Archaeological and Heritage Phase 2 EMP Walk down Report for proposed 765kv Umfolozi-Thetha powerline from Umfolozi Substation to the new Empangeni Substation in KwaZulu Natal Province.

DRAFT REPORT

September 2013

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Archaeological and Heritage Phase 2 EMP Walk down for proposed 765kv Umfolozi – Thetha powerline from Umfolozi Substation to the new Empangeni substationsin KwaZulu NatalProvince

September 2013

For and on behalf of

Eskom Transmission (Megawatt Park)

Approved by: Dr. McEdward Murimbika

Signed:

*Position:*Principal Investigator

Document information

TITLE:	**ARCHAEOLOGICAL AND HERITAGE Phase 2 EMP WALK DOWN REPORT FOR:** **PROPOSED 765KV UMFOLOZI-THETHA POWERLINE FROM UMFOLOZI SUBSTATION TOEMPANGENI SUBSTATIONS IN KWAZULU NATALPROVINCE**
PURPOSE OF SCOPE: **The purpose of this document is to describe the cultural values and heritage factors that may be impacted on by the proposed construction of the proposed development. The proposed electrification is located in KwaZulu Natal Province.**	
DOCUMENT VERIFICATION	
Signature:	Position:
Name:	Date:
Consulted: **Vuledzanani Thanyani of Eskom Transmission to review the document. The document also went through Nzumbululo Heritage Solutions Quality Assurance Department for internal review.**	
ENDORSED **Client Project Responsible Officer to sign off.**	
Signature	Position
Name:	Date:

Nzumbululo RACIE Terms

R	Responsible: the person actually produces the document
A	Accountable: the person who has to answer for quality assurances
C	Consulted: those who are consulted before the document is finalized
I	Informed: those who must be informed when the document is published
E	Endorsed: those who must approve the final document before it is published by the client

Issue	Date	Reason For Issue	Responsible	Accountable
1		765kvUmfolozi-Thetha powerline from Umfolozi Substation to new Empangeni Substationin KwaZulu Natal Province: Archaeological and Heritage EMP Walk down Report	T. Mlilo	Dr. M. Murimbika

Citation:	The proposed 765kv Umfolozi-Thetha powerline from Umfolozi Substation to the new Empangeni Substation in KwaZulu Natal Province Province: ARCHAEOLOGICAL AND HERITAGE EMP WALK DOWN REPORT.
Recipients:	Eskom Transmission Megawatt Park Sunninghill Tel: 011 800 5601 Email:thanya@eskom.co
Eskom Soc Reference	Umfolozi-Thetha 765kv powerlines and substations-PR Reference:1071307483

Caveat

This HIA Report has been prepared for Eskom Transmission by Nzumbululo Heritage Solutions for the expressed purpose of fulfilling the requirements of the National Heritage Resources Act, Act 25 of 1999 and SAHRA regulations in terms of Sec. 38 of the Act.

Authorship: This Report has been prepared by Dr. M. Murimbika (Principal Investigator & Professional Archaeologist) assisted by Mr T Mlilo for Eskom Soc. The report is for the review of the Heritage Resources Agency (PHRA).

Geographic Co-ordinate Information: Geographic co-ordinates in this report were obtained using a hand-held Garmin Global Positioning System device. The manufacturer states that these devices are accurate to within +/- 5 m.
Maps: Maps included in this report use data extracted from the NTS Map and Google Earth Pro.

Disclaimer: The Author is not responsible for omissions and inconsistencies that may result from information not available at the time this report was prepared.
The Archaeological and Heritage Impact Assessment Study was carried out within the context of tangible and intangible cultural heritage resources as defined by the SAHRA Regulations and Guidelines as to the authorisation for Powerline Project being proposed by Eskom Transmission Megawatt Park

Signed by Principal Investigator:

McEdward Murimbika (Ph.D.), September 2013.

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1.1. BACKGROUND

In March 2007eThembeni Cultural Heritageconducted Phase 1 Heritage Impact Assessment for the proposed development of the Umfolozi –Thetha 765kv powerline from Umfolozi Substation to new Empangeni Substation. In line with the KwaZulu-Natal Heritage Act No.10 of 1997 (amended to Act 4 of 2008) and the National Heritage Act No. 25 of 1999 Section 38 (1). The heritage impact assessment identified several archaeological and heritage sites along the powerline route. In accordance with the recommendations of eThembeni Cultural Heritage, Eskom Transmission appointed an archaeologistto conduct an Archaeological and Heritage Walk Down Survey as part of the overall Construction Environmental Management Plan development (XXXX). The survey identified sensitive archaeological and heritage sites and made recommendation to minimise the impact of the proposed powerline development. Based on the recommendations of the walk down survey Eskom re-aligned the affected tower positionsto avoidthe recorded archaeological and heritage sites (XXXX).

1.2. PHASE 2 HERITAGE MITIGATION

Nzumbululo Heritage Solutions was therefore appointed to conduct phase 2 mitigation and monitoring for the proposed powerline development. In pursuit of the recommendations made in the walk-down report, Eskom powerline designers managed to shift powerline towers that were identified as having direct impact on archaeological and heritage sites. Although the realignment of tower positions managed to avoid some of the affected sites on the final route plan, some sites could not be avoided completely and other remained in vicinity of the proposed tower installation. The burial site on Tower 42 position is the only site that remained directly on path f the tower installation and as such it could not be avoided. From a technical and planning perspective, all possible alternatives were assessed andthere is no room for shifting Tower 42 because the tower is close to an existing road and an eroded borrow pit area. Furthermore, the tower position is critical because the powerline will take a turn at this point. As such a turning tower is crucial and its location is almost impossible to shift without major consequences. The physical verification conducted by Nzumbululo Heritage Solutions Specialists identified nine (9) graves within this burial site on the Tower 42 position. The survey also noted that there is an existing powerline which is also another barrier to any possibility of shifting this tower position since the powerline must maintain the standard servitude recommended between two high voltage powerlines. This report presents the

results of the confirmatory archaeological and heritage Walk Down conducted after Eskom had shifted the tower position following the recommendations of the original walk down survey. The re-survey of the alignment of the final powerline route forms part of Phase 2 physical verification exercise.

1.3. SUMMARY FINDINGS

The archaeology of the project area within the KwaZulu Natal Province is very rich and an important area of study and the potential value for addressing landscape and environmental questions in archaeology of the project region must be taken cognisance of.
It is therefore not surprising that the HIA Phase 1 survey recorded a number of sites within the project area. The walkdown survey recorded forty-three (43) archaeological and heritage sites within varying distances from tower positions within the final powerline route. Eskom responded by shifting some tower positions in line with the recommendations of the Walk down survey and established the final tower positions for the Umfolozi-Thetha Powerline establishment. During the verification exercise conducted by Nzumbululo Heritage Solutions in September 2013, it was noted that archaeological and heritage site references that were provided by Archaeological and heritage specialist no longer tally with the references used by Eskom on their final route plan. It was also noted that the initial walkdown survey missed some archaeological sites and burial sites (tower 5-6 and Tower 42).For the purpose of clarity reference to sites will utilize Tower numbers instead of the site numbers that were used or were provided by the heritage specialists in the original first two studies. As such, this walk-down survey and site verification exercise was conducted after Eskom finalised the individual location of each tower within the approved servitude.

The walk-down survey checked the previously recorded sites in the project in relation to final proposed tower positions. Thestudy recorded somelow, medium and high significant archaeological or physical cultural properties that are likely to be impacted by the placement of the powerline towers or associated development (see tower 5 to 6 and 42). There are 234 new powerline towers that will be installed along the Umfolozi- Thetha powerlineservitude. Each of the tower positions were surveyed for this study. Most of the towers willbe erected on land portions that are currently degraded or were previously disturbed,and current agricultural land, existing developed settlements, industrial developments area, previous road works, etc. The powerline will traverse parallel to existing powerlines for most of the powerline route.

Overall, only Towers 5,6 and 42 are associated with physical heritage sites. Tower 42 specifically is associated with a high significant heritage site, Historic Burial Ground with nine recorded graves. All other tower positions for the proposed powerline do not fall at the core or centre of heritage sites associated with the tower locations.

1.4. RECOMMENDATIONS

The overall management objective of archaeological and heritage resources is the conservation of the resource *in situ* and demarcation of such sites as "no-go" areas during construction. However, where the cost implication and socio-economic implications outweigh such an option, the next option would be mitigating the impact on the resource by means of the documentation of the site by means of sampling / surface collections and in some cases controlled excavations to collect a representative sample for further study of the site. In the present project several archaeological and heritage sites were recorded in the vicinity of the final tower positions and a few on the direct tower positions (Towers 5, 6 and 42).

Furthermore, should any chance archaeological or physical cultural remains, such as previously unknown human remains, be exhumed or discovered subsurface during the construction work, activities on the affected tower positions, chance finds procedures should be activated. This will include caseation of any construction work on affected work site and the heritage authority (Amafa KZN and SAHRA) be notified immediately. As a cautionary measure, when construction begins, heritage rescue or salvage procedures are applicable as part of the project's Construction Environmental Management Plan.

Certain sections of the project area have yielded considerable density of archaeological sites although not associated directly with any specific planned tower position, it is likely that such section will yield chance finds during subsurface construction. As such, tower positions located in such servitude sections would be monitored by an archaeologist during construction phase.

It is the final observation of this study that the approved powerline servitude and identified powerline tower positions may proceed as planned within the approved servitude. As such the powerline may be developed subject to construction monitoring in some sections of the project area. Furthermore, the recommended monitoring regime should be included in a specific Heritage Management Plan (HMP) and the HMP should be included as part of the final Powerline Development CEMP.

ABBREVIATIONS

AIA	Archaeological Impact Assessment
C	Contractor
CECO	Construction Environmental Conservation Officer
EAP	Environmental Assessment Practitioner
ECO	Environmental Conservation Officer
EIA	Environmental Impact Assessment
EM	Environmental Manager
EMP	Environmental Management Plan
HIA	Heritage Impact Assessment
LIA	Late Iron Age
NHRA	Nation Heritage Resources Act, Act 25 of 1999
PM	Project Manager
SM	Site Manager
SAHRA	South African Heritage Resources Agency
ROD	Record of Decision

DEFINITIONS

The following terms used in this Archaeological /Heritage Impact Assessment are defined in the National Heritage Resources Act [NHRA], Act Nr. 25 of 1999, South African Heritage Resources Agency [SAHRA] Policies as well as the Australia ICOMOS Charter (Burra Charter):

Archaeological Material remains resulting from human activities, which are in a state of disuse and are in, or on, land and which are older than 100 years, including artifacts, human and hominid remains, and artificial features and structures.

Chance Finds means Archaeological artefacts, features, structures or historical cultural remains such as human burials that are found accidentally in context previously not

identified during cultural heritage scoping, screening and assessment studies. Such finds are usually found during earth moving activities such as water pipeline trench excavations.

Compatible use means a use, which respects the cultural significance of a place. Such a use involves no, or minimal, impact on cultural significance.

Conservation means all the processes of looking after a place so as to retain its cultural significance.

Cultural Heritage Resources Same as ***Heritage Resources*** as defined and used in the National Heritage Resources Act *(Act No. 25 of 1999*). Refer to physical cultural properties such as archaeological and palaeolontological sites; historic and prehistoric places, buildings, structures and material remains; cultural sites such as places of ritual or religious importance and their associated materials; burial sites or graves and their associated materials; geological or natural features of cultural importance or scientific significance. ***Cultural Heritage Resources*** also include ***intangible resources*** such as religion practices, ritual ceremonies, oral histories, memories and indigenous knowledge.

Cultural significance means aesthetic, historic, scientific, social or spiritual value for past, present or future generations.

Cultural Significance also encompasses the complexities of what makes a place, materials or intangible resources of value to society or part of, customarily assessed in terms of aesthetic, historical, scientific/research and social values.

Environment The surroundings within which humans exist and that are made up of: i. the land, water and atmosphere of the earth;

ii. micro-organisms, plant and animal life;

iii. any part or combination of (i) and (ii) and the interrelationships among and between them; and,

iv. the physical, chemical, aesthetic and cultural properties and conditions of the foregoing that influence human health and well-being. This includes the economic, social, cultural, historical and political circumstances, conditions and objects that affect the existence and development of an individual, organism or group.

Environmental impact assessmentAn Environmental Impact Assessment (EIA) refers to the process of identifying, predicting and assessing the potential positive and negative social, economic and biophysical impacts of any proposed project, plan, programme or policy which requires authorisation of permission by law and which may significantly affect the environment. The EIA includes an evaluation of alternatives. As well as recommendations for appropriate mitigation measures for minimising or avoiding negative impacts, measures enhancing the positive aspects of the proposal and environmental management and monitoring measures.

Expansionmeans the modification, extension, alteration or upgrading of a facility, structure or infrastructure at which an activity takes place in such a manner that the capacity of the facility or the footprint of the activity is increased;

Fabric means all the physical material of the place including components, fixtures, contents and objects.

GraveA place of interment *(variably referred to as burial)*, including the contents, headstone or other marker of such a place, and any other structure on or associated with such place. A grave may occur in isolation or in association with others where upon it is referred to as being situated in a cemetery *(contemporary)* or **Burial Ground***(historic)*.

Heritage impact assessment(HIA) refers to the process of identifying, predicting and assessing the potential positive and negative cultural, social, economic and biophysical impacts of any proposed project, plan, programme or policy which requires authorisation of permission by law and which may significantly affect the cultural and natural heritage resources. The HIA includes recommendations for appropriate mitigation measures for minimising or avoiding negative impacts, measures enhancing the positive aspects of the proposal and heritage management and monitoring measures.

Historic Material remains resulting from human activities, which are younger than 100 years, but no longer in use, including artefacts, human remains and artificial features and structures.

Impact The positive or negative effects on human well-being and / or on the environment.

In Situ material Material cultureand surrounding deposits in their original location and context, for example an archaeological site that has not been disturbed by farming.

Interested and affected partiesIndividuals, communities or groups, other than the proponent or the authorities, whose interests may be positively or negatively affected by the proposal or activity and/ or who are concerned with a proposal or activity and its consequences.

Interpretation means all the ways of presenting the cultural significance of a place.

Late Iron Age this period is associated with the development of complex societies and state systems in southern Africa.

Material culture means buildings, structure, features, tools and other artefacts that constitute the remains from past societies.

MitigateThe implementation of practical measures to reduce adverse impacts or enhance beneficial impacts of an action.

Place means site, area, land, landscape, building or other work, group of buildings or other works, and may include components, contents, spaces and views.

