Heritage Assessment

Springlake Colliery, Shanduka Coal, Hattingspruit, KwaZulu Natal Province

Version Draft

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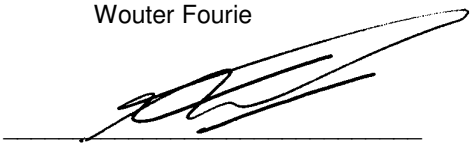
SIGNATURE: 

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

EXECUTIVE SUMMARY

PGS Heritage & Grave Relocation Consultants was appointed by GCS (Pty) Ltd to undertake a Heritage Impact Assessment (HIA) that forms part of the Environmental Impact Assessment (EIA) and Environmental Management Plan (EMP) for Springlake Colliery, Shanduka Coal, Hattingspruit, KwaZulu Natal Province.

During the survey 29 clusters of possible heritage significance were identified.

The heritage sites consist of 2 known cemeteries, 24 homestead/farmsteads and four clusters of areas with potential for early farming community settlements.

The following mitigations measures are recommended for the heritage site identified where they are to be impacted by the mining project.

Graves and Cemeteries

Mitigation of these sites will require a fence around the cemetery with a buffer of at least 20 meters. Where graves and cemeteries are to be directly impacted by mining activities, it is recommended that the graves be relocated after a full grave relocation process that includes comprehensive social consultation. The grave relocation process must include:

- A detailed social consultation process, that will trace the next-of-kin and obtain their consent for the relocation of the graves, that will be at least 60 days in length;
- Site notices indicating the intent of the relocation
- Newspaper Notice indicating the intent of the relocation
- A permit from the local authority;
- A permit from the Mpumalanga Department of health;
- A permit from the South African Heritage Resources Agency if the graves are older than 60 years or unidentified and thus presumed older than 60 years;
- An exhumation process that keeps the dignity of the remains and family intact;
- An exhumation process that will safeguard the legal implications towards the mining company;
- The whole process must be done by a reputable company that are well versed in relocations;
- The process must be conducted in such a manner as to safeguard the legal rights of the families as well as that of the mining company.

Alternatively the mining boundaries can be adjusted to demarcate the positions of the two cemeteries or exclude the cemeteries where possible.

Houses and Farmsteads

Where it is found that mining activity will impact on architectural structure (farmsteads, homesteads and ruins) the destruction of the site will require a destruction permit under Section 34 of the NHRA. This permit will only be granted after the site has been documented in its entirety by layout sketches of each structure and the farmstead layout, photographic documentation and historical background of the farmstead. Further to this it is recommended that a full background research on the history of the farmstead and oral history be done together with the documentation of the physical structures.

The following general mitigation measures are recommended:

- A Monitoring plan or watching brief must be agreed upon by all the stakeholders for the different phases of the project. The developer undertakes to give the archaeologist sufficient time to identify and record and archaeological finds and features.
- If during construction any possible finds are made, the operations must be stopped and the qualified archaeologist be contacted for an assessment of the find.
- A heritage resources management plan must be developed for managing the heritage resources in the surface area impacted by mining operations during construction and operation of the development. This includes basic training for construction staff on possible finds, action steps for mitigation measures, surface collections, excavations, and communication routes to follow in the case of a discovery.

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1. INTRODUCTION

PGS Heritage & Grave Relocation Consultants was appointed by GCS (Pty) Ltd to undertake a Heritage Impact Assessment (HIA) that forms part of the Environmental Impact Assessment (EIA) and Environmental Management Plan (EMP) for Springlake Colliery, Shanduka Coal, Hattingspruit, KwaZulu Natal 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.

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

This report must also be submitted to SAHRA's provincial office for scrutiny.

2. APPROACH AND METHODOLOGY

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

2.1. PROJECT DESCRIPTION

The proposed activities is for the EIA/EMP Amendment for Springlake Colliery to include the proposed new opencast pits and shaft infrastructure. Shanduka also intends to consolidate all the current EIA's and EMP's of the various Springlake Colliery operations into one single document in line with the requirements of Section 102 of the MPRDA.

During the compilation of the consolidated EIA and EMP for Springlake, all the current EIAs and EMPs will be collected and revised. All impacts will be assessed and incorporated into one EIA/EMP in order to determine the cumulative impacts associated with the mining operation. We would therefore advise specialist to go as far as they can in the area in order to gather enough information, especially for the consolidation of EMP's.

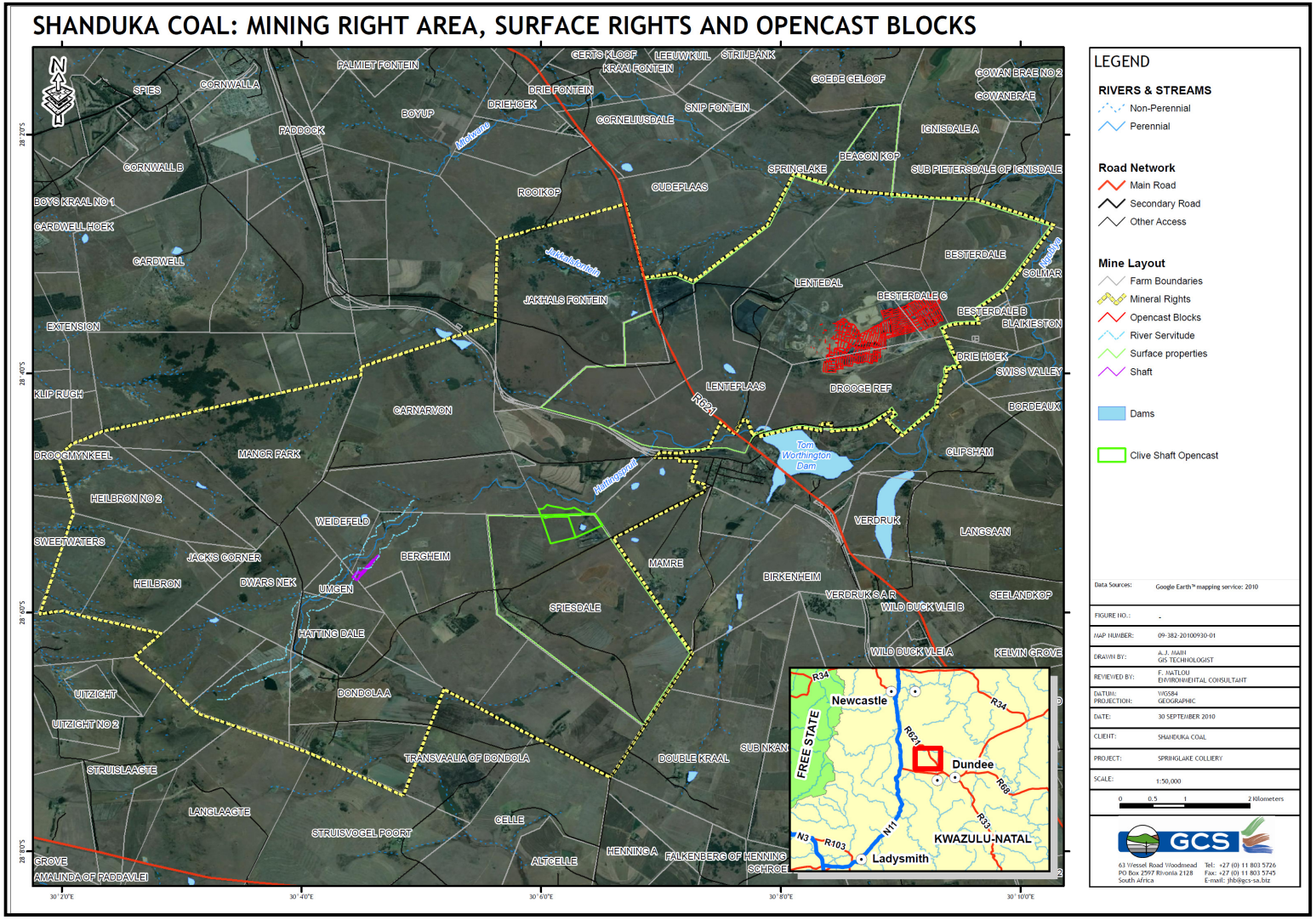


Figure 1 – Locality Map

2.2 PHYSICAL SURVEYING

The study area for the proposed project covers approximately 6200 hectares. Due to the nature of cultural remains, with the majority of artefacts occurring below surface, an intensive foot-survey that covered the ***new proposed opencast and shaft areas*** was conducted. This controlled-exclusive surface survey was conducted over a period of two days, by means of vehicle and extensive surveys on foot by an archaeologists of PGS Heritage & Grave Relocation Consultants.

