



ROBERT DE JONG AND ASSOCIATES
CULTURAL HERITAGE CONSULTING SERVICES

PhD (Cultural History) (PRET) Post-Graduate Museum Diploma (PRET) Member ICOMOS-SA
129 Malherbe Street, Capital Park, 0084 Pretoria
Fax +27 (0)86 612-7383 Mobile +27 (0)82 577-4741 E-Mail cultmat@iafrica.com

PROJECT 2010/31

**HERITAGE CONSERVATION MANAGEMENT
PLAN: PROPOSED KALAHARI SOLAR PROJECT
ON PORTIONS OF THE FARM KATHU 465,
KURUMAN REGISTRATION DIVISION,
GAMAGARA LOCAL MUNICIPALITY, NORTHERN
CAPE PROVINCE**



PREPARED FOR:

WSP Environmental (Pty) Ltd

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LIST OF ACRONYMS

BP	Before Present
CMP	Conservation Management Plan
DEAT	Department of Environmental Affairs and Tourism
DWA	Department of Water Affairs
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
ESA	Early Stone Age
HIA	Heritage Impact Assessment
KSP	Kalahari Solar Project
LIA	Late Iron Age
LSA	Late Stone Age
MSA	Middle Stone Age
NHRA	National Heritage Resources Act
SAHRA	South African Heritage Resources Agency

EXECUTIVE SUMMARY

This report contains a heritage conservation management plan (CMP), including a monitoring plan, in accordance with the provisions of Sections 38(1) and 38(3) of the *National Heritage Resources Act* (25/1999). It follows on a Heritage Scoping report (December 2010) and responds to the need for a CMP as articulated by the project applicant.

The Heritage Scoping report included the following impact management recommendations relevant to the CMP:

1. Should any hidden human remains (highly unlikely) be disturbed, exposed or uncovered during site clearing and excavations (for foundations etc), these should immediately be reported to an archaeologist. Burial remains should not be disturbed or removed until inspected by an archaeologist.
2. Site preparation activities must be monitored for the occurrence of any hidden (buried) archaeological material (Stone Age tools) and similar chance finds (such as historic middens and foundations) and if any are exposed, this should be reported to an archaeologist so that an investigation and evaluation of the finds can be made. Referring to archaeological investigations for projects on the neighbouring farm Bestwood, there is a strong possibility that artefacts could be exposed during excavations for foundations etc, since these artefacts seem to occur about one metre or more below ground level.
3. It is unlikely that the proposed development will have an impact on palaeontological heritage, but it is essential that if fossils are uncovered in the process of development activities a professional palaeontologist be bought in to access the situation.

The CMPs main aim is:

- To provide a decision-making framework (conservation management plan) through which the applicant and its project implementation team will be able to monitor and manage adverse impacts on heritage resources

Group Five Construction (Pty) Ltd (Group Five) plan to develop, build, own and operate a solar power facility on portions of the farm Kathu 465, a green fields site of approximately 1,600 hectares (ha). Group Five determined the site's suitability for large scale solar power generation based on the viability of the solar resource, the proximity to supporting infrastructure, grid access and potentially sustainable water supplies. The site has the capacity to support multiple large scale solar power plants that will produce approximately 480 megawatts (MW). This aligns with the need for large scale deployment of renewable solar energy in concentrated locations to mitigate the need for multiple grid connections.

Group Five appointed WSP Environmental (WSP) to facilitate the statutory environmental authorisations for this project.

WSP appointed Cultmatrix as a specialist heritage consultancy to prepare a heritage scoping report (basic assessment) in order to facilitate the statutory heritage authorisations for the project. This appointment was followed by two subsequent appointments:

- To compile a report reviewing all archaeological and heritage impact assessment reports for other projects in the vicinity of the KSP site and determine the heritage impact of these projects on the KSP project, and vice versa
- To compile a heritage conservation management plan for the KSP site

The report includes information contained in the following earlier reports:¹

- The Cultmatrix heritage scoping report (December 2010) in connection with the KSP project (prepared for WSP)
- The Van Schalkwyk Archaeological Impact Survey Report (August 2010) for the KSP project

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

¹ See references in Appendix 1

- (a) Identification and mapping of heritage resources (baseline study)
- (b) Cultural significance
- (c) Predicted impacts
- (f) Impact and conservation management

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

S 3(2) NHRA heritage resource	(a) Identification		(b) Significance	(c) (1) Impact		(c) (2) Recommended impact management
	Site	GPS		Study area	Impact type, certainty and significance	
Buildings, structures, places and equipment of cultural significance	Quarry 1	27°37'18.49"S 23°3'49.81"E	Low local	KSP site	Will probably not be affected	Possible borrow pit. No action – located on periphery
	Quarry 2	27°36'46.42"S 23°3'19.81"E	Low local	KSP site	Will probably not be affected	Possible borrow pit. No action – located on periphery
Areas to which oral traditions are attached or which are associated with intangible heritage	None	-	-	-	-	-
Historical settlements and landscapes	None	-	-	-	-	-
Landscapes and natural features of cultural significance	Kathu Forest	-	Protected Woodland under Section 12(1)(c) of the National Forests Act (84/1998)	Eastern parts of KSP site	Could be affected	The protected area will be avoided (both in terms of the PV array and the transmission link) and any heritage resources will remain unaffected
Geological sites of scientific or cultural importance	None	-	-	-	-	-
Archaeological and palaeontological sites	Chance finds (surface and sub-surface)	Unknown	Low local?	KSP site and grid connection	Unknown (depends on find spot)	Monitor for any hidden/sub-surface graves or archaeological features and artefacts when found during site preparation work and report such finds
	Dry pans (surface isolated scatters of Stone Age artefacts)	-	Low local	KSP site	Definitely no negative impact	No action
Graves and burial sites	None inside KSP site (there is a farm cemetery close to the Kathu farmstead)	-	-	-	Unknown (depends on find spot)	Monitor for any hidden/sub-surface graves or archaeological features and artefacts when found during site preparation work and report such finds
Features associated with labour history	None	-	-	-	-	
Movable objects	None	-	-	-	-	



RC DE JONG
Date: 22 February 2011

1. INTRODUCTION

1.1 General notes

1. The structure of this document is based on:
 - SOUTH AFRICAN HERITAGE RESOURCES AGENCY, Heritage Impact Assessment: Notification of intent to develop (form)
 - DEPARTMENT OF ENVIRONMENTAL AFFAIRS AND DEVELOPMENT PLANNING, PROVINCIAL GOVERNMENT OF THE WESTERN CAPE, 2005, Guideline for involving heritage specialists in EIA processes (document)
 - DEPARTMENT OF ENVIRONMENT AFFAIRS AND TOURISM, Integrated Environmental Management Guidelines
 - SOUTH AFRICAN HERITAGE RESOURCES AGENCY, 2006, *Minimum standards: Archaeological and palaeontological components of impact assessment reports* (unpublished).
 - PROVINCIAL HERITAGE RESOURCES AUTHORITY GAUTENG, 2010, *Report requirements for HIA reports* (unpublished).
 - WORLD BANK, Environmental Assessment Sourcebook Update No 8, September 1994: Cultural Heritage in Environmental Assessment.
 - SAHRA Guidelines for Site Management Plans, 2008.
 - Best-practice HIA reports submitted by Cultmatrix and other heritage consultants
2. This document is informed by the *National Heritage Resources Act* (25/1999) (NHRA) and the HIA reports for this particular project and is consistent with the various ICOMOS charters for places of cultural significance.
3. Recommendations contained in this application do not exempt the applicant from complying with any national, provincial and municipal legislation or other regulatory requirements, including any protection or management or general provision in terms of the NHRA.
4. Rights and responsibilities that arise from this report are those of the applicant and not that of the heritage consultants. The latter assume no responsibility for compliance with conditions that may be required by SAHRA in terms of this report.
5. The heritage consultants assume no responsibility whatsoever for any loss or damages that may be suffered as a direct or indirect result of information contained in this application. Any claim that may however arise is limited to the amount paid to the consultants for services rendered to compile this report.
6. Although all possible care is taken to identify all sites of cultural importance during the survey of study areas, the nature of archaeological and historical sites are as such that it always is possible that hidden or subterranean sites could be overlooked during the study. The consultants will not be held liable for such oversights or for costs incurred as a result thereof.

