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Department:
Minerals and Energy
REPUBLIC OF SOUTH AFRICA

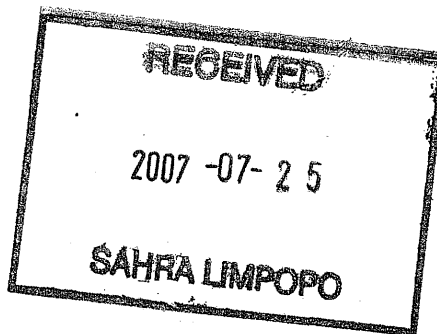
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Attention: Mr. Donald Lithole/ Victor Netshiavha

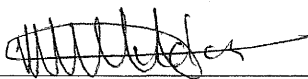
CONSULTATION IN TERMS OF SECTION 40 OF THE MINERAL AND PETROLEUM RESOURCES DEVELOPMENT ACT 2002, (ACT 28 OF 2002) FOR THE APPROVAL OF THE ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT FOR THE PROPOSED MECKLENBURG CHROME MINE ON FARM MECKLENBURG 112 KT SITUATED IN THE MAGISTERIAL DISTRICT OF GREATE TUBATSE, LIMPOPO REGION.
APPLICANT: CHROMEX MINING COMPANY.

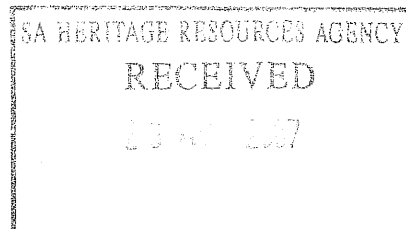
Attached herewith, please find a copy of an Environmental Management Programme Report received from the above-mentioned applicant, for your comments.

It would be appreciated if you could forward any comments or requirements your Department may have in the case in hand to this office and to the applicant within 30 days as from **23 July 2007 to 25 September 2007**, failure of which will lead to the assumption that your Department has no objection(s) or comments with regard to this application and this Department will in that instance proceed with the finalisation thereof.

Consultation in this regard has also been initiated with other relevant State Departments. In an attempt to expedite the consultation process please contact **Mr. Azwihangwisi Mulaudzi** of this office to make arrangements for a site inspection or for any other enquiries with regard to this application.

Your co-operation will be appreciated.

PP 
THE REGIONAL MANAGER
LIMPOPO REGION - POLOKWANE



80 EM



**Proposed Chrome Mine,
Mecklenburg 112 KT,
Limpopo Province,
South Africa**



**Environmental Impact Assessment Report and
Environmental Management Programme**

March 2007

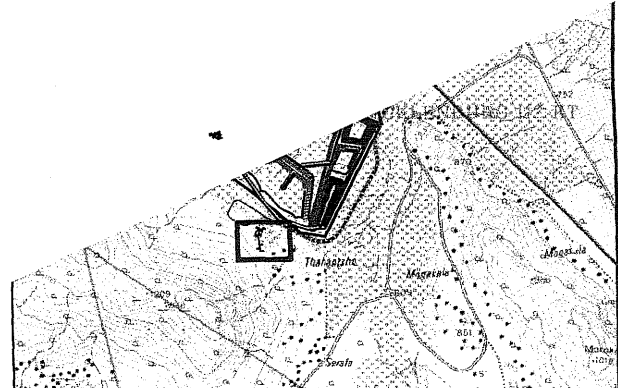
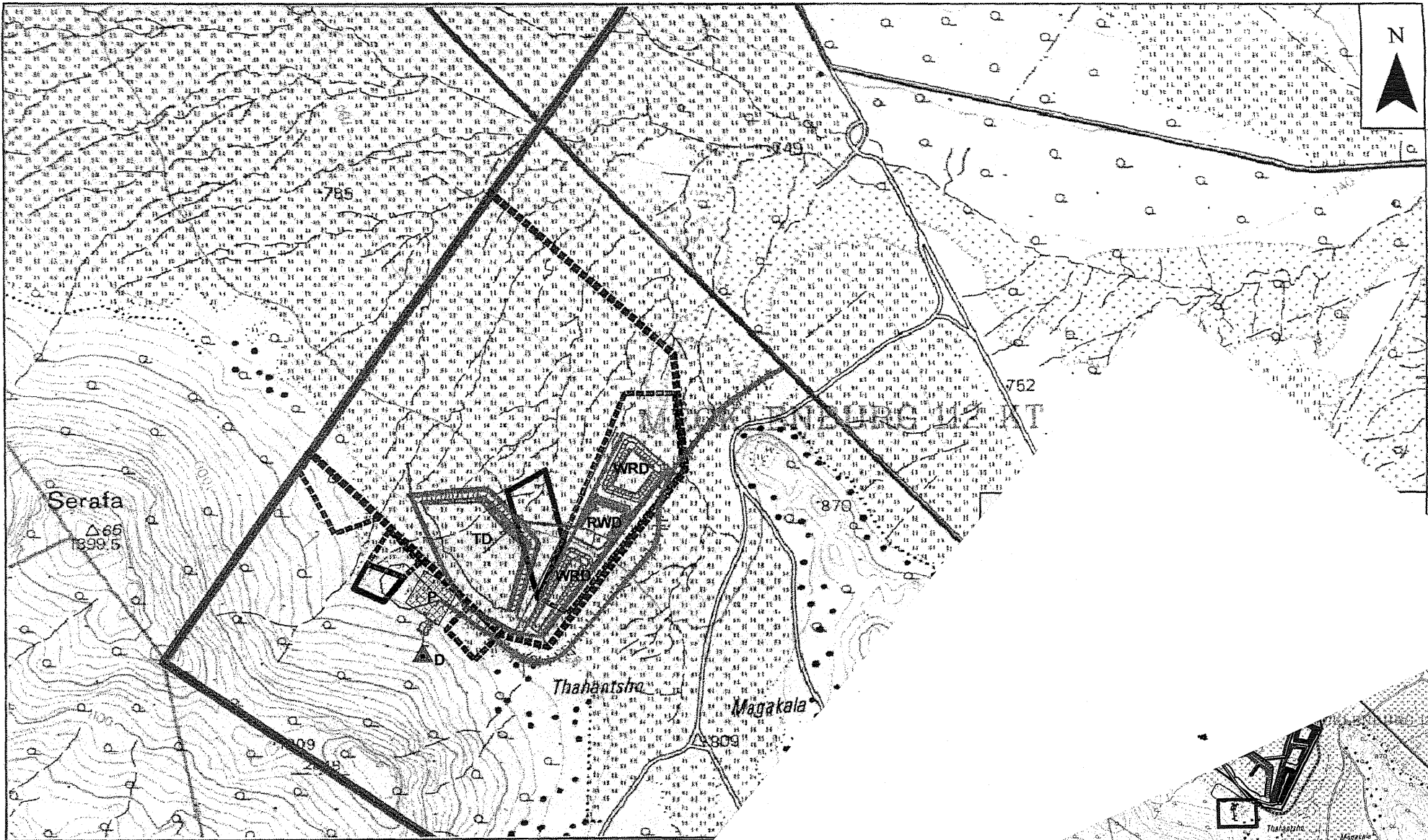
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MINE RALS AND ENERGY
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 REGIONAL OFFICE
 LIMPOPO PROVINCE