Aerial photographs and 1:50 000 maps of the area were consulted and literature on the area were studied to identify heritage resource outside the proposed new opencast and shaft area but inside the larger Springlake Colliery application area. 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 areas were plotted on 1:50 000 maps and their GPS co-ordinates noted. In addition digital photographs were used to document 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 Terminology

Acronyms	***Description***
AIA	Archaeological Impact Assessment
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
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
SADC	Southern African Development Community
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;
v. any change to the natural or existing condition or topography of land; and
vi. 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

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

4.1 Risk to the Environment

Occurrence

- probability of occurrence (how likely is it that the impact may occur?), and
- duration of occurrence (how long may it last?).

Severity

- magnitude (severity) of impact (will the impact be of high, moderate or low severity?), and

- scale/extent of impact (will the impact affect the national, regional or local environment, or only that of the site?)

In order to assess each of these factors for each impact, the following ranking scales were used:

Table 0.1 Ranking Scales

Probability:=P	*Duration:=D*
5 – Definite/don't know	5 – Permanent
4 – Highly probable	4 - Long-term (ceases with the operational
3 – Medium probability	life)
2 – Low probability	3 - Medium-term (5-15 years)
1 – Improbable	2 - Short-term (0-5 years)
0 – None	1 – Immediate
Scale:=S	*Magnitude:=M*
5 – International	10 - Very high/don't know
4 – National	8 – High
3 – Regional	6 – Moderate
2 – Local	4 – Low
1 – Site only	2 – Minor
0 – None	

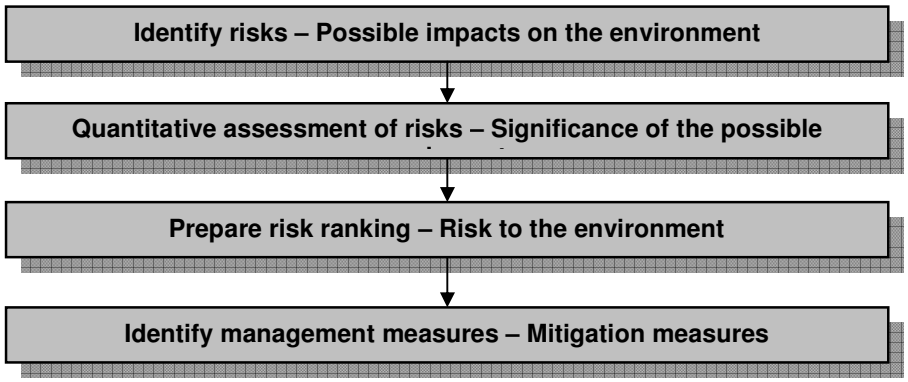
Once the above factors had been ranked for each impact, the environmental significance of each was assessed using the following formula:

SP = (magnitude + duration + scale) x probability

The maximum value is 100 significance points (SP). Environmental effects were rated as either of high, moderate or low significance on the following basis:

- More than 60 significance points indicated high (H) environmental significance.
- Between 30 and 60 significance points indicated moderate (M) environmental significance.
- Less than 30 significance points indicated low (L) environmental significance.

The following process will be followed:



4.2 Impact Rating

Impact	Impact Significance	Heritage Significance	Certainty	Duration	Mitigation
Negative	Moderate	Grade GP.B	Possible	Short term	B

5. BACKGROUND OF AREA

5.1 Introduction

The history and prehistory of KwaZulu-Natal is multifaceted with many events taking place during different episodes in the development of the regions cultural landscape. The prehistory of the region dates back as far as the Stone Age (e.g. Middle and Later Stone Age); the Iron Age (e.g. Early and Later) forms the second pre-historical episode of the region occupation. This was followed by the colonial period (circa 1800s), the Union (circa 1910) and much later historical periods in the recent South African history. Evidence for these different periods of occupation of the region is in two folds; archaeological and historical. Among archaeological evidence are two distinct ceramic tradition (i.e. Blackburn & Ondini), stone tools, stone walls and other structural features, kettles, and rock art predominantly in form of rock paints. Memos, diaries and other forms of written literature attest to historical events that took place in the region such as the historical battles and wars like the Anglo-Zulu war and Anglo-Boer war not forgetting the later Iron Age war of *Imfecane* culminating to the formation of what is today the Zulu nation under Shaka. Heritage sites commemorating battle fields stand as testimony of the wars that took place in KwaZulu-Natal. Other heritage sites include war fortifications and stonewall some of whose remains can still be seen in the region.

The current study focuses on researching prehistoric and historical events that took place in the area northwest of the town of Dundee, Dundee, north (& northeast) of the town of Glencoe and south of Dannhauser to the north (***Figure 2***). However, due to limited records of prehistoric time event that took place in the area indicated on the map below, some generalisation about prehistory of the region are made with the hope and objective of contextualising the study area within the regional prehistoric context.