Protected areameans those protected areas contemplated in section 9 of the NEMPAA and the core area of a biosphere reserve and shall include their buffers;

Public participation processA process of involving the public in order to identify issues and concerns, and obtain feedback on options and impacts associated with a proposed project, programme or development. Public Participation Process in terms of ***NEMA*** refers to: a process in which potential interested and affected parties are given an opportunity to comment on, or raise issues relevant to specific matters

Setting means the area around a place, which may include the visual catchment.

Significance can be differentiated into impact magnitude and impact significance. Impact magnitude is the measurable change (i.e. intensity, duration and likelihood). Impact significance is the value placed on the change by different affected parties (i.e. level of significance and acceptability). It is an anthropocentric concept, which makes use of value judgments and science-based criteria (i.e. biophysical, physical cultural, social and economic).

Site A distinct spatial cluster of artefacts, structures, organic and environmental remains, as residues of past human activity.

Use means the functions of a place, as well as the activities and practices that may occur at the place.

1 INTRODUCTION

1.1 BACKGROUND

This report emanates from the results of a detailed Walk-down HIA survey and heritage sites verification field exercise conducted along the final powerline tower positions for the proposed construction of the Umfolozi-Theta 765kv powerline in KwaZulu Natal Province. The proposed route fall within five local municipalities: uMhlatuze, uMlalazi, Mthonjaneni, Ntambanana and Ulundi Local Municipality in KwaZulu Natal Province. The urban areas consist of the town of Empangeni, Melmoth, Ulundi, and Umhlatuze.The walk-down survey focused on all tower positions within the final approved powerline servitude following the pre-issued GPS coordinates for each tower and site. The aim of the study was to verify all archaeological and heritage sites that were recorded during the phase 1 impact assessment and preliminary walkdown surveys. The survey further intended todocument, and assess the significance and importance of each site within the Local, Provincial and National context in order to assist the developer in managing any heritage resources that may be associated with the development area in a responsible manner that would ensure protection, preservation, and development conducted within the framework provided by Amafa legislation and the National Heritage Resources Act of 1999 (Act 25 of 1999) (NHRA).

This report outlines the approach and methodology utilised before and during the survey, which includes in Phase 1: Information collection from desktop sources; Phase 2: Physical surveying of the area on foot and by vehicle; and Phase 3: Reporting the outcome of the study.The study was designed to ensure that any significant archaeological or cultural physical property or sites that fall on the direct path of the powerline towers were located and recorded, and site significance is evaluated to assess the nature and extent of expected impacts from the development. Based on this assessment, recommendations to either relocate the affected pylon of to rescue or salvage the affected site were to be made.

2 BRIEF LEGAL PROCESS AND BACKGROUND

Phase 1 AIA and HIA studies were conducted to fulfil the requirements ofKZN Heritage Act 4 of 2008 as stipulated in the National Heritage Resources Act (No 25 of 1999). This particular

development also triggered the regulations applicable under the National Environmental Management Act and Environmental Conservation Act, 1989 (No 73 of 1989). As such the EIA study included a HIA specialist study and the EIAR was produced and the relevant authorities, including Amafa and SAHRA's comments were invited to submit their comments and recommendations.

Therefore, in brief, the legal procedure followed began with phase 1 AIA and HIA, followed by Walkdown survey of the final approved powerline route. Recommendations from the AIA/HIA reports required Amafa KZN review and comments to be incorporated into the final EIA Record of Decision. Following the granting of the Record of Decision for the development by the environmental authority, a detailed Walk-down archaeological and heritage survey was required. The results of the Walkdown guided Eskom powerline planners to adjust tower positions to avoid sensitive locations along the servitude. Following the adjustments, a further specific tower survey was conducted. This report is an outcome of the tower specific walk-down survey of all the affected-tower locations along the approved servitude.

3 PROJECT DESCRIPTION

3.1 APPROVED DEVELOPMENT

Eskom SOC Limited proposes to construct 234 towerswhich will be strung above by 765kv Powerlinestraversing along theservitude that will T-off from Umfolozi Substation to new EmpangeniSubstation site near Empangeni(Fig. 1). The proposed development is meant to cater for electricity requirements of the Empangeni, Melmoth and Ulundi areasand proposed new developments within the farming agro-business communities along the servitude.

3.2 PROJECT LOCATION

The approved route fall within five local municipalities: uMhlatuze Local Municipality, uMlalazi Local Municipality, Mthonjaneni Local Municipality, Ntambanana Local Municipality and Ulundi Local Municipality in the KwaZulu Natal Province. The urban areas consist of the town of City of uMhlathuze, Empangeni, Melmoth and Ulundi. Farmingareas include farms (Tongaat Hullett sugar plantations in the north eastern KZN). The farming areas are characterised by extensive cultivated lands, irrigation schemes and associatedinfrastructure, commercial animal husbandry grazing areas, game farms, farm and agro-factories and farm

settlements. Sections of the powerline traverse through built up rural settlements and periphery of urban settlements such as Ulundi town. In most sections, the powerline runs parallel to existing transmissionpowerlines.

The project area is accessed from theN17, N2,and R34 R66Empangeni to Ulundi. The powerline will T-off from Umfolozi Substation to the west and traverse eastwards along the district and local access roads to new Empangeni Substation site(Refer to Fig. 1 – Google Route Map).

3.3 THE CONSTRUCTION PROCESS

The following is a process that will be adopted for the construction of the powerline. Each activity will follow the previous one, such that at any one point an observer will see a chain of events, with different teams involved over time. At any one time some or all of the different teams may be working at different points along the line. There may be days of no activity in the process. Table 1 provides generic description of activities associated with the powerline development.

Table 1: Activity scheduled associated with the powerline development.

Activity		**Approx. team size**	**Approx. duration at a point**
1.	Centre line pegging and identification of *access*	N/A	N/A
2.	Access Negotiations • an access plan is developed and agreed to by the landowners, Eskom and the contractor • rehabilitation measures are agreed to • photographs are taken before hand • access road will be established through recurring use (i.e. there will be no blading or scraping of a new road)*(light vehicle access)*	N/A	N/A
3.	Tower Pegging • a surveyor has undertaken this work • the footing of the pylons will be set out • the contractor will report back if anything odd is found and the tower will be moved accordingly	N/A	N/A
4.	New Access where required	N/A	N/A
5.	Foundation nominations (for main structure and anchors) • soil types are checked to determine foundation	N/A	N/A

Activity	**Approx. team size**	**Approx. duration at a point**
requirements • trial pits are dug at the main foundation points – usually using mechanical back-actor/auger methods, though in a few circumstances manual labour may be used. *(heavy vehicle access)*		
6. Excavation of foundation • foundation squares are excavated and depth depend on soil conditions • foundation pits then need to be covered or fenced off until foundation is poured *(heavy vehicle access)*	N/A	N/A
7. Foundation steelwork (reinforcing) • the steelwork is usually made up at the base camp and brought on to site by truck • all fitting, wiring is done on site (limited welding on site) *(heavy vehicle access)*	N/A	N/A
8. Foundation (concrete) pouring • shuttering • standard concrete truck used • if there are access problems, concrete will be mixed on site *(heavy usage of the servitude roads during this phase)*	N/A	N/A
9. Delivery of tower steelwork • steelwork is delivered in sections and assembled on site • one truck can transport one tower • transported from the factory to site (the towers are individually designed for each location) • access roads are clearly marked to ensure the correct tower is delivered *(heavy vehicle access)* *(extra long trucks will be used)*	N/A	N/A
10. Assembly team / Punching and painting • the steelwork is fitted together and assembled on the ground • nuts are punched and non-corrosive paint is placed on the nuts *(light vehicle access)*	N/A	N/A
11. Erection • Cranes pick up the towers for final assembly. *(abnormal load vehicle access)*	N/A	N/A
12. Stringing • cable drums are placed next to each other within the servitude • stringing takes place in both directions from the drum stations • the working area at each drum station will be as long as	N/A	N/A

Activity	Approx. team size	Approx. duration at a point
130m, but will be confined to the servitude width. Intensive vehicle movement may take place within this working area • a pilot tractor will place the pilot cable on the ground • this cable is then pulled up through the use of a pulley • conductors are never to touch the ground • in mountainous areas, a helicopter can be used or the pilot rope can be shot across valleys *(abnormal load vehicle access)* *(intensive vehicle activity likely within the working area)*		
13. Sag and tension The line is tensioned from each cable station to ensure minimum ground clearance heights are achieved *(heavy vehicle access)*	N/A	N/A
14. Rehabilitation • rehabilitation is a continuous process during the construction phase • rehabilitation will typically only commence after the towers have been strung *(heavy and light vehicle access)*	N/A	N/A

3.4 CONSTRUCTION CAMPS

The construction workforce is usually stationed at 'construction camps' that will be situated at various points along the powerline route. The location is selected by the contractor who will take into account such aspects as access to the construction site, access to services, access to materials, etc. The contractor will enter into an agreement with a landowner for the establishment of the construction camp.The various teams will travel from the camp to the construction site each day. The site moves continuously with the progression of the line, so the teams will perhaps travel a different distance to the site each time.All materials are stored at the construction camp with the exception of those materials that may come direct from the factory and concrete unless the site is very remote, when concrete may be mixed on site.

As such, the monitoring heritage officer will clear all auxiliary sites of any possible archaeological or heritage sites.

4 METHODOLOGY

This Heritage and Archaeological Walk Down (AWD) report was compiled in line with thestipulated guidelinesin the Amafa Act no.4 of 2008 and NHRA (no 25 of 1999) and the National Environmental Management Act (NEMA) (no 107 of 1998) and as was requested by SAHRA. The AWD process consisted of three steps:

- Step I – Literature Review: The background information to the field survey leans greatly on the HIA Phase 1 and archaeological desktop survey completed for the EIA report.

- Step II – Physical Survey: A physical survey and verification was conducted on foot based on the results of the preliminary walkdown survey and Eskom tower position final alignment.(16 to 22September 2013), aimed at locating and documenting sites falling within and adjacent to the proposed development footprint.

- Step III – The final step involved the verification, recording any additional archaeological and cultural heritage sites and documentation of relevant archaeological resources, as well as the assessment of resources in terms of the archaeological impact assessment criteria and report writing, as well as mapping and constructive recommendations

4.1 PHYSICAL SURVEYING

The study area for the proposed projects covers approximately 105 kilometres. Due to the nature of cultural remains, with the majority of artefacts occurring below surface, an intensive foot-survey that covered the study area was conducted. A controlled-exclusive surface survey was conducted over a period of 7 days on foot by the archaeologist assisted by a heritage specialist.

The survey focussed on the centre line of the servitude of 55metres that will in most cases be utilised as service road for the new powerline line. Each pylon footprint (As provided by Eskom) was then surveyed on foot and find sites documented.

Table 2: COORDINATES OF TOWER POSITIONS IN X AND Y FORMAT (SOURCE: ESKOM TRANSMISSION, 2013)

Tower no[1].	Environmental/heritage concern	Moved from		Moved to		Comment
		X	Y	X	Y	
4		19206.871	-3122704.126	19236.221	-3122711.269	Result of T5 move
5	Cemetery containing one grave	19850.808	-3122860.839	19833.84	-3122856.71	Now approximately 30m from grave
9		21074.697	-3122607.985	21142.517	-3122582.48	Result of T14 move
10		21293.543	-3122525.68	21454.619	-3122465.102	Result of T14 move
11		21761.723	-3122349.603	21724.064	-3122363.767	Result of T14 move
12		22063.46	-3122236.123	22008.248	-3122256.888	Result of T14 move
13		22432.764	-3122097.232	22378.709	-3122117.562	Result of T14 move
14	Tower position to be moved away from the riparian zone	22765.223	-3121972.198	22735.728	-3121983.292	Could not move to sugar cane fields, moved far away as possible from riparian zone
15		23218.065	-3122086.903	23208.444	-3122084.526	Result of T14 move - created bend
16	Tower position to be moved to avoid wetland	23634.616	-3122192.415	23692.111	-3122207.033	Able to move tower
17		23946.013	-3122271.292	23962.19	-3122275.44	Result of T16 move
20		24984.682	-3122534.386	24973.346	-3122531.553	Result of T21 move
21	Possible cemetery	25293.806	-3122612.688	25242.313	-3122599.679	Moved toward T20
26	Small wetland identified	27354.537	-3123134.67	27385.206	-3123142.446	Moved toward T27
42	Possible grave locations	33026.105	-3126613.221	33026.105	-3126613.221	Cannot move, will affect alignment also close to named road and erosion area
62	Wetland area	40569.844	-3127586.58	40584.272	-3127575.698	Moved slightly
73	extensive cemetery that is still used by the local community	44310.115	-3127172.537	44390.388	-3127369.269	Moved away from grave site
74		44450.699	-3127517.08			Removed as result of T73 move
75		44543.868	-3127745.418	44516.115	-3127677.4	Result of T73 move
83	Protected trees	46024.106	-3131030.219	46024.106	-3131030.219	Not able to move - Line crossing
84		46377.233	-3131273.263	46351.388	-3131255.475	Move away from named road
85		46745.814	-3131526.945	46716.483	-3131506.757	Result of T84 move
93	Maroela tree on footprint.	48914.851	-3133233.354	48932.54	-3133248.698	Moved toward T94
100	Maroela tree on footprint.	51764.811	-3134087.342	51764.811	-3134087.342	Not able to move
151	possible grave	68108.15	-3147842.319	68082.966	-3147815.19	Moved

[1]Towers in Yellow sections relate to Archaeological and heritage sites and those in green sections are affected environmental areas. The orange section represent towers that fell on mix heritage and environmental sensitive areas.