SIGNATURE: *[Handwritten Signature]* DATE: 23/2/07

NAME OF OFFICER (PRINT): *[Handwritten Name]*

ERM



- Legend**
- Mecklenburg 112 KT
 - Proposed Anglo Platinum Limited Tailings Dam Footprint
 - Proposed Mecklenburg Chrome Infrastructure and Residue Disposal Sites
 - Tailings Dam (TD)
 - Waste Rock Dumps (WRD)
 - Access Road (---)
 - Return Water Dam (RWD)
 - Plant (P)
 - Declines (D)

Alternative
Was
T

WORKED:	JM	PROJECT:	0053190
APPROVED:	JM	SCALE:	NOT TO SCALE
RN			

SOURCE:
PROJECTION:None

TITLE:
Figure 3
Mecklenburg Chrome:
Layout Plan - Plant and Declines

HERITAGE IMPACT ASSESSMENT REPORT

CHROMEX MINING PTY LTD PROPOSED DEVELOPMENT OF A NEW MINE ON THE FARM MECKLENBURG 112 KT GREATER SEKHUKHUNE DISTRICT MUNICIPALITY LIMPOPO PROVINCE

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November 2006

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EXECUTIVE SUMMARY

Chromex Mining (Pty) Ltd proposes to develop a new chrome mine in the Limpopo Province of South Africa within the Central Area of the Eastern Limb of the Bushveld Complex. The Proposed Mine will be located within the Steelpoort Valley on the farm Mecklenburg 112 KT. The heritage resources survey of the project area has detected the remains of archaeological material that has scientific significance. The determination of significance is based on criteria explained in the methodology section of the report.

The development will have an adverse affect on the archaeological remains, which may contain unmarked human burials. Therefore cultural resource management measures in the form of a phase 2 assessment is recommended at recorded site 4 in order to record any significant or sensitive heritage remains that may be affected. The National Heritage Resources Act (1999) protects all archaeological material and structures older than 60 years, which may not be damaged or destroyed without a permit issued by the relevant heritage resources authority. A permit application must be submitted to SAHRA before development commences.

From a heritage resources management point of view, there is no objection with regard to the development on condition that the management measures are implemented. This will result in no further significant impacts on the heritage resources through all the stages of development.

1. INTRODUCTION AND TERMS OF REFERENCE

Chromex proposes to mine the LG-6 and LG-6a chromite layer (Steelpoort Seam) of the Chrome Unit in the Bushveld Igneous Complex. The mine design will follow the basic Bord and Pillar mining method with a 10 year Life of Mine and a mining rate of at 30 to 40 ktpm. The relevant portions of Mecklenburg 112 KT under review are Portion 3 and Portion 4 (Part of Portion 2), which respectively measure 1659,8497 and 16,5052 hectares in extent. All of the infrastructure for the proposed mine will be located on Mecklenburg. A summary of the proposed project description is as follows:

- Three decline shafts and one portal.
- A tailings dam, with an approximately footprint of 300m x 300m for approximately 730,000 tonnes of tailings over the 10 year life of mine.
- A waste dump of approximately 1,500,000 over a 10-year period. A chrome plant and office area with a footprint of approximately 250m x 250m.
- An access road from the existing R37 to the project area.
- Extension of the Lebalelo Water Pipeline.

Terms of reference: Undertake a Phase 1 Heritage Impact Assessment. The scope of this investigation should:

1. Review existing Heritage Impact Assessment.
2. Survey the area to be disturbed not already covered by the previous heritage study for possible heritage resources such as archaeological and historical sites and features, graves and places of religious and cultural significance.
3. Map/indicated GPS locations of any significant sites.
4. Review Baseline Description: Description and assessment of the archaeological and cultural resources/environment likely to be affected by the expansion Project using available information where possible.
5. Environmental Impact Assessment:
6. Environmental Management Programme: Mitigation and Management Measures: Determine the appropriate mitigation and management measures for each significant impact, including cumulative impacts, of the proposed mining operation on heritage resources. This is aimed to eliminate, reduce, and compensate for the potential effects of the project on the environment. Address mitigation and management measures during:
 - Construction phase;
 - Operational phase;
 - Closure phase; and
 - Post closure phase.

The report thus provides an overview of the heritage resources that occurs in the demarcated area where development is intended. The significance of the heritage resources was assessed in terms of criteria defined in the methodology section and the impact of the proposed development on these resources is evaluated.

2. RELEVANT LEGISLATION

Two sets of legislation are relevant for this study with regard to protection of heritage resources and graves.

2.1 The National Heritage Resources Act (25 of 1999) (NHRA)

This Act established the South African Heritage Resources Agency (SAHRA) and makes provision for the establishment of Provincial Heritage Resources Authorities (PHRA). The Act makes provision for the undertaking of heritage resources impact assessments for various categories of development as determined by Section 38. It also provides for the grading of heritage resources (Section 7) and the implementation of a three-tier level of responsibilities and functions for heritage resources to be undertaken by the State, Provincial authorities and Local authorities, depending on the grade of the Heritage resources (Section 8).

In terms of the National Heritage Resources Act (1999) the following is of relevance:

Historical remains

Section 34(1) No person may alter or demolish any structure or part of a structure, which is older than 60 years without a permit issued by the relevant provincial heritage resources authority.

Archaeological remains

Section 35(3) Any person who discovers archaeological or palaeontological objects or material or a meteorite in the course of development or agricultural activity must immediately report the find to the responsible heritage resources authority, or to the nearest local authority or museum, which must immediately notify such heritage resources authority.

Section 35(4) No person may, without a permit issued by the responsible heritage resources authority-

- (a) destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or palaeontological site or any meteorite

Burial grounds and graves

Section 36(3)

- (a) No person may, without a permit issued by SAHRA or a provincial heritage resources authority-
- (c) destroy, damage, alter, exhume, remove from its original position or otherwise disturb any grave or burial ground older than 60 years which is situated outside a formal cemetery administered by a local authority; or
- (d) bring onto or use at a burial ground or grave referred to in paragraph (a) or (b) any excavation equipment, or any equipment which assists in detection or recovery of metals.

