



**A PHASE 1 ARCHAEOLOGICAL AND HERITAGE IMPACT ASSESSMENT REPORT FOR THE
PROPOSED SEWERLINE ROUTE FROM THE KZN ASP SITE TO THE EXISTING KINGSBURGH
WASTEWATER TREATMENT WORKS (WWTW) AT ILLOVO, DURBAN SOUTH. WITHIN
ETHEKWINI MUNICIPALITY, KWAZULU-NATAL.**

JULY 20, 2019
SATIVA TRAVEL AND ENVIRONMENTAL CONSULTANTS (PTY) LTD

DOCUMENT INFORMATION

Item	Description
Proposed development and location	Construction of the proposed sewer line route from the KZN ASP site to the existing Kingsburgh Wastewater Treatment Works (WWTW) at Illovo, Durban South in eThekweni Municipality in Kwa-Zulu Natal Province.
Title	Phase 1 Archaeological and Heritage Impact Assessment report for the proposed sewer line route from the KZN ASP site to the existing Kingsburgh Wastewater Treatment Works (WWTW) at Illovo, Durban South in eThekweni Municipality in Kwa-Zulu Natal Province.
Purpose of the study	The purpose of this document is an Archaeological and Heritage Impact Assessment report that describes the cultural values and heritage factors that may be impacted on by the proposed development site
1:50 000 Topographic Map	3030CB
Coordinates	See Figures 1-6
Municipalities	eThekweni Municipality
Predominant land use of surrounding area	Vacant, agricultural, industrial, residential, road and transport (See land use map)
Developer/Applicant	 <p>Dube Trade Port Corporation</p>
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NATIONAL LEGISLATION AND REGULATIONS GOVERNING THIS REPORT

This is a specialist report and is compiled in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended, and the Environmental Impact Assessment Regulations, 2014.

DECLARATION OF INDEPENDENCE

In terms of Chapter 5 of the National Environmental Management Act of 1998 specialists involved in Impact Assessment processes must declare their independence.

Trust Mlilo and Joshua Kumbani, we hereby declare that we are financially and otherwise independent of the client and their consultants, and that all opinions expressed in this document are substantially our own, notwithstanding the fact that we have received fair remuneration from the client for preparation of this report.

Expertise:

Trust Mlilo, PhD candidate (Wits University), MA. (Archaeology), BA Hons, PDGE and BA & (Univ. of Pretoria) ASAPA (Professional member) with more than 15 years of experience in archaeological and heritage impact assessment and management. Mlilo is an accredited member of the Association for Southern African Professional Archaeologists (ASAPA), Amafa akwaZulu Natali and Eastern Cape Heritage Resources Agency (ECPHRA). He has conducted more than hundred AIA/HIA Studies, heritage mitigation work and heritage development projects over the past 15 years of service. The completed projects vary from Phase 1 and Phase 2 as well as heritage management work for government, parastatals (Eskom) and several private companies such as BHP Billiton, Rhino Minerals.

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Independence

The views expressed in this document are the objective, independent views of Mr Trust Mlilo and Mr Joshua Kumbani and the survey was carried out under GIBB (Pty) Ltd. Sativa Travel and

Environmental Consultants (Pty) Ltd has no any business, personal, financial or other interest in the proposed development apart from fair remuneration for the work performed.

Conditions relating to this report

The content of this report is based on the author's best scientific and professional knowledge as well as available information. Sativa Travel and Environmental Consultants (Pty) Ltd reserves the right to modify the report in any way deemed fit should new, relevant or previously unavailable or undisclosed information become known to the author from on-going research or further work in this field, or pertaining to this investigation.

This report must not be altered or added to without the prior written consent of the authors and GIBB (Pty) Ltd. This also refers to electronic copies of the report which are supplied for the purposes of inclusion as part of other reports, including main reports. Similarly, any recommendations, statements or conclusions drawn from or based on this report must make reference to this report. If these form part of a main report relating to this investigation or report, this report must be included in its entirety as an appendix or separate section to the main report.

Authorship: This AIA/HIA Report has been prepared by Mr Trust Mlilo (Professional Archaeologist) assisted by Mr Joshua Kumbani (Archaeologist and Heritage Specialist). 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 Authors are 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 of proposed developments being proposed by Dube Trade Port Corporation.

Signed by



06/ 07/ 2019

ACKNOWLEDGEMENTS

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EXECUTIVE SUMMARY

This Archaeological and Heritage Impact Assessment (AIA/HIA) Report has been prepared to address requirements of Kwa-Zulu Natal Heritage Act 4 of 2008 and Section 38 of the National Heritage Resources Act, Act 25 of 1999. Sativa Travel and Environmental Consultants (Pty) Ltd (STEC) was retained by GIBB (Pty) Ltd on behalf of Dube Trade Port Corporation to conduct this Archaeological and Heritage Impact Assessment (AIA/HIA) Study. This HIA was undertaken for the study area which includes the development route for the proposed sewer line route from the KZN ASP site to the existing Kingsburgh Wastewater Treatment Works (WWTW) at Illovo, Durban South in eThekweni Municipality in Kwa-Zulu Natal Province. The HIA was undertaken to identify heritage resources along the proposed sewer pipeline routes (**Figure 1**). This report includes an impact study on potential archaeological and cultural heritage resources that may be associated with the proposed bulk sewer line. This study was conducted as part of the specialist input for the Environmental Application process. Analysis of the archaeological, cultural heritage, environmental and historic contexts of the study area predicted that archaeological sites, cultural heritage sites, burial grounds or isolated artefacts were likely to be present on the affected landscape. The field survey was conducted to test this hypothesis and verify this prediction within the proposed bulk sewer line route.

The report makes the following observations:

- The findings of this report have been informed by desktop data review, field survey and impact assessment reporting which include recommendations to guide heritage authorities in making decisions with regards to the proposed sewer line route
- Some sections of the project area are very accessible and the field survey was effective enough to cover most sections of the project receiving environs. However, some portions of the proposed development sites had limited access because of the thick vegetation and sugar cane cover (Plate 4)
- The project area is predominantly agricultural.
- Most sections of the proposed project sites are severely degraded from existing developments such as agriculture, bulk water pipelines, powerlines and access roads.
- Although the possibility of archaeological or historical sites associated with the greater study area is high, however, from a contextual studies perspective, no medium to high significance archaeological, heritage landmark or monument was recorded on the proposed development of the TEA for the proposed ASP.

The report sets out the potential impacts of the proposed development on heritage resources and recommends appropriate safeguard and mitigation measures that are designed to minimize the impacts where appropriate. The Report makes the following recommendations:

- The proposed development may be approved by Amafa aKwaZulu-Natali to proceed as planned subject to heritage monitoring measures being incorporated into the project construction Environmental Management Programme (EMP).
- The construction teams should be inducted on the significance of the possible archaeological resources that may be encountered during subsurface construction work before they work on the area in order to ensure appropriate treatment and course of action is afforded to any chance finds.
- If archaeological materials are uncovered, work should cease immediately and Amafa aKwaZulu-Natali be notified and activity should not resume until appropriate management provisions are in place.
- The findings of this report, with approval may be classified as accessible to any interested and affected parties within the limits of the relevant legislation.

The conclusion of the HIA is that the impacts of the proposed development on the cultural environmental values are not likely to be significant if the EMP includes recommended safeguard and mitigation measures identified in this report.

ABBREVIATIONS

AIA	Archaeological Impact Assessment
ASP	Automotive Supplier Park
BID	Background Information document
CRM	Cultural Resource Management
ECO	Environmental Control Officer
EAP	Environmental Assessment Practitioner
EIA	Environmental Impact Assessment
EM	Environmental Manager
EMP	Environmental Management Plan
ESA	Early Stone Age
HIA	Heritage Impact Assessment
KM	Kilometres
KV	Kilo Volts
KZN	KwaZulu Natal
LIA	Late Iron Age
M	Metres
MSA	Middle Stone Age
NHRA	Nation Heritage Resources Act, Act 25 of 1999
PM	Project Manager
SM	Site Manager
SAHRA	South African Heritage Resources Agency
SAHRIS	South African Heritage Resources Agency Data Base
STEC	Sativa Travel and Environmental Consultants (Pty) Ltd
TEA	Township Establishment Area

KEY CONCEPTS AND TERMS

Periodization Archaeologists divide the different cultural epochs according to the dominant material finds for the different time periods. This periodization is usually region-specific, such that the same label can have different dates for different areas. This makes it important to clarify and declare the periodization of the area one is studying. These periods are nothing a little more than convenient time brackets because their terminal and commencement are not absolute and there are several instances of overlap. In the present study, relevant archaeological periods are given below;

Early Stone Age (~ 2.6 million to 250 000 years ago,)

Middle Stone Age (~ 250 000 to 40-25 000 years ago,)

Later Stone Age (~ 40-25 000, to recently, 100 years ago,)

Early Iron Age (~ AD 200 to 1000)

Late Iron Age (~ AD1100-1840)

Historic (~ AD 1840 to 1950, but a Historic building is classified as over 60 years old)

Definitions Just like periodization, it is also critical to define key terms employed in this study. Most of these terms derive from South African heritage legislation and its ancillary laws, as well as international regulations and norms of best-practice. The following aspects have a direct bearing on the investigation and the resulting report:

Cultural (heritage) resources are all non-physical and physical human-made occurrences, and natural features that are associated with human activity. These can be singular or in groups and include significant sites, structures, features, ecofacts and artefacts of importance associated with the history, architecture or archaeology of human development.