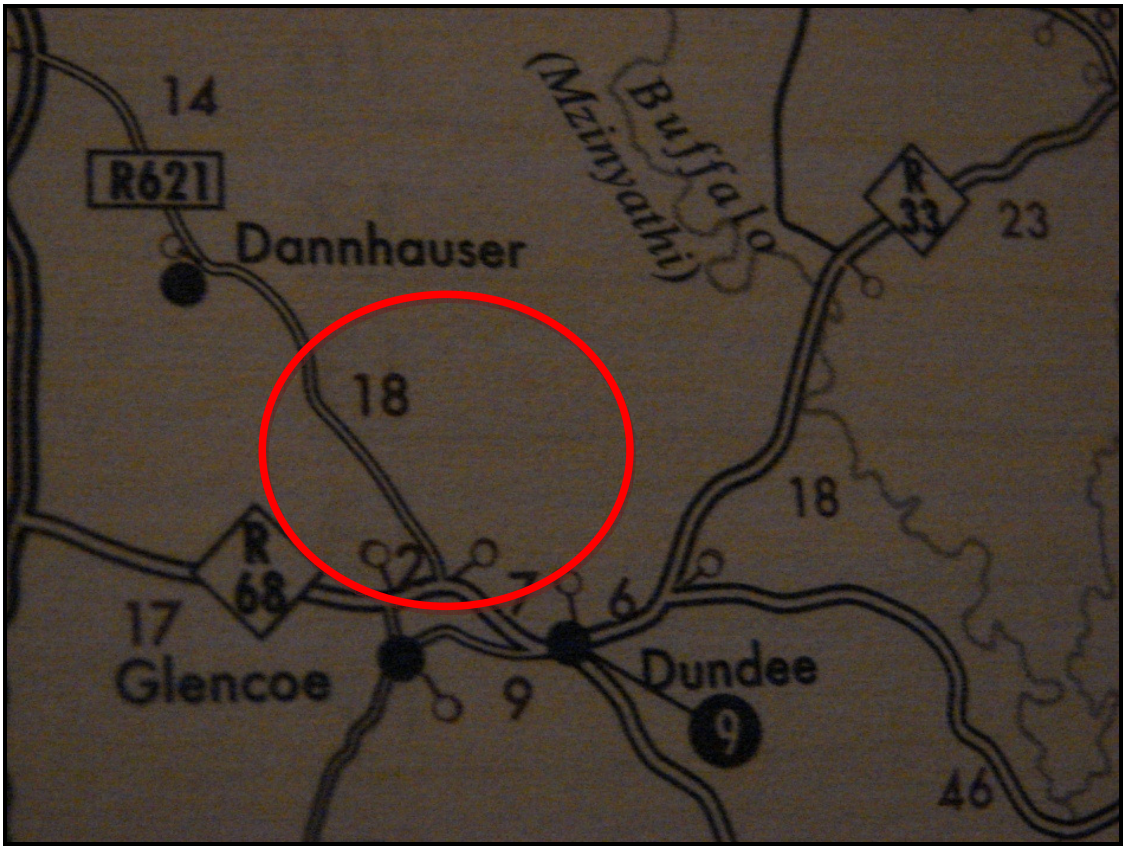


Figure 2 – Focus of background study

5.2 The Prehistory of the Midlands: Dundee Area and its Surrounding Districts

The prehistory of the Iron Age people in Southern Africa dates to the first millennium AD. The site of Mzonjani, 15 km from Durban, is the oldest known Iron Age site in KwaZulu-Natal dating to the third millennium AD. By 1050 AD the Natal area is known to have been occupied by the Zulu people. Approaches used to arrive at these conclusions include drawing upon history, oral traditions, linguistics, anthropological, and archaeological data as presented through material culture and artefacts. The archaeological evidence of the Iron Age people in the region (KZN) and other parts of southern Africa is represented through distinct ceramic traditions, stone walls and other structural features such as grain bins and hut floor remains, kraals and often vitrified cattle dung (& often sheep and goat). The KwaZulu-Natal which was occupied by the Nguni speaking group of the Eastern Bantu language stream is characterised by stone wall structures defined as the Central Cattle Pattern; the earliest type stonewalling is known as Moor Park, it dates from the 14th to 16th Centuries AD and it is located in the defensive position on the hilltops in the Midlands, from Bergville to Dundee (Huffman, 2010, 2007).

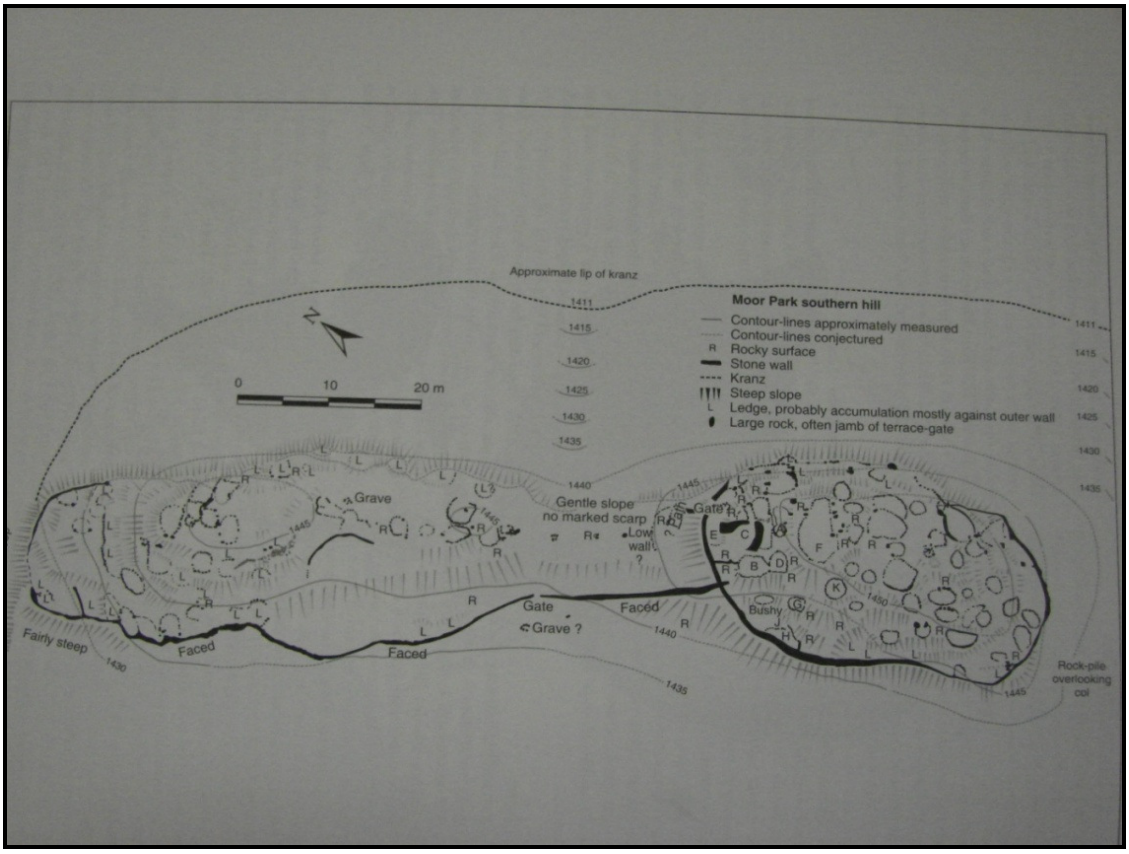


Figure 3 - Site of Moor Park; picture taken from T, N. Huffman (2007) to illustrate the C.C.P stonewalling (see also Davies 1974 from which the picture was initial taken).

Huffman (2007) argues that the wall served defensive purposes; it is "located on the spurs and ends of hills, stone walls cut the settlement off from remaining terrain perimeter walls enclose about two thirds of the settlement, leaving the back free". However, it has to be noted that the C.C.P and other forms of Iron Age stonewalling features are not restricted and/or endemic to the eastern Bantu Speaking language group and/or the Nguni's whom the Zulu people are part of; they exist and are found elsewhere in the country like in Limpopo Province, Gauteng Province of South Africa and in Zimbabwe to name but a few other places.

Huffman further argues that, "Iron Age stonewalling occur over much of Southern Africa"; he goes on to say, "as the most visible sign of agro-pastoral settlement, there are several classifications, mostly for specific areas and few for larger regions" (Huffman 2007). Other prehistoric archaeological evidence of the occupation of KwaZulu-Natal comes from Stone Age in Sibudu Cave (coast of KwaZulu-Natal e.g. early human behavioural patterns in the Middle Stone Age period of South Africa) and in the plains, valleys and hills that were once occupied by the San people; this include stone stools of different shapes and forms and/or traditions and an abundance of rock art canvas, predominantly inform of rock paintings. The nearest district to Dundee and its surrounding where rock art sites are found is Escourt; however, it is far from the study area. Other stonewall feature in the region also resulted during the times of war; for example, during the Anglo-Boer war.