Section 36(6) Subject to the provision of any law, any person who in the course of development or any other activity discovers the location of a grave, the existence of which was previously unknown, must immediately cease such activity and report the discovery to

Secondly, the entire demarcated area was again surveyed on foot. Standard archaeological practices for observation were followed. Locations of noteworthy heritage remains were recorded by means of a GPS (Garmin 12). Archaeological material and the general conditions of the terrain were photographed with a CANON Digital camera.

3.2 Limitations

The survey was thorough and no limitations were encountered. It is unlikely that any significant heritage material was overlooked.

3.3 Categories of significance

The significance of archaeological sites is ranked into the following categories.

No significance: sites that do not require mitigation.
Low significance: sites that <i>may</i> require mitigation.
Medium significance: sites that require mitigation.
High significance: sites that must not be disturbed at all.

The significance of an archaeological site is based on the amount of deposit, the integrity of the context, the kind of deposit and the potential to help answer present research questions. Historical structures are defined by Section 34 of the National Heritage Resources Act, 1999, while other historical and cultural significant sites, places and features, are generally determined by community preferences.

A crucial aspect in determining the significance and protection status of a heritage resource is often whether or not the sustainable social and economic benefits of a proposed development outweigh the conservation issues at stake. There are many aspects that must be taken into consideration when determining significance, such as rarity, national significance, scientific importance, cultural and religious significance, and not least, community preferences. When, for whatever reason the protection of a heritage site is not deemed necessary or practical, its research potential must be assessed and mitigated in order to gain data / information which would otherwise be lost. Such sites must be adequately recorded and sampled before being destroyed. These are generally sites graded as of low or medium significance.

3.4 Terminology

Early Stone Age:	Predominantly the Acheulean hand axe industry complex dating to \pm 1 Myr - 250 000 yrs. before present.
Middle Stone Age:	Various lithic industries in SA dating from \pm 250 000 yrs. - 30 000 yrs. before present.
Late Stone Age:	The period from \pm 30 000 yrs. to contact period with either Iron Age farmers or European colonists.
Early Iron Age:	Most of the first millennium AD.
Middle Iron Age:	10 th to 13 th centuries AD.
Late Iron Age:	14 th century to colonial period. <i>The entire Iron Age represents the spread of Bantu speaking peoples.</i>

Historical:	Mainly cultural remains of western influence and settlement from AD 1652 onwards – mostly structures older than 60 years in terms of Section 34 of the NHRA.
Phase 1 assessments:	Scoping surveys to establish the presence of and to evaluate heritage resources in a given area.
Phase 2 assessments:	In depth culture resources management studies which could include major archaeological excavations, detailed site surveys and mapping / plans of sites, including historical / architectural structures and features. Alternatively, the sampling of sites by collecting material, small test pit excavations or auger sampling.
Sensitive:	Often refers to graves and burial sites although not necessarily a heritage place, as well as ideologically significant sites such as ritual / religious places. <i>Sensitive</i> may also refer to an entire landscape / area known for its significant heritage remains.

4. BASELINE INFORMATION

PEDI HISTORY

This area forms the core of the Sekhukhune Empire. The early history of the BaPedi is fairly well documented, but the first contact between the Pedi and Boers under the leadership of Louis Trichardt was in 1837. In 1845 another group under Hendrik Potgieter entered Bopedi and settled at Ohrigstad. The initial relationship with the Boers was very friendly, but did not last long. Accusations and counter accusations of stock theft and encroachment of land soon began. In 1847 Potgieter attacked the Pedi and again in 1852, beleaguering Phiring and capturing a great deal of stock.

As a result Sekwati moved his village to Thaba-Mosego (Mosego Hill: Farm Dsiate 249 KT) under the eastern slopes of the Leolo Mountains. He fortified this village, which was called Tjate, very strongly. On 17 November 1857 Sekwati signed a peace treaty between the Pedi and the Boers. After many years of fighting and strife, Sekwati eventually obtained a period of peace for his people. Many tribes voluntarily moved into Bopedi and settled under his reign to share the fruits of peace and prosperity. Towards the end of his life Sekwati commanded some 70 000 people and an army of 12 000 men of whom a third were fully armed with guns.

In 1860 Alexander Merensky of the Lutheran missionary of the Berlin Mission Society visited Sekwati, who allowed him to build a mission station. On 14 August 1860 Merensky and Grütznier established their first mission station at Gerlachshoop near Bopedi among the Kopa tribe of chief Boleu. In 1861 two more missionaries, Nachtigal and Endemann, joined them.

In 1861 Merensky again visited Sekwati, and obtained permission to build a mission station a few miles from Tjate at a hill, Kgalatlolo. Merensky and Nachtigal immediately began work and on 22 September 1861 Merensky held the first service at the new station. Sekwati died on that same evening.

To understand the position caused by Sekwati's death, the situation caused by the death of Malekutu, the successor to Thulare must be understood. Malekutu had not married a tribal wife who could produce an heir. Malekutu's rightful tribal wife was supposed to be Kgomomakatane, from the royal house of the Magakala. Malekutu died and was eventually succeeded by his half-brother Sekwati. On his return to Bopedi, the latter sent

for Kgomomakatane and married her with all due formalities. According to Pedi customary law, Sekwati could not be chief in his own right, and was only regent for Malekutu until an heir could be raised for the latter. Sekwati must thus have married Kgomomakatane in the name of his brother. As Sekwati was too old to father children Kgomomakatane, as is customary, had a son, Mampuru, by a man designated by the chief. Kgomomakatane then left the tribe, but on request of Sekwati returned Mampuru to the Pedi, where Thorometsane, the first wife of Sekwati and mother to Sekhukhune, raised him. Sekwati and the whole tribe regarded Mampuru as the rightful successor to the chieftainship.

On Sekwati's death, Sekhukhune was living some distance away, but was immediately informed by his mother. He returned and forcefully claimed the chieftainship. He immediately killed all the councillors who were in support of Mampuru. The greater power of Sekhukhune prevailed in the end and eventually Mampuru was forced to flee on 17 June 1862. He fled to Lekgolane, a sister of Sekwati, who was tribal wife of the Tau tribe. Mampuru took with him the royal emblems including the royal beads. Sekhukhune followed him but Lekgolane interceded for Mampuru and Sekhukhune spared his life, only ordering the beads to be cut from his neck.

Mampuru was subsequently joined by his own regiment and in due time was joined by many other people who fled from Sekhukhune.

The Sekhukhune Wars

Under Sekhukhune there was a time of strife and unrest. Over years he accumulated a large hoard of guns and ammunition. His initial relations with the Boers and missionaries were friendly, and they recognized the Steelpoort River as the boundary. Inter-tribal warfare however did not cease. Two groups of Swazi people fled from the Swazi region and obtained permission to settle in Bopedi. A large Swazi army followed and was crushed by the Pedi.