Tower no[1].	Environmental/heritage concern	Moved from		Moved to		Comment
		X	Y	X	Y	
152		68271.507	-3148018.293	68247.066	-3147991.964	Result of T 151 move
158		70061.528	-3149946.565	70072.964	-3149958.885	Result of T 161 move
159		70304.854	-3150208.684	70330.542	-3150236.356	Result of T 161 move
160		70709.178	-3150644.237	70729.657	-3150666.297	Result of T 161 move
161	Cemetery containing approximately three graves	70943.744	-3150896.919	70972.375	-3150927.761	Now approximately 40m from grave
183		77014.376	-3158244.742	77011.221	-3158238.431	Result of T184 move
184	Close to watercourse	77231.308	-3158678.726	77215.938	-3158647.978	Moved
199	Protected tree in footprint	80190.076	-3164866.638	80190.076	-3164866.638	Not able to move
202	Drainage line	81004.693	-3166071.448	81002.387	-3166068.038	Could only be moved very slightly
205	Tower position is in the riparian zone (PES 2). Melkhout tree in footprint	81647.396	-3167021.999	81649.644	-3167025.324	Could only be moved very slightly, Tower overloaded. Changed to self supporting to minimise footprint
209	Close to river	81349.264	-3168412.811	81364.611	-3168393.766	Moved
210		81020.74	-3168820.521	81023.082	-3168817.614	Result of T209 move
211	Melkhout tree in footprint	80696.047	-3169223.476	80695.26	-3169224.452	Can not move
215	close to river	79514.812	-3170661.863	79498.231	-3170680.99	Can not move - tower between pipeline and river
229	Melkhout tree in footprint	75214.854	-3175256.954	75269.026	-3175200.359	Moved
230		74846.855	-3175641.416	74853.222	-3175634.764	Result of T229 move

5 DESCRIPTION OF THE SURVEYED LOCATIONS ALONG THE APPROVED SERVITUDE

Phase 1 AIA and HIA studies conducted in 2007highlighted the potential for the affected landscape between Umfolozi Substation and new Empangeni Substation siteto yield archaeological and cultural heritage resources. The study also identified contemporary cultural sites such as the remains of historic homesteads and farmsteads that were associated with different sections of the route that was presented. This potential toaffect such sites triggered the necessity of conducting a detailed Walk-down survey once the final

route was approved. This route having been approved, a detailed walk-down survey covering especially the affected specific pylon locations was conducted (see Figure 1).

5.1 LOCATIONS STRUCTURE 1 TO STRUCTURE 20

Plate 1: View of Umfolozi Substation where the proposed powerline will T-off.

Plate 2: The approved powerline will cut through previously cleared agricultural landscape with secondary vegetation currently used for livestock grazing.

Structures 1 to 20 shown in Figure 2 are all situated on previously degraded and disturbed land portions where high voltage powerlines, railway line, minor reticulation powerlines and railway servitude roads and boundary fence lines already traverses along the powerline route. During the survey and verification exercise, the surveyed Pylon Structures positions 1 to 20 yieldedan archaeological site on the direct path and vicinity of the tower positions 5 and 6. The preliminary walk down survey reported one grave at tower 5, but the verification exercise revealed that the entire section from tower 5 to 6 is an archaeological site. The archaeological site was initially not mentioned during the phase 1 HIA and preliminary walk

down surveys. The archaeological site is marked by remains of an abandoned homestead that include three circular house foundations, foundation of rectangular stone structure, cattle kraal, characterised by circular stone structures and remains of house foundations and a solitary grave (see Plate 2 images).The centre of the site is located at GPS Coordinates S28° 13´ 12.1" and E031° 12´ 10.1". Another archaeological site occurs about 50 m from the main site. The site is marked by remains of 4 circular stone structures. The centre of the site is located at GPS Coordinates S28° 13´ 11.9" E031° 12´ 15.5". The archaeological site between Towers 5 and 6 will be impacted upon during stringing and movement of construction equipment along the powerline route.The team went on to recorded nine graves in the vicinity of tower 10.(The burial ground is part of a broader archaeological settlement site marked with stone enclosures and stone foundation remains (see Plate 4-5). This site has previously been disturbed by Eskom Contractors who used it as either a temporary storage site or construction camp as evidenced by recent remains of cable drums and other litter on site. The new final tower position alignment avoided the site. The archaeological site and associated burial site now fall outside the direct tower development impact zone. However, the area is still prone to disturbance during all stages of the tower development. The survey also recorded a circular stone structure about 40m in diameter and 35cm high and a possible grave near tower 15. There is also a homestead located about 100m from the site. The final tower position alignment moved the tower further away from the stone structure. All the new tower positions were assessed during the survey (See table 2). The survey did not record any new findings on the new tower position within the approved servitude.

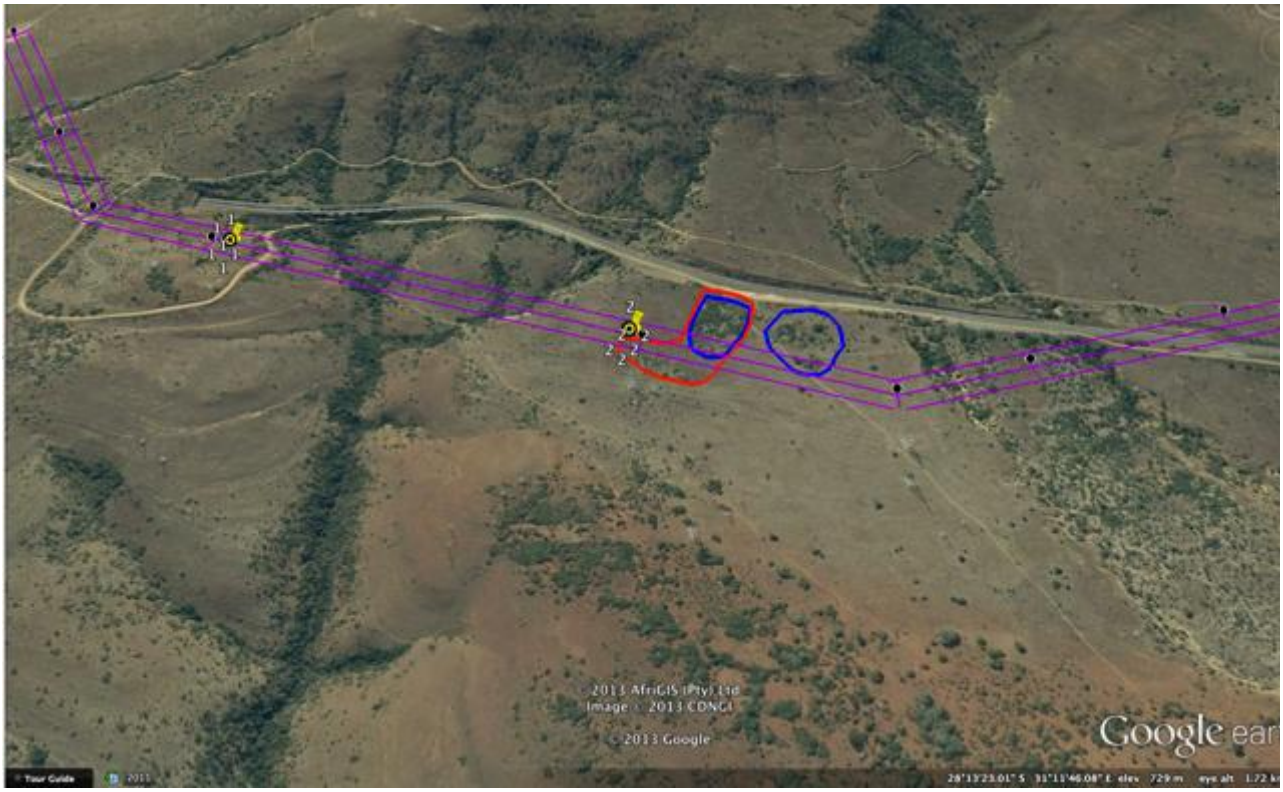

Figure 1: Location of Historic archaeology sites associated with Tower 5 and 6. (Red marks the outer boundary; Blue marks the core of the sites).

Impact	Impact Significance	Heritage Significance	Certainty	Duration
High	High	Medium	Unsure	Long term

Mitigation

Monitoring is required during all stages of construction from excavation for tower foundations, erection of towers and stringingfor Towers 5 and 6. Tower 5 is also associated with a grave. The grave should be marked and protected in situ during all construction activities on site. The rubble, litter and cable drum remains recorded in stone walls on the archaeological site near tower 10 should be cleaned up. The site should be protected from any future abuse by contractors when working in the project area. An archaeologist should monitor installation of Tower 10 during foundation excavations, erection and stringing. Although the archaeological stone structure and possible grave on tower 15 is now out of the tower construction impact zone, the site should be clearly marked and should be monitored during stringing. There is a high possibility of the site being interfered with during stringing because heavy construction machinery requires large space to operate. However, in the unlikely event that chance archaeological materials are disturbed at any of the

remaining tower positions in this section, salvage and chance finds procedures should be implemented in line with the project HMP.

Furthermorein the unlikely event that chance archaeological materials are disturbed at any of the tower position, salvage and chance finds procedures should be implemented as would be stipulated in the project HMP.

Plate 3: Top Left - Grave situated close to tower 5 position within the historic archaeology site. Top Right – Stone wall remains on site. Bottom Left - Housing remains spread over the site. Bottom Left – artefact remains recorded on site.

Plate 4: Left - Stone wall feature on Archaeology site 2 situated between Tower 5 and 6. Right – Grinding stone recorded on site 2.

Plate 5: Top L&R – Graves on site associated with Tower 21. Nine graves were recorded on this site. Bottom L&R – Stonewall structure recorded on site. The site is associated with the gravesite previously described.

Plate 6: Top & Bottom - rubble and cable drum remains left on archaeological site by previous Eskom Contractors. This site should be cleaned and all rubble and litter removed from area.

Figure 2: The powerline pylon positions follow the servitude that runs parallel to an existing high voltage powerline and railway line.

5.2 LOCATIONS STRUCTURE 21 TO STRUCTURE 40

Structures 21 to 40 are located within similar contemporary and historic landscape characterised by existing powerlines, railway lines and service and access roads, rail staging stations and isolated settlements. The area is significantly disturbed from previous and current agricultural land use activities (see Figure 3). The proposed powerline servitude runs parallel to an existing high voltage powerline and it crosses the railwayline and regional roads.Nine burials were recorded in the vicinity of tower 21. The burial site now falls outside the direct tower development impact zone. The team further inspected the Early Stone Age scatter recorded on tower 36. Although the tower position was shifted to avoid the site, the area around tower 36 is still prone to disturbance during development. The team went on to verify the position of a grave recorded near Ntombi Mabaso's homestead on tower position 38, the burial site is now located out of the impact zone.Tower position 40 was shifted to avoid a Middle/ Late Stone Age Site that stretches over an area about 40m x 25m. The survey recorded a significant number of stone artefacts that are visible on the surface. Although the tower position was shifted to avoid the site the area around tower 40 is prone to disturbance during the development. There is a high possibility of encountering discernable Stone Age artefacts during excavation for tower foundation.New tower positions were surveyed during the walk down and verification exercise. No new findings were recorded on structures 21 to 40. They are all located within the approved servitude.

Plate 7: A scatter of Middle Stone Age tools recorded in the vicinity of the powerline route. Such site should not be disturbed during the construction phase since they may are protected by the NHRA, Act 25 of 1999.

Impact	Impact Significance	Heritage Significance	Certainty	Duration
medium	Mediu	High	Unsure	Long term

5.2.1 Mitigation

An archaeologist should monitor installation of Tower 21, 36, 38 and 40during foundation excavations, erection and stringing. Special emphasis should be placed on tower 40 where an extensive Middle/ Later Stone Age site was recorded in the preliminary walk down survey and confirmed by Nzumbululo Specialists. Although it may be time consuming, the construction team should allow the monitoring archaeologist to conduct extensive search for stone artefacts during excavation for tower foundation. The findings if any should be well documented, classified and tagged. Provision for storage of possible finds should be made with the nearest museum prior to commencement of work. If the excavation yields significant Stone Age tools, further research should be commissioned to salvage the entire site. However, in the unlikely event that chance archaeological materials are disturbed at any of the remaining tower positions in this section, salvage and chance finds procedures should be implemented in line with the project HMP.

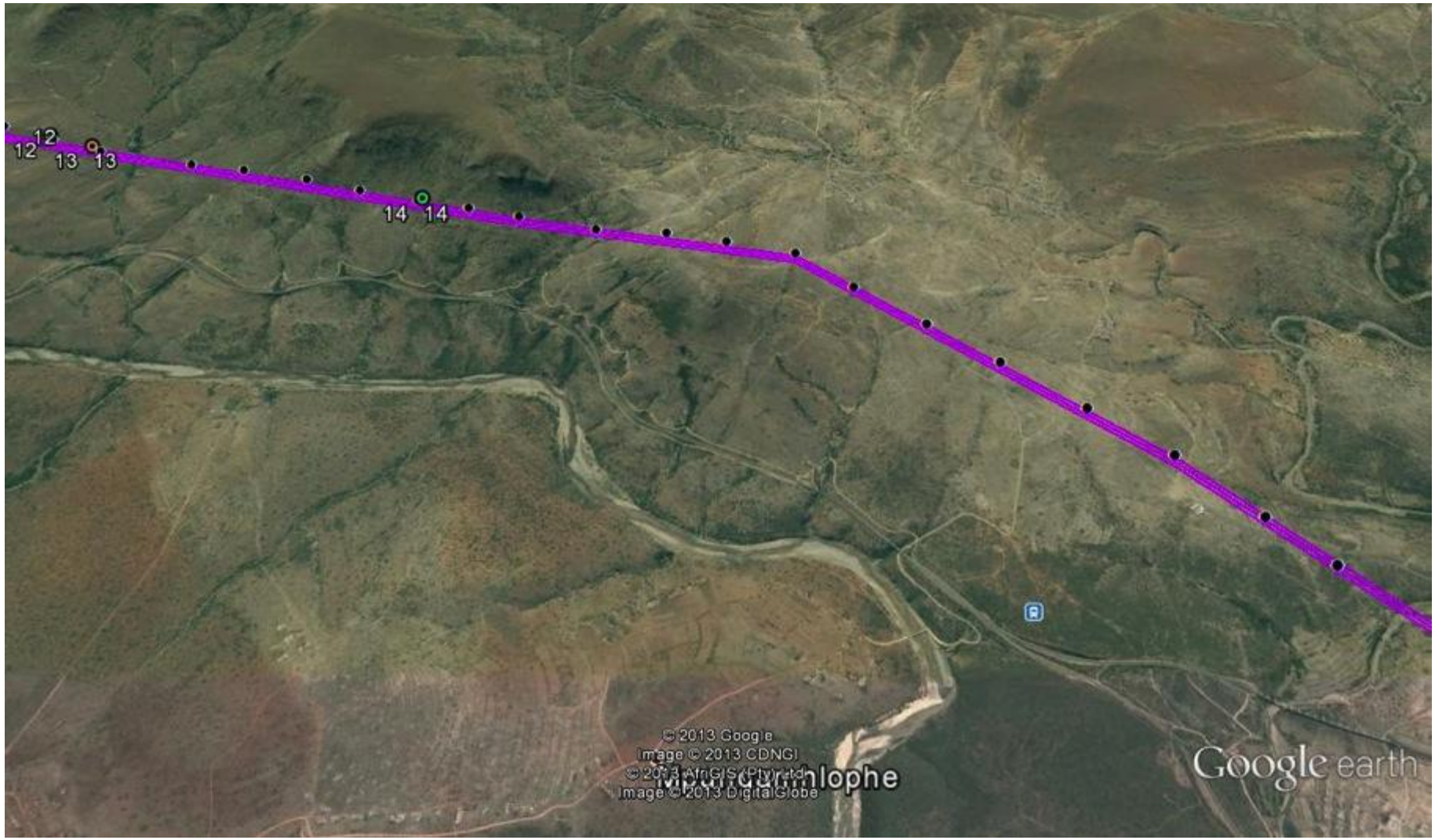

Figure 3: Powerline Pylon Structures 21 to 40 are also located in communal grazing area, and runs along an existing high voltage line, railway and regional roads.