Results of the Prehistoric Research in the Study Area/Site and its surrounding

From consulted archaeological sources, no archaeological sites have been identified in the area of study or its close vicinities. The Natal Museum archaeological sites database of the area could not yield any known sites of archaeological significance in the area under study for mining purposes. According to Gavin Whitelaw of the Natal Museum, this may have been as a result of the environment of the area under study (the site); it has low relief with several marsh patches-not ideal territories. However, he suggests that sites may be found to the west on the farms around Heilbron 4281 and Langlaagte 6898 and northwest towards Kranskop; areas mentioned are far out of the site. For these areas refer to the western sections of ***Figure 7.***

In the recent past the Natal midlands area/region has become known and characterised by historical wars and battles; within and between the different Zulu clans, Zulu and other 'tribal groups, the Zulu's and the Boers, the Zulus and the British, and the British and the Boers. This gives a different layer to the history of the region and in particular that of the area around Dundee which our study sites can closely be aligned because of its proximity to the town.

5.3 Establishment of Dundee

The town of Dundee was formed in 1882 after the discovery of the availability of coal in the area by farmers. The town was name after the hometown of a pioneering Scottish settler, Peter Smith. Before its proclamation as a town, Dundee was part of a farm called Talana Farm owned by Peter Smith; Smith is suggested to have bought the farm Boer settler by the name of Mr Dekker (Bother 1981). Its proclamation as a town was partly due to the fact that coal had been found in the area and was to support the coal mining industry which was to take advantage of this (ibid). In the process of founding the town Peter Smith got assistance from; his son William Craighead Smith, son in- law Dugald McPhail, and close family friend Charles Willson. In 1889, Peter Smith is argued to have founded the Dundee Coal Company, establishing it at the London Stock Exchange. This later led Dundee emerging as, "boomtown graced with stately homes" (http://en.wikipedia.org/wiki/Dundee, KwaZulu-Natal, 16/September 2010). "Pioneer traders from the Indian sub- continent settled here during the following decade, when Dundee became the meeting place of seven roads into the hinterland and coast of Africa" (ibid).

5.4 Hattingspruit area

The first auction of farms in the Dundee area under the Newcastle Division took place in February 1895 and a total of 175 farms were auctioned off. A large portion of these farms where bought by settlers of Scottish origin, which started settling in the area between Dannhauser and Hattingspruit (Stein, 2006).

By 1900 the Hattingspruit area was known as the principal coal mining area of Natal with the largest collieries being Natal Navigation Collieries, the Glencoe Collieries, and the Saint George's Coal and Estate Company. The proliferation of the coal mines caused a lot of people to buy small farms and work on the mines, and thus with the growth of farming in the area the need for a farmers' association became apparent.

The Hattingspruit Farmers' Association was established in 1904.

5.5 The Battles and War History of Natal Midlands: Dundee and its Surround Districts

The Natal midlands area is known for its many battlefields and has attracted a numbers of scholars specialising in the military history as a result. Among the published work accessible in both the academia and the public are illustrated guide to the battle sites. These guides give detail accounts and traces of the different battles that took place in the midlands and the different passes and routes that were used during the times of war. Museums in and around the region have also contributed immensely to the production of this knowledge and the conservation of military history of the region. Two wars have been the main contributors to the different battles that took place in the region of the midlands.

One is the Anglo-Zulu War (circa 1879); a war that took about 8 months to end with encounters and/or battles taking place at various occasions/times and in different locations. The second war is the Second Anglo-Boer War (circa1899), which also contributed in the shaping and redefinition of the Natal midlands cultural landscape. The amount of information published on these two wars that took place in the 19th to 20th century AD can be overwhelming; however, for the sake of the current study and it objectives of locating and contextualising the study area (site under consideration) within its broader context it is necessary to focus on the processes that led to these wars and the battlefields since this has the potential of influencing the current developments that are to take place in the area north of the town of Dundee.

The other war that is worth mentioning that also influenced and shaped the cultural landscape of KwaZulu Natal, South Africa and Southern Africa is the *Imfecane* during Shaka kaZulu sovereignty and it predate the two above mentioned wars.

Anglo-Zulu War

The war between the British and the Zulu's broke in the latter half of the 19th Century AD; the invasion of Zululand by British forces under Sir Bartle Frere (***Figure 4***) (GCB, GCSI, KCB, who had been a senior administrator in India, arrived in South Africa in 1877 as Governor of the Cape, High Commissioner, and Commander-in-Chief of the British forces) took place on the 11th of January 1879 (Laband & Thompson, 2000). Sir Frere is argued to have been the initiator and/or the instigator of the Zululand invasion through militaristic command following unsuccessful negotiation between him, the British colonial official and the Zulu king, King Cetshwayo kaMpande (***Figure 4***), for Cetshwayo to submit his sovereignty to the authority of the British. This was written in an ultimatum to the King drafted by Frere with the advice of Shepstone and Bulwer (ibid). This did not sit well with Cetshwayo, because it meant that he had to subvert the social, political and economic well-being of the Zulu Kingdom. He, however, tried in-vain to avert the war, which he knew would have undesired consequence for his sovereignty and the independence of his people; he did this through diplomatic processes but with no success. The only option he was left with was to mobilise his forces *impi* for the defence of his kingdom, as soon as he realised the ever growing presence of the British forces in the Zululand regions.

The war finally broke through in January 1879. Frere, whose forces had taken the lead in the war, is suggested to have underestimated the ability and the strength of the Zulu forces and as a result his

forces suffered many causalities (injuries and death) and the British colonial power is said to have also suffered from financial constraints as the result of the war which Frere had anticipated would lead to the effect of the confederation of the southern Africa states under Britain.

His campaign was disastrous and led to his ousting by General Sir Garnet Wolseley in May 1879 (Laband & Thompson, 2000). Among the battles that took place as the result of this war are the battles of: *Rorke's Drift* (22-23 January 1879); *Nyazane* (22 January 1879); the famous and most commemorated Battle of Isandlwana 22 January 1879 where the "Zulu army outmanoeuvred the British Centre Column and gained a Great Victory" (ibid: 99); Action at the Ntombe (12 March 1879); *Hlobane* (28 March 1879); *Ginginhlovu* (2 April 1879) Skirmish at Zungeni (4 June 1879); Raid at Middle Drift (25 June 1879); *Ulundi* (4 July 1879) following the reconnaissance of forces across the White Mfolozi on the 3rd of July 1879;.

These battle led to the development of many fortification structures of war in the South Africa history among those forts that are in close proximity to the study area is Fort Jones southwest of the town of Dundee, Talana Hill and Museum where the first shots of the Anglo-Boer war were fired. Fort Jones was built early in May 1879 for the protection of the 2nd Division's depot at Dundee and it was garrisoned by companies of the 2/24th, under Lt-Col H.J. Degacher. However, it has since disappeared with the expansion of the town (Laband & Thompson, 2000: 97). The forth which is in proximity of the study area is Fort Ermelo which its construction started in January 1878 on the initiative of the local settlers and the work on its stone laager is said to have been completed in May of that year; "it seems that it was fleetingly used by few settlers in the weeks of panic after Isandlwana" (Laband & Thompson, 2000: 143). Remains of this fort of are particular interest in that it was built on the junction between R68 and the adjoining road to Hattingspruit.

Figure 4 - a. Portait of Sir Bartle Frere after Laband & Thompson, 2000. b. Portrait of King Cetshwayo KaMpande after Laband & Thompson, 2000

South African War (Second Anglo-Boer War)

The second war which has direct implication to the heritage value of the area or region where there study site in located in the South African War (second Anglo-Boer war) that broke on the 11 October 1899; a war between the British and the Boers (Torlage & Watt, 1999). This took place 10 years after the British had annexed the Zulu Kingdom in 1879 during the Anglo-Zulu war.