1.2 Background to the document

Proactive, as opposed to reactive, in approach the goal of periodic and systematic cultural heritage site monitoring and conservation is to objectively identify, record, and report changes and trends over time to those interested in, and responsible for, the conservation status of a site. It also provides a means by which past decisions and measures or countermeasures taken, including hypothesis and consequent predictions made, can be field-tested and evaluated objectively in terms of changes to the site's conservation status over a period of time.

Systematic monitoring involves recording the conservation status of a site using a standardised methodology and measures which can be repeated periodically. By comparing past and present monitoring results, changes to the site - including definition, ownership, elements, context, use, authenticity, protection and management plan - can be observed, recorded and described objectively. Though evaluating the results; trends, patterns and rates of change experienced by the site can also be identified and reported on.

Based on such empirical results, the impact and changes resulting to the physical status of a heritage site from management decisions and interventions can, over time, become better evaluated, understood and predicted. When the heritage site is next monitored, past claims and predictions can be evaluated. The reasons for any inaccuracy can be examined. In the long-term, either more accurate predictions will result in the future, or the limits to prediction-making will be better understood. Comparative, systematic monitoring is widely applicable to any heritage site, element, artefact or syntactic relationship of elements which can be identified, recorded, and compared over time. In scope this monitoring approach can be as comprehensive, or as narrow, as desired. It can be applied very widely serving as a form of conservation status "census" from which a comprehensive management plan can be developed. Alternatively, it can be focused on a particular issue or a part of the site. It is only limited in that whatever is monitored is observable, that the method of recording can be repeated and standardised (e.g. in format, measurements and terminology used), and that the record can be dated, stored and retrieved to permit comparison for analysis.

1.3 History and aim of the document

This report is informed by and responds to the following reports:

- An archaeological impact survey report, prepared by Dr JA van Schalkwyk for the KSP project area (August 2010)

Its main purpose is:

- To provide a decision-making framework (conservation management plan) through which the applicant and its project implementation team will be able to monitor adverse impacts on heritage resources and to manage heritage resources that will be preserved

1.4 Objectives of this document

1. The document creates a cyclical conservation decision-making feed-back tool by which decisions to conserve sites are systematically reviewed. This ensures that the impact of plans, policies and measures (or countermeasures) adopted to conserve the site, its values and significance are periodically evaluated and either continued or corrected as required. Experiences can be learned from, recorded and passed on. Successes can be repeated while mistakes can be learned from and avoided.
2. Changes to a site's conservation status can be documented in a variety of formats including inventories, checklists, plans, measured drawings, sketches, photographs and video films. These formats have the added benefit of being more neutral and objective than a written report.
3. The document enables those involved in, and responsible for conserving sites, to objectively justify their conservation philosophy, policies concerns, needs and decisions.
4. Solid documentation of a site over a period of time can be used to support management goals, objectives, strategies and plans. Through presenting documented, comparative evidence of physical change and trends, those responsible for conserving sites can more objectively justify their needs for support and resources with respect to dealing with problems diagnosed. This is particularly valuable with respect to obtaining support / funding from organizations, associations, and sources etc, which lack knowledge of or are distant from the site in question.
5. The document focuses decision-makers directly on the long-term conservation status of the site. Through awareness that their decisions will be periodically and consistently monitored and evaluated, those responsible for sites will be encouraged - and better positioned - to consider, account for, and justify, their decisions with respect to the long-term conservation needs, goals and objectives. All too often decision-making over time becomes inconsistent as expediency wins. Short-term benefits can be clearly defined while long-term goals and benefits seem very abstract.
6. The document promotes greater awareness of slow developing, long-term conservation issues and concerns. By monitoring at regular intervals, those involved in site conservation decision-making will be able to document, and see in perspective, the impact of long-term conservation problems which may slowly but surely menace the site.
7. The document ensures systematic, periodic updating of documentation and records. When monitoring takes place site status documentation needs to be updated to enable comparison with previous monitoring documentation. Following the production and reviewing of the comparative systematic monitoring report, recommended modifications to documentation such as maintenance manuals, contractor protocols, etc. would be implemented. This process ensures the data is up to

date. Those involved in decision-making and in related decision review mechanisms can be confident in the information they base their decisions on, or pass onto others.

8. Comparative, systematic monitoring will be of as great a value to future generations as historic documentation (plans, images, photographs, first-hand descriptions, etc.) is to us today.

1.5 Methodology²

RESEARCH TECHNIQUE	INFORMATION SOURCES	RELEVANCE
Desktop studies	Published literature	General overview of the cultural history of the environment
	Unpublished reports for other projects in the broader region	Useful and specific information about the heritage in the vicinity of the KSP site
	Google Earth images (2010)	Essential tool in identifying and mapping areas where heritage features could exist (e.g. pans) and comparing the areas to 1:50 000 maps
	Oldest editions of 1:50 000 maps	Indicates presence or absence of identified heritage features (buildings, homesteads, sometimes graves), including those that have disappeared over time; limited value in the case of this project
	Current editions of 1:50 000 maps	Essential tool in identifying and mapping heritage features and placing them in a cadastral context (farms); limited value in the case of this project
	Cadastral diagrams of farms	Limited value in identifying heritage features
	Internet	Information about Kathu history and Kathu forest
Fieldwork	Buildings, structures, ruins, graves, landscape elements that could indicate past human activity (clumps of trees, mounds, diggings etc)	Identifies and documents features and verifies those that have been identified through desktop studies and verbal information
Verbal information	Kasper van Vuuren, farm manager	Information about presence or absence of heritage features, in particular graves

² See references in Appendix 1

2. HERITAGE RESOURCES STATUS QUO

Kathu is located in a part of the Northern Cape Province commonly referred to as the “Green Kalahari”. At the time of the appearance of the first hominids, the plains and hills would have consisted of widespread grasslands, scattered Bushveld and broken woodlands. These grasslands would have been dominated by large herds of mammalian grazers and the predators feeding on them. River courses had woodland fringes, which would have been home to various primates, as well as hippopotamus, lechwe and waterbuck.

During 1974 a discovery of animal fossils and Early Stone Age artefacts was made at Kathu Pan and Kathu Townlands by Naas Viljoen, a previous manager of the Sishen farm. Many prehistoric bone fossils and artefacts were picked up by people over a wide area without realising the significance of these finds.

Archaeological excavations by GJB Humphries and P Beaumont, both of the McGregor Museum in Kimberley, during 1975 and again from 1978-1990 led to the discovery that the Kathu Pan was an ancient limestone sinkhole formation in which sedimentary materials were deposited. In these deposits the fossilised remains of a large variety of animals were found, such as springhaas, hippopotamus, giraffe, white rhino, as well as extinct species such as Reck’s elephant, which disappeared about 850 000 years ago.

Relevance: The Kathu Pan is outside the development site; however, other palaeontological deposits (fossils) could possibly occur below the surface of the KSP site.



FIGURE 1: Fossilised molar root from Reck’s Elephant found at Kathu Pan

The first communities were hunters and gatherers who were able to make tools and weapons from stone, bone and wood. About 2,4 million years BP, early hominids known as *Australopithecus africanus* lived at Taung (a world heritage site), one of South Africa’s most important palaeontological sites.