Cultural significance is determined by means of aesthetic, historic, scientific, social or spiritual values for past, present or future generations.

Value is related to concepts such as worth, merit, attraction or appeal, concepts that are associated with the (current) usefulness and condition of a place or an object. Although significance and value are not mutually exclusive, in some cases the place may have a high level of significance but a lower level of value. Often, the evaluation of any feature is based on a combination or balance between the two.

Isolated finds are occurrences of artefacts or other remains that are not in-situ or are located apart from archaeological sites. Although these are noted and recorded, but do not usually constitute the core of an impact assessment, unless if they have intrinsic cultural significance and value.

In-situ refers to material culture and surrounding deposits in their original location and context, for example an archaeological site that has not been disturbed by farming.

Archaeological site/materials are remains or traces of human activity that are in a state of disuse and are in, or on, land and which are older than 100 years, including artefacts, human and hominid remains, and artificial features and structures. According to the National Heritage Resources Act (NHRA) (Act No. 25 of 1999), no archaeological artefact, assemblage or settlement (site) and no historical building or structure older than 60 years may be altered, moved or destroyed without the necessary authorisation from the South African Heritage Resources Agency (SAHRA) or a provincial heritage resources authority.

Historic material are 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.

Chance finds means archaeological artefacts, features, structures or historical remains accidentally found during development.

A grave is a place of interment (variably referred to as burial) and includes 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).

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

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, which requires authorisation of permission by law and which may significantly affect the cultural and natural heritage resources. Accordingly, an HIA must include recommendations for appropriate mitigation measures for minimising or circumventing negative impacts, measures enhancing the positive aspects of the proposal and heritage management and monitoring measures.

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

Mitigation is the implementation of practical measures to reduce and circumvent adverse impacts or enhance beneficial impacts of an action.

Mining heritage sites refer to old, abandoned mining activities, underground or on the surface, which may date from the prehistorical, historical or the relatively recent past.

Study area or 'project area' refers to the area where the developer wants to focus its development activities (refer to plan).

Phase I studies refer to surveys using various sources of data and limited field walking in order to establish the presence of all possible types of heritage resources in any given area.

1. INTRODUCTION

1.1. Background

This Archaeological and Heritage Impact Assessment (AIA/HIA) Report has been prepared by STEC (Heritage Division) for the purpose of Environmental Basic Assessment being conducted by GIBB (Pty) Ltd on behalf of Dube Trade Port Cooperation. Dube Trade Port Corporation is proposing to establish a bulk sewer line route from the KZN ASP site to the existing Kingsburgh Wastewater Treatment Works (WWTW) at Illovo, south of Durban, in KwaZulu Natal Province. The purpose of this HIA was to identify heritage resources along the proposed sewer pipeline route (see Figure 1). This report details the field study, results of the study as well as discussion on the anticipated impacts of the proposed sewer pipeline development, as is required by Section 38 of the National Heritage Resources Act, Act 25 of 1999 and Kwa-Zulu Natal Heritage Act 4 of 2008. It focuses on identifying and assessing potential impacts on archaeological resources as well as on other physical cultural properties including historical heritage resources in relation to any future developments. STEC heritage specialists undertook the assessments, research and consultations required for the preparation of the report comprising archaeological and heritage impacts for the purpose of ensuring that the cultural environmental values are taken into consideration and reported into the Environmental Application Process.

The study was designed to ensure that any significant archaeological or cultural physical property or sites are located and recorded, and site significance is evaluated to assess the nature and extent of anticipated impacts from the proposed sewer pipeline. The assessment includes recommendations to manage the expected impacts of the proposed sewer pipeline. The report includes recommendations to guide heritage authorities in making appropriate decision with regards to approval process for the proposed sewer pipeline. The report concludes with detailed recommendations on heritage management associated with the proposed pipeline development work. STEC, an independent consulting firm, conducted the assessment; research and consultations required for the preparation of the HIA report. The report was prepared in accordance with obligations set out in the NHRA as well as the environmental management legislations.

In line with SAHRA guidelines, this report, not necessarily in that order, provides the following:

- 1) Executive summary
- 2) Methodology
- 3) Information with reference to the desktop study
- 4) Map and relevant images and data
- 5) GPS co-ordinates
- 6) Nature of proposed development and its location
- 7) Directions to the site
- 8) Site description and interpretation of the cultural area where the project will take place

- 9) Management details, description of affected cultural environment, photographic records of the project area
- 10) Recommendations regarding the significance of the site and recommendations regarding further monitoring of the site
- 10) Conclusion.

1.2. Location of the proposed development site

The proposed sewer pipeline line route from the KZN ASP site to the existing Kingsburgh Wastewater Treatment Works (WWTW) at Illovo occurs south of Durban and adjacent to the N2 between Winkelspruit and Umgababa, in KZN. The study area is strategically located between automotive related manufacturing industries in Prospecton and associated facilities being planned at Umkomaas. Approximately 1.5km to the north of the study area is the R603. The southern boundary of the site is the uMsimbazi River and the northern boundary is the Lovu River. The site earmarked for the proposed development is abutted by major regional transport routes including Provincial Road P197, which runs in a north-south direction, District Road D982 which intersects with P197 west bound of the site. The site is accessible via the N2 and R102 which are national and regional routes. The site is located between formal urban areas in the east (Kingsburgh and Illovo Beach) and more dispersed rural dwellings and associated pockets of subsistence farming to the west and south. The site is primarily used for agricultural purposes, with sugar cane covering the majority of the land area. The site falls under the ownership of DTPC. The site for the TEA is located adjacent to the N2 Highway between the Lovu and uMzimbazi Rivers and access to the site is proposed from the N2 (see Figure 1)

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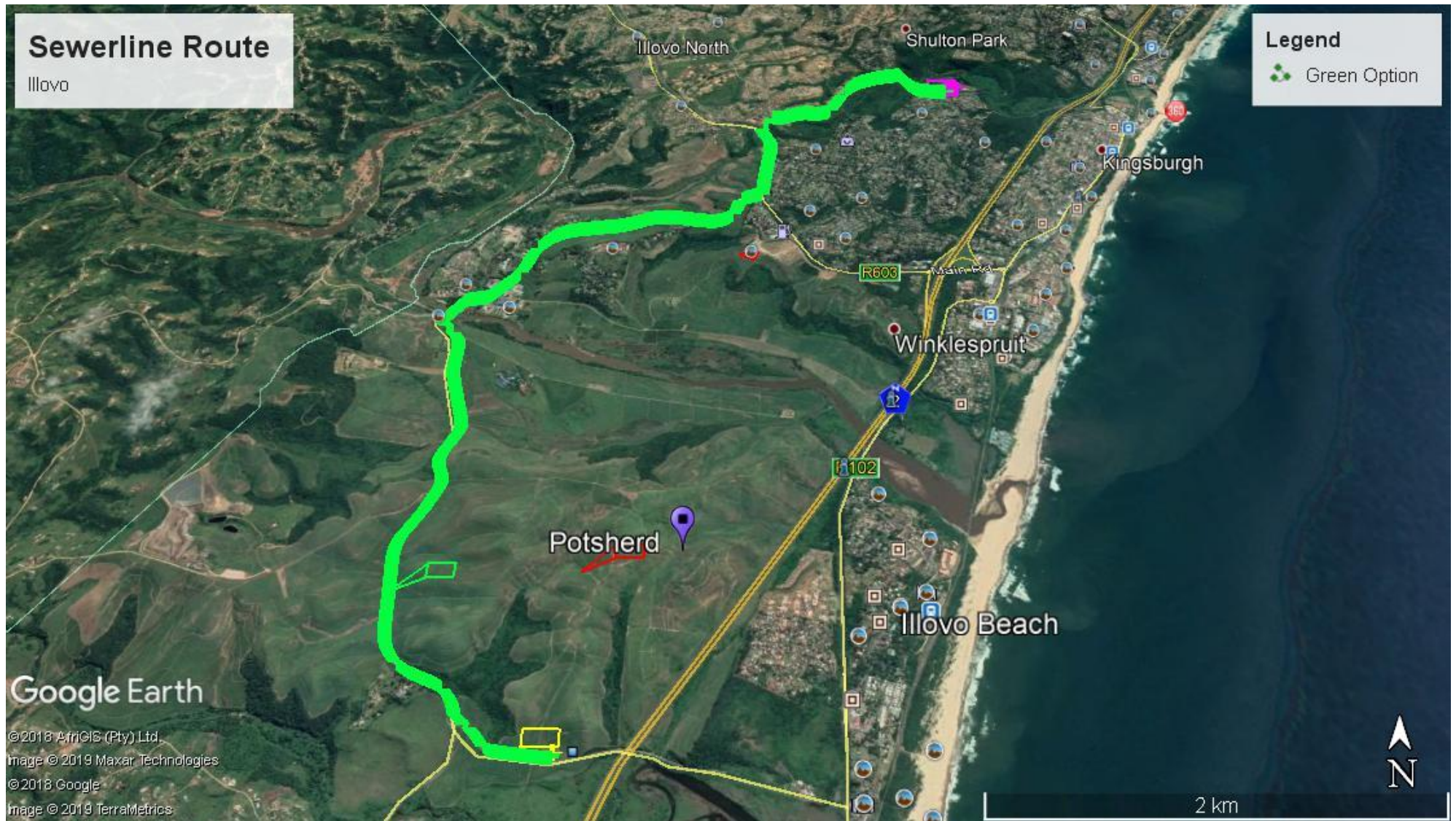


Figure 1: Proposed sewer pipeline route

1.3. Description of the proposed project

Dube Trade Port Corporation (DTPC) proposes the construction of the sewer line route from the KZN ASP site to the existing Kingsburgh Wastewater Treatment Works (WWTW) site incorporating various land uses such as light industrial, municipal (such as proposed reservoir and electrical substation), limited commercial, open space areas, mixed-uses, administration and internal roads through the site on the remainder of the Farm Nogi No. 17469 in Illovo, within the jurisdiction of the eThekweni Municipality in KwaZulu-Natal. The proposed sewer line design will be trenched along the P197 road reserve and will be attached to the existing Lovu Bridge and trenched again for the remainder route till it ends at the existing Kingsburgh Waste Water Treatment Works (WWTW). The main objective of the ASP is to support Original Equipment Manufacturers (OEM) based in KZN, and to further attract other OEMs. This would unlock investment, provide sustainable jobs and advance the OEMs growth trajectory in KZN. Access to the site is currently proposed from a new N2 interchange and P197.

