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SiVEST
Established in 1952

Check on Monday if there is our authorisation

Mr Blair

Your reference:
Our reference: 9919 Kalagadi
Date: 20 April 2010

Dear Interested and Affected Party

CaseID: 1980

ENVIRONMENTAL AUTHORISATION FOR THE PROPOSED CONSTRUCTION OF A RAILWAY AND WATER PIPE LINE TO KALAGADI MANGANESE MINE NEAR HOTAZEL IN THE NORTHERN CAPE PROVINCE: Rev No.(NC/KGA/KUR/GAM/1/09)

Lieslk@sivest.co.za

- **ENVIRONMENTAL AUTHORISATION AVAILABLE**
- **DUE DATE FOR APPEAL: 30 APRIL 2010**

The final Environmental Impact Assessment Report (EIR) for the above project was submitted to Northern Cape Province Department of Tourism, Environment & Conservation.

After reviewing the facts and documentation presented to the administrators of NC DTEC, the Department has issued the Environmental Authorisation (Reference NC/KGA/KUR/GAM1/2009) for the proposed construction of a railway and water pipe line to Kalagadi Manganese Mine Near Hotazel in the Northern Cape Province in terms of the National Environmental Management Act, 1998 and the Environmental Impact Assessment Regulations, subject to conditions included in the Environmental Authorisation.

The Environmental Authorisation was received by SiVEST on 20 April 2010, and as mentioned above is subject to a range of conditions. A copy of the Environmental Authorisation is not included with this letter, but may be obtained from the SiVEST office (contact number: 011 798 0685), and is also available on the SiVEST website (www.sivest.co.za/downloads/).

Should you wish to appeal any aspect of the authorisation, a **notice of intention** your appeal must be lodged with the MEC, by means of one of the following:

By Facsimile: (053) 8321032

By Post: The Member of the Executive Council,
Ministry of Tourism, Environment & Conservation
Kimberley,
Private Bag X6102,
Kimberley, 8300

Divisional Directors W A Pearce (Managing), J A Barnard, D B Blair, R G Kinvig, M A Nevette
A Division of SiVEST Directors * S D Leach (Chairman), M J Wright (Managing), *R A Bell, *M S Hemingway, S G Joubert, H J McGlashan, M J Meikle-Braes, W A Pearce, H G D Regnaud, G R Sims, K Soni, A F Tomkins (*British)
Offices in South Africa Durban, Johannesburg, Ladysmith, Pietermaritzburg, Richards Bay, Somerset West

Part of the SiVEST Group

SiVEST SA (Pty) Ltd Registration No. 2000/006717/07 t/a SiVEST

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1. Chapter 7 of the Regulations stipulates that a **Notice of Intent to Appeal** must be lodged with the Minister within **10 (ten) days** from the date on which the Authorisation was issued to the applicant in terms of regulation **62** (1).
2. In terms of point 1, the applicant received the authorisation on 20 April 2010. Therefore, notification of intent must be lodged by the 30th April 2010 and delivered by hand, post or fax to the above.
3. An appeal must be submitted to the relevant department within **30 days** of lodging the notice of intention to appeal referred to in regulation **62** (1).
4. An appeal (as mentioned in point 3) must be submitted on an official form published by or obtained from the relevant department with all of the facts set out, as well as the grounds of appeal, and must be accompanied by all relevant documents or certified copies of the documents.

Please note that appeals *should not* be sent to SiVEST or the Applicant.

The MEC shall, after considering the relevant facts and supportive documents received during the appeal process:

- Uphold the original decision; or
- Uphold the original decision with modifications; or
- Reverse the original decision.

On behalf of the entire project team, I would like to take this opportunity to sincerely thank you for your interest and constructive inputs into the EIA process. Your participation has been valuable and highly appreciated and was a key factor in assisting the preparation of an informed Environmental Authorisation.

Yours sincerely

Chris Le Roux
Public Participation Practitioner
SiVEST Environmental Division

C9SCID:1980

HERITAGE UNIT

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Heritage Impact Assessment

Kgalagadi Manganese railway and pipeline near Hotazel in the Kgalagadi District Municipality of the Northern Cape Province

Version 1.0

1 December 2008

ACKNOWLEDGEMENT OF RECEIPT

CLIENT: SiVEST Environmental Division

CONTACT PERSON: Mr Paul da Cruz, Tel:+27 11 798 0600, Fax:+27 11 803 7272, Cell:+ 27 84 224 0088, email: pauld@sivest.co.za

SIGNATURE: ____________________

LEADING CONSULTANT: Professional Grave Solutions - Heritage Unit

CONTACT PERSON: Wouter Fourie

SIGNATURE: ____________________

Copyright

Copyright in all documents, drawings and records whether manually or electronically produced, which form part of the submission and any subsequent report or project document shall vest in PGS. None of the documents, drawings or records may be used or applied in any manner, nor may they be reproduced or transmitted in any form or by any means whatsoever for or to any other person, without the prior written consent of PGS.

The Client, on acceptance of any submission by PGS and on condition that the Client pays to Professional Grave Solutions (Pty) Ltd the full price for the work as agreed, shall be entitled to use for its own benefit and for the specified project only:

i. The results of the project;
ii. The technology described in any report ; and,
iii. The recommendations delivered to the Client.

EXECUTIVE SUMMARY

Professional Grave Solutions Heritage Unit was appointed by SiVest Environmental Division to undertake a Heritage Impact Assessment that forms part of the Environmental Management Programme for the proposed Kgalagadi Manganese railway and pipeline near Hotazel in the Kgalagadi District Municipality of the Northern Cape Province.

During the survey one site of low to medium heritage significance was identified.

Site 1 consists of a farmstead with its outbuildings and kraals, dating from the early 1940's. If the alignment is to be kept to the north side of the road on Option 3 the homestead will be impacted on. It is then recommended that the site layout be documented and a permit in accordance with Section 34 of the NHRA be secured for the destruction of the homestead.

Although earlier studies have indicated that the river valley and dunes on the river valley can be seen as archaeological sensitive, the field survey has indicated that no significant concentrations of lithics occur in the two crossings of the rail alignment for Option 1 and Option 3.

There is from a Heritage point of view no reason why the development can not commence.