5.3 LOCATIONS STRUCTURE 41 TO STRUCTURE 60

Structures 41 to 60 are located in anarea characterised by existing high and medium voltage powerlines, railway lines, regional, district and access roads and rural settlements. The walkdown survey and verification exercise recorded and confirmed existence of previously recorded burial ground site. The site is on the direct path of Tower 42. The burial ground has nine graves on the direct path of tower 42.The initial walk down survey had recorded five burials only. The burial ground site is located at GPS Coordinates S28° 26´ 42.7" E031° 41´ 47.48" between Mbudle and Eqwasha Villages in rural Nongoma region. The burials are marked by oval shaped stone piles and probably associated with the nearby homesteads and remains of historic homestead that are outside the impact zone. The burial site associated with Mbatha's homestead. The remains of a historic homestead were also inspected during the walk down exercise. All the new tower positions were inspected to verify if they are located within the approved servitude and to check for occurrence of any archaeological signatures. No new archaeological and heritage sites were recorded on the new tower positions 41, and 43 to 60. The new tower alignment placed all the towers within the approved powerline servitude.

Figure 4: Historic site with a burial ground with nine graves. The site on direct path of Tower 42. The graves therefore should be relocated before construction work begins at Tower 42.

Plate 8: View of nine graves recorded on the direct path of tower 42 Note that the site.

Plate9: View of burials at tower 42.Note the trees and vegetation growing on the graves,the custodians may have left the area long back.

Figure 10: Figure 5: Burial site at tower 42 trees and shrubs have been growing on top of the graves which may suggest that the custodians may be difficult to trace. Note that from a technical point of view the burial cannot be avoided therefore should be relocated.

Impact	Impact Significance	Heritage Significance	Certainty	Duration
High	High	High	Certain	Permanent

5.3.1 Mitigation

Eskom final tower position could not avoid the burial ground site at tower 42 because it will alter the alignment of the powerline route and it is surrounded by eroded and an existing local road nearby. From a technical point of view the tower position cannot be shifted. As such the nine burials on the direct path of tower 42 should be relocated in accordance with the relevant legislations. An archaeologist should monitor installation of Towers 42 during foundation excavations, erection and stringing to ensure that the solitary burial sites associated with the Mbatha homestead and remains of a historic homestead are not affected during construction and movement of heavy construction machinery. Subject to relocation of the burials, no further mitigation is required prior to construction phase. However, in the unlikely event that chance archaeological materials are disturbed at any of the remaining tower positions in this section, salvage and chance finds procedures should be implemented.

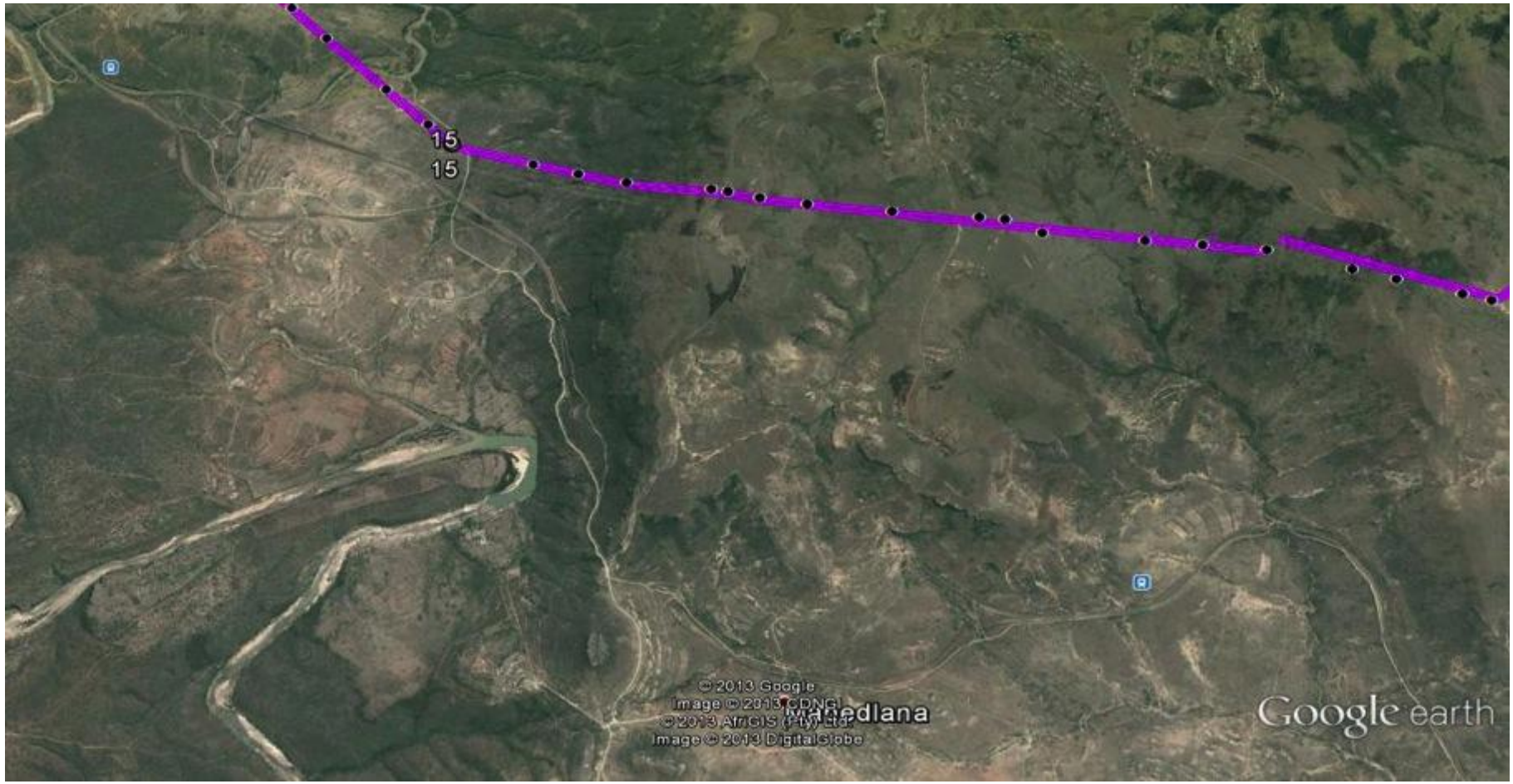

Figure 58: Figure 3: Structures 41 to 60 are situated along communal grazing and agriculture area. Note some farm dwellings in the vicinity of tower 41 to tower 45

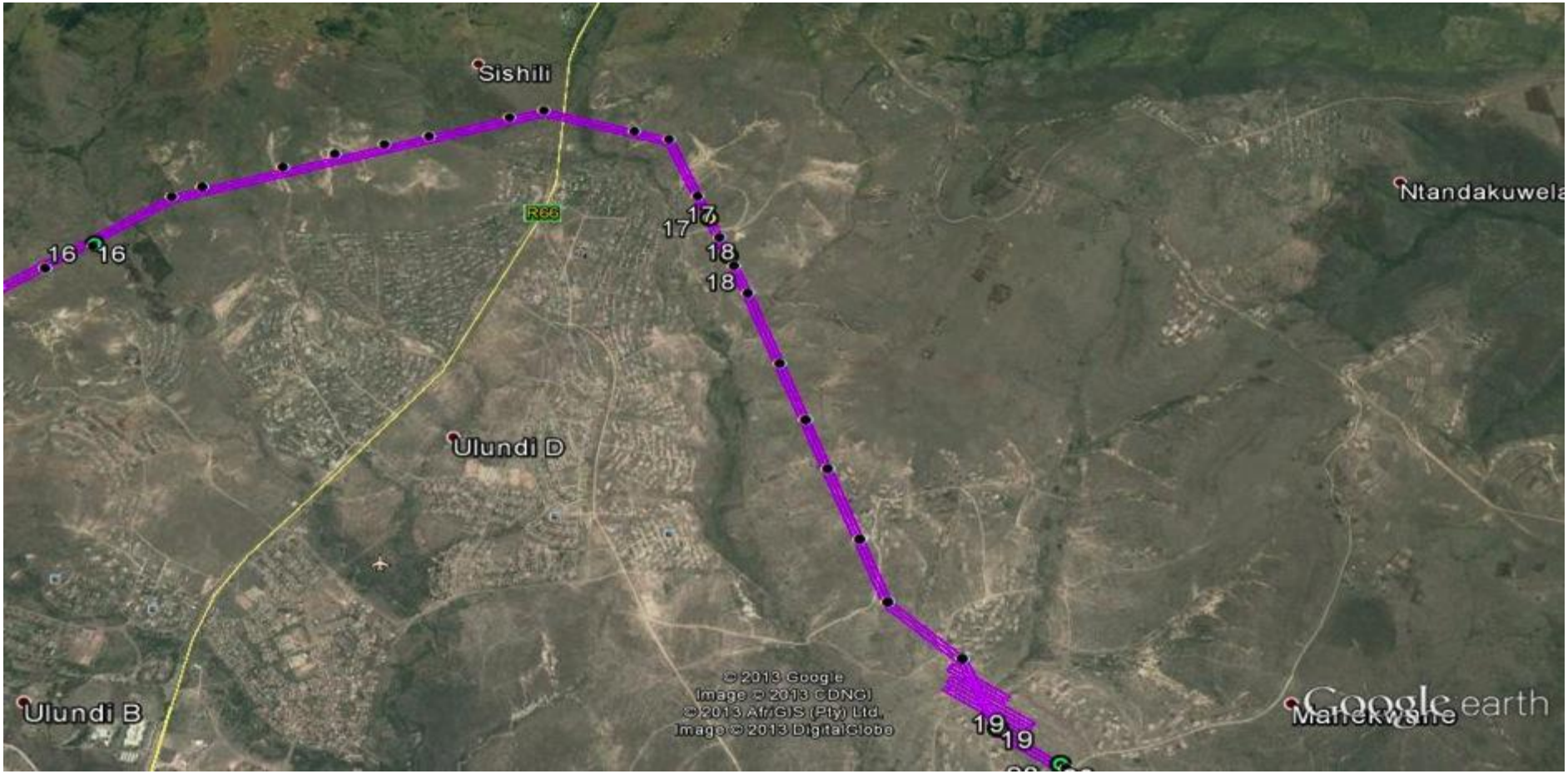

Figure 6~~9~~: Figure 4: TWR 61 to 80 located in the vicinity of Ulundi section D residential area. Note the archaeological and heritage sites 17 and located in the vicinity of tower 73, 74 and 75.

5.4 LOCATIONS STRUCTURE 61 TO STRUCTURE 80

Tower Structures 61 to 80 shown in Figure 9 are all situated on portion of previously degraded and disturbed land portions wheretwo existing high voltagepowerlinesalready traverses across the farms characterised by farm tracks, boundary fence lines. Pylon Structures positions 61 to 80 were surveyed to verify the positions and status of recorded archaeological and heritage sites. This section of the powerline runs on periphery of densely built up areas through the boundary of Ulundi Town residential areas.

The area adjacent to Tower positions 66 to 68 are in vicinity of a contemporary burial ground (cemetery) with 20 graves. The final tower alignment for the powerline shifted the tower positionsaway from impact zone and as such the burial ground will not be affected by tower installation. Eskom final tower position alignment also shifted tower 72 to avoid a contemporary graveyard that was initially recorded within the impact zone of the tower. Tower 73 final positions were shifted further east to avoid this contemporary cemetery in the eastern outskirts of Ulundi B residential area. Tower 74 was shifted to avoid remains of a historic homestead. The site is now located out of the construction impact zone. New tower positions were inspected during the walk down survey. The study confirmed that the new tower positions were all placed within the 110m approved servitude. No new archaeological findings were identified on the new tower positions.

Impact	Impact Significance	Heritage Significance	Certainty	Duration
None	Low	None	Unsure	Short term

Plate 11: A contemporary cemetery near tower 73 located in the outskirts of Ulundi D .The burial site is significantly away from the impact zone, however the construction team must exercise caution when working near the burial site.

5.4.1 Mitigation

The sites must be monitored during installation of tower 66-67, 72, 73, 74 and 75 to avoid any interference with the contemporary cemetery and burial grounds recorded in the area. The construction team should avoid working near the contemporary cemetery during burial ceremonies. Heavy machinery should not be driven near the contemporary cemetery because they cause vibration, which may disturb the stability of burials and graves especially those with newly installed tombstones.

Plate 12: Plate 13: Remains of a historical homestead near the tower 74.

Plate 14 Remains of a historical homestead in the vicinity of tower 75 near Ulundi section D

Plate 15: View of remains of a historical homestead located near tower 75. Note that the site is significantly far from the impact zone.