2. LEGAL REQUIREMENTS

This HIA report addresses the requirements as is stipulated in the KwaZulu-Natal Heritage Act 4 of 2008 and the NHRA Act 25 of 1999 Section 38 as well as EIA Terms of Reference in relation to the assessment of impacts of the proposed development on the cultural and heritage resources associated with the receiving environment. The statutory mandate of heritage impact assessment studies is to encourage and facilitate the protection and conservation of archaeological and cultural heritage sites, in accordance with the provisions of the KwaZulu-Natal Heritage Act 4 of 2008, National Heritage Resources Act, Act 25 of 1999 and auxiliary regulations. Therefore, in pre-development context, heritage impact assessment study is conducted to fulfil the requirements of Section 38 (1) of the National Heritage Resources Act (No 25 of 1999).

The legislations require that when constructing a linear development exceeding 300m in length or developing an area exceeding 5000 m² in extent, the developer must notify the responsible heritage authority of the proposed development and they in turn must indicate within 14 days whether an impact assessment is required. The NHR Act notes that “any comments and recommendations of the relevant heritage resources authority with regard to such development have been taken into account prior to the granting of the consent”, the heritage authority here being KZN Provincial Authority (Amafa KwaZulu-Natal).

Both the national legislations and provincial provisions provide protection for the following categories of heritage resources:

Landscapes, cultural or natural;

- Buildings or structures older than 60 years;
- Archaeological Sites, palaeontological material and meteorites;
- Burial grounds and graves;
- Public monuments and memorials;

- Living heritage (defined as including cultural tradition, oral history, performance, ritual, popular memory, skills and techniques, indigenous knowledge systems and the holistic approach to nature, society and social relationships).

Furthermore, the proposed development is guided and governed by legislative acts and regulations including environmental, spatial planning, land use and heritage management laws and regulations. The following acts have relevance to the management of heritage sites (archaeological, cultural and historical sites) wherever they are found in the Republic:

- Environmental Conservation Act, No.73 of 1989
- National Environment Management Act (NEMA), No.107 of 1998

2.1. Other relevant legislations

3.1. The Human Tissue Act

Human Tissue Act of 1983 and Ordinance on the Removal of Graves and Dead Bodies of 1925 Graves 60 years or older are heritage resources and fall under the jurisdiction of both the National Heritage Resources Act and the Human Tissues Act of 1983. However, graves younger than 60 years are specifically protected by the Human Tissues Act (Act 65 of 1983) and the Ordinance on the Removal of Graves and Dead Bodies (Ordinance 7 of 1925) as well as any local and regional provisions, laws and by-laws. Such burial places also fall under the jurisdiction of the National Department of Health and the Provincial Health Departments. Approval for the exhumation and re-burial must be obtained from the relevant Provincial Member of the Executive Committee (MEC) as well as the relevant Local Authorities.

3. TERMS OF REFERENCE

The author was instructed to conduct an AIA/HIA study addressing the following issues:

- Archaeological and heritage potential of the proposed sewer pipeline development route including any known data on affected areas;
- Provide details on methods of study; potential and recommendations to guide the Amafa to make an informed decision in respect of authorisation of the proposed sewer pipe line development.
- Identify all objects, sites, occurrences and structures of an archaeological or historical nature (cultural heritage sites) located along the proposed sewer pipeline route;
- Assess the significance of the cultural resources in terms of their archaeological, historical, scientific, social, religious, aesthetic and tourism value;
- Describe the possible impact of the proposed development on these cultural remains, according to a standard set of conventions;
- Propose suitable mitigation measures to minimize possible negative impacts on the cultural resources;

- Review applicable legislative requirements;

Photographic Presentation of the project area



Plate 1: Photo 1: View of Kingsburgh Treatment works where the proposed sewer pipeline will connect (Photograph © by Author 2019)



Plate 2: Photo 2: View of proposed pipeline route (Photograph © by Author 2019)



Plate 3: Photo 3: View of proposed pipeline route along road servitude (Photograph © by Author 2019).



Plate 4: Photo 4: View of existing pipelines and powerlines along the proposed sewer pipeline route (Photograph © by Author 2019).



Plate 5: Photo 5: View of proposed pipeline route (Photograph © by Author 2019)



Plate 6: Photo 6: View of proposed pipeline route (Photograph © by Author 2019).



Plate 7: Photo 7: View of existing bulk water supply infrastructure within the proposed project area (Photograph © by Author 2019)



Plate 8: Photo 8: View of proposed sewer pipeline route (Photograph © by Author 2019)



Plate 9: Photo 9: View of cane fields that characterise the entire project area (Photograph © by Author 2019)



Plate 10: Photo 10: View of proposed pipe line route (Photograph © by Author 2019)

4. METHODOLOGY

This document falls under the basic assessment phase of the HIA and therefore aims at providing an informed heritage-related opinion about the proposed sewer pipeline development. This is usually achieved through a combination of a review of any existing literature and a basic site inspection. As part of the desktop study, published literature and cartographic data, as well as archival data on heritage legislation, the history and archaeology of the area were studied. The desktop study was followed by field surveys along the proposed pipeline route. The field assessment was conducted according to generally accepted HIA practices and aimed at locating all possible heritage objects, sites and features of cultural significance on the proposed sewer pipeline route. Initially a drive-through was undertaken along the proposed pipeline route. This was then followed by a walk down survey in the study area, with a hand held Global Positioning System (GPS) for recording the location/position of each possible site. Detailed photographic recording was also undertaken where relevant. The findings were then analysed in view of the proposed pipeline development in order to suggest further mitigation to safeguard heritage resources in the context of development. The result of this investigation is a report indicating the presence/absence of heritage resources and how to manage them in the context of the proposed sewer pipeline development.

4.1. Fieldwork

The field survey was undertaken on the 6th of July 2019 by a team of two archaeologists and an assistant. The study team covered the entire sewer pipeline route because it runs along road and street servitudes. The proposed sewer pipeline route was surveyed through farm tracks, access roads, main roads and public roads which are located in the project area. The main focus of the survey involved a pedestrian survey which was conducted across the proposed sewer pipeline route. The pedestrian survey focussed on parts of the project area where it seemed as if disturbances may have occurred in the past, for example bald spots in the grass veld; stands of grass which are taller than the surrounding grass veld; the presence of exotic trees; evidence for building rubble, and ecological indicators such as invader weeds.

The literature survey suggests that prior to the 20th century modern agriculture and associated infrastructure; the general project area would have been a rewarding region to locate heritage resources related to Stone Age and particularly Iron Age and historical sites (Bergh 1999). However, the situation today is completely different. The study area now lies on a clearly modified landscape that has previously been cleared of vegetation but is now dominated by corn fields and a continuous sweep of tall grass and shrubs that limit ground visibility. Several farm infrastructure developments, ploughed fields and farm roads and other infrastructure developments dominate the project area.

Walking surveys were conducted in order to identify and document archaeological and cultural sites in the areas affected by the proposed sewer pipeline development. Cane fields, vegetated river valleys; access and main road

infrastructures, bulk water pipelines, existing transmission and distribution lines and other auxiliary infrastructures dominate the affected project area. Although limited sections of ground surface were covered with grass and thick bushes, this did not impede identification of possible archaeological sites in surveyed areas. Geographic coordinates and track logs were obtained with a handheld Garmin GPS global positioning unit. Refer to the GPs Track logs for the heritage specialist survey in Appendix 3. Photographs were taken as part of the documentation process during field study (See Plate 1-9).