The australopithecines were gradually displaced by another early hominid, *Homo habilis*, and eventually disappeared. *Homo habilis* had evolved into the more advanced *Homo erectus* (also known as *Homo ergaster*) by 1,8 million years BP, which was responsible for the development of large stone cutters and cleavers that collectively constitute the so-called Early Stone Age (ESA).

By 250 000 years BP, the large cleavers and hand axes of the ESA disappeared and were replaced by a larger variety of smaller tools and weapons of diverse shapes and sizes, made by different techniques. This change in technology marks the beginning of the Middle Stone Age (MSA). During the MSA, early humans still settled in the open along or near water sources but also took shelter in caves. The MSA marks the transition from a more archaic *Homo* (*Homo ergaster*) to anatomically modern humans, *Homo sapiens*. With this physical development the first signs of art, decoration and symbolism began to appear.

The Later Stone Age (LSA), which occurred from about 20 000 years ago, is signalled by a series of technological innovations and social transformations within these early hunter-gatherer societies. The hunting apparatus now included two important innovations, the bow and the link-shaft arrow. Link-shaft arrows were constructed with a poisoned bone tip, a link and shaft that fell away on impact, leaving the

poison tip imbedded in the animal. Other innovations included bored stones, used as digging-stick weights to aid in uprooting tubers and roots; small stone tools, often less than 25 mm in length, used for cutting meat and scraping hides; polished bone tools such as needles; twine made from plant fibre or leather; tortoiseshell bowls; fishing equipment, including hooks and sinkers; bone tools with decoration; high frequencies of ostrich eggshell beads and an increase in ornaments and artwork.

The LSA is associated with San communities as well as with Khoi groups that arrived from the northern interior about 2000 years BP.

Relevance: All three Stone Age periods are well represented around Kathu but only scattered surface artefacts were found on the KSP development site. This is probably because of the absence of hills, which mainly occur further away to the east and south of Kathu, e.g. p the farms Uitkoms and Bestwood close to Kathu Hill. Most Stone Age artefacts and sites seem to date to the Early Stone Age. Important sites exist close to the proposed grid connection.



FIGURE 2: Stone flakes and tools exposed in old borrow pit on Bestwood. Pocket knife = 83mm. (Photo Cobus Dreyer, 2008)

Early Iron Age occupation did not take place in the region and seems as if the earliest people to live settled lives here were those of Tswana-speaking origin (Tlhaping and Tlharo) that settled mostly to the north and a bit to the west of Kuruman.

While there is some evidence that the Early Iron Age continued into the 15th century in the Lowveld, on the escarpment it had ended by AD1100. The Highveld became active again from the 15th century onwards due to a gradually warmer and wetter climate. From here communities spread to other parts of the interior. This later phase, termed the Late Iron Age (LIA), was accompanied by extensive stonewalled settlements, such as the Tlhaping capital Dithakong, 40 km north of Kuruman.

Sotho-Tswana and Nguni societies, the descendants of the LIA mixed farming communities, found the region already sparsely inhabited by the Late Stone Age (LSA) Khoisan groups, the so-called 'first people'. Most of them were eventually assimilated by LIA communities and only a few managed to survive, such as the Korana and Griqua. This period of contact is sometimes known as the Ceramic Late Stone Age and is represented by the Blinkklipkop specularite mine near Postmasburg and finds at the Kathu Pan.

From LIA communities tribal societies emerged conveniently grouped according to their languages. The region became home to Western Sotho communities speaking Setswana, such as the Tlhaping, Rolong, Phiring, Fokeng, Kwena, Kgatla, Hurutshe, Taung, Tlharo and Ngwaketse tribal communities.

Factors such as population expansion, increasing pressure on natural resources, the emergence of power blocs, attempts to control trade and penetration by Griquas, Korana and white communities from the south-west resulted in a period of instability in Southern Africa that began in the late 18th century and effectively ended with the settlement of white farmers in the interior. This period, known as the *difaqane* or *Mfecane*, also affected the Northern Cape Province, although at a relatively late stage compared to the rest of Southern Africa. Here, the period of instability, beginning in the mid-1820s, was triggered by the incursion of displaced refugees associated with the Tlokwa, Fokeng, Hlakwa and Phuting tribal groups.

The *difaqane* coincided with the penetration of the interior of South Africa by white traders, hunters, explorers and missionaries. The first was PJ Truter's and William Somerville's journey of 1801, which reached Dithakong at Kuruman. They were followed by Cowan, Donovan, Burchell and Campbell and resulted in the establishment of a London Mission Society station near Kuruman in 1817 by James Read.

The Great Trek of the Boers from the Cape in 1836 brought large numbers of Voortrekkers up to the borders of large regions known as Bechuanaland and Griqualand West, thereby coming into conflict with many Tswana groups and also the missionaries of the London Mission Society. The conflict between Boer and Tswana communities escalated in the 1860s and 1870s when the Korana and Griqua communities became involved and later also the British government. The conflict mainly centred on land claims by various communities. For decades the western border of the Transvaal Boer republic was not fixed. Only through arbitration (the Keate Arbitration), triggered by the discovery of gold at Tati (1866) and diamonds at Hopetown (1867) was part of the western border finally determined in 1871. Ten years later, the Pretoria Convention fixed the entire western border, thereby finally excluding Bechuanaland and Griqualand West from Boer domination.

Griqualand West was annexed by Britain in 1871 and this was one of the factors that eventually resulted in the Langberg Rebellion of 1878 when the Tlharo rose up against colonial domination and white settlement. A small force led by Colonel Charles Warren rapidly crushed the revolt, followed by general amnesty granted to the Tlharo in November. A "native reserve" was proclaimed for the Tlharo community in 1886, demarcating the Langberg, Deben, Kathu, Gathose and Maremane reserves for Tswana settlement.

Geographically, Kathu is part of a region once known as British Bechuanaland. Formerly a frontier area beyond colonial interest and control, it was proclaimed a British protectorate in 1885, primarily to secure access to Central Africa by preventing the Boers (through their Stellaland and Goosen republics) linking up with the German-occupied South-West Africa (Namibia). In 1895 the British incorporated British Bechuanaland into the Cape Colony.

In 1897 another Tswana uprising took place. This was also quelled by colonial forces. The Langberg and the other "reserves" were abolished and proclaimed as "Crown Land", which was surveyed into farms that were given out to white farmers. The Bechuanaland Native Reserves Commission, which was tasked to do this, visited the area in October 1897 and recommended that the old Kathu reserve should be divided into seven farms. JC Wessels surveyed the farm Kathu 465 in 1898.

The region remained sparsely populated until the advent of the 20th century, when cattle farming became popular; also, when the government started borehole drilling projects in order to open up new areas for farming purposes.

Relevance: No significant features associated with colonial settlement and farming exists on the KSP site. There is a farm cemetery close to the farmstead but this falls outside the boundaries of this site.

Between 1907 and 1915 a road between Kuruman and Kathu was constructed (visible on the 1972 edition of the topo map). This road (replaced by the current N 14 alignment) still exists as a heritage feature (older than 60 years), but it falls outside the KSP site boundaries.

