A HERITAGE IMPACT ASSESSMENT STUDY FOR THE CONSTRUCTION OF 2X20MVA 132/22KV HOXANE SUBSTATION AND APPROXIMATELY 1.8KM LOOP-IN-LOOP-OUT (LILO) 132KV POWER LINES, HAZYVIEW, BUSHBUCKRIDGE LOCAL MUNICIPALITY, MPUMLANGA PROVINCE, SOUTH AFRICA

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DECLARATION OF INDEPENDENCE

This report has been compiled by Nkosinathi Tomose, leading archaeologist and heritage consultant for NGT Project & Heritage Consultants. The views expressed in this report are entirely those of the author and no other interest was displayed during the decision making process for the project.

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EXECUTIVE SUMMARY

NGT Projects & Heritage Consultants (Pty) Ltd was appointed by Margen Industrial Services cc as an independent and lead CRM firm to conduct a HIA (exclusive of Palaeontological desktop study) for the proposed development as part of specialists (inputs) impact assessment studies required to fulfil the BAR process and its requirements. The appointment of NGT Projects & Heritage Consultants (as an independent CRM firm) is in terms of the NHRA, No. 25 of 1999 (as amended), the NEMA, No.107 of 1998 (as amended & the applicable 2010 Regulations), as well as other applicable legislations such as the MPRDA) No. 28 of 2002. Nkosinathi Tomose, the lead archaeologist & heritage consultant or NGT Projects & Heritage Consultants, conducted the HIA study for the proposed construction of 2x20mva 132/22kv Hoxane Substation and approximately 1.8km Loop-In-Loop-Out (Lilo) 132kv Power Lines, Hazyview, Bushbuckridge Local Municipality, Mpumalanga Province, South Africa (*Figure 1*)

Results:

The desktop phase of the project yielded a number of heritage resources within the broader Mpumalanga area and these included among other resources: Archaeological resources - stone walling; terracing; ceramic or pottery vessels; terracotta statues or bursts (heads); rock art in form of engravings and paintings. The physical survey yield a cemetery with approximately 13 graves (*Figures 10, 11 & 13*; *Figure 13* location of the site) – HoxGS-1. The site was assessed to be of high heritage significance with low impact significance.

It is concluded that the site fall outside the 3 proposed substation options and will not be direction impacted by the proposed development. As such the following recommendations are made about the project:

- It is recommended that SAHRA grant a positive review comment for the project.
- It is recommended that the developer should avoid the site (HoxGS-1) and treat as no go area.

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ABBREVIATIONS

Acronyms	Description
AIA	Archaeological Impact Assessment
ASAPA	Association of South African Professional Archaeologists
CRM	Cultural Resource Management
DEA	Department of Environmental Affairs
DoE	Department of Energy
EIA practitioner	Environmental Impact Assessment Practitioner
EIA	Environmental Impact Assessment
ESA	Early Stone Age
GIS	Geographic Information System
GPS	Global Positioning System
HIA	Heritage Impact Assessment
I&AP	Interested & Affected Party
K.y.a	Thousand years ago
LSA	Late Stone Age
LIA	Late Iron Age
MSA	Middle Stone Age
MIA	Middle Iron Age
NERSA	National Energy Regulator of South Africa
NHRA	National Heritage Resources Act
NEMA	National Environmental Management Act
PHRA	Provincial Heritage Resources Authority
PSSA	Palaeontological Society of South Africa
ROD	Record of Decision
PDAFP	Proposed Development Area Footprint
SADC	Southern African Development Community
SAHRA	South African Heritage Resources Agency
SPV	Special Purpose Vehicle

TERMS & DEFINITION

Archaeological resources

This includes:

- 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;
- 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;
- 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;
- 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:

- construction, alteration, demolition, removal or change in use of a place or a structure at a place;
- carrying out any works on or over or under a place;

- subdivision or consolidation of land comprising a place, including the structures or airspace of a place;
- constructing or putting up for display signs or boards;
- any change to the natural or existing condition or topography of land; and
- any removal or destruction of trees, or removal of vegetation or topsoil

Heritage resources

This means any place or object of cultural significance

1. INTRODUCTION

1.1. Project Background

1.1.1. Summary of the Proposed Project

This project is one of Eskom Holdings SOC Limited power strengthening and distribution projects and it involves construction of 2x20mva 132/22kv Hoxane Substation and approximately 1.8km Loop-In-Loop-Out (Lilo) 132kv Power Lines, Hazyview, Bushbuckridge Local Municipality, Mpumalanga Province, South Africa. The current study form part of specialist's studies aimed at giving inputs into the BAR process undertaken by Margen Industrial Services and it advises on the best suitable heritage management measures for the resources yielded during the physical survey of the proposed development area (*Figure 1*).

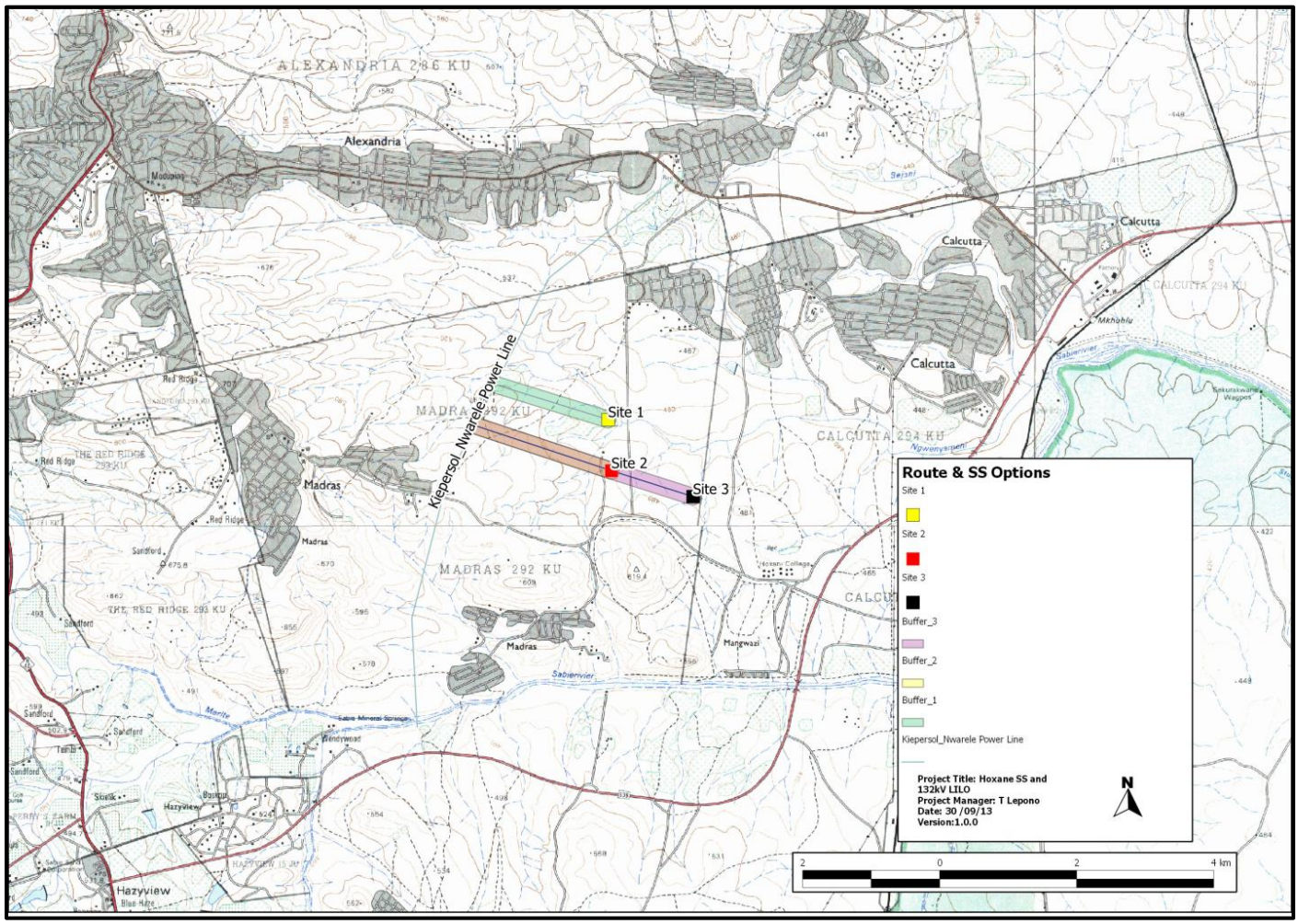

Figure 1- 3 Options for the proposed 2x20mva 132/22kv Hoxane Substation and approximately 1.8km Loop-In-Loop-Out (Lilo) 132kv Power Lines, Bushbuckridge Local Municipality, Mpumalanga Province, South Africa.