The relations with the missionaries had in the meantime prospered to such an extent that they were allowed to build a station, Ga-Ratau, much nearer to Tjate. As a result of Sekhukhune's friendship with the missionaries and their success in treating the ill and wounded, the mission made progress beyond expectations. Among the important converts was one of Sekhukhune's wives and his half-brother Johannes Dinkwanyane. The converts, however, antagonized Sekhukhune, who realized that his absolute authority was being undermined. He began to impose restrictions on Pedi Christians. The situation worsened and finally Sekhukhune drove the Christians away.

During this time Merensky was appointed as representative of the Zuid-Afrikaansche Republiek (Z.A.R.). He had at first been well received by the chief. Soon afterwards all belongings of Christians were confiscated. The missionaries were forbidden to do any further work in Bopedi. Finally on the night of 18 November 1864 the Christians, led by Merensky and Johannes Dinkwanyane, fled to the south. They bought a farm near Middelburg and started the mission station Botshabelo. Eventually Johannes left Botshabelo with his followers and settled in the Lydenburg district. Sekhukhune openly recognised him as a Pedi chief, thus extending his empire beyond the Steelpoort River. Relations between the Boers and the Pedi became more and more strained.

On 16 May 1876 the Boers declared war against the Pedi. They first seized Johannes Dinkwanyane's village. In the battle he was slain. They then advanced on Sekhukhune's stronghold Tjate. Though the Boers managed to take and raze part of the village they were unable to dislodge the Pedi. The Boers retreated and built Fort Weeber, west of the Leolo Mountains. It later became known as Ferreira's Horse. A second fort was built and named Fort Burgers at the Steelpoort River. From these two forts the Boers continuously

harassed the Pedi. Sekhukhune, realising that his position had become untenable, sent for Merensky and asked him to mediate with the Republic. Early in February 1877 the two parties met at Botshabelo to discuss peace terms. It was finally decided that the Pedi were to pay two thousand head of cattle to the Republic, that the Pedi would become subjects of the Republic, and that the land beyond the Steelpoort River would be recognised as their location. On 15 February 1877, Sekhukhune signed the treaty.

Two months later Sir Theophilus Schepstone annexed the Transvaal on behalf of the British Crown. He considered the treaty between the Boers and the Pedi as valid, notified Sekhukhune that the Pedi would be recognised as British subjects and demanded the payment of the two thousand head of cattle. Sekhukhune refused this payment. The situation deteriorated and Captain Clarke, who was stationed in Bopedi, started a campaign against the Pedi. After a few minor skirmishes he sent for more troops. Additional troops under Colonel Rowlands were sent but had little success.

After the Zulu war General Garnet Wolseley stipulated that Sekhukhune should recognise the British Crown, pay taxes and permit the erection of a number of forts in Bopedi. He also had to pay the fine of two thousand five hundred head of cattle immediately. When Sekhukhune refused, Wolseley mobilised his task force of a number of regiments, aided by eight thousand Swazi warriors and Mampuru's men, a total force of twelve thousand men.

Wolseley's plan of attack was that while the main column would approach Tjate along the valley, the Swazi warriors would descend upon it from the heights, which lay behind it. Under the cover of the first bombardment, two assaults were launched. With the attack thus halted, Wolseley and his troops anxiously awaited the delayed arrival of the Swazi army. When it finally appeared it had a decisive impact.

The Pedi regiments were unprepared for an attack from the rear. With the advantage of such a surprise attack the Swazi swept down the mountainside. While they sustain heavy casualties they were driving the defenders before them. With the Pedi warriors trapped between the descending Swazi and the advancing British troops, a terrible carnage ensued. By 9.30 a.m. the valley had been cleared and the town Tjate was in flames.

Fighting Kopje (Ntswaneng) nonetheless remained unconquered. A combined attack was launched on it from four sides, and after heavy fighting the assailants reached the summit. The caves, however, remained crowded with men, woman, and children who refused to surrender. Large charges of gun cotton were placed at cave entrances to destroy the stone defences and to terrify their occupants into submission. The explosions did not have the desired effect as few of the Pedi surrendered. It was then decided to starve the defenders out. As night fell, however, a heavy rain drenched the valley and reduced visibility. Taking advantage of these conditions, the besieged Pedi emerged from the caves and forced their way past the pickets.

The day's fighting took a heavy toll on the lives of both attackers and defenders. Although only thirteen Europeans were killed and thirty-five wounded, between 500-600 Swazi warriors perished in the attack and an equivalent number were wounded. It is difficult to establish the extent of Pedi casualties with any precision, but conservative estimates place the number of dead in excess of a thousand. The record of the fatalities within the Paramount's family provides an indication of the extent of the carnage. Three of Sekhukhune's brothers and nine of his children, including his son and designated heir Morwamotse, died in the battle. The paramount chief who sheltered in a cave behind the town during the battle, made his escape from the valley the following day. He was, however, tracked to another cave where he had taken refuge and surrendered to Captain Ferreira on 2 December 1879. Sekhukhune was taken to Pretoria where he was imprisoned.

Sekhukhune's tribe was forced to leave Tjate and to build a new village on the plains, far removed from any hills, which could be fortified. This village was eventually named Manoge. Mampuru and Nkopedi were appointed as joint chiefs of the Pedi. The latter ruled the tribe at Manoge, while Mampuru settled at Kgono in the Middelburg district.

The Berlin Lutheran Mission had in the meantime already re-entered Bopedi at its station Lobethal. They were now allowed to build a new mission station on the site of the ruins of Tjate. They send a young missionary, J.A. Winter, to this station, from where he exercised considerable influence on later events. Winter soon became dissatisfied with the attitude of his fellow missionaries towards the Pedi, wishing to give his converts greater control in the church. He finally adopted the Pedi way of life, which forced the mission authorities to expel him. In 1889 he founded the Pedi Lutheran Church, one of the first of the separatist church movements in South Africa.

After the first Anglo Boer War the Transvaal (Z.A.R.) regained its independence on 8 August 1881. One of the stipulations was that Sekhukhune be released from prison. He immediately went back to Manoge where he took over the chieftainship. Mampuru remained at Kgono, but when he refused to acknowledge the new Republican Government (Z.A.R.) he had to flee to avoid arrest. Abel Erasmus was appointed Native Commissioner for the area and had to collect taxes. Sekhukhune assisted him by lending him a number of men to act as police.

Mampuru, dissatisfied with the tribe being divided, sought to rid himself of Sekhukhune, who had wrested the chieftainship from him. On the night of 13 August 1882 he and a group of his men stole into Manoge and killed Sekhukhune. This did not have the desired effect of uniting the Pedi under Mampuru; who now had to flee for his life. He sought refuge under Nyabele, the Ndebele chief.