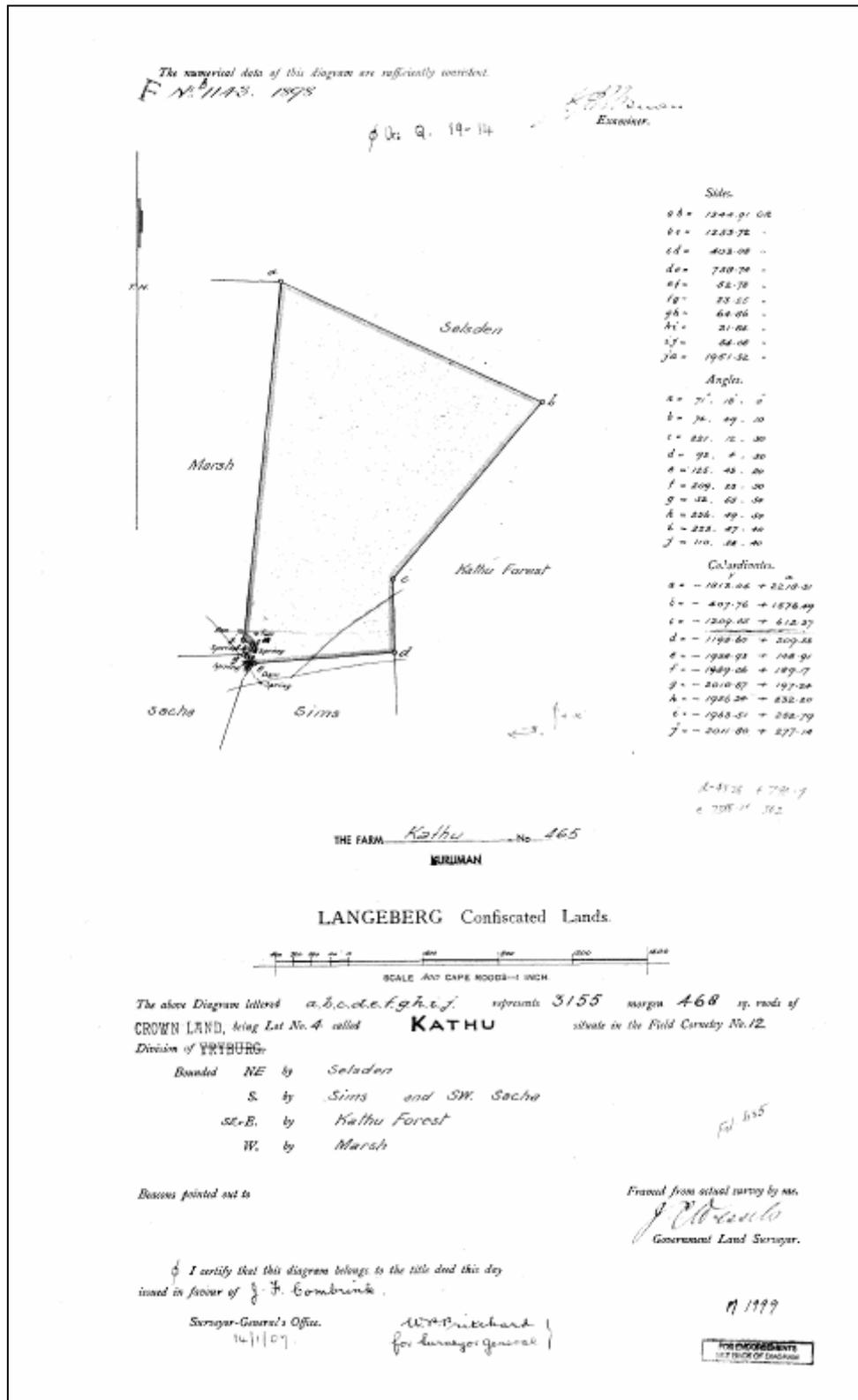


FIGURE 3: Survey diagram (1898) of the farm Kathu

Indigenous communities, travellers and missionaries had been aware of the presence of iron ore in the Bestwood area, the missionary Robert Moffat recording on a journey to Kuruman in 1834 that he saw hills of glittering black rock. These hills are known today as the Gamagara Ridge that dominates the iron mine at Kathu.

In 1947 ISCOR obtained prospecting and mining rights in connection with iron ore deposits in the area. These turned out to be high-grade haematite deposits and a year later ISCOR purchased the farm Sishen. In 1952 a town named Sishen was established (today Dingleton). The rapid expansion of mining activities necessitated the establishment of a much larger town, which was started in 1972-1974 with 2000 erven on the fringe of the Kathu Forest Reserve, about 20km from Sishen. The new town was named Kathu and it obtained municipal status in 1979.

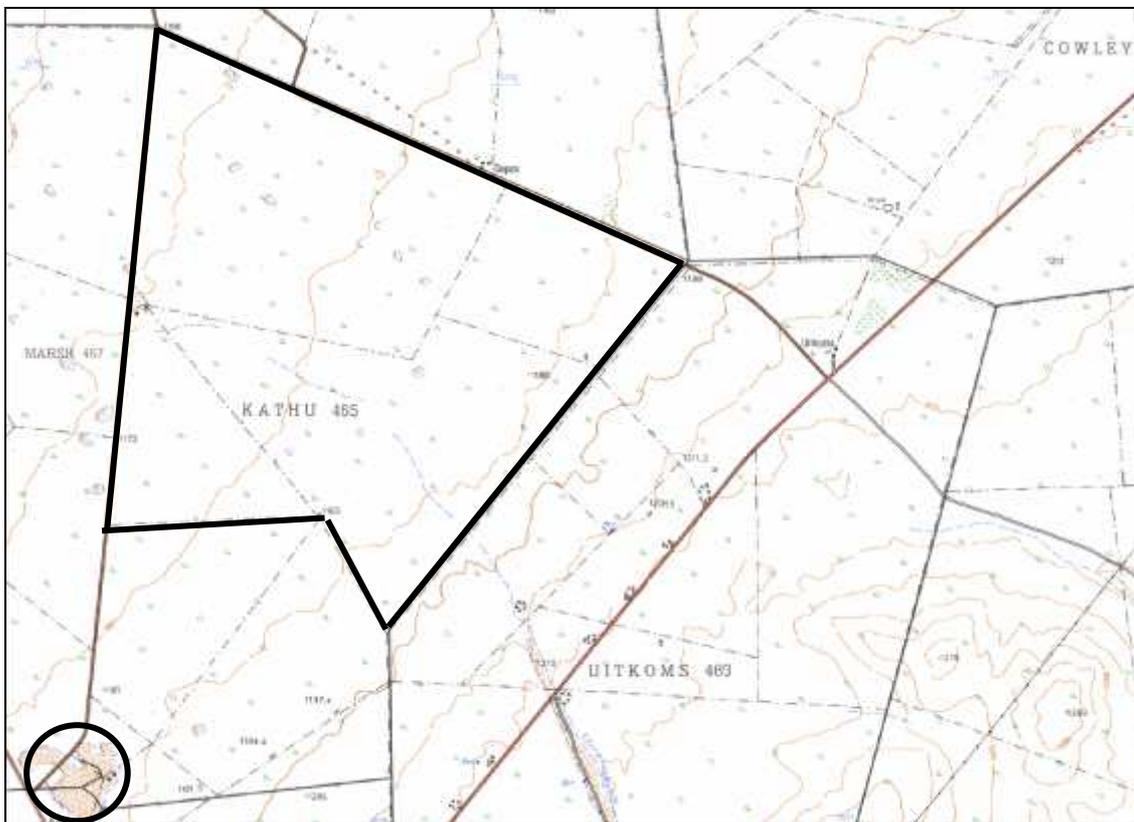


FIGURE 4: Portion of the earliest edition of 2723 CA (Kathu), 1972, indicating the KSP site boundaries. The new N 14 alignment post-dates this map. The circle indicates the Kathu Pan site.

3. MONITORING AND CONSERVATION CONTROLS AND GUIDELINES

3.1 Legal context

3.1.1 Section 5 of the NHRA

This section lists the general principles for heritage resources management.

(1) All authorities, bodies and persons performing functions and exercising powers in terms of this Act for the management of heritage resources must recognise the following principles:

(a) Heritage resources have lasting value in their own right and provide evidence of the origins of South African society and as they are valuable, finite, non-renewable and irreplaceable they must be carefully managed to ensure their survival;

(b) every generation has a moral responsibility to act as trustee of the national heritage for succeeding generations and the State has an obligation to manage heritage resources in the interests of all South Africans;

(c) Heritage resources have the capacity to promote reconciliation, understanding and respect, and contribute to the development of a unifying South African identity; and

(d) Heritage resources management must guard against the use of heritage for sectarian purposes or political gain.