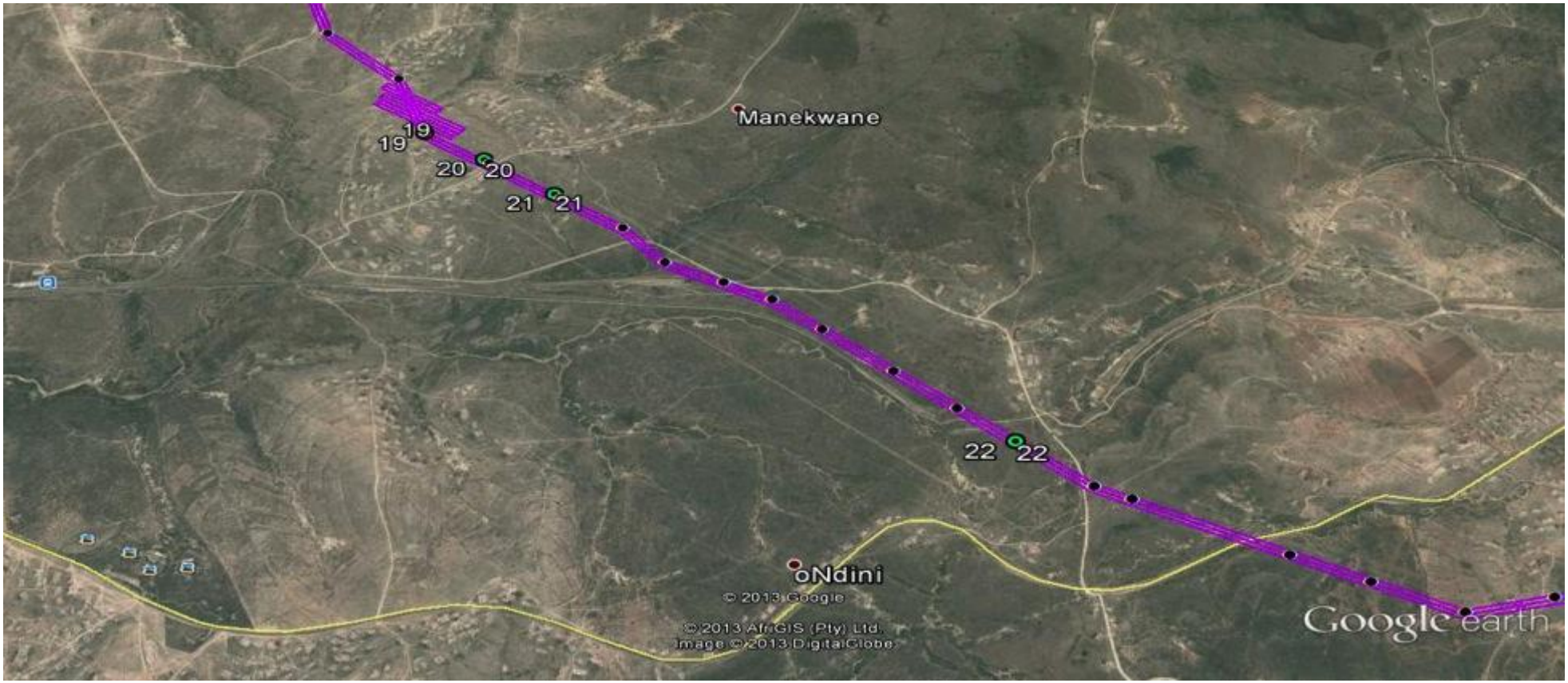

Figure 7~~10~~: TWR 81 to 100 running along. TWR 81 to 100 are located within mixture of disturbed agricultural land, main and access roads, railway line, river valley and ravines.

5.5 LOCATIONS STRUCTURE 81 TO STRUCTURE 100

Structures 81 to 100 shown in Figure 10 are all situated on portions of land consisting of main road servitude, farm dwellings, high and low voltage powerlines, streamsvillages and associated grazing lands. Most of the receiving land portions were previously degraded and disturbed with existing powerline, access roads, rural homesteads and agricultural fields. Two high voltage powerlines run parallel to the proposed powerline servitude.Two sites were initially recorded on this stretch of the powerline route. The remains of a historic homestead between tower 84 and 87 were inspected using information on the preliminary walk down report and Eskom's final tower alignment. The final tower alignment avoided the site by shifting the tower positions and the site is now significantly off the impact zone. Tower 87 was also shifted to avoid the Middle Stone Age scatter that was recorded during the preliminary walk down survey. During current walk down and site verification exercise the new tower position was inspected and no archaeological heritage was identified within the impact zone of tower 87.Based on the final tower alignment and what the survey team observed, Pylon Structures positions 81 to 100 will have no identified impact on any archaeological or heritage sites in their vicinity. The previously recorded archaeological sites are now significantly far from the impact zone. The new tower positions were placed within the 110m approved powerline servitude.

Impact	Impact Significance	Heritage Significance	Certainty	Duration
None	Low	None	Unsure	Short term

5.5.1 Mitigation

Monitoring is however, required during excavations for tower position 84, 85 and 87. In the unlikely event that chance archaeological materials are disturbed at any of the tower position, salvage and change finds procedures should be implemented. No further mitigation is required prior to construction phase.

Plate 16: The proposed powerline cuts through sloppy and thickly vegetated areas.

5.6 LOCATIONS STRUCTURE 101 TO STRUCTURE 120

Tower Structures 101 to 120 shown in Figure 10 are all situated on portions of land consisting of mainly farm track servitude, high and low voltage powerlines, infrastructure, streams and grazing lands. Most of the receiving land portions were previously degraded and disturbed with existing powerline, access roads, farm dwellings and agricultural fields. A high voltage powerline run parallel to the proposed powerline servitude. The positions of tower 105 and 106 were inspected in relation to a burial site that was recorded during the preliminary walk down survey. The site comprises of 37 graves marked by oval shaped stone piles and three graves which are marked by tombstones with inscribed headstones. The burial site is located more than 150m from the construction impact zone. The burial site recorded near tower 113 was confirmed to be located far from the powerline impact zone. The Shembe Church, which was recorded near tower 107, was inspected during the survey. According to Eskom final tower alignment, the site will not be impacted by the installation of tower 107.

Impact	Impact Significance	Heritage Significance	Certainty	Duration
None	Low	Medium to high	Unsure	Short term

5.6.1 Mitigation

An archaeologist should monitor installation of Towers 105, 106 and 107 and 113 during foundation excavations, installation and stringing. The contractor must ensure that construction activities especially movement of heavy construction machinery and workers do not interfere with places of worship such as Shembe Church and burial sites.

5.7 LOCATIONS STRUCTURE 121 TO STRUCTURE 140

The survey verified archaeological and heritage sites that were recorded near tower 125, 129, 131, 132, 133, 134 and 138 (see details on the preliminary walk down). Eskom realigned the tower positions and all the sites recorded near these tower positions now fall out of the construction impact zone. None of the mentioned heritage sites will be impacted by the installation of Structures 125 to 138. The walk down survey conducted by Nzumbululo Specialists confirmed that all the new tower positions were placed within the 110m approved powerline servitude and none of them yielded any new archaeological or heritage sites.

Impact	Impact Significance	Heritage Significance	Certainty	Duration
None	Low	None	Unsure	Short term

5.7.1 Mitigation

Monitoring is required for tower 129,133, 134 and 138; the area around these towers is prone to destruction during construction of the powerline. Although all the archaeological and heritage sites have been avoided, the sites need to clearly marked to avoid interference especially during delivery of material and stringing where heavy construction machinery will be used.However, in the unlikely event that chance archaeological materials are disturbed at any of the tower position, salvage and change finds procedures should be implemented. Although the burial site is located far off the powerline servitude the construction team must exercise extreme caution when working near burial sites because they are highly sensitive.

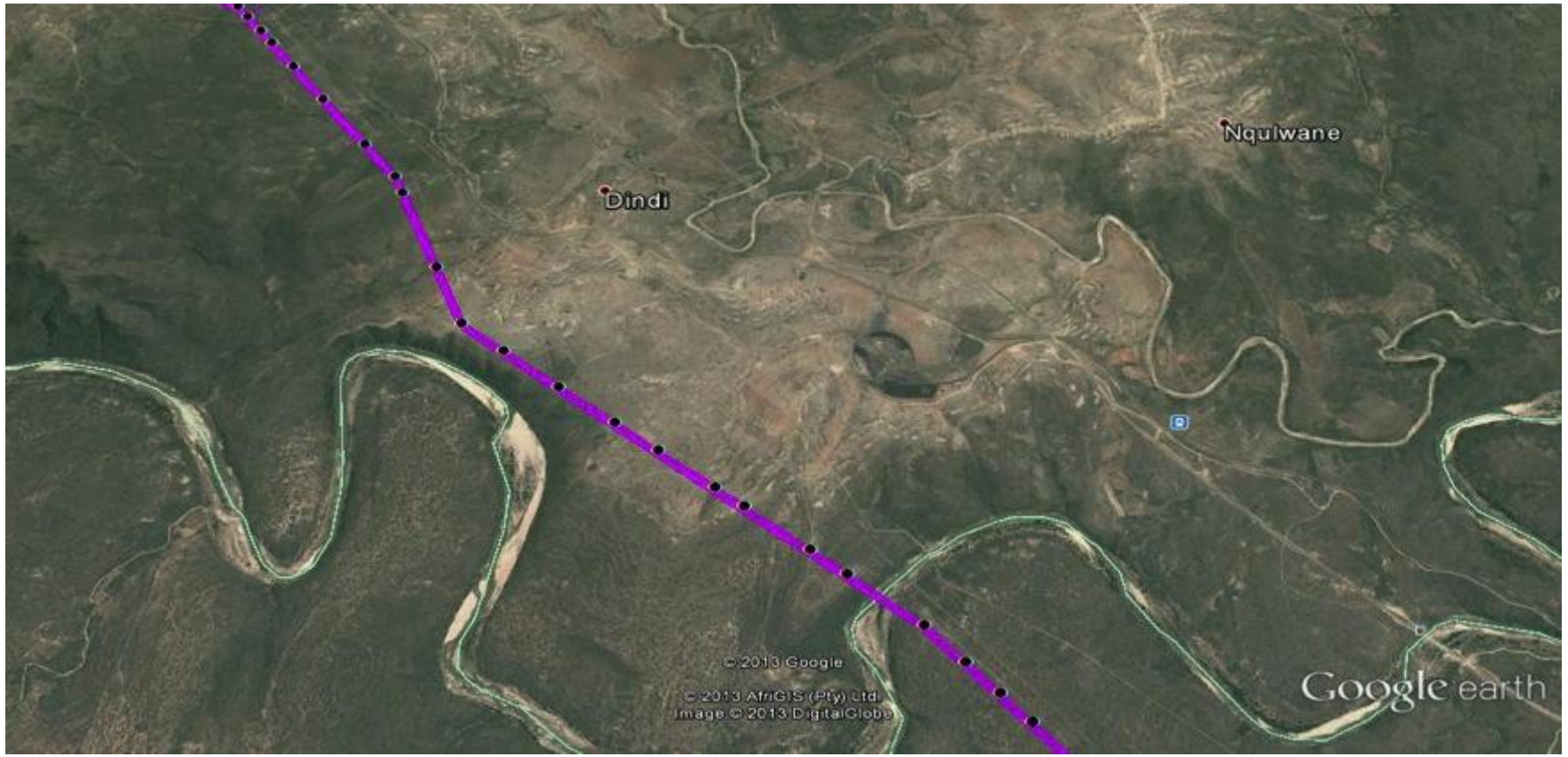

Figure 8~~12~~: Powerline will cut through disturbed communal areas. There are two existing powerline that cuts across the mountainous area.

5.8 LOCATIONS STRUCTURE 141 TO STRUCTURE 160

The preliminary survey recorded burial sites near tower 151, 152, 154, a Shembe Church near tower 157 and low density scatters of Stone Age material near tower 154 and 159(See preliminary report). Eskom realigned the affected tower positions to avoid heritage sites and archaeological scatters recorded during the preliminary walkdown survey.The walkdown and verification exercise conducted by Nzumbululo specialists confirmed that the recorded archaeological and heritage sites now fall out of the impact zone due to realignment of affected tower positions(See attached comments on the new tower positions). The new tower positions are now within a buffer of 60m from affected sites. The new tower positions were inspected and none of the tower positions 141 to 160 yielded new archaeological or heritage sites. The new tower positions were placed within the 110m approved powerline servitude.

Plate 17: Shembe Church site located in vicinity of powerline development

Impact	Impact Significance	Heritage Significance	Certainty	Duration
None	Low	None	Unsure	Short term

5.8.1 Mitigation

An archaeologist should monitor installation of Towers 154, 157 and 159 during foundation excavations. These towers locations are associated with archaeological signatures which indicates potential to yield subsurface discernable archaeological remains that may require to be recorded. No further mitigation is required prior to construction phase on other tower positions. However, should chance archaeological materials are disturbed at any of the remaining tower positions in this section, salvage and chance finds procedures should be implemented. The construction team must exercise extreme caution when working near active burial sites and open-air places of worship such as the Shembe Church.

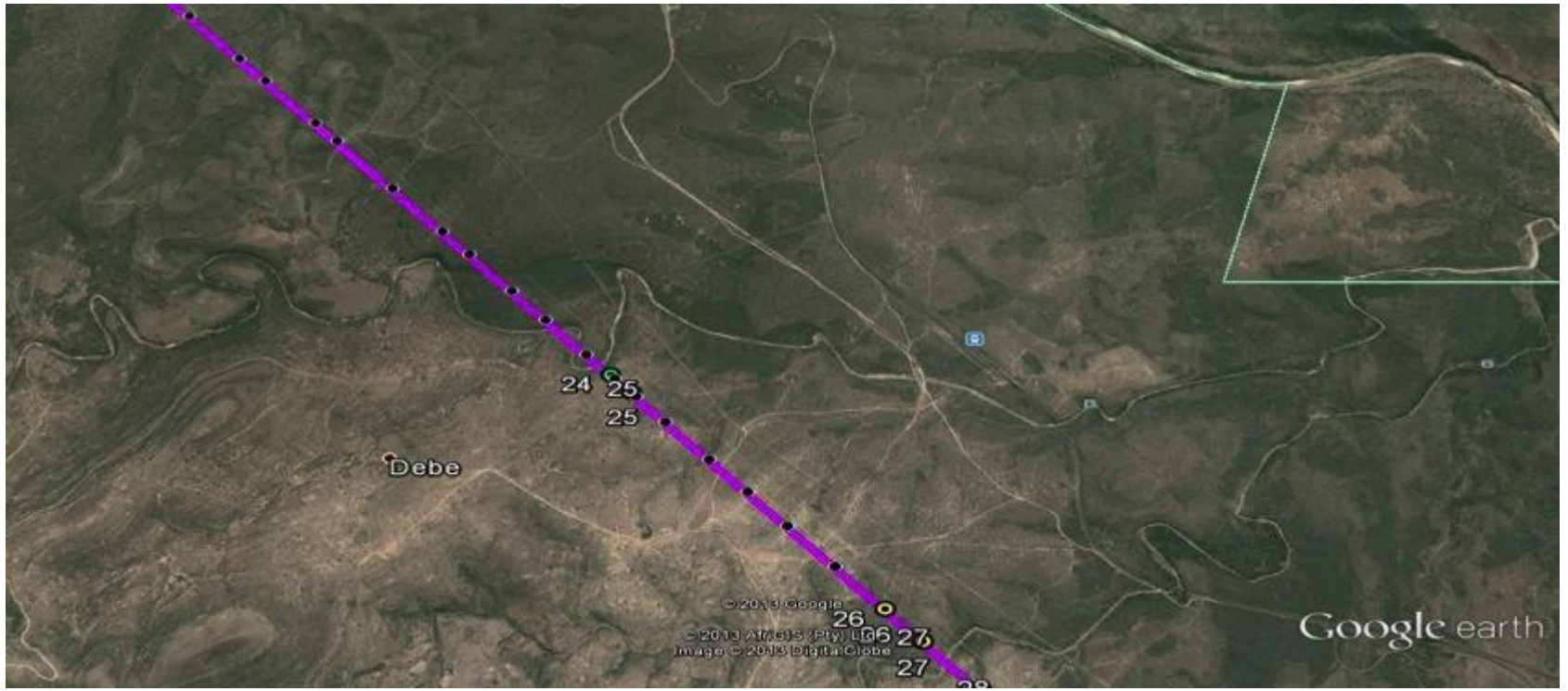

Figure ~~9~~13: Figure 8: Powerline will run along existing high voltage powerline servitude characterised by rural settlements and communal grazing areas.