General

If during mining any possible finds are made, the operations must be stopped and a qualified archaeologist be contacted for an assessment of the find.

CONTENTS

ANNEXURE

Figures

1. INTRODUCTION

Professional Grave Solutions Heritage Unit was appointed by SiVest Environmental Division to undertake a Heritage Impact Assessment that forms part of the Environmental Management Programme for the proposed Kgalagadi Manganese railway and pipeline near Hotazel in the Kgalagadi District Municipality of the Northern Cape Province.

The aim of the study is to identify all heritage sites, document, and assess their importance within Local, Provincial and National context. From this we aim to assist the developer in managing the discovered heritage resources in a responsible manner, in order to protect, preserve, and develop them within the framework provided by the National Heritage Resources Act of 1999 (Act 25 of 1999) (NHRA).

The report outlines the approach and methodology utilised before and during the survey, which includes in Phase 1: Information collection from various sources and public consultations; Phase 2: Physical surveying of the area on foot and by vehicle; and Phase 3: Reporting the outcome of the study.

During the survey one site of low to medium heritage significance was identified.

General site conditions and features on site were recorded by means of photos, GPS location, and description. Possible impacts were identified and mitigation measures are proposed in the following report.

2. APPROACH AND METHODOLOGY

The aim of the study is to study data available to compile a background history of the study area; this was accomplished by means of the following phases.

2.1. Project Description

Kgalagadi Manganese is currently establishing a manganese mine approximately 6 kilometres to the west of Hotazel in the Northern Cape. The mine is situated on Portions of the farms Umtu 281, Olive Pan 282 and Gama 283. It is expect that the intended manganese mine and manganese sinter plant will produce 2.4 million tons of processed product per annum. The sinter plant will require the supply of 1.0 million tons per annum of coke material to be offloaded at the coke handling yard near the plant.

The initial rail feasibility study identified four possible alternative alignments for the proposed rail and pipeline corridor. For the HIA two of the alignments were considered as indicated by the SiVest project team.

For the purpose of this project, various activities related to the proposed railway extension will be required, such as road construction and a stockpiles area. The proposed project alternatives are outlined in the figures below.