When the government requested Nyabele to hand over Mampuru he refused. Boer forces attacked the Ndebele at their fortified settlement. The blockade lasted nine months till Nyabele surrendered on 11 July 1883 and handed over Mampuru. The latter was found guilty of murder and hanged in Pretoria on 22 November 1883. (Extract from the Tjate Heritage Management Plan by DR. UDO S KÜSEL, March 2005).

IRON AGE

The greater Olifants River drainage area (including the Steelpoort River) is rich in Early Iron Age archaeology. Early Iron Age remains from both the Eastern and Western Streams of migration dating from the 6th century AD occur in this area. Settlements of the *Mzonjani* facies (6th – 8th century Eastern Stream) and *Doornkop* facies (9th century Western Stream) have been recorded in the general area. The later Middle Iron Age *Eiland* facies (10th – 13th century AD) is equally well represented. However, little of the Late Iron Age has up to now been recorded in the area, except for early Pedi stonewalled settlements.

STONE AGE

Stone age remains spanning more than a million years have been recorded in the area. These include *Acheul* hand axes and cleavers, Middle Stone Age concentrations in eroded donga's and a limited number of Late Stone Age San hunter gatherer camp / rock art sites along the Leolo mountain range.

ARM of Wits recorded some non-significant stone tool scatters in 2001.

5 GENERAL DESCRIPTION OF THE PROJECT AREA.

~ The entire area had been ploughed in the recent past and it was intensively used for agricultural purposes. As a result of this, combined with overgrazing, both donga erosion and sheet erosion caused severe degradation and most of the topsoil has been eroded. Vegetation consists of dense secondary growth of primarily acacia species (Figures 1 – 2).

6. ARCHAEOLOGICAL AND HISTORICAL REMAINS IN THE DEMARCATED PROJECT AREA

6.1 Stone Age Remains

~ A scattering of isolated Middle Stone Age (MSA) flakes and the occasional core stone was noted (Fig 3). No site with a significant concentration had been recorded. As a result of this the Stone Age material is not regarded as significant because no further assessment of these remains is feasible.

6.2 Iron Age Remains

~ Ceramic pottery occurs scattered over the entire terrain. Pottery from the *Doornkop* Early Iron Age facies as well as the *Eiland* facies was identified (Fig 8). As a result of the severe erosion no settlement site could be found, although a fairly dense concentration of *Doornkop* pottery was found at two locations at co-ordinates S24° 22' 34.5" E30° 02' 17.0" (Locality map; site 1) and S24° 22' 44.9" E30° 02' 19.5" (Locality map; site 4). These concentrations coincide with open patches, which were probably the original settlement areas where most of the archaeological deposits had eroded away, leaving only the surface pottery fragments (Figures 4 – 5).

Site 1 falls outside the footprint area of the proposed development and should not be affected by the initial development. It seems that site 4 contains more material than site 1 and therefore culture resource management measures will be mitigated for site 4, which data will also cover site 1.

6.3 Recent Historical Remains

~ One recent historical homestead ruin was recorded at co-ordinates S24° 22' 38.7" E30° 02' 17.5" (Locality map; site 2). Only the foundations exist and the site is not regarded as significant. An elderly local informant, Mr. John Mahlakwana, told me that the family had moved away and that no graves are located here (Fig 6).

The remains of an old crusher plant is located at co-ordinates S24° 23' 00.6" E30° 02' 33.7" (Locality map; site 3). Nothing of significance remains here (Fig 7).

6.4 Graves

~ No formal graves were observed on the terrain. However, the probability exists that the Iron Age archaeological sites mentioned above may contain unmarked burials.

7. MANAGEMENT AND MITIGATION MEASURES

Although limited intact deposits remain of the archaeological sites, Site 4 will be directly affected by the development and requires management measures. A phase 2 assessment

is recommended due to the fact that the establishment of the infrastructure will destroy the site permanently. The impact will thus be permanent due to the non-renewable nature of the heritage resource.

A phase 2 assessment will consist of test pit excavations, mapping of archaeological features and screening for human burials. This should satisfy the requirements of the South African Heritage Resources Agency (SAHRA), and will be a condition for the issuing of a destruction permit to Chromex Mining (Pty) Ltd.

If a phase 2 assessment is undertaken, no further management measures will be required at site 4 throughout all the phases of the project. The situation at site 1 is that the relevant heritage resources authority must be informed should any significant heritage material be uncovered in future.

No further action is required at sites 2 and 3.

Legal requirements: Application for an excavation and destruction permit from for site 4.

8. CONCLUSION

Most of the area is severely disturbed by past farming activities and erosion, which has resulted in the destruction of most archaeological remains.

Early and Middle Iron Age archaeological pottery fragments were found scattered over the terrain with to sites retaining some deposits. The affect of the project will result in the permanent destruction of the archaeological remains at site 4 and mitigation for a phase 2 heritage impact assessment is recommended to manage this affect in order to gain scientific data which would otherwise be lost.

From a heritage resources management point of view we have no objection with regard to the development on condition that the management measures mentioned above is implemented.

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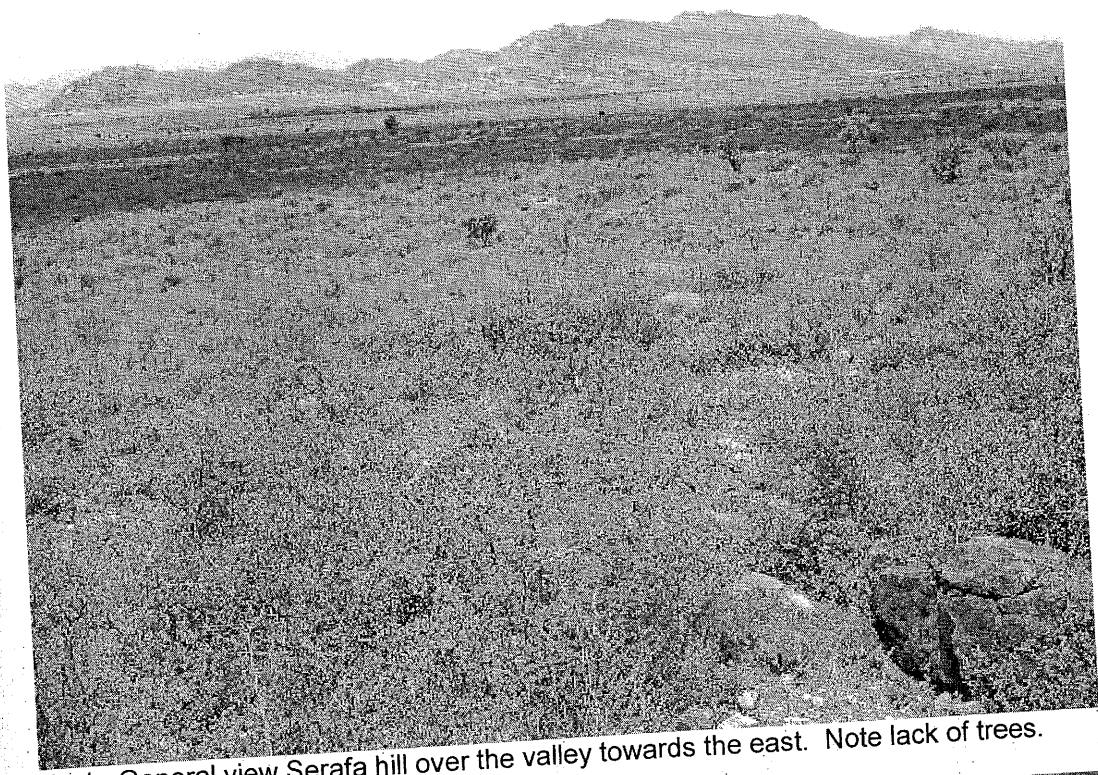