1.1.2. Proposed Project Aims

The aim of the proposed 2x20mva 132/22kv Hoxane Substation and approximately 1.8km Loop-In-Loop-Out (Lilo) 132kv Power Lines Project is to strengthen power Loads Centre within Hoxane and Hazyview area. The proposed project consists of the following:

- Construction of 2x20mva 132/22kv Hoxane Substation
- Construction of approximately 1.8km Loop-In-Loop-Out (Lilo) 132kv Power Lines

1.1.3. Terms of Reference for the Appointment of Archaeologist and Heritage Specialist

The nature and size of the proposed development - construction 2x20mva 132/22kv Hoxane Substation and approximately 1.8km Loop-In-Loop-Out (Lilo) 132kv Power Lines all exceeding a total area of 5000m^2 (i.e. current study covers 400ha) a need to conduct a BAR developed. In terms of the EIA Regulations of June 2010 (Government Notice 543-546 published in terms of the NEMA, No 107 of 1998) the construction of the proposed facilities is listed as an activity that requires environmental authorisation. The current process comprises of a BAR and it involves the identification and assessment of environmental impacts through specialist studies.

NGT Projects & Heritage Consultants (Pty) Ltd has been appointed by Margen Industrial Services cc as an independent and lead CRM firm to conduct a HIA (exclusive of Palaeontological desktop study) for the proposed development as part of specialists (inputs) impact assessment studies required to fulfil the BAR process and its requirements. Nkosinathi Tomose, the lead archaeologist & heritage consultant or NGT Projects & Heritage Consultants, conducted the HIA study for the proposed construction of 2x20mva 132/22kv Hoxane Substation and approximately 1.8km Loop-In-Loop-Out (Lilo) 132kv Power Lines, Mpumalanga Province (*Figure 1*).

The appointment of NGT Projects & Heritage Consultants (as an independent CRM firm) is in terms of the NHRA, No. 25 of 1999 (as amended), the NEMA, No.107 of 1998 (as amended & the applicable 2010 Regulations), as well as other applicable legislations such as the MPRDA) No. 28 of 2002.

2. BACKGROUND OF THE STUDY AREA

2.1. Description of the affected environment

Table 1 – Hoxane Project Area, Hazyview, Bushbuckridge Local Municipality, Mpumalanga Provinces, South Africa

Location	• Hoxane, Hazyview, Bushbuckridge Local Municipality, Mpumalanga Province, South Africa (*Figure 1*). • On farms: Madras 392 KU and Calcutta 294 KU (*Figure 1*) • It is located within the Low Veld (*Figure 10*)
Study Site Land Uses	• Government: Hoxane College (Figure 2) • Government Parastatal: : Eskom power line (*Figure 4*) • Communal, tribal and per-urban townships: village settlements and subsistence farming – Hoxane, Mkhuhlu D, Madras A2, Madras B, Mangwazi, and Calcutta A (*Figure 2*).
Land Owner(s)	• Government Parastatal – Eskom Holdings SOC Limited • Tribal & Communal - Villages
Applicant	• Margen Industrial Services cc on behalf of Eskom Holdings SOC Limited
Proposed Development	• Proposed construction 2x20mva 132/22kv Hoxane Substation and approximately 1.8km Loop-In-Loop-Out (Lilo) 132kv Power Lines, Hoxane, Hazyview, Bushbuckridge Local Municipality, Mpumalanga Provinces, South Africa (e.g. *Figure 1)*
Access	• Existing national, provincial and local roads, routes and human foot paths. • The study area is ensconced between the following major roads: west of the R536, east of the (*Figure 1*)
Defining natural features	• The study area is defined by a number of tributaries and dense vegetation cover (*Figure 2 & 3*). • The valleys of the tributaries create an adulating environmental (*Figure 2*)

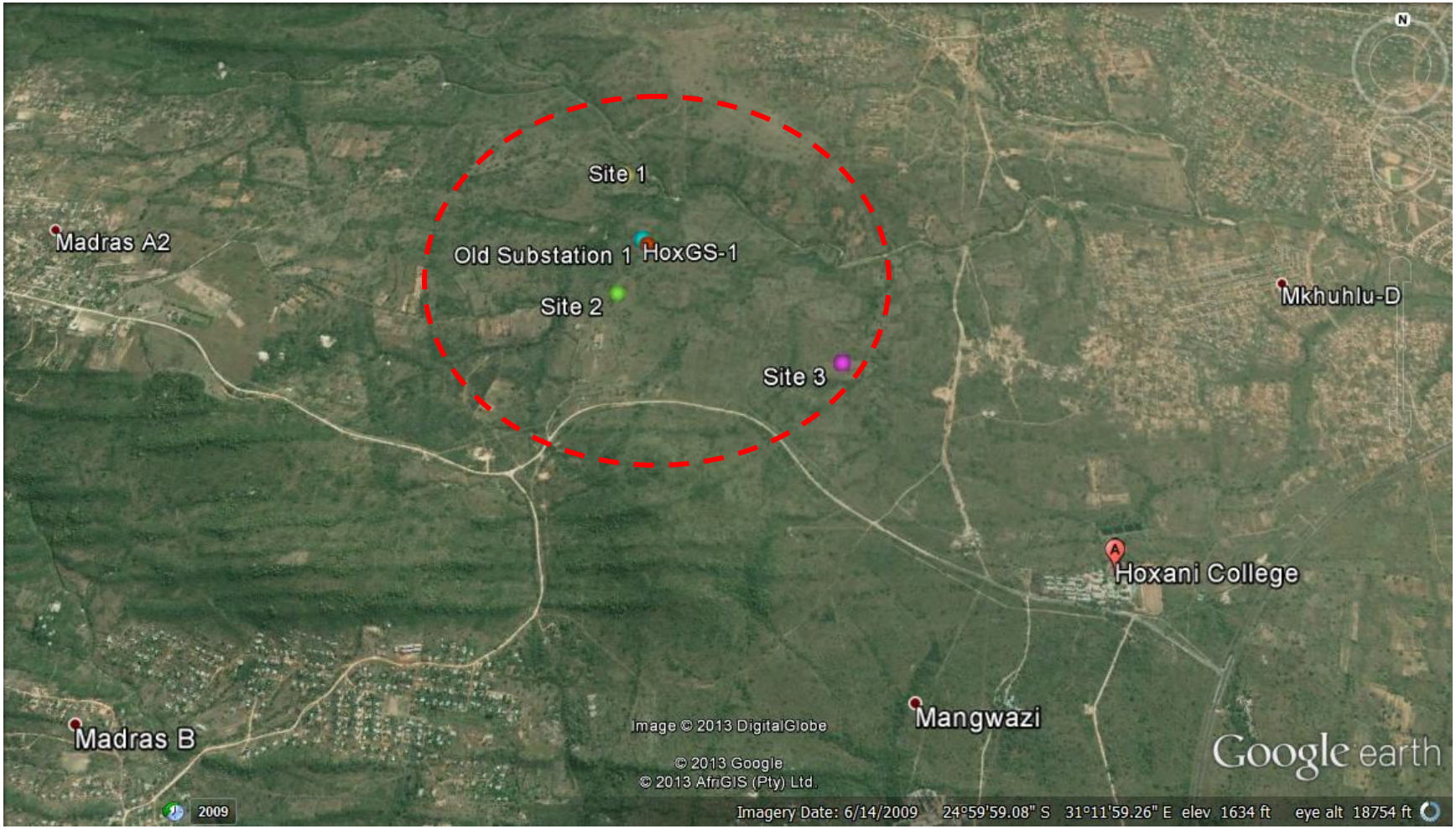

Figure 2- Location of the project area within South Africa, Hoxane, Hazyview, Bushbuckridge Local Municipality, Mpumalanga Province.

Figure 3- Vegetation cover that characterises the area in which the proposed project with take place.

