a high proportion of the geological stratigraphic record of the Western Cape. The majority of these units are potentially fossiliferous ranging in age from Cambrian to Recent, representing approximately 540 million years' of palaeontological history. The fossil remains of trilobites, water scorpions, fresh water mollusces, pollen, spores and petrified trees have been recorded from various sections of the proposed route.

- **PREHISTORIC PERIOD (1 million - 2 000 BP)** represents discrete, often widely dispersed cultural material in ecological zones which reflect different prehistoric responses to the landscape. In costal regions they are characterized by large shell middens. In the Inland Plain, primarily a shale-based substrate, indigenous grasses would have been attractive to aboriginal herders and their stock and provide access to the only perennial river system, the Berg River, which was also needed for introduction of grain agriculture. In the Cape Fold Mountains a rugged sandstone formation created numerous caves and rock shelters inhabited by prehistoric people and the largest concentration of rock paintings in Southern Africa are recorded there. The Karoo, made up of open plains with an escarpment formed from the easterly extension of the Cape Fold Belt would have provided Prehistoric hunters with individual territories with access to surface water points, and allow them to follow the migrations of large herds of springbok. Rock engravings are found in this zone.

- **EARLY COLONIAL PERIOD (17th-18th century):** describes the settlement at the Cape of Good Hope which originated as a refreshment station to supply the ships of the Dutch East India Company (VOC) en route to the East. There was no intention of developing the Cape as a colony of the Netherlands and as a consequence land use in the early 1700s was centered around providing land for Freeburghers to graze their herds of livestock in areas beyond the settlement boundary, namely along the Liesbeeck River, the Table Valley, Stellenbosch and Paarl. (This research forms part of the built heritage impact assessment, the material is fully explored in the assessment of the Built Environment as Appendix 5, Volume 1)

- **COLONIAL EXPANSION PERIOD (18th- 19th century):** by the 1740s, the farming communities (agricultural as well as stock), had expanded so far beyond the boundaries of the settlement at the Cape that churches were built at Malmesbury and in Tulbagh and small villages sprang up around these churches. Freeburgher farmers expanded into the Bokkeveld and Hantam regions, beyond the Witzenberg mountains and by 1770, two thirds of the farmers subsisted through stock farming alone. These farmers were in direct competition with the indigenous Khoekhoen for grazing and water and the end of the 18th century, the Khoekhoen were no longer the major suppliers of fresh meat to the refreshment station, this role having been taken over by the stockfarmers. (This research also forms part of the built heritage impact assessment material and is fully explored in the assessment of the Built Environment and as an Appendix (Volume 1)

E.1.1 Fossil Heritage

The proposed Gamma Omega powerline crosses almost the entire Coastal Plain, the Cape Fold Belt, the southern Ceres / Tanqua Karoo and Great Karoo, the Great Escarpment and southern margin of the Interior Plateau. It will transect fifty or more geological units representing a high proportion of the geological stratigraphic record of the Western Cape Province (**Figure E 1 and Appendix 5**). The majority of these units are potentially fossiliferous sedimentary rocks ranging in age from Cambrian to Recent, representing approximately 540 million years' worth of geological and palaeontological history. Others are metasediments (= metamorphosed sediments, *eg* Malmesbury and Swartland Groups), within which fossil preservation is normally poor, or intrusive igneous rocks (*eg* Cape granites, Karoo dolerites) within which fossils do not occur.

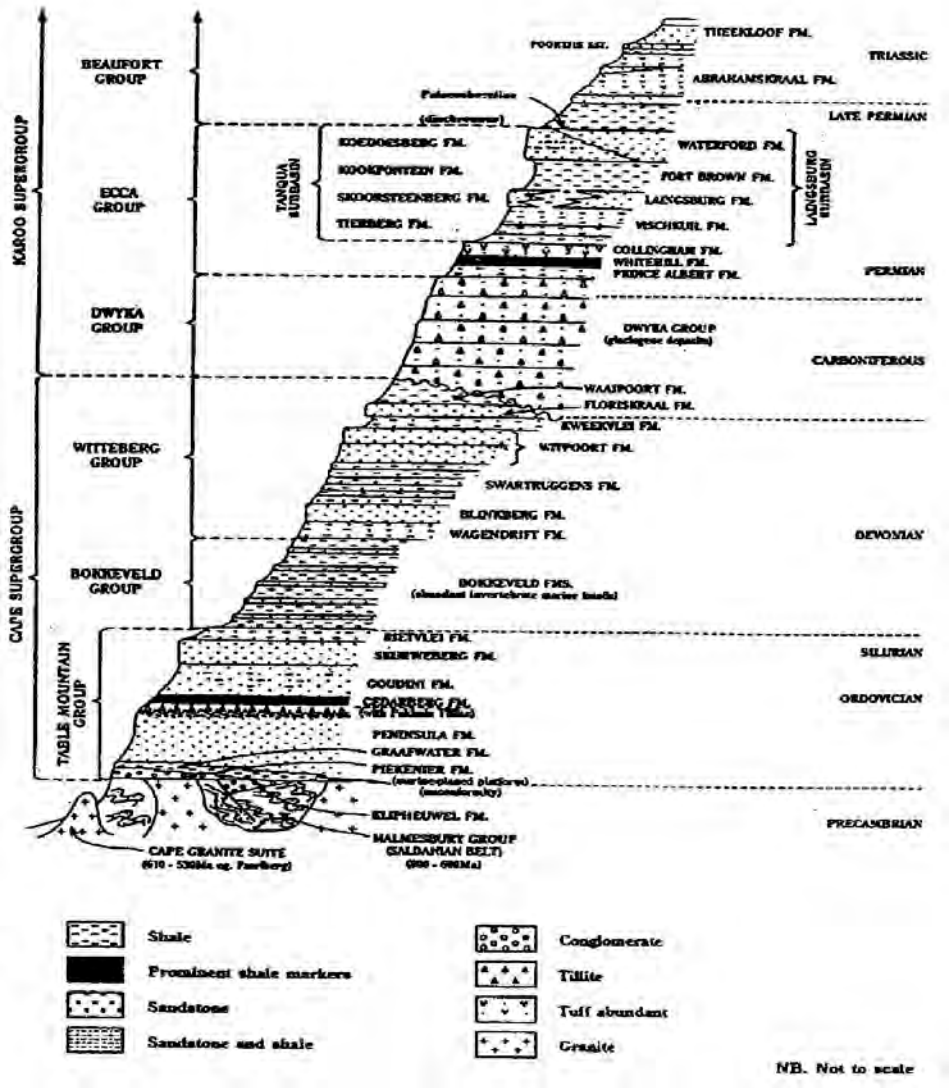


Figure E1. Schematic stratigraphic column for the Western Cape showing Late Precambrian to Palaeozoic units (Ref: H. de V. Wickens).

E.1.1.1 Main Alternative

Omega Substation to Gouda / Nuwekloof Pass (Section 1)

This is the powerline route currently preferred by Eskom and is of **low** palaeontological significance overall, being mainly underlain by moderately- to highly-deformed Late Precambrian metasediments of the Malmesbury and Swartland Groups (Late Proterozoic) and intrusions of the Cape Granite Suite. The granites are unfossiliferous, but resilient organic-walled microfossils may well be preserved within finer-grained facies of the Malmesbury Group in particular. This area also includes key exposures of the Cambrian Klipheuwel Group south of Kalbaskraal (Gresse *in* Theron *et al*. 1992) and any excavations into the Populierbos Formation are of particular palaeontological interest since this soft-weathering subunit is rarely well exposed. Hitherto only one fossil site is recorded from the Klipheuwel Group – sparse arthropod traces from heterolithic facies in the Elands Bay area

(Almond 2008b) – but this is probably due to poor exposure. Further fossil finds should help resolve the ambiguous age of this stratigraphic unit.

Gouda to Karoopoort (Section 2)

This section is of **high** to **very high** overall palaeontological significance because the proposed route transects the outcrop areas of almost the entire, highly-fossiliferous Bokkeveld and Witteberg Groups, as well as that of the "red flag" Cederberg Formation. Only the western section from Nuwekloof across the Tulbagh Valley is of low palaeontological significance (Malmesbury Group metasediments and related igneous intrusions).

Rare shallow marine trace fossils (*Arthrophycus*) have been recorded from a heterolithic interval in the lower Table Mountain Group (probably Peninsula Formation) on the western flanks of the Witsenberg Range (Almond 2008b). Likewise, occasional records of trace fossils in similar sedimentological settings are known from the Silurian Nardouw Subgroup of the Hex River Mountains, to the southeast of the powerline route.

This lower Cederberg Formation (Soom Member) contains one of a handful of fossil *Lagerstaette* ("treasure troves") recorded from the Early Palaeozoic worldwide. These usually comprise fossil assemblages showing exceptional preservation of organisms' soft tissues as well as the far more commonly preserved mineralised skeletal elements (Aldridge *et al*. 1994, 2001). The Soom Member mudrocks have yielded an important, albeit low-diversity, shelly invertebrate biota (age-diagnostic Late Ordovician trilobites, bivalves *etc*) in the Hex River Mountains (Cocks & Fortey 1986), some 30km southeast of the point where the Eskom line intersects the same formation in the Witsenberg Range. Near Porterville, a similar distance to the northwest of this point, is found the most prolific fossil locality within the upper Cederberg Formation (Disa Member), with a distinctive post-glacial (Hirnantian) shelly faunule dominated by articulate and inarticulate brachiopods. There is a fairly high probability that any new or fresh, pre-existing exposures within the Cederberg Formation along the Eskom powerline route will prove equally fossiliferous.

Shelly marine invertebrates (notably brachiopods) have been recorded from the Lower Bokkeveld Group (Ceres Subgroup) of the Agter-Witsenberg Valley by early C20 collectors such as the Cape Geological Commission (*eg* Gresse *et al.* 1992, Appendix A). Fresh excavations can be expected to yield further fossil material.

The Warm Bokkeveld region from north of Prince Albert Hamlet eastwards to Karoo Poort includes some of the historically and palaeontologically most important, diverse and prolific fossil localities in the Bokkeveld Group, including Gydo Pass, Gydoberg, Theronsberg Pass and Swaarmoed Pass (*eg* Reed 1925, Theron 1972, Oosthuizen 1984, Hiller & Theron 1988, Gresse *et al*. 1992, Almond *in* De Beer *et al.* 2002). This is one of the classic collecting grounds for Early Devonian Bokkeveld invertebrates (trilobites, brachiopods, molluscs, echinoderms *etc*). These are preserved as moulds within diagenetic nodules, within mudrocks, more rarely as lenticular shelly coquinas within sandstones, or occasionally as dense obrution (mud smothered) fossil assemblages. These last, sometimes known as "starfish beds", provide rare glimpses of life on the muddy seabed of ancient Gondwana at moderately high southern palaeolatitudes, and often contain exceptionally well-preserved specimens of echinoderms and other invertebrates *en mass*. Important fossil collections from most of the Bokkeveld formations have been made in the Warm Bokkeveld, including from mudrock units such as the Tra Tra, Waboomberg and Karoopoort Formations that have yielded few fossil remains elsewhere. Key stratigraphic sections (stratotype sections) through several Bokkeveld subunits have also been formally designated in this region by the South African Committee for Stratigraphy (*eg* Gydo and Karoopoort Formations).

Good sections through the upper Bokkeveld – lower Witteberg transition are seen in the Karoopoort area (Gresse & Theron 1992). Important fossil collections from the Witteberg Group here include trace fossils and fragmentary fish remains from the Wagen Drift Formation, trace fossils form the Swartruggens Formation, lycopods (clubmosses) and trace fossils from the Kweekvlei Formation, as well as palaeoniscoid fish and vascular plants from the Waaipoort Formation (Evans 1997, 1999, 2005). The richest collections of shelly invertebrates from the western outcrop area of Wagen Drift Formation, including age-diagnostic brachiopods, have been made at Elim, only 25km or so ESE of Karoopoort (Hiller 1990).

Ceres Karoo (Section 3)

In this section from Karoopoort through the Ceres Karoo (= southern Tanqua Karoo) as far east as the course of the Grootrivier the alternate new powerline route (blue) follows an existing powerline, the line of which is clearly marked on the Worcester and Ladismith 1: 250 000 geological maps.

The overall palaeontological sensitivity of this section is **moderate** to **low**. The powerline route traverses the outcrop area of the Dwyka Group, which largely comprises unfossiliferous tillites, as well as several formations of the lower Ecca Group, which are sparsely to highly fossiliferous. A "red flag" unit here is the Whitehill Formation (lower Ecca) which may yield intact skeletons of small mesosaurid reptiles, well-articulated palaeoniscoid fish and locally super-abundant crustaceans (Almond 2008a). The remainder of the Ecca Group in the region is best known palaeontologically for well-preserved petrified wood, occasional glossopterid leaves and other drifted plant debris, as well as a modest diversity of trace fossils that may be very abundant and beautifully preserved (Wickens 1996). Complex submarine arthropod trackways from the Collingham Formation have been ascribed to extinct water scorpions (eurypterids) and are spectacularly large – indeed, among the largest, most complex invertebrate traces ever recorded.

Ceres Karoo to Moordenaarskaroo (Section 4)

The overall palaeontological sensitivity of this section is **high**. The new powerline, largely following an exisiting powerline route, traverses the outcrop of several formations of the middle to upper Ecca Group as it ascends the western slopes of the Moordenaarskaroo uplands. These geological units contain petrified driftwood (including tree trunks), transported plant material of the *Glossopteris* Flora, fish remains, including disarticulated microvertebrates (isolated scales, teeth in diagenetic nodules) and rare articulated palaeoniscoids, as well as locally abundant trace fossils and microfossils such as pollen and spores (Wickens 1996, Almond 2008a, b).

The powerline then enters the extensive outcrop area of the Late Permian Beaufort Group for the rest of its route through to the Gamma Substation, *via* the existing Komsberg Substation. Section 4 extends as far east as the east-facing slopes at Brandhoekberg, north of Klipfontein se Berg (itself capped by the Teekloof Formation). In this elevated section the bedrock is formed by the fluvial sediments of the Abrahamskraal Formation and contains a rich, but often sparsely distributed, fossil biota assigned to the *Tapinocephalus* Assemblage Zone (Keyser & Smith 1979, Loock *et al*. 1994, Smith & Keyser *in* Rubidge 1995, MacRae 1999). The fossils normally occur as isolated specimens and are often associated with diagenetic carbonate concretions. Important fossil groups include a wide range of

herbivorous and carnivorous therapsids or "mammal-like reptiles" (dinocephalians, dicynodonts, gorgonopsians, therocephalians), some reaching the size of rhinos, primitive true reptiles (especially large pareiasaurs), palaeoniscoid fishes, crocodile-like temnospondyl amphibians, freshwater bivalves, vascular plants of the *Glossopteris* Flora, petrified wood ("*Dadoxylon*") and a small range of invertebrate and vertebrate trace fossils (*eg* tetrapod trackways). Numerous fossil collection localities - here mainly referring to tetrapods such as pareiasaur reptiles, therapsids, but also plant material and silicified wood - are recorded in the Moordenaarskaroo region close to the powerline route by Keyser and Smith (1979) and Loock *et al*. (1994). Some of these localities are also marked on the Sutherland 1: 250 000 geology sheet (3220). This is a key area for the lithostratigraphic and biostratigraphic subdivision of the lower Beaufort Group.

Die Koup, Beaufort West, Great Escarpment, Gamma Substation (Section 5)

This long eastern section largely follows existing powerline routes. Because it crosses the heartland of the Karoo fossil reptile country and the area where Karoo fossil vertebrates were first recorded in the early C19, the overall palaeontological significance is **high** to **very high**. The route traverses the outcrop area of the lower Beaufort Group (Abrahamskraal and Teekloof Formations of the Adelaide Subgroup) across the north-central Great Karoo, climbs up the Great Escarpment east of Three Sisters and runs onto the Interior Plateau towards Victoria West. As the route ascends through the essentially flat-lying, or gently N-dipping, bedrock succession within the Great Karoo Basin, it intersects a series of successively higher biostratigraphic zones (fossil assemblage zones, AZ) within the Beaufort Group. The steeper slopes of the Great Escarpment Zone favour good exposures of, and fossil collection from, the more fossiliferous mudrock horizons which elsewhere are often covered by vegetation and drift. Beaufort Group exposure is especially limited in the vlaktes to the east of Beaufort West due to extensive, sparsely-fossiliferous late Caenozoic drift, though alluvial deposits along older water courses may yield vertebrate remains (*eg* mammalian bones, teeth, horn cores), freshwater molluscs, ostrich egg shell and other fossil remains (see Table 1). Karoo dolerite intrusions crossed in the Great Escarpment Zone are unfossiliferous, but associated thermal metamorphism ("baking") may variously enhance, or detract from, fossil preservation within adjacent sediments.

Beaufort Group sediments assigned to four Late Permian fossil assemblage zones are crossed within Section 5 of the powerline route: the *Tapinocephalus* AZ in the west, the *Pristerognathus* AZ in the Beaufort West area, the *Tropidostoma* AZ below the Escarpment in the Nelspoort area, and the *Cistecephalus* AZ towards the edge of the Interior Plateau in the Gamma Substation area south of Victoria West (Keyser & Smith 1979, Rubidge 1995). Good summaries of the fossil record of these biozones – including fish, amphibians, a wide variety of terrestrial tetrapods (diverse therapsids, reptiles *etc*), plants (petrified wood, *Glossopteris* Flora leaves *etc*), freshwater bivalves and trace fossils (burrows, trackways *etc*) are given in Rubidge (1995) and MacRae (1999). Several important fossil sites are marked on the relevant 1: 250 000 geological maps (Sutherland, Beaufort West, Victoria West sheets). New fossil material and previously undescribed taxa are being found in the region on a steady basis. The Karoo National Park at Beaufort West is an important educational centre for schools and the general public regarding Karoo geology and fossils (*eg* their well-known Fossil Trail and Interpretive Centre), and excellent specimens of Beaufort Group fossil fish (*Atherstonia*) and other Karoo fossils are on display at the Victoria West Museum.

E1.1.2 Southern Alternative Route

This southern alternative route runs from Porseleinberg across the Elandskloofberge, Tulbagh Valley, Skurweberge and then northeastwards across the Warm Bokkeveld to join

the alternate new route (blue) near Theronsberg Pass. Key "red flag" fossiliferous units such as the Cederberg Formation (Skurweberge, west of Ceres) and the lower Bokkeveld Group (Warm Bokkeveld) are implicated, as with the southern, central and alternate new alternatives. However, the southern alternative avoids the palaeontologically sensitive areas of the Agter-Witsenberg Valley and Gydo Pass and therefore has a lower overall palaeontological significance than these alternatives, albeit one that remains **high** to **very high**.

E 1.1.3 Central alternative route

The palaeontological significance of this alternative route from the Witsenberg Range across the Gydo Pass is **very high** because it intersects "red flag" fossiliferous units such as the Cederberg Formation and the Lower Bokkeveld Group (see discussion on Section 1 of alternate "blue" new route). The central alternative route would take the powerline close to or across the Gydo Pass north of Prince Alfred Hamlet, a well-known "hotspot" for Bokkeveld Group fossils (notably in the Gydo and Voorstehoek Formations). This central route is therefore *more* significant in palaeontological terms than the new alternative route running to the south (blue).

E1.1.4 Northern alternative route

The northern alternative route, running from the Agter-Witsenberg Valley eastwards across the Cold Bokkeveld and into the Ceres Karoo northeast of Karoopoort traverses a very wide spectrum of formations belonging to the Table Mountain, Bokkeveld, Witteberg, Dwyka and Karoo Groups. Some of these formations – with the principal exceptions of the Dwyka Group and Witpoort Formation - are consistently fossiliferous, and the overall palaeontological significance of this alternative route is therefore **high** to **very high**. Tertiary and younger alluvial deposits along the southwestern margins of the Ceres Karoo (*eg* T-Qt) have not as yet yielded fossil remains of note, though they may be present if searched for. These deposits obscure the outcrop areas of the fossiliferous upper Witteberg Group (Lake Mentz Subgroup), which might be intersected subsurface, however.

Key sections of high to very high palaeontological sensitivity include:
(a) The Bokkeveld Group north of Gydo Pass. For example, this area includes one of only two known fossil localities from the uppermost Bokkeveld subunit, the Karoopoort Formation (Boucot & Theron 2001).
(b) The Bokkeveld Group north of Baviaansberg. Middle Devonian fish fossils (*eg* non-marine sharks) have been collected from this area (Anderson *et al*. 1999).
(c) The lower Witteberg Group (Weltevrede Subgroup) north of Kwarrieberg. This area includes the stratotype section for the Swartruggens Formation (Ossenkloof) and has yielded important trace fossil assemblages from both the Wagen Drift and Swartruggens Formations (Almond 2008b).
(d) The lower Ecca Group (Prince Albert, Whitehill and Collingham Formations) of the southern Ceres Karoo – see discussion under Alternate new route, Section 3.1.3.

E1.2 PREHISTORIC PERIOD

A previous archaeological survey by the Agency for Cultural Resource Management (ACRM) (Kaplan 2001) provided a preliminary report on the Gamma-Omega route which noted the potential for archeological sites along the power line. Archaeological sites were found at most of the places visited, with the exception of Section 2, although mention was made of rock art in the Kouebokkeveld. Kaplan (2001: 5) states: "Large parts of Section 1 (Swartland)

are currently heavily farmed, resulting in low archaeological visibility". However, recent work by Fauvelle-Aymar *et al* (2006) and Arthur (2008), suggest that these low visibility archaeological sites may be the only vestige of a previous pastoral occupation. Similarly, Sampson (in press) has noted that in the Seacow River Valley herder kraals with low sherd count tend to be away from main drainage channels, nevertheless these sites are important examples of the archaeological signature of the area. For the purpose of this research four ecological zones were noted in the study area and are described as the **Coast zone** at Melkbosstrand, the **Inland Plain** or Swartland, the **Cape Fold Mountains** and the **Karoo (Appendix 6)**.

E.1.2.1 Coastal Zone: Section 1 (Main Alternative Route)

Much of this area has been heavily impacted by expanding residential construction over the past 20 years. This has meant that some of the sites listed in Table 1 probably no longer exist, as the surveys were done in the 1970s. Early to Middle Stone Age archaeology in the Melkbosstrand area has been the focus of research by a joint team from UCT and Stanford University. In the 1970s Duinefontein became well known for the good preservation of Middle Pleistocene faunal material (Klein 1976), and more recent work (Klein et al 1999; Cruz-Uribe et al 2003) has offered dates for the upper surface of 270 Kyr. The older lower surface remains undated.
The later archaeology is dominated by shell middens on the dune surfaces parallel to the coast. These are mostly Holocene in age, but would encompass the period before and after the arrival of domestic stock and pottery at the Cape some 2000 years ago. Work at Atlantic Beach has produced dates within the last 2000 years, and an interpretation that these were herder sites (Sealy *et al* 2004).

E.1.2.2 Inland Plain: Section 1 (Main Alternative Route)

This open agricultural zone is often referred to as the Swartland, reputedly because the renosterbos (*Elytropappus*) gave the indigenous vegetation a dark colour. This area has the main permanent river system of the Berg River and its tributaries. The history of the aboriginal people of the area is still evident in names of these people, such as Sonquasdrift (which at the beginning of the 18th century was the location of a redoubt built by the Dutch to 'protect' the colonial farming population from local hunters) and Ubiquaberg (named after a group of hunters who reputedly stole cattle from the Europeans). Today, we would suggest that these hunters were under tremendous pressure from the expanding colonisers, some of whom stole cattle from the Khoekhoen. One response by the Khoe was to try to get some of their animals back by raiding.
Limited archaeological work has been done in the area, as most of the sites would be open scatters, and of less interest to researchers in the past. Excavation was carried out at the southern end of Voelvlei Dam, which produced Later Stone Age tools associated with early European cultural material, and a date of 400 BP. (Smith et al 1991). The small shelter excavated also had rock paintings on the wall, including two examples of rare triple-curved bows. Another excavated LSA site, overlooking the Swartland, was Driebos, which also had rock art (Smith et al 1991).
A survey of the riverine area from Porterville to Die Mond (Vier-en-Twintig Rivieren) produced continuous scatters of Pleistocene Age. Hart (1987:412-414) comments: "Middle and Early Stone Age material was so widely spread in most quadrats that single sites could not really be defined, but particularly dense areas could be distinguished and recorded". This scattering of artifacts is attributed to "massive sheet erosion" which had "moved a good deal of topsoil, exposing the rocky B and C horizons" (ibid: 414).

What is patently obvious, however, was the low incidence of LSA sites, even when visibility was good and those found relatively easy to see. There may be several reasons for this paucity. The low density of the human population, and mobility of both hunters and herders across the landscape may have had a low impact on the environment (Smith 1998). More recently, Arthur (2008) has discovered that deep, sub-surface ploughing practised in the 1950s and 1960s has contributed to the disappearance of herder sites. Compound this with the focus on rock shelters where most information has come, and any archaeological research bias against small, ephemeral scatters is bound to exist (Fauvelle-Aymar et al 2006).
This area is also where the rock paintings of the famous 'galleon' at Vaalfontein and 'elephants-in-boxes' at Monte Cristo have been found (Maggs & Sealy 1983).

E.1.2.3 Cape Fold Mountains: Section 2 (Central, Southern & Northern Alternative Routes)

The Groot Winterhok and Witzenberg Mountains contain numerous examples of Later Stone Age sites with rock art, mostly known from caves and rock shelters. This is a highly broken area, so difficult for survey. One site visited by the author at Bosrivier has both rock art and a good deposit with pottery attributable to the De Hangen style (Sadr & Smith 1991). Solderberg, in mountains north of Tulbagh, is a grazing area that was used by Tulbagh farmers, and as emergency grazing for Karoo farmers as late as the 1970s. Further east through the Skurweberge and Ceres mountains, between the Warm and Koue Bokkeveld few archaeological sites have been reported. This does not mean there are no sites, but the area has received little attention from archaeologists, except for recording rock paintings, such as at Guarrieberg (Godfrey Hoehn, pers. comm.), close to the Karoopoort area.

E1.2.4 Karoo: Sections 3-7 (Main)

The dry open country of the Karoo starts where the mountains debouch eastward onto the Tanqua Karoo at Karoo Poort. There are rock paintings at Vaalkloof on the south side of the poort (Hall & Mazel 2006), and out on the open plain the Doorn River is a source of the fine-grained rocks from the Dwyka Formation that were used as raw material for stone tools further to the west.

With distance from Cape Town metropole the observations drop off, and few research projects have been done in the Karoo. The exception is the Seacow River Valley Project carried out by Garth Sampson (1986) which was an intensive study of an entire catchment to the east of Victoria West. During the dry season, vegetation cover is limited, so site visibility is increased markedly. In all, a 5000 square km area was surveyed, and a total of 16,000 sites located.

Using these data, and estimating the entire area of the Gamma-Omega line (main route + alternatives) to be 800 km x 5 km corridor = 4000 square km, this would indicate a possibility of a total of 12,800 sites, or 3.2 sites existing in each square km, or 16 sites every linear kilometre. routes e.g. the R46 and R301.

SECTION F: ASSESSMENT OF THE VISUAL SENSITIVITY OF THE STUDY AREA

The Visual Impact Assessment (VIA) (**Appendix 11 Volume 2**) was undertaken to assess the impact of the proposed Gamma Omega transmission line on the surrounding landscape and forms. The main objectives of the study are:

- To define the areas of the landscape that are visually impacted by performing a viewshed analysis of the study area.
- Assess the visual absorption capacity of the landscape taking into account topography and land use.
- Assess the visual impact at critical viewpoints in relation to the transmission line and its structures, taking into account observer distance, the relationship between local variation in topography and the transmission line structure, visual absorption and screening.

Limitations of the study

The location and extent of the construction sites, workers camps and access roads will only be determined during the design phase. The visual impact assessment does not include these aspects of the project

Viewshed Analysis

A viewshed is a topographically defined area that defines all possible areas of the landscape from which a proposed structure will be visible. The boundary of the viewshed, which connects high points in the landscape, is the boundary of possible visual impact (Alonso et al, 1986). Local variations in topography, vegetation cover and man-made structures will cause local obstruction of views within this extent.

For the broader viewshed analysis, a vertical offset of 48 meters was applied at the observer points (pylons) in order to produce viewsheds indicating partial or more visibility. For example, a vertical offset of 0 at the observer points will produce a viewshed indicating areas to which only the entire pylon is visible. Whereas a vertical offset of 48 meters at the observer points (height of pylons for the Gamma-Omega project) will produce a viewshed indicating areas to which the tip of the pylon (or more) is visible.

Preparation of data

Although the position of the transmission routes for the Gamma-Omega project have been proposed, the positions of pylons have not yet been determined. As the distance between pylons is known (500 meters), a dataset was developed for each route that placed observer points (pylons) at 500 meter intervals along the route, as a representation of possible placements.
Due to the intensive nature of the modeling process, the DEM was coarsened to a vertical accuracy of 100 meters. For the critical viewpoint analysis, a finer DEM of 20 m was used.

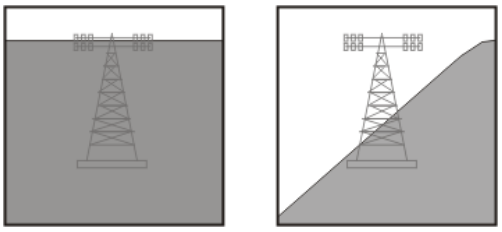
Visual Absorption Capacity

The concept of using visual absorption criteria to assess the relative ability of landscapes to absorb development, by type and level, was first documented in 1968 (Jacobs et al. 1968). The Visual Absorption Capability is defined as the relative ability of a landscape to accept management manipulations, without significantly affecting its visual character. In other words, it is a measure of the land's ability to absorb alteration yet retain its visual integrity.

Factors considered in this study to affect visual absorption include:

- Slope
- Landscape variability
- Vegetation and feature height

In terms of visual absorption, the landscape variability and feature height (height of surrounding vegetation and land cover) can be determined without consideration of the point of observation. Although slope is useful as a broad indicator of absorption in this instance (steep slopes provide more backdrop and reduce silhouetting), its aspect in relation to the observer cannot be determined and therefore slope is more reliable when viewed from specific observer points.



Steep slope
Aspect facing observer

Steep slope
Aspect at right angles to observer

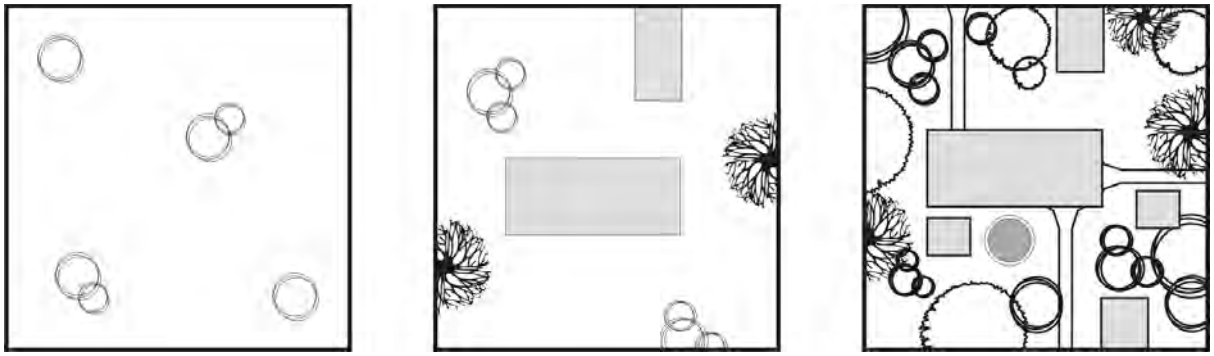
Figure F1: The relationship between slope and aspect

In order to factor the influence of observer distance and landscape contrast into the overall visual absorption score, as well as slope supported by aspect, specific observer points must be obtained.

F.1 DETERMINING VISUAL ABSORPTION

F1.1 Landscape Variability

The effect of the landscape variability on the overall visual absorption capacity of the land is determined by the complexity and variability of the landscape. Areas where landscape features are scarce will reflect a lower absorption capacity than areas where landscape features are plentiful. Similarly, areas where landscape features are uniform will reflect a lower absorption capacity than areas where landscape features are diverse. Combined, empty landscapes with uniform features reflect the lowest visual absorption, while busy landscapes with diverse features reflect the highest visual absorption.



Empty landscape
Uniform Features
Low V.A.C.

Moderate landscape
Some variation in features
Moderate V.A.C.

Cluttered landscape
Diverse features
High V.A.C.

Figure F2: V.A.C. ranges within landscape variability

To determine landscape variability, a computer model passes a fixed size window over a raster grid representing land cover, and the numbers of diverse cells (features) within the window are counted. This number is assigned to the cell at the center of the window. The resultant dataset is a raster grid with grid cells representing landscape variability.
To run the model, the NLC dataset was converted to a raster grid using Spatial Analyst. Each cell is 250 meters square, and is assigned a value representing the land cover type it most
covers.

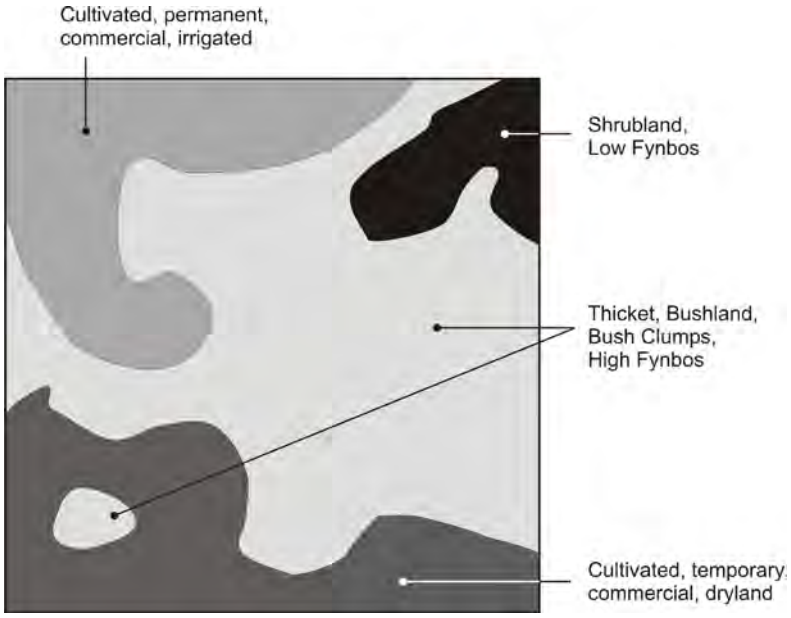


Figure F3: Typical land cover types in the NLC dataset

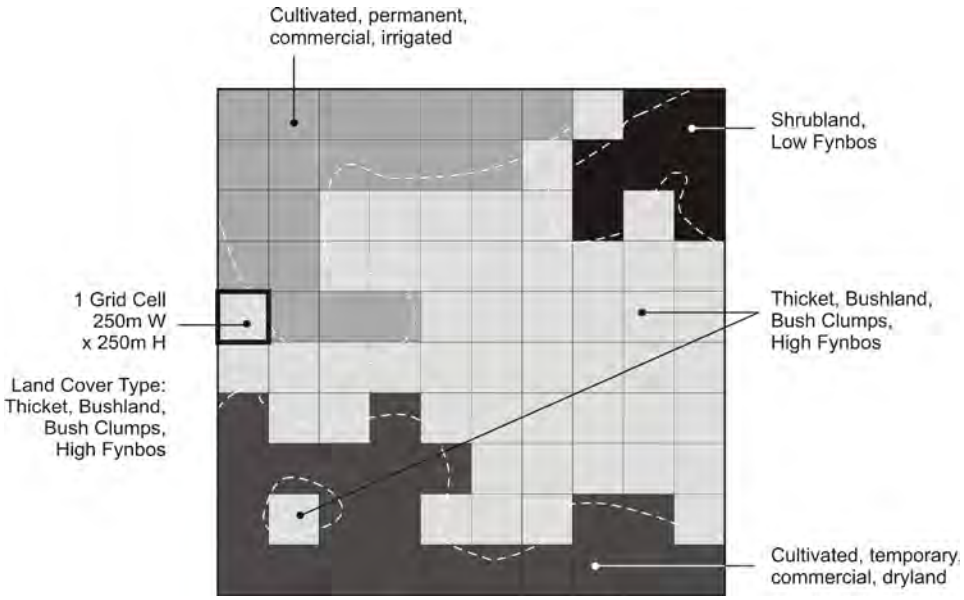


Figure F4: NLC types represented as a grid of 250m x 250m cells

Running the landscape variability model

- The window is passed across the raster grid, starting at the top left.
- While the center cell falls outside the grid extent, no index is allocated.
- When the window falls partially over the grid, data falling inside the window, but outside the extent of the raster grid is ignored.
- When the window falls completely over the grid, the center cell is allocated a variability index, all grid cells are considered.

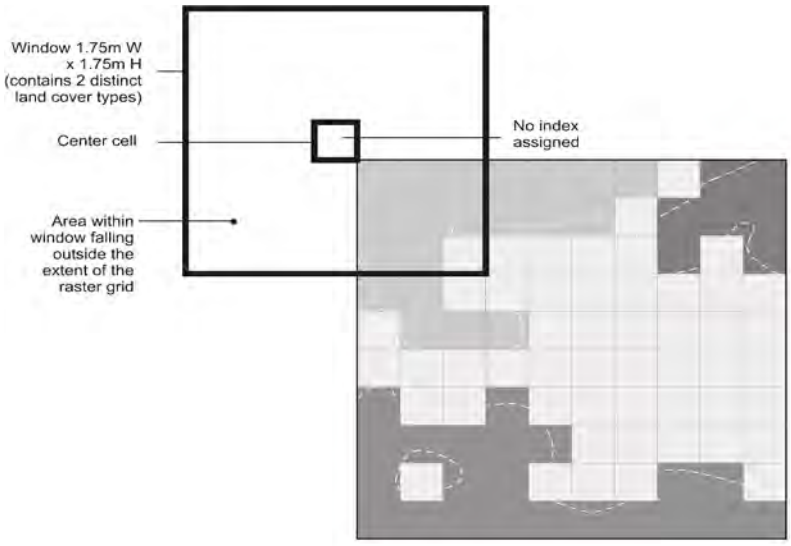


Figure F5: Window passing partially across grid, no center cell index is allocated

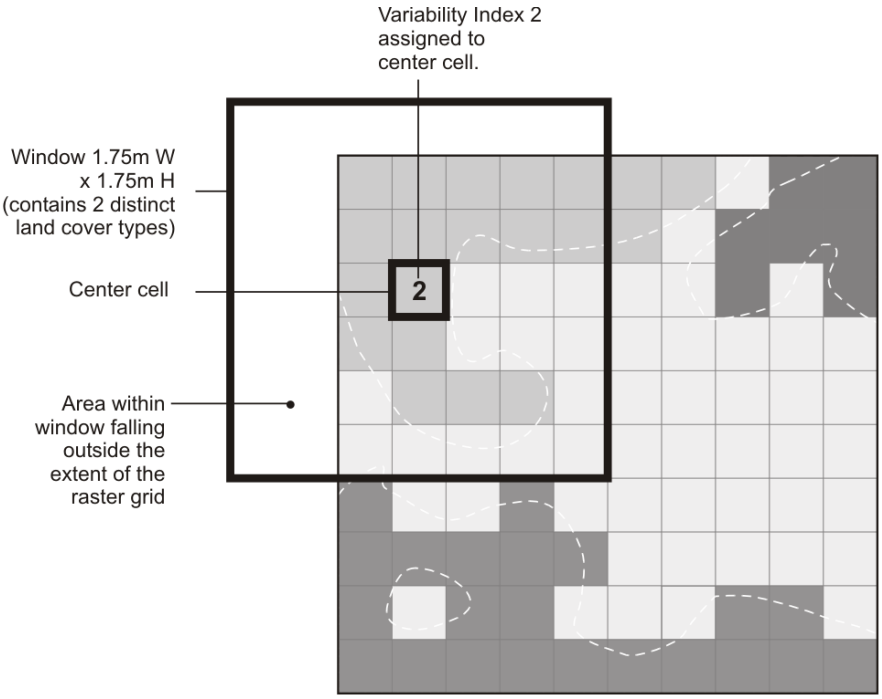


Figure F6: Window passing partially across grid, the center cell index is allocated

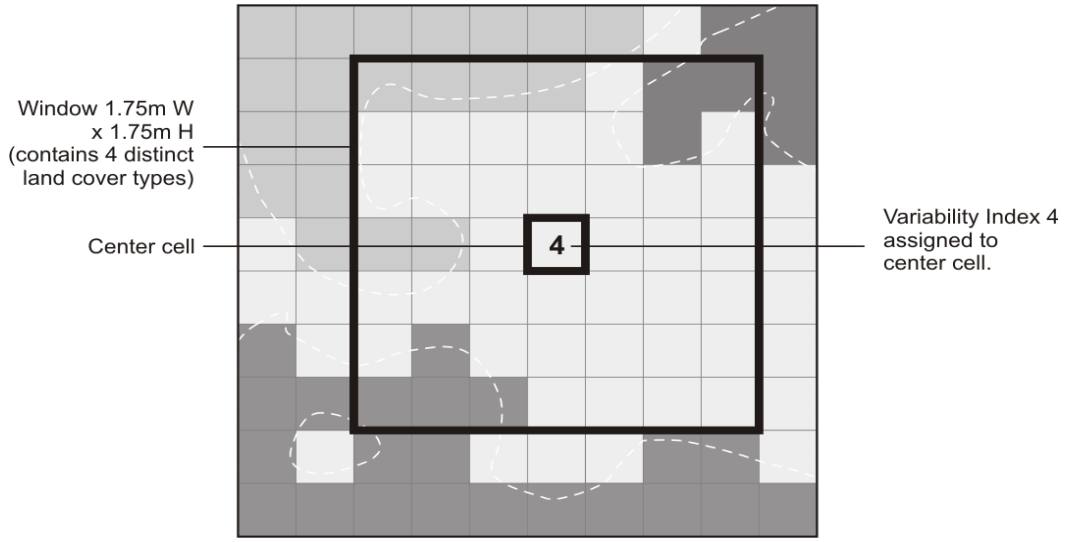


Figure F7: Window passing completely over grid, the center cell index is allocated.

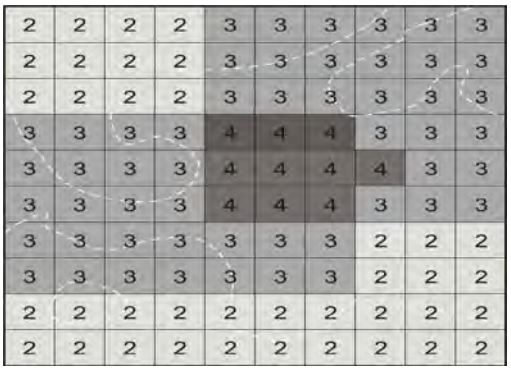


Figure F8: The completed variability grid

As it stands on its own, the variability grid can give an indication of visual absorption. Areas indexed with a 2 have the lowest variability and therefore the lowest visual absorption. The area indexed with a 4 has the highest variability and therefore the highest visual absorption. This process was applied to the national land cover dataset for the area within the study.