(2) To ensure that heritage resources are effectively managed—

(a) The skills and capacities of persons and communities involved in heritage resources management must be developed; and

(b) Provision must be made for the ongoing education and training of existing and new heritage resources management workers.

(3) Laws, procedures and administrative practices must—

(a) Be clear and generally available to those affected thereby;

(b) In addition to serving as regulatory measures, also provide guidance and information to those affected thereby; and

(c) Give further content to the fundamental rights set out in the Constitution.

(4) Heritage resources form an important part of the history and beliefs of communities and must be managed in a way that acknowledges the right of affected communities to be consulted and to participate in their management.

(5) Heritage resources contribute significantly to research, education and tourism and they must be developed and presented for these purposes in a way that ensures dignity and respect for cultural values.

(6) Policy, administrative practice and legislation must promote the integration of Heritage resources conservation in urban and rural planning and social and economic development.

(7) The identification, assessment and management of the heritage resources of South Africa must—

(a) Take account of all relevant cultural values and indigenous knowledge systems;

(b) Take account of material or cultural heritage value and involve the least possible alteration or loss of it;

(c) Promote the use and enjoyment of and access to heritage resources, in a way consistent with their cultural significance and conservation needs;

(d) Contribute to social and economic development;

(e) Safeguard the options of present and future generations; and

(f) Be fully researched, documented and recorded.

3.1.2 Section 38 of the NHRA

Heritage conservation and management in South Africa (excluding KwaZulu Natal on a provincial level) is governed by the *National Heritage Resources Act* (Act 25 of 1999) (NHRA) and falls under the overall jurisdiction of the *South African Heritage Resources Agency* (SAHRA) and its provincial offices and counterparts.

Section 38 of the NHRA requires a Heritage Impact Assessment (HIA), to be conducted by an independent heritage management consultant, for the following development categories:

- Construction of a road, wall, power line, pipeline, canal or other linear form of development or barrier exceeding 300m in length
- Construction of bridge or similar structure exceeding 50m in length
- Development or other activity that will change the character of a site -
 - Exceeding 5000 sq m
 - Involving three or more existing erven or subdivisions
 - Involving three or more erven or divisions that have been consolidated within past five years
 - Rezoning of site exceeding 10 000 sq m
 - The costs of which will exceed a sum set in terms of regulations by SAHRA or a provincial heritage resources authority
- Any other development category, public open space, squares, parks, recreation grounds

Apart from a heritage report assisting a client to make informed development decisions, it also serves to provide the relevant heritage resources authority with the necessary data to perform their statutory duties under the NHRA. After evaluating the heritage scoping report, the relevant heritage resources authority will decide on the status of the resource, whether the development may proceed as proposed or whether mitigation is acceptable, and whether the heritage resources require formal protection, i.e. as a Grade I, II or III resource, with relevant parties having to comply with all aspects pertaining to such Grading.

Section 38(3) (g) provides for the mitigation of any adverse impacts on preserved heritage resources through a Conservation Management Plan or other interventions.

3.1.3 Section 34 of the NHRA

Section 34 stipulates that no person may, with a permit issued by SAHRA or a provincial heritage resources authority, destroy, damage, alter or remove from its original position any building, structure or piece of equipment older than 60 years. This section applies to the buildings and structures older than 60 years, which do not exist on the KSP site.

3.1.4 Section 35 of the NHRA

Section 35 stipulates that no person may, with a permit issued by SAHRA, destroy, damage, alter or remove from its original position any archaeological site or artefact. This section would apply in the case of chance finds and graves older than 100 years, which may be present on the KSP site.

3.1.5 Section 36 of the NHRA

Section 36 stipulates that no person may, with a permit issued by SAHRA, destroy, damage, alter or remove from its original position any archaeological site or artefact. This section would apply in the case of chance burial finds and also applies to the identified graves older than 60 years but younger than 100 years. These may be present on the KSP site.

3.1.6 Section 47 of the NHRA

Section 47 provides for the development of a Conservation Management Plan with regard to heritage resources that are preserved, and that such a plan must be adopted by the relevant heritage resources authority.

3.1.7 Section 12(1) (c) of the National Forests Act (Act 84 of 1998)

In terms of Government Notice 727 dated 10 July 2009, the Kathu Forest was declared as protected woodland. A portion of this forest is located on the farm Kathu. It is understood that the protected area also is supposed to be managed in accordance with a conservation management plan.

The proclamation erroneously refers to the woodland as a National Heritage Site; this should be *natural* heritage site. There is no SAHRA record that the forest was proclaimed a heritage site in terms of the National Monuments Act that preceded the NHRA.

3.2 Conservation principles

These principles based on the *Australia (ICOMOS) Charter for places of cultural significance* (revised 1999) and on Section 5 of the NHRA form basis of the CMP.

Conservation field	Principles	Applicability to monitoring and the CMP
1. Conservation and management	<ul style="list-style-type: none"> Places of cultural significance should be conserved. 	<ul style="list-style-type: none"> Such places may only come to light during construction work
	<ul style="list-style-type: none"> The aim of conservation is to retain the cultural significance of the place 	<ul style="list-style-type: none"> Sympathetic protective management measures according to the significance of each element
	<ul style="list-style-type: none"> Conservation is an integral part of management 	<ul style="list-style-type: none"> Conservation procedures for chance finds are applicable
	<ul style="list-style-type: none"> Places and features of cultural significance must be safeguarded and not put at risk or left in a vulnerable state 	<ul style="list-style-type: none"> Sites that will be discovered must be stabilised until a decision as to their future can be made
2. Cautious approach	<ul style="list-style-type: none"> Conservation is based on respect for existing fabric, use, association and meanings 	<ul style="list-style-type: none"> Photo documentation of graves and sites older than 60 years should they be discovered as chance finds
	<ul style="list-style-type: none"> Change as much as necessary but as little as possible 	<ul style="list-style-type: none"> Preserve status quo of chance finds if possible
3. Knowledge, skills and techniques	<ul style="list-style-type: none"> Conservation should make use of all the knowledge, skills and disciplines that can contribute to the study and care of a place 	<ul style="list-style-type: none"> Create list of experts able to assist with implementing the CMP
	<ul style="list-style-type: none"> Traditional techniques and materials are preferred for the conservation of significant fabric 	<ul style="list-style-type: none"> Not applicable
	<ul style="list-style-type: none"> Modern techniques and materials that offer substantial conservation benefits may be appropriate 	<ul style="list-style-type: none"> Use where appropriate for preserving graves
4. Values	<ul style="list-style-type: none"> Conservation of a place should identify and take into consideration all aspects of cultural and natural significance without unwarranted emphasis on any value at the expense of others 	<ul style="list-style-type: none"> All components/aspects of the significance of a site are considered
	<ul style="list-style-type: none"> Relative degrees of cultural significance may lead to different conservation actions at one place 	<ul style="list-style-type: none"> Not applicable
5. Burra Charter process	<ul style="list-style-type: none"> The cultural significance of a place and other issues affecting its future are best understood by a sequence of collecting and analysing information before making decisions 	<ul style="list-style-type: none"> All chance finds should be documented
	<ul style="list-style-type: none"> Understanding cultural significance comes first, then development of policy and finally management of the place in accordance with the policy 	<ul style="list-style-type: none"> The CMP is structured accordingly
	<ul style="list-style-type: none"> The policy for managing the place must be based on understanding of its cultural significance 	<ul style="list-style-type: none"> The CMP contains a policy matrix (Section 6)