5.9 LOCATIONS STRUCTURE 161 TO STRUCTURE 180

Tower Structures 161 to 180 shown in Figure 13 are all situated on portions of land consisting ofroad servitude, farm boundary fence lines,and farm dwellings, high and low voltage powerlines, irrigation agricultural land, streams, grazing lands and heavily eroded sections. The survey of Pylon Structures positions 161 to 180 yieldeda burial site near Tower 161, irregular stone concentration near tower 175 and undecorated potsherd near tower 177. The realignment of tower positions shifted tower position 161, 175 and 177 to avoid the recorded sites. Although tower 161 was shifted the recorded burial sites still falls 40m from the tower position. However the site can be avoided under strict supervision. All the new tower positions were inspected during the walk down survey. Nzumbululo specialists confirmed that all the new tower positions were placed within the 110m approved servitude. No new archaeological or heritage sites were recorded on the new tower positions.

Impact	Impact Significance	Heritage Significance	Certainty	Duration
None	Low	None	Unsure	Short term

5.9.1 Mitigation

Monitoring is required during installation of tower 161. The construction team must exercise extreme caution when working at tower 161 because the burial site is still located in the fringes of the construction impact zone. In the unlikely event that chance archaeological materials are disturbed at any of the tower position, salvage and change finds procedures should be implemented. Abandoned homesteads should be avoided since they may yield burial sites.

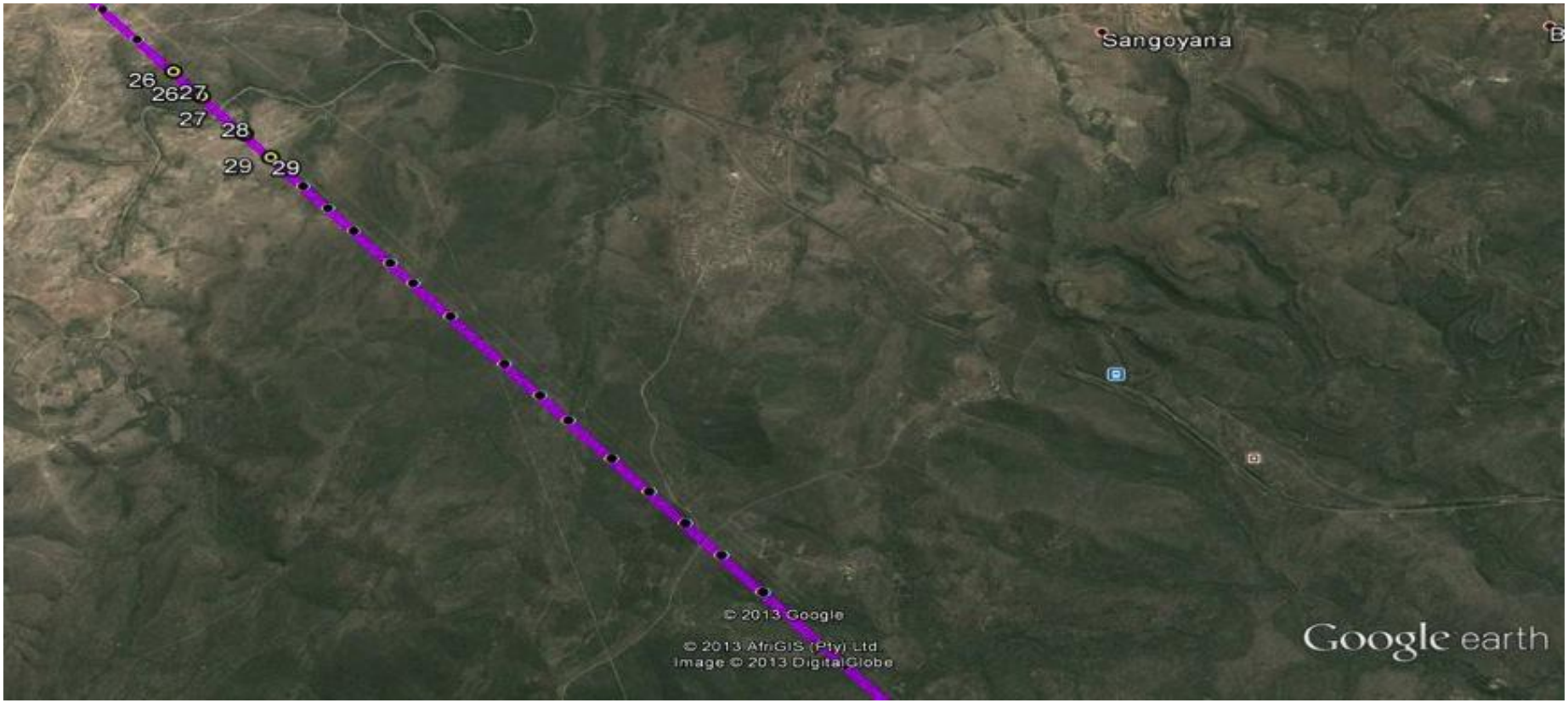

Figure 10~~14~~: Figure 9: Tower 160 to 180 also cuts through some disturbed landscape; there are settlements, main and access roads cultivated fields and patches of grazing areas.

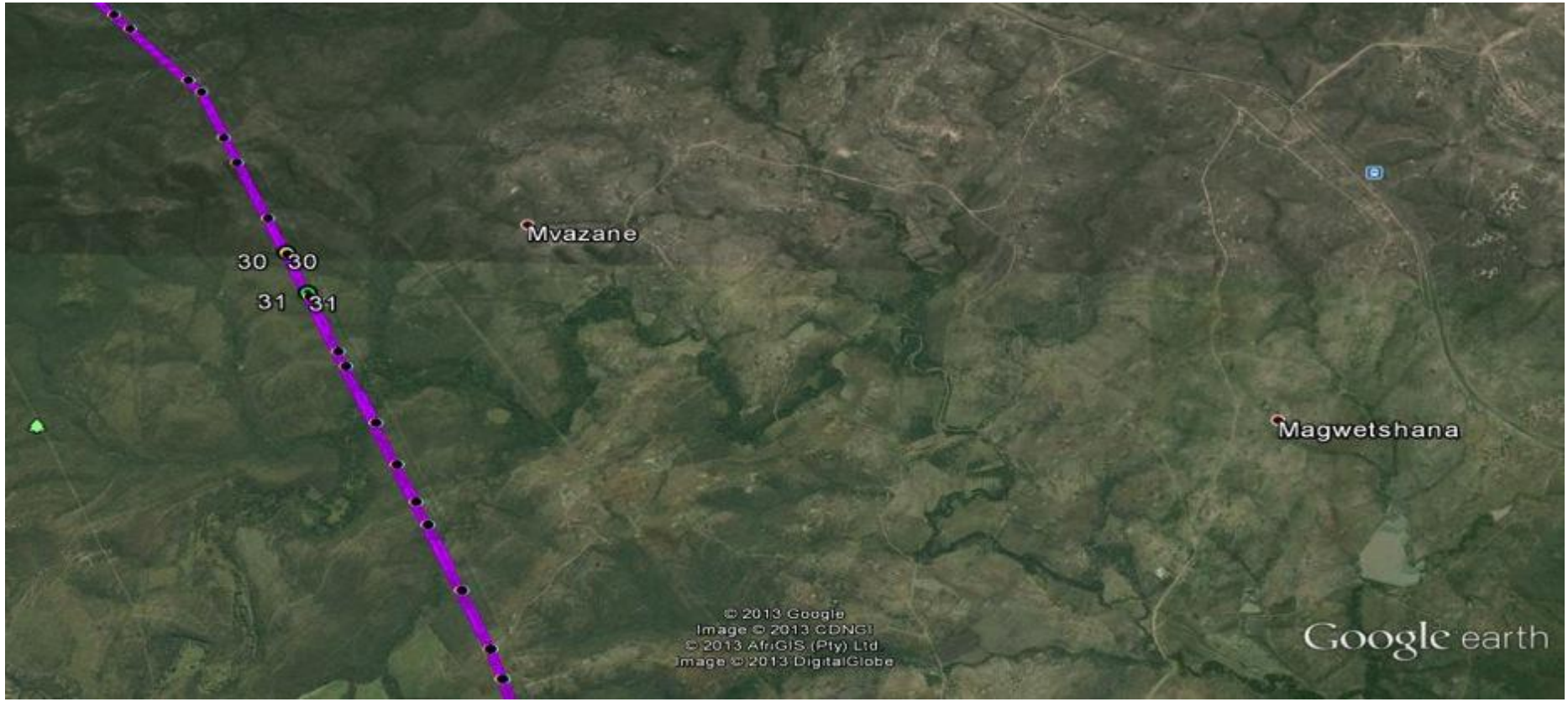

Figure 11~~15~~: Tower 180 to 200 also cuts through heavily disturbed landscape; there are cultivated fields and patches of grazing areas.

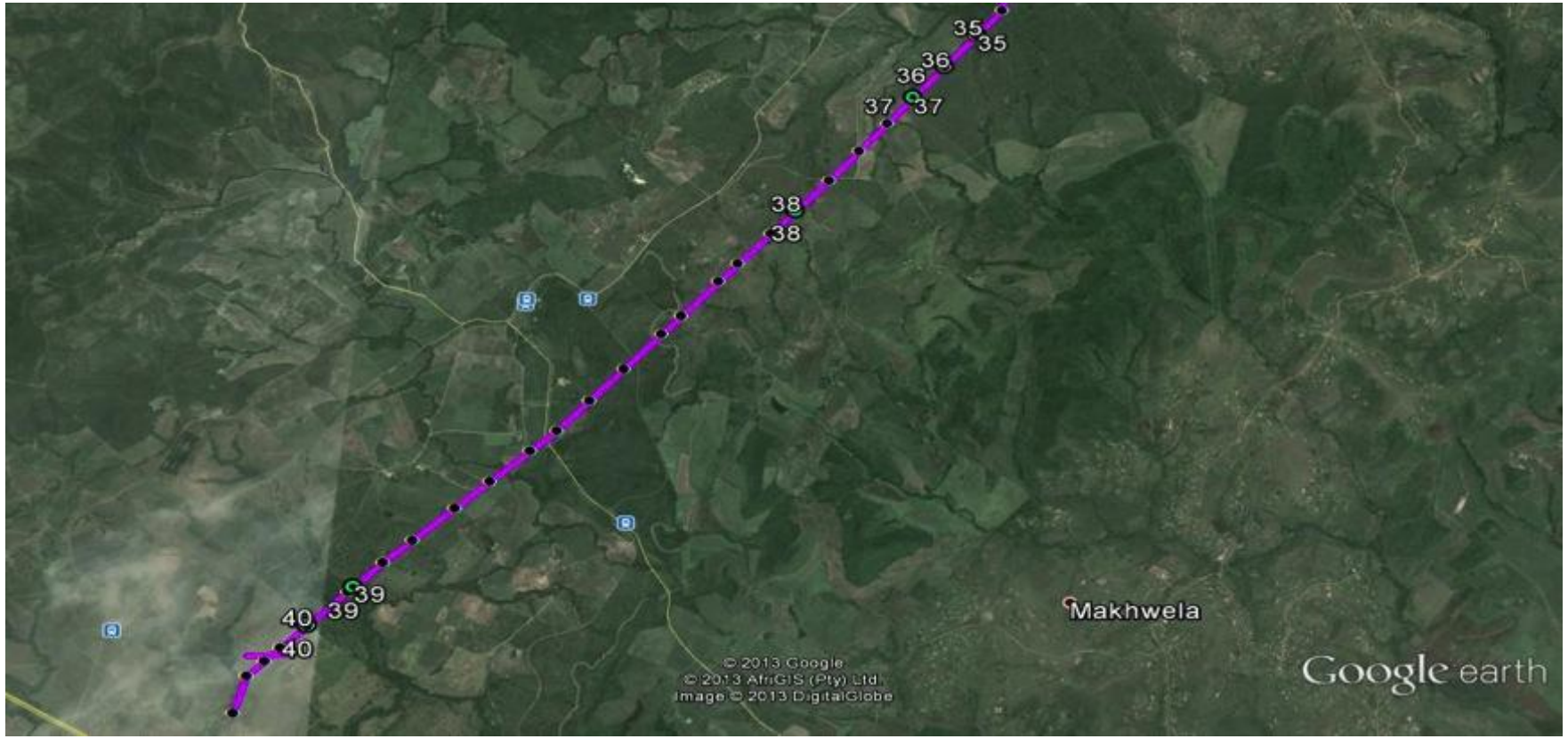

Figure 12~~16~~: Tower 201 to 234 also cuts through heavily disturbed landscape; there are cultivated fields and patches of grazing areas.

5.10 LOCATIONS STRUCTURE 181 TO STRUCTURE 200

The powerline tower positions 181 to 234 are situated mainly in commercial agricultural landscape dominated by sugar plantations and associated agro-business facilities. The final tower alignment and results of the verification exercise conducted by Nzumbululo Heritage Solutions confirmed that all towers have been placed in heritage neutral locations within the 110m approved servitude. Sites such as the burial site originally recorded near tower 192 now fall out of the impact zone.

Impact	Impact Significance	Heritage Significance	Certainty	Duration
None-low	Low-medium	None to low	Unsure	Short term

5.10.1 Mitigation

The construction workers must exercise caution especially during stringing of all towers in this section. Other than generic monitoring, no further mitigation is required prior to construction phase. However, should chance archaeological materials be disturbed at any of the unmonitored tower positions in this section, salvage and chance finds procedures should be implemented.

Plate 18.Typical landscape through which the powerline will traverse in section after Ulundi region. The powerline cuts through sloppy area with isolated farm or village settlements, agriculture fields and patches of grazing land.

5.11 LOCATIONS STRUCTURE 201 TO STRUCTURE 234

As a result of new tower alignment the Early Stone Age scatter recorded near tower 214 now falls out of the impact zone. Tower 214 was shifted to avoid the site. As such, no tower in this section will impact on known archaeological or heritage site in this section. All new towers or final tower positions were surveyed during this study, and they all do not pose any threat to heritage sites. They were placed within the 110m approved servitude.