The South African War war is the longest of the two wars mentioned above; it erupted in 1899 and ended in 1902, taking almost 3 years to end. Like the Anglo-Zulu war (1879) it erupted because of power struggles between the then dominant British imperial powers (colonies) and the Boer Republics (Zuid-Afrikaanse Republiek (ZAR) & Orange Free State) (Torlage & Watt, 1999). The introductory chapter to the "*Battle of Talana*" gives reasons as to why the war broke between the British and the Boers in 1899:

"*In 1880/81 the Transvaal had fought for and won its independence from the Britain. From them, until 1899 relations between the Transvaal and Britain were never very friendly, and with the Jameson Raid in 1895, the appointment of Sir Alfred Milner as Commissioner, relations became strained. The Transvaal government sent an ultimatum to the Britain, demanding the removal of all British troops on the Transvaal frontier, and the cessation of British troops being sent to South Africa. When the terms of this ultimatum were not met, a state of war existed between the Transvaal and the Britain*" (Talana Museum, 1979:1).

Following the non-compliance of the British to the Boer's ultimatum, the Boers invaded the Natal Colony (Torlage & Watt, 1999; Talana Museum, 1979). Here the British had already established major concentrations of forces in the towns of Dundee and Ladysmith. It was on the 20th of October of 1899, during misty conditions, that the Boers under General Lucas Meyer occupied Talana and Lennox Hills, from which they attacked the British camp at Dundee with artillery (***Figure 5***: position of the British camp). The British forces under Major-General Sir W Penn Symons, who commanded the British force of 5000, men responded with a counter attack on Talana (Torlage & Watt, 1999; Talana Museum, 1979). South of Dundee an infantry marched out to the shelter of the Sand Spruit (Steenskool Spruit), with two batteries of field artillery (12 guns) taking up position near the railway station and managed to shelled the summit of Lennox and Talana, in the process forcing the Boers to remove their guns (Torlage & Watt, 1999).

However, "these took no further part in the battle" (Torlage & Watt, 1999:13). "Emerging from cover of the river bank, the infantry began to advance towards Talana" (idem). Here they are suggested to have come under [heavy] under rifle fires of the Boers and, as the result, they were force to increase their pace towards Talana, eventually reaching a plantation of eucalyptus trees in the process (Torlage & Watt, 1999; Talana Museum, 1979). At the further end of the wood the men lined stone wall and replied with rifle fire; this is another classic example of the use of stonewalls for defensive purposes during the times of conflict or war. On the left flank a detachment of infantrymen, suggested to have been eager to get closer to their quarry, advanced along a donga, the end of which offered little cover. As a result they were subjected to intense rifle fire and suffered several casualties (Torlage & Watt, 1999).

Unable to advance further they withdrew to assist attack in the centre (ibid). Meanwhile, some infantrymen moved beyond the buildings of Smith's farmstead, towards another stone wall flanked terrace, but they were encountered by another [heavy rain] of rifle fire, which forced them to withdraw to cover the farm buildings (Talana Museum 1979; Torlage & Watt, 1999). At about the same time the British artillery is suggested to have persuaded forward and occupied some rising ground near the Sand Spruit from where they renewed their fire (Torlage & Watt, 1999). For a while the battle became static with lesser advancements from both sides. This could have frustrated both sides on the frontline until a time when Symons who was eager to drive the Boers off Talana, made a much uncalculated move which ended up costing him his life; he galloped into the plantation to urge his men forward. It is suggested that as he advanced and "...emerged on the other side he was mortally wounded and died three days later" (Torlage & Watt, 1999: 14). He was then succeeded by Brigadier-General JH Yule who immediately ordered a fresh attack on the Boers (Talana Museum, 1979; Torlage & Watt, 1999). Yule persisted to advance further the British forces and he eventually succeeded to get his forces on the summit of Talana and subdued the Boers treating further back (Talana Museum, 1979). The Boers in Lennox Hill, seeing the final charge in Talana, also evacuated their position (ibid; see also Torlage & Watt, 1999).

Concerned about the safety of his men, Yule ordered them to return to camp that day. This was, however, not the end of the Boer forces who continued to increase in their numbers. In the early "...mornings a mounting British force under Lieutenant-Colonel Möller advanced northwards of Talana Hill (Fig. 4) and taken up position to the east of the hill" (Torlage & Watt, 1999:14). Möller must have not been aware or naive to see that Boers were by now more increasing in their numbers. He, together with his forces, was forced to move northwards where they were eventually mounted and captured by the Boers in Adelaide Farm, with some of the Boers coming from Impati (Torlage & Watt, 1999).

In Lennox hill the British had continued with their assault to the Boers, but were also forces to retreat by the Boers who had remobilised themselves into much stronger forces than before. British, under Yule, waited until midnight under misty night and retreated back to the camp in Dundee (Talana Museum, 1979).

By this time more and more Boers had gathered around Dundee and Yule was forces to leave the town, leaving behind his wounded men in process. He was followed by the civilian population of the town (Talana Museum, 1979). Fearing that the Boer would be able to charge forward and capture him, he retired to Ladysmith (Fig. 4c); finally reaching the town on the 26 October that year (Torlage & Watt, 1999). Other confrontation that took place include Elanslaagt (21 October), Rietfontein (24 October). However, Yule's fears of being overcome by the Boers followed just after Modderspruit and Tchrengula confrontation between the Boers and the British forces on the 30th of October, with the Boers managing to besiege Ladysmith; in the process they managed to trap major portions of the British forces in the colony and in that town (Torlage & Watt, 1999). This meant that the Boer had quickly and/or rapidly gained the upper hand in Natal.

Figure 5 - Map showing strategic positions occupied, and routes used by the Boer and the British forces during the second Anglo-Boer war in the area of Dundee during the Talana battle(after Torlage & Watt, 1999)

Figure 6 - Retreating British forces to Ladysmith after Talana Museum (1979)

Other important battles include: *Newcastle* (11 October 1899); *Utrecht*; *Botha's Pass* (8 June 1900); *Scheeper's Nek* (20 May 1900); *Vryheid* (11-12 December 1900); *Blood River Poort* (17 September 1901); *Holkrans* 6 May 1902) (see Torlage & Watt, 1999)

Concluding Remarks:

Both the Anglo-Zulu and Anglo-Boer war had direct consequence in the evolution of the landscape in the area were the study area/site is located. Although the Hattingspruit area never saw direct or major action during the South African War it was on the access road between Dundee –Dannhauser and Newcastle. Numerous references in literature refer to the movement of Boer forces from Dannhauser to Dundee during the build-up to the Battles of Talana and Glencoe (Colonist, 1899; Creswicke, 1900; New York Times, 1900; Chadwick, 1978; Stein, 2006).

6. HERITAGE SITES

During the physical survey the two proposed new development areas of the opencast at Clive Shaft, and the proposed new shaft on the farm Bergheim were surveyed. For the greater application a map analysis of possible heritage resources were conducted and areas of heritage sensitivity identified.

The area is situated on topographical maps 2830AA and 2830AB.

Clive Shaft Opencast

The opencast area to the north of Clive Shaft is characterised by grass land broken by two earth walled (**Figure 8 & 9**) farm dams in the centre of the proposed mining area.

The foot survey of the area produced no indication of any heritage resources. However just to the east of the proposed mining area a cemetery consisting of approximately 15 graves where identified.

Figure 7 - General view of proposed opencast area

Figure 8 - General view of proposed opencast area

6.1 Site 1

Coordinates: 30.10946,-28.08500 (3351770.128,-3259694.063)

A small informal, partially fenced cemetery with approximately 15 graves (**Figure 10**) was identified at this location. The graves were situated in an open grass field. The graves were placed in a single line and were orientated from east to west.

Site size: Approximately 30m x 30m.