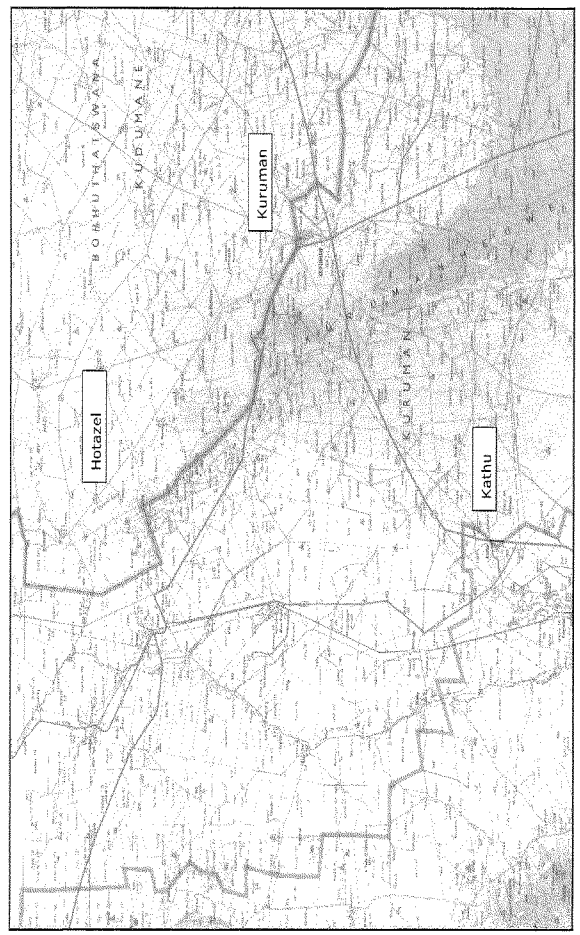


Figure 1 -Regional Locality Map

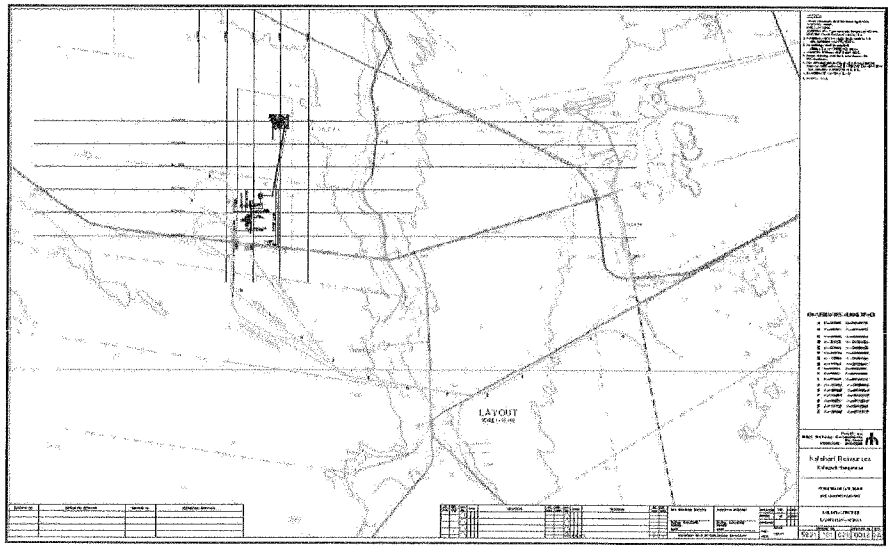


Figure 2 - Outline of option 1

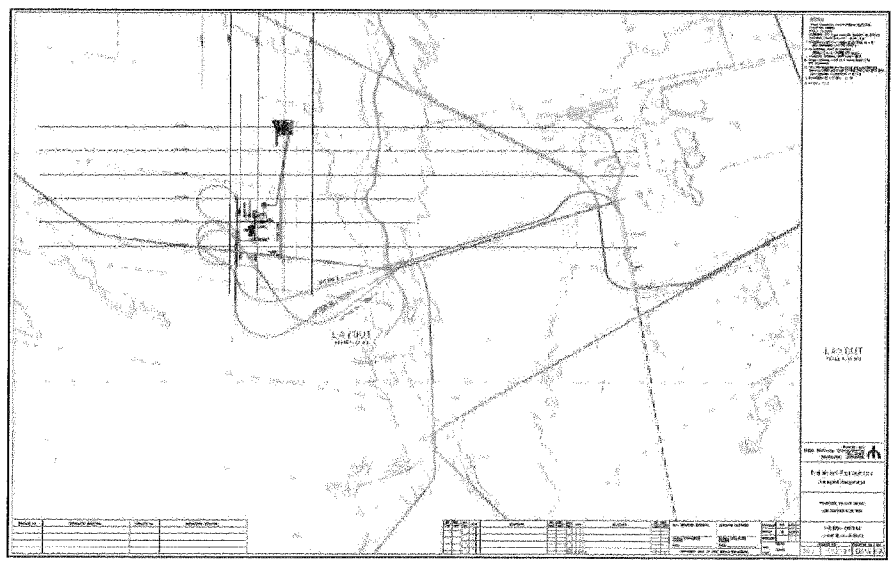


Figure 3- Outline of option 3

2.2 PHYSICAL SURVEYING

It is assumed that the proposed railway project area comprises of approximately 9 kilometres with a servitude with of 20 metres, with specific focus on the designated railway section, stockpile area and associated roads. It is assumed that surface disturbances will be confined to the areas within the servitude. Due to the nature of cultural remains, the majority that occur below surface, a physical walk through of the study area was conducted. A controlled-exclusive surface survey was conducted over a period of one day, by means of vehicle and extensive surveys on foot by two archaeologists of PGS Heritage Unit.

Aerial photographs and 1:50 000 maps of the area were consulted and literature of the area were studied before undertaking the survey. The purpose of this was to identify topographical areas of possible historic and pre-historic activity. All sites discovered both inside and bordering the proposed development area was plotted on 1:50 000 maps and their GPS co-ordinates noted. 35mm photographs on digital film were taken at all the sites.

3. LEGISLATIVE REQUIREMENTS AND TERMINOLOGY

3.1 Legislation

The identification, evaluation and assessment of any cultural heritage site, artefact or find in the South African context is required and governed by the following legislation:

i. National Environmental Management Act (NEMA) Act 107 of 1998
ii. National Heritage Resources Act (NHRA) Act 25 of 1999
iii. Minerals and Petroleum Resources Development Act (MPRDA) Act 28 of 2002
iv. Development Facilitation Act (DFA) Act 67 of 1995

The following sections in each Act refer directly to the identification, evaluation and assessment of cultural heritage resources.

i. National Environmental Management Act (NEMA) Act 107 of 1998
    a. Basic Environmental Assessment (BEA) – Section (23)(2)(d)
    b. Environmental Scoping Report (ESR) – Section (29)(1)(d)
    c. Environmental Impacts Assessment (EIA) – Section (32)(2)(d)
    d. Environmental Management Plan (EMP) – Section (34)(b)
ii. National Heritage Resources Act (NHRA) Act 25 of 1999

    a. Protection of Heritage resources – Sections 34 to 36; and
    b. Heritage Resources Management – Section 38
iii. Minerals and Petroleum Resources Development Act (MPRDA) Act 28 of 2002
    a. Section 39(3)
iv. Development Facilitation Act (DFA) Act 67 of 1995
    a. The GNR.1 of 7 January 2000: Regulations and rules in terms of the Development Facilitation Act, 1995. Section 31.

3.2 Abbreviations and Terminology

ASAPA: Association of South African Professional Archaeologists
CRM: Cultural Resource Management
DEAT: Department of Environmental Affairs and Tourism
DWAF: Department of Water Affairs and Forestry
EIA practitioner: Environmental Impact Assessment Practitioner
EIA: Environmental Impact Assessment
EIA: Early Iron Age
ESA: Early Stone Age
GPS: Global Positioning System
HIA: Heritage Impact Assessment
I&AP: Interested & Affected Party
LSA: Late Stone Age
LIA: Late Iron Age
MSA: Middle Stone Age
MIA: Middle Iron Age
NEMA: National Environmental Management Act
NHRA: National Heritage Resources Act
PHRA: Provincial Heritage Resources Agency
PSSA: Palaeontological Society of South Africa
ROD: Record of Decision
SAHRA: South African Heritage Resources Agency

Archaeological resources

This includes:

i. material remains resulting from human activity which are in a state of disuse and are in or on land and which are older than 100 years including artefacts, human and hominid remains and artificial features and structures;
ii. rock art, being any form of painting, engraving or other graphic representation on a fixed rock surface or loose rock or stone, which was executed by human agency

and which is older than 100 years, including any area within 10m of such representation;

iii. wrecks, being any vessel or aircraft, or any part thereof which was wrecked in South Africa, whether on land, in the internal waters, the territorial waters or in the maritime culture zone of the republic as defined in the Maritimes Zones Act, and any cargo, debris or artefacts found or associated therewith, which is older than 60 years or which SAHRA considers to be worthy of conservation;

iv. features, structures and artefacts associated with military history which are older than 75 years and the site on which they are found.

Cultural significance

This means aesthetic, architectural, historical, scientific, social, spiritual, linguistic or technological value or significance

Development

This means any physical intervention, excavation, or action, other than those caused by natural forces, which may in the opinion of the heritage authority in any way result in the change to the nature, appearance or physical nature of a place or influence its stability and future well-being, including:

i. construction, alteration, demolition, removal or change in use of a place or a structure at a place;

ii. carrying out any works on or over or under a place;

iii. subdivision or consolidation of land comprising a place, including the structures or airspace of a place;

iv. constructing or putting up for display signs or boards;
any change to the natural or existing condition or topography of land;

v. any removal or destruction of trees, or removal of vegetation or topsoil

Heritage resources

This means any place or object of cultural significance

4. ASSESSMENT CRITERIA

This chapter describes the evaluation criteria used for the sites listed below.

The significance of archaeological sites was based on four main criteria:

- **site integrity** (i.e. primary vs. secondary context),
- **amount of deposit, range of features** (e.g., stonewalling, stone tools and enclosures),

- **uniqueness** and
- **potential** to answer present research questions.