4.2. Assumptions and Limitations

The investigation has been influenced by the unpredictability of buried archaeological remains (absence of evidence does not mean evidence of absence) and the difficulty in establishing intangible heritage values. It should be remembered that archaeological deposits (including graves and traces of mining heritage) usually occur below the ground level. Should artefacts or skeletal material be revealed at the site during construction, such activities should be halted immediately, and a competent heritage practitioner, Amafa or SAHRA must be notified in order for an investigation and evaluation of the find(s) to take place (see KwaZulu-Natal Heritage Act 4 of 2008 or NHRA (Act No. 25 of 1999), Section 36 (6)). Recommendations contained in this document do not exempt the developer from complying with any national, provincial, and municipal legislation or other regulatory requirements, including any protection or management or general provision in terms of the NHRA. The author assumes no responsibility for compliance with conditions that may be required by SAHRA in terms of this report

The field survey did not include any form of subsurface inspection beyond the inspection of burrows, road cut sections, and the sections exposed by erosion or field ploughing. Some assumptions were made as part of the study and therefore some limitations, uncertainties and gaps in information would apply. It should however, be noted that these do not invalidate the findings of this study in any significant way:

- The proposed development will be limited to specific right of way as detailed in the development layout (Figure 1).
- Given the heavily degraded nature on most affected project area and the level of high existing developments within the affected landscape, most sections of the project area have low potential to yield significant *in situ* archaeological or physical cultural properties.
- No excavations or sampling were undertaken, since a permit from heritage authorities is required to disturb a heritage resource. As such, the results herein discussed are based on indicators observed on the surface. However, these surface observations concentrated on exposed sections such as road cuts and clear cane fields.
- This study did not include any ethnographic and oral historical studies nor did it investigate the settlement history of the area.

4.3. Consultation

The study team consulted with Dagley Daniel and Israel Veeras of Illovo Sugar Estate last year. The study team also consulted local residents who also provided vital information about the heritage sensitivity of the project area. Some residents of the Illovo area were consulted regarding the existence of burial sites in the project area. The EIA Public Participation Process invited comments from affected municipalities and other interested parties on any archaeological heritage matter related to the proposed development.

5. CULTURE HISTORY BACKGROUND OF THE PROJECT REGION

The project area is located in the Illovo area, south Durban, in KwaZulu-Natal Province of South Africa that boasts a rich traditional history of contemporary Zulu (Huffman 2007, Coetzee 2010). Archaeological and heritages studies in the KwaZulu-Natal region indicate that the area is of high pre-historic and heritage significance. It is in fact a cultural landscape where Stone Age, Iron Age and Historical period sites contribute the bulk of the cultural heritage of the region (also Bryant 1965, Maggs 1989, Huffman, 2007). However, the study area has never been systematically surveyed for archaeological sites in the past (Prins 2013, 2016).

Stone Age sites are general identifiable by stone artefacts found scattered on the ground surface, as deposits in caves and rock shelters as well as in eroded gully or river sections. Archaeological sites recorded in the project region confirms the existence of Stone Age sites that conform to the generic SA periodization split into the Early Stone Age (ESA) (2.5 million years ago to 250 000 years ago), the Middle Stone Age (MSA) (250 000 years ago to 22 000 years ago) and the Late Stone Age (LSA) (22 000 years ago to 300 years ago). Stone Age sites in the region are also associated with rock painting sites. Cave sites also exist on the landscape south west of the project area.

From an archaeological perspective, the south of Durban, like most of KwaZulu Natal region has potential to yield Stone Age period sites (also see Deacon and Deacon, 1997). The greater Port Shepstone area has been surveyed by archaeologists from the then Natal Museum and Natal Parks Board in the 1970's and 1980's (Prins 2013). Further inland the Paddock and greater Oribi Gorge areas have been more systematically surveyed by archaeologists such as J. H. Cable in the early 1980's (Cable 1984) and later by various archaeologists attached to the Natal Museum (Mazel 1989; Mitchell 2005). Literature in the KwaZulu-Natal Museum, indicates that the greater Paddock and Port Shepstone areas are rich in archaeological sites covering diverse time-periods and cultural traditions. These include Early, Middle and later Stone Age sites, Early Iron Age sites, Later Iron Age sites, and some historical sites (Prins 2013). Various buildings and farmsteads belonging to the Victorian and Edwardian periods occur in the area especially in the close environs of Paddock (Prins 2016). However, the specific affected project-receiving environment has low potential for Stone Age sites (Prins 2016).

Stone Age sites of all the main periods and cultural traditions occur along the coastal cordon in the immediate

vicinity of Port Shepstone closer towards the coast. Most of these occur in open air contexts as exposed by excessive erosion. The occurrence of Early Stone Age tools in the near vicinity of permanent water resources is typical of this tradition. These tools can be attributed to early hominins such as *Homo erectus*. Based on typological criteria they most probably date back to between 300 000 and 1.7 million years ago. A few MSA blades and flakes which date back to between 40 000 and 200 000 years ago are on record in the project area. The later Stone Age flakes and various rock painting sites associated with San are also on record in the general project area (Prins 2013a, 2013b, 2015). These most probably dates back to between 200 and 20 000 years ago.

Archaeological sites in the vicinity of the project area include two Middle Stone Age sites and eleven Later Stone Age rock art sites situated within the greater Oribi Gorge and adjacent areas to the immediate east of the study area. The rock art sites form part of the eastern seaboard coastal rock art zone. Most of these occur in sandstone shelters and depict red monochrome paintings.

The Iron Age of the KwaZulu Natal region dates back to the 5th Century AD when the Early Iron Age (EIA) proto-Bantu-speaking farming communities began arriving in this region, which was then occupied by hunter-gatherers. These EIA communities are archaeologically referred to as the Kwale branch of the Urewe EIA Tradition (Huffman, 2007: 127-9). The Iron Age communities occupied the foot-hills and valley lands introducing settled life, domesticated livestock, crop production and the use of iron (also see Maggs 1984a; 1984b; Huffman 2007). Alongside the Urewe Tradition was the Kalundu Tradition whose EIA archaeological sites have been recorded along the KwaZulu Natal region. From about 15 00 AD the region was occupied by new coming groups of Late Iron Age farmers of the Kalundu Tradition (ibid). The region was the centre of immigration and migration of different African groups some of which are ancestors of the contemporary Zulu predominant in the region. Early Iron Age sites of Mzuluzi (AD500-700), Ndongondwane (AD 700-800) and Ntshokane (AD 800 -900) were recorded in the Ugu District Municipality (Maggs 1989:31, Huffman 2007:325-462. According to oral tradition the Ugu area was occupied by the Cele Clan (Bryant 1965). It is believed that the Cele Clan arrived in the area around 1828 (Bryant 1965).

Throughout the middle of the 1800s the region witnessed the Mfecane migrations and displacements linked to Tshaka's expansionist policy. The Voortrekkers arrived in Natal regions in the shadow of the weakened African kingdoms and chiefdoms in the aftermath of the Mfecane. This effectively ushered in new era of colonial occupation by succeeding Afrikaans and British colonial administration authorities through the last half of the 1800s and into the last 1900s. By 1850s the region witnessed the influx of more settler communities which triggered settler wars between the African chiefdoms and the incoming Afrikaner settlers. Some of these colonial wars and battles lasted into Anglo-Boer wars of 1899-1902. The later effectively led to complete subjugation of African communities to settler administration starting as part of the Zuid-Afrikaansche Republiek (ZAR) of

Transvaal. There after the region was subsequently annexed by the British and effectively placed the majority of African communities under the Union of South Africa in 1910, which eventually ended with the establishment of the new South Africa in 1994.

5.1. Intangible Heritage

As defined in terms of the UNESCO Convention for the Safeguarding of the Intangible Cultural Heritage (2003) intangible heritage includes oral traditions, knowledge and practices concerning nature, traditional craftsmanship and rituals and festive events, as well as the instruments, objects, artefacts, and cultural spaces associated with group(s) of people. Thus, intangible heritage is better defined and understood by the particular group of people that uphold it. In the present study area, very little intangible heritage remains because no historically known groups occupied the study area and most of the original settler descendants moved away from the area.

5.2. SAHRIS Database and Impact Assessment Reports in the Project Area

Several Phase 1 Heritage Impact Studies were conducted in the general vicinity of the study area. The studies include powerline project completed by Prins (2013). No sites were recorded, but the report mentions that structures older than 60 years occur in the area, Prins (2013a, 2013b, 2013c, 2015a & 2015b, 2016) for a township development survey also recorded no sites. Murimbika and Mlilo (2014) noted graves located within homesteads. Prins (2013a, 2013b, 2013c, 2015) recorded no sites in a project area. The SAHRIS Palaeosensitivity Map indicates that the area has low to medium sensitivities (Van Schalkwyk 2015). Fossil bearing strata may occur in the general area, but are unlikely to occur in primary contexts within the Lovu paleo-channel deposits or the tertiary dune cordon.

6. RESULTS OF THE ARCHAEOLOGICAL/HERITAGE ASSESSMENT STUDY

The main cause of impacts to archaeological sites is direct, physical disturbance of the archaeological remains themselves and their contexts. It is important to note that the heritage and scientific potential of an archaeological site is highly dependent on its geological and spatial context. This means that even though, for example a deep excavation may expose buried archaeological sites and artefacts, the artefacts are relatively meaningless once removed from their original position. The severe impacts are likely to occur during clearance, construction of access roads and other amenities for the mine as well as foundations of buildings, indirect impacts may occur during movement of mining equipment and vehicles. The excavation and clearance of top soil will result in the relocation or destruction of all existing surface heritage material. Similarly, the clearing of access roads will impact material that lies buried beneath the surface. Since heritage sites, including archaeological sites, are non-renewable, it is important that they are identified, and their significance assessed prior to construction. It is important to note, that due to the localised nature of archaeological resources, that individual archaeological sites could be missed during the survey, although the probability of this is very low within the proposed pipe line route. Further, archaeological sites and unmarked graves may be buried beneath the surface and may only be exposed during construction. The purpose of the AIA is to assess the sensitivity of the proposed development route in terms of archaeology and to avoid or reduce the potential impacts of the proposed pipe line development by means of mitigation measures (see appended Chance Find Procedure). The study concludes that the impacts will be negligible since the site has previously been cleared for corn fields and associated infrastructure such as irrigation infrastructure and farm roads. The following section presents results of the field survey.