F1.2 Feature Height

Visual scale (height of features within the landscape) is the apparent size relationships between landscape components and their surroundings (Smardon *et al.* 1986).

The effect of feature height on the overall visual absorption capacity of the land is determined by observing the relationship between these landscape features, and the structures that are being added to the landscape. When comparing the land cover height with a 48 meter pylon, areas where land cover is low (irrigated lands, low fynbos) will reflect a lower absorption capacity than areas where land cover is high (pine forests or tall buildings).

F1.3 Determining Feature Height

The National Landcover (NLC) dataset (2005) was used to determine feature height for the study. Each land cover type was allocated a height value based on its type, as follows:

Land Cover Type	**Height Class**
Bare rock and soil (erosion: sheet)	Short
Bare rock and soil (natural)	Short
Cultivated, permanent, commercial, irrigated	Medium Short
Cultivated, temporary, commercial, dryland	Medium Short
Cultivated, temporary, commercial, irrigated	Medium Short
Forest plantations (clearfelled)	Short
Forest plantations (Eucalyptus spp)	Tall
Forest plantations (Pine spp)	Tall
Improved grassland	Medium Short
Shrubland and low fynbos	Medium Short
Thicket, bushland, bush clumps, high fynbos	Medium
Urban / built-up (residential)	Medium
Urban / built-up (residential, formal suburbs)	Medium

Urban / built-up (residential, informal settlements)	Medium
Urban / built-up (rural cluster)	Medium
Urban / built-up (commercial, mercantile)	Medium
Urban / built-up (industrial transport: heavy)	Medium Tall
Urban / built-up (industrial transport: light)	Medium Tall
Waterbodies	Short
Wetlands	Short

Table F1: Land cover classification by height

As with landscape variability, the dataset is converted to a raster grid using Spatial Analyst. Each cell is 250 meters square, and is assigned a value representing the average **height** of the cell.

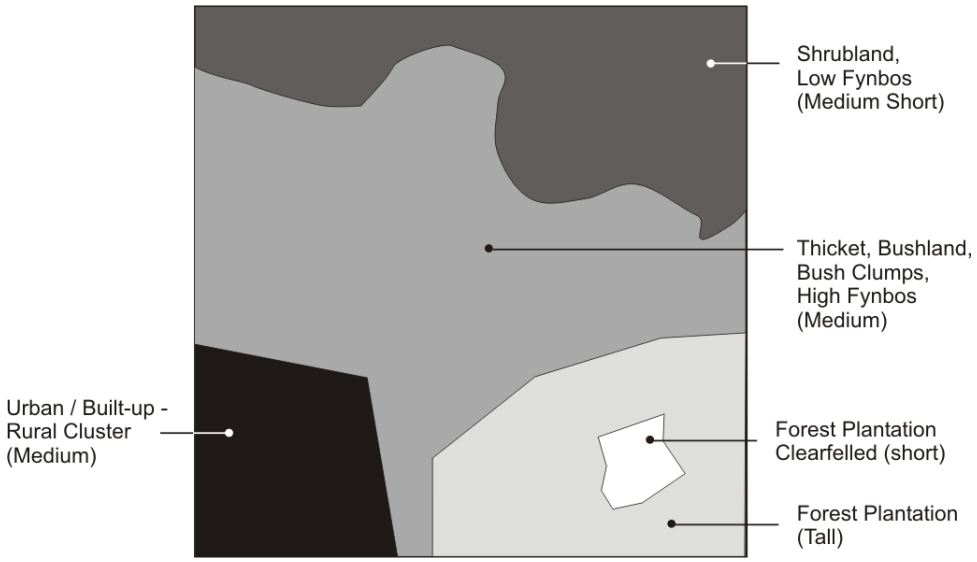


Figure F9: Typical land cover types and their heights in the NLC dataset

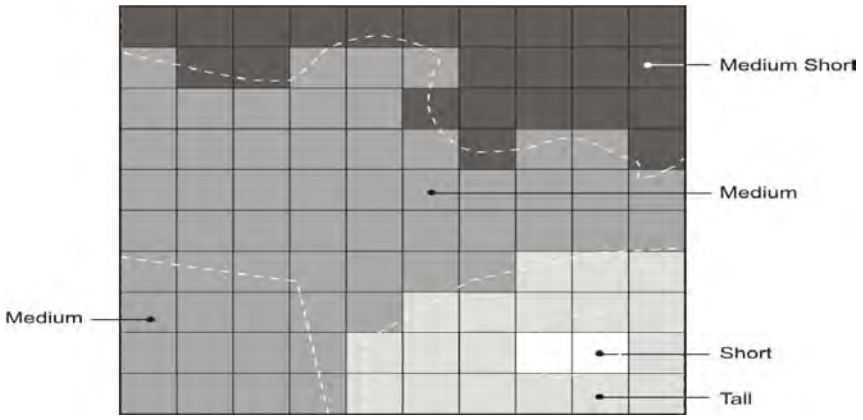


Figure F10: NLC heights represented as a grid of 250m x 250m cells

F1.4 Slope

As previously discussed, slope as a factor independent of observer position cannot necessarily determine VAC. However, it may be used to provide a broad assessment of the absorption capacity of the landscape.
Slope influences visual absorption by providing a backdrop against which features may hide. Steep slopes provide more backdrop and less silhouette on the skyline, while shallow slopes provide less backdrop and more silhouette on the skyline. By defining the steeper slopes within a study area, planners are able to broadly decide on the horizontal position of features such as pylons. This makes way for further localized refinement such as the vertical positioning of pylons on these steeper slopes, to reduce the incidence of silhouetting, or the horizontal positioning to take advantage of aspect when positioning pylons in sympathy with the landscape.

Determining slope

The slope dataset is generated from the Digital Elevation model using built-in spatial modeling algorithms within the GIS software. The software produces a raster grid of 20 m square cells. Each cell is assigned a value representing the slope in degrees between 0 ^{o} and 90 ^{o}. This process was applied for the extent of the study.

F1.5 Combining the influence of Landscape Variability, Feature Height and Slope on Visual Absorption

In order to combine the above factors to reflect an overall VAC, the values for each of the datasets are converted to a common scale or score. For the purpose of this study the scoring system applied was out of 10. Therefore, for the Landscape Variability and Slope datasets, the product of which reflects a range of data, it was possible to score the results using the formula :

$$b / a * 10 = c$$

Where :

b = the Maximum value achieved during processing
a = the maximum possible value that could have been calculated
c = The score out of 10

Variable	Max. Value Achievable (a)	Max. Value Achieved (b)	Max Score out of 10 (c)
Landscape Variability	26 Land cover types	12 Land cover types	4.6
Slope	90 ^{o}	67 ^{o}	7.45

Table F2: Results of conversion to common scale

For Feature height, the product of which reflects a defined classification, the results were scored as follows:

Height	Score
Short	0
Medium Short	2.5
Medium	5
Medium Tall	7.5
Tall	10

Table F3: Applying a VAC score to feature height

The three datasets and their scored values were then combined to produce the final VAC dataset.

F.2 THE VIEWING DISTANCE

The visual impact of an object in the landscape diminishes at an exponential rate as the distance between the observer and the object increases (Hull and Bishop, 1988)
Thus the visual impact at 1 000 m would be approximately a quarter of impact as viewed from 500 m. Consequently at 2 000 m it would be one sixteenth the impact as viewed from 500 m. The view of the project components would be so small at 5 000 m that the visual impact is insignificant. Conversely, the visual impact at 500 m would be at its maximum.
For the purpose of this study, visual distance zones have been identified at 500, 1000, 2000 and 5000 meters.

The Combination of Viewshed, VAC and Viewing Distance

By combining the viewshed analysis and VAC results, and mapping these against the viewing distances, it is possible to gain a broad understanding of the visual impacts of the individual routes.
Mapping the viewshed (visual catchment) tells us which routes are *most visible* to the cultural landscape, and which are *least visible*, while mapping the VAC tells us which routes are most *absorbed* by the landscape and which are least absorbed. The viewing distance tells us to what *degree*.
These factors combined give a good indication of the most suitable route from a purely visual perspective. These results must be combined with other factors such as the effect of routes on the scenic and cultural landscape, and the archaeology and paleontology of the area.

F.3 CRITICAL VIEWPOINTS

The broader visual impact of the route on the landscape can be determined by performing a viewshed analysis, and determining the overall visual absorption capacity of the land. However, in order to assess the local impact, specifically within areas of heritage significance, a more refined analysis was carried out.
By defining critical viewpoints in the landscape, it is possible to assess visual impact in relation to the observer. The criteria for determining impact include (in order of importance):

- The distance of the transmission route from the observer, and the duration of its influence. i.e. transmission lines that cross perpendicular to a scenic route will have a briefer impact than transmission runs that run parallel to a scenic route.

- The visibility of the transmission route and its structures from the observer, i.e. are the pylons blocked from view by local variation in topography, and what is the degree of foreground screening.

- The degree of background screening, i.e. is silhouetting of pylons prevented or reduced by features such as a mountain backdrop.

The visual absorption of the transmission route structures, (i.e. are pylons situated in cultivated land, on slopes, within a forest plantation etc.) was also considered.
In order to assess the visual impact of a critical viewpoint, 3 pylons within the dominant viewshed of the critical viewpoint were sampled using the above criteria, as follows:

F3.1 Distance

Based on the set viewing distances, zones around each critical viewpoint were defined at 500m, 1 000 m, 2 000 m and 5 000 m, and the sample pylons were assigned a base visual impact score in terms of their position in the zones. This score was developed to represent the exponential effect that distance has on visual impact.

Distance Zone	Visual Impact Score
0 – 500 m	Very High
500 – 1 000 m	Very High
-	High
1 000 m – 2 000 m	Medium High
-	Medium
-	Medium Low
2 000 m – 5 000 m	Low
-	Very Low

Table F4: Visual Impact Score according to Distance

Once a base score for each pylon had been determined, the other factors were assessed and the base score was adjusted to reflect the degree of mitigation required.

F3.2 Pylon Visibility

To assess the visibility of pylons from the critical viewpoint, 3 viewsheds were produced for each critical viewpoint to indicate:

- Areas of the landscape where pylons would be fully visible to the observer (48 meters)

- Areas of the landscape where pylons would be more than half visible to the observer(24 to 48 meters), and

- Areas of the landscape where the tips of pylons would be visible to the observer (0 – 24 meters).

Line-of-sight profiles were also produced from the critical viewpoint (observer) to each sample pylon (target). A line of sight indicates the topographical surface along the line that is visible to or hidden from the observer. The visible surface is shown in red and the hidden

surface is shown in green. If the terrain hides or partially blocks the pylon, it is possible to see where the obstruction is, and what other features are hidden or visible along the line of sight. If an offset is applied to the pylon, the visibility of the pylon at offset level is also calculated.

The line-of-sight profiles were plotted to provide a schematic indication of the foreground topography responsible for blocking the view of the pylon, and to establish the degree of screening that may be achieved by the view of the landscape behind the pylon, as seen by the observer.

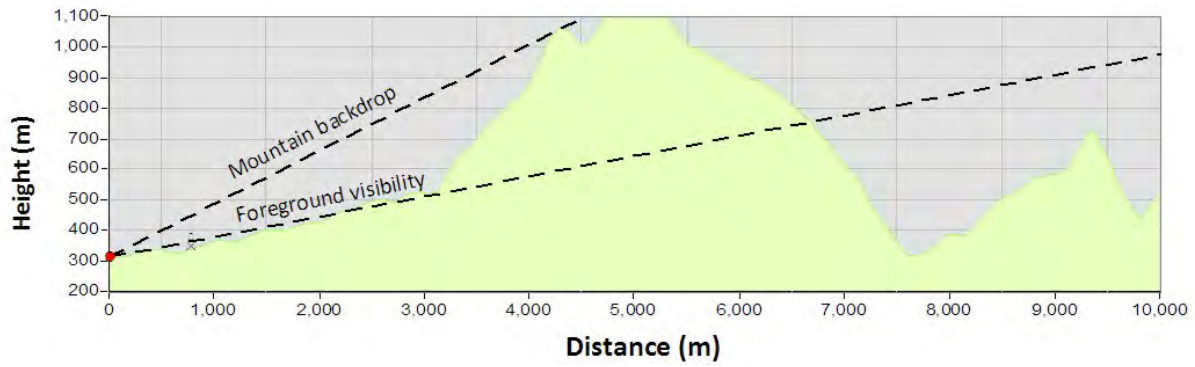


Figure F11: Example of a line of sight profile

Mitigation of the base visual impact score was thus applied according to the degree of visibility of the pylon from the target, as follows:

Pylon visibility	Mitigation
0 – 50% visible (0 – 24 meters)	-1
50 – 100% visible (24 – 48 meters)	0
100% visible (48 meters)	0

Table F5: Mitigation of visual Impact Score based on pylon visibility

Therefore, a pylon at 1250 meters from the critical viewpoint would have a base score of *Medium High*, but if the pylon were less than 50% visible, the base score would be reduced by 1 to a *Medium* score.

F3.3 Background Screening

The visual impact of a structure in the landscape can be reduced by background screening. When viewing a pylon across a flat landscape where there is little background screening, or traversing a ridge, pylons will be silhouetted against the skyline. However, where pylons are viewed against a mountain slope or similar landscape feature, the pylon may be partially or fully screened, silhouetting is reduced or avoided, and the visual impact is less.
Mitigation of the base impact score was thus applied according to the degree of screening supplied by the background landscape, as follows:

Backdrop / screening	Mitigation
Partial or full backdrop within 5 km	-1
Partial or full backdrop further than 5km	0
No backdrop	0

Table F6: Mitigation based on Backdrop / Screening

For landscape features at a distance of more than 5km away, the lack of visual clutter increased the effect of silhouetting, therefore no mitigation was afforded.
Therefore, a pylon at 1250 meters from the critical viewpoint would have a base score of *Medium High*, but if the pylon were less than 50% visible, the base score would be reduced by 1 to a **Medium** score. In addition, if the pylon was screened by a mountain backdrop, and no silhouetting of the pylon occurred, the base score would be further reduced by 1, to a *Medium Low* score.

F3.4 Other Factors

Other mitigating factors were considered in the process of assigning a visual impact score. These included:

- The position of the transmission line in relation to *dominant view* from the critical viewpoint. i.e: a transmission line running in front of a farmstead will have more impact than a transmission line running behind the farmstead.

- The influence of existing features in the landscape. i.e. a transmission line running behind or in-between existing power lines will have less impact than a transmission line running through a pristine landscape.

Mitigation of the base impact score was thus applied according to the influence of one or more of these factors, as follows:

Factor of influence	Mitigation
In-between or behind existing structures	-1
Outside the dominant view	-1

Table F7: Mitigation according to Other Factors

Therefore, a pylon at 1250 meters from the critical viewpoint would have a base score of *Medium High*, but if the pylon were less than 50% visible, the base score would be reduced by 1 to a *Medium* score. If the pylon was screened by a mountain back drop, and no

silhouetting of the pylon occurred, the base score would be further reduced by 1, to a *Medium Low* score. Finally, if the transmission line was situated in-between existing power lines, the base score would be further reduced by 1, to a *Low* score.

F3.5 Overall Impact

The sampling of individual pylons provides a useful insight into the visual impact of the route in relation to the observer at the critical viewpoint. However in order to provide a balanced assessment, the scenario must be viewed at a more holistic level taking into account:

- The information provided by the sampling of pylons,
- The interpretation of the viewsheds and line of sight data,
- The assessment of the Visual Absorption Capacity, and
- The spatial mapping of the related components in GIS and Google Earth.

The product of this holistic assessment is an overall visual impact score for the critical viewpoint. This score is mapped along with the heritage components of the study, in order to allow the heritage specialist to determine heritage areas of concern, or 'hotspots'.

F3.6 Response to the 2008 public participation process

A field trip was conducted in January 2009 to re-assess select critical viewpoints at a local level based on comments received from the public participation process. Where local conditions (such as tree lines or view directions) were thought to mitigate the impact of the power line and pylons, changes were made to the score manually. These local variations are referred to as micro-conditions, for details, refer to the field notes in the 'Cultural landscape and historical built environment' report..

An additional 4 critical viewpoints were also been added in the Tulbagh Valley area, including:
B1-8 : Schoenderzicht homestead
B1-9 : Agricultural Context – southern wheatfields
B1-9 : Koelfontein

The critical viewpoint for Steinthal Village (B1-4) was re-assessed after the original location was moved.

F4: CONCLUSIONS

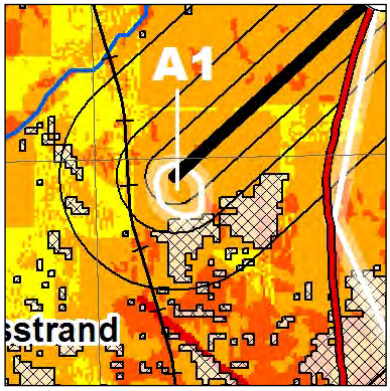
Visibility and Visual Absorption have been categorised as follows:

CRITERIA	HIGH	MEDIUM	LOW
Visibility	Very visible from many places beyond the 1 000 meter zone	Visible within the 1 000 meter zone but partially obscured by intervening landforms	Only partly visible within the 1 000 meter zone and beyond due to screening by intervening landforms
VAC	The ability of a landscape to easily accept visually a particular development because of its steep landforms, high vegetation and diverse texture.	The ability of a landscape to less easily accept visually a particular development because of its steep landforms, high vegetation and diverse texture.	The lack of ability of a landscape to easily accept visually a particular development because of its flat landforms, low vegetation and uniform texture.

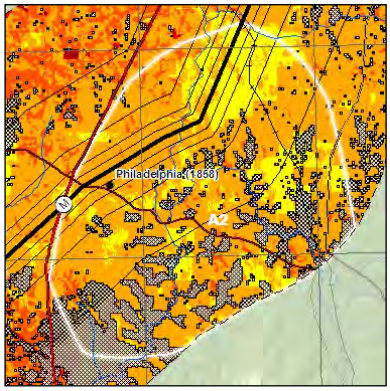
Table F8: Visual Assessment Criteria Ratings

Visual Absorption Capacity is not dependant on the position of the transmission route, therefore a single VAC rating is assigned to each landscape setting. However, as the viewshed will change for each setting depending on the route selected, a separate visibility rating has been assigned for each route that impacts on an individual landscape setting. Critical viewpoints are individually assessed.

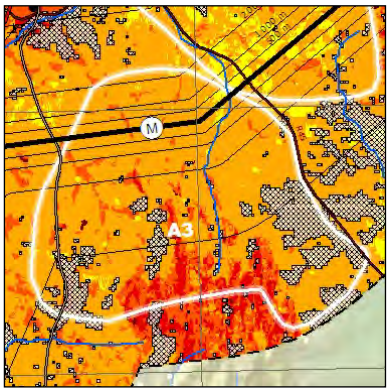
F4.1 The Swartland Region



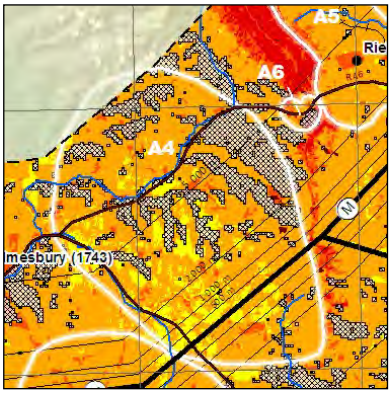
Main Route
Landscape Setting : Olifantskop
Visibility : High
VAC : Low



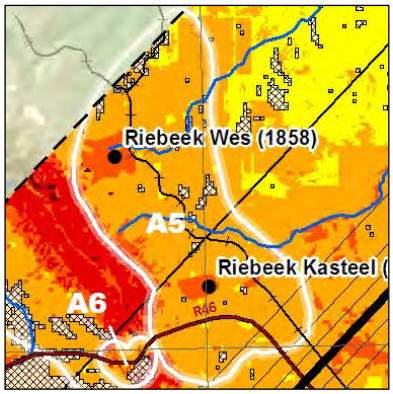
Main Route
Landscape Setting : Koeberg
Visibility : High
VAC : Low



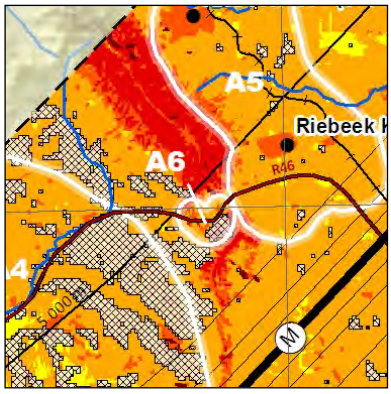
Main Route
Landscape Setting : Paardeberg Slopes
Visibility : High
VAC : Low



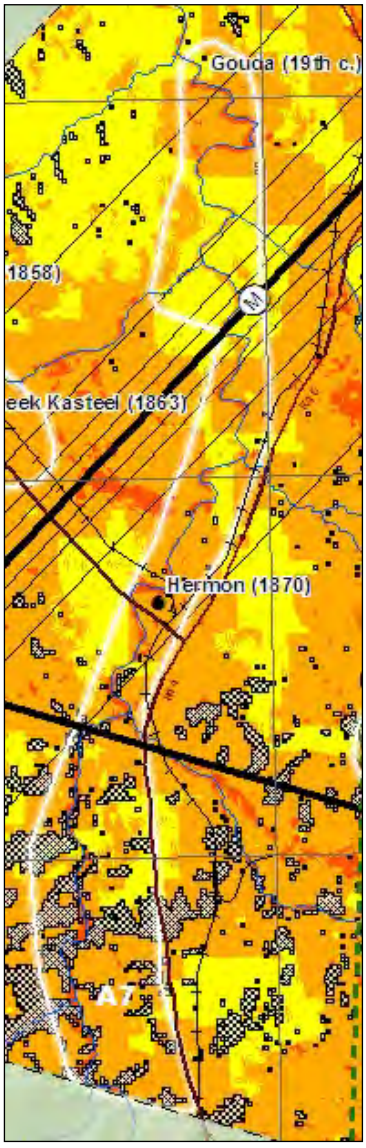
Main Route
Landscape Setting : Malmesbury Foothills
Visibility : High
VAC : Low



Main Route
Landscape Setting : Kasteelberg / Porseleinberg
Visibility : Medium
VAC : Low



Main Route
Landscape Setting : Botmanskloof Pass
Visibility : Low
VAC : Low

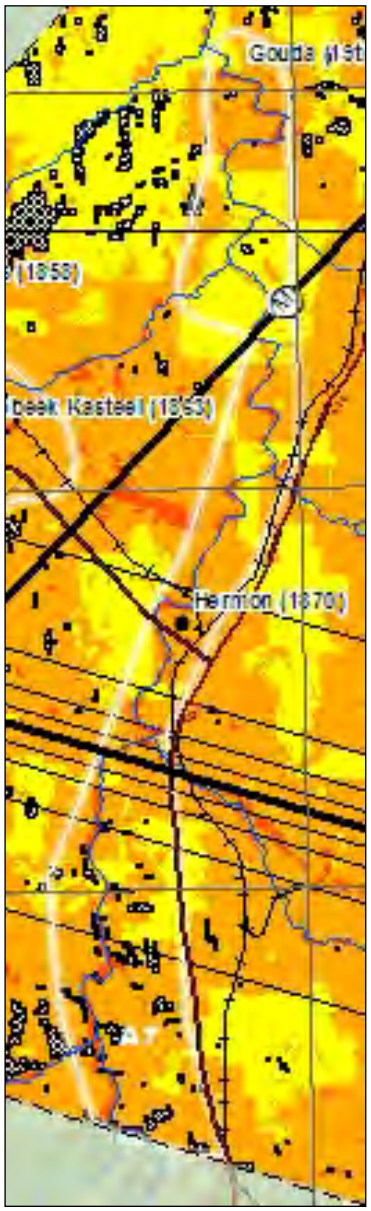


Main Route

Landscape Setting : Berg River Corridor Pass

Visibility : High

VAC : Low

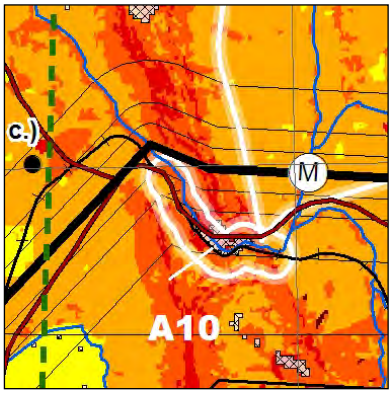


Southern Route

Landscape Setting : Berg River Corridor Pass

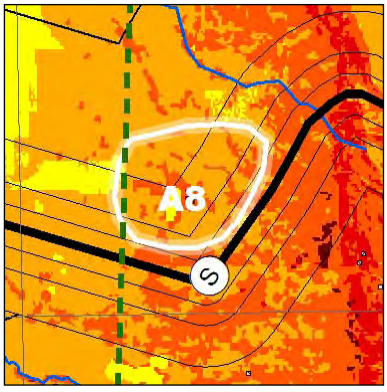
Visibility : High

VAC : Low



Main Route
Landscape Setting : Nuweberg Pass
Visibility : Medium*
VAC : Medium

* Although the viewshed is broad through the pass, the visibility has been downgraded due to the low number of pylons that would have contributed to the result.



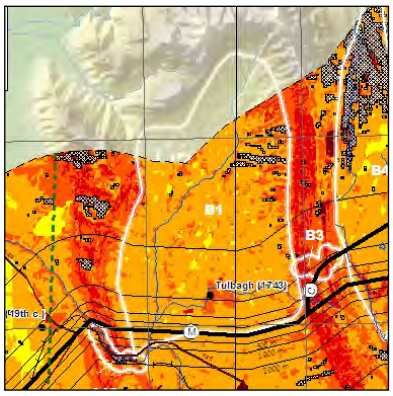
Main Route
Landscape Setting : Elandskloof / Bartholomeusklip
Visibility : High
VAC : Low

Critical Viewpoints
23 critical viewpoints were assessed in 4 landscape settings the Swartland Region. Of these, 16 were farmsteads and 7 were locations along scenic routes such as the Old Cape Road, R45 and N7. The results were as follows:

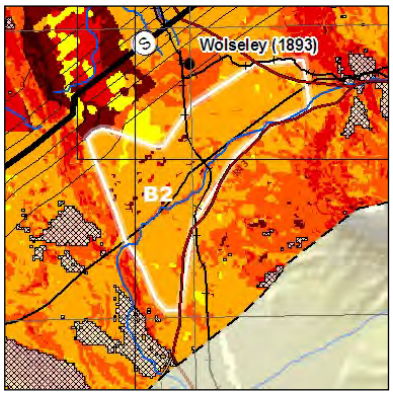
Landscape	Critical	Location	Impact
Koeberg	A2-1	Botterberg Farmstead	Very High
	A2-2	Town of Philadelphia	High
	A2-3	View of Swellengift from Old Cape Road	High
	A2-4	Intersection with Old Cape Road	Very High
	A2-5	Old Cape Road, adjacent to line	Medium
	A2-6	View from N7 across to transmission line	High
Paardeberg	A3-1	Intersection of proposed route with R302	Medium High
	A3-2	Eendrag Farmstead	Low
	A3-3	Klipfontein Farmstead	Very High
	A3-4	Papkuilsfontein Farmstead	Very High
	A3-5	Rheboksdam Farmstead	Very High
Malmesbury Foothills	A4-1	R45 facing North	High
	A4-2	R45 facing South	High
	A4-3	Tweekuil Farmstead	Very High
	A4-4	Kersfontein Farmstead	Medium
	A4-5	Dassenheuwel Farmstead	Very High
Berg River Corridor & surrounds	A7-1	Bosplaas Farmstead	Very High
	A7-2	Constantia Farmstead	Very High
	A7-3	Nuwewater Farmstead	High
	A7-5	Jonkershoek Farmstead	Medium
	A7-6	Vlakkenheuwel Farmstead	Medium
	A7-8	Eikeboom Farmstead	Very High
	A7-9	Vredenhof Farmstead	Very High

Table F9: Visual impact results for critical viewpoints in the Swartland Region

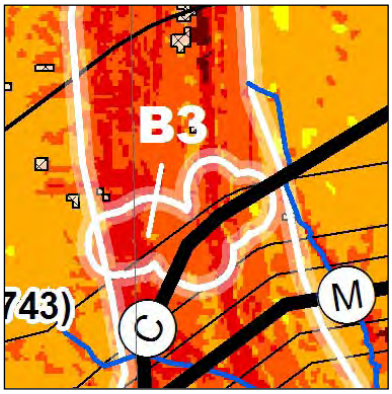
F4.2 The Mountain Region



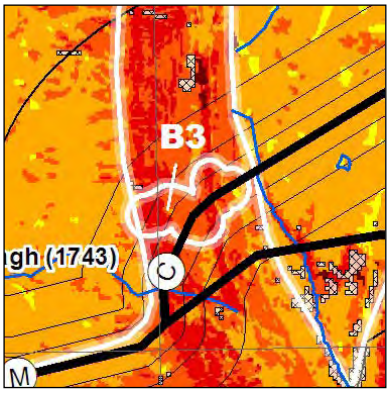
Main Route
Landscape Setting : Tulbagh Valley Valley
Visibility : High
VAC : Low



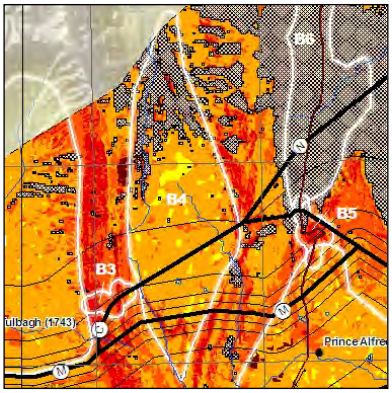
Main Route
Landscape Setting : Wolseley Valley
Visibility : Medium
VAC : Low



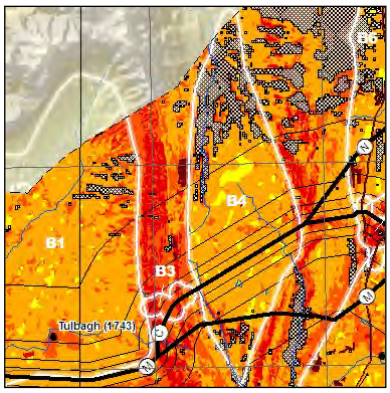
Main Route
Landscape Setting : Witzenberg Pass
Visibility : High
VAC : Medium



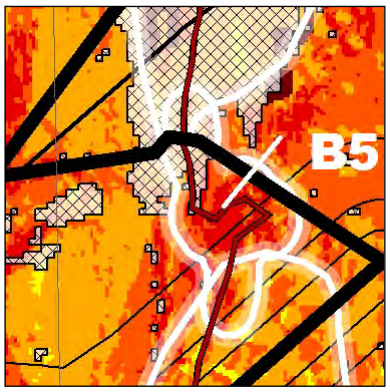
Central Alternative
Landscape Setting : Witzenberg Pass
Visibility : High
VAC : Medium



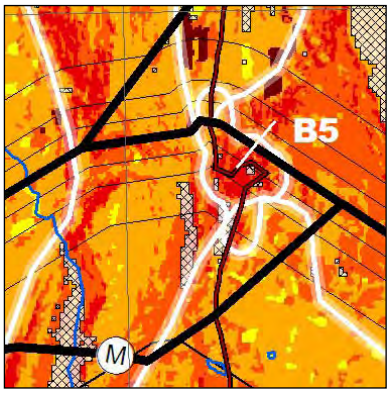
Main Route
Landscape Setting : Witzenberg Valley
Visibility : High
VAC : Low



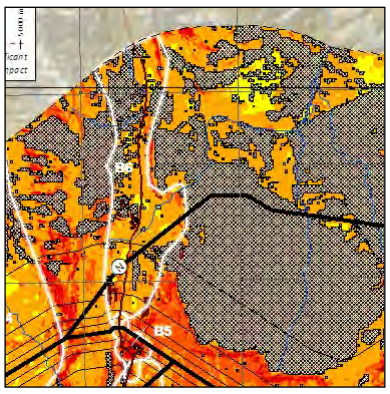
Central Alternative
Landscape Setting : Witzenberg Valley
Visibility : High
VAC : Low



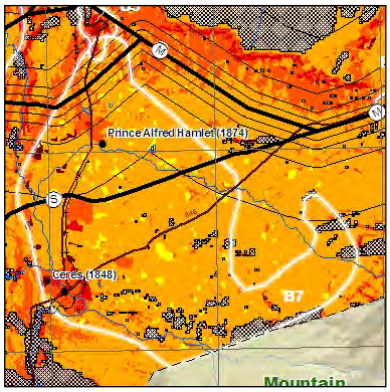
Main Route
Landscape Setting : Gydo Pass
Visibility : Medium
VAC : Medium



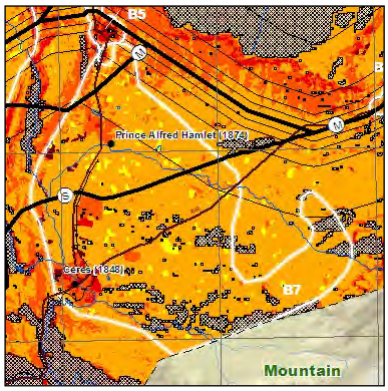
Central Alternative
Landscape Setting : Gydo Pass
Visibility : High
VAC : Medium



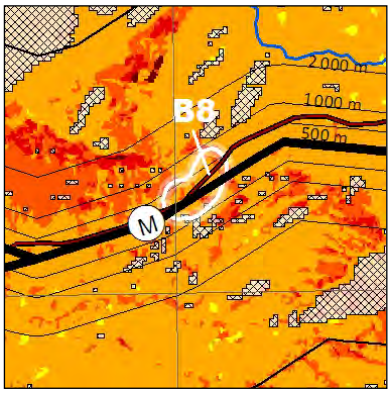
Central Alternative
Landscape Setting : Gydo Valley
Visibility : Medium
VAC : Low



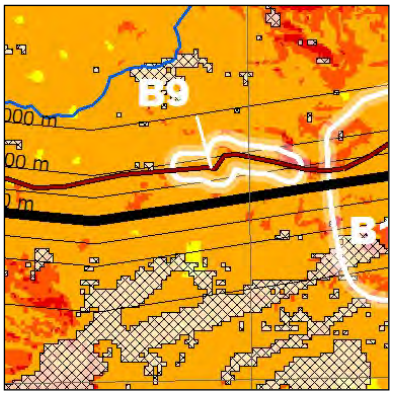
Main Route
Landscape Setting : Ceres Farmland
Visibility : Medium
VAC : Low



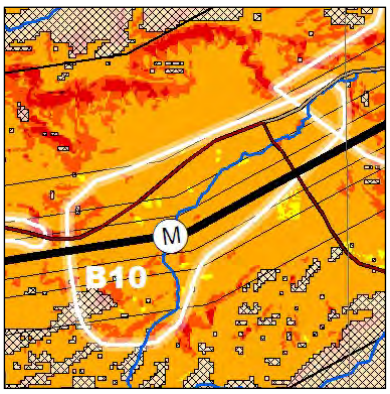
Southern Route
Landscape Setting : Ceres Farmland
Visibility : High
VAC : Low



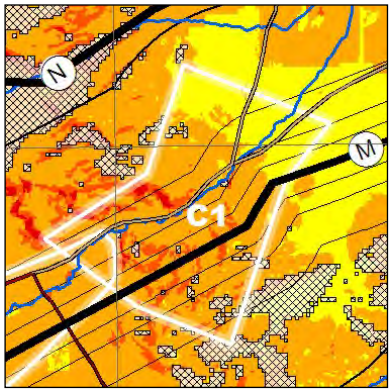
Main Route
Landscape Setting : Therons Pass
Visibility : Medium
VAC : Low



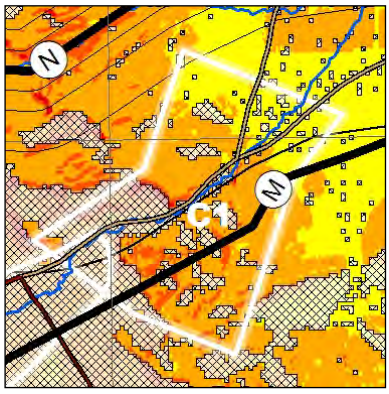
Main Route
Landscape Setting : Hottentotskloof Pass
Visibility : High
VAC : Low



Main Route
Landscape Setting : Boswaarmoed Valley
Visibility : High
VAC : Low



Main Route
Landscape Setting : Karoopoort Outspan
Visibility : High
VAC : Low



Northern Route
Landscape Setting : Karoopoort Outspan
Visibility : Low
VAC : Low

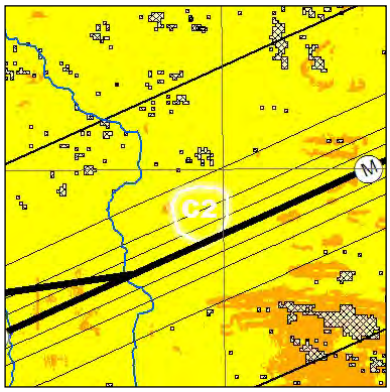
Critical Viewpoints

31 critical viewpoints were assessed in the Swartland Region. Of these, 13 were farmsteads, and 14 were locations along scenic routes such as the R 46, and the road from Schalkenbosch Farmstead. 4 additional viewpoints were assessed including the view from the town of Tulbagh and Steinthal Village. The results of the analysis were as follows:

Landscape Setting	Critical Viewpoint	Location	Impact	Manual Change
Berg River Corridor	A7-4	Doornboom Farmstead	High	
Elandskloof / Bartholomeusklip	A8-1	Bartholomeuskip Farmstead	Very Low	
	A8-2	Bosplaas Farmstead	Medium High	Medium-Low
Nuwekloof Pass	A10-1	Approach to Nuwekloof Pass	High	
Tulbagh Valley	B1-1	Town of Tulbagh	Very Low	
	B1-2	Schalkenbosch Farmstead	Low	
	B1-3	Road from Schalkenbosch Farmstead	Very High	
	B1-4	Steinthal Village (re-assessed after public participation process)	Medium Low	
	B1-5	Sagtevlei Farmstead	High	
	B1-6	View over line from **R46**	Medium	
	B1-7	View over line to Tulbagh	Very High	
	B1-9	Schoonderzicht Farmstead	Medium High	
	B1-10	Tulbagh / Wolseley Agricultural setting	Very High	
Wolseley Valley	B2-1	Olyfrivier Farmstead	Very Low	
	B2-2	Vaalhuis Farmstead	Medium	
	B2-3	Boontjiesrivier Farmstead	Medium	
Witzenberg Valley	B4-1	Approach from North to TL crossing road	High	
	B4-2	Approach road from SE to TL crossing road	Very High	
	B4-3	View from road North to parallel TL	Very High	
	B4-4	Slagboom Farmstead	Medium High	
	B4-5	View north from road parallel to line	Medium High	
	B4-6	Approach from NW	Medium High	
	B4-7	Approach from SE	Medium High	
Gydo Pass	B5-1	Intersection with R303, northern aproach	Very High	
	B5-2	Intersection with R303, southern approach	High	
	B5-3	Looking south from Gydo Pass	Very High	
	B5-4	Looking north from Gydo Pass	Medium High	
Ceres Farmland	B7-1	Waterval Farmstead	Medium High	
	B7-2	Kelsyville Farmstead	Medium High	
	B7-3	Skoonvlei Farmstead	Medium	
	B7-4	Blouberg Farmstead	Medium	
	B7-5	Koelfontein Farmstead	Medium	
Karoopoort Outspan	C1-1	Karoopoort Tollhouse	Low	

Table F10: Visual impact results for critical viewpoints in the Mountain Region

F4.3 The Ceres Karoo



Main Route
Landscape Setting : Platfontein Outspan
Visibility : High
VAC : Low

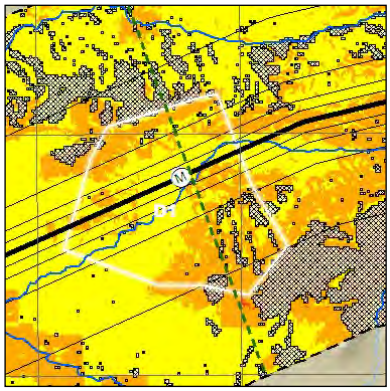
Critical Viewpoints

2 critical viewpoints were identified in this region:

Landscape Setting	Critical Viewpoint	Location	Impact
Platfontein Outspan	C2-1	Platfontein cemetery	Medium
	C2-2	Platfontein	Medium High

Table F11: Visual impact results for critical viewpoints in the Ceres Karoo Region.

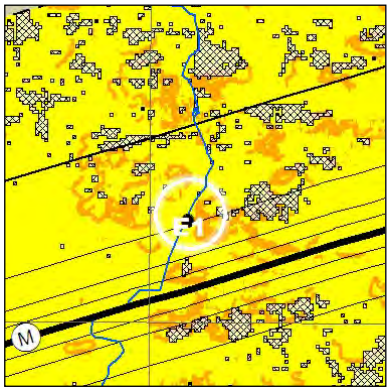
F4.4 The Moordenaars Karoo



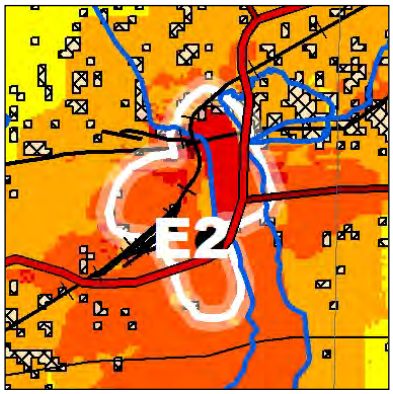
Main Route
Landscape Setting : Smitswinkel Loan Farm
Visibility : High
VAC : Low

No critical viewpoints defined.

