

6 RESTRICTIONS, LIMITATIONS, AND KNOWLEDGE GAPS

Although this report has been written as comprehensively and inclusive as possible, it should be noted that some archaeological and heritage sites may be located on a sub-surface level. Surface visibility was also hampered by dense grass cover. In addition, due to the physical surroundings being escarpment and riverine in nature, access to parts of the project area was not possible.

This report may therefore not give a full perspective of the heritage sites found within the project area and consequently chance find procedures must be implemented. This implies that an archaeologist or heritage specialist must immediately be contacted should any archaeological or heritage features be uncovered during the construction or operational phase (i.e. environmental monitoring). Such heritage features and/or objects may not be disturbed or removed in any way until such time that the specialist has been able to undertake an assessment of the site/object.

Procedures for chance finds, including human remains, are included as Appendix B.

7 SITE CONDITIONS AND LOCATION DATA

The biome of the area is the North-Eastern Mountain Grassland. This type comprises the grasslands of the northern parts of the great escarpment mountains in Mpumalanga. It stretches northwards along these mountains into Northern Province, and southwards through KwaZulu-Natal, reaching the northern parts of Eastern Cape. Altitude ranges from 1 400 to 1 900 m. The summer rainfall ranges from 700 to 1 100 mm per year. Temperatures vary from -8°C to 39°C, with an average of 15°C. Soils are mostly shallow lithosols derived from a variety of rock types (Granger & van Rooyen, 1996).

Although it is predominantly a grassland area, Acocks classified North-eastern Mountain Sourveld as an Inland Tropical Forest type, due to the patches of forest occurring in the sheltered ravines, gorges and valleys of the escarpment. North-eastern Mountain Grassland is restricted to the high altitude escarpment areas of Mpumalanga and Swaziland. The rainfall is high; mist plays an important role, while low temperatures, frost, snow and fire are also important determinants of this vegetation type. This is an area with many rare and endemic plant species, which are often threatened by the expanding forestry industry. Many patches of natural forest occur in the escarpment area of this grassland (Granger & van Rooyen, 1996).

Actual conditions encountered during the field survey of the project area were similar to those discussed above. The project area consists of undulating hills on top of an escarpment that descends into a riverine area. The vegetation comprised predominantly of grassland vegetation. Due to the nature of the physical environment, access to some parts of the project area was not possible.



Figure 7-1: General conditions of the Project Area

7.1 Resources located within the project area

During the pedestrian survey of the project area, a total of 50 heritage resources were recorded. These included individual findspots, Iron Age sites, historical sites, burial grounds and graves, and sites associated with the Choma Village Complex. The unique site numbers and GPS location of the identified heritage resources as summarised in Table 7-1 below.

Table 7-1: GPS/GIS Data

GPS type and model used	Handheld Garmin ETrex
Datum	Hartebeeshoek 1994
Average accuracy	± 5 m
Site co-ordinates	Site Names
East/LON/X: 30.164024 South/LAT/Y:25.057954	DW001
East/LON/X: 30.163958 South/LAT/Y: 25.056234	DW002



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East/LON/X: 30.163738 South/LAT/Y: 25.055906	DW003
East/LON/X: 30.164651 South/LAT/Y: 25.055225	DW004
East/LON/X: 30.164266 South/LAT/Y: 25.055054	DW005
East/LON/X: 30.165661 South/LAT/Y: 25.053150	DW006
East/LON/X: 30.166990 South/LAT/Y: 25.052487	DW007
East/LON/X: 30.165346 South/LAT/Y: 25.052193	DW008
East/LON/X: 30.165081 South/LAT/Y: 25.051430	DW009
East/LON/X: 30.167163 South/LAT/Y: 25.050056	DW010
East/LON/X: 30.165325 South/LAT/Y: 25.048595	DW011
East/LON/X: 30.164567 South/LAT/Y: 25.048521	DW012
East/LON/X: 30.165876 South/LAT/Y: 25.048023	DW013
East/LON/X: 30.165699 South/LAT/Y: 25.046040	DW014
East/LON/X: 30.166371 South/LAT/Y: 25.042680	DW015
East/LON/X: 30.165876 South/LAT/Y: 25.041617	DW016
East/LON/X: 30.166058 South/LAT/Y: 25.041541	DW017
East/LON/X: 30.166973 South/LAT/Y: 25.042140	DW018