Figure 9 - General view of cemetery

Heritage Evaluation		**Environmental Significance before Mitigation**				
Heritage Significance	**Mitigation**	**Magnitude**	**Duration**	**Scale**	**Probability**	**SP**
GP.A	D	2	4	1	2	Low
No mitigation		**Environmental Significance after Mitigation**				
		Magnitude	**Duration**	**Scale**	**Probability**	**SP**
		2	2	1	2	Low

Mitigation: Currently no mitigation will be required as the mine plan does not foresee any mining in the area of the site.

Proposed new Shaft on the farm Bergheim

The opencast area to the north of Clive Shaft is characterised by grass land situated just to the east of a small river/wetland area. (**Figure 11**)

The foot survey of the area produced no indication of any heritage resources.

Figure 10 - General view of proposed shaft area

Larger Springlake Colliery Minerals Rights area

To assist the management of heritage resources in the EMP document, a desktop survey that included evaluation of aerial photography, topographical maps and archival research was conducted. This was done to identify heritage sensitive areas which include:

- Farmsteads;
- Homesteads of farmworkers;
- Historical structures, including train bridges;
- Forts and redoubts;
- Early farming communities (Iron Age); and
- Historical Routes

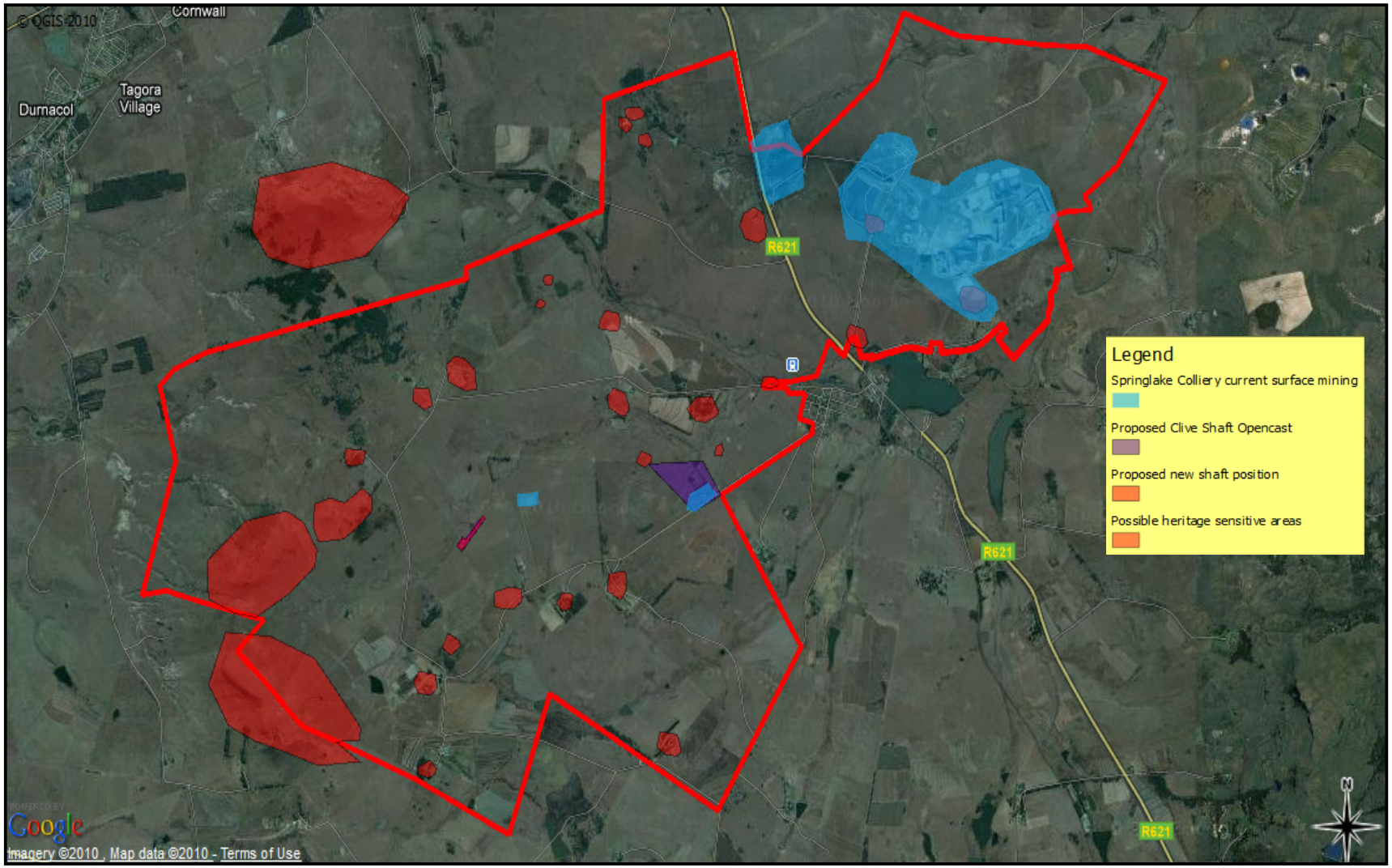


Figure 11 –Topographical Sheets of the study area indicating possible heritage sites

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 possible heritage resources present within the area. Various factors account for this, including the subterranean nature of some archaeological sites and the current 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 had been able to make an assessment as to the significance of the site (or material) in question. This applies to graves and cemeteries as well.

In the foregoing discussion the long history of occupation of the region by farmer communities has been pointed out. In the event that any graves or burial places are located during the development the procedures and requirements pertaining to graves and burials will apply as set out below.

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 an archaeological or 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 heritage map is provided in ***Annexure A***

During the survey 29 clusters of possible heritage significance were identified.

The heritage sites consist of 2 known cemeteries, 24 homestead/farmsteads and four clusters of areas with potential for early farming community settlements.

The following mitigations measures are recommended for the heritage site identified where they are to be impacted by the mining project.

Graves and Cemeteries

Mitigation of these sites will require a fence around the cemetery with a buffer of at least 20 meters. Where graves and cemeteries are to be directly impacted by mining activities, it is recommended that the graves be relocated after a full grave relocation process that includes comprehensive social consultation. The grave relocation process must include:

- A detailed social consultation process, that will trace the next-of-kin and obtain their consent for the relocation of the graves, that will be at least 60 days in length;
- Site notices indicating the intent of the relocation
- Newspaper Notice indicating the intent of the relocation
- A permit from the local authority;
- A permit from the Mpumalanga Department of health;
- A permit from the South African Heritage Resources Agency if the graves are older than 60 years or unidentified and thus presumed older than 60 years;
- An exhumation process that keeps the dignity of the remains and family intact;
- An exhumation process that will safeguard the legal implications towards the mining company;
- The whole process must be done by a reputable company that are well versed in relocations;
- The process must be conducted in such a manner as to safeguard the legal rights of the families as well as that of the mining company.

Alternatively the mining boundaries can be adjusted to demarcate the positions of the two cemeteries or exclude the cemeteries where possible.

Houses and Farmsteads

Where it is found that mining activity will impact on architectural structure (farmsteads, homesteads and ruins) the destruction of the site will require a destruction permit under Section 34 of the NHRA. This permit will only be granted after the site has been documented in its entirety by layout sketches of each structure and the farmstead layout, photographic documentation and historical background of the farmstead. Further to this it is recommended that a full background research on the history of the farmstead and oral history be done together with the documentation of the physical structures.

The following general mitigation measures are recommended:

- A Monitoring plan or watching brief must be agreed upon by all the stakeholders for the different phases of the project. The developer undertakes to give the archaeologist sufficient time to identify and record and archaeological finds and features.