2.2. Desktop Study: Archaeological and Heritage

Mpumalanga Province provides palaeoscientists and cultural scientists alike with rich canvas of heritage resources varying from natural to manmade or human influenced or altered resources. The natural heritage resources are geological feature that characterise the Transvaal Supergroup rock formation with all its diverse forms and features. Under this Supergroup and the Kaapvaal Craton is found - as result palaeontologists are able to study fossil remains from various periods in the geological time.

The man made environment of Mpumalanga dates from prehistoric to historic times (time of written documents). Among archaeological (and heritage) time periods it includes: the ESA

(Early Stone Age); MSA (Middles Stone Age); LSA (Late Stone Age); 2 Iron Age periods (i.e. Early Iron Age & Late Iron Age); Colonial period; and historic period.

This HIA assesses the range of manmade resources within the proposed development footprint, and immediate outside but within the proposed BAR project area as marked by Figure 1, and makes recommendations on how to best manage them within a legal framework as stipulated in the NHRA, No. 25 of 1999.

2.2.1. Stone Age Archaeology:

Three South African Stone Age periods were studied as part of the archaeological desktop study of the PDFP and broader BAR area – they included the ESA, MSA and LSA.

Early Stone Age:

There is paucity of Early Stone Age archaeological data and publications about Mpumalanga. This is partly due to the fact that there are few if not limited ESA sites found in the province. ESA sites found in this province have mostly been identified along dongas and eroded areas. Pistorius (2002) mention ESA sites in Maleoskop near Groblersdal (2012). According to Pistorius this presents one of the few places in Mpumalanga where ESA Olduwan and Acheulian artefacts have been recorded to date (ibid).

Middle Stone Age:

Like with the ESA, there is limited data and research on the MSA archaeology of Mpumalanga. One of the most referred to MSA site example's in Mpumalanga is the excavation of Bushman Rock Shelter near Ohrigstad (e.g. Maggs, 2007; Pistorius, 2012; Celliers, 2010). From evidence yielded by the excavations in this shelter, it has been concluded that the shelter was repeatedly visited over prolonged periods of times- the stratigraphic layering and associated resources provides clues to the different episodes of

occupation. The oldest layers of this cave dates to 40 k.y.a and the youngest layer (late MSA) dates to 27 k.y.a (Pistorius, 2012).

Late Stone Age:

The LSA is a Stone Age period that spans a period from the last 30 k.y.a to the historical time i.e. the last 500 years to 100 years ago (Mitchell, 2002; Maggs, 2007). The LSA period in southern African archaeology is predominantly associated with the San hunter-gather communities (e.g. Pistorius, 2012; Mitchell, 2002; Wadley, 1989; Mason, 1957; Deacon 1972, 1974; Binneman, 1984). During LSA we start seeing diverse forms of material culture in archaeological records. These forms of material culture include various forms stone artefacts, ostrich eggshell beads, digging sticks, remains of hide or skin used to make bow quivers and aprons etc. The various forms of material culture referred to are often found in isolation or associated with animal remains in 'closed sites' such as caves or rock shelters. Stone Age archaeologists like Lyn Wadley have been able to deduce aggregation and dispersal patterns from material culture found in particular sites (e.g. Wadley, 1989).

Rock art is another unique form of LSA material culture and the Mpumalanga province is known contain some rock art sites in form of paintings and engravings. The Bushman Rock Shelter provides one good example of LSA sites, containing the various forms of LSA material culture and remains, in the Mpumalanga province. In this shelter, the LSA dates from 12 k.y.a to 9 k.y.a. Other sites which have yielded evidence of LSA resources or material culture include the site of Höningnestkrans – an LSA sites located near Badfontein. In Badfontein LSA site has been dated between 4,870 y.a and 200 y.a (Pistorius, 2012).

The second group of people which are often associated with the LSA period is a group of pastoralist herders dubbed the Khoekhoe herders (e.g. Smith & Ouzman, 2004; Ouzman, 2005; Sadr, 1999; Hall & Smith, 2000). However, there is not much material culture associated with this group of people in the archaeological records with exception to ceramic vessels, often associated with animal remains which are most predominantly sheep and other small stock in the interior regions and muscle, fish and seal/sea lion remains in the coastal regions (e.g. Binneman, 2011; Sadr, 1999). Other than ceramic vessels (and animal remains) mentioned above - rock art provides another form of material culture

associated with the Khoekhoe herders (e.g. Ouzman, 2005; Ouzman & Smith, 2004; Hall & Smith, 2000). Based on their records in the landscape, in the time capsule between the LSA and the EIA - the Khoekhoe herders can therefore be seen as intermediate group between the LSA and EIA. However, this does not have to be taken to imply that the San hunter-gathers seized to exist, but to simple mean that a separate and independent group of people emerged in the landscape just before the arrival of the EIA people/communities in southern Africa. This was at the interface between the LSA and ESA. Hall and Smith (2000), for example make a good argument about the relations and/or potential relations that could have developed in the landscape with the emergence of the Khoekhoe herder in the landscape which was previously dominated by the San hunter-gathers and later emergence of the Iron Age communities. Among the relations that could have developed, based on material culture evidence in caves such as the Saltpan Cave and Little Muck in the Limpopo Province, it is evident that the relation could have been both amicable and contestable at times. Contestation of sites and dominance of one group over the other as portrayed in rock art (e.g. Hall & Smith, 2000). In his 2005 publication, Ouzman refers to the Khoekhoe rock art of the interior regions of which Mpumalanga forms part – an indication of the existence of Khoekhoe rock art in the province. Presence of Khoekhoe rock art in the province are further attested to by Smith & Ouzman (2004), Pistorius (2012) and Maggs (2007) also makes reference to rock art of Mpumalanga.

In his 2012 HIA study of *Mafube Coal Mining open cast mining of the Nooitgedacht and Wildfontein reserves between Middelburg and Belfast*, an areas located just before Machadodorp - Pistorius estimates approximately 400 rock art sites that are distributed throughout the Mpumalanga province. According to Pistorius these sites are mostly distributed in the northern and eastern regions of Mpumalanga - in "…places such as Emalahleni (Witbank) (4), Lydenburg (2),Ermelo (8) White River and the southern Kruger National Park (76), Nelspruit and the Nsikazi District (250)" (Pistorius, 2012: 24). For the purpose of this study these numbers are taken to present estimates of sites which have been recorded – to arrive at exact number of sites one would have to quantify Pistorius database with that of research institutions such as the Ditsong Cultural History Museum and the Rock Art Research Institute located at the Origins Centre, Wits University. These institutions have large record of rock art database for most parts of the former Transvaal. Such quantification could potential increase the number of known rock art sites located within this province.

The LSA period rock art of the Mpumalanga Province can, therefore, be attributed to two culture groups. Rock art authored by the San hunter-gathers and rock art authored by the Khoekhoe herders. The tradition of making rock art, however, does not sized in the LSA - it continues up to the Iron Age period. Therefore, we also get the Iron Age community rock art – the Late White (e.g. Pistorius, 2012).

The distribution patterns of rock art sites in this province are varied between the three groups dubbed as authors of the art. For example, the fine polychrome and monochrome and engravings of the San are known to be widely spread throughout the province and the country. On the other hand the herder or Khoekhoe rock art form a thin scattering from the Limpopo Valley through the Lydenburg district into the Nelspruit area (Pistorius, 2012; see also Ouzman & Smith 2004, Ouzman, 2005). The Bantu speakers or Iron Age communities rock art "late white farmer paintings" are mostly localised (Pistorius, 2012; Maggs, 2007).

Other than rock art and other forms of material culture associated with the LSA such as ceramic vessels as well as food remains – burials pits and graves become dominant in the landscape. In the coastal regions of South Africa for example, LSA burials are often found buried underneath middens (dumpsites) (e.g. Deacon & Deacon 1999; Binneman, 2011). While in the interior regions they are sporadic and can occur across various features in the landscape (Deacon & Deacon, 1999).

2.2.2. Iron Age Archaeology:

The Iron Age archaeology of South Africa is divided into two categories, namely the EIA (Early Iron Age) and the LIA (Late Iron Age). Unlike Stone Age archaeology, there is no clear disenable Middle Iron Age in archaeological records or publications. It is associated with the first agro-pastoralists or farming communities who lived in semi-permanent villages and who practiced metal working during the last two millennia.

The EIA communities first appear in southern African archaeological records in the 1st Millennium AD. The eastern regions of the country have been argues to have been were their preferred regions because of their rainfall patterns – summer rainfall climates conducive for ploughing and growing crops like sorghum and millet (e.g. Huffman, 2007). In the interior region the former Transvaal's (Transvaal & Eastern Transvaal – now Limpopo,

Gauteng and Mpumalanga Province) were preferred. In the landscape this group of people is mostly characterised by stone walls.