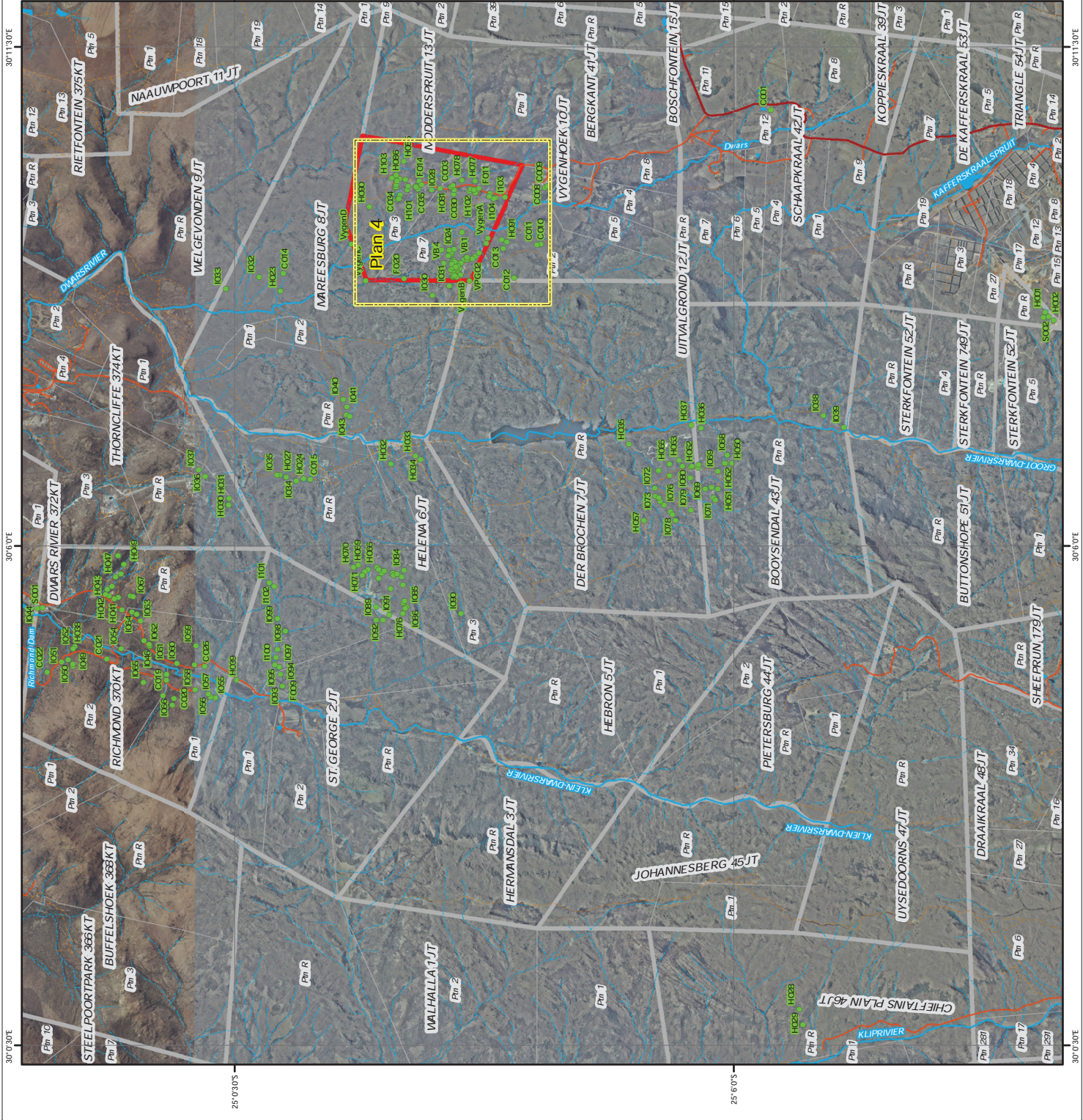
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East/LON/X: 30.166055 South/LAT/Y: 25.040141	DW019
East/LON/X: 30.167313 South/LAT/Y: 25.039673	DW020
East/LON/X: 30.170636 South/LAT/Y: 25.039384	DW021
East/LON/X: 30.168057 South/LAT/Y: 25.037975	DW022
East/LON/X: 30.167733 South/LAT/Y: 25.037696	DW023
East/LON/X: 30.165903 South/LAT/Y: 25.037968	DW024
East/LON/X: 30.165837 South/LAT/Y: 25.037831	DW025
East/LON/X: 30.166388 South/LAT/Y: 25.037972	DW026
East/LON/X: 30.166986 South/LAT/Y: 25.038111	DW027
East/LON/X: 30.167338 South/LAT/Y: 25.038549	DW028
East/LON/X: 30.162264 South/LAT/Y: 25.033053	DW029
East/LON/X: 30.155789 South/LAT/Y: 25.058287	DW030
East/LON/X: 30.156233 South/LAT/Y: 25.057317	DW031
East/LON/X: 30.155610 South/LAT/Y: 25.054522	DW032
East/LON/X: 30.153780 South/LAT/Y: 25.053214	DW033
East/LON/X: 30.153147 South/LAT/Y: 25.052452	DW034



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East/LON/X: 30.152708 South/LAT/Y: 25.051990	DW035
East/LON/X: 30.152679 South/LAT/Y: 25.050468	DW036
East/LON/X: 30.152018 South/LAT/Y: 25.049819	DW037
East/LON/X: 30.150404 South/LAT/Y: 25.049223	DW038
East/LON/X: 30.149830 South/LAT/Y: 25.049115	DW039
East/LON/X: 30.157619 South/LAT/Y: 25.050016	DW040
East/LON/X: 30.165339 South/LAT/Y: 25.039962	DW041
East/LON/X: 30.164363 South/LAT/Y: 25.038591	DW042
East/LON/X: 30.163836 South/LAT/Y: 25.038433	DW043
East/LON/X: 30.163710 South/LAT/Y: 25.038350	DW044
East/LON/X: 30.164514 South/LAT/Y: 25.038680	DW045
East/LON/X: 30.164840 South/LAT/Y: 25.052530	DW046
East/LON/X: 30.165536 South/LAT/Y: 25.051657	DW047
East/LON/X: 30.165573 South/LAT/Y: 25.041986	DW048
East/LON/X: 30.167576 South/LAT/Y: 25.037139	DW049
East/LON/X: 30.149122 South/LAT/Y: 25.039427	DW050



Plan 3

Aquarius Platinum

Everest North Mine

Archaeological Sites

Legend

- Archaeology Sites
- Project Site
- Arterial Route
- Main Road
- Other Access Road
- Tracks & Footpaths
- Perennial River
- Non-Perennial River
- Dam
- Wetland
- Non-Perennial Pan
- Farm Portions
- Farm Boundaries

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Projection: Transverse Mercator
Datum: Harbertsehoek 1984
Central Meridian: 31° E