Fig 1. General view Serafa hill over the valley towards the east. Note lack of trees.

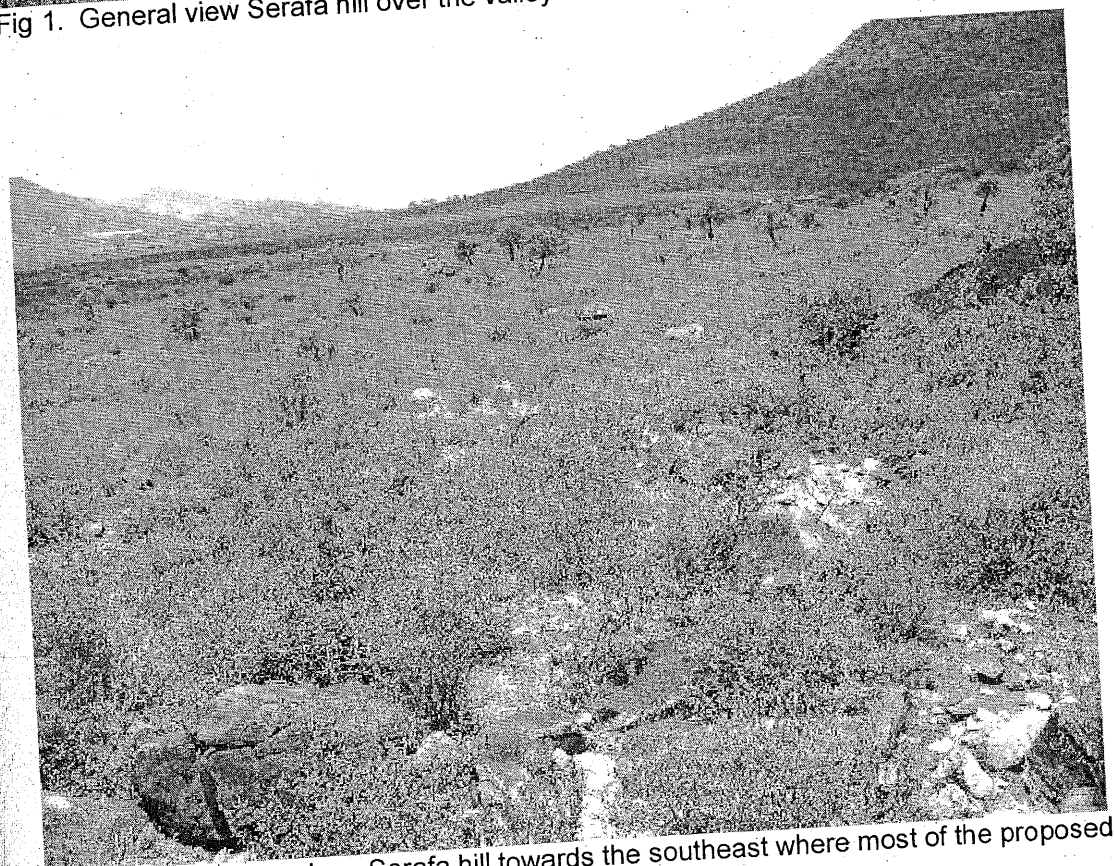


Fig 2. General view along Serafa hill towards the southeast where most of the proposed development will be located.

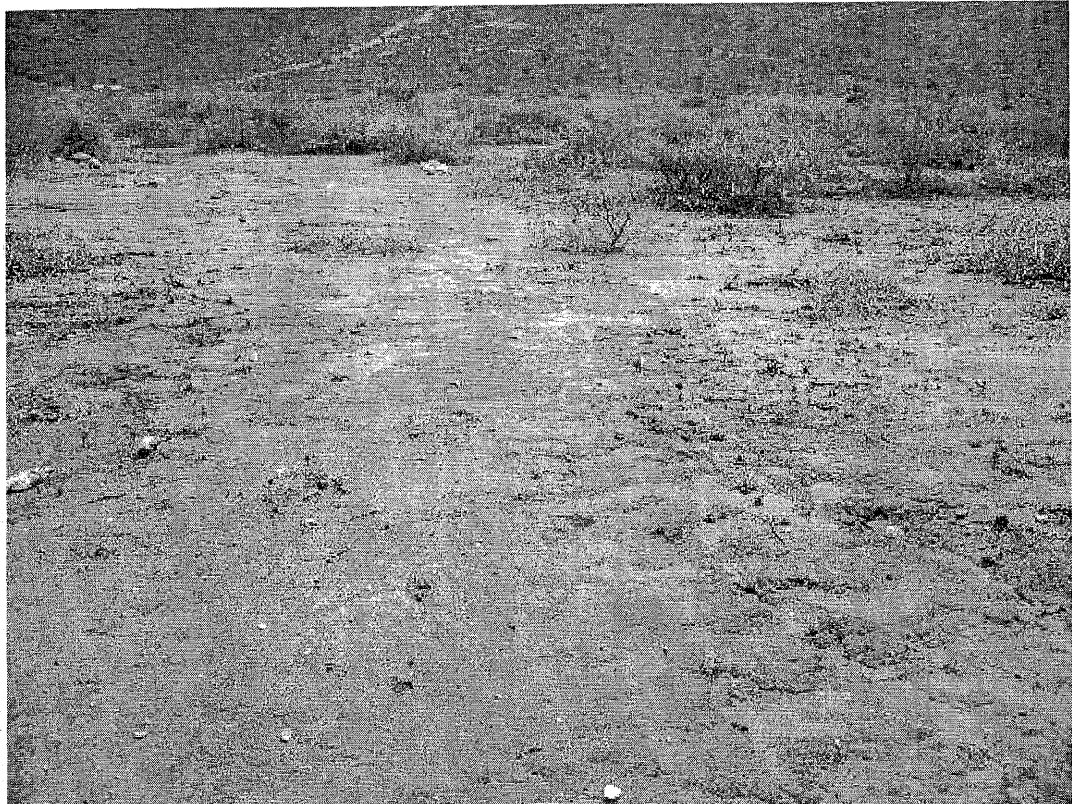


Fig 5. View of the site 4 area an eroded *Doornkop* Early Iron Age settlement site.