Stonewalls are a major characteristic of the Iron Age communities. They are, however, not the only characteristic or features that define the presence and material culture of Iron Age. Huffman (1982), for example, described cattle dug (both vitrified and unverified), hut foundations, grain-bins, dagah floors, iron smelting sites, beads, grinding stones, remains of sorghum and millet in archaeological records etc as some of the Iron Age traits. He also included burial pits and graves, with some located inside the cattle kraals (ibid). For the Mpumalanga region various Iron Age traits have been identified and studies in areas such as Machadodorp. However, not much detailed research has been afforded to this regions as correctly asserted by Maggs (2007). In this area some of the Iron Age traits include stone walling and terracing (e.g. *Figure 10*) and rock art also (*Figure 11*) (e.g. Huffman, 2007; Maggs, 2007; Pistorius, 2012).

The rock art includes among other forms of art – rock engravings depicting settlement patterns (*Figure 11*- after Maggs, 2007). Not far from Mpumalanga Province, in the Limpopo Province, Iron Age communities' rock art depicts distinct and different scenes - especially in the last part of the Iron Age (the LSA). In this province (Limpopo) the "Late White rock art" is characterised by scenes of different encounters between the LSA communities and the colonial settlers. In the Makgabeng Plateau, for example, rock art depicts conflict scenes associated with the Malebogo Wars – war between Chief Malebogo of the Hananwa people and President Kruger of the ZAR (Zuid Afrikaansche Republiek). Unlike the Limpopo Province where most of the rock art is associated with the Sotho-Tswana language speakers - in Mpumalanga province the Iron Age communities' rock art can be divided into Sotho-Tswana finger paintings and Nguni engravings (Maggs, 2007). Approximately 20 engravings have been indentified in Boomplaats, north-west of Lydenburg to date (Pistorius, 2012; Maggs, 2007). In terms of distribution patterns, the Iron Age rock art is more localised than that of the San hunter-gathers and Khoekhoe herders.

In the Machadodorp and surrounding areas the Iron Age rock art could potential be ascribed to 3 culture and language groups. This is because parts of the Mpumalanga province such Machadodorp, Nelspruit, Lydenburg, Komati Valley up to Limpopo, are known to have been settled by various culture and/or language groups who included among others: the Ndebele, Swazi and Koni people (Sotho-Tswana for Nguni) - thus the Sotho-Tswana and Nguni association of rock art in this region (e.g. Huffman, 2007; Maggs, 2007; Pistorius 2012).

Beside rock art and stone walling which mostly characterises the Iron Age archaeology of this region - there are other forms of Iron Age material culture that the Mpumalanga province is well known for. For example, the distinct Sotho-Tswana associated ceramic tradition which Maggs refers to, Moloko tradition (2007). The famous Lydenburg terracotta heads site form a good example of other forms of Iron Age material culture found in this province (*Figure 12*). This site has been dated to AD600 and from AD900 to AD1100 – this tells us about the different periods of its occupation (Pistorius, 2012).

Near Lydenburg in Sterkspruit there are known EIA sites and they have been dated to AD720 (Pistorius, 2012). According to Pistorius this includes sites in Nelspruit where provincial governmental offices were constructed (ibid). The site of Doornkop which is located south of Lydenburg provides another example of EIA sites and it has been dated between AD740 and AD810 (Maggs, 2007).

The Late Iron Age of Mpumalanga province is also well represented and it stretches from AD1500 up to the 19th Century and historic period (e.g. Maggs, 2007). Based on existing ethnographic data and oral traditions accounts several spheres of influence of this later period are known (e.g. Huffman, 2007). One of the most referred to events that would have influenced the occupation of the Machadodorp area and its surrounding landscapes during the LIA (that's among other influences) would have been the expansion or spread of the Nguni language speakers from the regions of KwaZulu-Natal to the northern interior regions of the country such as the Waterberg Mountains, the interior plateau and the escarpment (see Huffman, 2007). These Nguni speakers have been dubbed the BaKone or the Koni people as mostly referred to in most archaeological publications. The Koni lived between the Lydenburg and Machadodorp area. Pistorius (2012) also include the Eastern Sotho clans such as the Pai, Pulana and Kutswe who established themselves in the eastern parts of the province as part of the LIA settlers on the area between Machadodorp, Lydenburg and Nelspruit (see also Celliers, 2010). The Ndebele form another culture and/or language group found in the escarpment regions.

According to Huffman (2007:448), "generally, those [Nguni speakers] who live north of the Springbok Flats are known collectively as the Northern (Transvaal) Ndebele and those below as Southern (Transvaal) Ndebele". He further argues that, "generally again, many northern groups claim Langa as a legendary leader and many of those to the south claim Musi. If they retain the Nguni language, they are called the Ndebele, while those who adopt the

Sotho-Tswana are Koni (Sotho-Tswana for Nguni)" (idem). The Central Cattle Pattern (C.C.P) forms one of the Nguni defining characteristics in this region.

Maggs (2007) conforms to the idea that in the Machadodorp and Badfontein area the stone walling site fits within the C.C.P, an Iron Age Nguni settlement arrangement pattern (e.g. Huffman, 2007). In this area, Huffman argues that - as mostly organisation emphasis the centre/side axis of the CCP expressed through concentric circles. The way the C.C.P is arranged in this regions it means that, the inner circle encompasses cattle, the next marks the mens court, and the outer ring the zone of houses (see also Maggs, 2007). Rock engravings in the same area depict this settlement pattern (e.g. Maggs 1995). According to Huffman associated engravings, terrace walls, cattle lanes and circular settlements which form part of the C.C.P extend over an enormous area along the escarpment south of the Lydenburg (2007). Based on oral traditions these settlement organisational patterns can be attributed to the Koni people. For example, Huffman (2007) citing Hunt (1931) argues that, oral traditions places the Koni's in the escarpment before the Pedi people. He places some walls before AD 1650, as early as AD 1600 – a period associated with the second dispersal of the Nguni people in the KwaZulu-Natal region (Huffman, 2007). However, in the later stages these people would have become associated with the Sotho-Tswana. Huffman argues that the ceramic show that they later became allied to the Pedi (2007) and Maggs (2007) argue for Sotho-Tswana ceramic presence in the Machadodorp area located south west of the current study area. Moloko ceramic, which attest to the presence of other groups of people other than the Koni is also know to occur in the Machadodorp area. One of the proposed lines of arguments for the Badfontein Koni settlement and those in the escarpment (in areas such as Machadodorp) is that they probably chose the escarpment because it is part of the mist belt that would have offered some relief to dry conditions during the Little Ice Age (e.g. Huffman, 2007).