Revision Number: 3
Date: 30/09/2011

0 0.5 1 2 3 4
Kilometres
1: 80 000

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Aquarius Platinum

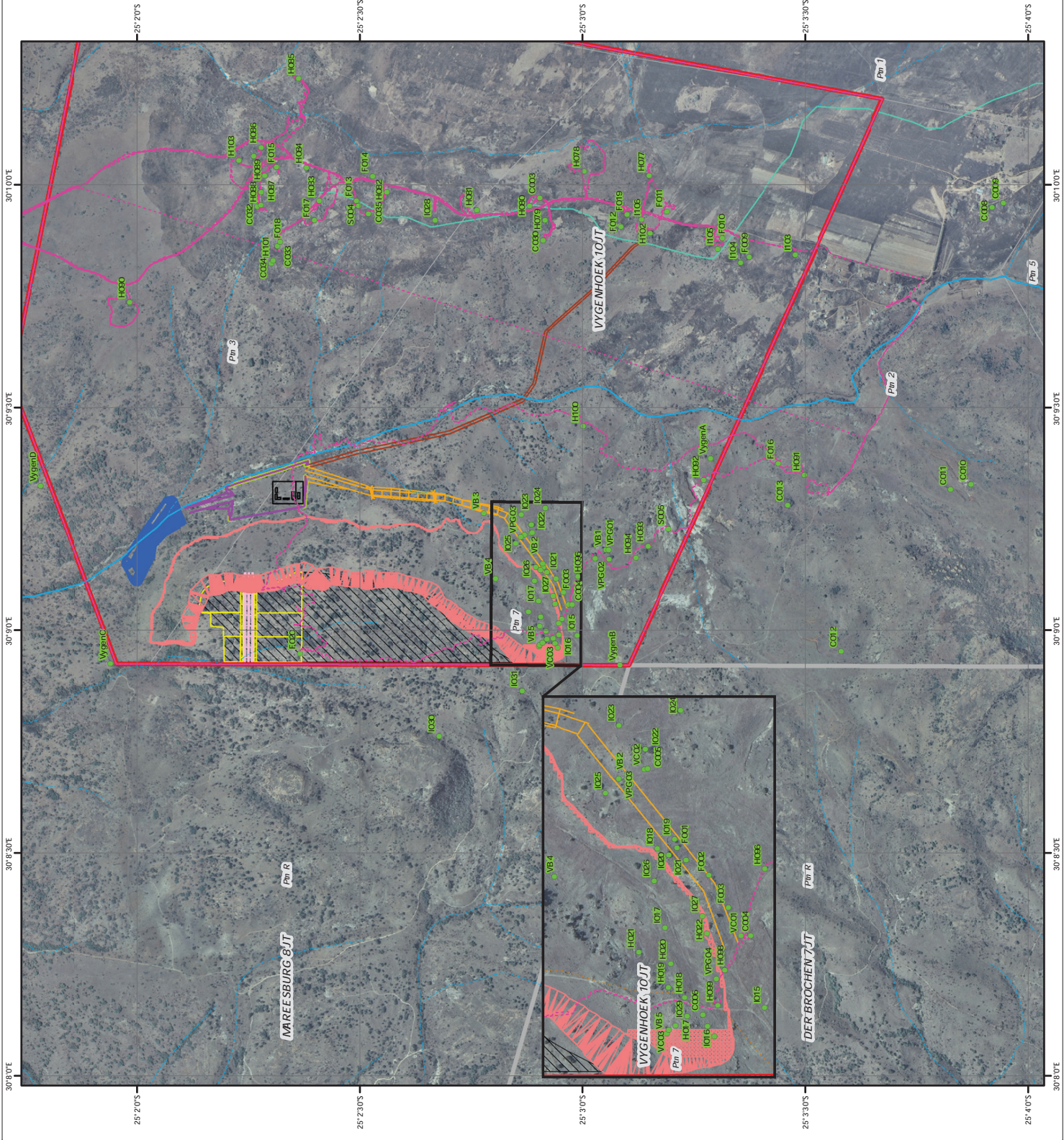
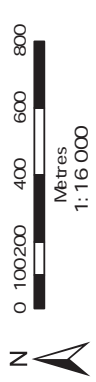
Everest North Mine

Archaeological Sites Zoom

- Legend**
- Archaeology Sites
 - Project Site
 - Archaeology Tracks
 - Perennial River
 - Non-Perennial River
 - Dam
 - Wetland
 - Non-Perennial Pan
 - Farm Boundaries
 - Farm Portions
 - Mine Plan
 - Opencast Pit
 - Water Treatment Facility
 - Board & Pillar
 - Terrace
 - Delines
 - Infrastructure
 - Existing Road
 - Internal Haul Road
 - Main Haul Road
 - Waste Dump Layout
 - Underground Mining Area



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 Revision Number: 2
 Date: 30/09/2011



8 DESCRIPTION OF CONSULTATION WITH STAKEHOLDERS AND INTERESTED AND AFFECTED PARTIES

The PPP conducted for this project followed a consultative approach. This was achieved by encouraging active engagement from I&APs and providing a platform for issues and comments to be raised that will add value to the EIA process, thereby influencing the decision-making process. Various methodologies of consultation were employed in order to reduce the risks of resistance to the project. The following tasks were undertaken:

- Stakeholder identification;
- Development of appropriate documentation;
- Stakeholder notification (through the dissemination of information and meeting invitations);
- One-on-one meetings were undertaken with relevant local authorities, directly affected and surrounding landowners, farm occupiers and land claimants;
- The compilation of an Environmental Scoping Report in terms of NEMA process which was made available to I&APs from 7 December 2011 to 1 February 2012 and again from 17 February 2012 to 26 March 2012; and
- A public information sharing meeting with the public, local communities and affected individuals on 11 February 2012.
- A Final Environmental Scoping Report in terms of NEMA process was made available for public review from 16 April 2012 to 17 May 2012.

8.1 Parties Consulted

8.1.1 Authorities

- Department of Mineral Resources (DMR);
- Department of Water Affairs (DWA);
- Department of Rural Development and Land Reform;
- Department of Public Works, Roads and Transport (DPWRT);
- Mpumalanga Department of Economic Development, Environment and Tourism (MDEDET);
- Mpumalanga Tourism and Parks Agency (MTPA);
- Ehlanzeni District Municipality;
- Thaba Chweu Local Municipality; and
- Greater Tubatse Local Municipality.

8.1.2 Public

- Adjacent and surrounding land owners;
- Directly affected land owners;



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- Land claimants;
- Land occupiers;
- Neighbouring mines;
- Commerce and industry;
- Environmental groups; and
- Ward councillor.