Conservation field	Principles	Applicability to monitoring and the CMP
	<ul style="list-style-type: none"> Policy should include consideration of other factors affecting the future of a place such as the owner's needs, external constraints and its physical condition 	<ul style="list-style-type: none"> These factors affect monitoring and conservation,
6. Use	<ul style="list-style-type: none"> Where the use of a place, element or feature is of cultural significance it should be retained 	<ul style="list-style-type: none"> Burial sites will remain burial sites if possible
	<ul style="list-style-type: none"> A place, element or feature identified as of cultural significance should have a compatible use 	<ul style="list-style-type: none"> Not applicable
7. Setting	<ul style="list-style-type: none"> Conservation requires the retention of an appropriate visual setting and other relationships that contribute to the cultural significance of the place 	<ul style="list-style-type: none"> Not applicable
	<ul style="list-style-type: none"> New construction, demolition, intrusions and other changes that adversely affect the setting or relationships are not appropriate 	<ul style="list-style-type: none"> Not applicable
8. Location	<ul style="list-style-type: none"> The physical location of a place is part of its cultural significance 	<ul style="list-style-type: none"> Burial sites will be left in situ if possible
	<ul style="list-style-type: none"> A building, work, element or feature of a place should remain in its historical location 	<ul style="list-style-type: none"> Burial sites will be left in situ if possible
	<ul style="list-style-type: none"> Relocation is generally unacceptable unless it is the sole practical means of ensuring its survival 	<ul style="list-style-type: none"> May apply to chance burial sites
	<ul style="list-style-type: none"> Some buildings, elements or features of a place were designed to be readily removable or already have a history of relocation 	<ul style="list-style-type: none"> Not applicable
	<ul style="list-style-type: none"> Provided that such buildings, elements or features do not have significant links with their present location, removal may be appropriate 	<ul style="list-style-type: none"> Not applicable
	<ul style="list-style-type: none"> If any building, element or feature is moved, it should be moved to an appropriate location and given an appropriate use 	<ul style="list-style-type: none"> Not applicable
	<ul style="list-style-type: none"> Such action should not be to the detriment of any place of significance 	<ul style="list-style-type: none"> Not applicable
9. Contents	<ul style="list-style-type: none"> Contents, fixtures and objects that contribute to the cultural significance of a place should be retained at that place 	<ul style="list-style-type: none"> Not applicable
	<ul style="list-style-type: none"> Their removal is unacceptable unless it is the sole means of ensuring their security and preservation, or on a temporary basis for treatment or display, or for cultural reasons, or for health and safety, or to protect the place 	<ul style="list-style-type: none"> Not applicable
	<ul style="list-style-type: none"> Such contents, fixtures and objects should be returned where circumstances permit and is culturally appropriate 	<ul style="list-style-type: none"> Not applicable
10. Related places and objects	<ul style="list-style-type: none"> The contribution that related places and objects make to the cultural significance of the place should be retained 	<ul style="list-style-type: none"> Not applicable
11. Participation	<ul style="list-style-type: none"> Conservation, interpretation and management of a place should provide for the participation of people for whom the place has special associations and meanings or who have social, spiritual or other cultural responsibilities to execute or 	<ul style="list-style-type: none"> The CMP provides for the conservation management of chance finds that will be preserved

Conservation field	Principles	Applicability to monitoring and the CMP
	to fulfil	
12. Co-existence of cultural values	<ul style="list-style-type: none"> • Co-existence of cultural values should be recognised, respected and encouraged, especially in cases where they conflict 	<ul style="list-style-type: none"> • The wishes of affected communities will be taken into account in the case of chance finds (if applicable)

4. BASELINE INFORMATION AND IMPACT MANAGEMENT

4.1 General remarks

Baseline information is needed to enable future comparison. The scope of monitoring will be delimited by that of the baseline. This stage involves a comprehensive record of each site of cultural significance that may be affected by the proposed pipeline.

Heritage impacts are categorised as:

- Neutral (no impact)
- Direct or physical impacts, e.g. alteration or destruction of heritage features within the project boundaries
- Indirect impacts, e.g. restriction of access or visual intrusion concerning the broader environment
- Cumulative impacts that are combinations of the above

The predicted heritage impacts of the development of the KSP site itself are neutral since no heritage resources of major significance that could be affected were identified.

The predicted heritage impacts of the construction of the preferred grid connection transmission link still must be assessed through a separate heritage scoping investigation.

Visual impacts are of less importance because large portions of the wider study area have already been transformed by residential extensions to Sesheng and Kathu. The landscape horizon is characterised by power lines and the structures and dumps of the iron ore mine.

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

- Mitigation (minimising adverse impacts through further documentation and research before a place is altered or destroyed)
- Avoidance
- Compensation (balancing of making good the destruction of one heritage feature by the preservation of another one)
- Enhancement (positive impacts on heritage features)
- Rehabilitation (re-use of preserved heritage features)
- Interpretation (providing information on heritage features)
- Memorialisation (retaining the memory of heritage features that have been destroyed)
- No action
- Relocation (historic equipment, graves)
- Alternatives

Of the above measures, “no action” (linked to predicted impacts that are neutral) and mitigation (linked to important sub-surface chance finds) applies in the case of the **power plant site** on the farm Kathu 465.

4.2 Impact management

TABLE 2: Identification of heritage features, impacts and impact management mechanisms

S 3(2) NHRA heritage resource	(a) Identification		(b) Significance	(c) (1) Impact		(c) (2) Recommended impact management
	Site	GPS		Study area	Impact type, certainty and significance	
Buildings, structures, places and equipment of cultural significance	Quarry 1	27°37'18.49"S 23°3'49.81"E	Low local	KSP site	Will probably not be affected	Possible borrow pit. No action – located on periphery
	Quarry 2	27°36'46.42"S 23°3'19.81"E	Low local	KSP site	Will probably not be affected	Possible borrow pit. No action – located on periphery
Areas to which oral traditions are attached or	None	-	-	-	-	-

S 3(2) NHRA heritage resource	(a) Identification		(b) Significance	(c) (1) Impact		(c) (2) Recommended impact management
	Site	GPS		Study area	Impact type, certainty and significance	
which are associated with intangible heritage						
Historical settlements and landscapes	None	-	-	-	-	-
Landscapes and natural features of cultural significance	Kathu Forest	-	Protected Woodland under Section 12(1)(c) of the National Forests Act (84/1998)	Eastern parts of KSP site	Could be affected	The protected area will be avoided (both in terms of the PV array and the transmission link) and any heritage resources will remain unaffected
Geological sites of scientific or cultural importance	None	-	-	-	-	-
Archaeological and palaeontological sites	Chance finds (surface and sub-surface)	Unknown	Low local?	KSP site and grid connection	Unknown (depends on find spot)	Monitor for any hidden/sub-surface graves or archaeological features and artefacts when found during site preparation work and report such finds
	Dry pans (surface isolated scatters of Stone Age artefacts)	-	Low local	KSP site	Definitely no negative impact	No action
Graves and burial sites	None inside KSP site (there is a farm cemetery close to the Kathu farmstead)	-	-	-	Unknown (depends on find spot)	Monitor for any hidden/sub-surface graves or archaeological features and artefacts when found during site preparation work and report such finds
Features associated with labour history	None	-	-	-	-	
Movable objects	None	-	-	-	-	

The heritage investigation did not find any features of particular heritage significance that would be affected by the KSP project but needed to be preserved.

From a historic built environment perspective no features of heritage significance were identified and those features that are extant are typical of many others in the region.

From an archaeological perspective no finds or artefacts of real significance were identified.

From a palaeontological perspective the entire area is underlain by Precambrian rocks which are not exposed. These in turn are covered by Tertiary surface lime stones. The Precambrian rocks are not known to contain any fossils. There is a slight, but unlikely, possibility of Tertiary fossils being present in the limestone deposits.