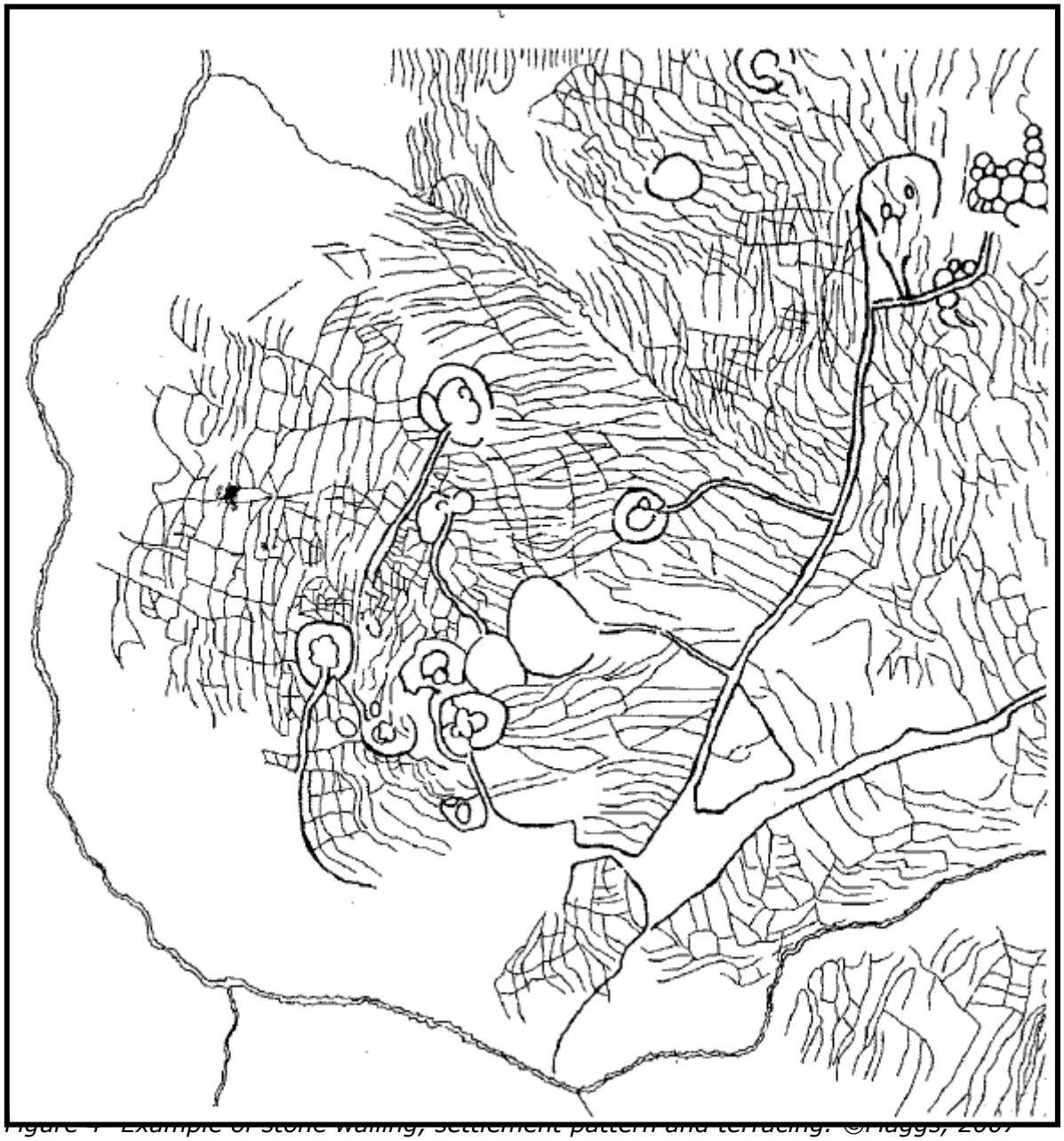

Figure 4: Example of stone walling, settlement pattern and terracing. ©Haggs, 2009

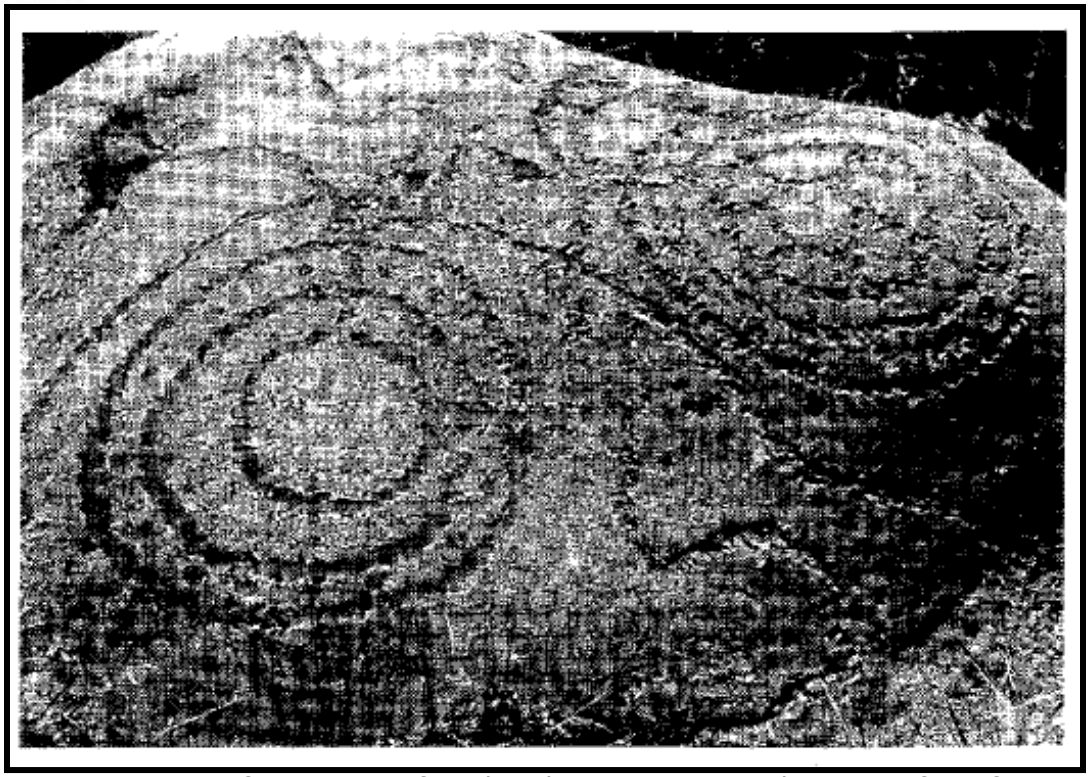

Figure 5 - Type of engravings found in the Escarpment. This one is from farm Boomplaats near Lydenburg. © Maggs 2007.

Figure 6 - Picture showing the Lydenburg Heads @ ASAPA.ORG.ZA

2.2.3. The Historic period

The history historic period of the Mpumalanga province or the former Eastern Transvaal (including other Transvaal) region (s) is directly linked to the arrival of the white settlers who moved into the area during the first half of the 19th century. There are a number of triggers for such a move into the central region of the country and one well known and most referred to in the Great Trek (see Cellier, 2010; Pistorius, 2012; Maggs, 2007). Without giving much detailed account of the Great Trek which culminated to the settlement of the interior regions by the white settler, I focus on the historical event that directly impacted or influence the development of the current study region – the area of Nelspruit within a historical context.

The first white settlers of Mpumalanga can be traced back to a commission under the leadership of Hendrik Potgieter argued to have negotiated with the Portuguese Governor at Delagoa bay in 1844 for land l acquisition in this part of the land (e.g. Cellier, 2010). It is, however, not clear whether the Portuguese had hold over land in this area at the time or whether it was under the administration thus the reason for such negotiations. But, since Mpumalanga province in close to the border between South Africa and Mozambique this is most likely to have been the case. Among the early white settler of Mpumalanga are the Dutch descendent who migrated into the interior regions of the country during the Great Trek and commonly referred to as the "Boer" or the farmers - the Afrikaans community. The first arrival of the Afrikaans communities in this province is dated to 1845. One of the forefathers of these communities in this region is Mr. Andries Ohrigstad who the town of Ohrigstad is named after. The town itself is suggested to be the first town established in this area in July 1845 after the Afrikaans communities/Boers successfully negotiated for land with the Pedi Chief Sekwati (Cellier, 2010).

The allocation of first farms to white settlers began during the late 1840s and they were given out as far west as the Oliphant's River. During this time the western boundary is argued to have yet been officially defined, an issue resolved at the Volksraad meeting held in year 1849 - which decided that the Elands River would be the boundary between the districts of Potchefstroom and Lydenburg as this eastern portion of the Transvaal was known. It was therefore decided that the Elands River be part of the republic's western boundary. However, this was countered by the ZAR claims of an eastern boundary that stretched to the Olifants River. This thwarted the Eastern Transvaal autonomy and in 1860 it was decided to unite the Republic of Lydenburg with the ZAR as the District of Lydenburg and seceded the land west of the Olifants River as part of the unification agreement to the District of Pretoria (Celliers, 2010). This stretched the influence of Pretoria to the Eastern Transvaal.

Due to internal strife and differences between the various Boer groups who settled in the Transvaal regions, the settlers in the Ohrigstad who were now governed from the town of Lydenburg decided to secede from the Transvaal Republic in 1856. The Republic of Lydenburg laid claim to a large area that included not only the land originally obtained from the Pedi Chief in 1849 but also other areas of land negotiated for from the Swazis. These claims included areas such as the present day town of Witbank, before Middelburg and Belfast. During this time the districts mentioned above were all self governed and

independent. However, such autonomy or independence did not last longer into the 1900s as in 1858 the ZAR was officially established, and consisted of all the other territories settled by the Boers in the Transvaal region. This move fuelled tensions in the already fragile relations between the ZAR and the Republic of Lydenburg, which the area of Nelspruit formed part of. The Republic of Lydenburg defended their claim by referring to be the main catalyst in the development of the Witbank Coal Field (Cellier 2010 citing Graham, 1931). For a detailed account of territorial claims and disputes refer to Cellier (2010) and see also Pistorius, 2012.