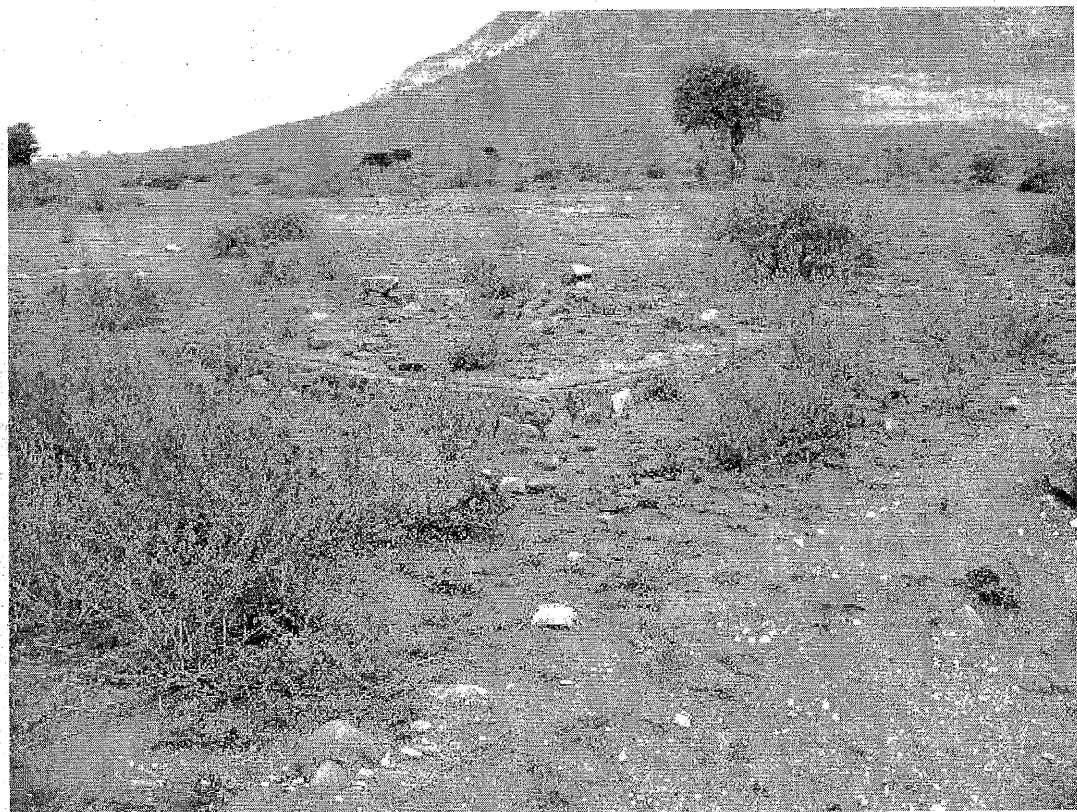


Fig 6. Recent historical homestead ruin – site 2.



LSA



MSA



Fig 3. Stone Age material.



Fig 4. View of site 1 area an eroded *Doornkop* Early Iron Age settlement site.



Fig 7. Disused crusher plant – site 3.

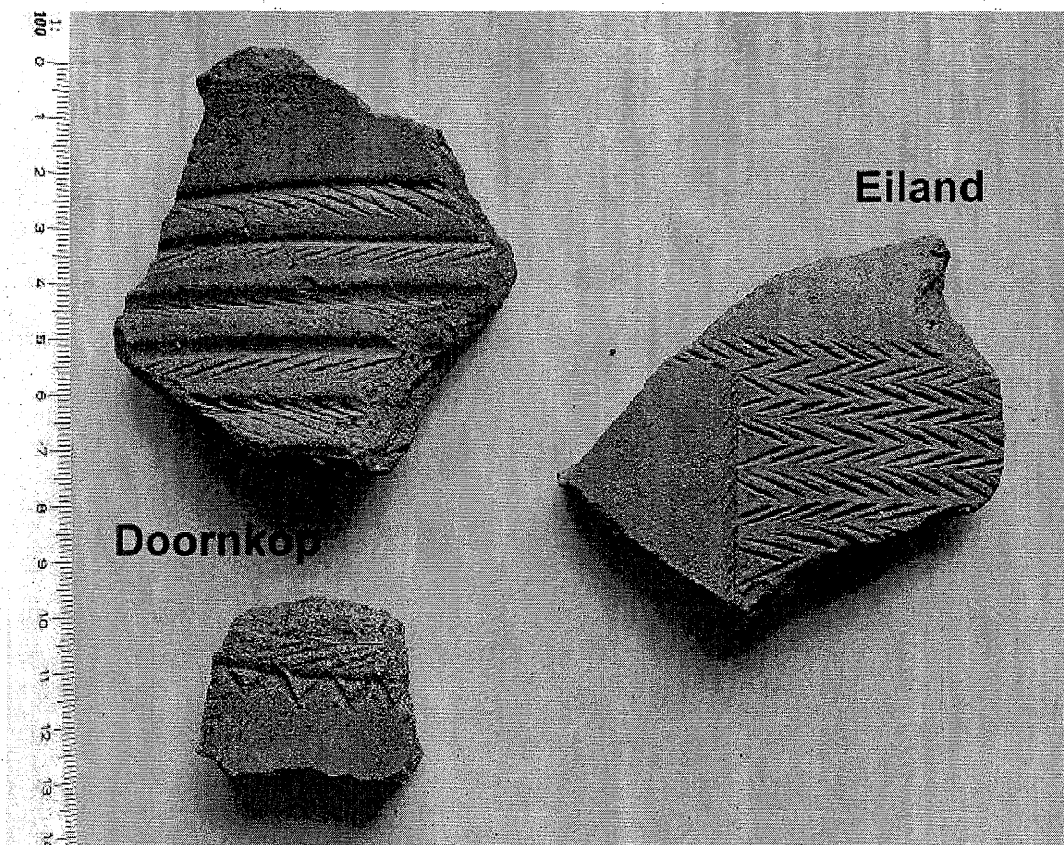


Fig 8. Iron Age pottery fragments spanning period 9th – 13th century AD.