8.2 Comments raised relating to heritage resources

Table 8-1: Comments raised relating to heritage resources

ISSUE	RESPONSE
Heritage	
<p>Public Information Sharing Meeting 11 February 2012: Pakaneng Choma community committee member expressed a concern that a number of graves on the property have been impacted during the undertaking of the prospecting activities.</p>	<p>Aquarius Platinum (AQPSA) appointed a drilling contractor to undertake the drilling of prospecting boreholes. Details of transgressions must be forwarded to Aquarius Platinum to investigate the issues, which will involve consultation with the community elders. Prior to construction however all sensitive areas will be fenced off to avoid any damage to resources.</p>
<p>E-mail 27 March 2012: Phillip Hine from the South African Heritage Resource Agency (SAHRA) Archaeology, Palaeontology and Meteorite Unit (APM) noted that there are three previous Archaeological Impact Assessments conducted in the area. These included projects on neighbouring farms such as Der Brochen and Mareesburg. More specific, an assessment was conducted as part of the EMP for the Everest North Platinum Mine by Dr, Julius Pistorius. SAHRA has no record of the EMP or Heritage Report that was conducted for this project.</p>	<p>Digby Wells undertook a Phase 1 Heritage Impact Assessment (HIA) on the Vygenhoek property. This was considered necessary based on Digby Wells' gap analysis conducted on existing heritage reports.</p>
<p>E-mail 27 March 2012: Phillip Hine noted the draft Scoping report indicated that the area to be archeologically sensitive. According to the report sixty-seven archaeological sites were identified, of which twenty-nine are located within the project area. These sites include:</p> <ul style="list-style-type: none"> ■ Extensive Choma village from the historical period, including cattle enclosures, stone walls, stone cairns and graveyards. ■ Further graveyards situated outside 	<p>Digby Wells undertook a Phase 1 Heritage Impact Assessment (HIA) on the Vygenhoek property. This was considered necessary based on Digby Wells' gap analysis conducted on existing heritage reports.</p>



ISSUE	RESPONSE
<p>and around the Choma village and other graves unrelated to the Choma village.</p> <p>Since high densities of archaeological sites occur in the area, SAHRA APM unit recommends that a new Heritage Impact Assessment must be conducted for this project. This new assessment must re-evaluate the heritage resources identified in the Pistorius (2006) Impact Assessment. Existing and newly identified burial grounds and graves must be also properly assessed. It is important that the significance of the sites be stated. It is further recommended that a broad base stakeholder consultation process be undertaken.</p>	
<p>E-mail 27 March 2012: Phillip Hine notes that the developer must ensure that Palaeontological study be undertaken to assess whether or not the development will impact upon paleontological resources –or at least a letter of exemption form a Palaeontologist is needed to indicate that this is unnecessary.</p>	<p>Digby Wells undertook a Phase 1 Heritage Impact Assessment (HIA) on the Vygenhoek property. This was considered necessary based on Digby Wells' gap analysis conducted on existing heritage reports.</p>
<p>E-mail 27 March 2012: Phillip Hine states that any other heritage resource that may be impacted such as built structures over 60 years old, sites of cultural significance associated with oral histories, burial grounds and graves, graves of victims of conflict, and cultural landscapes or viewscape must also be assessed.</p>	<p>Digby Wells undertook a Phase 1 Heritage Impact Assessment (HIA) on the Vygenhoek property. This was considered necessary based on Digby Wells' gap analysis conducted on existing heritage reports.</p>

9 CHARACTERISATION OF CULTURAL LANDSCAPE

9.1 Literature Review

The desktop study results were compiled using published and unpublished sources including books, journals, theses and relevant previous impact assessments.

9.1.1.1 Stone Age

The Stone Age in southern Africa is divided into three periods, the Early, Middle and Late Stone Age. The Early Stone Age (ESA), dating from 2.5 mya to 200 000 years ago (kya), is marked by the use of large, fairly unsophisticated stone tool assemblages: the Oldowan (coarse simple flaked pebbles used as choppers) and the Acheulean (classic tear-drop shaped, bifacially flaked hand axes and cleavers) (Mitchell, 2002). There is little Stone Age research published for the region. ESA assemblages have been uncovered at the

Maleoskop Site near Groblersdal (Esterhuysen & Smith, 2007), but most of the Stone Age sites recorded in the vicinity of the project are include MSA and LSA findings.

The MSA is marked by a significant trend in the manufacture of the tools to smaller dimensions and increasing variety. In Southern Africa the earliest MSA industries are characterised by high proportions of minimally modified blades with the Levallois technique present. Regional traditions become more varied with a greater degree of local differentiation, making the Southern African MSA difficult to interpret (Clark, 1982). LSA tool technology is highly sophisticated when compared to ESA and MSA industries, with specific tools being created for specific purposes, and the inclusion of bone tools into the assemblages (Mitchell, 2002).

Bushman Rock Shelter site situated 70 km to the northeast of the Project area and excavated by A. W. Louw in 1965, showed evidence and stone assemblages concurrent with LSA and later MSA deposits. The site also had historical and Iron Age deposits, as well as a host of faunal remains, and some paintings in poor condition preserved on the shelter wall (Louw, 1969). A significant bone tool assemblage was found in the upper layers of the site by later researchers (Plug, 1982).

A second Stone Age site, the Heuningneskrans Shelter (also +/- 70 km north east dates to the end of the last glacial period (30–20 000 BP to 12 000 BP). The site is significant, as it contains the last known record of the extinct springbok species, *Antidorcus bondi*, dated to 20 000 BP. The cave also contributed a Robberg-like lithic industry, dated to between 23 kya and 12.5 kya, but sedimentation rates might indicate it could have been present from as early as 32 kya (Klein, 1984). A Later Stone tool industry, identified as being similar to, if not the same as the Oakhurst Cluster was found. This sequence is dated to be between 12.5 kya and 9 kya (Klein, 1984).

9.1.1.2 Rock Art

Rock art is the depiction of Africa's history by either painting or engraving rock surfaces. Rock art is occurs throughout Mpumalanga, and plays a significant role in the history of the province. Rock art does not comprise of a single monolithic tradition, but rather that of several cultural groups, including the San, Khoekhoen, Iron Age farmers, and more recent groups such as Sotho-Tswana and Nguni speakers (Smith & Zubieta, 2007). The Nguni-speakers rock art tradition predominantly comprises rock engravings, first documented by Dr C. Pijper in 1918 (cited in Smith & Zubieta, 2007). Examples of these have been documented in the Lydenburg region. It is suspected that the site he refers to is Boomplaats, one of the largest engraving sites in South Africa. These engravings are thought to represent stone wall settlements in the area (Maggs, 1995). At Boomplaats there are also representations of lizard-like figures, a common motif amongst Sotho-Tswana art and may indicate multiple usage of this site. In general, Sotho-Tswana art is found most often in the remote hill areas of Mpumalanga, and is distinguished by both its colour and form, as they are predominately white and painted with fingers. The artists were the ancestors of the Pedi and related Northern Sotho speakers (Smith & Zubieta, 2007) therefore the art and their locations within the landscape may hold sacred meaning to contemporary groups in Mpumalanga.