3. METHODOLOGY

3.1. Legislative Requirements

The NEMA, No. 107 of 1998 stipulated that for any development in South African to be granted permission to go ahead an impact assessment of the potential impacts of the proposed development on both the natural and cultural environment need to be conducted. As such this HIA fulfils the requirements of NEMA and is conducted in-line with Section 38 (1) of the NHRA, No. 25 of 1999. Because of the nature of the proposed development – energy related development the Minerals and Petroleum Resources Development Act (MPRDA) (28 of 2002) is also applicable.

3.2. Methodology

This chapter outline the methodologies used in conducting this study. This HIA report was compiled by Nkosinathi Tomose, a lead archaeologist and heritage consultant for NGT Projects & Heritage Consultants, for the proposed 132/11kV Hoxane Substation and approximately 1.8km connection Line, Hazyview, Mpumalanga Province, South Africa. The following steps were following in conducting the study:

3. 2.1. Step I – Literature Review (Desktop Phase):

- The background information of the proposed area of development following the receipt of the BID document and sites maps from the client. Sources used included, but not limited to published academic papers and HIA studies conducted in and around the region where the current development will take place.
- Map Archives: Historical maps of the proposed area of development and its surround were assessed to aid information of the proposed area development and its surround.
- On the other hand the Palaeontological desktop study focused mostly on published geological maps and records about the area under consideration, the broader Machadodorp area.

3.2.2. Step II – Physical Survey:

- A physical survey of the proposed development area footprint was conducted a qualified archaeologist and general heritage specialist on the 22 May 2013. The survey covered the proposed development footprint on foot and track logs were recorded. The objective of the survey was to located and identify archaeological and heritage resources and/or sites in the PDFP area, record them using necessary and applicable tools and technology. The physical survey was deemed necessary since the desktop phase of the project yielded archaeological and heritage resources about the Mpumalanga Province and the broader Low Veld regions in which Hazyview is located.
- The survey also paid special attention to disturbed and exposed layers of soils as eroded surfaces because these areas are more likely to exposed or yield archaeological and other heritage resources that may be buried underneath the soil and brought to the earth surface by animal and human activities. As such animal barrow pits and human excavated grounds were surveyed as well as the dirty farm roads edges for Stone Age scatters.
- The following technological tools were deemed important for documenting and recording located and/or identified sites:

- Garmin GPS (i.e. Garmin 62s) – to take Lat/Long coordinates of the identified sites and to track the site.
- DELL Notebook aided with Garmin Basecamp Software, Google Earth – to plot the propose project footprint. If any site or resources were identified ArcGIS Software was going to be used to map them in the landscape.
- KMZ files, provided by the client, loaded into the GPS proved invaluable in assess the PDFP site boundaries and accessing the site
- Samsung – to take photos of the affected environment and identified sites (if any were to be located within the PDFP)

3.2.3. Step III – Data Consolidation and Report Writing:

- The final step involved the consolidation of the data collected using the various sources as recommended above.
- This involved the manipulation KMZ files through Google Earth
- Assessing the significance and potential impact of the identified sites, discussing the finds, report writing and making recommendation of the management and mitigation measures of the identified sites as well as the impact and influence of heritage in the proposed development area.

3.3. Assessment of Site Significance in Terms of Heritage Resources Management Methodologies

The significance of heritage 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)
  - Density of scatter (dispersed scatter)
    - Low - <10/50m^2
    - Medium - 10-50/50m^2
    - High - >50/50m^2
» 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 - No-go or relocate pylon position
- D - Preserve site, or extensive data collection and mapping of the site; and
- E - Preserve site
- Impacts on these sites by the development will be evaluated as follows:

Site Significance

The following site significance classification minimum standards as prescribed by the SAHRA (2006) and approved by the ASAPA for the SADC region were used for the purpose of this report.

Table 2: Site significance classification standards as prescribed by SAHRA

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.A)	-	Low Significance	Destruction

3.4. Methodology for Impact Assessment in terms of Environmental Impact Assessment Methodologies including Measures for Environmental Management Plan Consideration:

The Basic Assessment Methodology assists in evaluating the overall effect of a proposed activity on the environment. The determination of the effects of environmental impact on an environmental parameter is determined through a systematic analysis of the various components of the impact. This is undertaken using information that is available to the environmental practitioner through the process of the Basic Assessment & Environmental Impact Assessment. The impact evaluation of predicted impacts was undertaken through an assessment of the significance of the impacts. This is in line with specialist requirements as required by the client. For example, the request that:-

"The impact methodology [should] concentrate on addressing key issues. This methodology to be employed in the report thus results in a circular route, which allows for the evaluation of the efficiency of the process itself. The assessment of actions in each phase [that should] be conducted in the following order:

- Assessment of key issues;
- Analysis of the activities relating to the proposed line corridor, pylon locations;
- Assessment of the potential impacts arising from the activities, without mitigation, and
- Investigation of the relevant mitigation measures.

Because, "activities within the framework of the proposed line corridor give rise to certain impacts". The client recommended that, "for the purposes of assessing these impacts, tise project has [to be] divided into two phases from which impact activities can be identified, namely:

- the Construction Phase
- and Operational Phase

The following Assessment Criteria is Used for Impact Assessment

An impact can be defined as any change in the physical-chemical, biological, cultural and/or socio-economic environmental system that can be attributed to human activities related to alternatives under study for meeting a project need.

The significance of the aspects/impacts of the process will be rated by using a matrix derived from Plomp (2004) and adapted to some extent to fit this process. These matrixes use the consequence and the likelihood of the different aspects and associated impacts to determine the significance of the impacts.

The significance of the impacts will be determined through a synthesis of the criteria below:

Probability: This describes the likelihood of the impact actually occurring

Improbable: The possibility of the impact occurring is very low, due to the circumstances, design or experience.

Probable: There is a probability that the impact will occur to the extent that provision must be made therefore.

Highly Probable: It is most likely that the impact will occur at some stage of the development.

Definite: The impact will take place regardless of any prevention plans and there can only be relied on mitigatory measures or contingency plans to contain the effect.

Duration: The lifetime of the impact

Short Term: The impact will either disappear with mitigation or will be mitigated through natural processes in a time span shorter than any of the phases.

Medium Term: The impact will last up to the end of the phases, where after it will be negated.

Long Term: The impact will last for the entire operational phase of the project but will be mitigated by direct human action or by natural processes thereafter.

Permanent: The impact is non-transitory. Mitigation either by man or natural processes will not occur in such a way or in such a time span that the impact can be considered transient.

Scale: The physical and spatial size of the impact

Local: The impacted area extends only as far as the activity, e.g. footprint

Site: The impact could affect the whole, or a measurable portion of the above mentioned properties. **Regional:** The impact could affect the area including the neighbouring residential areas.

Magnitude/ Severity: Does the impact destroy the environment, or alter its function

Low: The impact alters the affected environment in such a way that natural processes are not affected.

Medium: The affected environment is altered, but functions and processes continue in a modified way.

High: Function or process of the affected environment is disturbed to the extent where it temporarily or permanently ceases.

Significance: This is an indication of the importance of the impact in terms of both physical extent and time scale, and therefore indicates the level of mitigation required.

Negligible: The impact is non-existent or unsubstantial and is of no or little importance to any stakeholder and can be ignored.

Low: The impact is limited in extent, has low to medium intensity; whatever its probability of occurrence is, the impact will not have a material effect on the decision and is likely to require management intervention with increased costs.

Moderate: The impact is of importance to one or more stakeholders, and its intensity will be medium or high; therefore, the impact may materially affect the decision, and management intervention will be required.

High: The impact could render development options controversial or the project unacceptable if it cannot be reduced to acceptable levels; and/or the cost of management intervention will be a significant factor in mitigation.