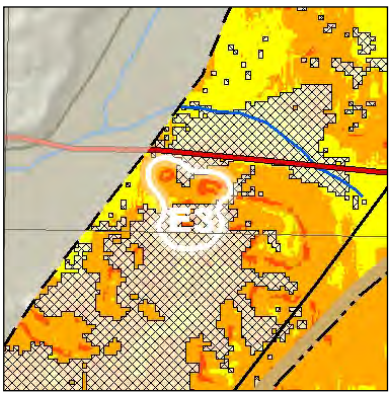
F4.5 The Great Karoo



Main Route
Landscape Setting : Koup
Visibility : Medium
VAC : Low



Main Route
Landscape Setting : Beaufort West
Visibility : Low
VAC : Medium



Main Route
Landscape Setting : Three Sisters
Visibility : Low
VAC : Low

Critical Viewpoints

3 critical viewpoints were assessed in this region:

Koup	E1-1	Merweville	Very Low
	E1-2	Cemetery south of town	Very Low
	E1-3	Approach Road to Merweville	Low

Table F12: Visual impact results for critical viewpoints in the Great Karoo Region

MORPHOLOGICAL ZONE	LANDSCAPE SETTING		VAC	VISIBILITY			
	INDEX	NAME		MAIN LINE	CENTRAL ALT.	NORTHERN ALT.	SOUTHERN ALT.
Swartland Region	A1	Olifantskop	Low	High			
	A2	Koeberg	Low	High			
	A3	Paardeberg Slopes	Low	High			
	A4	Malmesbury Foothills	Low	High			
	A5	Kasteelberg / Porseleinberg Slopes	Low	Medium			
	A6	Botmaskloof Pass	Low	Low			
	A7	Berg River Corridor	Low	High			High
	A8	Elandskloof / Bartholomeusklip Plains	Low	High			
	A10	Nuwekloof Pass	Medium	Medium			
Mountain Region	B1	Tulbagh Valley	Low	High			
	B2	Wolseley Valley	Low	Medium			
	B3	Witzenberg Pass	Medium	High	High		
	B4	Witzenberg Valley	Low	High	High		
	B5	Gydo Pass	Medium	Medium	High		
	B6	Gydo Valley	Low		Medium		
	B7	Ceres Farmland	Low	Medium			High
	B8	Theronsberg Pass	Low	Medium			
	B9	Hottentotskloof Pass	Low	High			
	B10	Bo-Swaarmoed Valley	Low	High			
	C1	Karoopoort Outspan	Low	High		Low	
Ceres Karoo	C2	Platfontein Outspan	Low	High			
Moordenaars Karoo	D1	Smitswinkel Loan Farm	Low	High			
Great Karoo	E1	Koup	Low	Medium			
	E2	Beaufort West	Medium	Low			
	E3	Three Sisters	Low	Low			

Table F13: Summary of Visual Impact Ratings

SECTION G: OVERVIEW OF THE FINDINGS AND RECOMMENDATIONS OF THE EIA

Introduction: The Environmental Impact Assessment 2002:

This section of the report provides an overview of the findings and recommendations of the Environmental Impact Assessment (EIA) including the VIA. This Assessment was undertaken in terms of the Environmental Conservation Act (Act 73 of 1989) which has subsequently been superceded by the National Environmental Management Act (NEMA)

Arising out of the EIA (2002), the Environmental Impact Report (EIR) concluded that although the net environmental impact on the local environment is seen to be negative, the overall impact is low provided all recommended mitigation and management measures are implemented. Within the broader context of the Western Cape economy, the net overall environmental impact is seen to be positive.

The EIR reported that route selection represented the first level of mitigation. The report identified feasible route alignments that offered the least potential impacts on the social and biophysical environment, especially in terms of visual and ecological impacts.

The most important principle guiding the route selection was following, as far as possible, existing 400kV transmission lines. This would allow for the minimizing of additional visual intrusion and additional access roads, avoiding new impacts on pristine areas and minimizing impacts on birds and social environments.

This principle guided the evaluation process of the various route alignments through Section 2, in which 4 different potential route alignments were identified and assessed. These are the following:

G.1 THE SOUTHERN ALTERNATIVE

Stakeholders requested that this area be investigated as an option. There are existing 400 kV Transmission lines that traversing this area, thus making it preferable from an avifaunal, cultural heritage and visual perspective, the ecological and cumulative impacts are considered to too high to make this route viable.

It was considered more viable to separate the 765 kV Transmission line from the 400 kV Transmission lines in this area, because of a danger of veld fires which would cause all lines to shut down. The risk of all three lines being shut down would be minimized by the construction of a new line some distance away.

G.2 THE NORTHERN ALTERNATIVE

The Northern Alternative would avoid many social impacts as it is largely unaffected by infrastructure such as transmission lines. It is a pristine area except for localised areas of erosion. Impacts on birds, cultural heritage sites and the visual environment on this site are high, thus making it the least preferred route.

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- **G.3 CENTRAL ALTERNATIVE**

This was the original preferred route alignment but was shown to have social, cultural and avifaunal impacts. The greatest social impact being on the Steinthal school located within the Tulbagh valley.

G.4 CENTRAL ROUTE – THE PREFERRED OR MAIN ALTERNATIVE

According to the EIR (2002), the Central Route (referred to as the main alternative) offers the least impact on the biophysical and social environment provided that the recommended mitigation and management measures are implemented.

By following existing transmission lines as far as possible through Sections 3 - 5 and avoiding sensitive areas through sections 1 and 2, many problematic areas ca be avoided and impacts can be mitigated to a moderate to low level of significance.

There are two alternatives through Section 1. The Main alternative past Gouda in Section 1 is the preferred alternative.

The EIR (2002) places strong emphasis on social issues. Main alternative minimises any social impacts to a moderate to low level of significance.

Visual impacts are minimised as far as possible by following existing transmission lines and by selecting areas where the topography will act as a mitigating factor. Most visual impacts have been reduced to moderate to low level in terms of the EIA assessment (with mitigation). However, this has not always been possible where there are areas of high visual impact where the visual impact is still high. This relates specifically to the ridges and peaks in the mountain region in Section 2.

The EIR (2002) states that there is sufficient motivation for the need for a new 765 kV Transmission line to meet the growth in demand for electrical power in the Western Cape area for the No-Go option not to apply. The No-Go alternative will have a direct impact on Eskom Transmission's ability to provide a reliable and sustainable electricity supply to the Western Cape, particularly in the short-term and is thus not considered a viable alternative.

- **G.5 VISUAL IMPACT ASSESSMENT**

Cave Klapwijk and Associates were appointed to undertake a VIA of the main components of the Gamma-Omega transmission line. The assessment was based on the preferred Main alternative as the alternatives routes were rejected earlier due to their obvious higher negative impact.

The VIA (2001) identified a number of risk sources during the construction and operations phases as follows:

- Access roads becoming highly visible.
- Uncontrolled exploitation of borrow pits and quarries without aesthetic rehabilitation.
- High seed bank of alien species in the topsoil
- Site engineering such as cuts and fills would remain aesthetically incompatible with the surrounding landscape.
- Areas and/or specific sites of high aesthetic value may be disfigured by the introduction of project components such as pylons and powers lines

- The VIA (2001) concluded that the proposed new transmission line would exert a negative influence on the visual environment. This was largely due to:

- High visibility of construction and operation activity within a zone of uniform visual pattern.
- Low VAC of the setting.
- The height of the pylons could be dominant in the landscape

The overall significance of the visual impact of the transmission line during construction was regarded as medium negative.

The overall significance of the visual impact of the transmission line during operation was regarded as medium to low negative due to the implementation of mitigation measures despite the impossibility of screening the transmission line.

The findings and recommendations of the assessment of the visual impact on the different sections of the preferred route are outlined in the table below:

Table G1: Summary of VIA recommendations and findings

Section	Status & level of impact	Mitigation measures	Impact after Mitigation
Section 1: Swartland	Medium negative impact due to low VAC and alignment in relation to ridgelines and major route.	Align route to avoid high points of ridges and limit exposure to critical views from N7, R304, R302, R45 and R46.	Medium negative
Section 2: Mountain Region (Ridges & Peaks)	High negative impact due to alignment in relation to mountain crests, scenic areas and existing Transmission line.	Align route to avoid high points of mountain crests and scenic areas.	High to medium negative
Section 2: Mountain Region (Valleys and Plains)	Medium negative impact due to alignment in relation to main roads and urban areas.	Align route to limit exposure to critical views from R46, R303 and the R355 and urban areas of Ceres, Bella Vista, Prince Alfred Hamlet and Tulbagh.	Medium negative
Section 3: Ceres Karoo	Medium negative due to low VAC and alignment in relation to existing transmission line and minor road but has limited exposure to large numbers of viewers and Bontberg helps to mitigate impacts by its backdrop effect.	Align route to limit exposure to critical view points such as from the Kwarrieberg Pass and the minor gravel road to Matjiesfontein.	Medium to low negative
Section 4: Moordenaars Karoo	Medium negative impact due to moderate VAC and diverse topography that helps blend the line with the landscape and alignment in relation to existing transmission line and one main road.	Align route through valleys rather than hill tops and limit exposure to critical view points such as from the R354 linking Matjiesfontein and Sutherland.	Medium to low negative
Section 5: Great Karoo (Klipfontein se Berge to Beaufort West)	Medium negative impact due to low VAC and alignment in relation to existing transmission lines, town and main road.	Align route to limit exposure to critical viewpoints from Merweville and the R353 linking Leeu Gamka with Fraserburg.	Medium negative

Section 5: Great Karoo Beaufort West to Victoria West	Medium negative impact due to low VAC with largely open and extended views being restricted by the mountains of the Karoo National Park and hills of the Renosterkop and Restvale.	Align route to limit exposure to avoid high points of mountain crests and to critical viewpoints from N-1 near Three Sisters, Beaufort West and Restvale.	Medium to low negative

Mitigation measures recommended in the EIA:

Route alignment

- Align the route along the footslopes of hills, mountains and ridges.
- Align the route so that the route crosses existing main routes as close to 90 degrees as far as possible
- Align the route through areas of existing visual clutter and disturbance such as alongside railway lines, existing transmission lines, roads and other visible infrastructure, rather than through pristine or undisturbed areas where possible.
- Avoid aligning the route along the top of ridges
- Align the route away from any main road where the two are parallel in relatively pristine areas to where distance will mitigate the impact or to where the topography will from a screening backdrop.
- Avoid areas where the current land uses, such as game farm, lodges, etc. often rely on the absence of human visual intrusion.

Earthworks and landscaping

- The visual impact during construction will be moderately significant and little can be implemented to reduce this impact since the earthworks cannot be screened.

- The mitigation measures for the transmission line during operation will need to focus on effective rehabilitation of the construction corridor and work sites.

- The galvanizing of the pylon should be allowed to weather to a matt grey finish rather than be painted silver, as is often the case.
- Sculpturing or shaping the cut and fill slopes of access roads to angles and forms that are reflected in the adjacent landscape can reduce the visual impact.
- For access/service roads and servitudes straight edges and corridors should be avoided.
- Special attention should be focused on the width of servitude actually required for the construction and operational phases.
- Vegetation stripping should be done in a manner where the edges are organic (non-geometric) or curvilinear rather than straight or sharp edged.
- Cut and fill slopes, as well as all areas disturbed by construction activity, are suitably top soiled and vegetated as soon as is possible after final shaping. Progressive rehabilitation measures will allow the maximum growth period before the completion of the project.
- All areas affected by the construction works will need to be rehabilitated and re-vegetated.
- All existing large trees that fall outside the earthworks area must be retained. These will assist in softening the forms of the structures and obscure views to them.
- Dust generated by construction activity and the haulage of materials and equipment will need to be suppressed by regular wetting. During construction
-

Many of the above mentioned mitigation measures have also been adopted in terms of guiding principles relating to the location of transmission lines across sensitive cultural landscapes.

SECTION H: IDENTIFICATION AND ASSESSMENT OF HERITAGE RESOURCES AND SITES OF SIGNFICANCE

This section of the report identifies and assesses the significance the palaeontological, archaeological and cultural landscapes located within the study corridor.

Sites of significance

Within each section of the study corridor the following range of landscapes and places of cultural significance have been identified:

- Geological formations older than 1000 years which contain fossil-bearing material
- Archaeological material older than 100 years which includes stone tool scatters and rock art
- Structures older than 60 years
- Conservation-worthy farmsteads
- Provincial Heritage Sites
- Historical townscapes
- Outspans and outposts
- Graveyards
- Blockhouses
- Significant rural landscapes
- Historical scenic routes
- Mountain backdrops
- Nature reserves

The following periods and themes or landscape typologies are represented throughout the study corridor:

- 18th century VOC outposts
- 18th and 19th century outspans
- 18th and 19th century slavery
- 18th and 19th century passes and roads (civil engineering, scenic amenity)
- 18th century colonial farming settlement
- Mid 19th century emancipation and mission settlement.
- Mid 20th century apartheid racial segregation and
- Post apartheid housing settlement

H1. STATEMENT OF SIGNIFICANCE - PALAEONTOLOGY

Refer to Table H1 below for the palaeontological significance of the fossil heritage within the geological units to be affected by the proposed and alternate routes for the Gamma – Omega Powerline. Geological Units outlined in red are of high heritage significance.

TABLE H1: FOSSIL HERITAGE WITHIN GEOLOGICAL UNITS AFFECTED BY GAMMA-OMEGA POWERLINE

PALAEONTOLOGICAL SIGNIFICANCE:

RED = VERY HIGH PURPLE = HIGH GREEN = MODERATE BLUE = LOW BLACK = V. LOW / NEGLIGIBLE

GEOLOGICAL UNIT		PREDOMINANT ROCK TYPES & AGE	RECORDED FOSSIL HERITAGE	RECOMMENDED PALAEONTOLOGICAL MITIGATION
GEOLOGICALLY YOUNG SURFACE DEPOSITS ("DRIFT") (T-Qt, Qs, Qg, Qf, Qc *etc*) Often not mapped in detail		alluvium, colluvium, soils, pedocretes (ferricretes, calcretes, silcretes) Mainly Late Tertiary (Miocene) to Recent	freshwater & terrestrial molluscs, mammal bones (incl. hyaena dens, micromammals in owl pellets), mammalian teeth & horn cores, trace fossils (*eg* calcretised termitaria, rhizoliths, coprolites, gastroliths, ostrich eggs shells *etc*), vascular plants in pedocretes (*eg* silcretes) lignites with fossil wood (silicified / carbonised), leaves, pollens of vascular plants, diatoms	palaeontological scoping of pedocretes, fresh exposures of thicker alluvial deposits (especially older, consolidated alluvium of ancient drainage systems)
KAROO DOLERITE SUITE (Kd)		intrusive dolerites, associated hydrovolcanic diatremes Early Jurassic	no fossils expected (*NB* fossil preservation in adjacent sediments sometimes enhanced due to baking)	NONE
BEAUFORT GROUP Adelaide Subgroup	**Abrahamskraal (Pa) and Teekloof (Pt) Formations Late Permian**	continental (fluvial, lacustrine) mudrocks and sandstones, thin pedocretes (calcretes)	diverse terrestrial and freshwater tetrapods of *Tapinocephalus* to *Cistecephalus* or *Dicynodon* Assemblage Zones	field scoping and sampling of all local exposures and fresh bedrock excavations

		Late Permian	(amphibians, true reptiles, synapsids – especially abundamt and diverse therapsids), palaeoniscoid fish, freshwater bivalves, trace fossils (including tetrapod trackways), sparse vascular plants (*Glossopteris* Flora, including petrified wood)	
ECCA GROUP	**Waterford Fm (= Koedoesberg Fm) (Pw, Pko)**	deltaic thin- to thick-bedded sandstones, mudrocks	transported vascular plants, including petrified wood (*eg* logs), microfossils, trace fossils, rare reworked tetrapod bone fragments	field scoping and sampling of all local exposures and fresh bedrock excavations
	Kookfontein Fm (Pk)	prodeltaic laminated mudrocks, thin-bedded sandstones	transported vascular plants, including petrified wood (*eg* logs), microfossils, trace fossils	
	Skoorsteenberg Fm (Ps)	submarine fan thin- to thick-bedded sandstones / wackes, mudrocks	rare fish, transported vascular plants (including fossil wood), microfossils, trace fossils	
	Tierberg Formation (Pt)	basinal to distal submarine fan laminated mudrocks, thin sandstones / wackes	abundant non-marine trace fossils, rare transported leaves, petrified wood, microvertebrate remains	
	Collingham Formation (Pc)	tabular-bedded mudrocks, wackes with thin tuff interbeds	low diversity trace fossil assemblages, petrified wood	

	Whitehill Formation (Pw)	finely-laminated carbonaceous mudrocks, diagenetic nodules of dolomite	well-preserved specimens of mesosaurid reptiles, fish, crustaceans, petrified wood, microfossils, rare trace fossils	
	Prince Albert Fm (Ppr)		sparse to abundant, low diversity, non-marine trace fossil assemblages rare fish remains, marine invertebrates, wood at base of formation	
DWYKA GROUP (Elandsfontein Formation)		massive and thick-bedded diamictites (glacial tillites) with interglacial mudrocks Late Carboniferous – Early Permian	sparse to abundant, low diversity, non-marine trace fossil assemblages in interglacial and early post-glacial mudrocks	field scoping and sampling of all local exposures and fresh bedrock excavations into thin-bedded mudrock facies
WITTEBERG GROUP	**Lake Mentz Subgroup** **(Ck, Cf, Cw)**	lacustrine / lagoonal / coastal mudrocks, sandstones, minor conglomerates Early Carboniferous	non-marine fish fauna (palaeoniscoids, sharks, acanthodians), rare giant eurypterids (water scorpions), vascular plants (*eg* lycopods, wood), freshwater bivalves, traces, organic-walled microfossils	field scoping and sampling of all local exposures and fresh bedrock excavations
	Witpoort Formation (Dwi)	shallow marine sandstones, quartzites with minor lagoonal mudrocks, glacial sediments Late Devonian	thin lenticular mudrocks may contain diverse lagoonal biota of fish (placoderms, sharks, bony fish, lampreys *etc*), arthropods (*eg* eurypterids), vascular plant flora, seaweeds, charophytes, sparse traces, microfossils	NONE, *unless* new excavations intersect mudrocks within succession

	Weltevrede Subgroup (Dwa, Dbl, Ds)	shallow marine sandstones, mudrocks Mid to Late Devonian	sparse shelly invertebrates (brachiopods, molluscs, rare trilobites) (Dwa), trace fossils, microfossils, rare fish	field scoping and sampling of all local exposures and fresh bedrock excavations
BOKKEVELD GROUP	**Bidouw Subgroup (Dw, Dk, Do, Dka)**	coastal (deltaic / lagoonal / estuarine?) and shallow marine sandstones, mudrocks Mid Devonian	sparse to rich shelly marine biotas (Dw, Dk, Dka), locally abundant non-marine fish / lycopod / bivalve biotas (Dk), low diversity trace fossils	field scoping and sampling of all local exposures and fresh bedrock excavations
	Ceres Subgroup (Dg, Dga, Dv, Dh, Dt, Db)	shallow marine mudrocks, sandstones Early – Mid Devonian	rich shelly marine invertebrate biotas, including shelly coquinas in sandstones, rare vascular plants and fish, highly diverse trace fossil assemblages, microfossils	field scoping and sampling of all local exposures and fresh bedrock excavations
TABLE MOUNTAIN GROUP	**Rietvlei Fm (Dr)**	predominantly fluvial sandstones, often feldspathic, with minor mudrocks, pebbly layers; more marine towards east Early Devonian	sparse trace assemblages in heterolithic subunits shelly fossils (especially brachiopods) in eastern outcrop area	NONE
	Skurweberg Fm (Sc)	predominantly fluvial sandstones, with pebbly layers Silurian	sparse trace assemblages in heterolithic subunits	NONE
	Goudini Formation (Sg)	shallow marine to fluvial sandstones, often reddish, with minor mudrocks Silurian	sparse trace assemblages in heterolithic subunits	NONE

	Cederberg Fm (O-Sc)	finely-laminated marine mudrocks at base grading upwards into heterolithic sailstones / sandstones Late Ordovician	important post-glacial biota of shelly and soft-bodied invertebrates, primitive fish, microfossils; rarely exposed	field scoping and sampling of all local exposures and fresh bedrock excavations
	Pakhuis Fm (Opa)	sandy and muddy diamictites (glacial tillites) Late Orodvician	rare trace fossils	NONE
	Peninsula Fm (Ope)	sandstones and quartzites, sometimes pebbly, with minor mudrocks Early – Late Ordovician	sparse trace fossil assemblages within heterolithic subunits	NONE
KLIPHEUWEL GROUP (Cm, Cpo)		fluvial conglomerates and coarse sandstones (Magrug Formation, Cm) shallow marine reddish-purple mudrocks and thin sandstones (Populierbos Fm) Cambrian	rare arthropod trace fossils within heterolithic successions (rarely well exposed)	field scoping and sampling of local exposures and bedrock excavations into Populierbos Formation
CAPE GRANITE SUITE (N-Cd, N-Ca)		granites and related igneous intrusions	no fossils expected	NONE
MALMESBURY & SWARTLAND GROUPS (Nt, Nm, Nk, Npo, Nn €t, €t)		moderately to highly deformed marine metasediments (siliciclastics, carbonates, cherts) with minor igneous intrusions Late Proterozoic (Ediacaran)	no fossils yet recorded, but portential for organic-walled microfossils, especially in less deformed subunits	NONE

H2: STATEMENT OF SIGNIFICANCE – ARCHAEOLOGY

The results of the desktop study for prehistoric archaeology in the study area are presented in Tables H2,H3,H4 & H5, covering the Coastal Zone, Inland Plain, Cape Fold Mountains and the Karoo. All the sections of the proposed powerline traverse areas of already known archaeological sites. In some cases there are gaps, but this has to be assumed as no archaeological survey has taken occurred in these places. In the open country of the Karoo there is the prediction that there could be at least sixteen sites within each kilometer. The priority of site significance can only be ascertained once sampling and analysis has been undertaken. The sites identified are only a guide to the possibility of archaeological occurrences within the proposed route, and should not be seen to be the total number of sites. All the sites listed here should be considered as **MED/HIGH** significance. Of **HIGH** significance are the many rock shelters that traverse mountain passes. These are non renewable resources, not easily moved from their original position without a great loss of integrity to the overall significance of the site. Moreover, the landscape around these sites should be taken into account as part of the wider integrity of the cultural/sacred landscape in which they are found.

Table H2: Coastal Zone (Section 1)

Map sheet	Location	Co ordinates	Cultural material
3318CB	Atlantic Beach Estates	33˚ 45: 18˚ 29	Pottery
	Duinefontein (11sites)	33˚ 39.2-33˚ 41 18˚ 25.7-18˚ 26.5	MSA[1], LSA[2], shell, bone, pottery, OES[3]
	Groote Springfontein(6 sites)	33˚ 37-33˚ 37.6: 18˚ 22.5-18˚ 24	Shell, pottery, OES
	Kleine Springfontein (7 sites)	33˚ 34.8-33˚ 39.4: 18˚ 22-18˚ 30	MSA stone, bone
	Buffelsrivier (2 sites)	33˚ 34-33˚ 34.8: 18˚ 21.2-18˚ 21.7	Shell, stone, OES
	Melkbosstrand (3 sites)	33˚ 43.5-33˚ 44:18˚ 26.2-18˚ 26.7	Shell
	Ouskip (1 site)	33˚ 42.47: 18˚ 27.07	Shell, bone
	Mouth of Silverstroomstrand (14 sites)		Shell, stone
3318DA	Groot Olifantskop	33˚ 42: 18˚ 32	LSA, human skeletons

[1] Middle Stone Age [2] Late Stone Age [3] Ostrich Eggshell [4] Early Stone Age

Table H3: Inland Plain (Section 1)

Map sheet	Location	Co ordinates	Cultural material
3318BC	Malmesbury-Hopefield Road, where powerline crosses road		MSA scatter
3318BD	Zwavelberg	33˚ 22: 18˚ 50	rock paintings, stone tool scatters
3318DA	Berg en Dal	33˚ 36: 18˚ 39	stone tool scatters
3318DB	Lady Loch Farm	33˚ 38: 18˚ 56	stone tool scatters
	Paarl Diamant	33˚ 44: 18˚ 53	ESA[4], bored stone
3318 DC	Fairmont High School Playing Fields		ESA
	Kenridge Primary School Playing Fields		stone tool scatters
	Altydgedacht	33˚ 50.5: 18˚ 37.3	ESA, LSA
	Vrymansfontein	33˚ 46: 18˚ 39	ESA
	Zewe Pannetjies	33˚ 53.2: 18˚ 31.1	MSA
	Welgemoed	33˚ 52.25: 18˚ 36.52	stone tool scatter

Table H4: Cape Fold Mountains (Section 2)

Map sheet	Location	Co ordinates	Cultural material
3319AA	Bosrivier (2 sites)	33˚ 09: 19˚ 13-14	LSA stone tools, pottery, rock paintings
	De Tronk	33˚ 05: 19˚ 06	rock paintings
	Sneeugat	33˚ 07: 19˚ 10	rock paintings
	Groot Kliphuis (Porterville)		rock paintings
	Groot Winterhoek (Die Hel)	33˚ 05: 19˚ 05	rock paintings
	Boboskloof (2 sites)	33˚ - 33˚ 02: 19˚ 13.7 - 19˚ 03	artefact scatters, rock paintings
	Driebos	33˚ 06: 19˚ 03	rock paintings
3319 AB	(Vaalfontein	33˚ 11: 19˚ 23	rock paintings
	Roggevlei (over Gydo Pass)		rock paintings
	Wolwekloof (De Rogge Fontein)		rock paintings
	Nooitgedacht	33˚ 09: 19˚ 22	rock paintings
	Ebenezer	33˚ 06.1: 19˚ 23.4	rock paintings
	Slangboom (Agterwitzenberg)		rock paintings
	Welgemoed (Agterwitzenberg)		rock paintings
	Sandvlakte (Agterwitzenberg)		rock paintings
	Het Kruis or Die Kruis Parys		stone artefacts, rock paintings
3319AC	Elandskloof (Citrusdal)		rock paintings
	Tulbagh (south of Old River Bridge)		surface artefacts
	Brits	33˚ 23: 19˚ 04	rock paintings
	Voelvlei	33˚ 16.8: 19˚ 05	stone artefacts, rock paintings
3319AD	Mitchell's Pass	33˚ 23: 19˚ 17	rock paintings
	Bergtoppe	33˚ 24: 19˚ 20	rock paintings

	Ceres Municipality, Erf 1001		rock paintings
	Witels River		pottery, rock paintings
3319BA	Zwartkop (North of Karoopoort)	33˚ 10: 19˚ 44	stone artefacts, rock paintings
	Kommando (portion farm Guarrieberg)	33˚ 12: 19˚ 41	stone artefacts, rock paintings
	Guarrieberg	33˚ 13: 19˚ 42	rock paintings
	Witklippies (Droehoek)	33˚ 11: 19˚ 03	stone artefacts, pottery, rock paintings
	Loch Lynne	33˚ 07: 19˚ 33	rock paintings
	Hoop-en-Uitkomst	33˚ 07: 19˚ 32	rock paintings
	Karoopoort Outspan	33˚ 12: 19˚ 44	rock paintings
	Onderlangkloof	33˚ 02.5: 19˚ 32	rock shelter with deposit
	Olchersia (Driehoek Farm 332/1)		rock paintings
	De Vallei	33˚ 01.7: 19˚ 41	rock paintings
	Platte Klip 177	33˚ 02.9: 19˚ 41	stone artefacts, rock paintings
	Klein Hoop-en Uitkomst		rock paintings
	Jakkalsnes, Klein Hoop-en-Uitkomst		rock paintings
3319BC	Sandhoek (De Doorns)	33˚ 27.12: 19˚ 38.3	stone artefacts, rock paintings
	Roode Els Berg	33˚ 25.11: 19˚ 34.1	rock paintings
	Klipfontein (2 sites)	33˚ 29.5-33˚ 29.58: 19˚ 33.15-19˚ 33.27	stone artefacts, rock paintings
3319CA	De Poort van DuToits Kloof	33˚ 41.45: 19˚ 5.45	rock paintings
	Du Toits Kloof	33˚ 43: 19˚ 10	rock paintings
	Wolvenkloof (Bains Kloof)	33˚ 34: 19˚ 08	rock paintings
	Bains Kloof	33˚ 40: 19˚ 06.7	rock paintings
	Steenboksberg (Bains Kloof)	33˚ 31: 19˚ 07.3	rock paintings

Table H5: Karoo (Sections 3-7)

Map sheet	Location	Co ordinates	Cultural material
3123CB	Phaisant Kraal	31˚ 40: 23˚ 18	MSA
3220CC	Bizarsgat	32˚ 50.5: 20˚ 00	stone tools, ostrich eggshell
3220DC	Fortuin	32˚ 58: 20˚ 33	MSA
3221CC	Swaerskraal	32˚ 46: 21˚ 05	MSA
3221CD	Amandelboom	32˚ 48: 21˚ 18	rock paintings, human skeleton
	Buffelsvlei	32˚ 46: 21˚ 26	MSA
3221DC	Koedoesfontein	32˚ 47: 21˚ 31	rock paintings
3222AD	Doornhoek	32˚ 15: 22˚ 22	rock engravings
	La-De-Da	32˚ 23: 22˚ 25	LSA tools, ostrich eggshell
3222BB	Klipkraal		stone artefacts, rock engravings
	Courlands Kloof	32˚ 04: 22˚ 56	rock engravings
3222BC	Loxton Road, Beaufort West (Entrance to Municipal		ESA, MSA & LSA stone artefacts
	Kleinplat (on road to windmill)		MSA & LSA flakes
3223AA	Klipkraal (Gamma Siding)	32˚ 04: 23˚ 02	stone artefact scatters, decorated
	Courtland Kloof Estate (gate to old quarry)		stone artefact scatter
	Within 20m of National Road		rock engravings)
	Just above confluence of Krom & Salt Rivers, S. Side		rock engravings on kopje
3319BB	Fonteins Kop	33˚ 04: 19˚ 50	ESA tools
	Zand Rivier	33˚ 09: 19˚ 58.5	LSA tools
	Vaalkloof	33˚ 13.41: 19˚ 53.1	stone artefacts, pottery, rock

	Platfontein	33˚ 07: 19˚ 59	MSA
3320AA	Smousbos (3 sites)	33˚ 11.5-33˚ 12: 20˚ 09-20˚ 10.5	stone artefacts, ostrich eggshell, rock
	Melkbosch Kraal (2 sites)	33˚ 9.5-33˚ 9.7: 20˚ 8	stone artefacts, pottery, rock
	Brewelsfontein	33˚ 9.5-33˚10.5: 20˚ 13.1- 20˚ 13.9	stone artefacts, pottery
	Zand Rivier	33˚ 9.5: 20˚ 01	stone artefacts, rock paintings
	Stinkfontein	33˚ 05: 20˚ 08	MSA, LSA

H3. STATEMENT OF SIGNIFICANCE - HISTORICAL BUILT ENVIRONMENT AND LANDSCAPE SETTINGS

This section seeks to summarize the nature of heritage significance of the different cultural landscapes as well as the individual heritage sites and places embedded within them.

To a large extent heritage significance is derived from the interaction between a range of natural physical factors, most notably the nature of the landform which is a combination of dramatic mountain ranges bisected by fertile valleys and open plains, and access routes and settlement patterns with have evolved in response to the terrain over the last four centuries. Heritage value is thus derived from the high natural scenic quality of the study area, particularly in terms of the mountainous areas, and the historical routes and settlement patterns, including farm werfs and productive farming patterns that have responded to the terrain over time.

More specifically, a range of heritage values are represented in different sections of the study corridor in terms of the following:

- The large number of places which demonstrate major themes in the history of the evolution of the Western Cape, from early 18th century VOC outposts such as Sonquasdrift, 18th and 19th century outspans at the entry to mountain passes and at river crossings such as at Hottentotskloof and Karoopoort, 18th and 19th century mountain passes, many of them associated with the work of Thomas Baines, 18th century farm werfs and settlements such as Groot Oliphantskop, Botterberg, Swellengift, Eikeboom and Bartholomeusklip to the wide range of 20th century interventions in the landscape which reveal apartheid racial segregation planning principles and post apartheid housing settlement patterns.

- The number of representative and relatively intact historical townscapes such as Tulbagh (1743), Riebeek Kasteel (1866) and Philadelphia (1864) which have significance due to both the concentration of individual heritage sites and their relationship with their natural settings and cultivated landscapes.

- The high scenic quality of the farmland landscape particularly evident on the lower mountain slopes at the interface between the cultivated lands and the natural rural mountain slopes. Lower mountain slopes such as those at Paardeberg and Kasteelberg and the upper Tulbagh Valley are intact, distinctive and highly representative of the Cape Winelands Cultural Landscape which is regarded as having national and potentially international heritage significance.

- The two distinct agricultural landscapes in the Tulbagh Valley are representative of agricultural landscapes across the study area as a whole:

    - The well watered amphitheatre bowl to the north of the Valley with an intensively cultivated pattern of orchards, vineyards and windbreaks and a concentration of historical homesteads, and

- The extensive undulating plains to the south with wheat fields, grazing lands and groves of gum trees, with some later interventions of vineyards, and a dispersed pattern of homesteads.

- The network of scenic routes and associated historic mountain passes which have high historical, scenic, associated and technological significance. Scenic routes such as the R46, R45, R304 and numerous mountain passes provide a range of views and vistas relating to the different cultural landscapes within the study area and provide the major means by which the broader populace experience the environmental qualities associated with the landscape.
-
- The ecological and scientific value of areas containing rare and endangered species such as Swartland Alluvial Renosterveld, Swartland Alluvial Fynbos, Breede Shale Renosterveld and Breede Shale Fynbos, for example the Elandsberg Nature Reserve and Edenhof Conservancy Estate.

- The presence of specific places of historical and social value such as the mission settlement at Steinthal and Merweville as a place of conflict from the 18th century Khoisan/Settler Commando skirmishes to the Anglo Boer War.

- The presence of specific places of historical and social value such as the mission settlement at Steinthal, and Merweville as a place of conflict from the 18th century Khoisan/Settler Commando skirmishes to the Anglo Boer War.

- The high concentration of individual farm werfs and their settings, particularly in the Swartland and mountainous regions, which have both provincial and local heritage significance.

- The sense of remoteness and wilderness in the mountainous regions which is in sharp contrast to the more populated valley systems and which has high heritage value as an intact, pristine and authentic landscape uncluttered by human intervention.

Figures H1-4 below identifies buildings older than 60 years located within the buffer zones of the various alternatives. Within each of the morphological zones identified in Section C of the report, landscape settings of special heritage value have been identified within which individual heritage places, sites and routes are embedded. These landscape settings are listed in Table H6 below and illustrated on **Figures H5 & H6.** Individual heritage resources embedded within each of these landscape settings are illustrated in **Figures H7 to H29**.

Table H6: Identification of landscape settings of special heritage value

MORPHOLOGICAL ZONE	LANDSCAPE SETTING	FIGURE NUMBER
A. Swartland	A.1 Groot Oliphantskop	Figure H7
	A.2 Koeberg	Figure H8
	A.3 Paardeberg Slopes	Figure H9
	A.4 Malmesbury Foothills	Figure H10
	A.5 Kasteelberg-Porseleinberg Slopes	Figure H11
	A.6 Botmaskloof Pass	Figure H12
	A.7 Berg River Corridor	Figure H13
	A.8 Elandskloof/Bartholomeusklip Pleins	Figure H14
	A.9 Elandskloof Pass	Figure H14
	A.10 Nuwekloof Pass	Figure H15
B. Mountain Region	B.1 Tulbagh Valley	Figure H16
	B.2 Wolseley Valley	Figure H17
	B.3 Witzenberg Pass	Figure H18
	B.4 Witzenberg Valley	Figure H18
	B.5 Gydo Pass	Figure H18
	B.6 Gydo Valley	Figure H19
	B.7. Ceres Valley	Figure H20
	B.8 Therons Pass	Figure H21
	B.9. Hottentots Kloof Pass	Figure H22
	B.10 Bo-Swaarmoed Valley	Figure H23
C. Ceres Karoo	C.1 Karoopoort Outspan	Figure H24
	C.2 Platfontein	Figure H25
D. Moordenaars Karoo	D.1 Smitswinkel loan farm	Figure H26
E. Great Karoo	E.1 Merweville	Figure H27
	E.2 Beaufort West	Figure H28
	E.3 Three Sisters	Figure H29

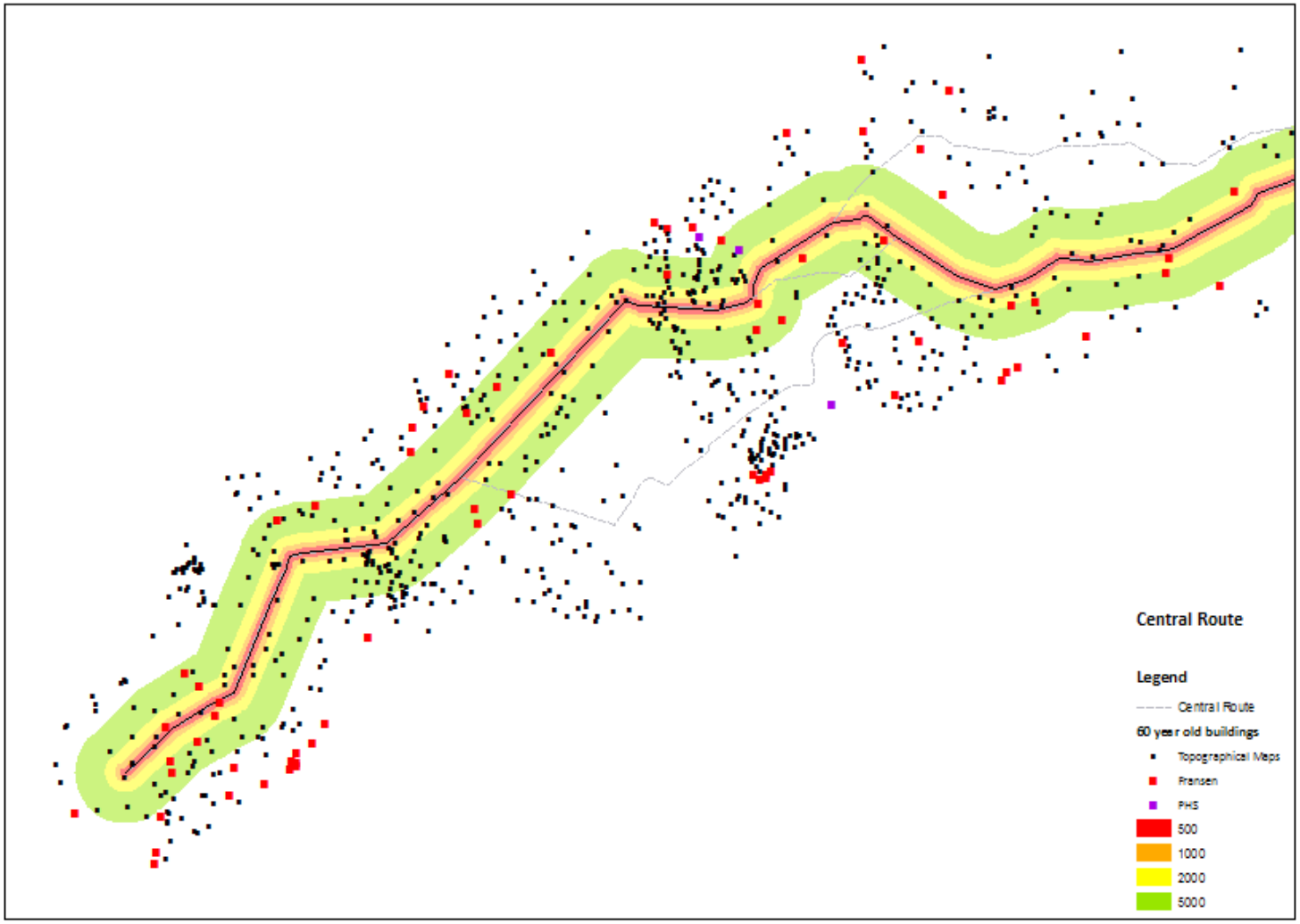

Figure H1: Buildings older than 60 years located within the buffer zone of the main alternatives (BCA 2008)

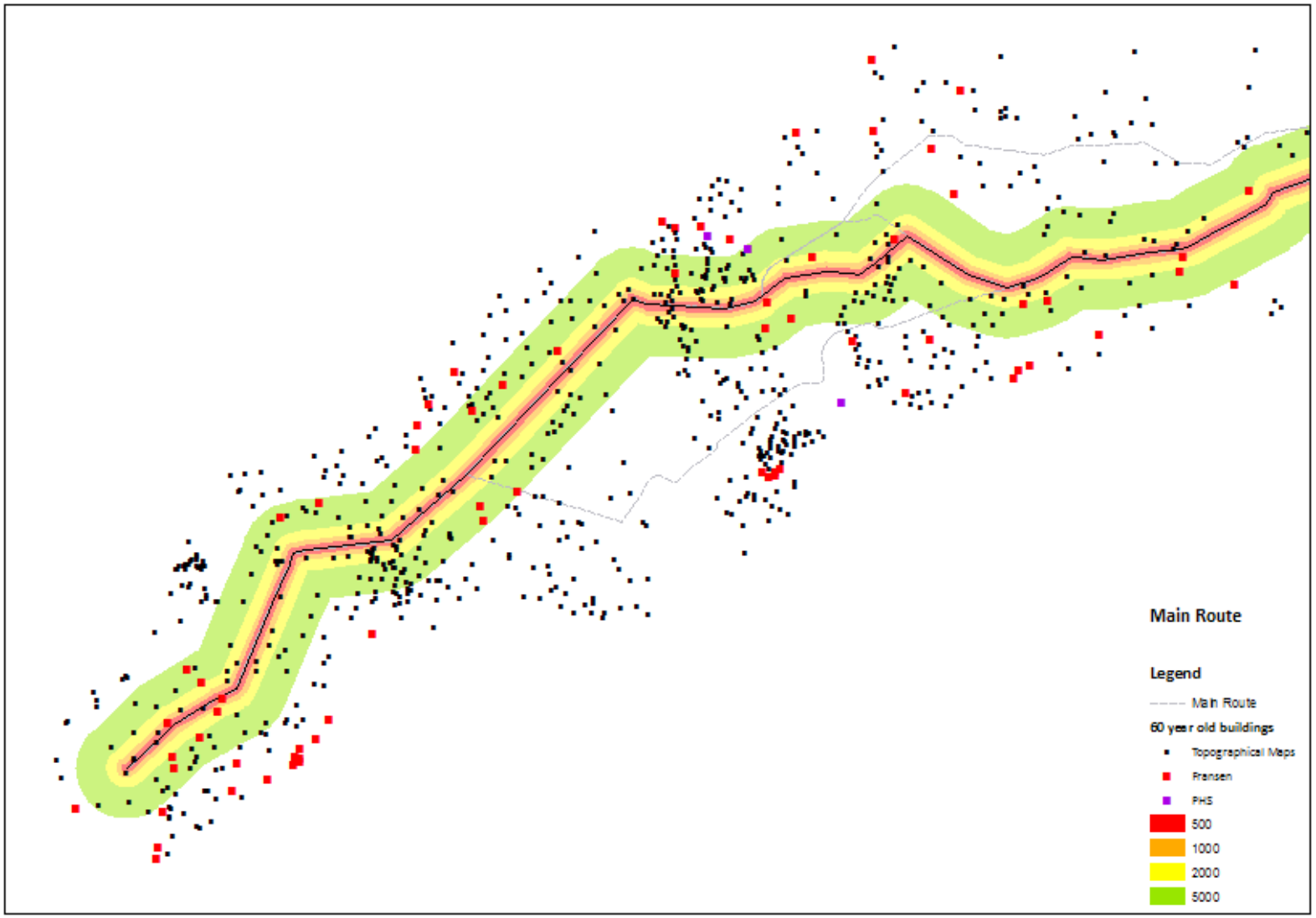

Figure H2: Buildings older than 60 years located within the buffer zone of the northern alternative (BCA 2008)