9.1.1.3 Iron Age

The Iron Age in South Africa appears around 2000 years ago. Bantu-speakers arrived in southern Africa around this time bringing with them more advanced technological innovations and different social systems. These included metal working, ceramic production, domesticated animals (specifically cattle), agriculture and eventually certain settlement



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patterns. The Iron Age has been studied by classifying the different ceramic styles into various facies. These facies track the migration of different groups of people, as well as the shifting and dynamic identities within these various groups and time periods of the Iron Age (Hall, 1987).

Using Huffman's (2007) distribution of ceramics in southern Africa, twelve ceramic facies occur within a 100 km radius of the project area (Table 9-1). This includes significant finds such as the Lydenburg heads, several large ceramic heads or masks, unique in the South African Iron Age record. These artefacts were found southeast of Lydenburg in the early 1950s by the land owner's son, who brought them to the attention of Professor Ray Inskeep at the University of Cape Town. The site of the heads' discovery was later systematically excavated but because they were removed from their original context, and the site was disturbed by erosion, dating could not be done. The excavations revealed that the site had been occupied at least twice, first at around 600 CE and later from around 800 to 1 100 CE (Esterhuysen & Smith, 2007).

Huffman (2002), Roodt (2003a, b, & c; 2008), and van der Walt (2009) have identified several Iron Age sites around the project area relating to the Moloko branch of ceramic facies, and have positively identified *Marateng* and *Eiland facies* ceramics. These sites are either associated with ceramic scatters or stone walled settlements. These stone walled settlements primarily conform to the Badfontein pattern, consisting of terrace walls, cattle lanes and circular settlements. It is argued that the circular pattern of these settlements may relate to the special adaptation to the cultivation of maize (Maggs cited in Huffman 2007: 41).

Table 9-1: Ceramic Facies & Stone Walling within 100 km radius (Huffman, 2007)³

Ceramic facies	Period
Doornkop	750 – 1000
Klingbeil	1000 – 1200
Eiland*	1000 – 1300
Kgopolwe*	1030 – 1350
Maguga*	1200 – 1450
Letaba*	1600 – 1840
Icon	1300 – 1500
Marateng	1650 – 1840
Silverleaves*	280 – 450
Mzonjani*	450 – 750
Garonga	750 – 900
Stone Walling	Period

³ The * indicates ceramic types occurring within a 100km radius, but not directly over the project area.



Badfontein	Probably 1650 onwards, but could be as early as 1550
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9.1.1.4 15th to 18th century (Historical / Late Iron Age)

The Koni were a loose grouping of cultural identities from north-eastern South Africa, and southern parts of Zimbabwe. Differing accounts place the origins of the Koni with either Mabula, the initial leader of southward migrations from the north, or with cultural groups living around Phalaborwa (Makhura, 2007). The main group of the Koni fell under the control of the Matlala in the 15th and 16th century. The group splintered, and came to settle in areas around Lydenburg and Middleburg. The 17th century saw succession conflicts within the Matlala house and the subsequent offshoots of the Koni settled at locations such as Ga-Chuene and Thaba-Tshweu (Makhura, 2007).

The early 17th century saw the arrival of the Ndebele in the Transvaal. One account has the Ndebele descending from a common ancestor, Musi. His sons, including Manala, Nzundza, Kekana and several others, were involved in a succession battle after Musi's death. The sons and their followers fought, and the tensions eventually lead to fission of the groups. Manala and his followers stayed in the Pretoria area, while Nzundza and his brother Kekana moved into the Steelpoort and Middleburg districts (Makhura, 2007).

9.1.1.5 Historical period

This period covers the emergence of South Africa as a modern state, through the colonial period, to the Anglo-Boer war and into the 20th century, with the creation of the Union of South Africa, and the eventual creation of the Republic of South Africa following the Second World War. The History of the Apartheid system and freedom struggle is also considered to be part of this period. The nearest significant town to the project area is Lydenburg. The history of Lydenburg is rich, as it was an active trade centre and administrative location for much of the nineteenth century. The centre experienced the influence of several groups through the 18th and 19th century, including the Koni and Southern Ndebele, and was threatened by the Pedi hostilities in the late 1800s, as well as being involved in the Anglo-Boer war (Makhura, 2007).

9.1.1.6 18th to 20th century

The *Mfecane*, a period of upheaval and migration in the late 18th and early 19th century, saw roving bands of what would become known as the Matabele of southern Zimbabwe, under Mzilikazi. This group moved through the area of Mpumalanga and Gauteng to escape the consolidation of the Zulu state in the early 19th century under Shaka. The 1820s saw Mzilikazi attacking and displacing Nguni speakers like the Nzundza and Sotho speakers, such as the Koni, Kopa and Kgatla. Mzilikazi was eventually forced out of the region to the north (Makhura, 2007).

The centre of the Pedi nation (descendants of Sotho-Tswana language group, and users and manufacturers of Marateng ceramics (Huffman, 2007)) was situated north of the current town of Lydenburg. The first expedition by the Boers of Lydenburg against the Pedi came as a result of a dispute over hunting spoils (Smith, 1969). In reprisal for the casualties suffered by the Pedi, a process of armament took place amongst the Pedi, with a large proportion of firearms being procured and stored by the Pedi chief, Sekwati. The Steelpoort River was officially proclaimed as the border between the Pedi and the Boers in 1857 (Smith, 1969). Sekwati died in 1861, and his heir, Sekhukhune, initially honoured the Steelpoort border, but became increasingly threatened by the arrival of the Berlin mission station, and the subsequent conversion of many of his followers to Christianity. Sekhukhune expelled many

of the converts, who moved south to Botshabelo. Among the converts was the chief's brother, Johannes, who established his homestead above the Spekboom River.