The significance is calculated by combining the criteria in the following formula:

Sum (Duration, Scale, Magnitude) x Probability (*Table -2*)

S = Significance weighting; Sc = Scale; D = Duration; M = Magnitude; P = Probability

Table 3 -The significance weightings for each potential impact are as follows:

Aspec	Description	Weight
Probability	Improbable	1
	Probable	2
	Highly Probable	4
	Definite	5
Duration	Short term	1
	Medium term	3
	Long term	4
	Permanent	5
Scale	Local	1
	Site	2
	Regional	3
Magnitude/Severit	Low	2

	Medium	6
	High	8
Significance	Sum (Duration, Scale, Magnitude) x Probability	
	Negligible	≤20
	Low	>20 ≤40
	Moderate	>40 ≤60
	High	>60

The significance of each activity was rated without mitigation measures (WOM) and with mitigation (WM) measures for both construction, operational and closure phases of the proposed development

To address the question of Heritage Management Plan the following table is used for Measures to be included in the EMP. This table is relevant in that it addresses key issues at the various stages of the project by also addresses how some of the key concerns that develop from a heritage point of view can be mitigated.

Table 4 -Measures for inclusion in the draft Environmental Management Plan:

OBJECTIVE: Description of the objective, which is necessary in order to meet the overall goals; these take into account the findings of the environmental impact assessment specialist studies		
Project component/s	List of project components affecting the objective	
Potential Impact	Brief description of potential environmental impact if objective is not met	
Activity/risk source	Description of activities which could impact on achieving objective	
Mitigation: Target/Objective	Description of the target; include quantitative measures and/or dates of completion	
Mitigation: Action/control	Responsibility	Timeframe
List specific action(s) required to meet the mitigation target/objective described above	Who is responsible for the measures	Time periods for implementation of measures

Performance Indicator	Description of key indicator(s) that track progress/indicate the effectiveness of the management plan.
Monitoring	Mechanisms for monitoring compliance; the key monitoring actions required to check whether the objectives are being achieved, taking into consideration responsibility, frequency, methods and reporting

4. ASSUMPTIONS, EXCLUSIONS AND UNCERTAINTIES

The following assumptions, exclusions and uncertainties exist in terms of the present study:

4.1. Assumptions -

- The current study is a Phase 1 Heritage Impact Assessment. As such, a historical and archival desktop study as well as a field survey were undertaken to identify tangible heritage resources located in and around the proposed development area footprint. The assumption is that a heritage social consultative process would have taken place with some of the locals or farm owners to uncertain known archaeological or heritage sites in their properties such as presence or existence of graves and cemeteries etc. However, there was no formal heritage social consultation that took place as part of the study - this is due to the fact that nature of the current studies i.e. BAR does not allow HIA Social Consultation
- The study assumes that the amount of heritage resources located in and around the propose line corridor represent the total amount of physical or tangible resources distributed in and around/along the propose line corridor servitude.

4.2. Exclusions -

The following exclusions or limitations have direct consequence to the study and its results-

- The proposed substation and connection line cover more than one farm as such there was no deeds search of individuals farms.
- The survey was conducted in May 2013, early winter and there was still high vegetation cover for the archaeologist/heritage surveyor to pick up all the different

archaeological and heritage features in the landscape such as unmarked graves, the different Stone Age, Iron Age and Historical Archaeology material culture and artefacts. This forms one major limitation in terms of observing and recording all forms of archaeological and heritage sites in and immediately outside or along the proposed development line corridor servitude.

4.3. Uncertainties -

Heritage studies like most other specialist studies often experience many challenges during and after the physical survey of the proposed development area.

- From an archaeological and general heritage perspective - the assumption is often made that, the amount of identified archaeological and heritage resources during physical survey of the proposed development area represent some of the total amount of resources that exist in and around or along the development area.
- This is not often true because the nature of some the archaeological and heritage resources - some of these resources are subterranean in nature and as such, one cannot totally rule out their presence or existence along the line corridor even though they are not recorded and map as part of the current study. These resources may be exposed or brought to the surface of the earth during the construction phase of the project which will involve excavation for pylons and clearing of vegetation and top for access roads soil in some instances.
- This presents one of the major uncertainties regarding the 'holistic' management or archaeological and heritage resources along the proposed line servitude for the connection line and on the proposed substation point.
- Archaeologist and heritage specialist alike refer to discovery of such resources as chance finds and to mitigate such uncertainty - it is always advised that should such chance finds be made of archaeological and heritage resources or site the ECO should report them to the nearest SAHRA office or museum or call an archaeologist and heritage specialist to investigate the finds make necessary recommendations.
- Some of the exclusion or limitation also cast a large uncertainty about the potential archaeological and heritage resources - for example, presence of significant resources on that land or properties that could not be accessed as a result of the above given reasons. However, this can be addressed by revisiting some of the properties or farms that could initially be surveyed or investigated

5. FINDINGS

The findings of this study are presented in three ways as per the search and other methodological methods used in conducting it. Such as map and deeds search as well as the physical survey of the proposed development footprint (PDFP).

Based on the literature review, both archaeological and historical search, the following findings were anticipated within the proposed development footprint:

- Archaeological resources - stone walling; terracing; ceramic or pottery vessels; terracotta statues or bursts (heads); rock art in form of engravings and paintings; burial pits and graves.
- Historical resources - South African War graves, remains of war weapon and other iron implements dating to the first settlers of the eastern Transvaal

5.1. Cadastral Search:

No historic cadastral search took place as part of this project.

5.2. Deeds Search:

No deeds search was conducted as part of the project. Eskom

5.3. Field Survey:

The physical survey of Hoxane substations and loop-in and loop-out connection line took place in May 2013. It assessed 3 options for the proposed substation and connection line made a number of observations about the site and itself surrounding landscape as described in the 'affected environment' section above (*Figure 2*). Below are pictures showing the sites for each of the 3 substation options, followed by the description of identified heritage resources:

OPTION 1/SUBSTATION 1:

Option 1/Substation 1 is located in an open site – former plough field, currently overly grazed (*Figure 7*). No archaeological or other heritage resources were identified within Option1/Substation 1.

Figure 7- Option 1

OPTION 2/SUBSTATION 2:

Option 2/Substation 2 is located within an area characterised ephemeral drainage line and some level of vegetation cover (*Figure 8*). No heritage resources were found on this option.

Figure 8- Option 2 located within an ephemeral drainage line

OPTION 3/SUBSTATION 3:

The site is located within an area that is open due to grazing and is surrounded by trees (*Figure 9*). No heritage resources were identified within this option.

Figure 9- Option 3/Substation 3

IDENTIFIED HERITAGE RESOURCES

A cemetery containing approximately 13 graves was identified near old Substation 1. The site (HoxGS-1) is located some 358m from Option2/Substation 2, 431m from Option 1/Substation 1 and 1177m from Option3/Substation 3.

Site Name:	HoxGS-1
Type:	Cemetery
Density (High**):**	Approximately 13 graves
Approximate Age:	Older and less than 60 years
Applicable NHRA Section:	Section 36
Location/GPS Coordinates:	S24°59'29.46" E31°11'42.06"

Site Description:

The site is an old cemetery located in between thick vegetation cover. The Agave type tree was used as a landscape disturbance indicator and subsequently yielded the site with approximately 13 graves all with stone mound dressing (*Figures 10, 11 & 12*). The graves also follow east-west grave orientation (*Figure 13*).

Nature of Impacts, Assessments & Predictions in terms of Standard Heritage & Basic Assessment (i.e. adopted from Standard Environmentally Basic Assessment Guidelines):

Field Rating	**Grade**	**Impact**	**Impact Significance**	**Heritage Significance**	**Certainty of Impacts**	**Duration**	**Mitigation**
Local significance	3A	Local	Negligible	High significance	Probable (**WOM**)	Short-term	C - avoid the site

Nature of Activities:

1. Construction Phase: *The site falls outside current proposed substation options – it is located near old substation option 1 which has been abandoned.*

2. Operation Phase*: The site falls outside current proposed substation options. However, it is not clearly visible and this may potential impact on its conditions during the operational phase of the project. However, it the contractors are informed of its location or position in the landscape the site will not be negatively affected.*

	WOM	**WM**
Probability	Improbable (1)	Improbable (1)
Duration	Short term (1)	Short term (1)
Scale	Local (1)	Local (1)
Magnitude/Severity	Low (2)	Low (2)
Significance	**(4)Negligible**	**(4) Negligible**
Status (positive or negative)	Positive	Positive
Reversibility	Low	Low
Irreplaceable loss of resources?	No	No
Can impacts be mitigated?	Yes - it can be mitigated by means of avoidance	

Mitigation: *Avoid the site and treat it as no go area*

Cumulative impacts: *No cumulative impacts are predicted*
Residual Impacts: • The project will positively contribute to strengthening and distribution of power in Hazyview and surrounding, Bushbuckridge Local Municipality, Mpumalanga Province.