6.1. Green Alternative pipeline route

6.1.1. Archaeological and Heritage Sites

The proposed pipeline route did not yield any verifiable archaeological sites or material. The affected landscape is heavily degraded from previous and current agricultural land use and road works (see Plate 1-9). This limited the chances of encountering significant *in situ* archaeological sites. There are residential, commercial cane fields, grazing land, bulk water pipelines and pipelines, roads and other associated infrastructures across the entire project area. As such the proposed development will be an additional development on the project area (Figure 1, also see Plates 1 to 9). The chances of recovering significant archaeological materials were seriously compromised and limited due to destructive land use patterns such as deep ploughing for sugar cane and infrastructure such as bulk water pipelines, road works and residential areas that already exist on the project area.

Based on the field study results and field observations, the author concluded that the receiving environment for the proposed development has low to medium potential to yield previously unidentified archaeological sites during subsurface excavations and construction work associated with the proposed sewer pipeline development.

6.1.2. Historical Buildings and Structures

The Green Alternative pipeline route runs in the vicinity historical buildings and steel bridge which currently being renovated. The study confirmed that none of these historical structures and buildings will be affected by the proposed pipeline route.

6.1.3. Burial grounds and graves

Human remains and burials are commonly found close to archaeological sites; they may be found in abandoned and neglected burial sites, or occur sporadically anywhere as a result of prehistoric activity, victims of conflict or crime. It is often difficult to detect the presence of archaeological human remains on the landscape as these burials, in most cases, are not marked at the surface. Archaeological and historical burials are usually identified when they are exposed through erosion and earth moving activities for infrastructure developments such as power lines and roads. In some instances, packed stones or stones may indicate the presence of informal pre-colonial burials. Burial grounds and gravesites are accorded the highest social significance threshold (see Appendix 3). They have both historical and social significance and are considered sacred. Wherever they exist or not, they may not be tampered with or interfered with during any development.

The proposed Green Alternative pipeline route runs in the vicinity of a previously recorded cemetery. It is the considered opinion of the author that the proposed Green Alternative pipeline route will not affect the cemetery in any way. However, it is however important to note that the possibility of encountering human remains during subsurface earth moving works anywhere on the landscape is ever present. Although the possibility of encountering previously unidentified burial sites is low on the proposed Green Alternative pipeline route, should such sites be identified during subsurface construction work, they are still protected by applicable legislations and they should be protected (also see Appendices for more details).

6.1.4. Historical Monuments and Memorials

The study did not record any historical monument and memorial plaques along the proposed sewer pipeline route.

6.1.5. Mitigation Measures

No mitigation is required before construction of the sewer pipeline, however, the chance find procedure still applies.

6.1.6. Cumulative Impacts

The European Union Guidelines define cumulative impacts as: "Impacts that result from incremental changes caused by other past, present or reasonably foreseeable actions together with the project. Therefore, the assessment of cumulative impacts for the proposed development is considered the total impact associated with the proposed development when combined with other past, present, and reasonably foreseeable future developments projects. An examination of the potential for other projects to contribute cumulatively to the impacts on heritage resources from this proposed development was undertaken during the preparation of this report. The total impact arising from the proposed project (under the control of the applicant), other activities (that may be under the control of others, including other developers, local communities, government) and other background pressures and trends which may be unregulated. The project's impact is therefore one part of the total cumulative impact on the environment. The analysis of a project's incremental impacts combined with the effects of other projects can often give a more accurate understanding of the likely results of the project's presence than just considering its impacts in isolation. The impacts of the proposed development were assessed by comparing the post-project situation to a pre-existing baseline. Where projects can be considered in isolation, this provides a good method of assessing a project's impact. However, in this case there are several infrastructure developments, including agricultural activities where baselines have already been affected, the proposed development will continue to add to the impacts in the region, it was deemed appropriate to consider the cumulative effects of proposed development.

This section considers the cumulative impacts that would result from the combination of the proposed development. There are existing infrastructure developments and agriculture activities within the proposed development site. As such increased development in the project area will have a number of cumulative impacts on heritage resource whether known or covered in the ground. For example, during the construction phase there will be an increase in human activity and movement of heavy construction equipment and vehicles that could change, alter or destroy heritage resources within and outside the development sites, given that archaeological remains occur on the surface. Cumulative impacts that could result from a combination of the proposed development and other actual or proposed future developments in the broader study area include site clearance and the removal of topsoil could result in damage to or the destruction of heritage resources that have not previously been recorded for example abandoned and unmarked graves.

Heritage resources often occur beneath the surface and are accidentally exposed during infrastructure developments. In addition, increased human activity during the construction phase allows increased access to heritage resources that may be located in the vicinity of the project site. Furthermore, heritage resources in the greater study area may still be hidden beneath the ground or concealed by vegetation cover and may not be visible, particularly during the wet season when grass cover is dense. As such, construction workers may not see

these resources, which results in increased risk of resource damage and/or loss. Vibrations and earth moving activities associated with drilling and excavation have the potential to crack/damage rock art covered surfaces, which are known to occur in the general project area. In addition, vibration from traffic has the potential to impact buildings and features of architectural and cultural significance. A potential interaction between archaeology, architectural and cultural heritage and landscape and visual during both the construction and operational phase of the proposed project is identified. Developments in the project area may result in a visual impact and impact on features of architectural and cultural significance. Construction works associated with the provision of material assets such as gravel, in particular underground works have the potential to interact with archaeology, architectural and cultural heritage.

No specific paleontological resources were found in the project area during the time of this study; however, this does not preclude the fact that paleontological resources may exist within the surrounding areas. As such, the proposed development has the potential to impact on possible paleontological resources in the area. Sites of archaeological, paleontological, or architectural significance were not specifically identified and cumulative effects are not applicable. The nature and severity of the possible cumulative effects may differ from site to site depending on the characteristics of the sites and variables.

Cumulative impacts refer to additional impacts, which even if acceptable if considered in isolation, would together with the existing impacts, exceed the threshold of acceptability and cause harm to the cultural landscape. Cumulative impacts that need attention are related to the impacts of access roads and impacts to buried heritage resources. Allowing the impact of the proposed development to go beyond the surveyed area would result in a significant negative cumulative impact on sites outside the surveyed area. A significant cumulative impact that needs attention is related to stamping by especially construction vehicles during clearance and excavation within the development sites. Movement of heavy construction vehicles must be monitored to ensure they do not drive beyond the approved sites. No significant cumulative impacts, over and above those already considered in the impact assessment, are foreseen at this stage of the assessment process. Cumulative impacts can be significant, if construction vehicles are not monitored to avoid driving through undetected heritage resources.

7. DISCUSSION

Desktop study confirmed that several Heritage specialist studies were conducted in the study area since 2007. The studies were conducted for various infrastructure developments such as powerlines and substations, pipelines, and residential developments. These studies did not record any sites of significance for example, Anderson (2005), Prins (2013a, 13b, 13c, 2015, 2016 & 2016) Murimbika and Mlilo (2014, 2018a & b), Nemai (2013), Tomose (2015) and Van Schcalwyk and Wahl (2014). Therefore, the current study should be read in conjunction with previous Phase 1 Impact Studies conducted in the proposed project area.

No archaeological sites were recorded on all proposed development site. The lack of confirmable archaeological sites recorded during the current survey is thought to be a result of three primary interrelated factors:

1. That proposed pipeline route is situated within a heavily degraded area, and have reduced sensitivity for the presence of high significance physical cultural site remains, be they archaeological, historical, or burial sites, due to previous and current sugar cane production and earth moving disturbances resulting from developments and other land uses in the project area.
2. That the survey focused on sample sections that had high potential to yield possible archaeological sites. Due to the length of route, it was impractical to cover every inch of the pipeline route. As such, there is a possibility that low to medium archaeological sites exist in the project area whereas the sampled sections fell outside sections with potential distinct archaeological sites.
3. Limited ground surface visibility on sections of all the proposed pipeline that were not cleared at the time of the study may have impeded the detection of other physical cultural heritage site remains or archaeological signatures immediately associated with the proposed development site. This factor is worsened by the fact that the study was limited to general survey without necessarily conducting any detailed inspection of specific locations that will be affected by any proposed sewer pipeline development.

The absence of confirmable and significant archaeological cultural heritage site is not evidence in itself that such sites did not exist in the project area. It may be that, given the dense development in most sections of the sites, if such sites existed before, changing earth-moving activities may have destroyed their evidence on the surface (see appended Chance Find Procedure). Furthermore, some sections were not accessible due to sugar cane cover and thick vegetation cover. Significance of the Sites of Interest is not limited to presence or absence of physical archaeological sites. This discovery of historical building testifies to the significance of the project area as a cultural landscape of note, which has discernible links to local oral history and folk stories, environmental and ethnobotanical aesthetics, popular memories etc. associated with significance emanating from intangible heritage of the region.