Management actions and recommended mitigation, which will result in a reduction in the impact on the sites, will be expressed as follows:

A - No further action necessary;

B - Mapping of the site and controlled sampling required;

C - Preserve site, or extensive data collection and mapping of the site; and

D - Preserve site

Impacts on these sites by the development will be evaluated as follows

4.1 IMPACT

The potential environmental impacts that may result from the proposed development activities.

4.1.1 Nature and existing mitigation

Natural conditions and conditions inherent in the project design that alleviate (control, moderate, curb) impacts. All management actions, which are presently implemented, are considered part of the project design and therefore mitigate against impacts.

4.2 EVALUATION

4.2.1 Site Significance

Site significance classification standards prescribed by the South African Heritage Resources Agency (2006) and approved by the Association for Southern African Professional Archaeologists (ASAPA) for the Southern African Development Community (SADC) region, were used for the purpose of this report.

FIELD RATING	GRADE	SIGNIFICANCE	RECOMMENDED MITIGATION
National Significance (NS)	Grade 1	-	Conservation; National Site nomination
Provincial Significance (PS)	Grade 2	-	Conservation; Provincial Site nomination
Local Significance (LS)	Grade 3A	High Significance	Conservation; Mitigation not advised
Local Significance (LS)	Grade 3B	High Significance	Mitigation (Part of site should be retained)

Generally Protected A (GP.A)	-	High / Medium Significance	Mitigation before destruction
Generally Protected B (GP.B)	-	Medium Significance	Recording before destruction
Generally Protected C (GP.C)	-	Low Significance	Destruction

4.2.2 Impact Rating

Each impact identified will be assessed in terms of probability (likelihood of occurring), extent (spatial scale), intensity (severity) and duration (temporal scale). To enable a scientific approach to the determination of the impact significance (importance), a numerical value will be linked to each rating scale. The sum of the numerical values will define the significance. The following criteria will be applied to the impact assessment for the Ferreira Project EIA / EMP.

Table 1: Probability

Category	Rating	Description
Definite	3	More than 90 percent sure of a particular fact or of the likelihood of that impact occurring
Probable	2	70 to 90 percent sure of a particular fact or of the likelihood of that impact occurring
Possible	1	40 to 70 percent sure of a particular fact or of the likelihood of that impact occurring
Improbable	0	Less than 40 percent sure of a particular fact or of the likelihood of that impact occurring

Table 2: Extent

Category	Rating	Description
Site	1	Immediate project site
Local	2	Up to 5 km from the project site
Regional	3	20 km radius from the project site
Provincial	4	Northern Cape Provincial
National	5	South African
International	6	Neighbouring countries/overseas

Table 3: Duration

Category	Rating	Description
Very short-term	1	Less than 1 year
Short-term	2	1 to 4 years
Medium-term	3	5 to 9 years
Long-term	4	10 to 15 years
Very long-term	5	Greater than 15 years
Permanent	6	Permanent

Table 4: Intensity

Category	Rating	Description
Very low	0	Where the impact affects the environment in such a way that natural, cultural and social functions are not affected
Low	1	Where the impact affects the environment in such a way that natural, cultural and social functions are only marginally affected
Medium	2	Where the affected environment is altered but natural, cultural and social function and processes continue albeit in a modified way
High	3	Where natural, cultural or social functions or processes are altered to the extent that they will temporarily cease
Very high	4	Where natural, cultural or social functions or processes are altered to the extent that they will permanently cease

Table 5: Significance Rating

Score	Significance Rating
2 - 4	Low
5 - 7	Low to Moderate
8 - 10	Moderate
11 - 13	Moderate to High
14 - 16	High
17 - 19	Very High

5. BACKGROUND OF AREA

5.1 ARCHAEOLOGICAL BACKGROUND

The Stone Age is divided in Earlier; Middle and Later Stone Age and refers to the earliest people of South Africa who mainly relied on stone for their tools.

Earlier Stone Age: The period from ± 2.5 million yrs - ± 250 000 yrs ago. Acheulean stone tools are dominant.

Middle Stone Age: Various lithic industries in SA dating from ± 250 000 yrs – 22 000 yrs before present.

Later Stone Age: The period from ± 22 000-yrs before present to the period of contact with either Iron Age farmers or European colonists.

The Iron Age as a whole represents the spread of Bantu speaking people and includes both the Pre-Historic and Historic periods. Similar to the Stone Age it to can be divided into three periods:

The Early Iron Age: Most of the first millennium AD.

The Middle Iron Age: 10th to 13th centuries AD

The Late Iron Age: 14th century to colonial period.

5.2 ARCHIVAL/HISTORICAL MAPS

A number of maps depicting the study area were located. Enlarged sections of these maps are presented below. A short discussion on each of these maps is also made.

5.2.1 Merensky Map, 1887

(National Archives, Maps, 3/302)

The map depicted in **Figure 4** below is titled *"Original Map of South Africa"*. It was compiled by Reverend A. Merensky and dates from 1887. The map does not appear to be all that accurate, but provides some idea as to the characteristics of the study area at the time (refer **Figure 4**).

It is evident from the enlarged map component below that many of the settlements in the general vicinity of the study area were located on the existing rivers. S ee for example *'Ga Maperi'*, *'Batlaros'*, *'Old Lattaku'* and so forth.

Figure 4 *- Map depicting the study area and surrounding region. Note that almost all the towns are situated on or near the main rivers (National Archives, Maps, 3/302).*

5.2.2 "Kuruman", Undated

(National Archives, Maps, 3/533)

This map is simply titled *"Kuruman"*, with no further information depicted thereon..

An important observation to be made from this map, and something that is supported by the other data, is that the proclaimed farms at the time stretched only to the vicinity of the Kuruman River, with no proclaimed farms to the west of it. Although settlements are shown to the west of the said river, these are all located on the banks of the rivers.

Figure 5 *- Depiction of the wider landscape surrounding the study area (National Archives, Maps, 3/533). The so-called Lower Kuruman Native Reserve is shown on the right.*

Figure 6 *-Closer view on the study area and surroundings. Note the location of the towns close to river courses (demarcated in black line). A road (stippled line) can also be seen crossing over the vicinity of the study area from Dikgathlon southwards. (National Archives, Maps, 3/533).*

5.2.3 British Bechuanaland Map, 1894

(National Archives, Maps, 1/441)

"Map of the Surveyed Portion of British Bechuanaland" was compiled by the Surveyor-General's Office in Vryburg. It is a relatively accurate map and importantly indicates the extent to which farms in the area have been proclaimed and demarcated. Note that the entire section in which the study area is located was still unsurveyed at the time with no farm boundaries shown.