Impact	Impact Significance	Heritage Significance	Certainty	Duration
None-low	Low-medium	None to low	Unsure	Short term

5.11.1 Mitigation

An archaeologist should monitor installation of Towers 214 during foundation excavations. This tower location has potential to yield subsurface discernable archaeological remains that may require to be recorded during construction work. Furthermore, should chance archaeological materials be disturbed at any of the unmonitored tower positions in this section, salvage and chance finds procedures should be implemented.

Plate 19: The powerline cuts through sloppy area with isolated farm settlements, agriculture fields and patches of grazing land.

6 SUMMARY OF FINDINGS

Tower	Coordinates	Description	Significance	Relation to line	Mitigation
5	S28° 13´ 12.7" E031° 12´ 08.5" S28° 13´ 12.1" E031° 12´ 10.1" S28° 13´ 11.2" E031° 12´ 11.0" S28° 13´ 11.1" E031° 12 11.0" S28° 13´ 11.7" E031° 12´ 11.3" S28° 13´ 11.1" E031° 12´ 12.2"	Remains of a historical homestead.	High	The site is located between tower 5 and 6.	Eskom should consider shifting the affected tower positions. Monitoring is required during construction.
6	S28° 13´ 11.9" E031° 12´ 15.5" S28° 13´ 20.8" E031° 13´ 06.5"	Remains of historical structures	high	The site is located between tower 5 and 6	Monitoring is required during construction.
10 &11	S28° 12´ 47.6" E031° 14´ 10.8"	Circular stone structure with a diameter of 40m and 50cm high. Suspected grave and a burial site with 9 burials	Medium to high	The towers are located more than 150m from the impact zone	Monitoring required during excavation for foundations
42	S28° 15´ 13.2" E 031° 20´ 11.4" S28° 15´ 12 8" E031° 20´ 11.4" S28° 15´ 13.6" E031° 20´ 11.3" S28° 15´ 12.8" E031° 20´ 10.6"	A burial site marked by nine (9) graves on the direct path of tower 42	High	Towers cannot be shift to any position. The tower position is restricted technically.	The burial site should be relocated in accordance with the relevant legislations.
73	S28° 15´ 35.67" E031° 27 07´.73"	Contemporary burial site near in the eastern periphery of Ulundi Unit D	High	Tower was moved to avoid the site but the there is high visibility between the burial site and the tower position	The construction team should stop working at the tower if it coincides with a funeral.
74	S28° 15´ 46.04" E031° 27´ 12.34"	Remains of historical homestead	medium	Position of the site is out of the impact zone	Monitoring required
75	S28° 17´ 32.35"	Remains of	medium	Position of the	Monitoring

Tower	Coordinates	Description	Significance	Relation to line	Mitigation
	E031° 28´ 07.98"	historical homestead		site is out of the impact zone	
151	S28° 26´ 38.8"E 031° 41´ 43.4" S28° 26´ 41.7" E031° 41´ 41.4"	Burial site with 8 graves marked by oval stone piles and soil heaps on top	High	The position of the burial sites out of impact zone	Monitoring required at the new position
152	S28° 26´ 42.8" E031° 41´ 46.8"	Burial site with three graves	High	The burial site is significantly out of the impact zone	Monitoring required
157	S28° 27´ 32.8" E031° 42´ 41.3"	Open air Shembe Church	High	The site is now off the impact zone	Monitoring required
159	S28° 28´ 16.9" E031° 43´ 27.9"	A low density surface scatter of stone Age material is located	low	Tower position has been shifted	Monitoring required
161	S28° 28´ 16.9" E031° 43´ 27.9"	A burial site with 3 graves	high	Tower position has been shifted 40m away from impact zone	Monitoring

7 ASSUMPTIONS AND LIMITATIONS

The heritage resources located during the fieldwork do not necessarily represent all the possible heritage resources potentially present within the area. Various factors account for this, including the subterranean nature of some archaeological sites and the current dense vegetation cover in some areas. As such, should any heritage features and/or objects not included in the present inventory be located or observed during construction, a heritage specialist monitoring the development must immediately be contacted. Such observed or located heritage features and/or objects may not be disturbed or removed in any way until such time as the heritage specialist has been able to make an assessment as to the significance of the site (or material) in question. This applies to graves and cemeteries as well. In the event that any graves or burial places are located during the development the procedures and requirements pertaining to graves and burials will apply as set out below.

The assessment excludes the evaluation of ancillary infrastructure such as additional access roads; borrow pits, construction camps and other components. These need to be assessed as they are identified during the construction phase of the project.

8 DISCUSSION

All 234 approved final powerline structure locations (refer to Table 1 for Coordinates of locations) were surveyed in individually in detail. None of these locations fell directly on any high significant cultural property or Grade 1, 2 or 3 archaeological or historical sites. However, the survey confirms the existence of previously identified archaeological and heritage sites along the servitude. Archaeological materials were recorded on some portions within the vicinity of different selections of tower positions along the entire servitude. Affected tower positions with potential to yield archaeological materials were flagged and recommended for monitoring during construction phase. This means, when the construction teams begin work on the flagged locations, an archaeologist should be on site inspecting all subsurface construction work to ensure that no chance finds materials are destroyed.

Furthermore, should chance archaeological materials be disturbed at any of the unmonitored tower positions along the servitude, salvage and chance finds procedures should be implemented.

Archaeological sites, abandoned historic homesteads and historic sites along the servitude should not be interfered with without a clearance of Destruction Permit from SAHRA since some of the building remains may be 60 years of. Such old structures enjoy automatic legal protection from the NHRA. Such site may also yield previously unknown.Furthermore, development activities should be kept within theapproved powerline servitude.

Overall, it is very highly unlikely that any high significant listed national, provincial or local (Grade 1, 2, or 3) archaeological or cultural physical resource will be impact negatively by the 234-powerline structures to be installed as part of the Umfolozi-Thetha powerline establishments. This observation excludes the burial ground that has been flagged for relocation before Tower 42 is installed.

8.1 CULTURAL HERITAGE ASSESSMENT OF SIGNIFICANCE

The appropriate management of cultural heritage resources is usually determined on the basis of their assessed significance as well as the likely impacts of any proposed developments. Cultural significance is defined in the Burra Charter as meaning *aesthetic, historic, scientific or social value for past, present or future generations* (Article 1.2). Social, religious, cultural and public significance are currently identified as baseline elements of this assessment, and it is through the combination of these elements that the overall cultural heritage values of the site of interest, associated place or area are resolved.

8.2 ASSESSMENT CRITERIA

The Guidelines from Amafa KZN and SAHRA as well as the Burra Charter define the following criterion for the assessment of cultural significance:

Aesthetic Value

Aesthetic value includes aspects of sensory perception for which criteria can and should be stated. Such criteria may include consideration of the form, scale, colour, texture and material of the fabric; sense of place, the smells and sounds associated with the place and its use.

Historic Value

Historic value encompasses the history of aesthetics, science and society, and therefore to a large extent underlies all of the terms set out in this section. A place may have historic value because it has influenced, or has been influenced by, an historic figure, event, phase or activity. It may also have historic value as the site of an important event. For any given place the significance will be greater where evidence of the association or event survives in situ, or where the settings are substantially intact, than where it has been changed or evidence does not survive. However, some events or associations may be so important that the place retains significance regardless of subsequent treatment.

Scientific value

The scientific or research value of a place will depend upon the importance of the data involved, on its rarity, quality or representativeness, and on the degree to which the place may contribute further substantial information. Scientific value is also enshrined in natural resources that have significant social value. For example, pockets of forests and bushvelds have high ethnobotany value.

Social Value

Social value embraces the qualities for which a place has become a focus of spiritual, religious, political, local, national or other cultural sentiment to a majority or minority group. Social value also extend to natural resources such as bushes, trees and herbs that are collected and harvested from nature for herbal and medicinal purposes.

In case of this specific Walk down Survey study, some low tohighheritage significance is under threat.

9 CONSTRUCTION HERITAGE MANAGEMENT PLAN

Heritage monitoring is key in this project during the construction phase. As such a detailed Heritage Management Plan should be developed in line with identified potential impacts and monitoring regime. The following table presents a generic heritage management principle that should be expanded to apply during construction and operational phases of the project.

Table 3: Construction Heritage Management Plan.

No.	Activity	Mitigation Measures	Duration	Frequency	Responsibility	Accountable	Contacted	Informed
Objective	• Protection of chance archaeological sites and land considered to be of cultural value; • Protection of chance physical cultural property sites against vandalism, destruction and theft; and • The preservation and appropriate management of new archaeological finds should these be discovered during construction.							
No.	Activity	Mitigation Measures	Duration	Frequency	Responsibility	Accountable	Contacted	Informed
Pre-Construction Phase – Phase 1 HIA Study of Alternative routes & Walk-down Survey of Final Approved Route								

No.	Activity	Mitigation Measures	Duration	Frequency	Responsibility	Accountable	Contacted	Informed
1	Planning	Ensure all known sites of cultural, archaeological, and historical significance are demarcated on the site layout plan, and marked as no-go areas.	Throughout Project	Weekly Inspection	Contractor [C] CECO	SM	ECO	EA EM PM
Construction Phase								
1	Emergency Response	Should any archaeological or physical cultural property heritage resources be exposed during excavation for the purpose of construction, construction in the vicinity of the finding must be stopped until heritage authority has cleared the development to continue.	N/A	Throughout	C CECO	SM	ECO	EA EM PM
		Should any archaeological, cultural property heritage resources be exposed during excavation or		Throughout	C CECO	SM	ECO	EA EM PM

No.	Activity	Mitigation Measures	Duration	Frequency	Responsibility	Accountable	Contacted	Informed
		be found on development site, a registered heritage specialist or SAHRA official must be called to site for inspection.						
		Under no circumstances may any archaeological, historical or any physical cultural property heritage material be destroyed or removed form site;		Throughout	C CECO	SM	ECO	EA EM PM
		Should remains and/or artefacts be discovered on the development site during earthworks, all work will cease in the area affected and the Contractor will immediately inform the Construction Manager who in turn will inform AMAFA/SAHRA.		When necessary	C CECO	SM	ECO	EA EM PM

No.	Activity	Mitigation Measures	Duration	Frequency	Responsibility	Accountable	Contacted	Informed
		Should any remains be found on site that is potentially human remains, the SAHRA/SAHRA and South African Police Service should be contacted.		When necessary	C CECO	SM	ECO	EA EM PM
Rehabilitation Phase								
		Same as construction phase.						
Operational Phase								
		Same as construction phase.						

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

Table 4: Roles and responsibilities of archaeological and heritage management.

10 IMPACT MANAGEMENT.

10.1 PRE-CONSTRUCTION PHASE

Based on the findings of the AWD, all on site construction personnel should undergo an archaeological induction course during this phase before they begin working in the field. Induction courses generally form part of the contractor employees' overall training and the

archaeological component can easily be integrated into these training sessions aimed at highlighting the value of this exercise and the appropriate communication channels that should be followed after chance finds, and the second targeting the actual workers and getting them to recognize artefacts, features and significant sites. Posters reminding operators of the possibility of finding archaeological sites should reinforce this course.

10.2 CONSTRUCTION PHASE

The project will encompass a range of activities during the construction phase, including ground clearance, excavation, erection, stringing, establishment of construction camps area and small-scale infrastructure development associated with the project.

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

An archaeologist should monitor all tower positions flagged as possible sites for chance finds by location or association during construction.During the construction phase, it is important to recognize any significant chance material being unearthed, making the correct judgment on which actions should be taken. A responsible archaeologist may be appointed for this commission. The archaeologist would inspect the flagged site and any development recurrently, with more frequent visits to the actual workface and operational areas. In addition, feedback reports can be submitted by the archaeologist to the client and SAHRA/AMAFA KZN ensure effective monitoring of all accidental discovery sites. This archaeological monitoring and feedback strategy should be incorporated into the Environmental Management Plan (EMP) of the project.

Should an archaeological site or cultural material be discovered during construction (or operation), such as burials or grave sites, the project needs to be able to call on a qualified expert to make a decision on what is required and if it is necessary to carry out emergency

recovery. Amafa KZN would need to be informed and may give advice on procedure. The developers therefore should have some sort of contingency plan so that operations could move elsewhere temporarily while the material and data are recovered. The project thus needs to have an archaeologist available to do such work.

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

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

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

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

11 CONCLUSIONS & RECOMMENDATIONS

None of the surveyed 234-powerline structure locations fell directly on high significance archaeological sites classified as Grade 1, 2 or 3 as defined in the NHRA or Amafa Act 0f

2008. The study did not find any barrier to powerline construction within the approved servitude. Subject to relocation of burial sites identified on direct path of Tower 42, and effecting monitoring during construction and recommendations herein made,no direct conflicts between archaeological and physical cultural heritage properties including burial grounds and the proposed development are anticipated when construction begins.

The following general mitigation measures are recommended:

- A detailed and tower specific Heritage Management Plan should be developed to guide the monitoring and other mitigation measures recommended.
- All the stakeholders should agree upon a Monitoring plan or watching brief for the different phases of the project. An archaeologist should form part of the environmental monitoring team during construction work specifically to monitor the excavation of foundation and service trenches, landscaping and any other intrusive work where chance finds may be discovered.
- All construction camp and material stock pile sites should be surveyed and cleared of any possibility of archaeological or heritage sites.
- Previous littering and construction rubble left on archaeological site during previous powerline construction should be cleaned off the sites. Under no circumstance should contractors use archaeological sites for any purpose during construction.
- The developer and contractors undertakes to give the archaeologist sufficient time to identify and record any chance archaeological finds and features that may be discovered subsurface during construction work in project area.
- If during construction any possible finds are made, the operations must be stopped and the qualified archaeologist be contacted for an assessment of the find.
- A heritage resources management plan should be incorporated into the Construction EMP. This includes basic training for construction staff on possible finds, action steps for mitigation measures, surface collections, excavations, and communication routes to follow in the case of a discovery. As precautionary measure and in line with applicable best heritage management principles, the following holds:

- *The foot print impact of each Powerline Structure and associated construction activities should be kept to minimal and within the approved servitude to limit the possibility of encountering additional or chance finds within the powerline servitude.*
- *In situations where unpredicted impacts occur (such as accidentally disturbing a previously unknown grave during subsurface construction work), construction activities should be stopped and the heritage authority notified immediately.*

- *In the unlikely event of chance archaeological material or previously unknown human remains being disturbed during subsurface construction, the finds should be left in situ subject to further instruction from the heritage authorities (refer to Appendix 1 for additional details).*

It is the author's final and considered recommendation that there being no permanent heritage barriers on the path of the powerline development; the proposed final powerline and related infrastructure development may proceed,subject to recommendations, as planned and within the approved powerline servitude and structure locations.