8. CULTURAL HERITAGE SITE 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.

Not all sites are equally significant and not all are worthy of equal consideration and management. The significance of a place is not fixed for all time, and what is considered of significance at the time of assessment

may change as similar items are located, more research is undertaken and community values change. This does not lessen the value of the heritage approach, but enriches both the process and the long-term outcomes for future generations as the nature of what is conserved and why, also changes over time (Pearson and Sullivan 1995:7).

African indigenous cultural heritage significance is not limited to items, places or landscapes associated with pre-European contact. Indigenous cultural heritage significance is understood to encompass more than ancient archaeological sites and deposits, broad landscapes, and environments. It also refers to sacred places and story sites, as well as historic sites, including mission sites, memorials, and contact sites. This can also refer to modern sites with resonance to the indigenous community. The site of interest considered in this project falls within this realm of broad significance.

9. STATEMENT OF SIGNIFICANCE

9.1. Aesthetic Value

The aesthetic values of the proposed development site and the overall project area are contained in the valley bushveld environment and landscape typical of this part of the KZN Province. The visual and physical relationship between study area and the surrounding historical Cultural Landscape demonstrates the connection of place to the local and oral historical stories of the African communities who populated this region going back into prehistory.

The proposed development will be situated within an environment and associated cultural landscape, which, although developed by existing settlements, remains representative of the original historical environment and cultural landscape of this part of KZN area. The local communities consider the project area a cultural landscape linked to their ancestors and history. However, the proposed developments will not alter this aesthetic value in any radical way since it will add to the constantly changing and developing settlements.

9.2. Historic Value

The Indigenous historic values of the Sites of Interest and overall study area are contained in the claim of possible historic homesteads being located on the affected area. The history of generations of the Zulu clans is tied to this geographical region. Such history goes back to the pre-colonial period, through the colonial era, the colonial wars and subsequent colonial rule up to modern day KZN Province. However, no confirmation of any prehistoric settlements were recorded within the proposed project site.

9.3. Scientific value

Past settlements and associated roads, mines and other auxiliary infrastructure developments and disturbance within the HIA Study Area associated with the proposed development has resulted in limited intact landscape with the potential to retain intact large scale or highly significant open archaeological site deposits.

9.4. Social Value

The project sites fall within a larger and an extensive KZN cultural landscape that is integrated with the wider inland south west KZN. The overall area has social value for the local community, as is the case with any populated landscape. Literature review suggests that social value of the overall project area is also demonstrated through local history which associates the area with the rise of Shaka's Zulu Kingdom in the early 1800s from the east coast, the subsequent Mfecane, the African struggle against settler colonialism in the second half of the 1800s and at the end of the 1800s, the colonial wars of resistance, the century long struggle for democracy that followed colonial subjugation. Several generations of communities originate from the project area and continue to call it home. As such, they have ancestral ties to the area. The land also provides the canvas upon which daily socio-cultural activities are painted. All these factors put together confirms the social significance of the project area. However, this social significance is unlikely to be negatively impacted by the proposed development especially given the fact that the development will add value to the human settlements and activities already taking place.

Sections of the proposed development site are covered in thick bush and vegetation retain social value as sources of important herbs and traditional medicines. As such, they must be considered as significant social value sites.

10. RECOMMENDATIONS

The study did not record any confirmable archaeological remains on the direct footprint of the pipeline route. As such, the study, did not find any permanent barriers to the proposed sewer pipeline development. The following recommendations are based on the results of the A/HIA research, cultural heritage background review, site inspection and assessment of significance. Based on the findings of this study, the proposed sewer line for the TEA site is feasible from an archaeological perspective. The project may be approved subject to the following recommendations:

- Overall, impacts to heritage resources are not considered to be significant for the project receiving environment. It is thus concluded that the project may be cleared to proceed as planned subject to the Heritage Authority ensuring that a detailed heritage monitoring procedures are included in the project EMP for the construction phase, include chance archaeological finds mitigation procedure in the project EMP.
- The chance finds process will be implemented when necessary especially when archaeological materials and burials are encountered during subsurface construction activities.
- If archaeological materials are uncovered, work should cease immediately and the Amafa aKwaZulu Natali be notified and activity should not resume until appropriate management provisions are in place.
- If during the construction or operations phases of this project, any person employed by the developer (Dube Trade Port Corporation), one of its subsidiaries, contractors and subcontractors, or service provider, finds any artifacts of cultural significance, work must cease at the site of the find and this person must report this find to their immediate supervisor, and through their supervisor to the senior on-site manager.
- The site manager must then make an initial assessment of the extent of the find, and confirm the extent of the work stoppage in that area before informing Amafa aKwaZulu Natali
- If a human grave/burial is encountered, the remains must be left as undisturbed as possible before the local police and Amafa AkwaZulu Natali are informed. If the burial is deemed to be over 60 years old and no foul play is suspected, an emergency rescue permit may be issued by Amafa aKwaZulu Natali for an archaeologist to exhume the remains.
- The Project Public Participation Process should ensure that any cultural heritage related matters for this project are given due attention whenever they arise and are communicated Amafa aKwaZulu Natali throughout the proposed sewer pipeline development. This form of extended community involvement would pre-empt any potential disruptions that may arise from previously unknown cultural heritage matter that may have escaped the attention of this study.
- The findings of this report, with approval of the Amafa aKwaZulu Natali, may be classified as accessible to any interested and affected parties within the limits of the laws.

11. CONCLUDING REMARKS

The literature review and field research confirmed that the project area is located within active cane plantations which are degraded by existing sugar cane production, settlements and associated infrastructure developments. Although the area is heavily altered, the potential of encountering heritage resources hidden beneath the surface still exist. In terms of the archaeology and heritage, with respect to the proposed pipeline route, there are no obvious 'Fatal Flaws' or 'No-Go' areas. No archaeological sites were recorded along all the three proposed pipeline routes. The field survey established that the affected project area is degraded by agriculture activities and associated infrastructure. Although the area is degraded, there is still a possibility of encountering archaeological remains especially during excavation for pipeline trenches and access roads. This report concludes that the proposed pipeline route may be approved by Amafa aKwaZulu Natali to proceed as planned subject to recommendations herein made.

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13. APPENDIX 1: HERITAGE MANAGEMENT PLAN INPUT INTO THE PROPOSED SEWER PIPELINE DEVELOPMENT PROJECT EMP

Objective	<ul style="list-style-type: none"> • Protection of archaeological sites and land considered to be of cultural value; • Protection of known 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								
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 be found on development site, a registered heritage specialist or Amafa official must be called to site for inspection.		Throughout	C CECO	SM	ECO	EA EM PM
		Under no circumstances may any archaeological, historical or any physical cultural property heritage material be destroyed or removed from 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.		When necessary	C CECO	SM	ECO	EA EM PM
		Should any remains be found on site that is potentially human remains, the Amafa 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.						

1. APPENDIX 2: LEGAL BACKGROUND AND PRINCIPLES OF HERITAGE RESOURCES MANAGEMENT IN SOUTH AFRICA

Extracts relevant to this report from the National Heritage Resources Act No. 25 of 1999, (Sections 5, 36 and 47):

General principles for heritage resources management

5. (1) All authorities, bodies and persons performing functions and exercising powers in terms of this Act for the management of heritage resources must recognise the following principles:

(a) Heritage resources have lasting value in their own right and provide evidence of the origins of South African society and as they are valuable, finite, non-renewable and irreplaceable they must be carefully managed to ensure their survival;

(b) every generation has a moral responsibility to act as trustee of the national heritage for succeeding generations and the State has an obligation to manage heritage resources in the interests of all South Africans;

(c) Heritage resources have the capacity to promote reconciliation, understanding and respect, and contribute to the development of a unifying South African identity; and

(d) Heritage resources management must guard against the use of heritage for sectarian purposes or political gain.

(2) To ensure that heritage resources are effectively managed—

(a) The skills and capacities of persons and communities involved in heritage resources management must be developed; and

(b) Provision must be made for the ongoing education and training of existing and new heritage resources management workers.

(3) Laws, procedures and administrative practices must—

(a) Be clear and generally available to those affected thereby;

(b) In addition to serving as regulatory measures, also provide guidance and information to those affected thereby; and

(c) Give further content to the fundamental rights set out in the Constitution.

(4) Heritage resources form an important part of the history and beliefs of communities and must be managed in a way that acknowledges the right of affected communities to be consulted and to participate in their management.

(5) Heritage resources contribute significantly to research, education and tourism and they must be developed and presented for these purposes in a way that ensures dignity and respect for cultural values.

(6) Policy, administrative practice and legislation must promote the integration of heritage resources conservation in urban and rural planning and social and economic development.

(7) The identification, assessment and management of the heritage resources of South Africa must—

(a) Take account of all relevant cultural values and indigenous knowledge systems;

- (b) Take account of material or cultural heritage value and involve the least possible alteration or loss of it;
- (c) Promote the use and enjoyment of and access to heritage resources, in a way consistent with their cultural significance and conservation needs;
- (d) Contribute to social and economic development;
- (e) Safeguard the options of present and future generations; and
- (f) Be fully researched, documented and recorded.