No settlement features or human activity centres are shown for the areas in which the farms under discussion are located. Almost all the settlements shown on this map are located on or near the rivers.

On 23 March 1885 Britain declared a Protectorate over Bechuanaland and the Kalahari. On 30 September 1885 the Protectorate was divided into two parts. The area north of the Molopo River remained the Bechuanaland Protectorate and up to 1895 was administered from Vryburg, after which the capital was moved to Mafeking. The area south of the Molopo became the Crown Colony of British Bechuanaland with its capital at Vryburg (Tlou & Campbell, 1997). This area included the present study area as well as Kuruman.

In accordance to Act 31 of 1895 the area south of the Molopo River, namely British Bechuanaland, was included in the Cape Colony. This took place during November 1895 (Smit, 1966).

5.3.5 Historic Black Settlement

5.3.5.1 Situation at the beginning of the 19th century

When Reverend Robert Moffat first arrived in the Kuruman area in 1819 he found the Tlhaping settled at Maropin in the Kuruman Valley under their ruler Mothibi. They subsequently moved upstream to the vicinity of present-day Kuruman.

During the same time Moffat found the BaTlharo established at Tsening.

In a document written by the Superintendent of Natives on 3 November 1921, it is indicated that before the farms to the west of the Lower Kuruman Native Reserve were surveyed and ceded to different white farmers, the black people of the area "*...had the run of the whole country to the Moshewing River on the one side and the Gamagara River on the other...*" and grazed their livestock and conducted agricultural activities over these vast tracts of land. In an associated petition document drawn up by the Thlaro people of Bathlaros, they indicated that their agricultural lands and cattle posts used to stretch in a westward direction all the way to the "*Dibeng* " River, which appears to be the present-day Ga-Mogara River (NTS, 7752, 22/335).

5.3.5.2 Lower Kuruman Native Reserve

On 4 May 1895 the Lower Kuruman Native Reserve as well as a number of other so-called native reserves was established by virtue of Bechuanaland Proclamation No. 220 of 1895. These reserves were demarcated as part of a commission which investigated land claims and land settlement in British Bechuanaland. A subsequent report titled "*Report of the Commissioners appointed to determine land claims and to the effect of a land settlement in British Bechuanaland*" and published in 1896, contained all the findings of the commission (Breutz, 1963).

Figure 11 *- Map showing the original demarcation of the Lower Kuruman Native Reserve.*

At the time of its establishment, the Lower Kuruman Native Reserve had a population of 5425, and being 225 square miles in extent, had a population density of 26.5 acres per individual. With time, the population density increased. Livestock numbers also increased drastically. As a result of these pressures the size of the reserve was subsequently extended.

During negotiations and discussions on such an expansion of the reserve, it was indicated that a number of black people were residing outside the boundaries of the reserve. In a police report dated 22 January 1908 a list is provided of all the people, white and black, residing "*...on the banks of the Kuruman River north of the surveyed farms in the Sishen Valley.*" This document provides an indication of human habitation in the direct vicinity of the study area during the early 1900s. One interesting observation to be made from the document is that some of the persons who acted as borehole watchmen were black. For example, Hans Gaboerkwe had been living at Dibiachomo since 1899 and was tasked with keeping the well open (NTS, 7752, 22/335).

5.4.6 The Langeberg Rebellion

During 1897 conflict broke out between the authorities and a Thlaping leader from Taung, Galeshiwe. The conflict arose after some of Galeshiwe's cattle that were infected by Rinderpest had to be destroyed. After killing an officer, Galishewe fled to the Thlaro leader Toto of the Langeberg. A full-scale rebellion broke out that was eventually suppressed (Breutz, 1963).

Figure 12 *- Galeshiwe (National Archives, TAB, 36277).*

Although most of the activities associated with the rebellion took place away from the study area and surrounding region, it is evident from the historical records documenting the rebellion that some activities did take place in the vicinity. On 13 June 1897, for example, a battle took place between Inspector Berrangé's Cape Police and a large force under Galishiwe at Tsineng (Dalgerty, 1898). Another incident which took place in the area was the killing of J.P. and Edward Drotskie in the vicinity of Boeredraai (Snyman, 1992). It can be expected that the movement of military units must have taken place a number of times in the area as well. From the British records, for example, it is known

that military patrols traversed the area between Kuruman and Tsineng, as well as along the Ga-Mogara river. Furthermore, on 20 June 1897 a large force of "rebels reinforcements" were observed between Upper and Lower Dikgathlong on their way to the Langeberg.

5.3.7 Settlement of White Farmers

5.3.7.1 Background information on the settlement of white farmers in the area

According to Smit (1966) the farm Boerdraai 228, which is adjacent and to the west of the farm Wessels 227, was always seen as situated on the edge of the real desert.

Although some white farmers did travel down the Kuruman River to settle in the vicinity of Boeredraai during the latter part of the 19th century, by 1897 most of them had moved away again.

The first white people to settle on a permanent basis in the area were the Le Roux family who established themselves at Dikgathlon. More families followed and subsequently also settled in the area. During a period of great drought between 1907 and 1908 many farmers of the then Cape Colony moved into these areas along the edge of the Kalahari Desert in search of better grazing for their cattle (Smit, 1966).

Figure 13 *- Police document listing all the people who resided on the banks of the Kuruman*

River at the time of an inspection in 1908. The names of a number of the early white pioneers in the area are also listed here.

When the First World War (1914-1918) broke out, and the South African Union Government decided to attack German South West Africa, the Union troops needed water to sustain them along the way. As a result a number of boreholes were dug all along the banks of the Kuruman River. These boreholes were erected at places such as Eensaam, Kameelrus, Murray, Springputs and Van Zylsrus (Smit, 1966; Van der Merwe, 1949).

After the war, farmers established themselves at these localities as borehole watchmen, and in exchange for these duties were allowed free grazing rights on the surrounding land. Subsequently, even more boreholes were sunk by the Department of Lands (Smit, 1966; Van der Merwe, 1949).