The next phase here from should be development of detailed HMP. Securing Amafa's final comments and recommendations that would be included in the HMP and the overall project EMP. Before construction begins, the construction supervisors should be inducted on significance of archaeological sites in order to avoid repeat of previous situations in the project area when contractors used stonewall archaeological sites for storage of cable drums. Tower construction for site identified as in proximity of archaeological or physical heritage properties should be monitored by an archaeologist.

12 BIBLIOGRAPHY

AUSTRALIA ICOMOS (1999) *The Burra Charter: The Australia ICOMOS charter for places of cultural significance*. Burwood.

BICKFORD, A AND SULLIVAN, S. 1977. *"Assessing the research significance of historicsites"* in S Sullivan and S Bowdler (eds) Site Surveys and Significance assessment in Australian Archaeology. Canberra: ANU.

BURKE, H. And SMITH, C. 2004. *The archaeologist's field handbook.* Australia. Allen and Unwin.

COOPER,M. A.,FIRTH,A.,CARMAN,J. & WHEATLEY,D. (eds.)1995: Managing Archaeology. London: Routledge.

GLAZEWSKI, J., 2000: Environmental Law in South Africa. Durban: Butterworths.

MURIMBIKA, M. 2012. PROPOSED NAGLE DAM 132/11KV SUBSTATION ESTABLISHEMENT AND ASSOCIATED 132KV POWERLINE, KWAZULU NATAL PROVINCE: PHASE 1 ARCHAEOLOGICAL AND HERITAGE IMPACT ASSESSESSMENT STUDY REPORT.

SOUTH AFRICA,1983. *Human Tissue Act.* Government Gazette.

SOUTH AFRICA 1999. *NATIONAL HERITAGE RESOURCES ACT (No 25 of 1999),* Government Gazette. Cape Town..

SAHRA APMHOB. 2004. *Policy for the management of Archaeology, Palaeontology, Meteorites and Heritage Object.* . SAHRA: Cape Town.

SAHRA APM. 2006. *Guidelines: Minimum standards for the archaeological and palaeontological Component of Impact Assessment Reports.* . SAHRA: Cape Town.

SAHRA APMHOB 2002. General Introduction to surveys, impact assessments and management plans. . SAHRA: CT.

SAHRA. 2002. General guidelines to Archaeological Permitting Policy. SAHRA: Cape Town.

SAHRA. 2002. General Introduction to surveys, impact assessments and management plans.

SAHRA. What to do when Graves are uncovered accidentally.

WHITELAW, G. 1991. Precolonial iron production around Durban and in southern Natal. *Natal Museum Journal of Humanities* **3**: 29–39. *ARCHAEOLOGICAL & HERITAGE IMPACT ASSESSMENT STUDY FOR PROPOSED NAGLE DAM SUBSTATION AND POWERLINE DEVELOPMENT, 2ND EDITION VERSION. 3.0*

Heritage Impact Assessment Specialist Study by M. Murimbika (Ph.D.) 2012

WHITELAW, G. 1993. Customs and settlement patterns in the first millennium AD: evidence from Nanda, an Early Iron Age site in the Mngeni Valley, Natal. *Natal Museum Journal of Humanities* **5**: 47–81.

WHITELAW, G. 1994. KwaGandaganda: settlement patterns in the Natal Early Iron Age. *Natal Museum Journalof Humanities* **6**: 1–64.

WHITELAW, G. 1997. What Da Gama missed on his way to Sofala. *Natalia* **27**: 30–41.

WILSON, M. 1969. Changes in social structure in southern Africa: the relevance of kinship studies to the historian. In: L. Thompson, ed., *African societies in southern Africa*. London: Heinemann, pp. 71–85.

WRIGHT, J. 2009. The Thuli

13 SAHRA HIA RECORD OF DECISION

Copy of ROD not available during the compilation of this report – to be supplied by Eskom from the Phase 1 HIA Service Providers.

14 APPENDIX 1: HUMAN REMAINS AND BURIALS IN DEVELOPMENT CONTEXT

BY Dr Murimbika M. [2012]

Developers, land use planners and professional specialist service providers often encounter difficult situations with regards to burial grounds, cemeteries and graves that may be encountered in development contexts. This may be before or during a development project. There are different procedures that need to be followed when a development is considered on an area that will impact upon or destroy existing burial grounds, cemeteries or individual graves. In contexts where human remains are accidentally found during development work such as road construction or building construction, there are different sets of intervention regulations that should be instigated. This brief is an attempt to highlight the relevant regulations with emphasis on procedures to be followed when burial grounds, cemeteries and graves are found in development planning and development work contexts. The applicable regulations operate within the national heritage and local government legislations and ordinances passed in this regard. These guidelines assist you to follow the legal pathway.

1. First, establish the context of the burial:

A. Are the remains less than 60 years old? If so, they may be subject to provisions of the Human Tissue Act, Cemeteries Ordinance(s) and to local, regional, or municipal regulations, which vary from place to place. The finding of such remains must be reported to the police but are not automatically protected by the National Heritage Resources Act (Act 25 of 1999).

B. Is this the grave of a victim of conflict? If so, it is protected by the National Heritage Resources Act (Section 36(3a)). (Relevant extracts from the Act and Regulations are included below).

C. Is it a grave or burial ground older than 60 years which is situated outside a formal cemetery administered by a local authority? If so, it is protected by the National Heritage Resources Act (Section 36(3b)).

D. Are the human or hominid remains older than 100 years? If so, they are protected by the National Heritage Resources Act (Section 35(4), see also definition of "archaeological" in Section 2).

2. Second, refer to the terms of the National Heritage Resources Act most appropriate to the situation, or to other Acts and Ordinances:

A. Human remains that are NOT protected in terms of the National Heritage Resources Act (i.e. less than 60 years old and not a grave of a victim of conflict or of cultural

significance) are subject to provisions of the Human Tissue Act and to local and regional regulations, for example Cemeteries Ordinances applicable in different Provincial and local Authorities.

B). All finds of human remains must be reported to the nearest police station to ascertain whether or not a crime has been committed.

C). If there is no evidence for a crime having been committed, and if the person cannot be identified so that their relatives can be contacted, the remains may be kept in an institution where certain conditions are fulfilled. These conditions are laid down in the Human Tissue Act (Act No. 65 of 1983). In contexts where the local traditional authorities given their consent to the unknown remains to be re-buried in their area, such re-interment may be conducted under the same regulations as would apply for known human remains.

3. In the event that a graveyard is to be moved or developed for another purpose, it is incumbent on the local authority to publish a list of the names of all the persons buried in the graveyard if there are gravestones or simply a notification that graves in the relevant graveyard are to be disturbed. Such a list would have to be compiled from the names on the gravestones or from parish or other records. The published list would call on the relatives of the deceased to react within a certain period to claim the remains for re-interment. If the relatives do not react to the advertisement, the remains may be re-interred at the discretion of the local authority.

A. However, it is the responsibility of the developer to ensure that none of the affected graves within the cemetery are burials of victims of conflict. The applicant is also required in line with the heritage legislation to verify that the graves have no social significance to the local communities.

B. It is illegal in terms of the Human Tissue Act for individuals to keep human remains, even if they have a permit, and even if the material was found on their own land.

4. The Exhumations Ordinance (Ordinance No. 12 of 1980 and as amended) is also relevant. Its purpose is "To prohibit the desecration, destruction and damaging of graves in cemeteries and receptacles containing bodies; to regulate the exhumation, disturbance, removal and re-interment of bodies, and to provide for matters incidental thereto". This ordinance is supplemented and support by local authorities regulations, municipality by-laws and ordinances.

DEFINITIONS AND APPLICABLE REGULATIONS

1). A "Cemetery" is defined as any land, whether public or private, containing one or more graves.

2). A "grave" includes "(a) any place, whether wholly or partly above or below the level of ground and whether public or private, in which a body is permanently interred or intended to be permanently interred, whether in a coffin or other receptacle or not, and (b) any monument, tombstone, cross, inscription, rail, fence, chain, erection or other structure of whatsoever nature forming part of or appurtenant to a grave.

3). No person shall desecrate, destroy or damage any grave in a cemetery, or any coffin or urn without written approval of the Administrator.

4). No person shall exhume, disturb, remove or re-inter anybody in a cemetery, or any coffin or urn without written approval of the Administrator.

5). Application must be made for such approval in writing, together with:

a). A statement of where the body is to be re-interred.

b). Why it is to be exhumed.

c). The methods proposed for exhumation.

d). Written permission from local authorities, nearest available relatives and their religious body owning or managing the cemetery, and where all such permission cannot be obtained, the application must give reasons why not.

6). The Administrator has the power to vary any conditions and to impose additional conditions.

7). Anyone found guilty and convicted is liable for a maximum fine of R200 and maximum prison sentence of six months.

5. Human remains from the graves of victims of conflict, or any burial ground or part thereof which contains such graves and any other graves that are deemed to be of cultural significance may not be destroyed, damaged, altered, exhumed or removed from their original positions without a permit from the National Heritage Resources Agency. They are administered by the Graves of Conflict Division at the SAHRA offices in Johannesburg.

"Victims of Conflict" are:

a). Those who died in this country as a result of any war or conflict but excluding those covered by the Commonwealth War Graves Act, 1992 (Act No. 8 of 1992).

b). Members of the forces of Great Britain and the former British Empire who died in active service before 4 August 1914.

c). Those who, during the Anglo Boer War (1899-1902) were removed from South Africa as prisoners and died outside South Africa, and,

d). Those people, as defined in the regulations, who died in the "liberation struggle" both within and outside South Africa.

6. Any burial that is older than 60 years, which is outside a formal cemetery administered by a local authority, is protected in terms of Section 36(3b) of the National Heritage Resources Act. No person shall destroy damage, alter, exhume or remove from its original position, remove from its original site or export from the Republic any such grave without a permit from the SAHRA.

There are some important new considerations applicable to B & C (above).

SAHRA may, for various reasons, issue a permit to disturb a burial that is known to be a grave of conflict or older than 65 years, or to use, at a burial ground, equipment for excavation or the detection or the recovery of metals.

(Permit applications must be made on the official form Application for Permit: Burial Grounds and Graves available from SAHRA or provincial heritage resources authorities.) Before doing so, however, SAHRA must be satisfied that the applicant:

a). Has made satisfactory arrangements for the exhumation and re- interment of the contents of such a grave at the cost of the applicant.

b). Has made a concerted effort to contact and consult communities and individuals who by tradition have an interest in such a grave and,

c). Has reached an agreement with these communities and individuals regarding the future of such a grave or burial ground.

PROCEDURE FOR CONSULTATION

The regulations in the schedule describe the procedure of consultation regarding the burial grounds and graves. These apply to anyone who intends to apply for a permit to destroy damage, alter, remove from its original position or otherwise disturb any grave or burial ground older than 60 years that is situated outside a formal cemetery administered by a local authority. The applicant must make a concerted effort to identify the descendants and family members of the persons buried in and/or any other person or community by tradition concerned with such grave or burial ground by:

1). Archival and documentary research regarding the origin of the grave or burial ground;

2). Direct consultation with local community organizations and/or members;

3). The erection for at least 60 days of a notice at the grave or burial ground, displaying in all the official languages of the province concerned, information about the proposals affecting the site, the telephone number and address at which the applicant can be contacted by any interested person and the date by which

contact must be made, which must be at least 7 days after the end of the period of erection of the notice; and

4). Advertising in the local press.

The applicant must keep records of the actions undertaken, including the names and contact details of all persons and organizations contacted and their response, and a copy of such records must be submitted to the provincial heritage resources authority with the application.

Unless otherwise agreed by the interested parties, the applicant is responsible for the cost of any remedial action required.

If the consultation fails to research in agreement, the applicant must submit records of the consultation and the comments of all interested parties as part of the application to the provincial heritage resources authority.

In the case of a burial discovered by accident, the regulations state that when a grave is discovered accidentally in the course of development or other activity:

a). SAHRA or the provincial heritage resources authority (or delegated representative) must, in co-operation with the Police, inspect the grave and decide whether it is likely to be older than 60 years or otherwise protected in terms of the Act; and whether any further graves exist in the vicinity.

b). If the grave is likely to be so protected, no activity may be resumed in the immediate vicinity of the grave, without due investigation approved by SAHRA or the provincial heritage resources authority; and

c). SAHRA or the provincial heritage resources authority may at its discretion modify these provisions in order to expedite the satisfactory resolution of the matter.

d. Archaeological material, which includes human and hominid remains that are older than 100 years (see definition in section 2 of the Act), is protected by the National Heritage Resources Act (Section 35(4)), which states that no person may, without a permit issued by the responsible heritage resources authority - destroy, damage, excavate, alter or remove from its original site any archaeological or palaeontological material.

The implications are that anyone who has removed human remains of this description from the original site must have a permit to do so. If they do not have a permit, and if they are convicted of an offence in terms of the National Heritage Resources Act as a result, they must be liable to a maximum fine of R100 000 or five years imprisonment, or both.

TREAT HUMAN REMAINS WITH RESPECT

a). Every attempt should be made to conserve graves in situ. Graves should not be moved unless this is the only means of ensuring their conservation.

b). The removal of any grave or graveyard or the exhumation of any remains should be preceded by an historical and archaeological report and a complete recording of original location, layout, appearance and inscriptions by means of measured drawings and photographs. The report and recording should be placed in a permanent archive.

c). Where the site is to be re-used, it is essential that all human and other remains be properly exhumed and the site left completely clear.

d). Exhumations should be done under the supervision of an archaeologist, who would assist with the identification, classification, recording and preservation of the remains.

e). No buried artifacts should be removed from any protected grave or graveyard without the prior approval of SAHRA. All artifacts should be re-buried with the remains with which they are associated. If this is not possible, proper arrangements should be made for the storage of such relics with the approval of SAHRA.

f). The remains from each grave should be placed in individual caskets or other suitable containers, permanently marked for identification.

g). The site, layout and design of the area for re-interment should take into account the history and culture associated with, and the design of, the original grave or graveyard.

h). Re-burials in mass graves and the use of common vaults are not recommended.

i). Remains from each grave should be re-buried individually and marked with the original grave markers and surrounds.

j). Grouping of graves, e.g. in families, should be retained in the new layout.

k). Material from the original grave or graveyard such as chains, kerbstones, railing and should be re-used at the new site wherever possible.

l). A plaque recording the origin of the graves should be erected at the site of re-burial.

m). Individuals or groups related to the deceased who claim the return of human remains in museums and other institutions should be assisted to obtain documentary proof of their ancestral linkages.