Burial grounds and graves

36. (1) where it is not the responsibility of any other authority, SAHRA must conserve and generally care for burial grounds and graves protected in terms of this section, and it may make such arrangements for their conservation as it sees fit.

(2) SAHRA must identify and record the graves of victims of conflict and any other graves which it deems to be of cultural significance and may erect memorials associated with the grave referred to in subsection (1), and must maintain such memorials.

(3) (a) No person may, without a permit issued by SAHRA or a provincial heritage resources authority—

(a) destroy, damage, alter, exhume or remove from its original position or otherwise disturb the grave of a victim of conflict, or any burial ground or part thereof which contains such graves;

(b) destroy, damage, alter, exhume, remove from its original position or otherwise disturb any grave or burial ground older than 60 years which is situated outside a formal cemetery administered by a local authority; or

(c) bring onto or use at a burial ground or grave referred to in paragraph (a) or (b) any excavation equipment, or any equipment which assists in the detection or recovery of metals.

(4) SAHRA or a provincial heritage resources authority may not issue a permit for the destruction or damage of any burial ground or grave referred to in subsection (3)(a) unless it is satisfied that the applicant has made satisfactory arrangements for the exhumation and re-interment of the contents of such graves, at the cost of the applicant and in accordance with any regulations made by the responsible heritage resources authority.

(5) SAHRA or a provincial heritage resources authority may not issue a permit for any activity under subsection (3)(b) unless it is satisfied that the applicant has, in accordance with regulations made by the responsible heritage resources authority—

(a) made a concerted effort to contact and consult communities and individuals who by tradition have an interest in such grave or burial ground; and

(b) reached agreements with such communities and individuals regarding the future of such grave or burial ground.

(6) Subject to the provision of any other law, any person who in the course of development or any other activity

discovers the location of a grave, the existence of which was previously unknown, must immediately cease such activity and report the discovery to the responsible heritage resources authority which must, in co-operation with the South African Police Service and in accordance with regulations of the responsible heritage resources authority

(a) carry out an investigation for the purpose of obtaining information on whether or not such grave is protected in terms of this Act or is of significance to any community; and

(b) if such grave is protected or is of significance, assist any person who or community which is a direct descendant to make arrangements for the exhumation and re-interment of the contents of such grave or, in the absence of such person or community, make any such arrangements as it deems fit.

(7) (a) SAHRA must, over a period of five years from the commencement of this Act, submit to the Minister for his or her approval lists of graves and burial grounds of persons connected with the liberation struggle and who died in exile or as a result of the action of State security forces or agents provocateur and which, after a process of public consultation, it believes should be included among those protected under this section.

(b) The Minister must publish such lists as he or she approves in the Gazette.

(8) Subject to section 56(2), SAHRA has the power, with respect to the graves of victims of conflict outside the Republic, to perform any function of a provincial heritage resources authority in terms of this section.

(9) SAHRA must assist other State Departments in identifying graves in a foreign country of victims of conflict connected with the liberation struggle and, following negotiations with the next of kin, or relevant authorities, it may re-inter the remains of that person in a prominent place in the capital of the Republic.

General policy

47. (1) SAHRA and a provincial heritage resources authority—

(a) must, within three years after the commencement of this Act, adopt statements of general policy for the management of all heritage resources owned or controlled by it or vested in it; and

(b) may from time to time amend such statements so that they are adapted to changing circumstances or in accordance with increased knowledge; and

(c) must review any such statement within 10 years after its adoption.

(2) Each heritage resources authority must adopt for any place which is protected in terms of this Act and is owned or controlled by it or vested in it, a plan for the management of such place in accordance with the best environmental, heritage conservation, scientific and educational principles that can reasonably be applied taking into account the location, size and nature of the place and the resources of the authority concerned, and may from time to time review any such plan.

(3) A conservation management plan may at the discretion of the heritage resources authority concerned and for a period not exceeding 10 years, be operated either solely by the heritage resources authority or in conjunction

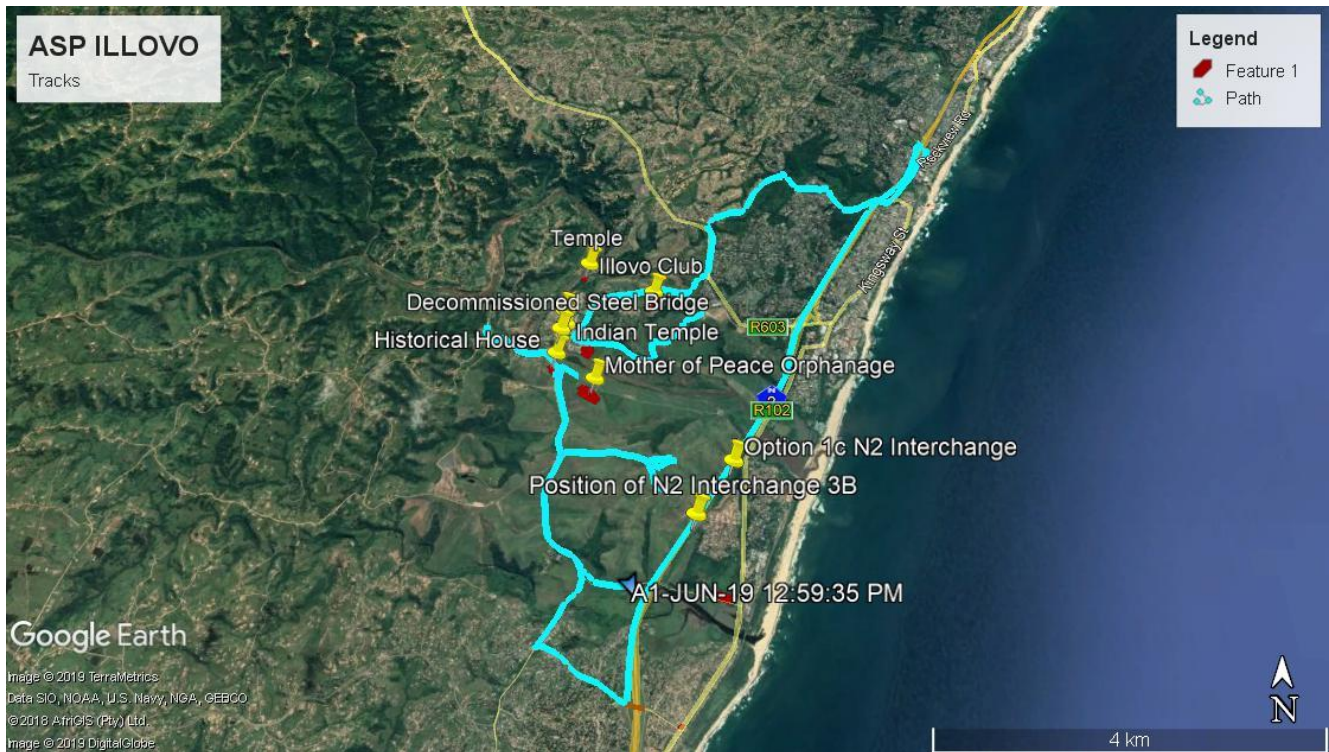
with an environmental or tourism authority or under contractual arrangements, on such terms and conditions as the heritage resources authority may determine.

(4) Regulations by the heritage resources authority concerned must provide for a process whereby, prior to the adoption or amendment of any statement of general policy or any conservation management plan, the public and interested organisations are notified of the availability of a draft statement or plan for inspection, and comment is invited and considered by the heritage resources authority concerned.

(5) A heritage resources authority may not act in any manner inconsistent with any statement of general policy or conservation management plan.

(6) All current statements of general policy and conservation management plans adopted by a heritage resources authority must be available for public inspection on request.

14. APPENDIX 3: TRACK LOGS



15. APPENDIX 4: CV OF THE ARCHAEOLOGIST (TRUST MLILO)

PERSONAL INFORMATION

PASPORT NUMBER	CN990423				
RSA PERMIT	South African Permanent Resident				
TITLE	Mr.	SURNAME	Miilo	FIRST NAME	Trust
GENDER	Male			DATE OF BIRTH	10 July 1969
CONTACT	Email: trust.mliilo@gmail.com; Tel: +27 (0) 11 037 1565 (Bus) +27 71 685 9247 (Mobile)				
ADDRESSES	Bus. Physical: 65 Naaldehout Avenue, Heuweloord, Centurion, 0157 Cell: Fax: 086 652 9774 Web Site: www.sativatec.co.za				
QUALIFICATION: MA (ARCHAEOLOGY), BA Hons (Archaeology), [Univ. of Pretoria, Pretoria], PDGE, BA (Archaeology) UZ					

• BRIEF PROFILE

Mr Trust Miilo

Mr Trust Miilo is the Archaeology/Heritage specialist at Sativa Travel and Environmental Consultants (Pty) Ltd. He is professional member of ASAPA and listed as an archaeologist and heritage specialist by Amafa aKwaZulu Natal and Eastern Cape Provincial Heritage Resources Agency (ECPHRA). Prior to joining SATIVATEC (Pty) Ltd, Trust Miilo served as the Archaeologist and Heritage Manager at Nzumbululo Heritage Solutions (RSA Ltd.) [www.nzumbululo.com]. He has also collaborated in a number of archaeological and Heritage work with Siyathembana 293Trading (Pty) Ltd, Finishing Touch (Pty) Ltd, Vhubvo Archaeo Heritage (Pty) Ltd. And Integrated Specialist Services (Pty) Ltd. He is a professional heritage manager and research consultant with more than 15 years of practice and experience in archaeology, heritage management and education management. He has vast experience in Heritage Impact Assessments, Heritage induction, public consultations, monitoring and pre construction heritage mitigation. He has worked as a researcher in Heritage development and nomination of heritage sites such as Nelson Mandela Legacy sites, Shembe sites and Delmas Treason Trial just to mention a few. He has attended and participated in several academic and professional symposiums and conferences.