FIGURE 5: The only visible features of heritage significance were isolated scatters of Stone Age artefacts found around some of the dry pans on the site

5. CONSERVATION MANAGEMENT PLAN

5.1 Aim

The aim of the Conservation Management Plan (CMP) is to ensure the preservation (conservation) of identified sites of cultural significance affected by the pipeline and also of those sites and artefacts that may be discovered as chance finds.

5.2 Conservation policy

Issues	Statement of conservation policy
1. Fabric and setting	<ul style="list-style-type: none"> Chance finds: Stabilise against deterioration and document burial sites and in order to create a benchmark for monitoring or any further interventions
2. Use	<ul style="list-style-type: none"> Preserve original use of burial sites if possible
3. Interpretation	<ul style="list-style-type: none"> Provide basic information (e.g. signage) to inform staff and visitors about the history and significance of chance finds that will be preserved
4. Management	<ul style="list-style-type: none"> Chance finds: Protect burial sites by proper fencing and designate the EMP team to monitor the place
5. Control of physical intervention	<ul style="list-style-type: none"> Burial sites will be used as they were historically if practical Chance finds will be recognized as a physical record of their time, place, and use. Work needed to stabilize, consolidate, and conserve existing historic materials and features will be physically and visually compatible, identifiable upon close inspection, and properly documented for future research. The existing condition of burial sites and other chance finds will be evaluated to determine the appropriate level of intervention needed. Chemical or physical treatments, if appropriate, will be undertaken using the gentlest means possible. Treatments that cause damage to historic materials will not be used. Chance finds will be protected and preserved in place. If they must be disturbed, mitigation measures will be undertaken, e.g. by sampling (test excavation) and mapping before destruction. For this a NHRA Section 35 permit is needed.
6. Constraints on investigation and accessibility	<ul style="list-style-type: none"> Limit accessibility to the KSP site in terms of safety, occupational, health and heritage legislation
7. Future developments	<ul style="list-style-type: none"> The stabilisation and preservation of burial sites and other chance finds will enable any future developments arising from changed circumstances and needs
8. Change	<ul style="list-style-type: none"> Change may be necessary to retain cultural significance, but is undesirable where it reduces cultural significance. Changes which reduce cultural significance should be reversible, and be reversed when circumstances permit. Existing structural fabric, use, associations and meanings of burial sites and other chance finds should be adequately documented in order to monitor for any changes caused by construction work.
9. Maintenance	<ul style="list-style-type: none"> Maintenance is fundamental to the conservation of chance finds that will be retained and should be undertaken during construction work to retain their cultural significance.
10. Preservation	<ul style="list-style-type: none"> Preservation is the appropriate treatment of chance finds if practical since the existing fabric or its condition constitutes evidence of cultural significance and where insufficient evidence is available to allow other conservation processes to be carried out; also because of the current condition, safety issues and budget constraints
11. New work	<ul style="list-style-type: none"> New work such as additions to burial sites etc. (e.g. fencing) may be acceptable where it does not distort or obscure the cultural significance of the place, or detract from its interpretation and appreciation. It should be identifiable as such.
12. Disturbance of fabric	<ul style="list-style-type: none"> Disturbance of significant <i>fabric</i> for documentation or to obtain evidence should be minimised. Study of a <i>place</i> by any disturbance of the fabric, including archaeological excavation, should only be undertaken to provide data essential for decisions on the <i>conservation</i> of the place, or to obtain important evidence about to be lost or made inaccessible.

Issues	Statement of conservation policy
13. Direction, supervision and implementation	<ul style="list-style-type: none"> Competent direction and supervision should be maintained at all stages, and any changes should be implemented by people with appropriate knowledge and skills.
14. Documenting evidence and decisions	<ul style="list-style-type: none"> A log of new evidence and additional decisions should be kept.
15. Removed fabric	<ul style="list-style-type: none"> Significant fabric which has been removed from a chance find spot should be catalogued, and protected in accordance with its cultural significance. Where possible and culturally appropriate, removed significant fabric should be kept near the place.
16. Resources	<ul style="list-style-type: none"> A budget will be allocated to implement the CMP
17. Adoption and review	<ul style="list-style-type: none"> The CMP will be adopted and from time to time reviewed as part of the monitoring process during construction work

5.3 Implementation

5.3.1 Introduction

The four generic treatment approaches to conservation of heritage are Preservation, Rehabilitation, Restoration, and Reconstruction, outlined below in hierarchical order and explained.

The first treatment, **Preservation**, places a high premium on the retention of all historic fabric through conservation, maintenance and repair. It reflects a site's continuum over time, through successive occupancies, and the respectful changes and alterations that are made.

Rehabilitation, the second treatment, emphasizes the retention and repair of historic materials, but more latitude is provided for replacement because it is assumed the property is more deteriorated prior to work.

Restoration, the third treatment, focuses on the retention of materials from the most significant time in a property's history, while permitting the removal of materials from other periods.

Reconstruction, the fourth treatment, establishes limited opportunities to re-create a non-surviving site, landscape, building, structure, or object in all new materials.

Choosing the most appropriate treatment for the site required careful decision-making about its historical significance, as well taking into account a number of other considerations:

- Relative importance in history
- Physical condition
- Proposed new use
- Compliance with other legislation
- Available budget and capacity

Based on the above considerations, *preservation* (avoiding a place or feature and protecting it) is recommended as the most appropriate treatment of any chance finds that will not be directly affected by the KSP project.

5.3.2 Documentation

Preservation begins with documentation of the form and detailing of those features that are important in defining a heritage feature's historic character and which must be retained in order to preserve that character.

Documentation within the project context has two purposes:

- To record the existing condition of chance finds before any further work aimed at preserving them is done
- To record the existing condition of the chance finds that will be preserved so that changes to this condition (caused by vibrations, dust and other factors associated with construction work) can be monitored

A long-term commitment towards consistently maintaining and updating accurate records of a heritage feature's conservation status is fundamental. Monitoring records should be available at, or very close to, the site and to all those interested and involved in its conservation. Copies of important documents should routinely be kept off-site at construction offices to ensure firstly that in the event of a disaster other copies will survive, and secondly that copies are easily accessible for research purposes.

Chance finds (e.g. burial sites, foundations, old rubbish dumps, and stone tools) must also be documented before any further interventions take place.

The documentation system must comply with the following minimum SAHRA requirements:

Site / heritage details

- Name
- Ownership
- Definition / delineation, boundaries
- Environmental context
- Cultural significance (international, national, regional, local)

Conservation status/condition

- Structure
- Interiors, fixtures, furnishings
- Mechanical and electrical
- External works, landscaping, setting
- Archaeological potential, below and above ground.

Management actions

The below data capture form, which is based on the SAHRA data capture forms, should be used for documenting chance finds.

PROJECT:		1:50 000 MAP:			
SITE NAME:		SITE NO:			
CONSTRUCTION ZONE:					
SITE FEATURES/COMPONENTS:					
SITE COMPONENT NAME:			SITE COMPONENT NO:		
FARM:		NUMBER:		PORTION:	
LATITUDE:		LONGITUDE:		OTHER REFERENCE:	
NHRA CATEGORY	PLACE/BUILDING/STRUCTURE				
	INTANGIBLE HERITAGE SITE				
	HISTORICAL SETTLEMENT/TOWN/FARM YARD				
	LANDSCAPE WITH CULTURAL SIGNIFICANCE				
	GEOLOGICAL SITE WITH CULTURAL SIGNIFICANCE				
	BURIAL SITE				
	SLAVERY/LABOUR SITE				
	ARCHAEOLOGICAL SITE				
SITE CLASSIFICATION	PALAEONTOLOGICAL SITE				
	STONE AGE				
	IRON AGE				
SITE ENVIRONMENT	HISTORICAL				
	HILL	DUNE	PLATEAU	PLAINS	COAST
	SLOPE	VALLEY	URBAN	RIVER	WETLANDS
SITE/COMPONENT DESCRIPTION:					
HISTORY:					
SOURCES OF INFORMATION:					
SITE/COMPONENT SIGNIFICANCE Low = 1 Medium = 2 High = 3	CATEGORY				SCORE
	Historical importance				
	Information potential				
	Rare/endangered				
	Good example				
	Aesthetic appeal				
	Creative/Technical/Scientific				
	Association with particular community/cultural group				
	Association with person of historical importance				
	Association with slave/labour history				
Landmark					
CONDITION	GOOD	FAIR	POOR	DERELICT	
PRESENT USE					
GENERAL EVALUATION	Outstanding importance				
	Significant				
	Contributing				
	Irrelevant to park				
	Intrusive				
CONDITION	GOOD	FAIR	POOR	DERELICT	
STATEMENT OF SIGNIFICANCE:					
LEGAL STATUS:					
THREATS:					
ASSOCIATED OBJECTS:			ACCESSION NOS:		
ASSOCIATED PHOTOS:			FOLDER NOS:		
MANAGEMENT ACTIONS:					
DATA CAPTURED BY:			DATE:		
PHOTOS					