Since the formulation of the Land Settlement Act No. 12 of 1912 as amended by Act No. 23 of 1917, numerous farms in the vicinity of the study area had been allocated to white farmers. By 1921 almost all of the land surrounding the *Lower Kuruman Native Reserve* had become occupied.

At the end of the First World War the Department of Lands started distributing the farms on application under very lenient conditions. Many of the people who was already established as borehole watchmen and tenants were given first choice to apply for the farms on which they were residing (Smit, 1966).

Many farms were distributed during this time, so much so that by 1929 all the farm up to Vanzylsrust was already handed out (Smit, 1966).

5.3.7.2 Farm Surveys

During the 1910s a full scale survey of large portions of the region was undertaken by Dirk Roos and Hendrik Wessels. While Wessels was concerned with the surveying of the farms from Dingle and Sishen up to Cobham and Shirley, Dirk Roos was responsible for the surveying of the farms from Mamatwan in the south to areas further north of the Kuruman River (Samangan, 1977).

Many stories are told about these two pioneering characters. As they were allowed to name the farms they surveyed, most of the farms names appearing on maps of the area were created or thought of by them. The farm Wessels, for example, was named by Dirk Roos in honour of his colleague Hendrik Wessels. Mamatwan, another farm forming part of this study, was derived from the Tswana name for a bat.

One of the more well-known stories relates to the naming of the farm Hotazel. Dirk Roos was assisted at the time by Veldcornet J.U. Waldeck. One evening, after a long day's work in the hot Kalahari sun Roos sat down at the camp and remarked: *"What about a name for the farm? Phew! What a day! What a place! Hot as hell."* Waldeck replied with the words *"That's it. The perfect name for it – hot as hell"* (Samangan, 1977:19 & 20). The wording was slightly changed and *"Hotazel"* was written as the farm name on the survey diagram.

5.3.8 Mining

The study area and surrounding region is today well known for its manganese mines. The importance of manganese lies in the fact that it is used in the manufacture of carbon steel.

The history of modern manganese mining in the area can be traced back to Dr. A.W. Rogers who published a record of the geology of present-day Botswana and Griqualand West as part of the annual report of the Geological Commission of the Cape Colony in 1906. What is significant about his publication is that Rogers found that the well-known hill from the area known as Black Rock consisted largely of manganese, a mineral ore previously undiscovered in the Cape Colony.

The next important person to appear on the scene was Dr. L.G. Boardman. While employed by the Government Geological Survey as a geologist, Dr. Boardman investigated the manganese deposits at Black Rock during or directly after 1940. He was very excited by the extent of the manganese, and published his findings in a paper he wrote for the Geological Society of South Africa.

Even before the visit by Dr. Boardman, a prospector by the name of A.T. Fincham had felt that the area surrounding the Black Rock outcrop may also contain manganese. As a result he obtained options on a number of farms surrounding Black Rock. He approached the mining company S.A. Manganese with these farm options, but they felt that the Black Rock area was too isolated at the time. Fincham approached Ammosal as well, who took over his options on three farms and after a further assessment by geophysicist Oscar Weiss, decided to mine the Black Rock area during mid-1940.

During 1950 S.A. Manganese was again approached by Fincham regarding new options on farms surrounding Black Rock. Although the mining company was not interested, Dr. Boardman who had joined their ranks earlier convinced the board to at least investigate the Black Rock area. Boardman subsequently surveyed large tract of land, including the farms Wessels, Mamatwan, Dikgathlong, Dibiaghomo. He found very promising results over large sections of land, and a drilling rig soon arrived. The first borehole was drilled on Wessels, and after disappointing results it was moved to Dibiaghomo. Here, at a depth of 280 meters, ore containing a very high manganese percentage was reached. Other boreholes in the area found similar results and the freehold to a number of farms were obtained. When information about these discoveries leaked out and reached Ammosal, a tussle broke out between the two companies two obtain freeholds to as many farms in the mineral-rich area as possible.

Although mining operations started in earnest on Smartt, S.A. Manganese's attention was soon drawn to the farm Hotazel where very promising results were also found. A

whole village was constructed on the farm, and the Hotazel mine was officially opened on 19 November 1959.

During the early 1960s S.A. Manganese Limited (Samangan) at the time had options over 18 farms, including the farms Mamatwan and Goold on the southern edge of the ore body. Although Mamatawan had been prospected only low grade manganese ore could be found. However, the ratio between iron and manganese from Mamatwan was believed to be excellent. During this time Ammosal had started mining on the adjacent farms of Devon and Adams, and it was not long before the decision was made to commence mining operations on Mamatwan as well.

After a crushing and screening plant was erected at Mamatwan the mine began producing in November 1963. During the 1970s the mine reached a production output of more than one million tons a year (Samangan, 1977).

Although the mining rights of the farm Wessels had been acquired by S.A. Manganese in 1952, and even though some prospecting work had taken place, it was not until 1965 that the farm was again looked at with interest.

By January 1969 20 boreholes had been sunk on the farm Wessels, Dibiaghomo and Dikgathlong, which revealed three bands of manganese ore, of which the top and bottom bands were considered mineable.

The official opening of Wessels mine took place on 2 May 1973. By 1976 the mine was producing 750 000 tons a year (Samangan, 1977).

5.4 POSSIBLE HERITAGE SITES

As mentioned elsewhere, a number of old houses are shown on the old survey diagrams for the farms Wessels and Middelplaats. Should any of these houses be located today, they would be quite old. These houses represent some of the earliest white settlement in the area and as such can be seen as quite important.

Figure 14 *- Historic photograph of an early farmer's dwelling along the Kuruman River (Van der Merwe, 1949).*

Many of the archival maps show an old road following the Ga-Mogara River. This road seems to at least have existed during the 1890s. It is possible that the old road transects some of the properties included in this study.

5.5 CONCLUSIONS

This archival study has revealed important aspects about the history of the area. Certainly some of the key things that came out of the study is firstly the relative low human presence for the dry regions surrounding the study area and secondly the tendency for human settlements in these areas to be located on or near the water courses.