- If during construction any possible finds are made, the operations must be stopped and the qualified archaeologist be contacted for an assessment of the find.
- A heritage resources management plan must be developed for managing the heritage resources in the surface area impacted by mining operations during construction and operation of the development. This includes basic training for construction staff on possible finds, action steps for mitigation measures, surface collections, excavations, and communication routes to follow in the case of a discovery.

10. MANAGEMENT GUIDELINES AND PROCEDURES

10.1 Management Guidelines

1. The National Heritage Resources Act (Act 25 of 1999) states that, any person who intends to undertake a development categorised as-

(a) the construction of a road, wall, power line, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length;

(b) the construction of a bridge or similar structure exceeding 50m in length;

(c) any development or other activity which will change the character of a site-

  (i) exceeding 5 000 m^2 in extent; or

  (ii) involving three or more existing erven or subdivisions thereof; or

  (iii) involving three or more erven or divisions thereof which have been consolidated within the past five years; or

  (iv) the costs of which will exceed a sum set in terms of regulations by SAHRA or a provincial heritage resources authority;

(d) the re-zoning of a site exceeding 10 000 m^2 in extent; or

(e) any other category of development provided for in regulations by SAHRA or a provincial heritage resources authority, must at the very earliest stages of initiating such a development, notify the responsible heritage resources authority and furnish it with details regarding the location, nature and extent of the proposed development.

In the event that an area previously not included in an archaeological or cultural resources survey, is to be disturbed, the South African Heritage Resources Agency (SAHRA) needs to be contacted. An enquiry must be lodged with them into the necessity for a Heritage Impact Assessment.

2. In the event that a further heritage assessment is required it is advisable to utilise a qualified heritage practitioner preferably registered with the Cultural Resources Management Section (CRM) of the Association of Southern African Professional Archaeologists (ASAPA).

  This survey and evaluation must include:

  (a) The identification and mapping of all heritage resources in the area affected;

  (b) an assessment of the significance of such resources in terms of the heritage assessment criteria set out in section 6 (2) or prescribed under section 7 of the National Cultural Resources Act;

  (c) an assessment of the impact of the development on such heritage resources;

  (d) an evaluation of the impact of the development on heritage resources relative to the sustainable social and economic benefits to be derived from the development;

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

(f) if heritage resources will be adversely affected by the proposed development, the consideration of alternatives; and

(g) plans for mitigation of any adverse effects during and after the completion of the proposed development.

3. It is advisable that an information section on cultural resources be included in the SHEQ training given to contractors involved in surface earthmoving activities. These sections must include basic information on:
   a. Heritage;
   b. Graves;
   c. Archaeological finds; and
   d. Historical Structures;

   This module must be tailor made to include all possible finds that could be expected in that area of construction.
4. In the event that a possible find is discovered during construction, all activities must be halted in the area of the discovery and a qualified archaeologist contacted.
5. The archaeologist needs to evaluate the finds on site and make recommendations towards possible mitigation measures.
6. If mitigation is necessary, an application for a rescue permit must be lodged with SAHRA.
7. After mitigation an application must be lodged with SAHRA for a destruction permit. This application must be supported by the mitigation report generated during the rescue excavation. Only after the permit is issued may such a site be destroyed.
8. If during the initial survey sites of cultural significance is discovered, it will be necessary to develop a management plan for the preservation, documentation or destruction of such site. Such a program must include a *watching brief*, timeframe and agreed upon schedule of actions between the company and the archaeologist.
9. In the event that human remain are uncovered or previously unknown graves are discovered a qualified archaeologist needs to be contacted and an evaluation of the finds made.
10. If the remains are to be exhumed and relocated, the relocation procedures as accepted by SAHRA needs to followed. This includes an extensive social consultation process.

The definition of an archaeological watching brief is a formal program of observation and investigation conducted during any operation carried out for non-archaeological reasons. This will be within a specified area or site on land, inter-tidal zone or underwater, where there is a possibility that archaeological deposits may be disturbed or destroyed. The programme will result in the preparation of a report and ordered archive.

The purpose of a watching brief is:

- To allow, within the resources available, the preservation by record of archaeological deposits, the presence and nature of which could not be established (or established with sufficient accuracy) in advance of development or other potentially disruptive works
- To provide an opportunity, if needed, for the watching archaeologist to signal to all interested parties, before the destruction of the material in question, that an archaeological find has been made for which the resources allocated to the watching brief itself are not sufficient to support treatment to a satisfactory and proper standard.

- A watching brief is not intended to reduce the requirement for excavation or preservation of known or inferred deposits, and it is intended to guide, not replace, any requirement for contingent excavation or preservation of possible deposits.
- The objective of a watching brief is to establish and make available information about the archaeological resource existing on a site.

Professional Grave Solutions – Heritage Unit can be contacted on the way forward in this regard.

10.2 Roles and responsibilities

ROLE	RESPONSIBILITY	IMPLEMENTATION
A responsible specialist needs to be allocated and should sit in at all relevant meetings, especially when changes in design are discussed, and liaise with SAHRA	The client	Archaeologist and a competent archaeology supportive team
If chance finds and/or graves or burial grounds are identified during construction or operational phases, a specialist must be contacted in due course for evaluation.	The client	Archaeologist and a competent archaeology supportive team
Comply with defined national and local cultural heritage regulations on management plans for identified sites;	The client	Environmental Consultancy and the Archaeologist
Consult the managers, local communities and other key stakeholders on mitigation of archaeological sites;	The client	Environmental Consultancy and the Archaeologist
Implement additional programs, as appropriate, to promote the safeguarding of our cultural heritage. (i.e. integrate the archaeological components into employee induction course)	The client	Environmental Consultancy and the Archaeologist,
If required, conservation or relocation of burial grounds and/or graves according to the applicable regulations and legislation	The client	Archaeologist, and/or competent authority for relocation services
Ensure that recommendations made in the Heritage Report are adhered by	The client	The client
Provision of services and activities related to the management and monitoring of significant archaeological sites	The client	Environmental Consultancy and the Archaeologist
After the specialist/archaeologist has been appointed, comprehensive feedback reports should be submitted to relevant authorities during each phase of development.	Client and Archaeologist	Archaeologist

Table 2: Roles and responsibilities of archaeological and heritage management

11. IMPACT MANAGEMENT

11.1.1 Pre-construction phase

Based on the findings of the Heritage Report, all stakeholders and key personnel should undergo an archaeological induction course during this phase. Induction courses generally form part of the employees' (miners') overall training and the archaeological component can easily be integrated into these training sessions. Two courses should be organised – one aimed more at managers and supervisors, highlighting the value of this exercise and the appropriate communication channels that should be followed after chance finds, and the second targeting the actual workers and getting them to recognize artefacts, features and significant sites. This needs to be supervised by a qualified archaeologist. This course should be reinforced by posters reminding operators of the possibility of finding archaeological sites.

11.1.2 Construction phase

The project will encompass a range of activities during the construction phase, including ground clearance, establishment of mining area and small scale infrastructure development associated with the opencast mining area, such as ablution facilities or small offices. Construction activities related to the mine encompass the total destruction of the land surface and subsequent to that, all cultural and natural relics located in the directly affected area will be lost.

It is possible that cultural material will be exposed during operations and feasibly may be recoverable, but this is the high-cost front of the operation, and so any delays should be minimised. Development surrounding infrastructure and construction of facilities result in significant disturbance, but construction trenches do offer a window into the past and it may be possible to rescue some of these data and materials. It is also possible that substantial alterations are implemented during this phase of the project and these must be catered for. Temporary infrastructure are often changed or added to the subsequent history of the project. In general these are low impact developments as they are superficial, resulting in little alteration of the land surface, but still need to be catered for.