Table 1: Framework for Assessing Environmental Impacts (CULTURAL RESOURCES)

SEVERITY OF IMPACT	RATING
Insignificant / non-harmful	1
Small / potentially harmful	2
Significant / slightly harmful	3
Great / harmful	4
Disastrous / extremely harmful	5

SPATIAL SCOPE OF IMPACT	RATING
Activity specific	1
Area specific	2
Whole project site / local area	3
Regional	4
National	5

DURATION OF IMPACT	RATING
One day to one month	1
One month to one year	2
One year to ten years	3
Life of operation	4
Post closure / permanent	5

FREQUENCY OF ACTIVITY / DURATION OF ASPECT	RATING
Annually or less / low	1
6 monthly / temporary	2
Monthly / infrequent	3
Weekly / life of operation / regularly / likely	4
Daily / permanent / high	5

FREQUENCY OF IMPACT	RATING
Almost never / almost impossible	1
Very seldom / highly unlikely	2
Infrequent / unlikely / seldom	3
Often / regularly / likely / possible	4
Daily / highly likely / definitely	5

CONSEQUENCE

LIKELIHOOD

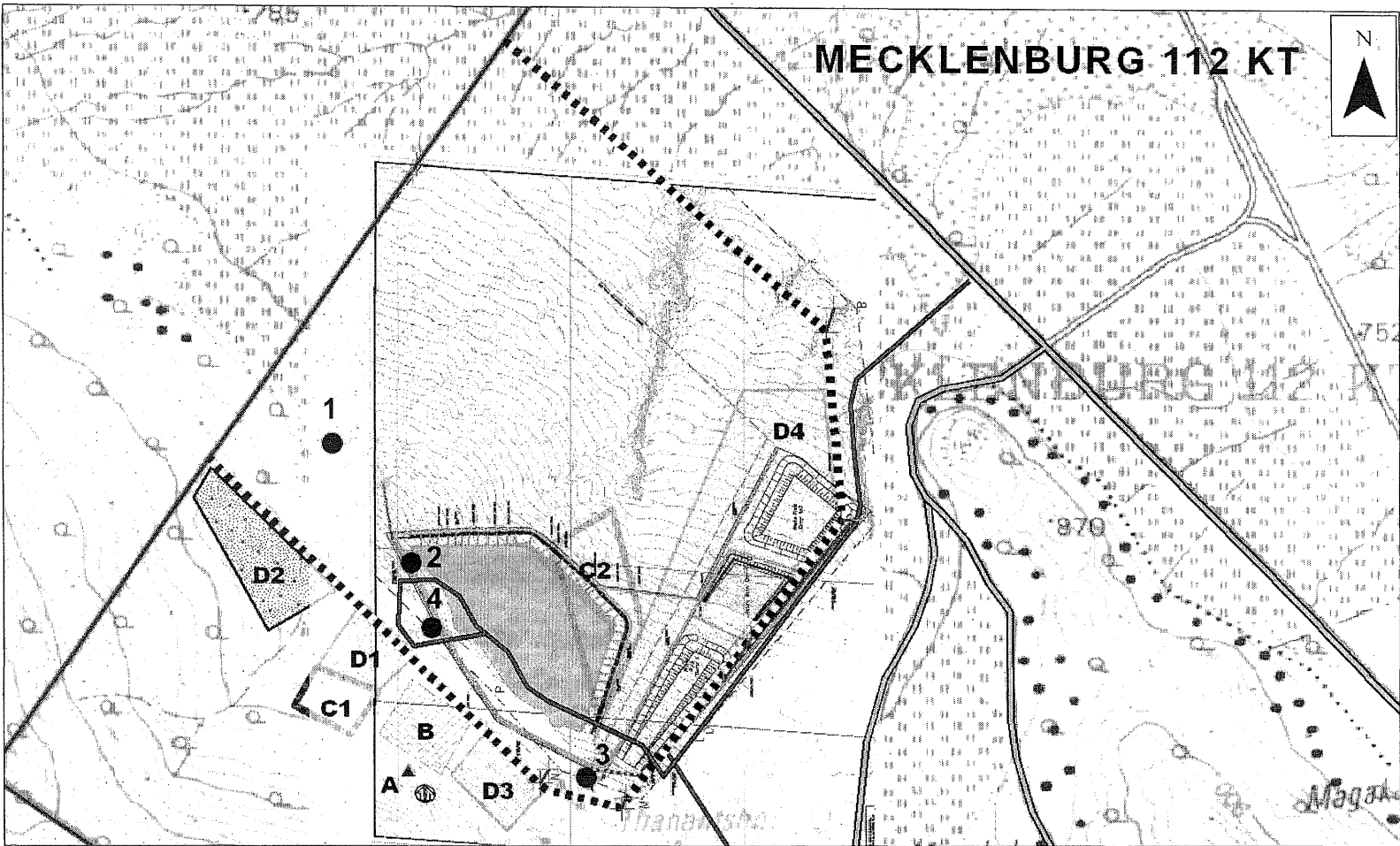
Table 2: Significance Rating Matrix

LIKELIHOOD (Frequency of activity + Frequency of impact)	CONSEQUENCE (Severity + Spatial Scope + Duration)														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	2	4	6	8	10	12	14	16	18	20	22	24	26	28	30
	3	6	9	12	15	18	21	24	27	30	33	36	39	42	45
	4	8	12	16	20	24	28	32	36	40	44	48	52	56	60
	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
	6	12	18	24	30	36	42	48	54	60	66	72	78	84	90
	7	14	21	28	35	42	49	56	63	70	77	84	91	98	105
	8	16	24	32	40	48	56	64	72	80	88	96	104	112	120
	9	18	27	36	45	54	63	72	81	90	99	108	117	126	135
10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	

Table 3 Positive/Negative Mitigation Ratings

Colour Code	Significance Rating	Value	Negative Impact Management Recommendation	Positive Impact Management Recommendation
	VERY HIGH	126-150	Improve current management	Maintain current management
	HIGH	101-125	Improve current management	Maintain current management
	MEDIUM-HIGH	76-100	Improve current management	Maintain current management
	LOW-MEDIUM	51-75	Maintain current management	Improve current management
	LOW	26-50	Maintain current management	Improve current management
	VERY LOW	1-25	Maintain current management	Improve current management

MECKLENBURG 112 KT



	Heritage sites (1 - 4)
	A: Proposed Chromex Declines
	B: Proposed Chromex Plant
	C1-C2: Proposed Chromex Tailings Dam Options
	D1-D4: Proposed Chromex Waste Rock Dump Options

CLIENT: Chromex Mining (Pty) Ltd	LOC: A3	TITLE: Figure ECMP PLAN Overlay
PROJECT: 2430 AC	DATE: December 2005	PROJECT NO: 0053190
DRAWN: RN	APPROVED:	SCALE: NOT TO SCALE
FIGURE: Figure2a.mxd		REV: 1