6. SITES OF SIGNIFICANCE

The study area is located on topographical sheet 2722BB and BD. The proposed rail link covers a total of 9 kilometres; however the physical impact area will finally be confined to the railway servitude as indicated in Figure 2 and 3.

The proposed site consisted of woodlands and sand veldt intermingled with red dunes. The proposed alignment also traverses the Ga-mogara (Kuruman) river.

As with perviaus surveys in the Hotazel area, the only archaeological sensitive areas occurred where the site is characterised by a dry riverbed that exposed limestone and pebble deposits. The area is however restricted to a zone of approximately 50 meters from the centre of the river bed that extents east and west from Vlermuislaagte in which the Ga-Mogara perennial river runs.

Previous reconnaissance of Vlermuislaagte confirmed localised occurrences of low density Stone Age scatters along the exposed lime stone areas. These lime stone outcrops and the dune areas can be marked as archaeological sensitive areas.

A small number of lithic artefacts, eroding from a Hutton sand dune were noted. Cores and formal flake tools are representative of the Earlier and Middle Stone Age. A single small handaxe may indicate that the collection is representative of the Fauresmith Industrial Complex (transitional industry between the Earlier and Middle Stone Age), alternatively the collection may be representative of an in situ sub-surface Earlier to Middle Stone Age stratigraphic sequence. The Fauresmith was first recorded in South Africa and has subsequently been reported on from sites in East Africa. In general the industry is still poorly understood and represented only by a very limited number of

excavated sites. Open air sites with a stratigraphic sequence, ranging from the Earlier to Middle Stone Age, from the interior of the country, are equally limited.

Although earlier studies have indicated that the river valley and dunes on the river valley can be seen as archaeological sensitive, the field survey has indicated that no significant concentrations of lithics occur in the two crossings of the rail alignment for Option 1 and Option 3.

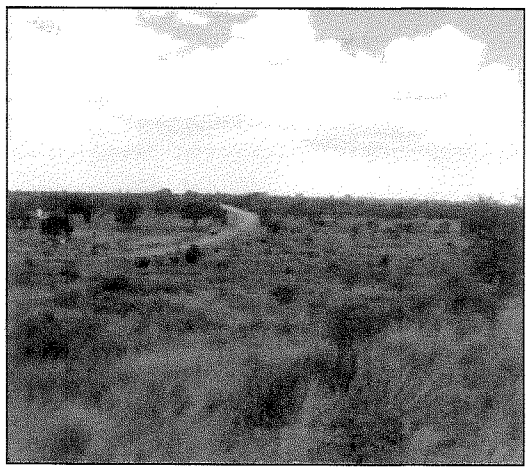


Figure 15 - View of river crossing on alignment option 3

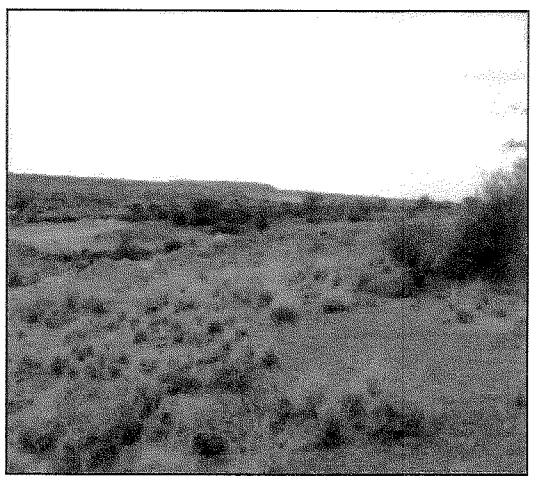
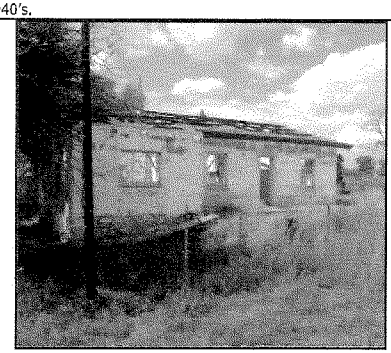


Figure 16 – Exposed dune with disturbance in back ground

One single site of low heritage significance was identified within the study area but outside the proposed rail alignment.

6.1 Site 1

Description of Site:			
Site Number	Site 1		
Map reference	***Topo-sheet number***	***Number of Map in report***	
	2722BB	***Annexure A***	
GPS coordinates: *Indicate Model and datum - WGS 84*	X	Y	
Garmin 60Csx, WGS 84	-27.2283400	22.923180	
Site Data	***Description***		
Type of site *(e.g. open scatter; shell midden, cave /shelter);*	The site is that of an old farmstead consisting of a main house, outbuildings and sheep/goat kraals. The core of the main house was constructed with limestone blocks and plastered with a daub mixture. The additions to the house were later added with fired bricks. The outbuildings consist of a water tower with cooling room underneath the water tank, a boiler and large shed on the eastern side of the house. The kraals are situated on the western side of the Ga-mogara river in its floodplain. The site was occupied by the Kruger family since the early 1940's.		
Photographs and diagrams *(Figure numbers)*	 *Figure 17: Photo of house*		

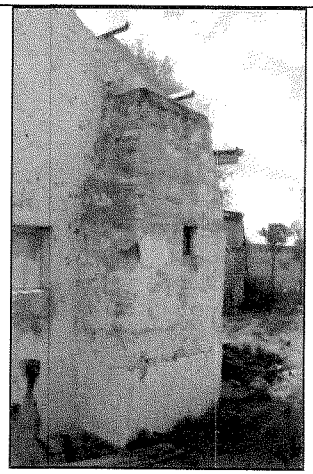


Figure 18: Original oven of house

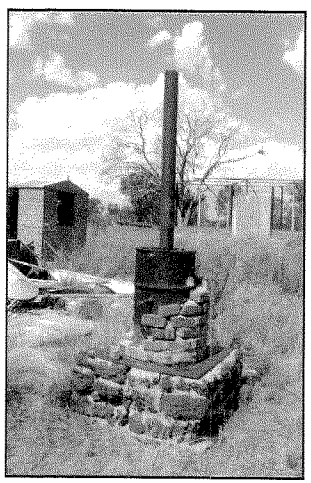


Figure 19: Outbuildings with boiler

Statement of Significance *(Heritage Value)*	The site is of low significance.				
Field Rating *(Recommended grading or field significance)* of the site:	Generally protected (GP.B)				
Impact Evaluation *of development on site*	Impact on site is seen as possibly low negative.				
Recommendations *including:*	If the alignment is to be kept to the north side of the road on Option 3 the homestead will be impacted on. It is then recommended that the site layout be documented and a permit in accordance with Section 34 of the NHRA be secured for the destruction of the homestead.				
Summary		**Option 1**			
Impact Significance Rating	**Field Rating**	**Probability**	**Extent**	**Duration**	**Intensity**
2 - Low	GP.B	0	1	1	0
		Option 3			
		Probability	**Extent**	**Duration**	**Intensity**
13 - High	GP.B	2	1	6	4