During the construction phase, it is important to recognize any significant material being unearthed, making the correct judgment on which actions should be taken. A responsible archaeologist must be appointed for this commission. This person does not have to be a permanent employee, but needs to sit in at relevant meetings, for example when changes in design are discussed, and notify SAHRA of these changes.

The archaeologist would inspect the site and any development recurrently, with more frequent visits to the actual workface and operational areas. In addition, feedback reports can be submitted by the archaeologist to the client and SAHRA to ensure effective monitoring. This archaeological monitoring and feedback strategy should be incorporated into the Environmental Management Plan (EMP) of the mine. Should an archaeological site or cultural material be discovered during construction (or operation), such as burials or grave sites, the project needs to be able to call on a qualified expert to make an expert decision on what is required and if necessary to carry out emergency recovery. SAHRA would need to be informed and may give advice on procedure. The developers therefore should have some sort of contingency plans so that operations could move temporarily elsewhere

while the material and data are recovered. The project thus needs to have an archaeologist available to do such work.

The purpose of an archaeological monitoring programme is to provide general information to the developer with regards to management recommendations and cost estimates for the archaeological component, a specialist sub-section of the Environmental Impact Assessment (EIA) process, for the project.

Such a monitoring programme is planned for observation and investigation conducted during any operation carried out for non-archaeological reasons. This will be within a specified area or site on land where there is a possibility that archaeological deposit may be disturbed or destroyed. Its main purpose is:

- To allow, within the resources available, the preservation by record of archaeological deposits, the presence and nature of which could not be established (or established with sufficient accuracy) in advance of development or other potentially disruptive works
- To provide an opportunity, if needed, for the monitoring archaeologist to signal to all interested parties, before the destruction of the material in question, that an archaeological find has been made for which the resources allocated to the monitoring programme itself are not sufficient to support treatment to a satisfactory and proper standard.
- A monitoring programme is not intended to reduce the requirement for excavation or preservation of known or inferred deposits, and it is intended to guide, not replace, any requirement for contingent excavation or preservation of possible deposits.

In essence, the objective of a monitoring programme is to establish and make available information about the archaeological resource existing on a site.

11.1.3 Operational phase

Once the mining project is up and running, the urgency to identify, document and assess archaeological and heritage resources in the opencast area declines, but does not cease. Undocumented sites are still protected by law as no permit would have been issued for their destruction. Apart from any significant changes in operation design, which call for the inclusion of an archaeologist in decision making and notification of SAHRA, there is the accumulated impact of a project on the land surface, and this could result in erosion exposing further sites. Periodic monitoring by an archaeologist and awareness promotion therefore remain tasks. The client and the archaeologist would need to draw up a schedule for this.

11.1.4 Decommissioning and closure phase

During the decommissioning and closure phase of the project, no new areas are expected to be disturbed and/or impacted. Subsequently, no additional sites of archaeological and heritage significance are expected to be impacted on during decommissioning. Furthermore, the majority of sites of archaeological and heritage significance (cultural and natural) would have been recorded and/or assessed in preceding phases. During the decommissioning and closure phase, it may be recommended that the appointed archaeologist review management procedures and ensure that

effective measures were implemented. A comprehensive feedback report should be submitted by the archaeologist to the client, and SAHRA.

12. LIST OF PREPARES

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Nkosinathi Tomose, MSc Archaeology (Wits)

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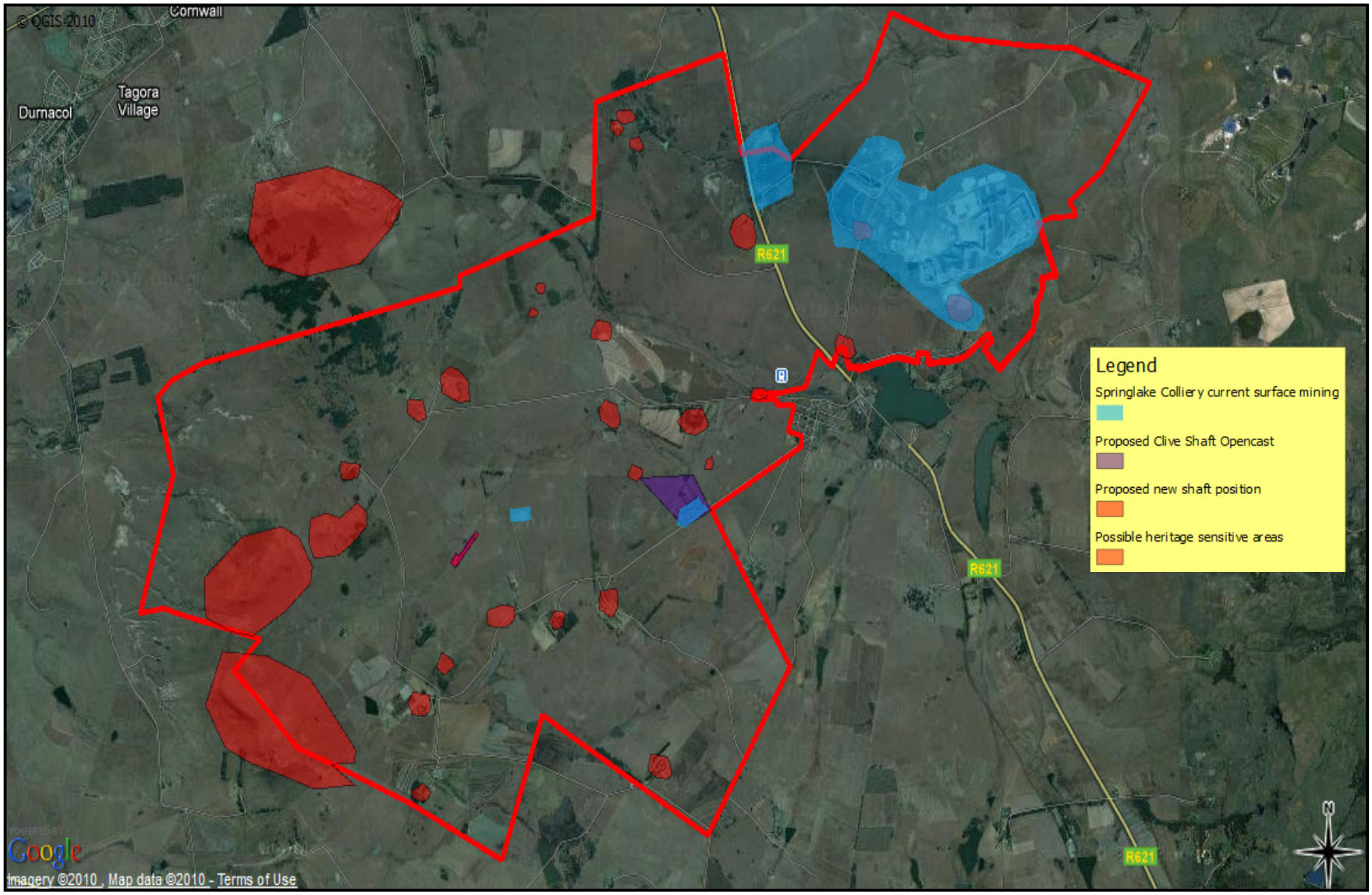
ANNEXURE A:
Heritage Sites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Cornwall
Durnacol
Tagora Village
R621
R621
R621
Legend
Springlake Colliery current surface mining
Proposed Clive Shaft Opencast
Proposed new shaft position
Possible heritage sensitive areas
Google
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