From 1876 onwards the Pedi, under Sekhukhune increased their raids of weakly defended homesteads, and other Boer settlements. In retaliation, war was declared on the Pedi on the 16th of May 1876. Sekhukhune was rumoured to be planning an attack on Lydenburg, but actually fought a defensive war which relied more on the inaccessibility of his strongholds, than his strength in the field. In response, the Boer defence forces around Lydenburg, erected forts around the town of Lydenburg and Middleburg, in order to protect the towns from the Pedi. In reality, the Pedi were running short of food, and were facing starvation, due to the amount of time being devoted to raiding, and not to farming (Smith, 1969).

Eventually Sekhukhune sued for peace, and was required to pay a fine of 2000 head of cattle, and become an official subject of the Transvaal Republic. Following the 1877 annexation of the Transvaal by the British, Sekhukhune was informed that he would either have to leave the territory, or pay taxes. Sekhukhune paid the taxes, and as a result the forts were demolished. The famine ended in 1878 and Sekhukhune again stated his intent to become the paramount chief of all the tribes surrounding the district of Lydenburg. This time it was British forces that marched against Sekhukhune in late 1878, but turned back due to an outbreak of horse sickness (Smith, 1969). After the sickness abated, the Boer forts surrounding the Pedi strongholds were re-occupied by the British, and patrols were instated to keep the Pedi within their settlements. The arrival of Sir Garnet Wolsley at the time diverted military resources to Natal intent on bringing the Anglo-Zulu War to an end.

Sekhukhune was confident that he would not be attacked before the end of 1879. This was partly due to his denial of the capture of Cetshwayo, as well as the perceived tensions between the Boers and British Wolsley however launched a swift attack on the seat of Sekhukhune, in which his settlement was destroyed, and the chief captured and sent to prison in Pretoria in December 1879. Sekhukhune was eventually released but then murdered by a rival chief in 1883 (Smith, 1969).

The settlement of Lydenburg was a significant role player in the lead up to and the eventual Anglo-Boer War. The town was originally founded in 1850 by a group of Boers under the leadership of Andries Potgieter, who had recently abandoned their previous settlement of Ohrigstad, due to problems experienced with malaria. The Lydenburg Republic seceded from the *Zuid Afrikaanse Republiek* (ZAR) in 1856, but joined the Republic of Utrecht in 1860 (Lydenburg Museum, 2004).

Lydenburg was one of the centres from which a large commando was formed during both the First and Second Anglo-Boer Wars. The Lydenburg Commando was involved in a guerrilla war and responsible for attacks against the British on the Machadodorp-Lydenburg road. This forced the British to construct several blockhouses on this route. The Commando was defeated by the British in August 1900 and subsequently occupied the town in September (Lydenburg Museum, 2004).

9.2 Relevant Databases and Collections

A total of 24 sites around the project area were identified during the archive and database survey. The South African Archives website was surveyed and no information was gathered. During survey of the relevant databases and collections, no sites were identified within the project area.

The Genealogical Society of South Africa database was surveyed. One registered cemetery was identified outside the project area. The cemetery (Schaapkraal) consists of seven graves with dates ranging from 1928 to 1993.

The University of the Witwatersrand (Wits) Archaeological Site Database was consulted. No sites were identified within the project area, but 23 sites were found around the project area approximately 4 km to the west. These included Iron Age stonewalled settlements and shelters, historical structures and a shelter and mine shafts. These sites were found on Booyendal 43 JT & Der Brochen 7 JT.

9.3 Desktop cartographic survey

A total of 11 potential sites within the project area were identified by a cartographic and satellite imagery survey. All these sites had potential for cultural resources. These sites included possible stonewalled settlements, ridges and eroded areas where archaeological resources normally occur, but on verification of these sites in the field, no heritage resources were identified.

9.4 Relevant Previous Impact Assessment Reports

Nine CRM reports were reviewed as baseline information locating identified cultural resources within or near the project area. One hundred and eighty five sites were identified: 29 of which were located within the project area. The sites identified in these reports are summarised below:

- Pistorius (2006) performed a Phase 1 HIA as part of an Environmental Management Plan (EMP) for the proposed Everest North Platinum Mine on parts of Vygenhoek 10 JT and Mareesburg 8 JT. Amongst his findings were an extensive Choma Village, from the historical period, including cattle enclosures, stone walls, stone cairns and graveyards. Pistorius states that the Choma Village represents one cultural landscape. Further graveyards situated outside and around the Choma village and other graves unrelated to the Choma Village were also noted;
- Huffman and Schoeman (2002) Phase 1 AIA was performed by Archaeological Resources Management for the proposed Anglo Platinum Der Brochen Project. Findings include; 3 historical homesteads, several Pedi homesteads, burial grounds dating to the late 1970's and Eiland archaeological sites were identified;
- Van Der Walt & Fourie (2006) Matakoma Heritage Consultants performed an AIA for the proposed Mareesburg Joint Venture Mine, on the farm Mareesburg 8 JT. Four sites were identified, but none were deemed special enough to be given protection. The sites found included; four Iron Age Sites;
- Roodt (2003a, b, c; 2008) Cultural Resource Consultants performed a Phase 1 HIA for Der Brochen Tailings Dam, the Der Brochen Project, and the Der Brochen Mine. In these reports, 88 sites were identified. These include 43 Iron Age sites, 22 historical sites, seven features including communal grinding areas, 15 burial sites and one MSA site. Roodt (2003b) discusses identified sites including one MSA site where a formal scraper was collected, with no location information included, and for four sites, the location information is identical. For the reasons of inaccuracy in this report, the information has been excluded;
- Van der Walt (2009) Heritage Contracts Unit performed a Phase 1 AIA of Booyendal Platinum Mine. Thirty one sites of heritage significance were identified during the survey. Sites identified include 15 Late Iron Age sites of the Marateng facies, 14

Historical sites and one burial site. Mitigation on some of these sites was recommended; and

- Steyn (2012) Professional Graves Solutions (PGS) were appointed by Aquarius to undertake a site visit to the farm Vygenhoek 10 JT to investigate complaints received by community members regarding possible damage to graves during prospecting. A total of 12 locales were visited during the inspection, all of which were known sites. No physical evidence of disturbance to graves was noted, though it was recommended that suitable buffer zones be established and maintained around all heritage sites including graves.