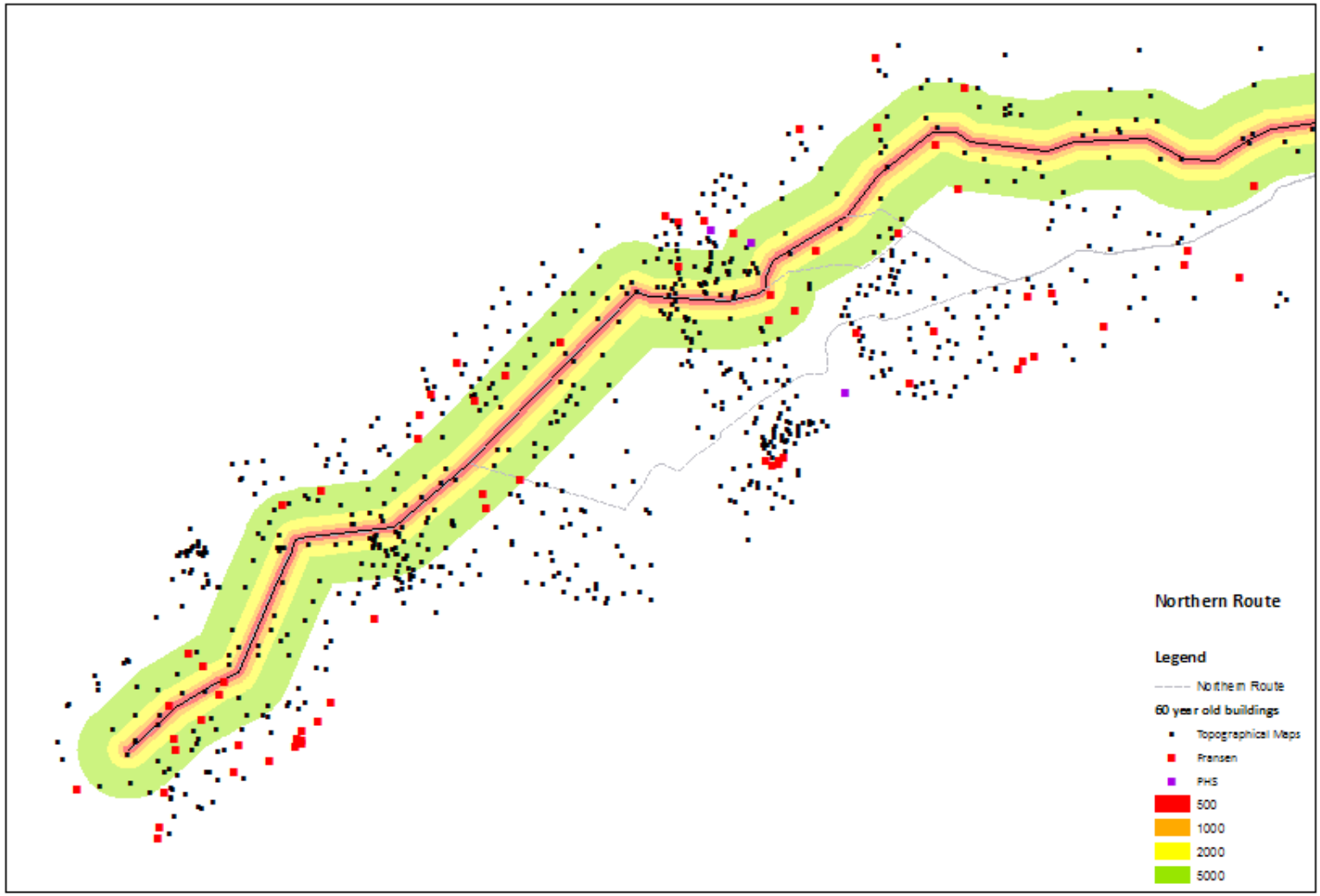

Figure H3: Buildings older than 60 years located within the buffer zone of the central alternative (BCA 2008)

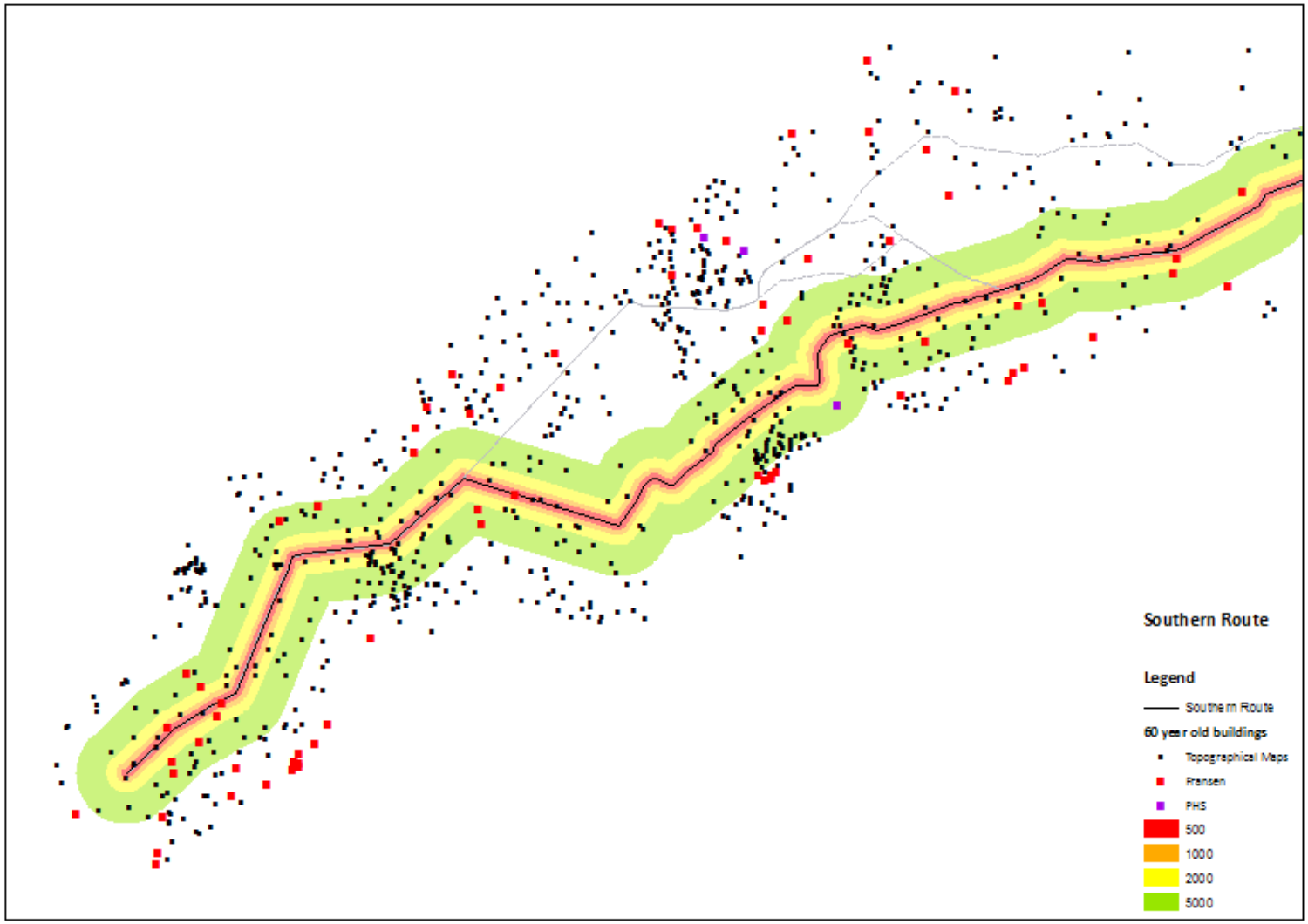

Figure H4: Buildings older than 60 years located within the buffer zone of the southern alternative (BCA 2008)

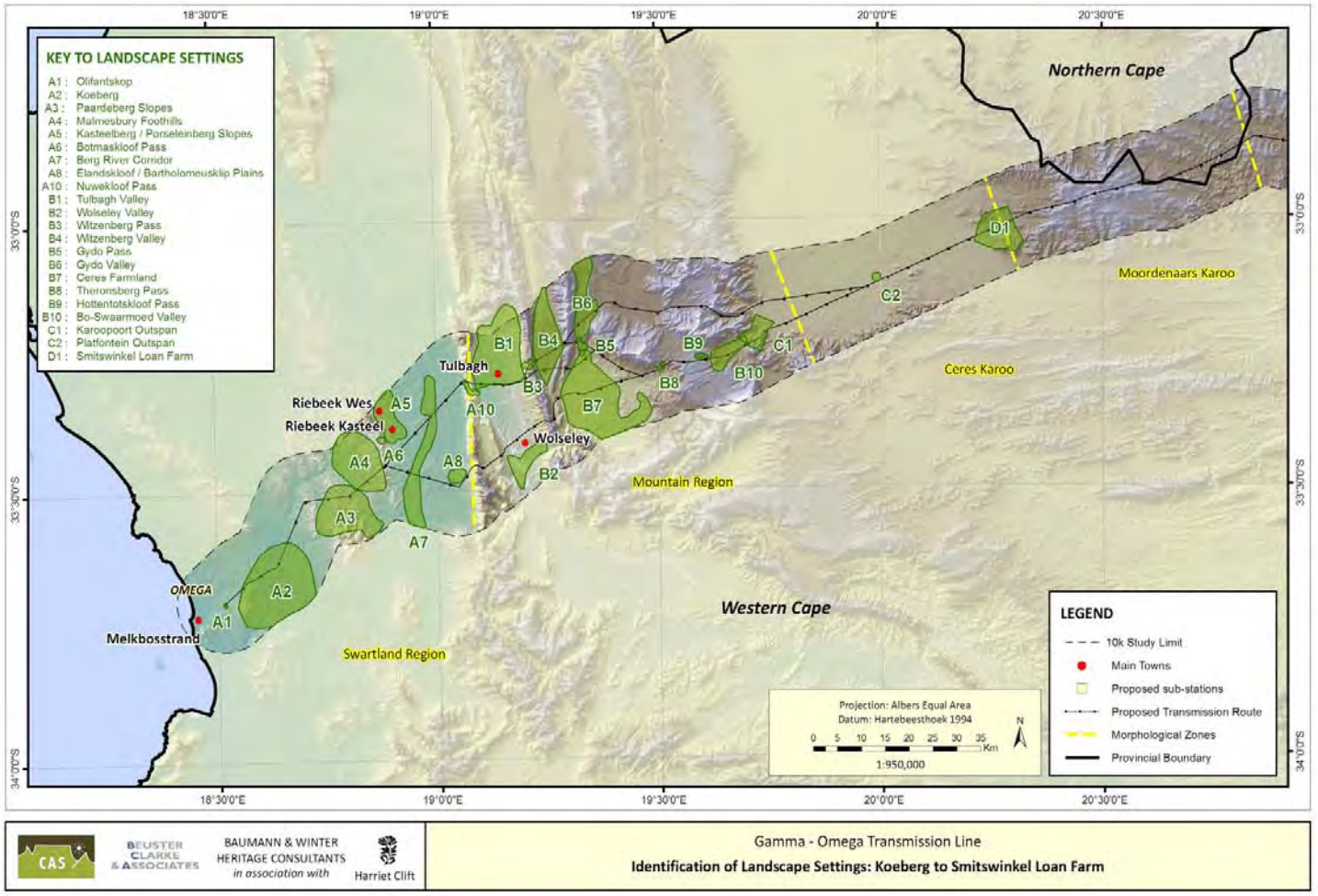

Figure H5: Identification of Landscape Settings

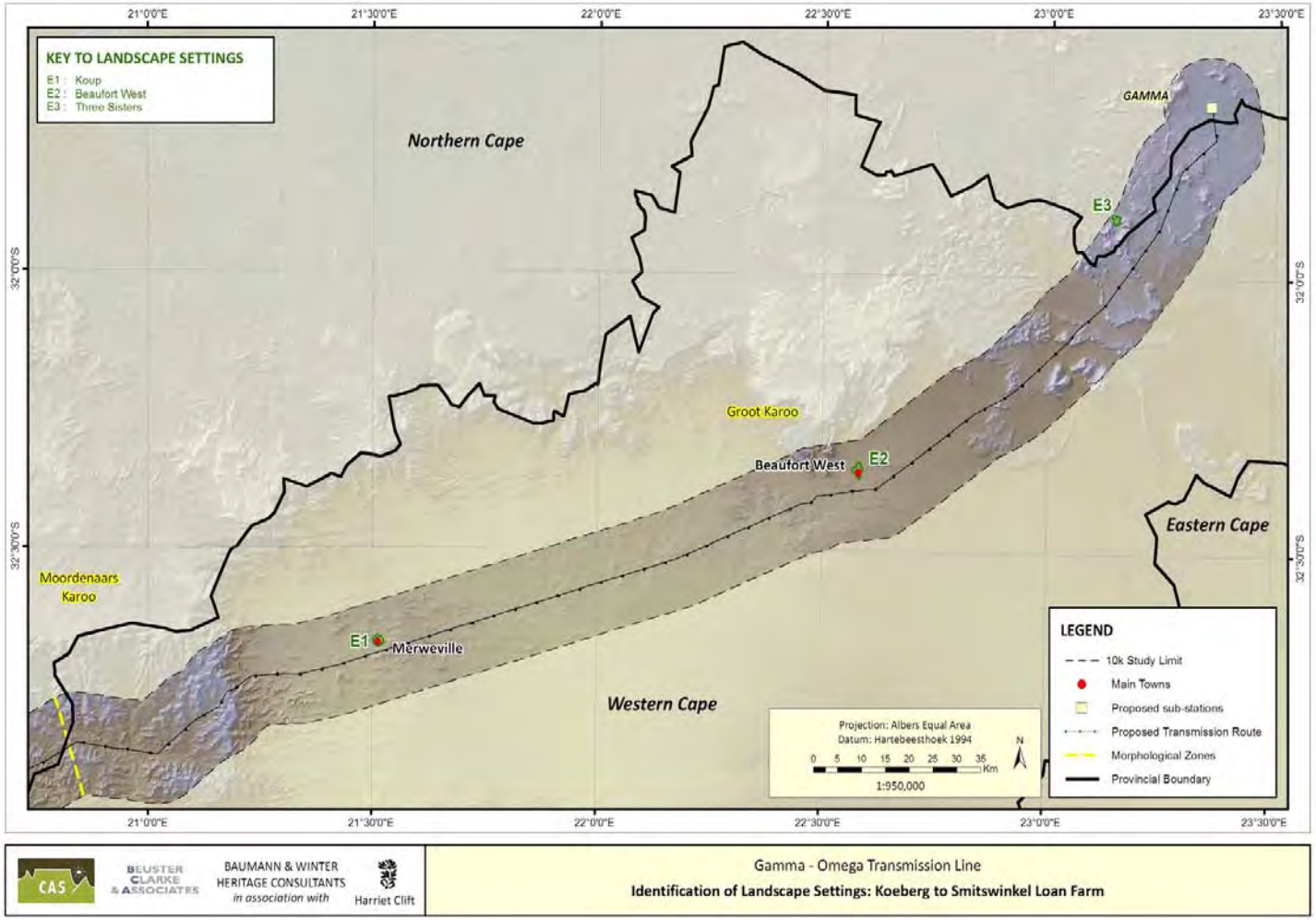

Figure H6: Identification of Landscape Setti

The following figures H7 –H 29 show spatial distribution of heritage resources including known buildings over 60 years, conservation worthy farmsteads Provincial Heritage Sites and other areas of heritage significance

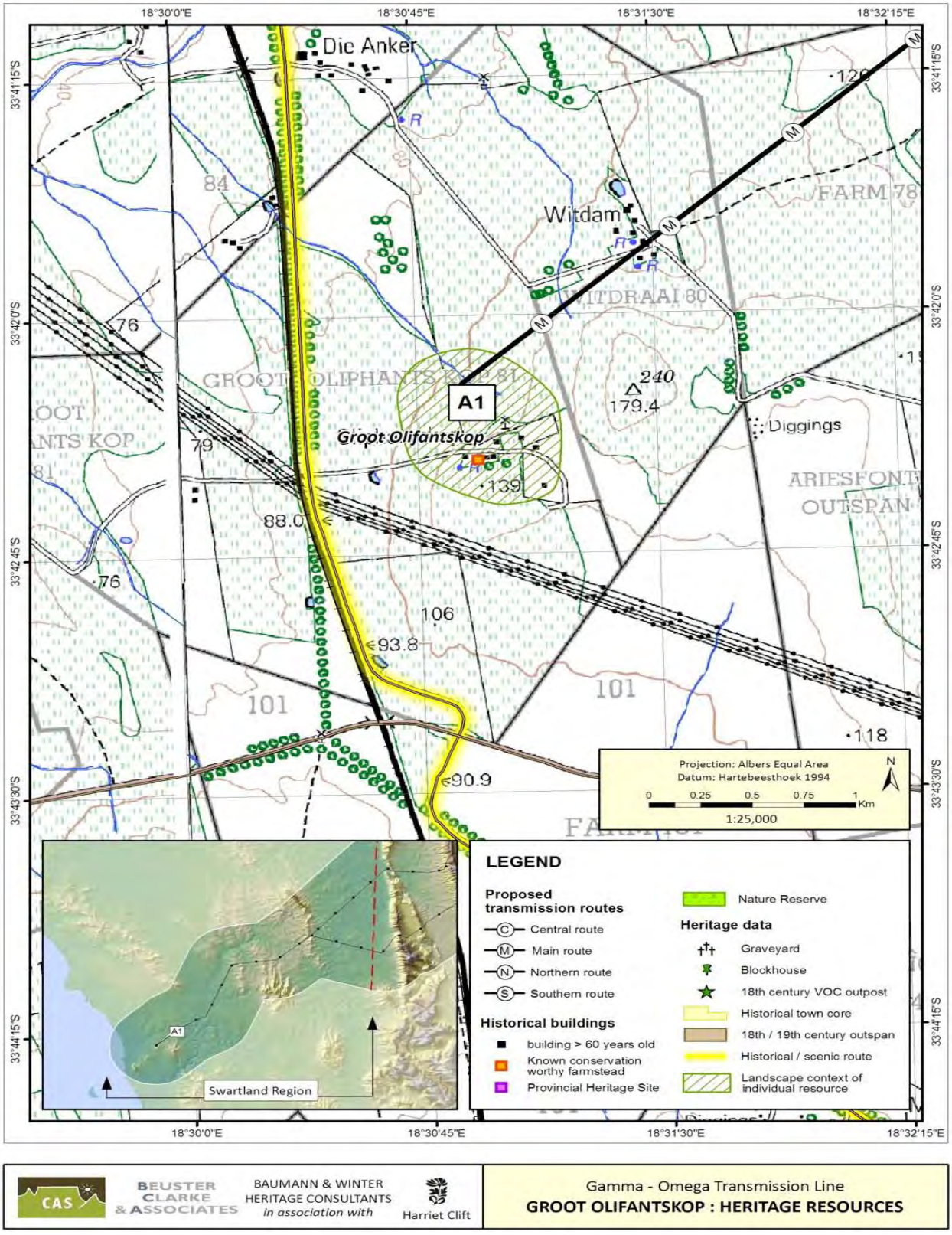

Figure H7: Groot Olifantskop - Heritage Resources

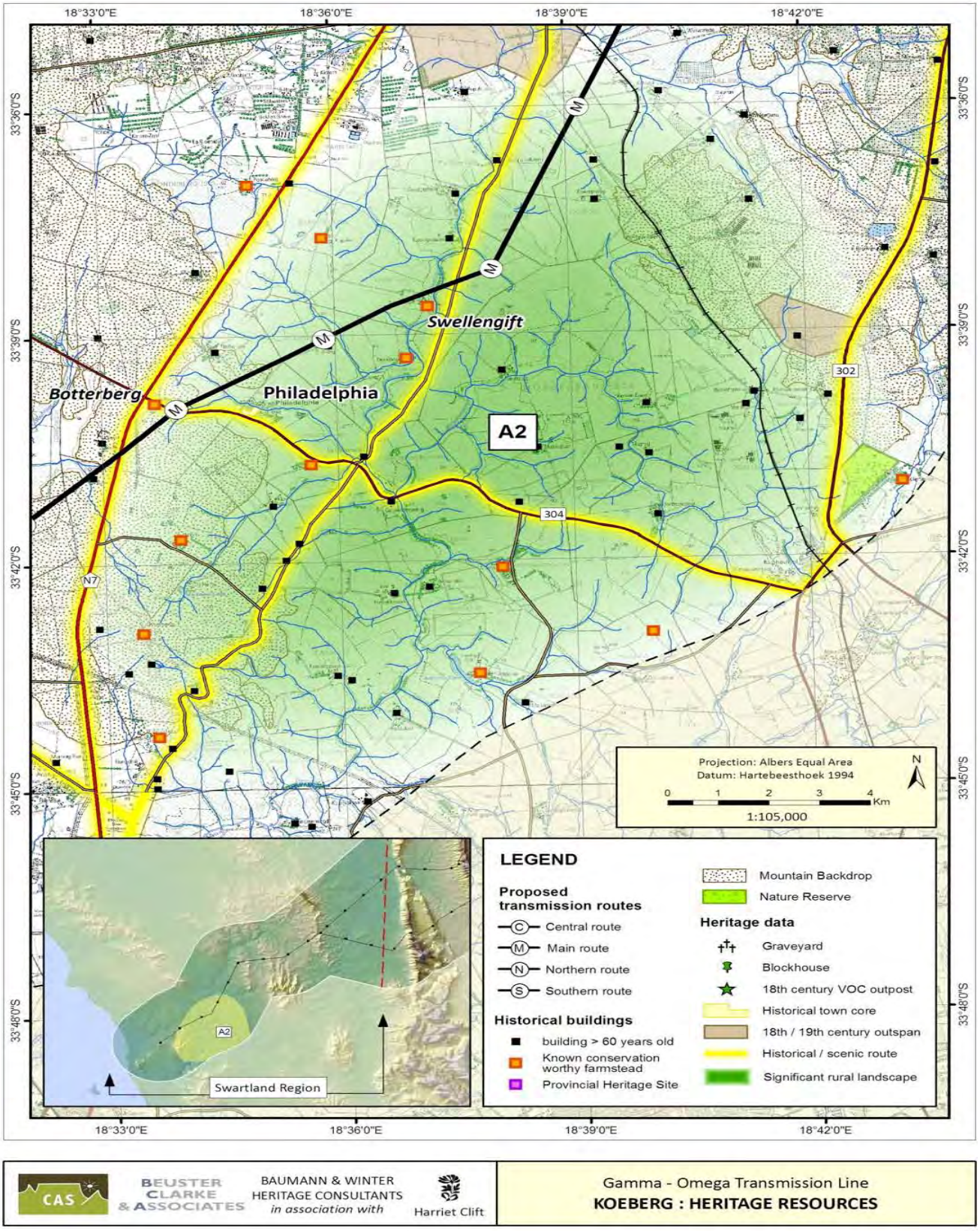

Figure H8: Koeberg – Heritage Resources

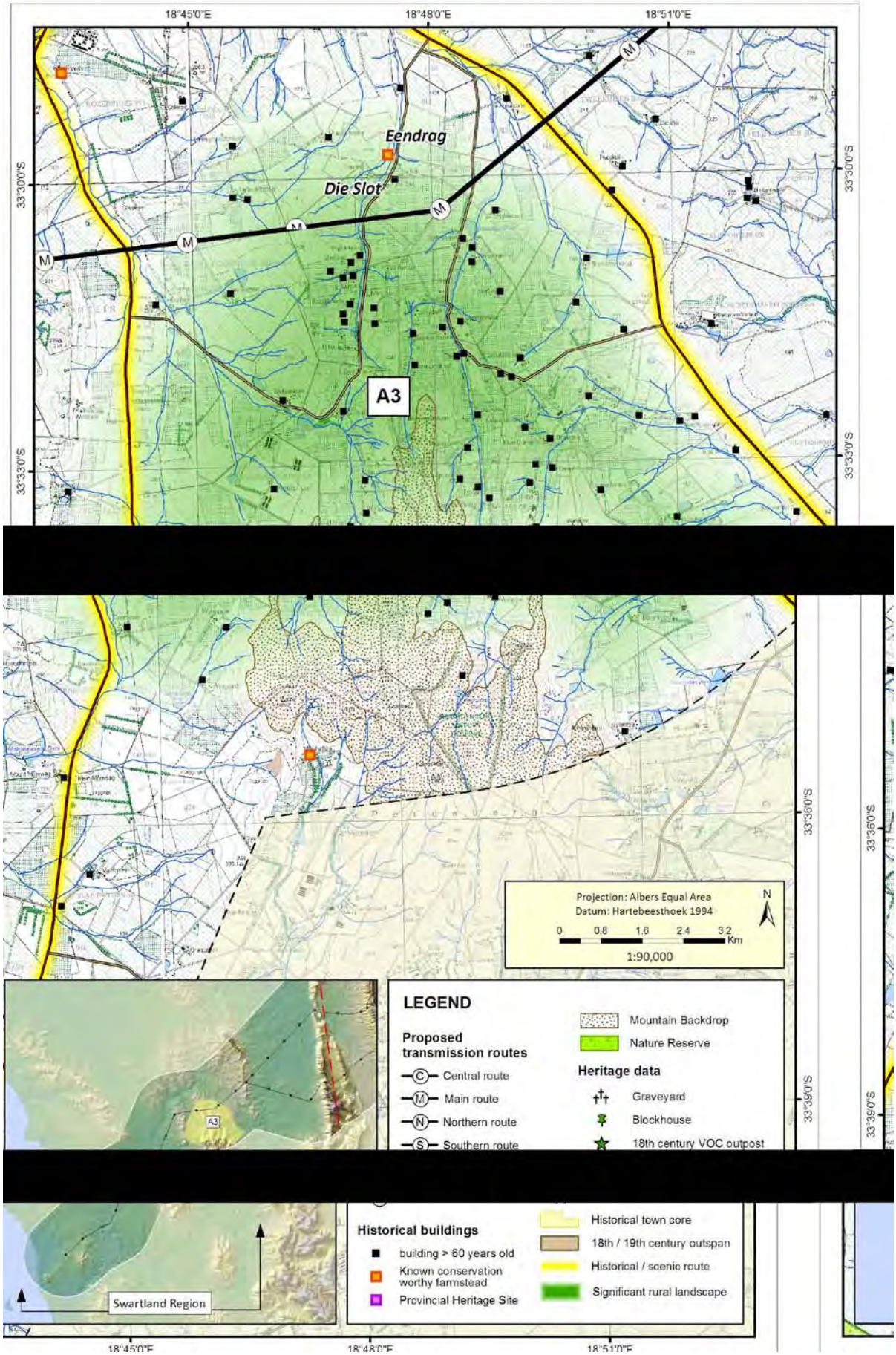

Figure H9: Paardeberg Slopes – Heritage Resources

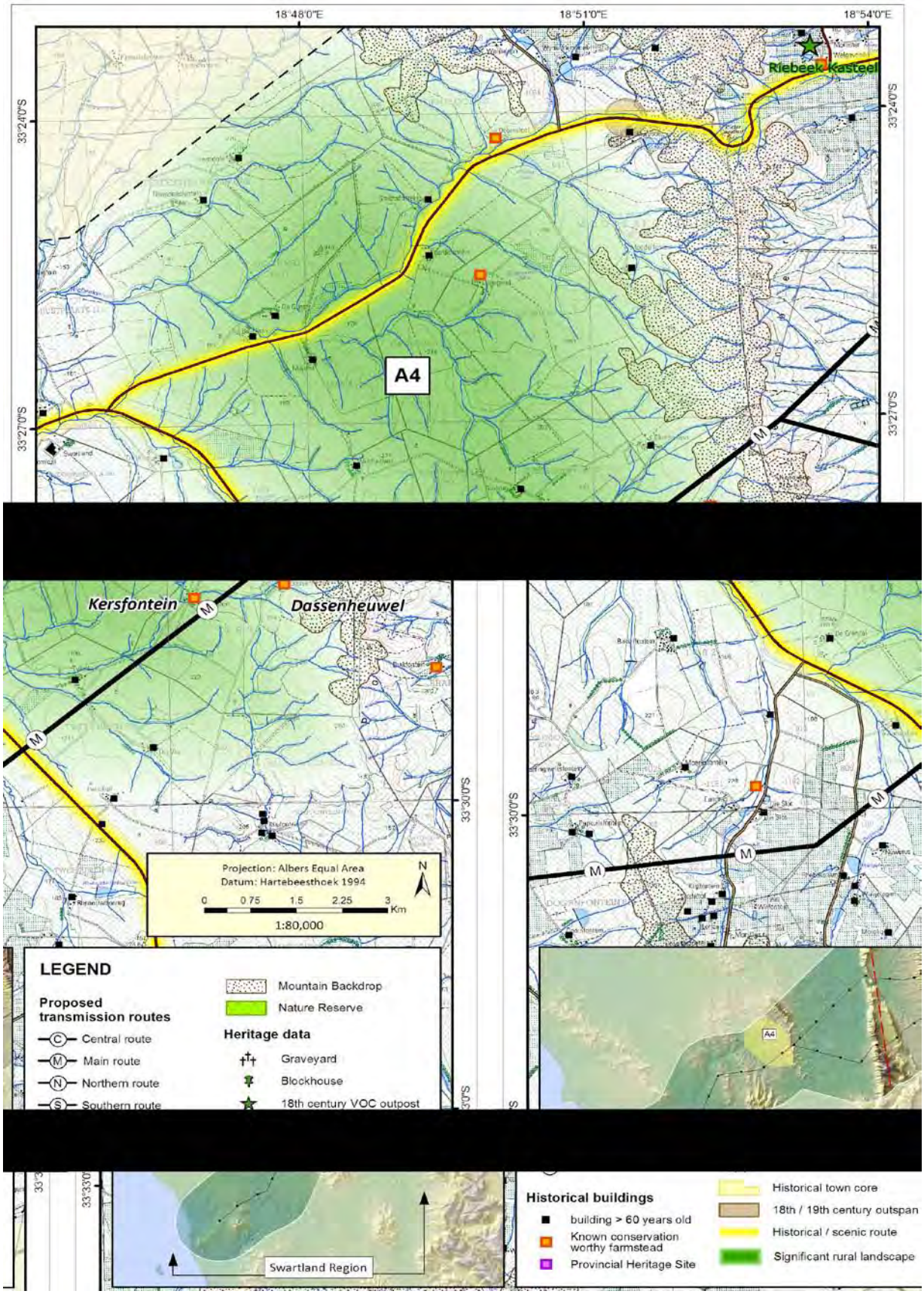

Figure H10: Malmesbury Foothills – Heritage Resources

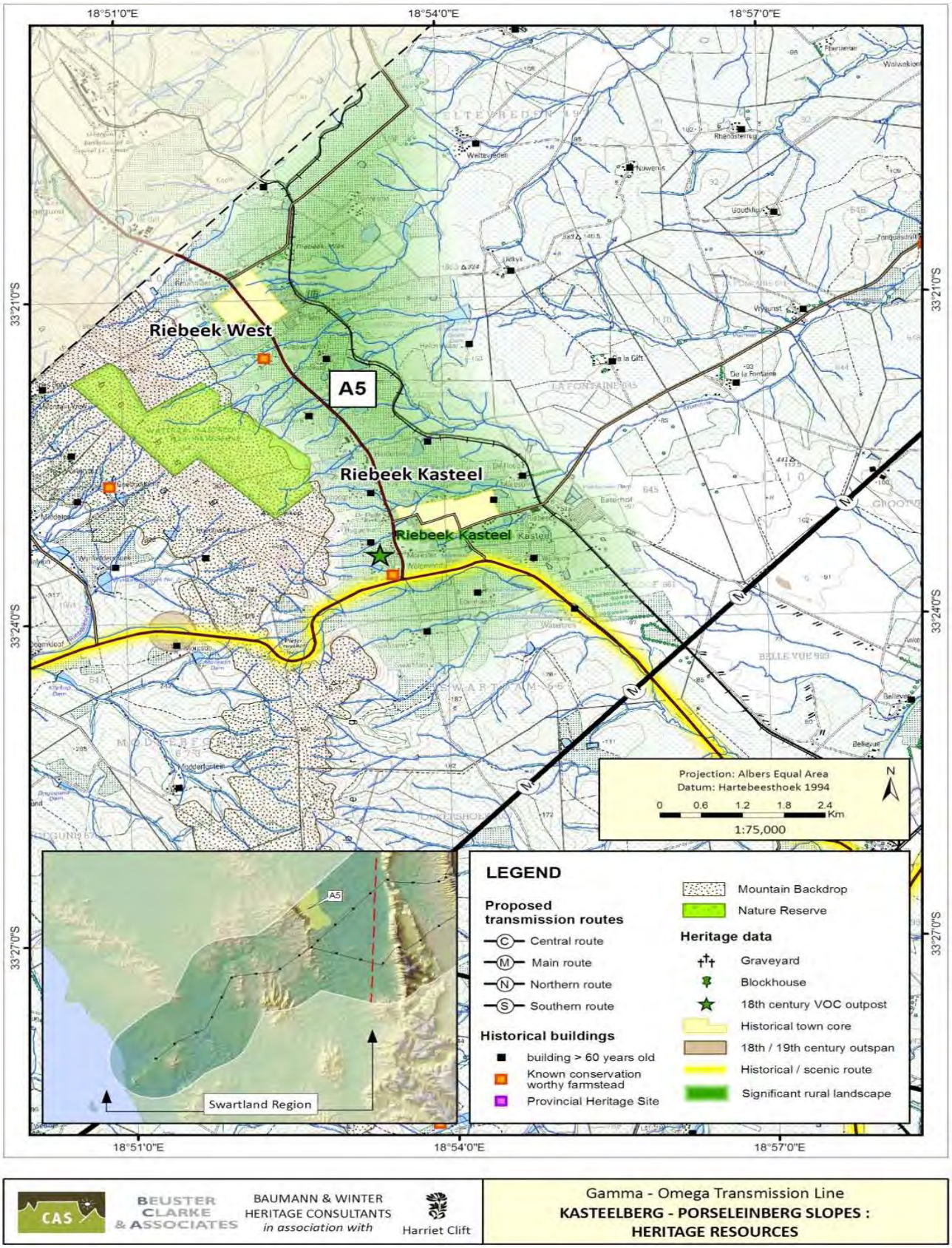

Figure H11: Kasteelberg-Porseleinberg Slopes – Heritage Resources

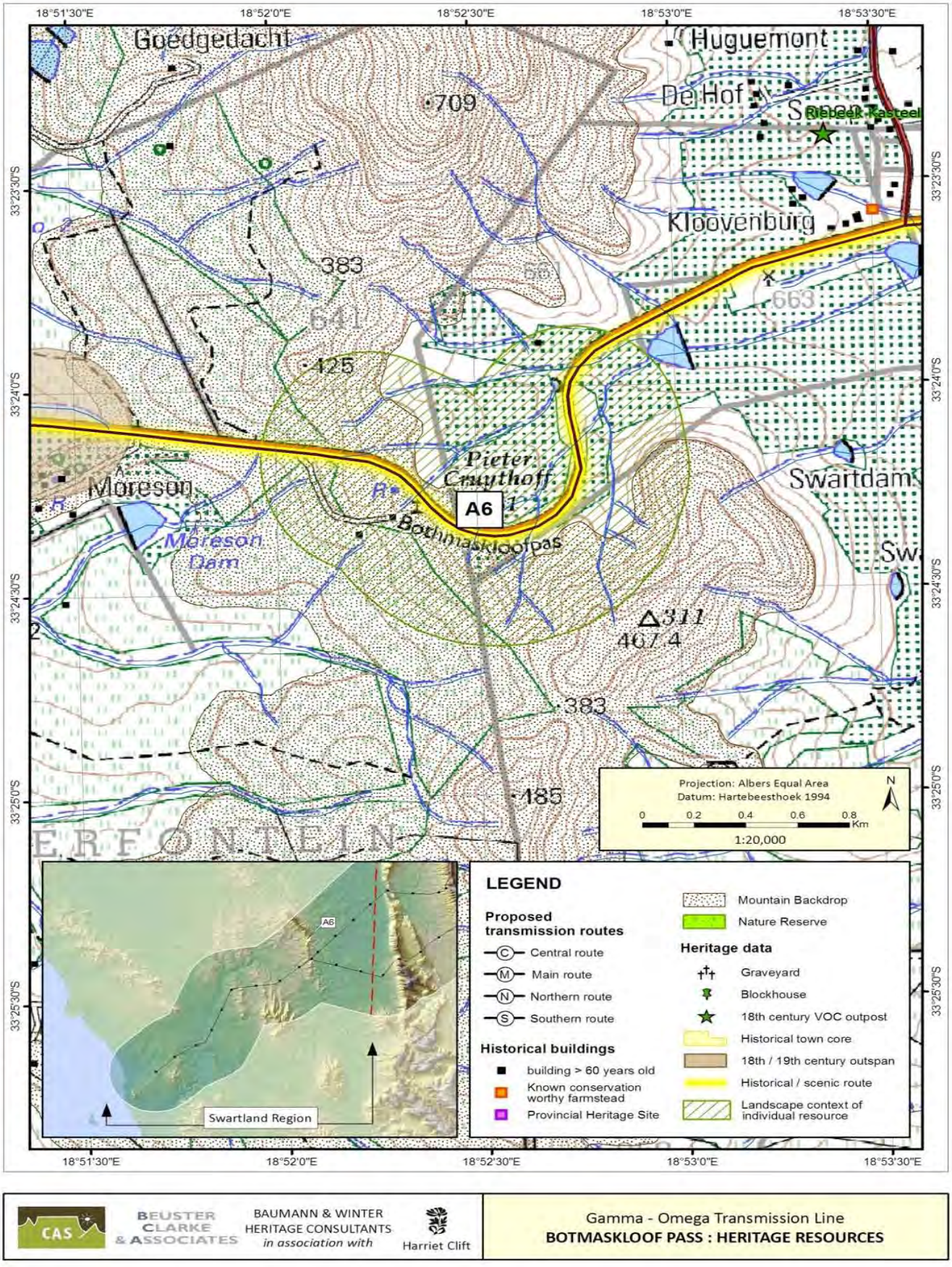

Figure H12: Botmaskloof Pass – Heritage Resources

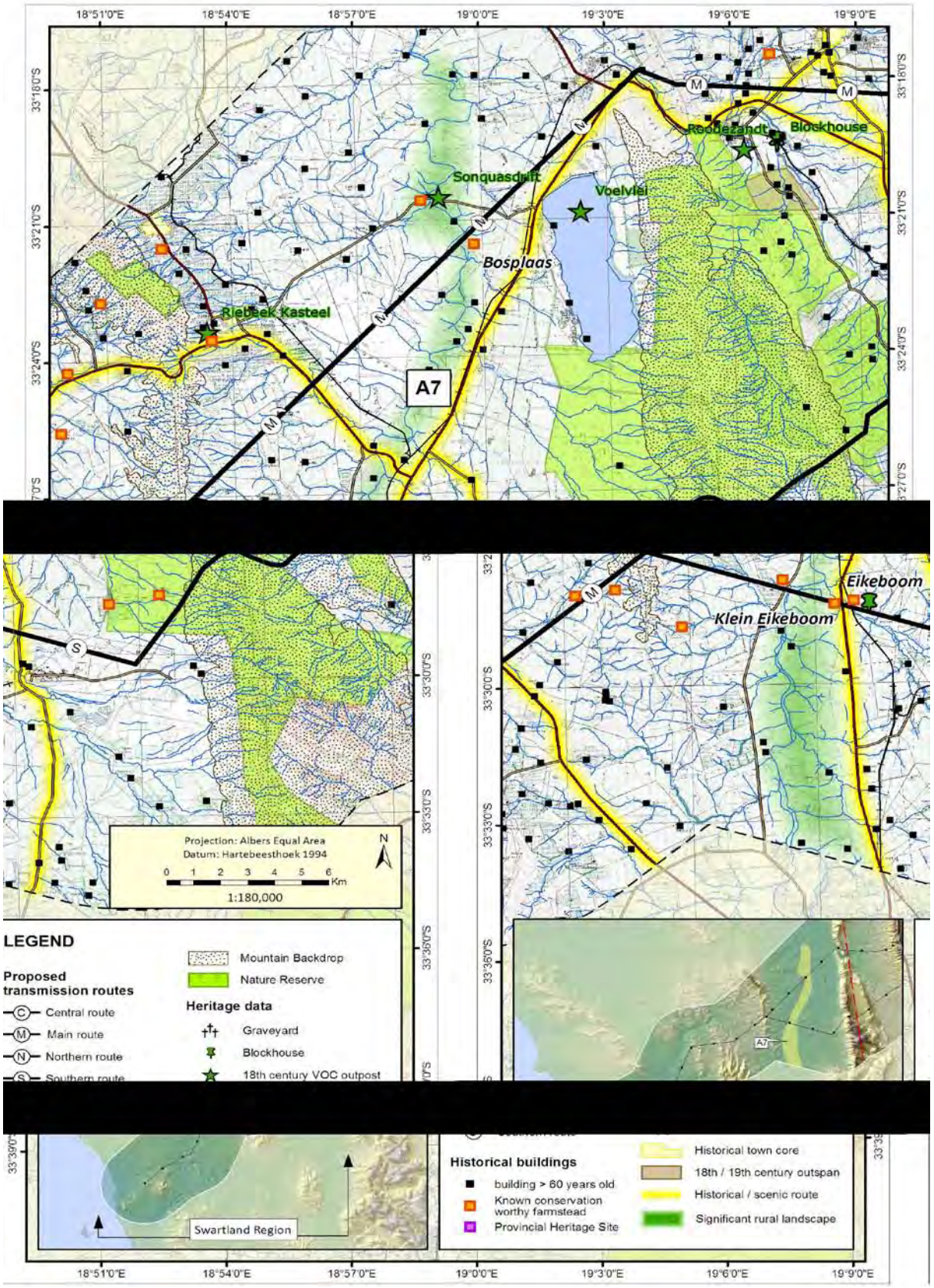

Figure H13: Berg River Corridor – Heritage Resources

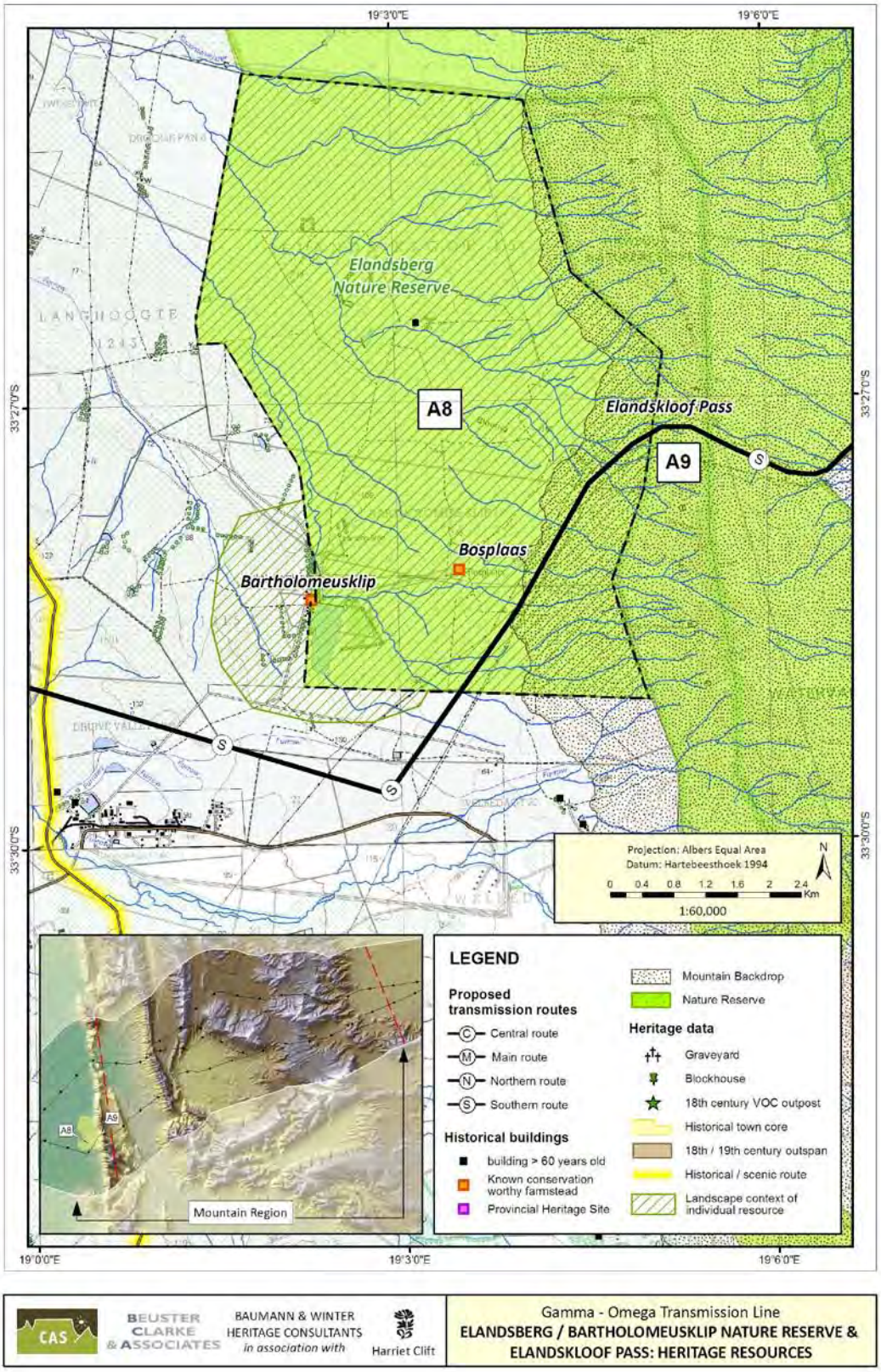

Figure H14: Elandskloof/Bartholomeusklip Pleins and Elandskloof Pass – Heritage Resources