7. ASSUMPTIONS AND LIMITATIONS

Not subtracting in any way from the comprehensiveness of the fieldwork undertaken, it is necessary to realise that the heritage resources located during the fieldwork do not necessarily represent all the heritage resources located there. This may be due to various reasons, including the subterranean nature of some archaeological sites and dense vegetation cover. As such, should any heritage features and/or objects not included in the present inventory be located or observed, a heritage specialist must immediately be contacted. Such observed or located heritage features and/or objects may not be disturbed or removed in any way until such time that the heritage specialist has been able to make an assessment as to the significance of the site (or material) in question. This is true for graves and cemeteries as well.

8. LEGAL AND POLICY REQUIREMENTS

8.1 General principles

In areas where there has not yet been a systematic survey to identify conservation worthy places, a permit is required to alter or demolish any structure older than 60 years. This will apply until a survey has been done and identified heritage resources are formally protected.

Archaeological and palaeontological sites, materials, and meteorites are the source of our understanding of the evolution of the earth, life on earth and the history of people. In the new legislation, permits are required to damage, destroy, alter, or disturb them. People who already possess material are required to register it.

The management of heritage resources are integrated with environmental resources and this means that before development takes place heritage resources are assessed and, if necessary, rescued.

In addition to the formal protection of culturally significant graves, all graves, which are older than 60 years and are not in a cemetery (such as ancestral graves in rural areas), are protected. The legislation protects the interests of communities that have interest in the graves: they may be consulted before any disturbance takes place.

The graves of victims of conflict and those associated with the liberation struggle will be identified, cared for, protected and memorials erected in their honour.
Anyone who intends to undertake a development must notify the heritage resource authority and if there is reason to believe that heritage resources will be affected, an impact assessment report must be compiled at the developer's cost. Thus developers will be able to proceed without uncertainty about whether work will have to be stopped if a heritage resource is discovered.

According to the National Heritage Act (Act 25 of 1999 section 32) it is stated that:
An object or collection of objects, or a type of object or a list of objects, whether specific or generic, that is part of the national estate and the export of which SAHRA deems it necessary to control, may be declared a heritage object, including –

- objects recovered from the soil or waters of South Africa, including archaeological and palaeontological objects, meteorites and rare geological specimens;
- visual art objects;
- military objects;

- numismatic objects;
- objects of cultural and historical significance;
- objects to which oral traditions are attached and which are associated with living heritage;
- objects of scientific or technological interest;
- books, records, documents, photographic positives and negatives, graphic material, film or video 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), or in a provincial law pertaining to records or archives; and
- any other prescribed category.

Under the National Heritage Resources Act (Act No. 25 of 1999), provisions are made that deal with, and offer protection, to all historic and pre-historic cultural remains, including graves and human remains.

8.1 Graves and cemeteries

Graves younger than 60 years fall under Section 2(1) of the Removal of Graves and Dead Bodies Ordinance (Ordinance no. 7 of 1925) as well as the Human Tissues Act (Act 65 of 1983) and are the jurisdiction of the National Department of Health and the relevant Provincial Department of Health and must be submitted for final approval to the Office of the relevant Provincial Premier. This function is usually delegated to the Provincial MEC for Local Government and Planning, or in some cases the MEC for Housing and Welfare. Authorisation for exhumation and reinterment must also be obtained from the relevant local or regional council where the grave is situated, as well as the relevant local or regional council to where the grave is being relocated. All local and regional provisions, laws and by-laws must also be adhered to. In order to handle and transport human remains the institution conducting the relocation should be authorised under Section 24 of Act 65 of 1983 (Human Tissues Act).

Graves older than 60 years, but younger than 100 years fall under Section 36 of Act 25 of 1999 (National Heritage Resources Act) as well as the Human Tissues Act (Act 65 of 1983) and are the jurisdiction of the South African Heritage Resource Agency (SAHRA). The procedure for Consultation Regarding Burial Grounds and Graves (Section 36(5) of Act 25 of 1999) is applicable to graves older than 60 years that are situated outside a formal cemetery administrated by a local authority. Graves in the category located inside a formal cemetery administrated by a local authority will also require the same authorisation as set out for graves younger than 60 years over and above SAHRA

authorisation. If the grave is not situated inside a formal cemetery but is to be relocated to one, permission from the local authority is required and all regulations, laws and by-laws set by the cemetery authority must be adhered to.

9. ASSESSMENT AND RECOMMENDATIONS

A locality map is provided in ***Annexure A***

During the survey one site of low to medium heritage significance was identified.

Site 1 consists of a farmstead with its outbuildings and kraals, dating from the early 1940's. If the alignment is to be kept to the north side of the road on Option 3 the homestead will be impacted on. It is then recommended that the site layout be documented and a permit in accordance with Section 34 of the NHRA be secured for the destruction of the homestead.

Although earlier studies have indicated that the river valley and dunes on the river valley can be seen as archaeological sensitive, the field survey has indicated that no significant concentrations of lithics occur in the two crossings of the rail alignment for Option 1 and Option 3.

There is from a Heritage point of view no reason why the development can not commence.

General

If during mining any possible finds are made, the operations must be stopped and a qualified archaeologist be contacted for an assessment of the find.

10. LIST OF PREPARES

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National Archives, Maps, 2/1085
National Archives, Maps, 3/302
National Archives, Maps, 3/533

Archival Photographs

National Archives, TAB, 16396
National Archives, TAB, 36277

ANNEXURE A:

Study area