9.5 Scoping Survey Results

A scoping site visit was conducted before the commencement of the HIA to better inform the Heritage Statement and to familiarise the specialist with the area. Some observations were made about the project area that included dense grass vegetation and difficult terrain that may hamper and restrict access to parts of the project area during the HIA.

10 CHARACTERISATION OF THE PALAEOLOGICAL ENVIRONMENT

10.1 Methodology

This Palaeontology Desktop Study provides a preliminary assessment of the inferred palaeontological heritage within the Brakfontein Project area in particular. The current heritage landscape of the Brakfontein Project area will be characterised to include existing and potential palaeontological resources. The following methods will be used in compiling the Palaeontology Desktop Study:

10.1.1 A Literature Review

- A literature review of relevant and available published research such as academic journals and academic books; and
- A review of existing palaeontology impact assessment reports.

10.1.2 Cartographic

- A desktop-based survey of available geological maps where relevant to determine the potential existence of palaeontology resources.

In preparing a Palaeontological Desktop Study the potentially fossiliferous rock units (groups, formations, suites and sub-suites *etc.*) represented within the Everest North Mining Project area are determined from geological maps. The known fossil heritage of each rock unit is inventoried from the published scientific literature and previous palaeontological impact studies in the same region. This data is then used to assess the palaeontological potential of each rock unit. The potential impact of the proposed development on local fossil heritage is then determined on the basis of the likely occurrence of fossils.

10.2 Limitations and Assumptions

The accuracy and reliability of palaeontological specialist studies as components of heritage impact assessments are generally limited by the following constraints:

- Inadequate database for fossil heritage for much of South Africa, given the large size of the country and the small number of professional palaeontologists carrying out fieldwork here. Most development study areas have never been surveyed by a palaeontologist;
- The extensive relevant palaeontological literature such as unpublished university theses, impact studies and other reports are not readily available for desktop studies; and
- Absence of a comprehensive computerized database of fossil collections in major South African institutions which can be consulted for impact studies.

It is not possible to predict the buried fossil content of an area other than in general terms. In particular, the important fossil bone material is generally sparsely scattered in most deposits and much depends on spotting this material as it is uncovered during monitored excavations.

10.3 Geological Context

The underlying geology of South Africa is known as the Kaapvaal Craton which extends as far back as 3.7 billion years ago. The Kaapvaal Craton is made up of the Greenstone Belt and the Basement Complex.

The Greenstone belt in this region is represented by the Barberton Supergroup which is found in the Barberton Mountain Land of the Barberton and Eerstehoek districts (Wilson, 2012) approximately 100 km from the project area. The Greenstone belt has many gold, copper-zinc and iron deposits and is therefore economically important (De Wit, Armstrong, Kamo, & Erlank, 1993). Another volcanic rock found in this area is the komatite which dates to 3.5 billion years ago, making it one of the oldest rocks to provide insight into the geological history of South Africa (De Wit, A History of Deep Time, 2007). The rocks in the Barberton Mountain Land also offer information on the earliest forms of life on Earth. Volcanic basalts, for example, are associated with the komatites and were found to contain microscopic traces of the world's oldest life forms resembling hair-like tubes (De Wit, A History of Deep Time, 2007).



















To the north of the Greenstone belt in the Lydenburg and Dullstroom areas, the granites and the Barberton rocks are overlaid by sedimentary rocks of the Transvaal Sequence which formed about 2.7 and 2.4 billion years ago (De Wit, A History of Deep Time, 2007). The geological sequence from the old granites to the rocks of the Transvaal Sequence is marked by the occurrence of large domes of stromatolites that formed with layers of cyanobacterial "mats" and limestone stacked on top of one another to form an extensive carbonate reef (De Wit, A History of Deep Time, 2007, p. 35).

In the Mpumalanga Province, the Basement Complex of the Kaapvaal Craton is found in the Lowveld and in scattered patches across the southern Highveld (Eriksson, Hattingh, & Altermann, 1995). Here, the Basement Complex consists of dolerite, granite, tuff and shale with gold found in places (Wilson, 2012). Within the project area, the Bushveld Complex is overlaid by rocks of the Transvaal Sequence. The Transvaal Sequence is overlaid by rocks of the Dwars River Subsuite, the Vlakfontein Subsuite and Kolobeng Norite of the Rustenburg Layered Suite.

Aquarius Platinum

Regional Geology

Legend

-  Quaternary Catchment Boundaries
 -  Project Site
 -  Main Roads
 -  National Roads
 -  Perennial River
 -  Non-Perennial River
- Geology**
-  Dsjate Sbsui, Rustenburg Layered Sui
 -  Dwers River Sbsui, Rustenburg Layered Sui
 -  Lakenvalei Fm, Pretoria Grp
 -  Lebowa Granite Sui, Bushveld Cplx
 -  Magaliesberg Fm, Pretoria Grp
 -  Nederhorst Fm, Pretoria Grp
 -  Roosenekal Sbsui, Rustenburg Layered Sui
 -  Silverton Fm, Pretoria Grp
 -  Steenkampsvalke Mamb, Teekloof Fm
 -  Vaalian Erathem
 -  Vermont Fm, Pretoria Grp
 -  Vlakfontein Sbsuite & Kolobeng Norite, Rustb.