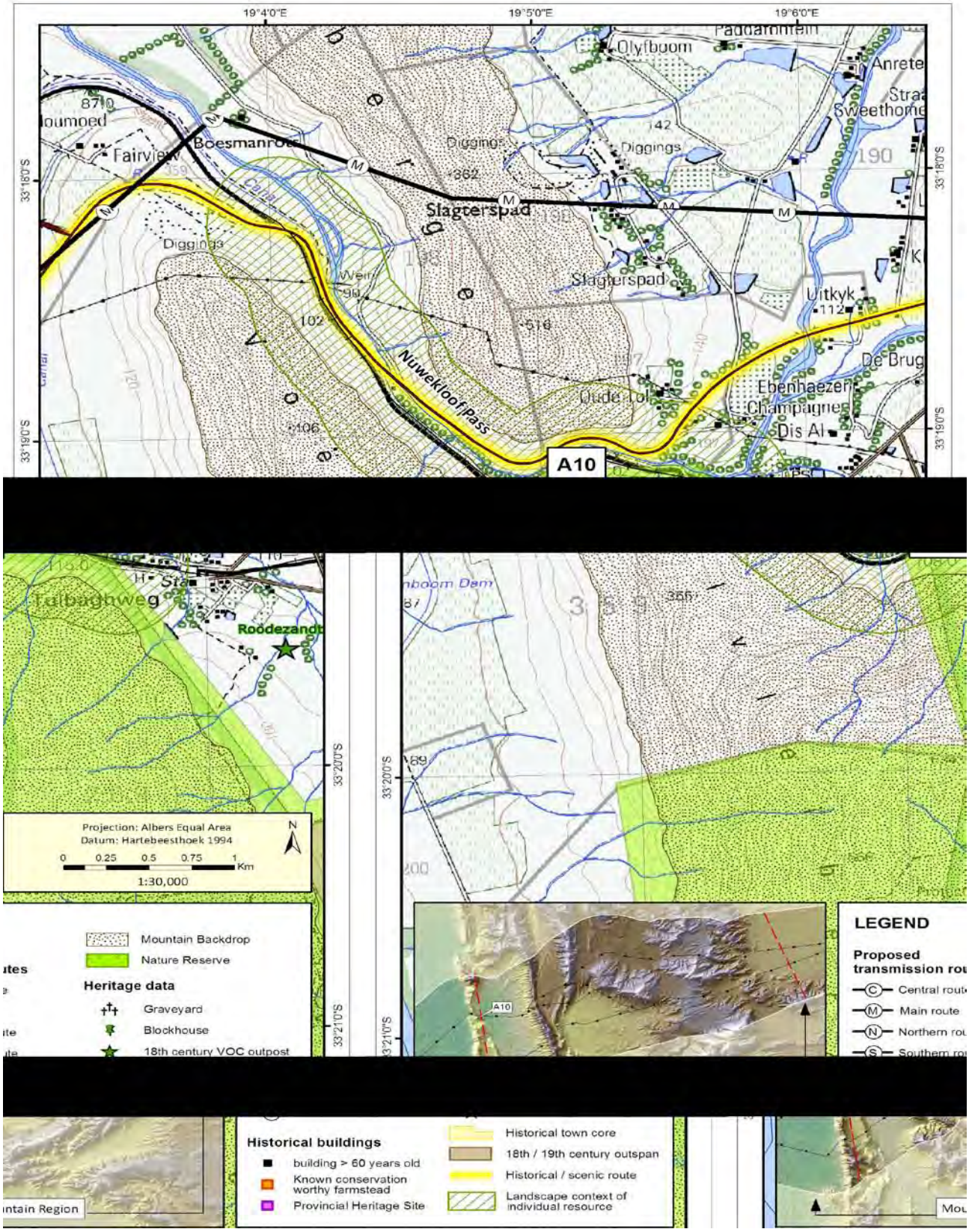

Figure H15: Nuwekloof Pass – Heritage Resources

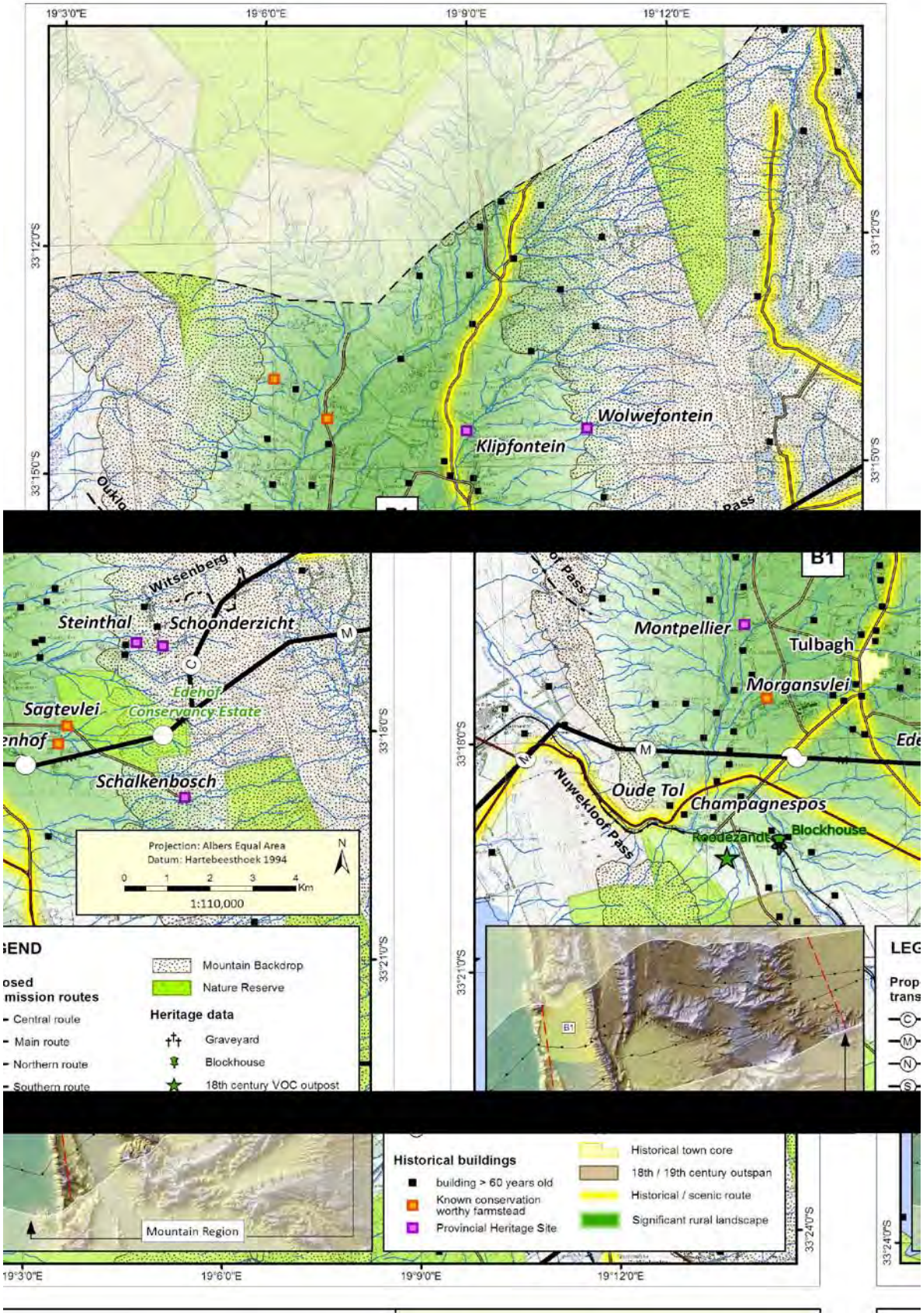

Figure H16: Tulbagh Valley – Heritage Resources

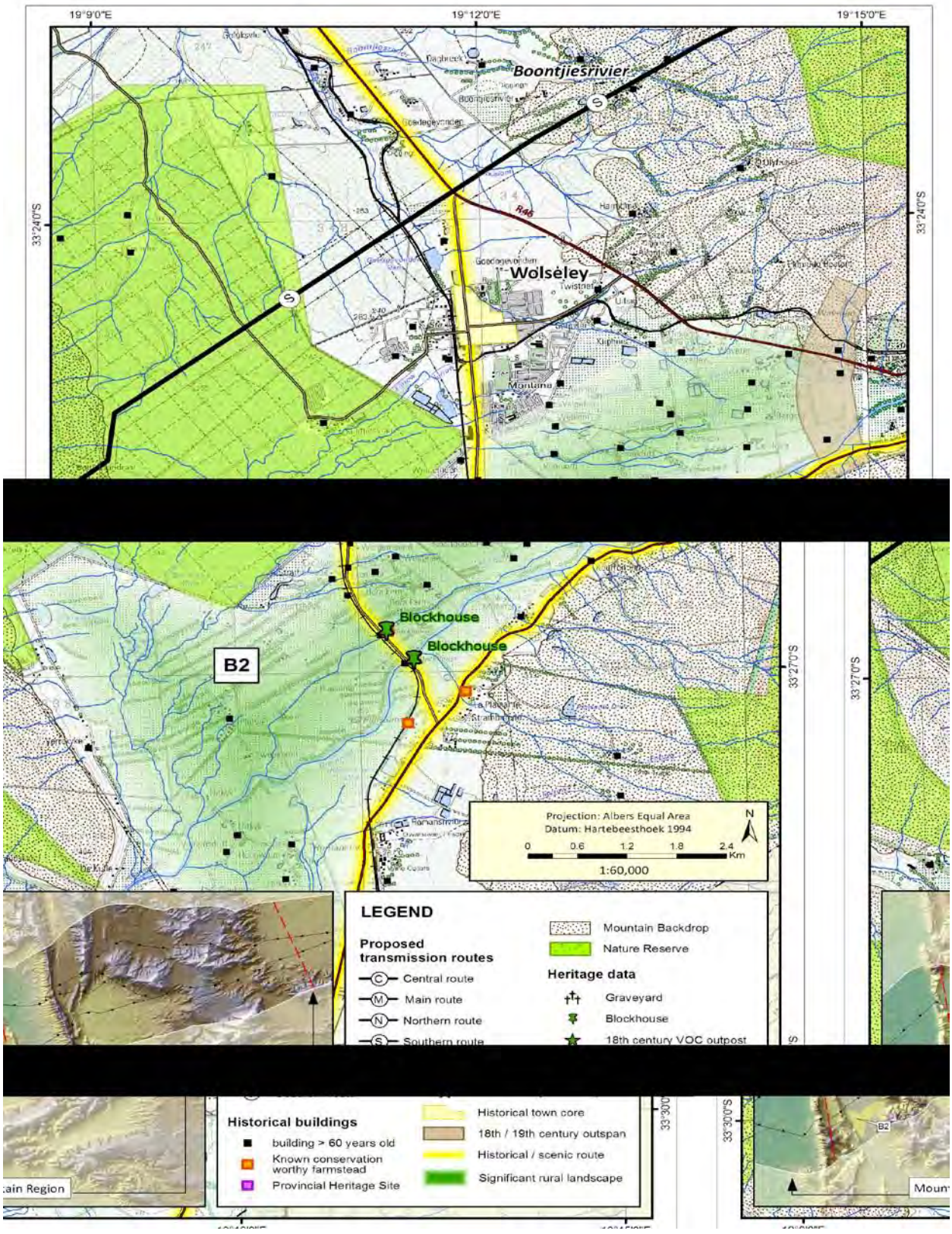

Figure H17: Wolseley Valley – Heritage Resources

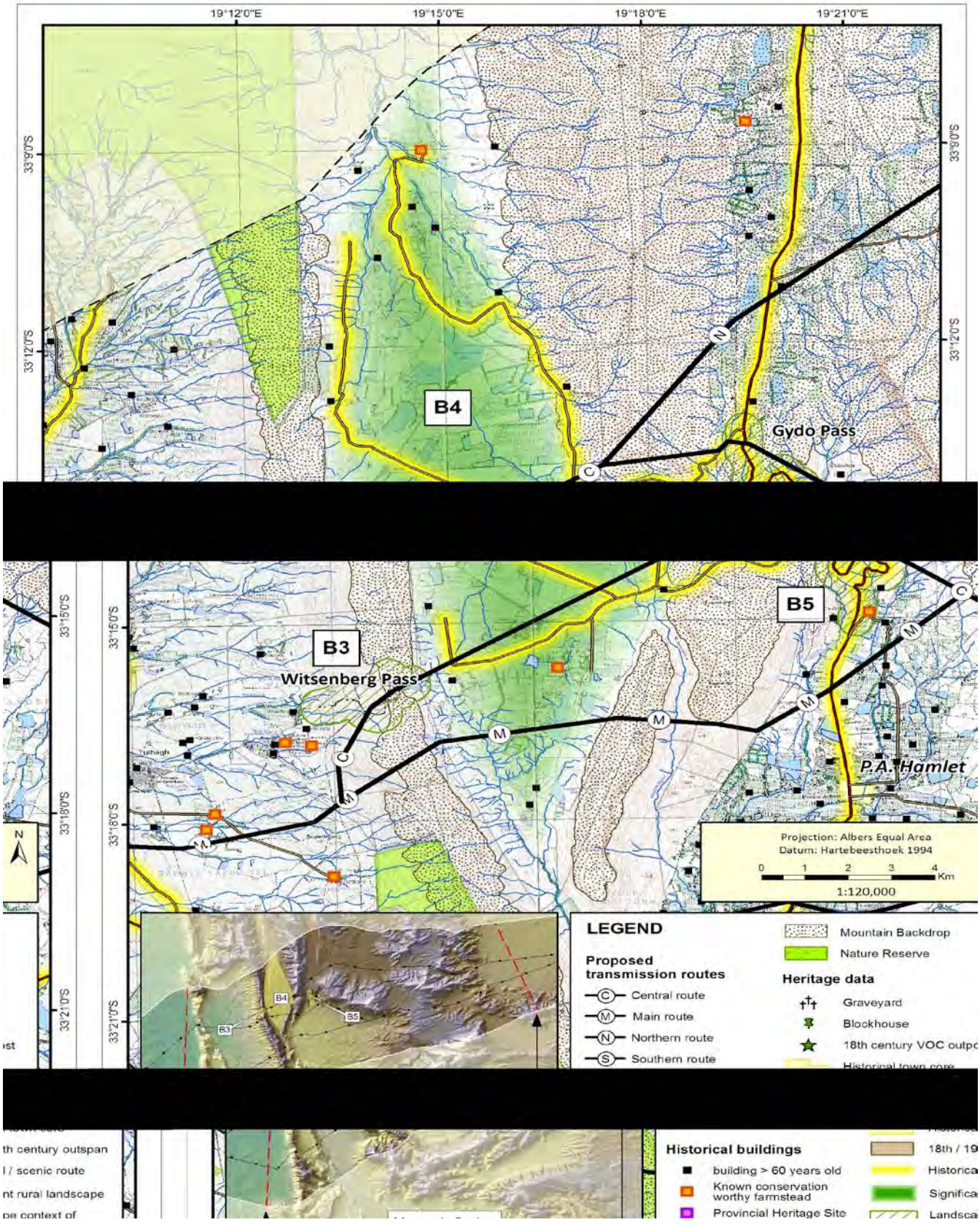

Figure H18: Witzenberg Pass, Witzenberg Valley and Gydo Pass – Heritage Resources

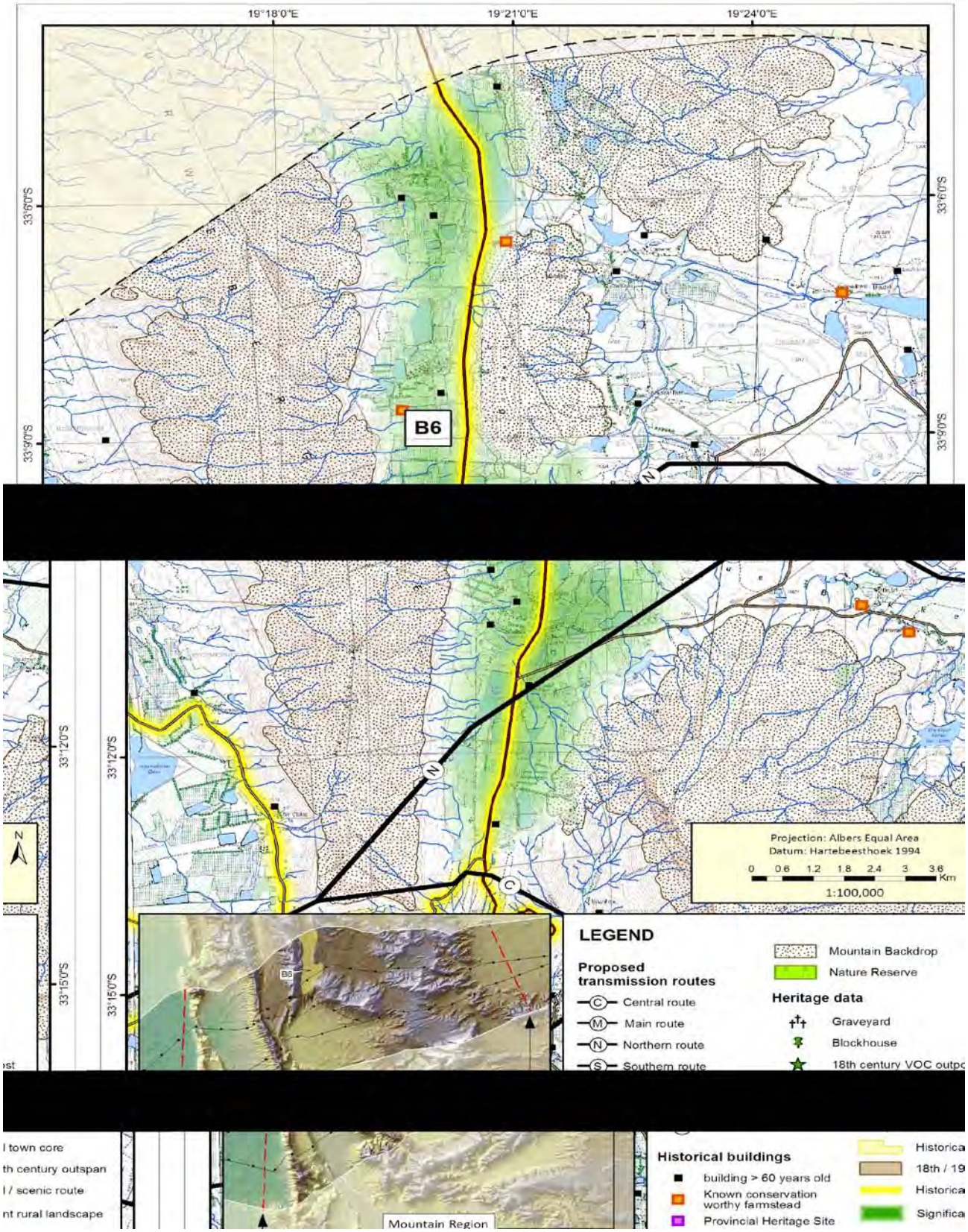

Figure H19: Gydo Valley – Heritage Resources

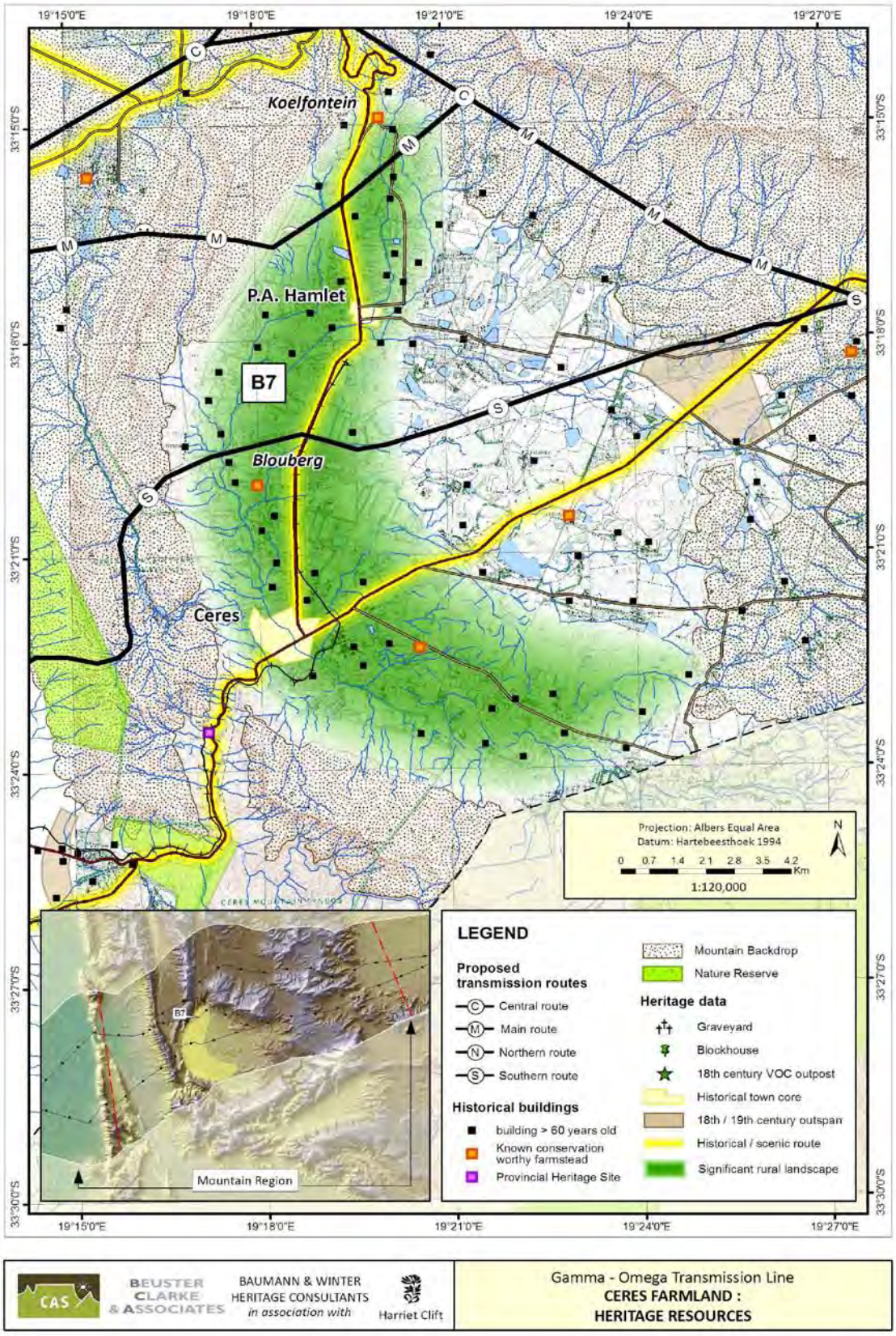

Figure H20: Ceres Farmlands – Heritage Resources

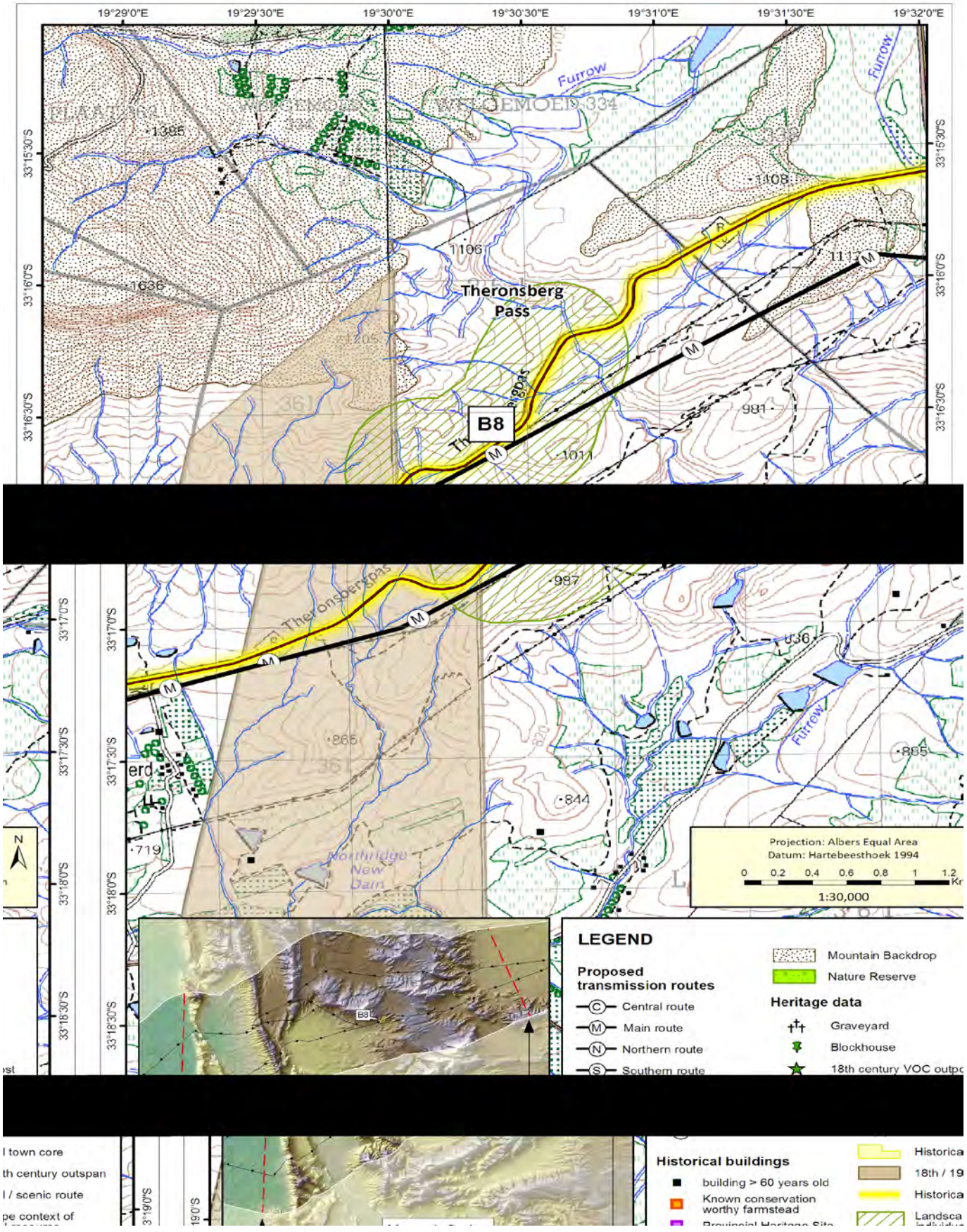

Figure H21: Therons Pass – Heritage Resources

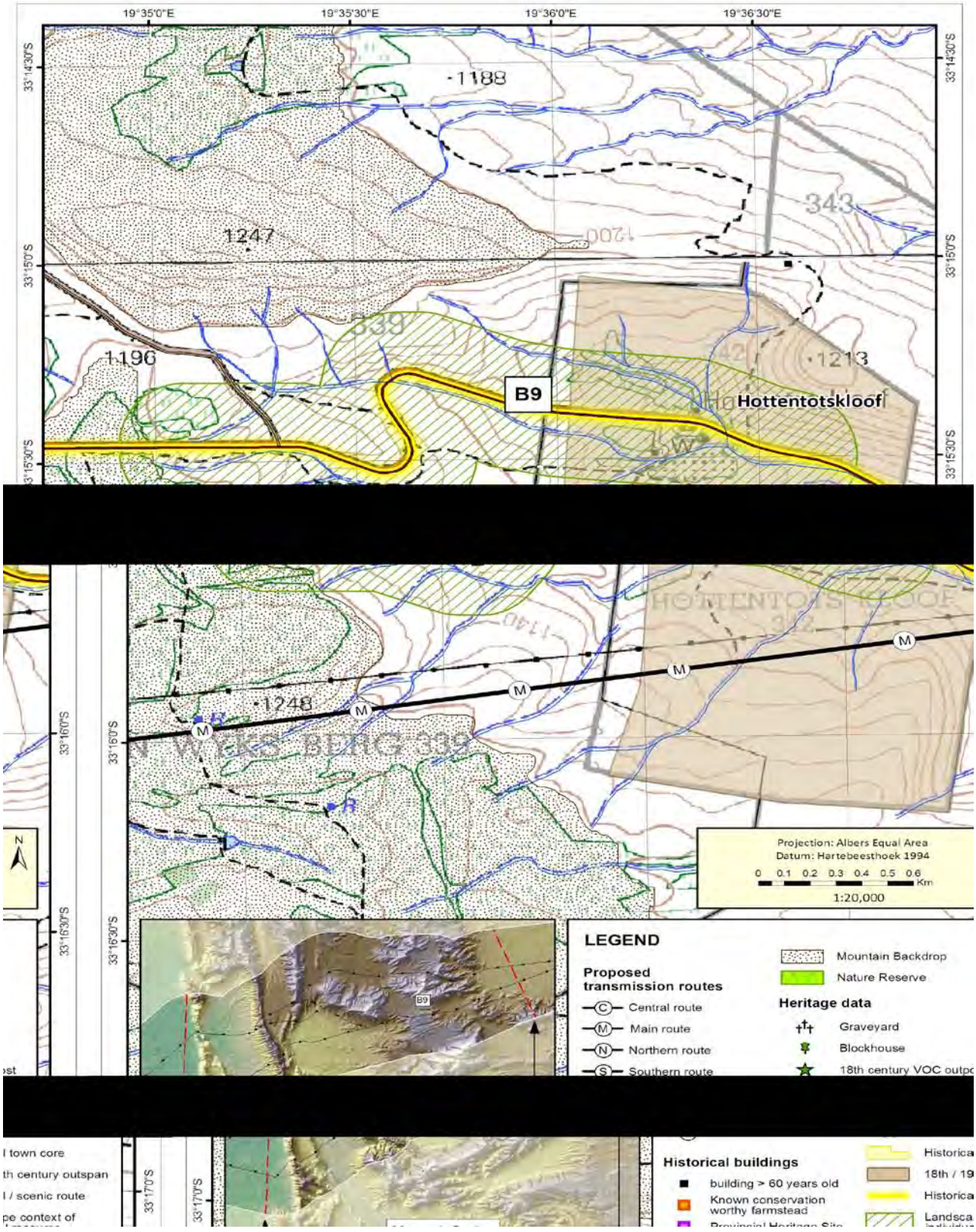

Figure H22: Hottentotskloof Pass – Heritage Resources

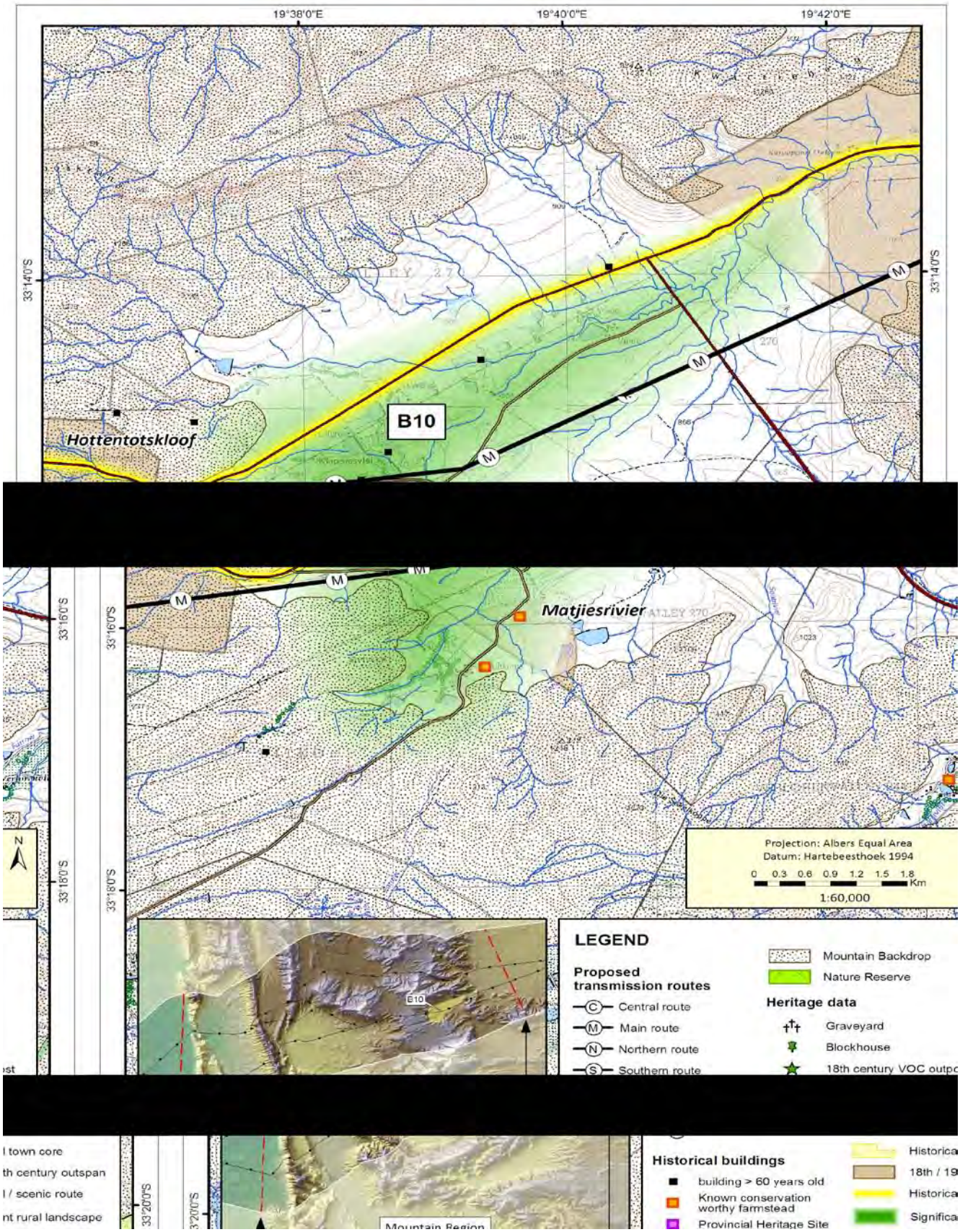

Figure H23: Bo-Swaarmoed Valley – Heritage Resources

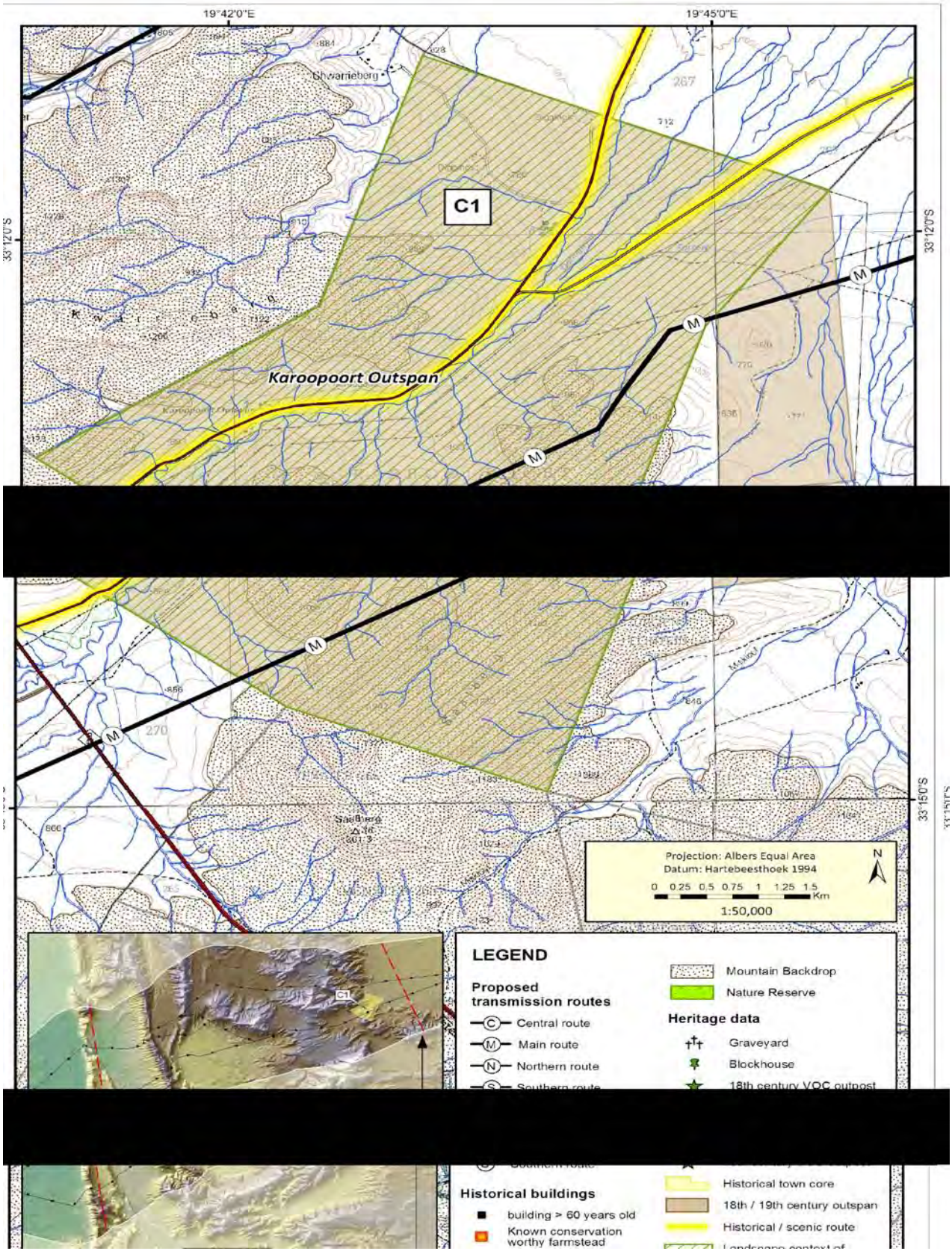

Figure H24: Karoopoort Outspan – Heritage Resources

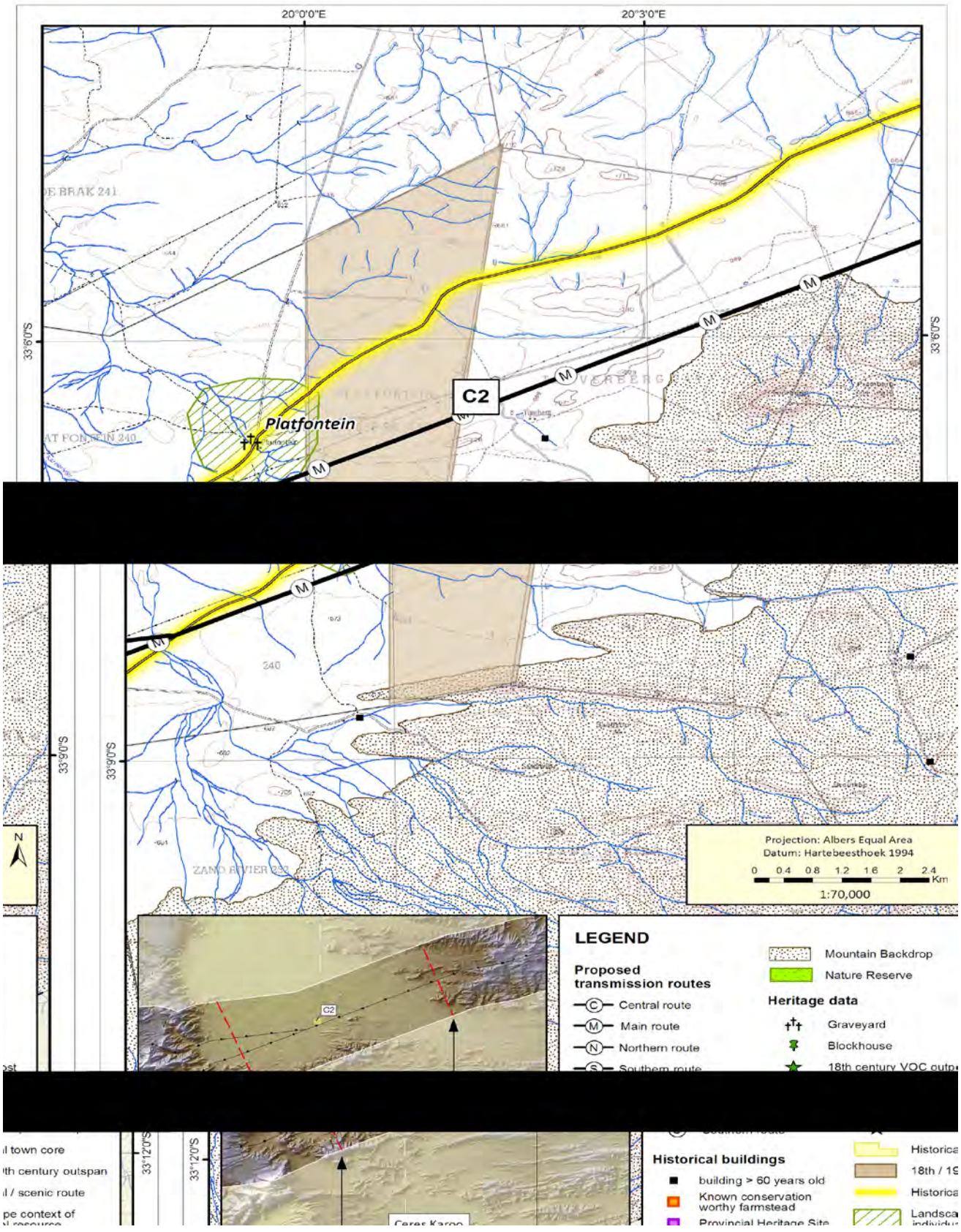

Figure H25: Platfontein – Heritage Resources

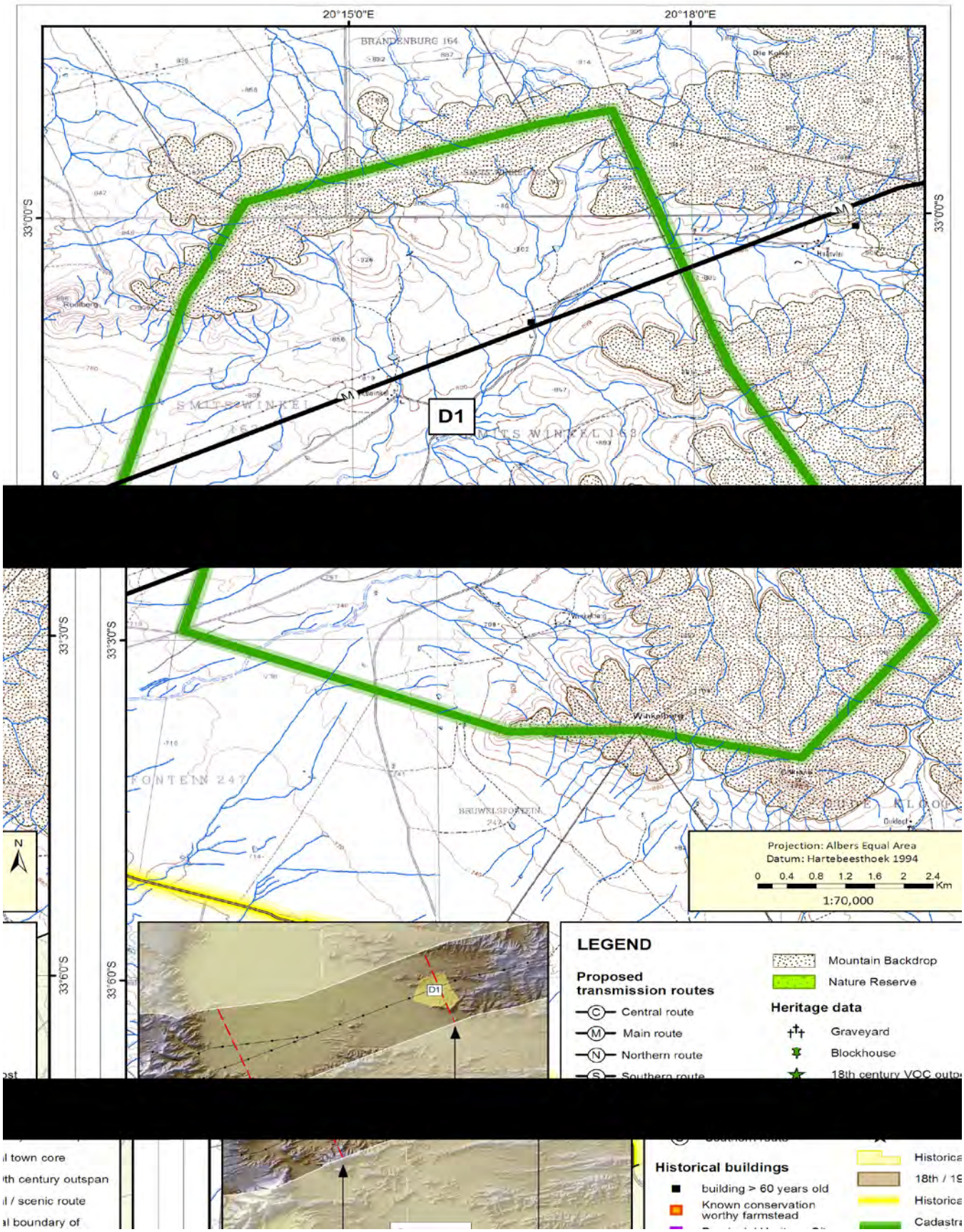

Figure H26: Smitswinkel Loan Farm – Heritage Resources

Cape Archaeological Survey & Associates
Baumann & Winter Heritage Consultants
Beuster,Clarke & Associates