Measures for inclusion in the draft Environmental Management Plan:

OBJECTIVE: The overall goal is to identify, manage and conserve heritage resources within and immediately outside the proposed development area footprint i.e. the proposed 10m line corridor servitude and the 60m buffer within the corridor. The site consist of approximately 120 graves, it is of high heritage significance with negligible impact significance because it falls outside the 10m line corridor. The proposed mitigation measure for this site is total avoidance.

Project component/s	Construction phase of the project		
Potential Impact	The site is located outside the newly proposed substations and Loop-In-Loop-Out (Lilo) 132kv Power Lines.		
Project component/s	Operational phase of the project		
Potential Impact	The site is located outside the newly proposed substations and Loop-In-Loop-Out (Lilo) 132kv Power Lines and will not be directly impacted		
Activity/risk source	Exclusion of the above objectives from the overall EMP following the BAR process		
Mitigation: Target/Objective	The site should be avoided and be treated as a no-go area		
Mitigation: Action/control		**Responsibility**	**Timeframe**
The site should be avoided and be treated		ECO should ensure that the	Project construction

as a no-go area	site is avoided and treated as no go area	phase
Performance Indicator	The type of indicator used here will be **Actionable Indicators** – this will measure action/progress in terms of completion of the above objectives with the approval of the EMP against their actual implementation.	
Monitoring	The ECO should ensure that construction activities and machinery avoid the site by all means. He/she should do physical monitoring of the site to ensure that it is completely avoided.	

Figure 10- Grave – stone mound dressing.

Figure 11- Grave.

Figure 12- Agave type plan in the area with graves

6. DISCUSSION

The desktop study yielded information about the existence of archaeological and other heritage resources in the Mpumalanga province. This included archaeological, historical and industrial heritage resources such as stone walling; terracing; ceramic or pottery vessels; terracotta statues or bursts (heads); rock art in form of engravings and paintings; burial pits and graves; and South African War graves etc. These were important in setting a

background for the study and for contextualising it. The only site identified was a burial ground and grave site located in between thick vegetation cover (*Figure 13 – also Figures, 10, 11 & 12*). The potential impacts to the site were assessed against the proposed development which involves the construction 2x20mva 132/22kv Hoxane Substation and approximately 1.8km Loop-In-Loop-Out (Lilo) 132kv Power Lines (*Figure 13*). The site is located outside the 3 alternatives or options for the 2x20mva Hoxane Substation and it will also not be directly affected by 1.8km Loop-In-Loop-Out (Lilo) 132kv Power Lines which cover an area of approximately 1.8km. HoxGS-1 is located some 358m from Option2/Substation 2, 431m from Option 1/Substation 1 and 1177m from Option3/Substation 3 (*Figure 2 & Figure 13*). Based on the distance between the site (HoxGS-1) and the proposed substation positions and the connection lines the site will not be directly affected by the proposed development. In assessing the various options from a heritage point of view Option 1 is the most preferred option in that it is located close to the proposed Kiepersol Nwarele 132kV Power Line which the Substation will feed power to in the strengthen project. The Loop-In-Loop-Out for this section has no potential of affecting heritage resources. With regards to Option 2 and Option 3 the sites are located in an area known for historic human settlement and pose a potential to impacting of heritage resources such as grave sites. In terms of impact significance of the proposed project on the identified heritage resources the impact is assessed to be negligible.

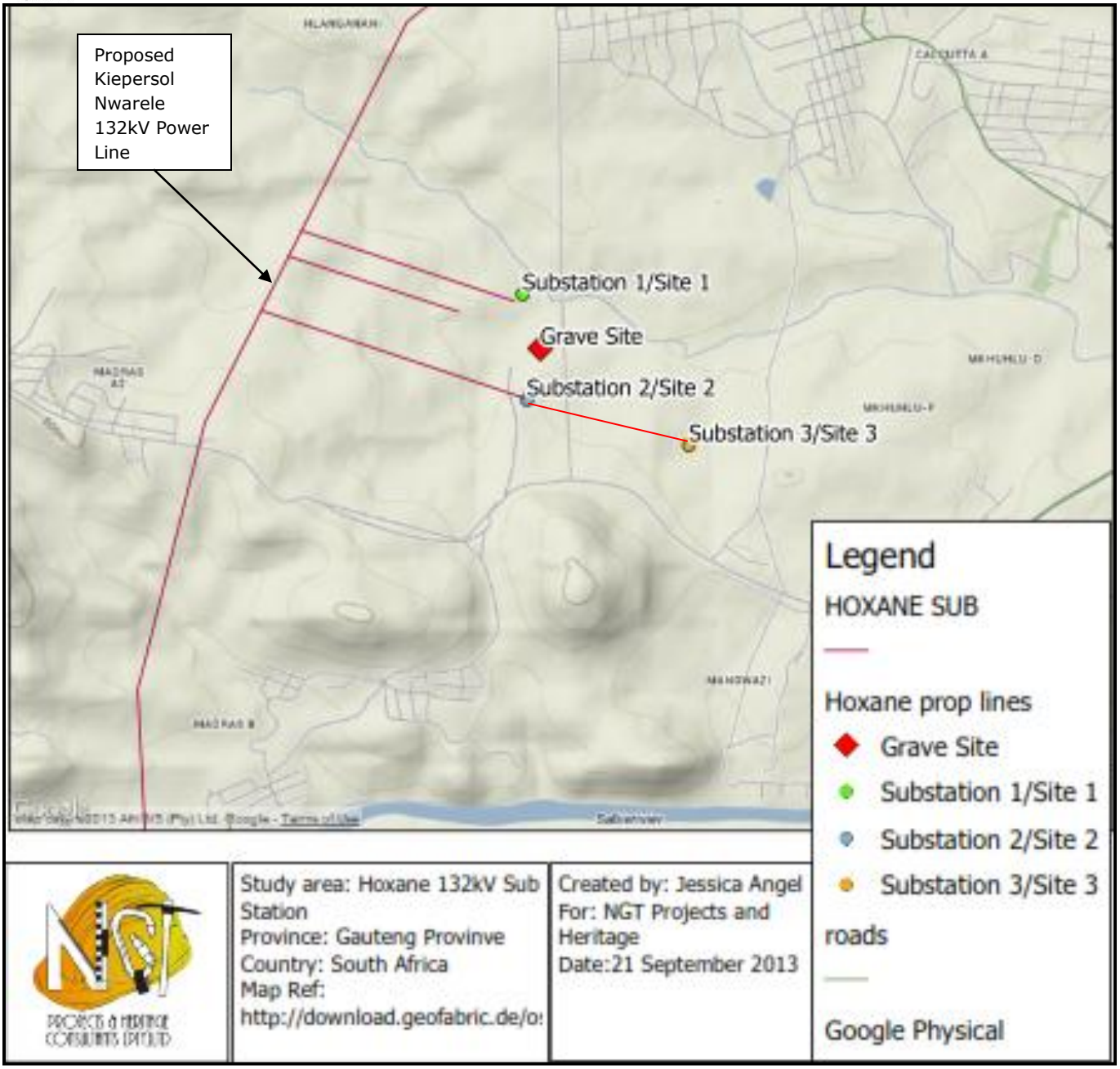

Figure 13- Location of the grave site in relation to the proposed 3 2x20mva 132/22kv Hoxane Substation and approximately 1.8km Loop-In-Loop-Out (Lilo) 132kv Power Lines *connecting to the proposed Kiepersol Nwarele 132kV Power Line*.

7. CONCLUSIONS AND RECOMMENDATIONS

Based on the results of the desktop study, the physical survey and weighing of options for the proposed 2x20mva Hoxane Substation and it will also not be directly affected by 1.8km Loop-In-Loop-Out (Lilo) 132kv Power Lines joining and feeding into the proposed Kiepersol Nwarele 132kV – it is concluded that Option 1 /Substation 1 is the preferred option from a heritage management point of view because the option is located in the former plough field currently overly grazed. All three options are located far from the identified grave site (*Figure 13*), but Option 2 and 3 are located in an area known for historic human settlement activities such as housing and kraals. The grave site will not be directly affected by the proposed development, its impact significance is negligible and the proposed development can go ahead as planned. As such the following recommendations are made about the project:

- It is recommended that SAHRA grant a positive review comment for the project.
- It is recommended that the developer should avoid the site (HoxGS-1) and treat as no go area.

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