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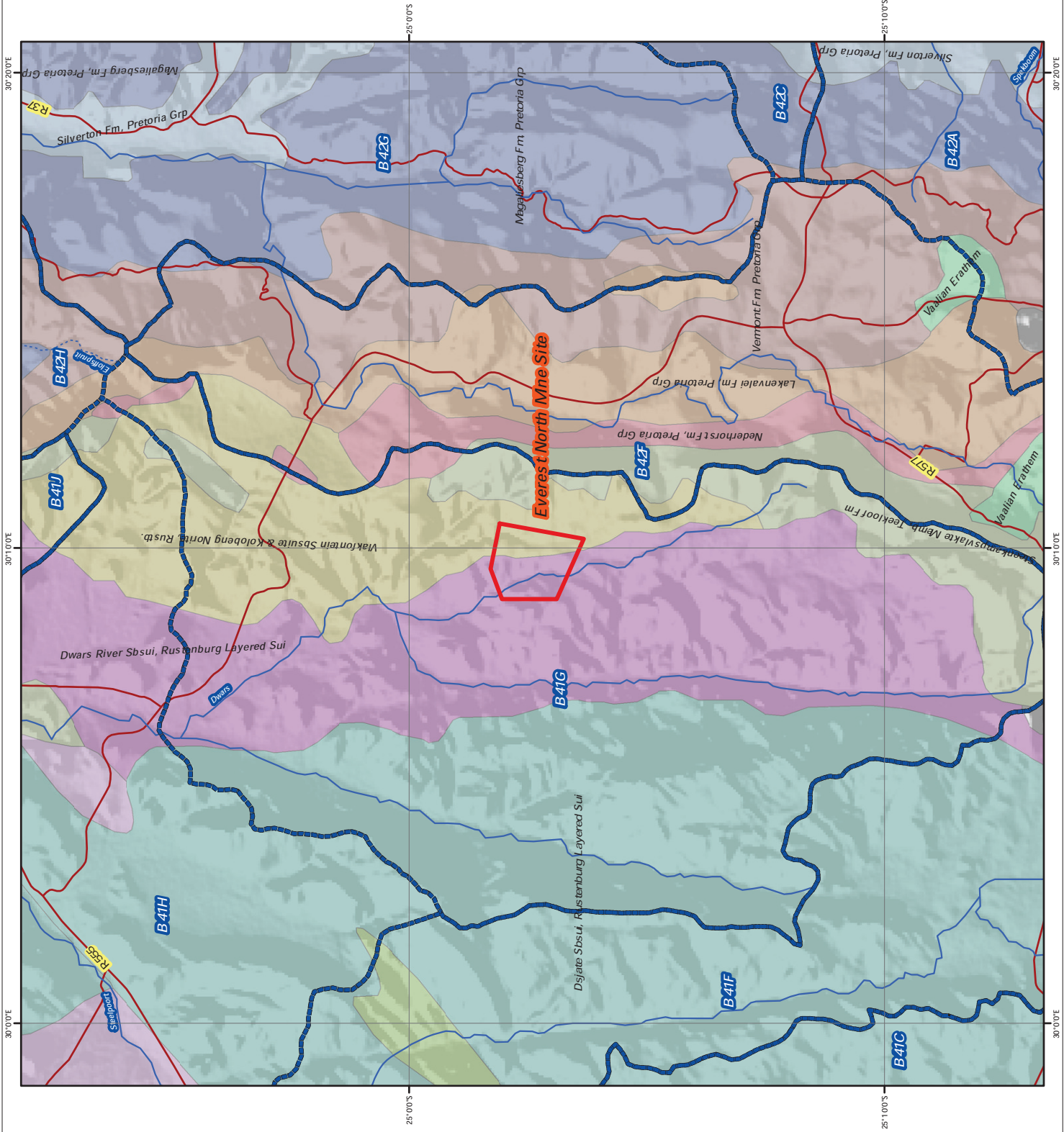
www.digbywells.com

Projection: Transverse Mercator
Datum: Harlebeesthoek 1994
Central Meridian: 31° E

Ref: gis_SV11_256_201109_052
Revision Number: 1
Date: 14/09/2011



Kilometres
1: 150 000



The main bedrock units represented here include, in order of decreasing age:

<p style="text-align: center;">BUSHVELD COMPLEX</p> <p style="text-align: center;">Rustenburg Layered Suite</p> <p style="text-align: center;"><i>Dwars River Layered Sub-suite</i></p> <p style="text-align: center;"><i>Vlakfontein Layered Sub-suit</i></p> <p style="text-align: center;"><i>Kolobeng Norite</i></p>
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10.3.1 Bushveld Complex

Useful overviews of the Bushveld Complex geology in general include Lee (1996) and Eales & Cawthorn (1996). The Bushveld Complex is a large layered igneous intrusion within the Earth's crust which has been tilted and eroded and now outcrops around the edge of the Transvaal Basin (Lee, 1996; Eales & Cawthorn, 1996). The Bushveld Complex contains a large reserve of platinum group metals (PGMs) which includes platinum, iron, chromitite, titanium, and norite to name a few. The eastern lobe of the Bushveld Complex stretches from Mpumalanga to Limpopo.

10.3.2 Rustenburg Layered Suite

The Rustenburg Layered Suite of the Bushveld Complex is the largest and oldest mafic layered complex on Earth. This formation can be up to 9 km thick and comprises anorthocites, mafic and ultramafic cumulates. The Rustenburg Layered Suite is associated with acid (largely granite) rocks of the Lebowa Granite and Rashoop Granophyre Suites (Wilson, 2012). These geological formations can be found near the project area.

The Dwars River Sub-suite, the Vlakfontein Sub-suite and the Kolobeng Norite all contain platinum-group metals (PGMs). The Dwars River Sub-suite, in particular, is a UG2 chromitite layer within the Rustenburg Layered Suite of the Bushveld Complex (Wilson, 2012)

10.4 Palaeontology Heritage

The bedrock in the area is of the Bushveld Complex comprises igneous rocks. It has not intrinsic palaeontological potential.

The proposed project area is situated on the Dwars River Sub-suite, the Vlakfontein Sub-suite, and the Kolobeng Norite of the Rustenburg Layered Suite of the Bushveld Complex. These formations include platinum group metals and do not have palaeontological potential.

Overall, the geological formations found in the project area are of low overall palaeontological sensitivity as no records of fossil discoveries in the geological formations of the project area have been found.

11 DESCRIPTION OF ARCHAEOLOGICAL AND HISTORICAL RESOURCES

11.1.1 Stone Age Findspots

Three Stone Age findspots were identified during the survey of the project area. Through experience, findspots' significance is usually relatively low as they are out of their primary context and the information potential is normally negligible. SYL1256/DW016 and 017 are single MSA flakes found on the eastern portion of the project area and SYL1256/DW033 is a number of Stone Tool flakes from the MSA and LSA that have been washed out of an erosion gully southeast of the Choma Village Complex. Both of these findspots have a low significance rating and impact rating.



Figure 11-1: MSA Flake at SYL1256/DW016 and SYL1256/DW017 Respectively



Figure 11-2: MSA Flakes from SYL1256/DW033