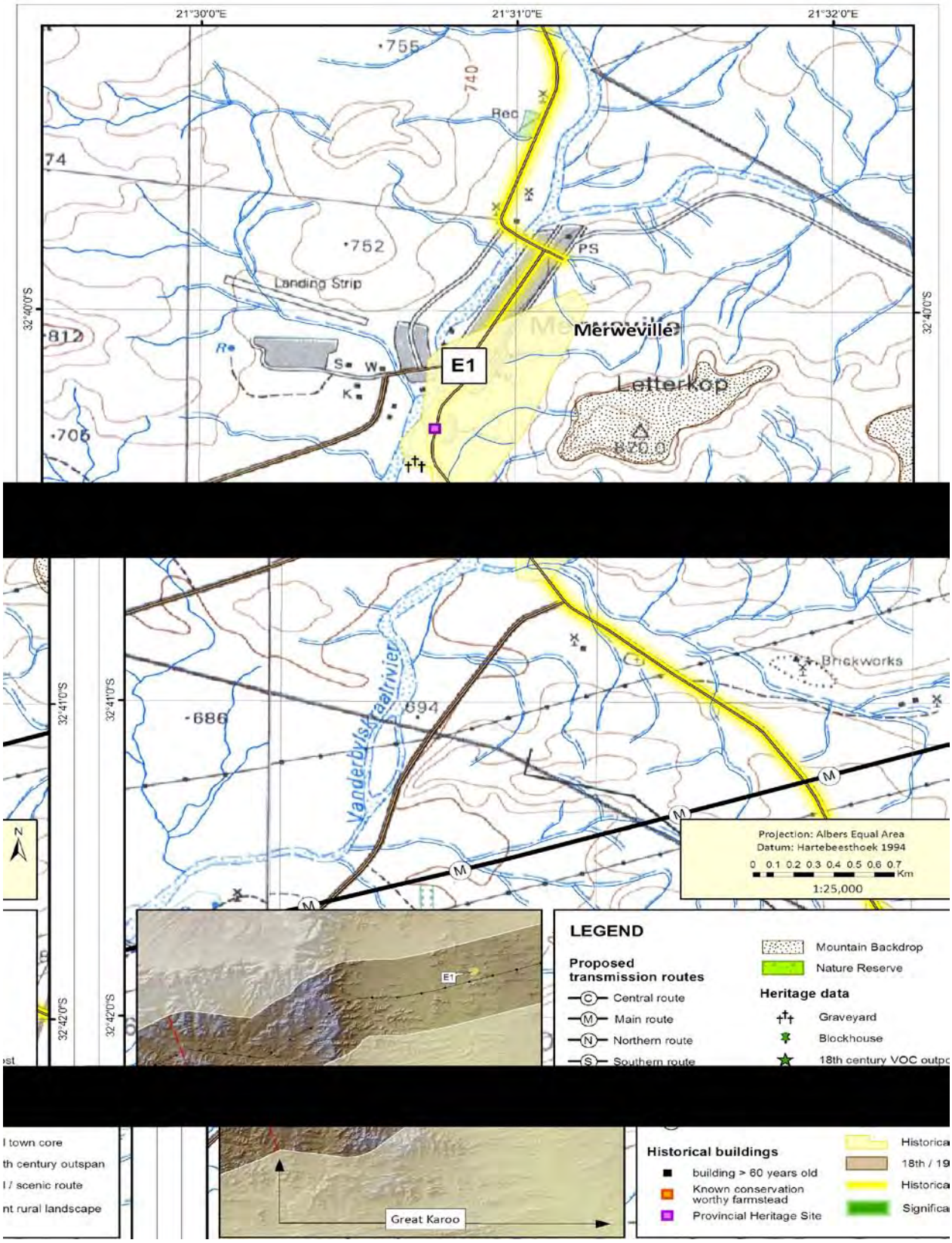

Figure H27: Merweville-Koup – Heritage Resources

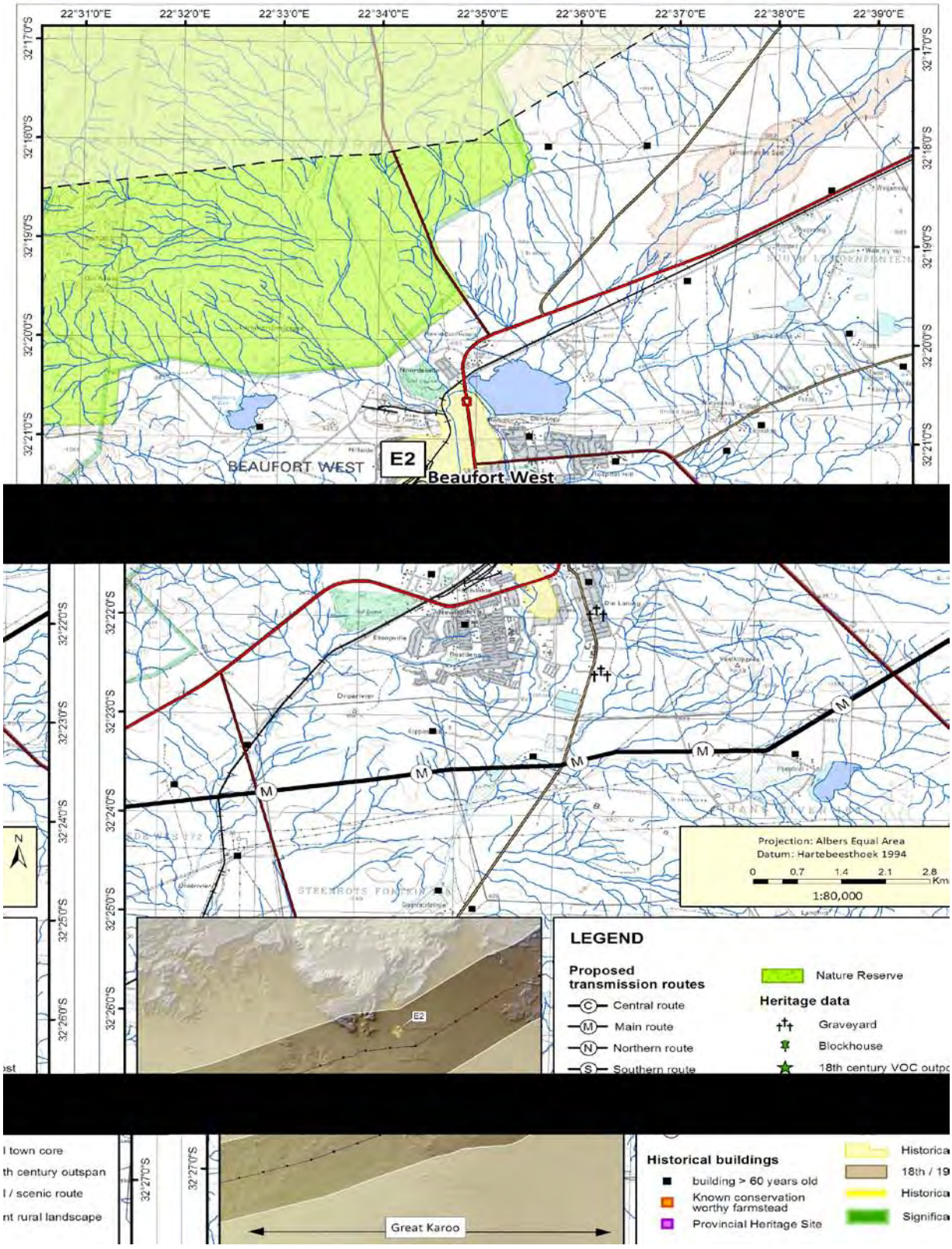

Figure H28: Beaufort West – Heritage Resources

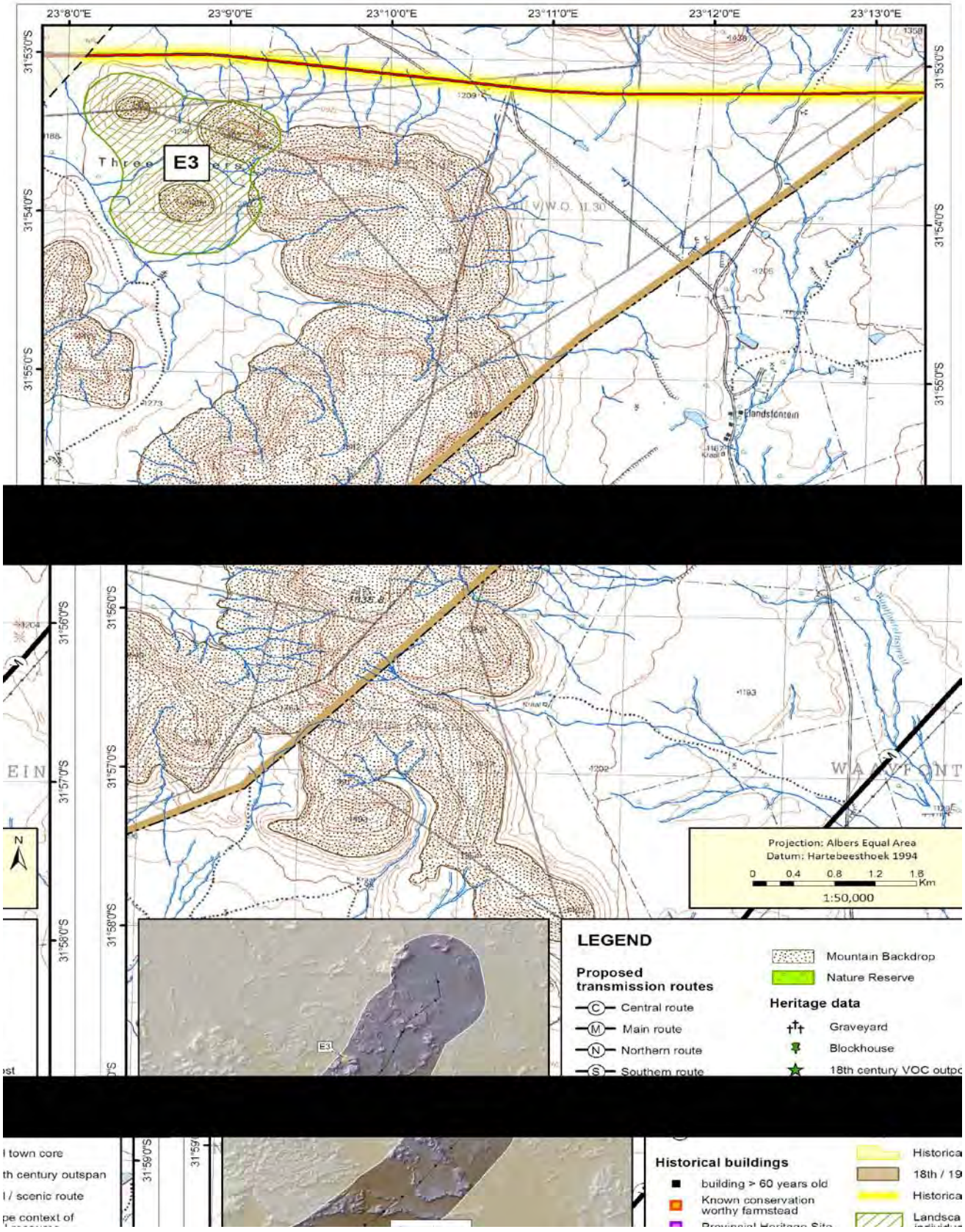

Figure H29: Three Sisters – Heritage Resources

SECTION I: OVERALL HERITAGE INDICATORS

In this section of the report, overall indicators are identified in the form of broad principles to guide the alignment of transmission lines from a cultural landscape, historical and built environment perspective and to provide a framework for the assessment of potential heritage issues and concerns. They are best understood at a variety of scales; from the broad regional landscape to the micro context related to the immediate context of identified heritage resources.

G.1 REGIONAL SCALE

- Areas of distinctive landscape character, landscapes that are representative of the region's cultural and scenic significance, and landscapes, which are undisturbed and relatively intact, should be avoided. Cultural tourism is a major economic generator in the region and the cultural and scenic qualities of this resource base should be preserved. Interventions thus need to respect areas of high scenic quality, particularly mountain backdrop conditions, historical mountain passes and agricultural valleys between mountain ranges; historical landscapes which reflect the interaction between man and environment over time; and views to and from historical townscapes and their associated access routes.

- Similarly, areas of remoteness that have a strong wilderness quality should be avoided. Wherever possible, disturbed areas or areas which have accommodated infrastructural interventions in the past should be utilized in favour of areas which are pristine and undisturbed.

  These broad landscapes referred to above provide the heritage framework within which individual heritages sites are located. The understanding and acknowledgement of the heritage significance of these landscapes must necessarily precede the analysis of the significance of individual heritage sites.

- A long section through the study area, from the coastline to the Ceres Karoo reveals a range of landscapes of vastly different visual quality and visual absorption capacity. Visual absorption capacity is not related to visual or scenic quality but as a general rule, transmission lines should be routed through areas of high visual absorption capacity. This includes, but is not restricted to, areas which have been disturbed through interventions such as railway lines and existing transmission lines, and areas which reveal a degree of visual clutter, or visual dissonance rather than the visual coherence evident in pristine wilderness areas. However, careful consideration needs to be given to the potential cumulative impact of further interventions adjacent to existing utility lines. While existing transmission lines might be perceived to have merged into the landscape and become part of the collective memory associated with a particular landscape, new additional infrastructure, especially of a substantial magnitude, could cross a threshold of acceptability and trigger high visual impacts.

- A number of scenic routes criss-cross the study area. They are the predominant means by which local inhabitants and tourists experience the range and diversity of scenic resources evident throughout the area. In terms of the economic role of cultural tourism referred to above, they can be regarded as the arteries which carry the lifeblood of the region. Care thus needs to be taken to avoid the visual catchments areas associated with such routes. When intrusions into the visual catchments areas associated with such routes is inevitable, the impacts should be mitigated by ensuring that the visual experience of such interventions is minimised

i.e. by aligning transmission lines at a right angle to scenic routes rather than parallel to them.

G.2 LOCAL SCALE

- As discussed above, broad cultural landscapes provide the context for historical settlements and farmwerfs. As a general guideline, the visual setting of conservation-worthy historical settlements and farm werfs should not be impacted by transmission lines. Particular consideration should be given to minimizing impacts along the approaches to such settlements from the scenic route network.

- Areas which include a high concentration of heritage resources, with their associated visual-spatial fields should be avoided.

- At a local scale different landscape typologies defined in part by landform, cultural and historical processes, and resultant land use, can be identified. Interventions in the form of transmission lines can be mitigated in part by aligning such lines at the seams between different landscape typologies. By locating lines at these points of juncture or where different landscape typologies interlock, the visual integrity and coherence of adjacent landscapes, deemed to have visual or cultural significance, can be preserved. Care should be taken however, to avoid the alignment of pylons and transmission lines at gateway or threshold conditions such as at the entry and exit points of mountain passes when a new emerging landscape is experienced for the first time along a route.

- The visual impact of pylons and transmission lines is particularly high when viewed in silhouette. Wherever possible, transmission lines should thus be aligned along the foot slopes of mountains and hills and should avoid ridgelines. Where ridgelines do have to be crossed, pylons should be located on either side of the ridgeline rather than on top of it. Topographical variations should be utilized wherever possible to provide a background screening effect and to avoid pylons and transmission lines being seen in silhouette.

- As indicated above, scenic routes are the means by which most people experience the cultural diversity of the different landscapes evident in the study area. When such routes intersect with transmission lines, this should be at a right angle to the scenic route to minimise the time that the line is in the viewshed of the passing viewer. Multiple crossings of scenic routes by transmission lines should be avoided. Where transmission lines do have to run parallel to scenic routes they should be located at some distance from them, preferably 500m. Where there is a sloping topography, transmission lines should be located on the lower terrain. In such instances, and depending on the topography, the tops of pylons should not protrude above the road level.

G.3 MICRO SCALE

- At a micro-scale, variations in landform and features such as rocky outcrops and folds in the landscape can be utilised to mitigate the visual impact of pylons and transmission lines from scenic routes, historical settlements and farm werfs.

- Careful consideration needs to be given to the alignment and orientation of adjacent historical farms werfs in the alignment of transmission lines. Historical farm werfs traditionally have a symmetrical arrangement with a strong visual axis usually centred on

the front gable of the homestead. Transmission lines should be routed behind these historical homesteads and their associated visual axis. They should never be allowed to bisect such visual axes.

- In historical cultural landscapes a pattern is evident in terms of the relationship between wagon routes, watercourses and the location of farm werfs which are often marked by clumps of trees. Every effort should be made to avoid any penetration of pylons and transmission links into these bands of historical and scenic significance.

- Where transmission lines are aligned within or adjacent to an existing servitude the pylons should be positioned at similar intervals to reduce the visual impact. Consideration needs to be given, however, to the cumulative impact of such groupings.

SECTION L: CONCLUSIONS AND RECOMMENDATIONS

The previous section of the report identified a number of heritage hot spots from a palaeontological, archaeological, cultural landscape and built environment perspective regarding the potential heritage impact of the proposed 765kV transmission power line between Omega (Koeberg) and Gamma (Victoria West). These heritage hotspots have been categorized as follows:

- High level
- Medium level
- Low level
- Subject to further investigation.

The heritage hot spots identified for the various route alignments are summarized in the **Tables L1** (Palaeontology)**, L2 -4** (Archaeology) and **L5-9** (Cultural Landscape and Built Environment) below.

The broad implications of these various heritage hot spot categories from a heritage management perspective are as follows:

- **High level heritage hotspot areas** have a potential "no-go" implication and thus require serious consideration of more suitable alternative alignments at the landscape setting and individual site scale.

- **Medium level heritage hot spot areas** require consideration of mitigation measures including the possible readjustment of an alignment at the landscape setting and individual site scale. However, consideration needs to be given to other factors such as socio-economic and ecological issues as well as issues of viability and feasibility.

- **Low level heritage hotspot areas** do not require the consideration of more suitable alternative alignments. However, any changes to the proposed alignments during the planning phase of the proposed need to be carefully monitored in terms of potential heritage impacts.

- **Areas subject to further investigation** will need to be assessed at the impact assessment phase of the HIA process.

We conclude that the mapping, grading and evaluation of cultural resources over such a large area has contributed significantly to our understanding of some of South Africa's most important natural and cultural resources. It has also helped clarify which of these resources are worthy of protection for inclusion into the National Estate.

Providing that appropriate mitigation measures are taken in good time the proposed development offers the opportunity to improve recording and sampling of Western Cape Province fossils over a lengthy geological transect (c. 500km). This project should ultimately benefit our understanding of Western Cape palaeontological heritage resources and provide new fossil material from remote or under-collected areas and formations.

The same is true for archaeological resources where sampling would provide a greater understanding not only of the spatial distribution of earlier populations, but also aid our understanding of how the cultural material they left behind may differ in the morphological zones identified along the study corridor.

The built environment is far more difficult to manage and should be evaluated at several different levels. At a micro-scale, variations in landform and features such as rocky outcrops and folds in the landscape can be utilised to mitigate the visual impact of pylons and transmission lines from scenic routes, historical settlements and farm werfs. However, historical farm werfs traditionally have a symmetrical arrangement with a strong visual axis usually centred on the front gable of the homestead. Transmission lines should be routed behind these homesteads and their associated visual axis. They should never be allowed to bisect such visual axes.

In historical cultural landscapes a recurring pattern is evident in terms of the relationship between wagon routes, watercourses and the location of farm werfs which are often marked by clumps of trees. Every effort should be made to avoid any penetration of pylons and transmission links into these bands of historical and scenic significance.

Where transmission lines are aligned within or adjacent to an existing servitude the pylons should be positioned at similar intervals to reduce the visual impact. Consideration needs to be given, however, to the cumulative impact of such groupings.

At a macro- level the scoping phase assessment demonstrates that there are sections of both the primary and alternatives routes which are highly problematic from a cultural landscape perspective in terms of their potential **high to medium high heritage impacts.** These are located within the Swartland and Mountain Regions extending from Oliphantskop to Theronsberg Pass and should be considered as no-go options thus requiring substantial modification through realignment. It is recommended that this section of the study corridor be subject to further assessment, including the selection of more suitable alternative alignments. This should preferably occur in terms of an integrated environmental assessment process.

POWERLINE SECTION		OVERALL PALAEONTOLOGICAL SIGNIFICANCE	MOST SENSITIVE PALAEONTOLOGICAL HORIZONS	*RECOMMENDED PALAEONTOLOGICAL MITIGATION ALONG POWERLINE CORRIDOR*
ALTERNATE NEW (BLUE)	**SECTION 1**	*LOW*	*Populierbos Formation (Klipheuwel Group)*	Field scoping and sampling of the Klipheuwel Group south of Kalbaskraal
	SECTION 2	*HIGH to VERY HIGH*	*Cederberg Formation (Table Mountain Group)* **Bokkeveld Group Wagen Drift & Waaipoort Formations (Witteberg Group)**	Field scoping and sampling of (a) Cederberg Formation in the Witsenberg Range, (b) Bokkeveld Group of the Agter-Witsenberg Valley, (c) Bokkeveld Group of the Warm Bokkeveld and (c) Bokkeveld – Witteberg Groups in the Karoopoort sectors.

	SECTION 3	*MODERATE to LOW*	*lower Ecca Group (especially Whitehill Formation)*	Field scoping and sampling of Ecca Group, also focussing on the Dwyka / Ecca contact. Field scoping and sampling study of all three sites under consideration for Kappa Substation.
	SECTION 4	*HIGH*	*upper Ecca Group* *lower Beaufort Group*	Field scoping and sampling of Ecca and Beaufort Group sediments.
	SECTION 5	*HIGH to VERY HIGH*	*lower Beaufort Group*	Field scoping and sampling of Beaufort Group sediments, especially in the Great Escarpment Zone. Palaeontological scoping and sampling of older drift deposits (*eg* consolidated alluvium, vleis and pans).

Table L1: Summary of Palaeontological Sensitivity of Alternative Gamma-Omega Powerline Sections

Table L2: Main Alternative – Archaeological Hotspots.

Morphological zone	Landscape setting	Heritage Hotspot
Inland Plain	Berg en Dal	Medium - High Further Investigation
Great Karoo	Amandelboom,	Medium -High Further investigation
Great Karoo	Klipkraal	Medium -High Further investigation
Great Karoo	Koedoesfontein	Medium -High Further investigation
Great Karoo	Courtlands Kloof	Medium -High Further Investigation
Great Karoo	Fontein's Kop	Medium -High Further Investigation
Great Karoo	Zand Rivier	Medium -High Further Investigation
Great Karoo	Vaalkloof	Medium -High Further Investigation
Great Karoo	Platfontein,	Medium -High Further investigation
Great Karoo	Smousberg	Medium -High Further Investigation
Great Karoo	Brewelsfontein	Medium -High Further Investigation
Great Karoo	Zand Rivier	Medium -High Further Investigation
Great Karoo	Stinkfontein	Medium -High Further Investigation

Table L3: Central Alternative – Archaeological Hotspots

Morphological zone	Landscape setting	Heritage Hotspot
Mountain Region	Brits	Medium -High Further Investigation
Mountain Region	Voelvei	Medium -High Further investigation

Table L4: Northern Alternative – Archaeological Hotspots

Morphological zone	Landscape setting	Heritage Hotspot
Mountain Region	Vaalfontein	Medium -High Further investigation
Mountain Region	Nooitgedacht	Medium --High Further investigation
Mountain Region	Ebenezer	Medium -High Further investigation
Ceres Karoo	Zwartkop	Medium - -High Further investigation
Ceres Karoo	Kommando	Medium -High Further investigation
Ceres Karoo	Guarrieberg	Medium -High

		Further investigation
Ceres Karoo	Witklippies	Medium -High Further investigation
Ceres Karoo	Loch Lynne,	Medium -High Further investigation
Ceres Karoo	Hoop-en-Uitkomst	Medium -High Further investigation
Ceres Karoo	Karoopoort Outspan,	Medium-High Further investigation
Ceres Karoo	Onderlangkloof,	Medium -High Further investigation
Ceres Karoo	De Vallei,	Medium-High Further investigation

Table L5: Southern Alternative – Archaeological Hotspots

Morphological zone	Landscape setting	Heritage Hotspot
Mountain Region	Mitchell's Pass	Medium- High Further investigation
Mountain Region	Bergtoppe	Medium -High Further Investigation

Table L6: Main Alternative – Cultural Landscape Hotspots

Morphological zone	Landscape setting	Heritage Hotspot
Swartland	Koeberg	Medium-high
	Paardeberg Slopes	Medium-high Further investigation
	Malmesbury Foothills	Medium Further investigation
	Berg River Corridor	Medium Further investigation
	Nuwekloof Pass	Medium-high
Mountain Region	Tulbagh Valley	High
	Witzenberg Valley	Medium
	Gydo Pass	High
	Ceres Farmland	Medium Further investigation
	Theronsberg Pass	Medium
	Bo-Swaarmoed Valley	Medium to low
Ceres Karoo	Karoopoort Valley	Very low
	Platfontein outspan	Medium-high
Great Karoo	Merweville	Low

Table L7: Central Alternative – Cultural Landscape Hotspots

Morphological zone	Landscape setting	Heritage Hotspot
Mountain Region	Tulbagh Valley	Medium
	Witzenberg Valley	Medium-high
	Gydo Pass	Medium-high

Table L8: Northern Alternative – Cultural Landscape Hotspots

Morphological zone	Landscape setting	Heritage Hotspot
Mountain Region	Gydo Valley	Medium

Table L9: Southern Alternative – Cultural Landscape Hotspots

Morphological zone	Landscape setting	Heritage Hotspot
Swartland	Berg River Corridor	High Further investigation
	Elandskloof/Bartholomeusklip	Medium-high
Mountain Region	Wolseley Valley	Medium-low
	Ceres Farmlands	Medium Further investigation

Section M: GAMMA OMEGA 765kV Transmission Line : Comments on the Heritage Impact Assessment 2008-9
VISUAL COMMENTS

						Specialist Comments		
No.	**Name**	**Affiliation**	**Email**	**Contact No**	**Visual**	**Eskom**	**EIA**	**HIA**
1	Niel de Jager	Chairman, Tulbagh Ratepayers & Inwoners Forum	acdejager@absamail.co.za	023 230 0233	Little information on the disastrous visual impact the proposed line would have for the Tulbagh area and its valleys and also how it looks like		Photographs can be mosaiced together to give a ***subjective impression*** of the impact of the powerlines on the valley, but cannot provide hard data about the actual impact of these structures, and would not satisfy the assessment criteria as set out in the terms of reference - Photographs can be mosaiced together to give a subjective impression of the impact of the powerlines on the valley, but cannot provide hard data about the actual impact of these structures, and would not satisfy the assessment criteria as set out in the terms of reference. A technical drawing showing the shape and dimensions of the pylons to be used for the 756kV line was provided in the original Environmental Impact Assessment - Tassie Clarke (VIA)	
2	Joe de Villiers / Francis Swanepoel	I & AP	rondawel@lantic.net		The visual impact of the proposed line was not presented to the attendees (nor is it included in the material given to us). Nowhere could one get an idea of the actual scale of the pylons in relation to the major features of the valley or the actual effect of these on the views from various points in the valley or from major roads leading into Tulbagh or through the valley or the Nuwekloof Pass. There were very colourful maps with bright colour-coded "contours" representing some theoretical formula of the effective visual height of the line in relation to ones distance from it… I am afraid this does not do it! I am sure that Eskom spent a substantial amount of our money on this impact assessment and one would think that the kind of expertise they appointed would have at least come up with some realistic 3D presentaions of the vallley with the REAL SIZE LINE super-imposed in 3D on it…..What is worse is that the presentation was, in fact, misleading. When asked for a photograph of one of these new pylons, we were shown a photograph of a pylon taken somewhere in the winelands (judging from the vegetation in the background (fruit orchard, vines, etc.)) THIS AFTER WE WERE TOLD IN THE PRESENTAION THAT THE ONLY EXISTING PYLONS OF THIS (PROPOSED) SIZE ARE NEAR DE AAR / SOMEWHERE IN THE KAROO.) When I pointed this out to one of the representatives at the presentaion they admitted that the picture showed a "normal" pylon and not one of the large proposed ones. WHAT IS THE USE!?		In answer to the comments from the public meeting, a 3D Google model was supplied to PDNA within the last few weeks showing the proposed pylons, scenic routes, conservation worthy buildings etc superimposed on the Google Earth Landscape. It was requested that this data be supplied to all interested and affected parties. A one-day public workshop was also advised. It should be noted however that as per the terms of reference – the visual information is supplied in respect to heritage issues specifically, i.e. visual impact from scenic routes, provincial heritage sites, etc. ***It has been the decision of the Department of Environment and Tourist not to publish this Google Model - Tassie Clarke (VIA)***	
							Therefore the visual impact of the line was assessed at locations selected by the heritage consultant as 'critical viewpoints'. At these locations, an in depth technical assessment was carried out to assess the visibility of pylons, their distance from the viewpoints and their ability to be absorbed into their surroundings, etc. This information, together with the heritage findings was used to classify hotspots according to High, Medium, Low or Subject to further investigation. E.g. Tulbagh Valley was	

						Specialist Comments		
No.	**Name**	**Affiliation**	**Email**	**Contact No**	**Visual**	**Eskom**	**EIA**	**HIA**
							classified as high impact and by definition this means that the impact of the line from a heritage / visual impact perspective ***requires further investigation - Tassie Clarke (VIA)***	
3	Mike Hunter		mhunter@intekom.co.za	023 230 1544	It was of paramount importance to show the visual effect of the proposed new power line as it traversed the Tulbagh Valley but this was not done. One cannot make objective comment without seeing this. Hopefully concerned parties will be given the opportunity to view the perspective referred to in "A" above before any decision is taken in the matter		The issue of a lack of visual perspectives of the proposed line through the Tulbagh Valley has been raised by a number of I&APs. It is important to note that a VIA of the proposed transmission line has previously been undertaken in terms of the EIA process. It is not the role of the visual assessment being undertaken in terms of the HIA process to redo this study . Rather the role of this study is to inform heritage issues in terms of a set of defensible visual data. However, it is noted that the technical nature of this information may not be easily accessible to the general public. A range of alternative visual methods have been discussed with ESKOM including photo montages and 3D modelling. However, DEAT DEAT has made a decision that additional visual information is not necessary. (Baumann & Winter Heritage Consultants).	
4	Chris Wright		wright@wcaccess.co.za	022 448 1081	There will be a large impact on the valleys		In terms of the requirement from the heritage authorities for an integrated & visual study, the scope of work for the VIA was informed by heritage issue, i.e. to investigate the potential visual impact on heritage resources ***only - Tassie Clarke (VIA)***	
5	Wendy Upcott		gwenrobin@mweb.co.za.	023 230 0893	I am very concerned about the negative visual impact of huge pylons close to our town, also about potential health risks of living near them	The lines are constructed to have no health risk to any one - E Grunewald (Eskom)	Photographs can be mosaiced together to give a ***subjective impression*** of the impact of the powerlines on the valley, but cannot provide hard data about the actual impact of these structures, and would not satisfy the assessment criteria as set out in the terms of reference - Photographs can be mosaiced together to give a subjective impression of the impact of the powerlines on the valley, but cannot provide hard data about the actual impact of these structures, and would not satisfy the assessment criteria as set out in the terms of reference. A technical drawing showing the shape and dimensions of the pylons to be used for the 756kV line was provided in the original Environmental Impact Assessment - Tassie Clarke (VIA)	

GAMMA OMEGA 765kV Transmission Line : Comments on the Heritage Impact Assessment
SOCIAL COMMENTS

						Specialist Comments		
No.	**Name**	**Affiliation**	**Email**	**Contact No**	**Social**	**Eskom**	**EIA**	**HIA**
1	Esther A Jordan	Manley Wine Estate	esther@lando.co.za		The lines will have a negative impact on tourism	Eskom will do valuations on the impact of land use & will apply the process of payment as per Expropriation Act which takes actual financial loss into account - E Grunewald (Eskom)	Dealt with it in the original EIA report	
2	John Veschini	ETLAC	rockyvalley@telkomsa.net		The impact on tourism, the loss of a potential for long term sustainable jobs as a result of tourism spin-offs, the permanent destruction of a valley steeped in history, the probable destruction of the treasured heritage of the valley as a result of the former & the loss of jobs through much needed development which will have no appeal to investors as a result of the impact of these 'horrific' powerlines that are proposed to traverse through the valley	Eskom will do valuations on the impact of land use & will apply the process of payment as per Expropriation Act which takes actual financial loss into account - E Grunewald (Eskom)	Dealt with it in the original EIA report	
3	Niel de Jager	Chairman, Tulbagh Ratepayers & Inwoners Forum	acdejager@absamail.co.za	023 230 0233	The residents would suffer irreparable loss especially taking into account that Tulbagh is dependent heavily on income produced by tourism. Property value and any other developments like the lifestyle village, golf estate & the Digby will be adversely affected especially as the lines are passing through the golf estate	Eskom will do valuations on the impact of land use & will apply the process of payment as per Expropriation Act which takes actual financial loss into account - E Grunewald (Eskom)	Dealt with it in the original EIA report	
4	George Mills	Chairman, Tulbagh Tourism	suarachas@yahoo.com	023 230 1756	It would appear that no assessment has been made on the impact to the Tulbagh valley on tourism, agri-tourism is the future of this valley and this proposed scheme will have a serious visual impact on the attractiveness of this valley. Negative effect on tourism which is the single largest employer in the Tulbagh valley	Eskom will do valuations on the impact of land use & will apply the process of payment as per Expropriation Act which takes actual financial loss into account - E Grunewald (Eskom)	Dealt with it in the original EIA report	
5	Joe de Villiers / Francis Swanepoel	I & AP	rondawel@lantic.net		The economy & livelihood of many will be negatively affected	Eskom will do valuations on the impact of land use & will apply the process of payment as per Expropriation Act which takes actual financial loss into account - E Grunewald (Eskom)	Dealt with it in the original EIA report	
6	Chris Wright		wright@wcaccess.co.za	022 448 1081	Tourism will be severely impacted	Eskom will do valuations on the impact of land use & will apply the process of payment as per Expropriation Act which takes actual financial loss into account - E Grunewald (Eskom)	Dealt with it in the original EIA report	
7	Wendy Upcott		gwenrobin@mweb.co.za.	023 230 0893	It will have a negative impact on our property prices not to mention future investment in our town and also tourism, from which I make a living	Eskom will do valuations on the impact of land use & will apply the process of payment as per Expropriation Act which takes actual financial loss into account - E Grunewald (Eskom)	Dealt with it in the original EIA report	

						Specialist Comments		
No.	**Name**	**Affiliation**	**Email**	**Contact No**	**Social**	**Eskom**	**EIA**	**HIA**
8	John du Toit		No contact, no email (from the comment form)		Should the proposed northern route be decided upon it would mean that the approved development on Saglevlei / Delta / Schalkenbosch cannot take place, which means ±R2.5 b development loss as well as 800 potential employment loss	The proposed developments will betaken into account when finalising the final alignment of the route - E Grunewald (Eskom)	Dealt with it in the original EIA report	
9	Peter Jackson		No contact, no email (from the comment form)		The original EIA did not take into account the socio economic impacts of R1.2 b investment and ±600 sustainable jobs that would be created by the approved golf course & conservation estate	Eskom will do valuations on the impact of land use & will apply the process of payment as per Expropriation Act which takes actual financial loss into account - E Grunewald (Eskom)	Dealt with it in the original EIA report	
					The choice of the central route will severely impact on the growth of Tulbagh and its tourist potential		Dealt with it in the original EIA report	
10	Christine Bond		No contact, no email (from the comment form)		Why destroy a growing tourism industry by transversing our historical town?			The alternative alignments for the transmission lines do not traverse the historical town of Tulbagh. The main alternative traverses the agricultural setting to the south but will not be visible from the historical core of the town (Baumann & Winter)

GAMMA OMEGA 765kV Transmission Line : Comments on the Heritage Impact Assessment
HERITAGE COMMENTS

						Specialist Comments		
No.	**Name**	**Affiliation**	**Email**	**Contact No**	**Heritage**	**Eskom**	**EIA**	**HIA**
1	John Veschini	ETLAC	rockyvalley@telkomsa.net		The nature of the valley, the scenic beauty, the appeal of the historical town, the architectural treasures etc. will be lost posterity & will also be lost to the community forever		Dealt with it in the original EIA report	
2	Niki de Wolf	Owner of the historic Schoonderzicht Farm & Moniki Chocolatier in Tulbagh	info@schoonderzicht.com	023 230 0673	An alternative route must be utilized, outside of Tulbagh. As the owner of Schoonderzicht - a farm that has been declared a national monument - I am extremely concerned about the negative impact that the proposed Eskom power line will have on the future prospects of our valley and in particular the extremely negative effect it will have on its historical value and growing tourism industry. Eskom assured us the power lines would not have any impact on Schoonderzicht Farm. Now the pylons are going to cross right over historical Steinthal. Schoonderzicht and Steinthal will be impacted immensely. The residents have not been shown what the pylons will look like and where exactly they will be sited. I have requested this information several times especially since Schoonderzicht Farm is so close to the existing pylons.			The heritage scoping report has identified the proposed main alternative through the Tulbagh Valley as a high heritage hotspot in terms of its potential visual impact on experiential qualities of its cutlural landscape, i.e. approach roads, homestead settings, mountain backdrop, intact rural landscape. The proposed alignment of the main and central alternatives do not pass over Steinthal. Steinthall is situated some 2km from the proposed alignment of either alternative. A critical viewpoint analysis of the impact of the central alternative on the Steinthal church indicates a medium to low impact. Views from the Steinthal church will be not affected by the proposed alignment of the main alternative. Of concern is the proximity of the central alternative in relation to the Schooderzicht farmstead,. The line traverses the mountain backdrop within 1km of the homestead. The main alternative is located about 2km away from the homestead (Baumann & Winter).