5.3.3 Preservation

After documenting those heritage features that are important and must be retained, then *protecting and maintaining* them comes into effect. Protection generally involves the least degree of intervention.

The following minimum protection measures are recommended for burial sites and other significance chance find spots that will be preserved.

- Clear the graveyard of tall grass and encroaching vegetation
- Erect fencing around site and keep a 15m perimeter zone outside the fence area clean
- Keep area clean
- Access gate must be put in and visitors must have easy access to the site
- Sites must be mapped and all details of each grave recorded for record purposes
- Each preserved site should be provided with an information sign that explains the place, its significance and how it should be treated

5.3.4 Chance finds

Chance finds typical of the heritage of the area may be encountered during site preparation (e.g. clearing of vegetation) and construction work (e.g. trenching) in the form of:

- Human bones (could indicate a grave)
- Large amounts of animal bones (could indicate an anthrax burial site, highly dangerous)
- Objects such as Stone Age artefacts, ammunition, metal pieces etc
- Old rubbish dumps
- Building and structure foundations

It is impossible to predict when and where such chance finds may occur.

Should any chance finds be encountered, the recommended *modus operandi* is as follows:

- All work at and around the site should be stopped immediately by the Contractor
- The Contractor should demarcate the site (e.g. barrier tape) and ensure no further disturbance
- The Contractor must alert the Environmental Officer to inspect the site and document what is found
- The Environmental Officer must alert the Environmental Monitor
- The Environmental Monitor must contact an accredited archaeologist to inspect the chance find and recommend further action

6. IMPLEMENTATION SYSTEM

The institutional and functional framework, as encapsulated in the EMP will indicate the descriptions and roles and responsibilities associated with the various role-players in the KSP project.

With regard to compliance with the provisions of the NHRA and the management and monitoring mechanisms contained in this document, the following actions are recommended to implement these mechanisms:

- An Independent Environmental Officer's responsibilities should include heritage issues in terms of the review of heritage data and regular audits
- An Environmental Monitor's responsibilities should include heritage issues in terms of monitoring site activities, reviewing audits and suggesting mitigation measures (in particular in the case of chance finds)
- An Environmental Officer's responsibilities should include heritage issues in terms of daily monitoring and the implementation of mitigation measures, e.g. documentation
- The Contractor's responsibilities will be to effect protection measures at graveyards
- The Project Engineers will arrange a training session for environmental staff and supervisors employed by the Contractor aimed at empowering these persons to recognise and identify chance finds

7. MONITORING

The baseline information is needed to enable future comparison between the existing status or condition of graves and heritage buildings and any future status or condition that may have been affected by construction activities.

The system of monitoring chance finds is informed by the following parameters (minimum requirements):

- Documentation
- Conservation controls, guidelines, legal encumbrances
- Management plan
- Implementation system

It is recommended that monitoring should be done as follows:

- Data reports should be produced to relate and facilitate comparison between past and present status results. This section essentially comprises raw data providing a "snapshot" of the site at a given time, juxtaposing it with a past snapshot, and simply describing objectively the differences. Changes observed to the site's status should be listed in a summary form.
- Evaluation reports in which conclusions are drawn and recommendations are made based on the objective data generated by the baseline report and periodic reviews.

APPENDIX 1: INFORMATION SOURCES USED IN THIS REPORT

Databases

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Maps

2723 CA Kathu (1972, 2001)
Cadastral farm diagrams of Kathu 465
Maps provided by client

Aerial photos

Google Earth (2005)

Verbal information

Mr Kasper van Vuuren, farm manager

Internet sources

<http://www.flagsol-gmbh.com/flagsol/cms/>

Cape Archives

DEPOT KAB
SOURCE PAS
TYPE LEER
VOLUME_NO 4/519
SYSTEM 01
REFERENCE A2/3
PART 1
DESCRIPTION KURUMAN. ROAD KURUMAN TO KATHU.
STARTING 1907
ENDING 1912

DEPOT KAB
SOURCE PAS
TYPE LEER
VOLUME_NO 4/519
SYSTEM 01
REFERENCE A2/3
PART 2
DESCRIPTION KURUMAN. KURUMAN-KATHU ROAD - \$300.
STARTING 1913
ENDING 1914

DEPOT KAB
SOURCE PAS
TYPE LEER
VOLUME_NO 4/519
SYSTEM 01
REFERENCE A2/3
PART 3
DESCRIPTION KURUMAN. KURUMAN-KATHU ROAD - \$300.
STARTING 1914
ENDING 1915

DEPOT KAB
SOURCE 1/KMN
TYPE LEER
VOLUME_NO 13/24
SYSTEM 03
REFERENCE 29/3/3/55
PART 1
DESCRIPTION APPLICATION BYWONER'S HOUSE. TREURNICH, WG. SACHA, PK KATHU.
STARTING 1935
ENDING 1937

DEPOT KAB
SOURCE 4/KMN
TYPE LEER
VOLUME_NO 4/1/86
SYSTEM 02
REFERENCE K/4
PART 1
DESCRIPTION KATHU.
STARTING 19750000
ENDING 19790000

DEPOT KAB
SOURCE 4/KMN
TYPE LEER
VOLUME_NO 4/1/87
SYSTEM 02
REFERENCE K/4
PART 2

DESCRIPTION KATHU.
STARTING 19800000
ENDING 19820000

National Archives Pretoria

DEPOT SAB
SOURCE URU
TYPE LEER
VOLUME_NO 3214
SYSTEM 01
REFERENCE 798
PART 1

DESCRIPTION PROCLAMATION WHEREBY PROSPECTING IS PROHIBITED ON THE REMAINDER OF
RESERVE NO 1, **KATHU** FOREST RESERVE, KURUMAN.
STARTING 1954
ENDING 1954

APPENDIX 2: GLOSSARY OF TERMS

Cultural significance (Burra Charter)

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

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

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

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

Heritage resources/features (NHRA)

Any place or object of cultural significance, including:

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

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

(c) historical settlements and townscapes;

(d) landscapes and natural features of cultural significance;

(e) geological sites of scientific or cultural importance;

(f) archaeological and palaeontological sites;

(g) graves and burial grounds, including—

(i) ancestral graves;

(ii) royal graves and graves of traditional leaders;

(iii) graves of victims of conflict;

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

(v) historical graves and cemeteries; and

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

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

(i) movable objects, including—

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

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

(iii) ethnographic art and objects;

(iv) military objects;

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

Heritage significance (NHRA)

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

Historic period

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

Impact

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

Impact assessment

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

Intangible heritage

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

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

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

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

Iron Age

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

Issue

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

Maintenance

Keeping something in good health or repair

Management actions

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

Preservation

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

Reconstruction

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

Rehabilitation

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

Restoration

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

SAHRA - South African Heritage Resources Agency

Stone Age

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

Value

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