						Specialist Comments		
No.	**Name**	**Affiliation**	**Email**	**Contact No**	**Heritage**	**Eskom**	**EIA**	**HIA**
3	Henry Aikman	Independent Heritage Specialist	aikman@wol.co.za	023 230 1470	The HIA scoping report does not identify the amount of potential heritage impacts with high significance in the broader Tulbagh region PLEASE SEE FULL REPORT ATTACHED AS ANNEXURE A			The brief for Section E:Historical Overview was to present at a very general level,an overview of the expansion of the settlement from the Cape into the interior,highlighting major events which played a role in that expansion as well as identifying the changing boundaries of the Cape 'Colony',as illustrated for example by the expansion of the adminsitrative centres.The vaste area that was covered by the line,from Melkbosstrand to Victoria West,necessitated the extraction of essential information as far as possible;assessing the historical significance against the remaining historical fabric-be that built environment,routes & outspans or avenues of trees.The bulk of the critism of the historical overview focuses on the Tulbagh valley & its immediate context & an apparant lack of detail;the focus of the study was not on the Tulbagh Valley & as such these details were not included.The purpose of the study as a heritage scoping exercise,was to identify areas of high heritage value which would be negatively impacted by the proposed powerline,to be earmarked for further study.The critism of the overview as a 'meaningless academic exercise' is rendered invalid by the commentator's own 'academic' meanderings & does not warrant any comment. (Harriet Clift)
								The HIA scoping study is not limited to age-based criteria. See also my response to comment from Smith, Nlovu & Summers (Baumann & Winter)
								The consultation process is limited to the appellants as per the instructions from the Minister of DEAT. The need for more extensive consultation including the Drakenstein Heritage Foundation and the Swartland Heritage Foundation need to be discussed with DEAT and HWC (Baumann & Winter)

						Specialist Comments		
No.	**Name**	**Affiliation**	**Email**	**Contact No**	**Heritage**	**Eskom**	**EIA**	**HIA**
								The Schalkenbosch Conservancy and its associated Renosterveld has been added to the Heritage Resource Map for the Tulbagh Valley and will be addressed during the impact assessment phase. This is not strictly a heritage issues by the NHR Act does specify "rare or endangered aspects of SA's natural or cultural heritage" (Section 3.3 b) and demonstrating characteristics of a particular class of SA's natural or cultural heritage" (Section 3.3 d). (Baumann & Winter)
								Mr Aikman's comments regarding the inadequate landscape assessment of the Tulbagh Valley need to be addressed by way of a more detailed landscape character assessment as recommended in the HIA scoping report. This further assessment needs to include the definition of what constitutes the boundaries of a potential Grade 1/2 heritage site. This is not a simple exercise. Some of the information provided by Mr Aikman is useful in this regard but a suggestion that the entire Tulbagh Valley is worthy of a Grade 1/2 heritage status is not supported. Consideration also needs to be given to the fact that a golf estate has now been approved within the southern context of the Tulbagh Valley which has major implications for how the boundaries of the potential Grade 1/2 heritage site are designation. No doubt the gold estate will be excluded from such a designation. (Baumann & Winter)
4	Ashley Lillie	Heritage Specialist			The HIA scoping report deems the impact of the transmission line on Elandsberg Farms to be of medium to high significance, which is incorrect as the Elandsberg Nature Reserve has been declared a provincial nature reserve as well as Natural heritage site PLEASE SEE FULL REPORT ATTACHED AS ANNEXURE B			He takes issue with the fact that the report identifies the potential impact of the southern alternative on the landscape setting of Bosplaas homestead as a MEDIUM to LOW HERITAGE HOTSPOT. This is incorrectly reported as the Historical Built Environment and Landscape Study identifies this as a MEDIUM to HIGH HERITAGE HOTSPOT. (Baumann & Winter)

						Specialist Comments		
No.	**Name**	**Affiliation**	**Email**	**Contact No**	**Heritage**	**Eskom**	**EIA**	**HIA**
								The HIA needs to take into account the heritage significance of the natural landscape comprising the Elandsberg Nature Reserve (Baumann & Winter)
								The HIA needs to take into account the visual impact of the current transmission lines through the property. The additional visual impact of the proposed 765kV transmission line needs to be examined (Baumann & Winter)
								A site inspection needs to be undertaken by the HIA consultants in order to clarify the full nature and extent of the visual/heritage impacts of the southern alternative on the property. *(A site inspection has recently been undertaken by Tassie Clark, Nicolas Baumann & myself - we are of the opinion that the visual impact of the lines on Bosplass homestead are not serious. However, the impact on the cultural landscape as a whole are of concern given the already high visual impact that the existing lines have on the property).* (Baumann & Winter)
								Portions of the property warrant GRADE 2 heritage status. However, the boundaries of this suggested GRADE 2 landscape and the declared Nature Reserve need to be clarified. (Baumann & Winter)
5	Dr John Manning	SA National Biodiversity			The Elandsberg Nature Reserve is a core conservation area for two localised & highly endangered vegetation types in the Western Cape. PLEASE SEE FULL REPORT ATTACHED AS ANNEXURE C			
6	Professor L Mucina	Dept of Botany & Zoology , Univ of Stellenbosch	LM3@sun.ac.za	021-808-3067	The Elandsberg Nature Reserve is home to largest patch of very rare Swartland Alluvial Fynbos and houses also some patches of shale renosterveld, full of species of conservation interest - rare & endemic. PLEASE SEE FULL REPORT ATTACHED AS ANNEXURE D			
7	Anthony Silberg	Director, Tulbagh Heritage Agency	hotcom@telkomsa.net	023 230 0100	Objection of the 765KVA line from Mpumalanga to the Western Cape & the objection of routing the power line through Tulbagh in order to preserve its heritage			According to Mr Silberberg, the Tulbagh Heritage Agency represents a number of parties concerned with the preservation of the heritage of the Tulbagh area. Objections are made to the purported "ill-conceived" nature of the project rather than heritage issues. (Baumann & Winter Heritage Consultants)

						Specialist Comments		
No.	**Name**	**Affiliation**	**Email**	**Contact No**	**Heritage**	**Eskom**	**EIA**	**HIA**
8	Joe de Villiers / Francis Swanepoel	I & AP	rondawel@lantic.net		The heritage of this valley does not only consist of a few homesteads which have been selected by Eskom's consultants. The fact of the matter is that the ENTIRE VALLEY is an important heritage area. A few facts to consider is that this valley was (for many decades) the only gateway to the interior. The first pass (remnants are still visible) through the mountains was at Roodezand / Oude Kloof. The first (and still the only) railway line linking the Cape with the interior is though this valley. My argument is that this unsightly power line will impact on these historical routes as much as they will on the views from selected homesteads, etc. The valley is also home to a number of well-preserved blockhouses along the above-mentioned railway line.			It is inconceivable that anyone who has read the heritage scoping report and its specialist studies can claim that the scope of work has been limited to a few homesteads. From the perspective of the cultural landscape and historical built environment specialist study a wide range of heritage resources were identified including scenic routes, mountain backdrops, significant rural landscapes, historical townscapes, historical farmsteads, historical routes and passes, historical graveyards, VOC outposts, outspans, blockhouses. Furthermore the identification of heritage resources was undertaken at 2 scales, i.e. the broader landscape and individual site scale. In this regard, the specialist study identifies the Upper Tulbagh Valley as a possible Grade 1 heritage resource. The potential visual impact of the proposed transmission line on the historical route network is a key issue addressed in the study (Baumann & Winter Heritage Consultants)
9	Peter Jackson		No contact, no email (from the comment form)		Which of the paths the route of the lines will take? From the perspective of retaining the historical and tourist value of the valley, the Southern alternative route, where the existing pylons stand, would be the least intrusive. The preferred route would have seriously detrimental consequences for the Tulbagh valley as a whole.			The impact assessment phase of HIA process needs to provide a comparative assessment of the alternatives. The focus of the scoping phase has been on the identification of heritage issues and concerns for all the alternatives The proposed alignment of the main alternative through the Tulbalgh Valley has been identified as a high level heritage hotspot which has a potential no-go implication (Baumann & Winter Heritage Consultants).
					The heritage assessment indicate that the central route through the Tulbagh vale impacts the greatest on the heritage value of Tulbagh than the existing Wolesly route			The heritage scoping report identifies the main alternative through the Tulbagh Valley as a high level heritage hotspot as opposed to the southern alternative which is identified as a medium to low level heritage hotspot (Baumann & Winter)
					The demographics of Tulbagh have changed significantly in the last 6 years with a substantial investment being made in restoration & rehabilitation			This matter will be discussed with DEAT. A separate social-economic study was not part of the scope of work for the HIA as discussed with Heritage Western Cape (Baumann & Winter)
					The proposed central route will be built through a 1000ha conservancy placed under the Cape Nature Stewardship and			In response to a request from Baumann & Winter heritage consultants, information

						Specialist Comments		
No.	**Name**	**Affiliation**	**Email**	**Contact No**	**Heritage**	**Eskom**	**EIA**	**HIA**
					containing red book species identified as environmentally sensitive and endangered			has been provided by Mr Jackson which clarifies the nature and extent of the conservancy area (Baumann & Winter).
10	Christine Bond		No contact, no email (from the comment form)		What impact will these powerlines have on the flora, fauna & human habitation?	The line is not planned to cross any towns E Grunewald (Eskom)		These issues were addressed in the EIA process and do not form part of the scope of work for the HIA (Baumann & Winter)
11	Jayson Clark	Secretary of the Tulbagh Valley Heritage Foundation			The TVHH endorses the conclusions reached by the consultants Baumann & Winter that the potential heritage impact of the Main Alternative alignment on the Tulbagh Valley will be high. It also supports the identification of the Tulbagh Valley as a High Level Heritage Hotspot and the implication flowing from this that the Main Alternative alignment through the Valley should be considered a no-go option.			It is noted by Baumann & Winter Heritage consultants that the Tulbagh Valley Heritage Foundation is in support of the findings of the specialist Cultural Landscape and Built Environment study.

GAMMA OMEGA 765kV Transmission Line : Comments on the Heritage Impact Assessment
LEGAL COMMENTS

						Specialist Comments		
No.	**Name**	**Affiliation**	**Email**	**Contact No**	**Legal**	**Eskom**	**EIA**	**HIA**
1	John Veschini	ETLAC	rockyvalley@telkomsa.net		The National Heritage Resource Act (Act 25 of 1999) should be used as a criteria for assessing the heritage significance of a place such as Tulbagh: Its importance in the community or pattern in South Africa's history			To be addressed during the impact assessment phase (Baumann & Winter)
					The National Heritage Resource Act (Act 25 of 1999) should be used as a criteria for assessing the heritage significance of a place such as Tulbagh: Its possession of uncommon, rare or endangered aspects of South Africa's natural or cultural heritage			To be addressed during the impact assessment phase (Baumann & Winter)
					The National Heritage Resource Act (Act 25 of 1999) should be used as a criteria for assessing the heritage significance of a place such as Tulbagh: Its potential to yield information that will contribute to an understanding of South Africa's natural or cultural heritage			To be addressed during the impact assessment phase (Baumann & Winter)
					The National Heritage Resource Act (Act 25 of 1999) should be used as a criteria for assessing the heritage significance of a place such as Tulbagh: Its importance in demonstrating the principal characteristics of a particular class of South Africa's natural or cultural places or objects			To be addressed during the impact assessment phase (Baumann & Winter)
					The National Heritage Resource Act (Act 25 of 1999) should be used as a criteria for assessing the heritage significance of a place such as Tulbagh: Its importance in exhibiting particular aesthetic characteristics valued by a community or cultural group			To be addressed during the impact assessment phase (Baumann & Winter)
					The National Heritage Resource Act (Act 25 of 1999) should be used as a criteria for assessing the heritage significance of a place such as Tulbagh: Its importance in demonstrating a high degree of creative or technical achievement during a particular period			To be addressed during the impact assessment phase (Baumann & Winter)
					The National Heritage Resource Act (Act 25 of 1999) should be used as a criteria for assessing the heritage significance of a place such as Tulbagh: Its strong or special association with a particular community or cultural group for social, cultural or spiritual reasons.			To be addressed during the impact assessment phase (Baumann & Winter)
					The National Heritage Resource Act (Act 25 of 1999) should be used as a criteria for assessing the heritage significance of a place such as Tulbagh: Sites of significance relating to the history of slavery in South Africa			To be addressed during the impact assessment phase (Baumann & Winter)
2	Niel de Jager	Chairman, Tulbagh Ratepayers & Inwoners Forum	acdejager@absamail.co.za	023 230 0233	The study has not been properly done and does not meet the legal requirements and the Record of decision issued in 2006			

						Specialist Comments		
No.	**Name**	**Affiliation**	**Email**	**Contact No**	**Legal**	**Eskom**	**EIA**	**HIA**
3	R.W Summers	Smith Ndlovu Summers Environmental Law Specialists on behalf of Elizabeth Parker, owner of Elandsberg Farms & Nature Reserve	rwsummers@law.co.za	021 424 5826	Consideration of all relevant environmental factors as part of Section 2 of the National Environmental Management Act were not taken into consideration.(RW Summers) PLEASE SEE FULL REPORT ATTACHED AS LETTER TO PD NAIDOO			
					The statutory requirements & the identification & assessment of heritage informants was required to have been undertaken at the earliest possible stage of the project according to Section 38 of the National Heritage Resources Act, 25 of 1999 & section 2 of NEMA.(RW Summers) PLEASE SEE FULL REPORT ATTACHED AS LETTER TO PD NAIDOO			
					The scope of the HIA scoping study was limited to the identification, mitigation & management of heritage resources that are older than 60 years, prehistoric resources that are older than 100 years and paleontological resources that are older than 1000 years and not according to Section 2 of NHRA which defines heritage resource as "any place or object of cultural significance.(RW Summers) PLEASE SEE FULL REPORT ATTACHED AS LETTER TO PD NAIDOO			The HIA scoping report incorrectly states that the scope of work was limited to structures older than 60 years, archaeological and palaeontological resources. However, it is misleading to place too much emphasis on this statement as it is clear from the content of the HIA scoping report and its specialists studies that the scope of work was not limited in terms of the definition of heritage resources. The cultural landscape and historical built environment specialist study addressed a range of heritage resources including scenic routes, mountain backdrops, significant rural landscapes, historical townscapes, historical farmsteads, historical routes and passes, historical graveyards, VOC outposts, outspans, blockhouses. Furthermore the identification of heritage resources was undertaken at 2 scales, i.e. the broader landscape and individual site scale.. The findings of this study have been incorporated into the HIA scoping report including some 20 figures of mapped heritage resources within the study area (Baumann & Winter)

GAMMA OMEGA 765kV Transmission Line : Comments on the Heritage Impact Assessment
TIME COMMENTS

						Specialist Comments		
No.	**Name**	**Affiliation**	**Email**	**Contact No**	**Time**	**Eskom**	**EIA**	**HIA**
1	John Veschini	ETLAC	rockyvalley@telkomsa.net		The time period given for comment should be extended to 30 January 2009, as it is inconveniently timed to coincide with the December Holiday	End of Jan 09 will be acceptable E Grunewald (Eskom)		
2	Niel de Jager	Chairman, Tulbagh Ratepayers & Inwoners Forum	acdejager@absamail.co.za	023 230 0233	Request of an extension of time to the 30 Jan 09 for further consultations with lawyers			
3	Niki de Wolf	Owner of the historic Schoonderzicht Farm & Moniki Chocolatier in Tulbagh	info@schoonderzicht.com	023 230 0673	Request an extension of at least a month for the public comments from the 12th Jan 09 due to not being able to download the HIA scoping report due to the size and the hard copy only delivered after Christmas			
4	Anel Powell	Senior Writer, Cape Times	anel.powell@inl.co.za	021 488 4717	Will there be an extension of time?			
5	Joe de Villiers / Francis Swanepoel	I & AP	rondawel@lantic.net		Request an extension of time till 30 Jan 09			
6	Chris Wright		wright@wcaccess.co.za	022 448 1081	Not received official notification of the extension date of the 12th Jan 09, therefore request an extension of time for comments until end of Jan 09			

GAMMA OMEGA 765kV Transmission Line : Comments on the Heritage Impact Assessment
CONSULTATIONS COMMENTS

						Specialist Comments		
No.	**Name**	**Affiliation**	**Email**	**Contact No**	Consultations	**Eskom**	**EIA**	**HIA**
1	John Veschini	ETLAC	rockyvalley@telkomsa.net		Eskom has failed to adequately consult with the community that could be affected by the lines in terms of the laws governing an HIA application in terms of the act			
					Most of the consultation process revolved around the North & North centre of the of the valley of Tulbagh ,on the assumption that only communities and I&AP's threatened by the preferred route need to be consulted and provided for in the HIA documentation whereas there is also communities on the south valley			
					Hardly anyone in the path of the preferred route who stand to be visually impacted by the powerlines in the Ceres, P A's Hamlet & Gydo Pass areas as well as southwards in the Riebeck valley even know of the intended power line, the route it will take, how high it will be & what it would look like, and no proper Critical Viewpoint has been provided to those communities. They are being denied the opportunity to comment in terms of the HIA application, as they were in terms of the EIA application.			
					Nobody in the Witzenberg Municipality apparently knew about the HIA application until I made them aware of it. They are major role players. Were they specifically invited to attend the presentation on the 24 Nov 2008? Where they on the I&AP's list? I believe not? Was everyone or every organisation who have appealed against the ROD invited as I & A Parties? I believe not?			
2	R.W Summers	Smith Ndlovu Summers Environmental Law Specialists on behalf of Elizabeth Parker, owner of Elandsberg Farms & Nature Reserve	rwsummers@law.co.za	021 424 5826	The public participation process was inadequate and not according to Section 38(3)(e) of the NHRA Section 2(4) of NEMA. SEE FULL REPORT ATTACHED AS LETTER TO PD NAIDOO			
3	Chris Wright		wright@wcaccess.co.za	022 448 1081	The areas of Riebeek Valley & Gouda have not been informed about the public meetings			

GAMMA OMEGA 765kV Transmission Line : Comments on the Heritage Impact Assessment
ESKOM PLANNING COMMENTS

						Specialist Comments		
No.	**Name**	**Affiliation**	**Email**	**Contact No**	Consultations	**Eskom**	**EIA**	**HIA**
1	Esther A Jordan	Manley Wine Estate	esther@lando.co.za		I feel concern for the owners of Kloofzicht, Schalkenbosch & Schoongezicht etc and hope that most serious consideration will be given when deciding on the final route these pylons are expected to take.			
2	John Veschini	ETLAC	rockyvalley@telkomsa.net		The scoping documents refers to Critical Viewpoint Analysis, and yet no such analysis is evident in the data discs.			
					The Critical Viewpoint Analysis photos in the document are misleading to the public for two reasons: The viewpoint in respect to Gouda,Tulbagh,Wolseley,Ceres,P A Hamlet areas etc is taken from such a height so as to limit the real visual impact and also the power line structures depicted in the photographs do not appear to relate to the type & size of the intended power line structures & appear to rather be standard photos taken of 25m 400kv power lines such as those near Wolseley.			
					Eskom has used what I term "underhanded & bullying" tactics from day one of the EIA process. Officials telling farmers "you can sign the Servitude document as your neighbour has signed" when in fact it was not true, was one of the tactics.			
					The current route map has apparently deviated substantially towards Gouda from initial route maps provided by Eskom and in fact will now traverse a residential area. That community had not been consulted about the impact of the power line then & now with this HIA application either. Thus how can I & AP's in that area be determined in terms of tha HIA application?			
					Place the line underground for the long term benefit of this community, the public of South Africa & Eskom in terms of maintenance costs & risks to the line & this nightmare might goo away or atleast for the Tulbagh residents & those needing power soon as a result of the apparently atrocious forward planning by Eskom that we have all been made aware of.			
3	Niki de Wolf	Owner of the historic Schoonderzicht Farm & Moniki Chocolatier in	info@schoonderzicht.com	023 230 0673	Eskom has assured us the power lines would not have any impact on Schoonderzicht Farm. We now know that the pylons are going to cross right over historic Steinthal who is our neighbor. Steinthal & Schoonderzicht will be impacted immensely			

						Specialist Comments		
No.	**Name**	**Affiliation**	**Email**	**Contact No**	Consultations	**Eskom**	**EIA**	**HIA**
		Tulbagh						
4	George Mills	Chairman, Tulbagh Tourism	suarachas@yahoo.com	023 230 1756	I propose that an alternative route be utilised thereby removing (or atleast reducing) the adverse impact on Tulbagh's thriving industry. Alternatively a new Social & Environmental Impact Study must be carried in order to reassess the viability of the preferred route given how critically important Tourism has become to Tulbagh's community & its fragile economy since the initial findings of 2002.			
5	R.W Summers	Smith Ndlovu Summers Environmental Law Specialists on behalf of Elizabeth Parker, owner of Elandsberg Farms & Nature Reserve	rwsummers@law.co.za	021 424 5826	The alternative route alignment for the 765kV transmission line utilised for the purposes of the HIA Scoping report fail to take into account the document entitled Report on Alternatives prepared by Eskom in 2004. In terms of the latter document, Eskom amended the original route alignments apparently in order to take into account concerns then raised by certain interested & affected parties in the Tulbagh valley. The final route identified by Eskom in the Report on Alternative as the preferred route differs markedly from the proposed alternative route alignments on the basis of the EIA process. SEE FULL REPORT ATTACHED AS LETTER TO PD NAIDOO			
6	Anthony Silberg	Director, Tulbagh Heritage Agency	hotcom@telkomsa.net	023 230 0100	It is clear that the structure & the composition of the generation philosophy & plants needs to be set & agreed before transmission grid is developed			
					The volatility in energy prices for fossil fuels is such that alternatives must be developed			
					If more nuclear alternative plants are developed at the coast there would be no need for expanding the transmission capacity	Even if new nuclear comes to W. Cape the line will be required to evacuate power to the inland, until then the line is required to transmit electricity to meet the growing demand in the W. Cape - E Grunewald (Eskom)		
					The one option would be to shelve to a 765 kV until a comprehensive energy plan is agreed			

						Specialist Comments		
No.	**Name**	**Affiliation**	**Email**	**Contact No**	Consultations	**Eskom**	**EIA**	**HIA**
					At the presentation held at Morgansvlei we were assured that Eskom would develop nuclear generating plants in the Western Cape effectively doubling Koeberg's capacity to 3600 Mega watts. Yet barely two weeks later news reports intimated that Eskom was shelving the entire nuclear programme. This raises the question once again if Eskom has any idea at all of what it proposes.			
					It is no brainer that in view of the instability & fluctuations in the price of coal it is not rational & logical to put all your eggs in the fossil fuel generating basket. To only develop coal fired systems in Mpumalanga & then route power over 1500 km to the Western Cape indicates a severe lack of strategic planning competence. Furthermore there will be ongoing security problems to protect these lines from possible sabotage.			
					If however in spite of all the logical reasons Eskom still arrogantly continues to go ahead with the 765 KVA line it should follow the same route of the present 499KVA line. The reasons given for the need to divert the line through the Tulbagh are ill considered and feeble. It will be far simpler to overcome these problems & use the existing route			
7	Joe de Villiers / Francis Swanepoel	I & AP	rondawel@lantic.net		What is the possibility of putting the cables in a dark colored pipe running underground?	Underground cannot be financially accommodated and would also have a bigger visual impact because of the 2 x substations that would be required - E Grunewald (Eskom)		
8	Wendy Upcott		gwenrobin@mweb.co.za.	023 230 0893	Why can't the existing route through the valley be followed?			

GAMMA OMEGA 765kV Transmission Line : Comments on the Heritage Impact Assessment
DIGITAL PHOTOS COMMENTS

						Specialist Comments		
No.	**Name**	**Affiliation**	**Email**	**Contact No**	Consultations	**Eskom**	**EIA**	**HIA**
1	Esther A Jordan	Manley Wine Estate	esther@lando.co.za		Have a 3D perspective of the Tulbagh Valley with the proposed pylons superimposed in their positions so that we can have a better understanding of exactly were these pylons will be located & a view of how they will look			
2	John Veschini	ETLAC	rockyvalley@telkomsa.net		Requests to Eskom & its consultants to provide better photographs than those that were depicted in the mapping document placed in the local library (which were inadequate, hardly visible & doubted to be accurate depictions of the proposed powerline & the Tulbagh valley			
3	Niel de Jager	Chairman, Tulbagh Ratepayers & Inwoners Forum	acdejager@absamail.co.za	023 230 0233	Although it has been requested on numerous occasions for us to have some indication as to what this power line would look like, either in the form of an artist's impression or computer generated images, we have had no reaction from Eskom or the consultants.			
4	Niki de Wolf	Owner of the historic Schoonderzicht Farm & Moniki Chocolatier in Tulbagh	info@schoonderzicht.com	023 230 0673	I also want to make note of the fact that Eskom has not made any effort to show residents what the pylons will look like & where exactly they will be sited			

GAMMA OMEGA 765kV Transmission Line : Comments on the Heritage Impact Assessment
OTHER COMMENTS

						Specialist Comments		
No.	**Name**	**Affiliation**	**Email**	**Contact No**	**Other**	**Eskom**	**EIA**	**HIA**
1	John Veschini	ETLAC	rockyvalley@telkomsa.net		The Power Line project is of importance to all who will suffer from the sight as well as other negative impacts-not atleast probable health issues	Health is not an issue because the line is built to avoid this .E Grunewald (Eskom)	Dealt with it in the original EIA report	
					An airstrip that has been used for years by the farming community of the Tulbagh valley for their crop spraying needs and other negative visual cultural landscape have not been identified in the report	We would have to accommodate airstrips in finalising the alignment of the route E Grunewald (Eskom)	Dealt with it in the original EIA report	
2	Niki de Wolf	Owner of the historic Schoonderzicht Farm & Moniki Chocolatier in Tulbagh	info@schoonderzicht.com	023 230 0673	The EIA process which Eskom has followed so far has been inadequate and unfair			
3	George Mills	Chairman, Tulbagh Tourism	suarachas@yahoo.com	023 230 1756	The Social & EIA carried out in 2002 was conducted at a time when tourism was far less important to Tulbagh's social & economic environment and way before the ROD at Schalkenbosch. In the past 5 years the local economy has been transformed by the growth o			
4	R.W Summers	Smith Ndlovu Summers Environmental Law Specialists on behalf of Elizabeth Parker, owner of Elandsberg Farms & Nature Reserve	rwsummers@law.co.za	021 424 5826	Failure to make hard copies of the HIA scoping report timeously available has made it difficult for the client to assess the contents of the report SEE FULL REPORT ATTACHED AS LETTER TO PD NAIDOO		Hard copies of all documents were provided to Eskom in plenty of time for public consultation - Tassie Clarke (VIA)	
5	Anel Powell	Senior Writer, Cape Times	anel.powell@inl.co.za	021 488 4717	What is the estimated cost of the project & when will a decision be made on the proposed transmission line?			
6	John Haddad		john.haddad@pamgolding.co.za	082 345 2258	What are the health implications on the population living nearby the powerlines and how far does one need to be to the lines for them to be a health risk?	The lines are constructed to have no health risk to any one - E Grunewald (Eskom)		
7	Christine Bond		No contact, no email (from the comment form)		How do you camouflage a 48m construction so that people will not see it?	The best camouflage for the towers is to leave the tower to oxidise, which then blends into background vegetation - E Grunewald (Eskom)		

SECTION N: POSITION STATEMENT

This position statement is derived from the reports submitted by the heritage specialists who worked on the project. It is a synthesis of their conclusions and is made available to the heritage authorities so that they can make an informed judgment about the nature, extent and impact that the Gamma-Omega Transmission Line will have on local, regional and national heritage resources in the Western and Northern Cape.

Transmission lines of various scales are a common feature across the South African landscape. They are also a feature of sections of the Swartland, Boland and Karoo landscapes of the Western Cape. However, they are limited in scale and have tended to merge into the landscape. A 700k V transmission is, however, a substantial infrastructural intervention, significantly larger than the 400 kV transmission lines which currently traverse areas of the Western Cape. An infrastructural intervention of this scale and nature will alter to varying degrees the character of the landscapes which they traverse. They will also lead to cumulative impacts due to the fact that the alignment of an existing transmission line is likely to serve as the preferred alternative for any future upgrades thereof.

The preferred alignment of a transmission line across a landscape needs to take into account a range of issues, namely the acquisition of land, economic viability, geotechnical constraints, ecological constraints, potential social-economic impacts, health and safety requirements, visually sensitive areas, and cultural heritage constraints. However, it is only since the promulgation of the NHRA ct in 1999 that cultural heritage issues have begun to be addressed. While the emphasis in heritage assessments has been on archaeological issues, the cultural landscape and historical built environment has been largely ignored. The heritage management measures for addressing impacts on archaeological and palaeontological resources are very different from addressing impacts on the cultural landscape and historical built environment. The latter cannot be easily mitigated due to the visual-spatial nature of such impacts, which can often only be minimised through substantial realignment.

The placement of transmission lines underground is not necessarily a suitable alternative for addressing visual impacts, especially within sensitive rural or natural landscape contexts. This alternative would require the construction of two substantial substations either end of an underground tunnel and would effectively sterilise the servitude for continuing agricultural purposes. The financial implications would be prohibitive.

The existing 400kV lines through the Western Cape traverse a diverse range of cultural landscapes and provide some important lessons with regard to the alignment of transmission lines from a cultural landscape and built environment perspective. In this regard, the broad expansive areas of the karoo appear to more easily accommodate infrastructural intrusions than the discrete valley systems contained within the Mountain Region or the sensitive mountain slope conditions of the Swartland, especially where there is no evidence of previous infrastructural interventions. On the other hand, there are rural and wilderness landscapes of special heritage significance in terms of their intactness, representivity and integrity, which are worthy of being considered formal protection as local, provincial and national heritage resources. Increasingly these

landscapes are under pressure from amenity seeking development which threatens to destroy the very qualities which make them so special. Large scale infrastructural developments across these few remaining intact landscapes must be avoided, not only from heritage perspective but also because of a potential loss to the economic base of these landscapes through impacts on their cultural tourism.

In terms of generally accepted HIA practice, which has been endorsed in terms of DEA&DP's Guidelines for Involving Heritage Specialists in EIA processes, heritage specialist input should occur at the earliest possible stage in the project cycle in order to guide and add value to the proposed project and to identify major heritage issues or potential fatal flaws. Heritage specialist input in this project has occurred at a very late stage in the project cycle, which has limited its capacity to be proactive rather than reactive to a number of predetermined route alternatives. Despite this limitation, it has not precluded, as part of a scoping phase in the heritage assessment process, the alternatives or sections thereof being considered as no-go options and thus requiring substantial modification through realignment.

In this regard, there are sections of both the primary route alternatives, which are highly problematic from a cultural landscape and historical built environment perspective in terms of their potential **high to medium high heritage impacts.** These are located within the Swartland and Mountain Regions extending from Oliphantskop to Theronsberg Pass which constitute approximately 112km or 20% of the entire study corridor. Realignment of both these alternatives would be required in order to adequately mitigate their impacts. It is thus recommended that this section of the study corridor be subject to further assessment, including the selection of more suitable alternative alignments from a cultural landscape and historical built environment perspective. This should preferably occur in terms of an integrated environmental assessment process.

Within approximately 458km or 80% of the study corridor through extensive Karoo landscapes, potential heritage impacts on the cultural landscape will be of a **low to medium level.** The mitigation of these impacts could be accommodated through minor adjustments to the alignment and also detailed measures at a site specific level. Consideration should thus be given to the conditional endorsement of this major section of the study corridor in order that detailed planning including the satisfaction of EMP requirements can proceed without unnecessary delay.

From a palaeontological and archaeological perspective the potential impact on fossil remains and cultural material is of a **high to medium level** however the ultimate selection of routes is immaterial. Unlike built environment resources they lend themselves well to mitigation of impacts in the form of collection and removal from there original position, for the purpose of research and curation. The professional mapping and collection of these resources would contribute to an understanding of both the natural and cultural environment in the Western and Northern Cape. It is therefore recommended that a second phase of investigation, at field sampling level be implemented.

Mary Patrick, Sarah Winter & Nicolas Baumann
Cape Town, March 2009

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M1/136	1890	Tulbagh area
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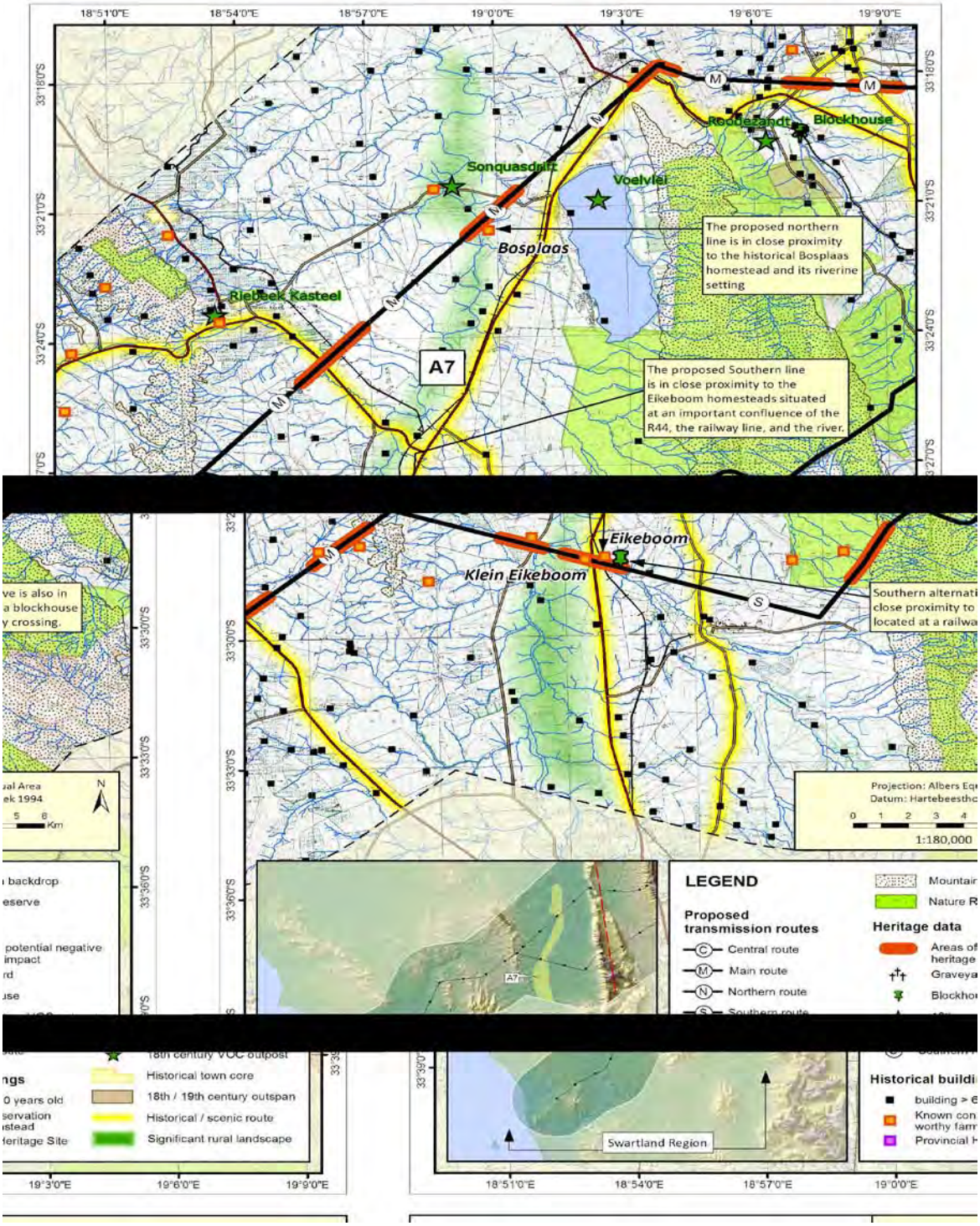

Figure J5: Berg River Corridor – Issues and Concerns

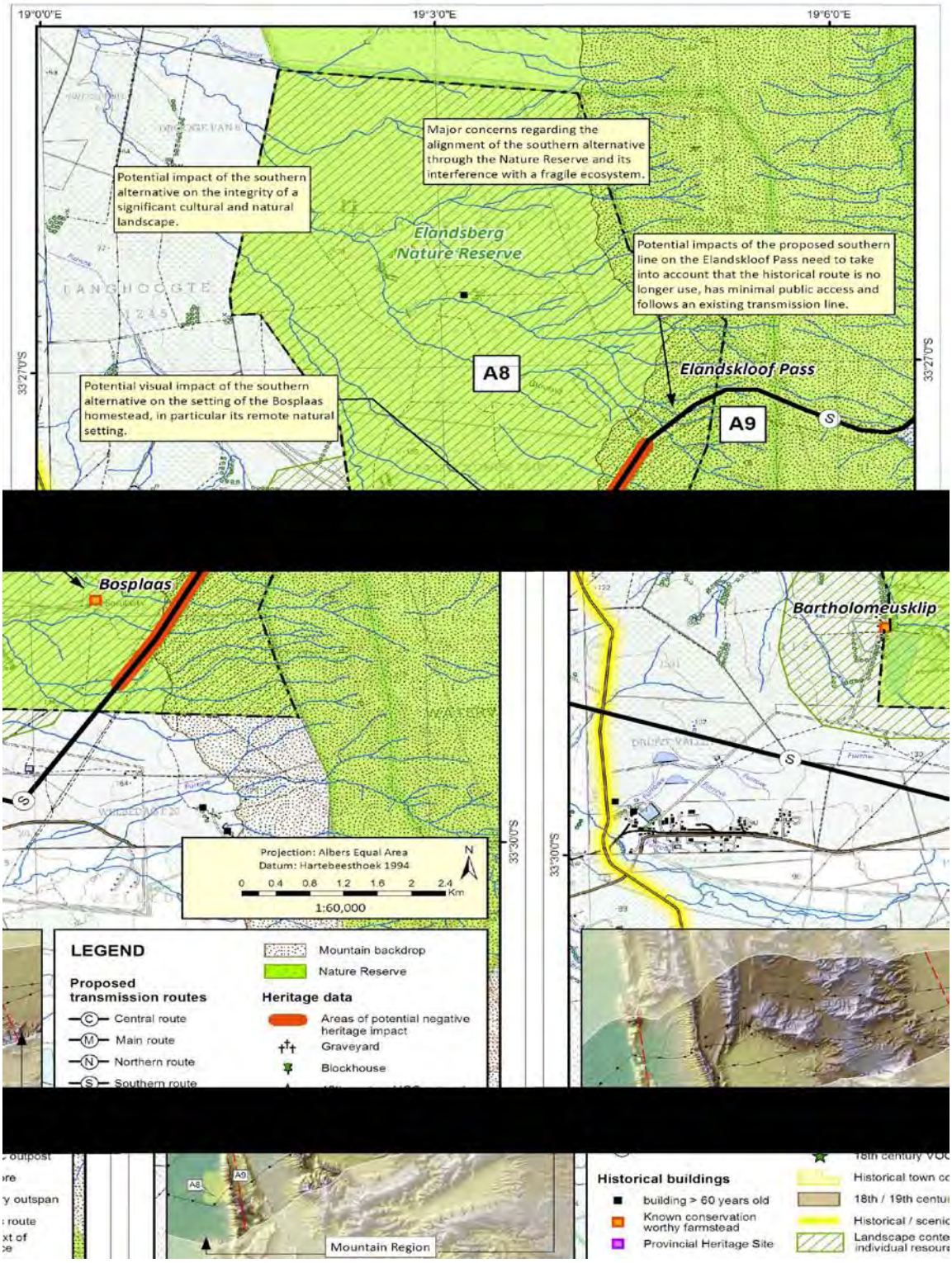

Figure J6: Elandberg/Bartholomeusklip Nature Reserve – Issues and Concerns

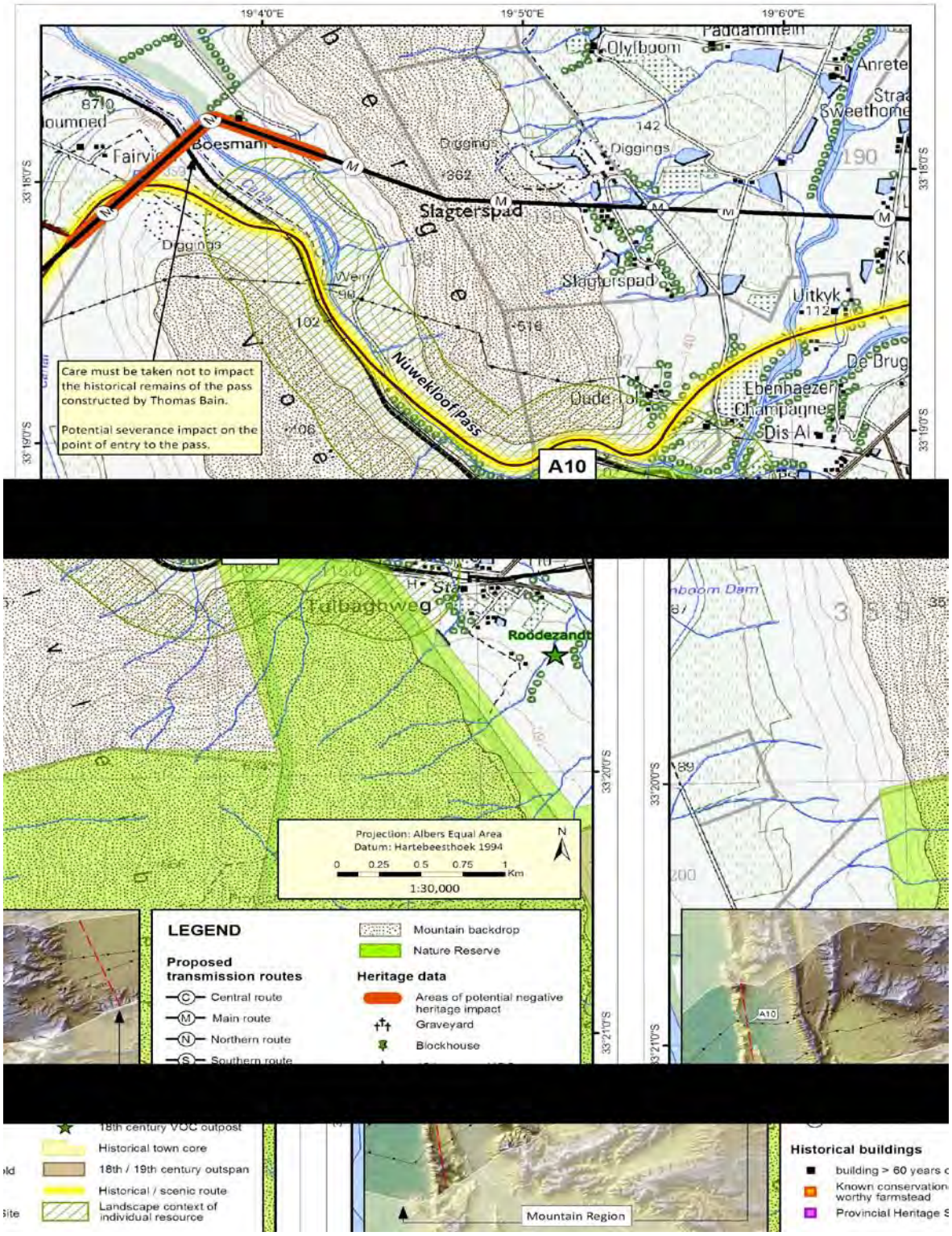

Figure J7: Nuwekloof Pass – Issues and Concerns

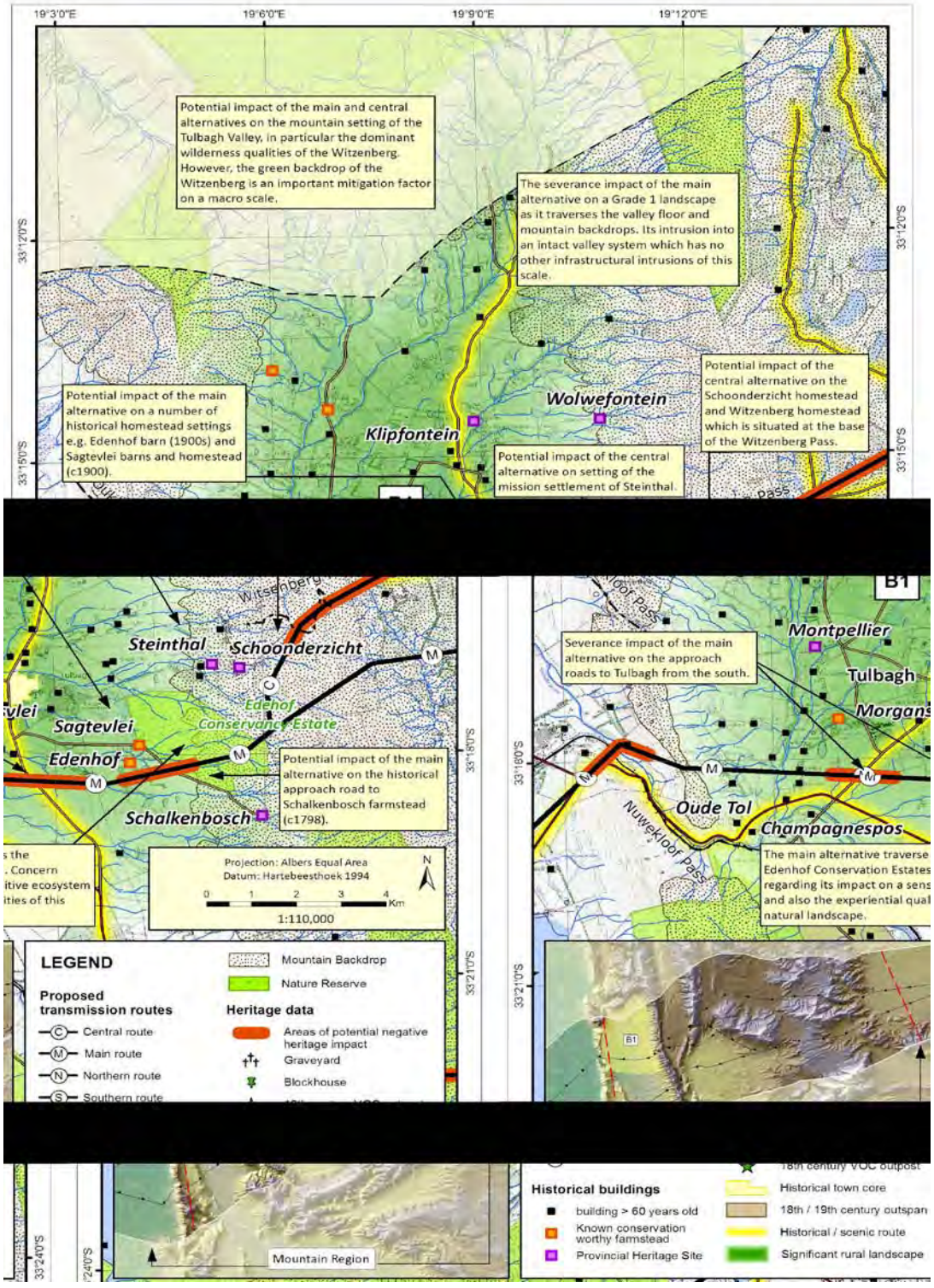

Figure J8: Tulbagh Valley - Issues and Concerns

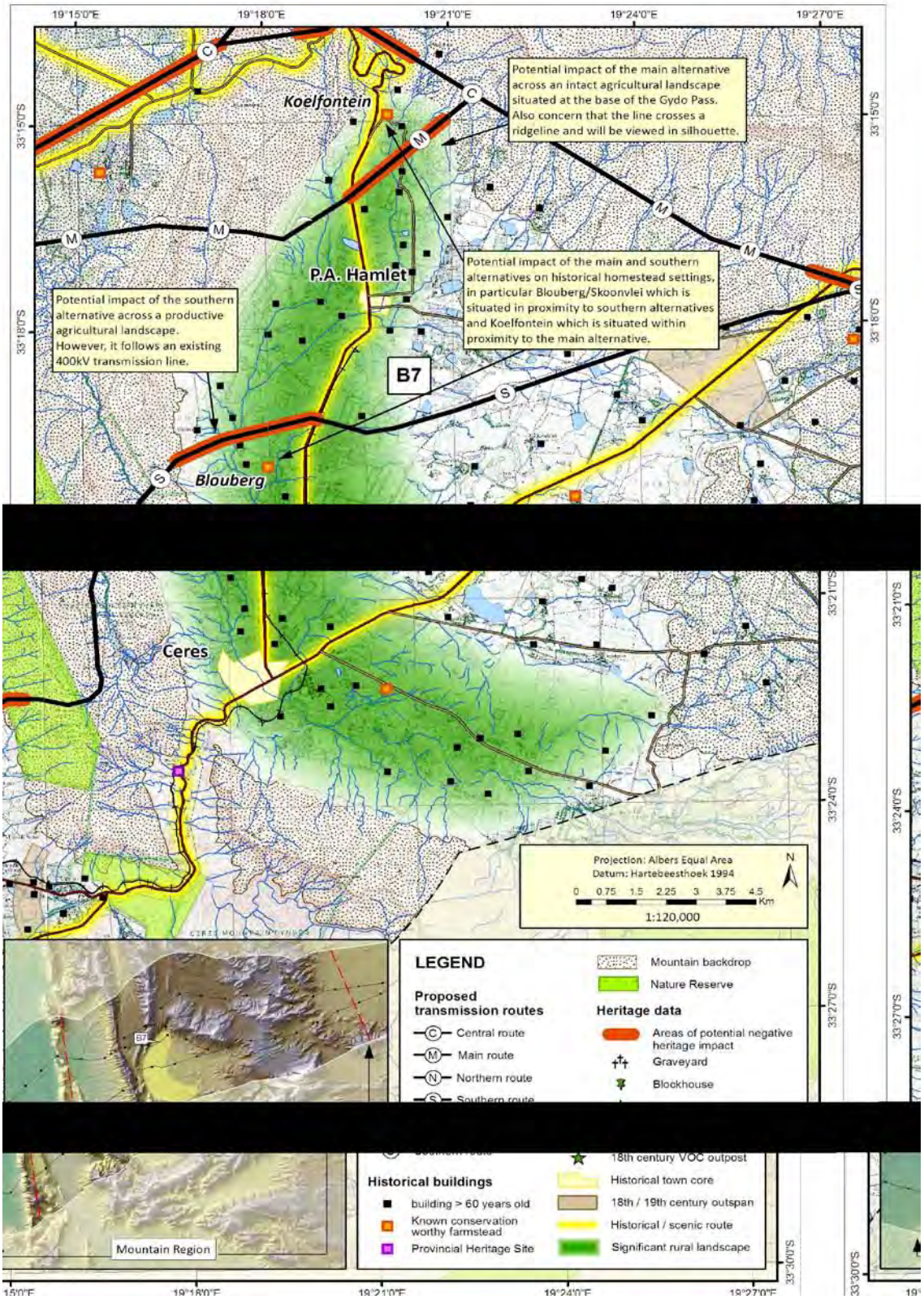

Figure 12: Ceres Valley – Issues and Concerns

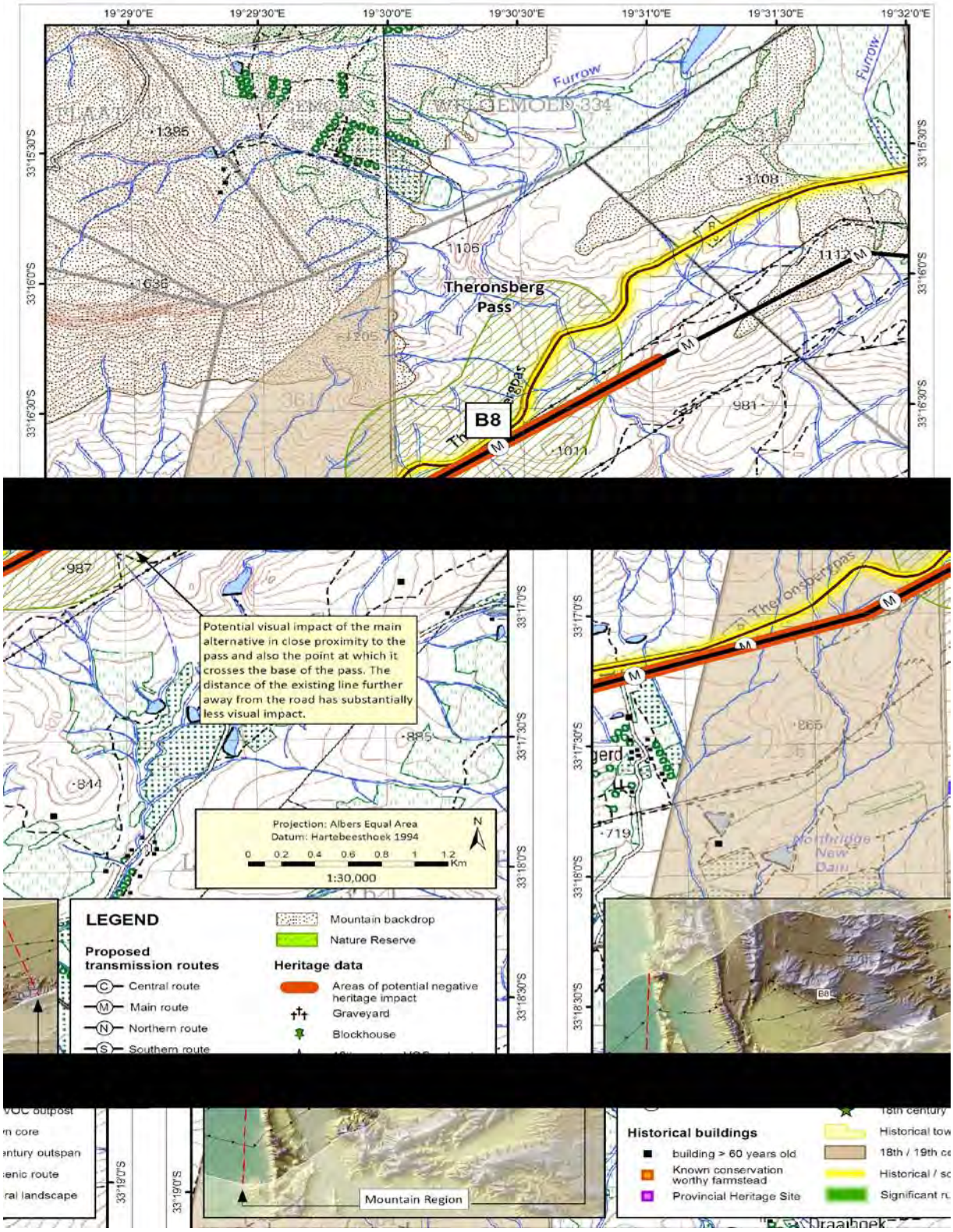

Figure J13: Theronsberg Pass – Issues and Concerns

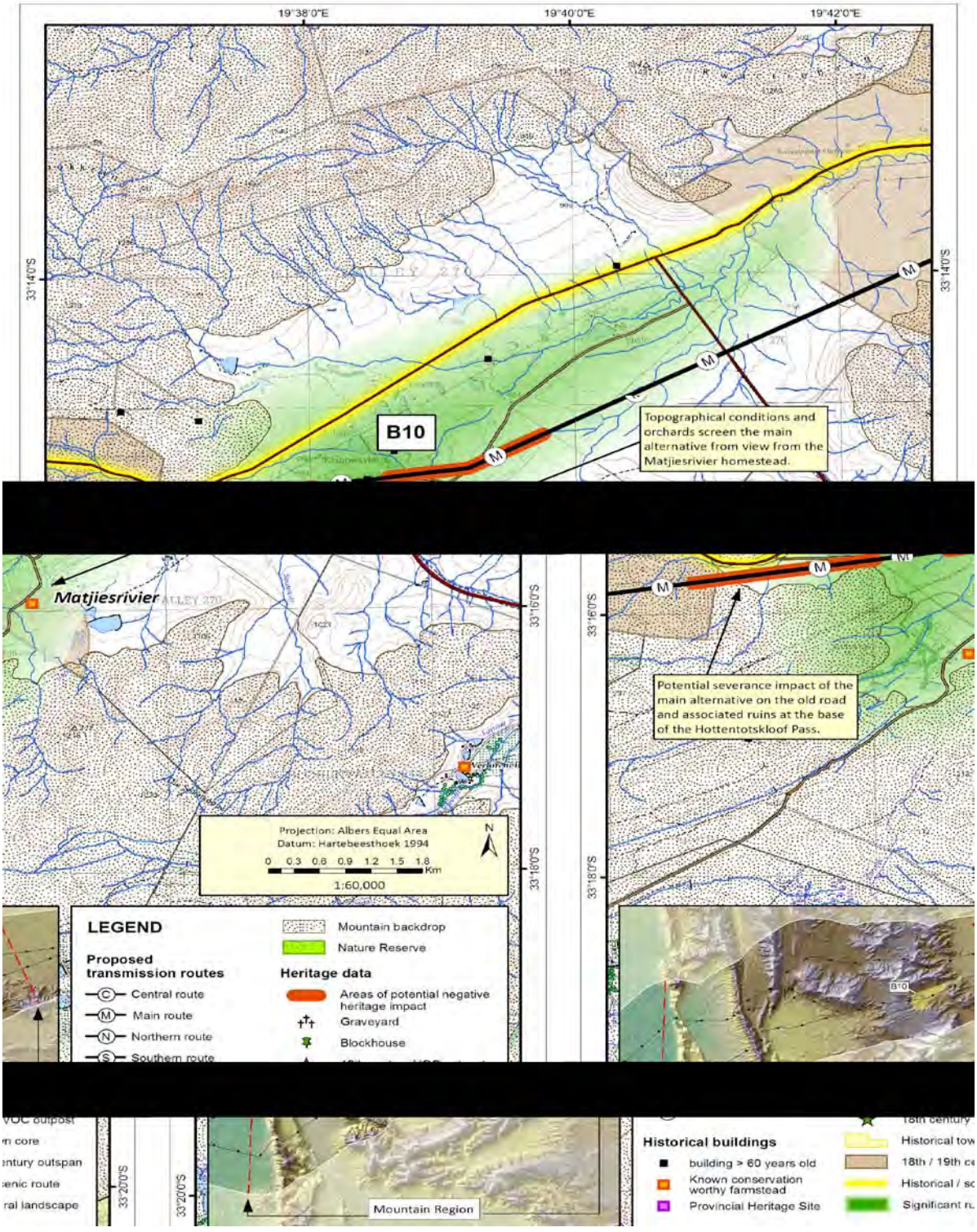

Figure J14: Bo-Swaarmoed Valley – Issues and Concerns

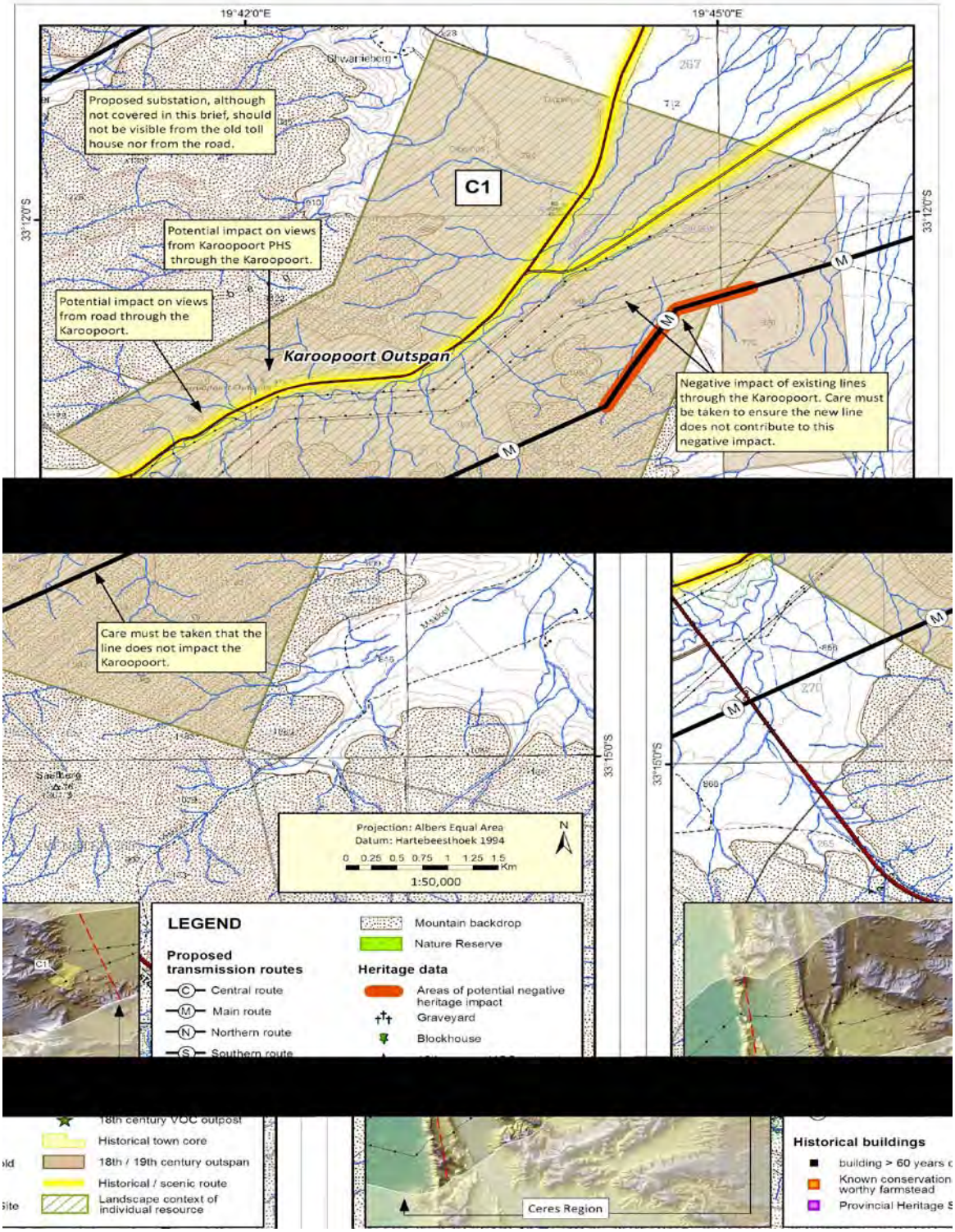

Figure J15: Karoopoort Outspan – Issues and Concerns

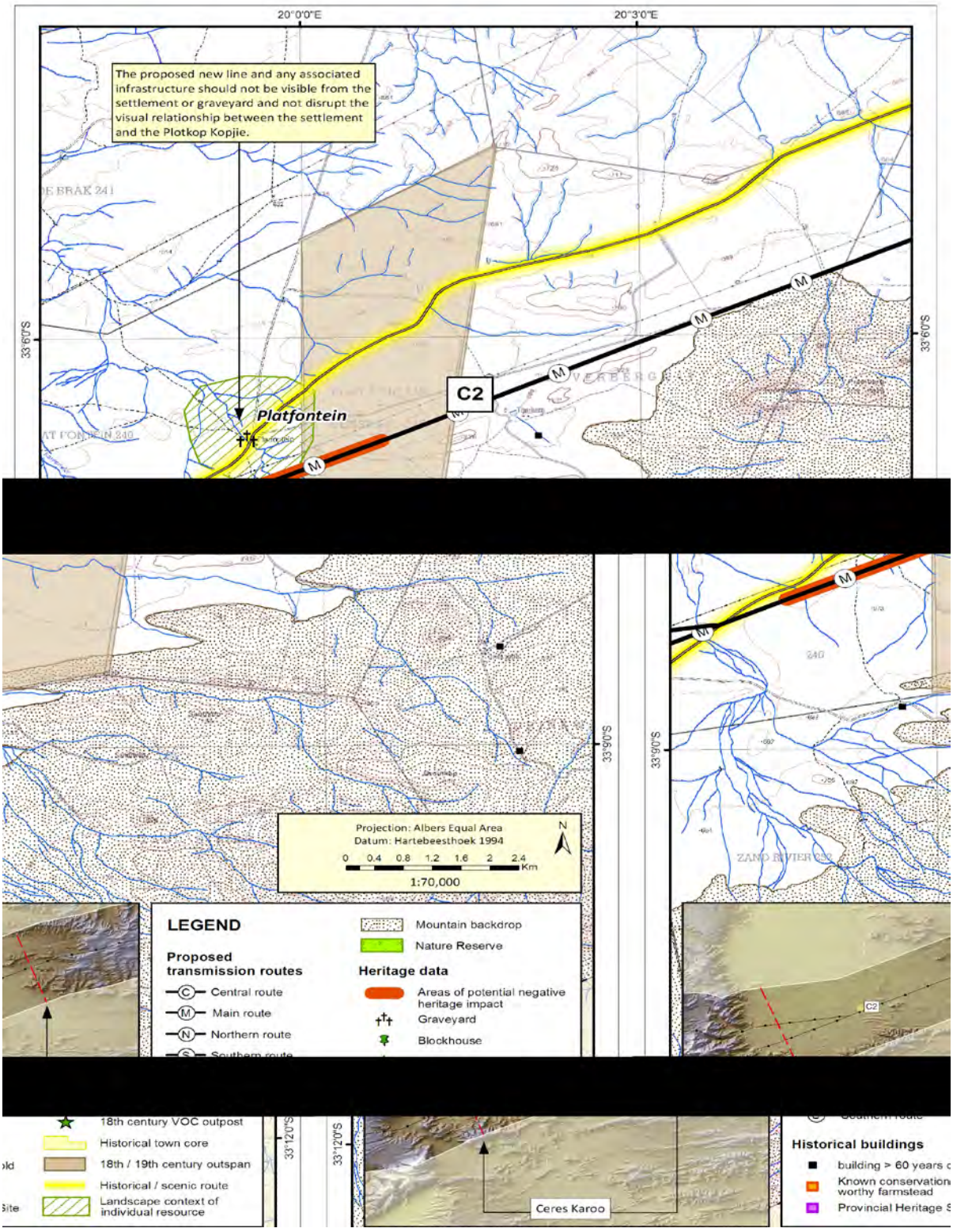

Figure J16: Platfontein Outspan – Issues and Concerns

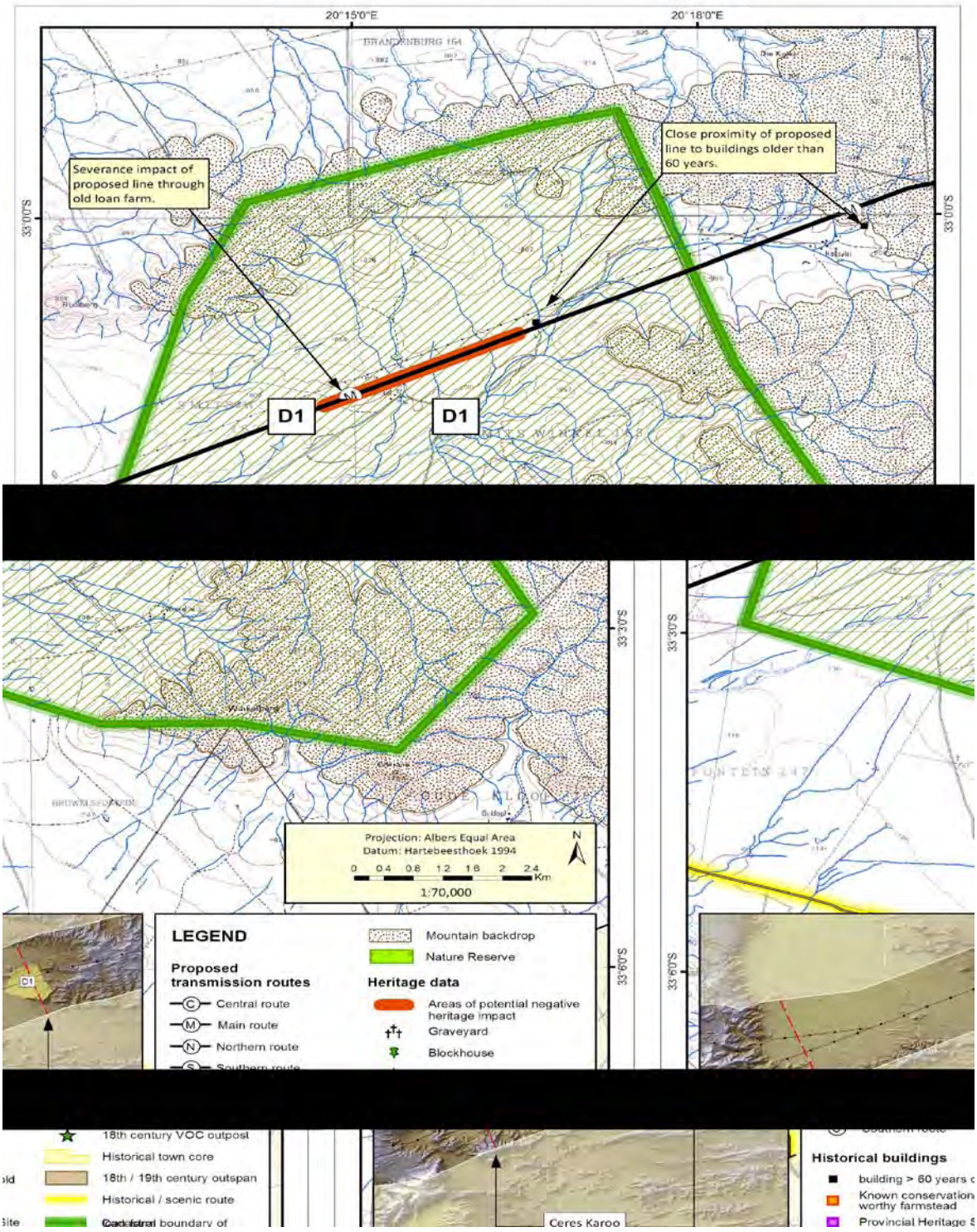

Figure J17: Smitswinkel Loan farm – Heritage Issues & Concerns

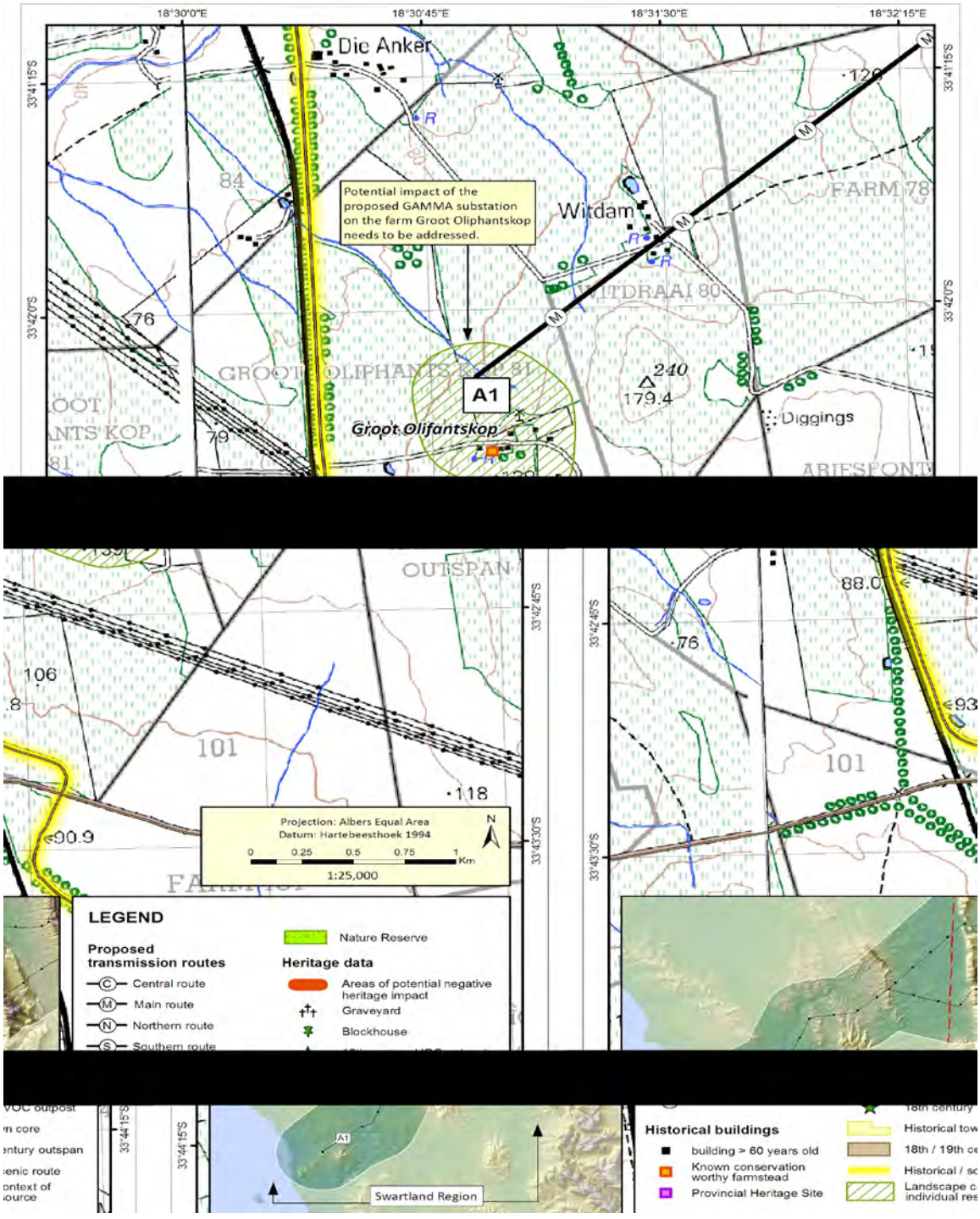

Figure J1: Groot Olifantskop – Issues and Concerns

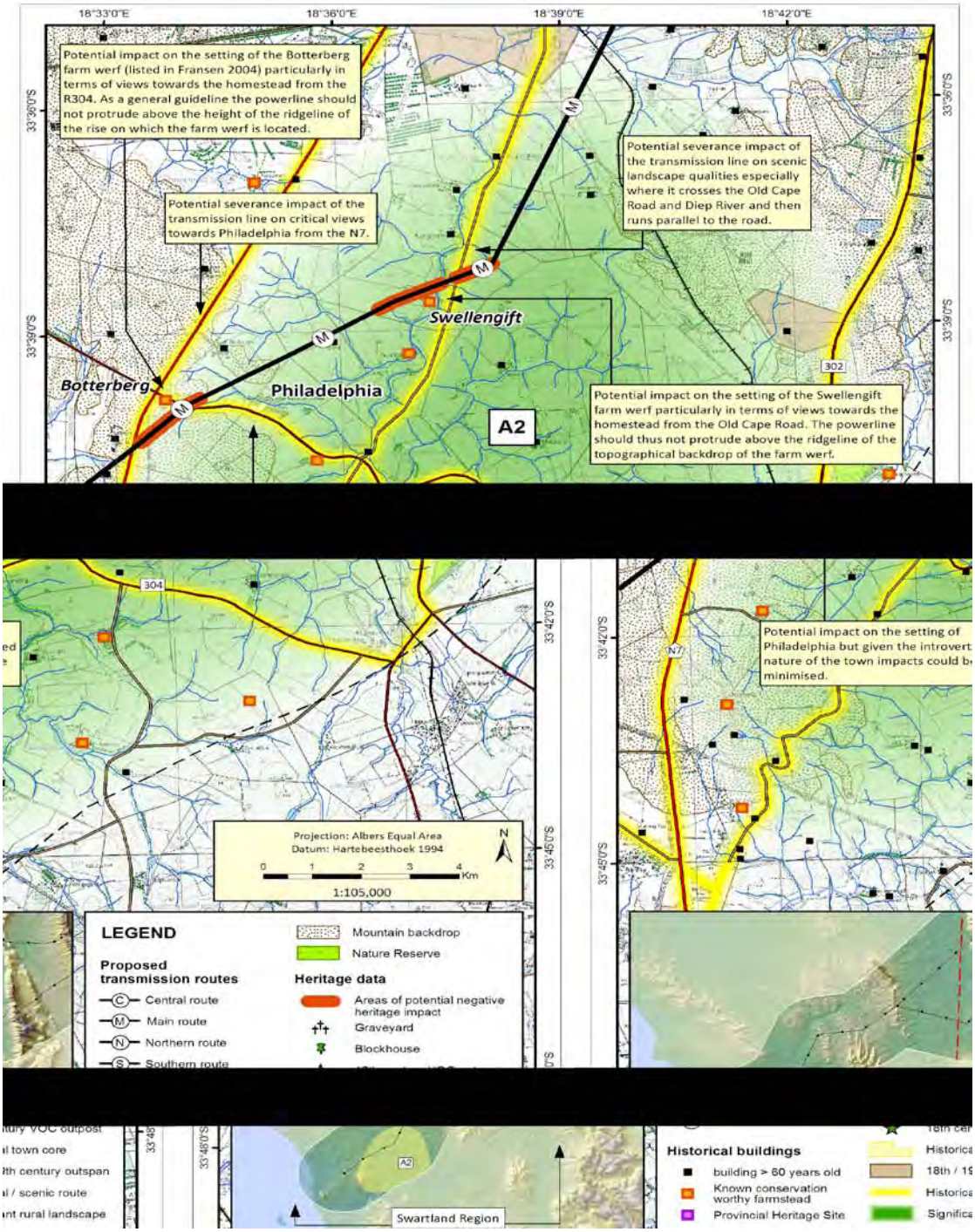

Figure J2: Koeberg: Issues and Concerns

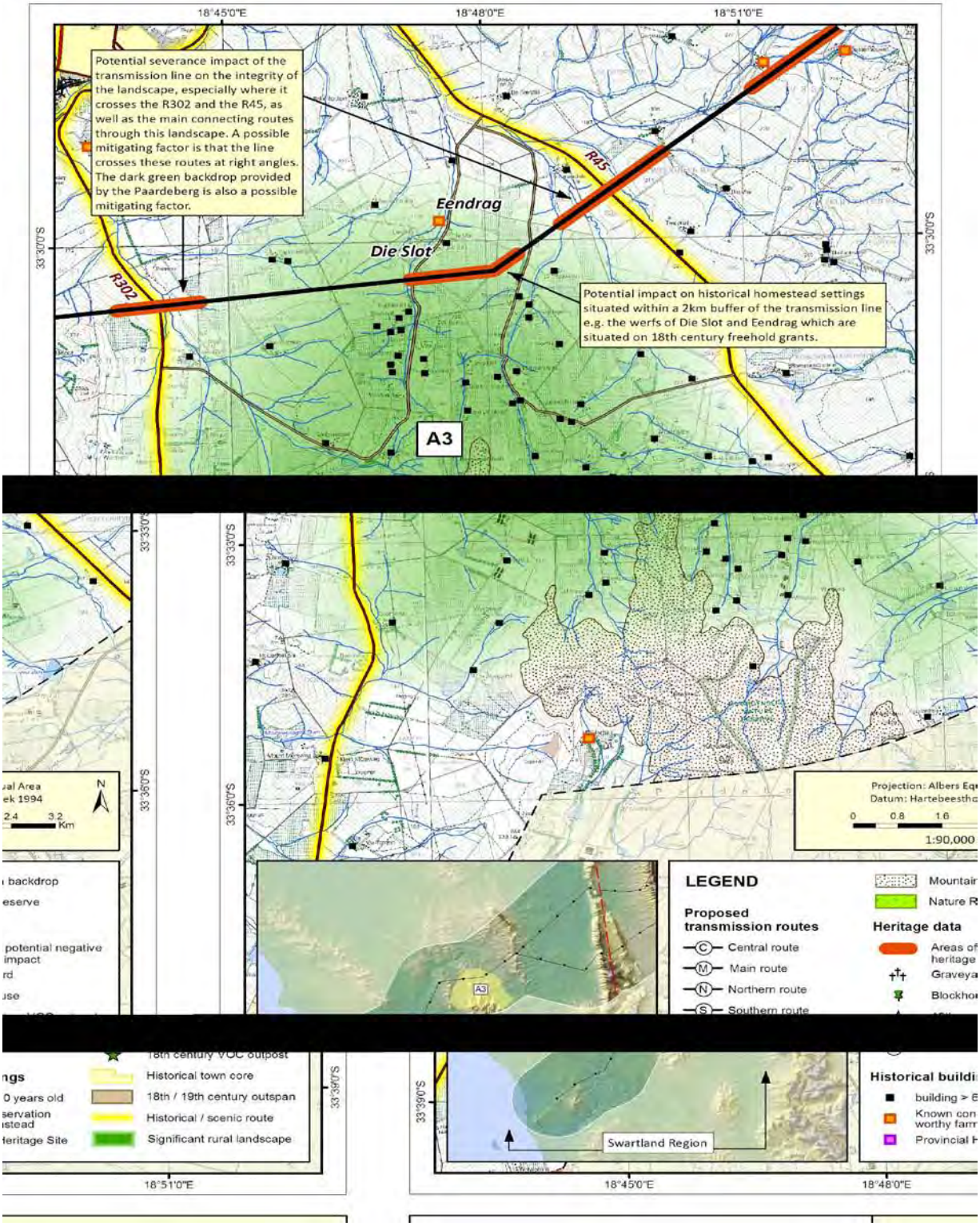

Figure J3: Paardeberg Slopes – Issues and Concerns

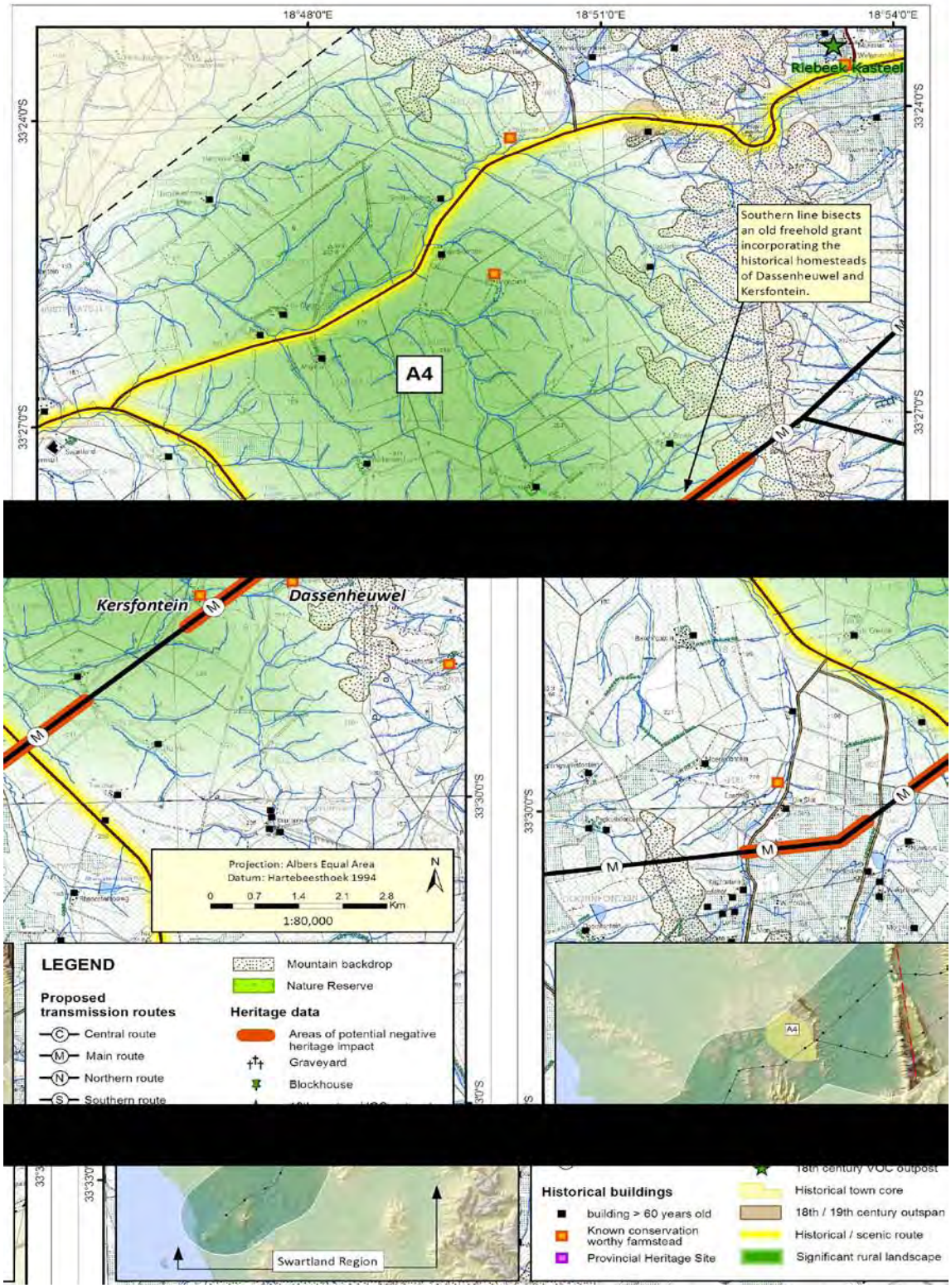

Figure J4: Malmesbury Foothills – Issues and Concerns

Appendix 6: to Volume 1

Public Comment 2008-9
Final Scoping Heritage Impact Assessment
Gamma-Omega Transmission Line

Submitted to HWC & SAHRA

March 2009

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SECTION P: APPENDICES

Appendix 1: Gamma Omega Heritage specialist report prepared by the Agency for Cultural Resource Management (December 2001)

Appendix 2: HWC letter of comment (June 2007)

Appendix 3: Minister of DEAT letter (September 2008)

Appendix 4: Project Photographic Record Built Environment

Appendix 5: Evolution of the Historical Landscape

Appendix 6: Public Consultation (2002-2009) – bound seperately

Table 2 : List of Attendees at the Public Meeting 24th November 2008, Morgansvlei Country Estate, Tulbagh

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