Mr Miilo has undertaken and assisted research teams in several projects in Sustainability, Energy & Environment (SEE); Environmental Health and Safety Solutions; Cultural Heritage Development (CHD) and Applied Socio-Economic Research and Enterprise Development [RED]. His willingness to learn has seen him participate as a researcher and coordinator in research teams responsible, for example, in developing a Heritage Management

Plans for O.R Tambo and Chris Hani memorial sites (2016) as well as the Nelson Mandela sites (2014 -2015), Integrated Development Planning (IDP) Environmental Toolkit (Mpumalanga Province [2011]), the Tourism Development Toolkit (Department of Environment and Tourism [2009]), etc. He is also effective in public engagements and consultations and has facilitated in massive grave relocation projects for several mining and infrastructure developments companies such as BHP Billiton 2013-2015 and Rhino Minerals 2009-2014 as well as Eskom and Road Agency Limpopo. He has conducted hundreds of Heritage Impact Assessment projects for Eskom minor reticulation projects in North West Province, KwaZulu Natal, Eastern Cape, Limpopo Province, Mpumalanga, Gauteng and the Free State Province as well as HIAs for various public and private developers (See SAHRIS website for HIA reports registered under Nzumbululo Heritage Solutions [Murimbika and Mlilo as the authors], Sativa and Integrated Specialist Services. The major highlight of his work was the Heritage Impact Assessment for the 700km, 765KV Gamma Kappa and Kappa Omega powerline in the Western Cape. Under Sativa Travel and Environmental Consultants, Mlilo served high profile companies such as GIBB, Afrimat, Eskom and Trans Africa Projects. Trust Mlilo has sound knowledge of heritage permit application processes and heritage mitigation processes. He is also effective in resource mobilization, team building and coordination. In addition, he has vast experience in project presentation and consultation.

• **EDUCATION**

Institution [Date from - Date to]	Degree(s) or Diploma(s) obtained:
University of Pretoria 2013 - 2015	MA in Archaeology
University of Pretoria 2009 – 2010	BA Honours in Archaeology
University of Zimbabwe, 2000	Post Graduate Diploma in Education (History)
University of Zimbabwe (1991-1993)	BA Gen. (Archaeology, African Languages & Linguistics)

LANGUAGE PROFICIENCY (Good, Fair, Poor)

Language	Reading	Speaking	Writing
English	Good	Good	Good
Shona	Good	Good	Good
Ndebele	Good	Good	Fair
Zulu	Fair	Good	Fair
Tsonga	Good	Good	Good
Tshivenda	Poor	Fair	Poor
Sesotho	Poor	Fair	Poor
Setswana	Poor	Fair	Poor
Xhosa	Poor	Fair	Poor
Afrikaans	Beginner's stage		

SKILLS MATRIX

Current Skills levels:

- 1 Had appropriate training only
- 2 Limited practical experience
- 3 Solid practical experience
- 4 Well versed, extensive experience
- 5 Expert, extensive experience

Type of Experience	Experience In months	Date Last used	Skill level
Communication and Marketing	+120	Current	4
Inter-personal and inter-governmental liaison	+120	Current	3
Organizational skills	+120	Current	4
Coordination	+120	Current	5
Facilitation	+120	Current	5
Planning	+120	Current	4
People Management	+120	Current	4
Time Management	+120	Current	5
Computer literacy (MS Office, Project management software, MAC OS)	+120	Current	3
Project management	+120	Current	4

• COMPUTER SKILLS:

- MS Operating System
 - Professional Level Competencies in: MS Word, MS Excel, MS Power-point, PMS Publisher, and Internet.
- Mac Operating System
- Photoshop

ACADEMIC WORKS

- The challenges of cultural heritage management in South Africa: A focus on the Klasies River main site (Pending).

Title of Post-Graduate University Theses & Dissertations:

- **Master in Archaeology** (2013-2015), University of Pretoria) Management of the Klasies River main site along the Tsitsikamma Coast in the Eastern Cape Province.
- **BA Hons in Archaeology**. (2010, University of Pretoria): Comparison of conservation of archaeological sites under the jurisdiction of museums and sites in rural locations, the case BaKoni Malapa and Mahumane Late Iron Age sites in Limpopo Province.
- **Post Graduate Diploma in Education**. (2000, University of Zimbabwe): An assessment of attitudes towards use of media in the teaching of History in Secondary schools in Gweru, Zimbabwe

Selected Seminars, Lectures & Conference Papers

July 2014: Pan Africanist Archaeologist Conference. Johannesburg, South Africa Paper to be presented:

- *The challenges of heritage management in South Africa: A focus on the Klasies River main site.*

• WORK & PROFESSIONAL EXPERIENCE

PERIOD: 2015 to Present: Archaeologist/Heritage Manager at Sativa Travel and Environmental Consultants (Pty) Ltd [Web Site: www.sativatec.co.za] and emerging consultancy with highly experienced Heritage, Palaeontology and Ecology/Biodiversity Specialists. Sativa (Pty) Ltd 's main focus is to provide quality specialist services in Environmental and Heritage Management. Sativa (Pty) Ltd team has successfully completed a significant number of projects and is looking forward to building its profile in both Environmental and Heritage Management. The major clients are Gibb Science and Research, Afrimat, Trans Africa Projects, Kimopax, Mawenje Consulting and Road Agency Limpopo. The following is a list of selected projects completed at Sativa (Pty). Ltd

- **ESKOM:** HIA study for the household electrification infrastructure of the proposed 22kv powerline for Norlim-Taung (15km) and Norlim Dikhuting (13km) in the Buxton area (Taung World Heritage Site) Greater Taung Municipality, North West Province.
- **GIBB:** HIA for proposed Assen / Tambotie Mining Right Application for the development of the Assen / Tambotie mine in Madibeng Local Municipality of North West Province
- HIA for proposed Eskom 13,5km, 132kv Randfontein Northern Strategy Power line and associated substations in Mogale City and Rand West City Local Municipalities of Gauteng Province
- HIA for proposed Eskom 132kv Westgate.Tarlton Power line in Mogale City and Rand West City Local Municipalities of Gauteng Province: Archaeological and Heritage Impact Assessment Report
- Phase 1 Heritage Impact Assessment for Eskom's proposed 11.065km 22kV Phase 3 Ngqeleni Electrification in Nyandeni Local Municipality of Eastern Cape Province
- HIA for proposed Eskom Wolvekrans Substation and 132kv Powerline in Mogale City and of Gauteng Province:
- HIA for Proposed Zandrivers Drift Mining Right Application in Madibeng Local Municipality of North West Province

- Phase 1 Heritage Impact Assessment for Eskom's proposed Kwazamoxolo normalization power line development at Noupoort in Umsobomvu Local Municipality, Northern Cape Province.
- Phase 1 Heritage Impact Assessment for Eskom's proposed 0.659km 22kv Murraysburg powerline move in the Pixley Ka Seme District Municipality, Northern Cape Province
- A Phase 1 Heritage Impact Assessment for the proposed, Tubatse Special Economic Zone in Burgersfort, Limpopo, under the jurisdiction of the Greater Tubatse Local Municipality of Limpopo Province.
- A Phase 1 Heritage Impact Assessment for the proposed construction of a new 20ML/D Pump station and bulk water pipe line in Middleburg, Steve Tshwete Local Municipality in Mpumalanga Province.
- A Phase 1 Heritage Impact Assessment for the proposed 5.5km 88kV power line and substation in Johannesburg Metropolitan Municipality, Gauteng Province.

PERIOD: 2008 to 2014: Archaeologist and Heritage Manager – Nzumbululo Holdings Limited [www.nzumbululo.com] (dynamic and market-leading consultancy providing innovative solutions in Applied Social-Economic Research and Enterprise Development services, Cultural Heritage Development, Sustainability, and Energy & Environment, Environmental Health and Safety).

Specialist Responsibilities: Assist in Project Management, fieldwork, community consultation and report compilation.

- Researcher for heritage and cultural landscape management projects that involve cultural resources management, heritage conservation management planning, heritage and environmental impact assessment, basic assessment, project management, public participation coordination, predevelopment planning specialists input coordination and liaison with compliant agencies such as government departments.

CORPORATE RESPONSIBILITIES

None

• **SPECIALIST POSITIONS AND PROFESSIONAL CONSULTANCY EXPERIENCE**

2007 - 2014 Archeological and Heritage Impact Assessment Studies

Have participated in phase 1 (scoping studies) to Phase 2 and 3 heritage and archeological impact assessment studies (mitigation excavations, rescue or salvage excavation and monitoring studies) for infrastructural developments including, powerlines, roads and other developments. The HIA and AIA portfolio during this period amounts to more than 300 projects across all nine provinces of South Africa and neighboring countries with an estimated value in excess of Million Rands in professional specialist's fees and billions in associated project budgets.

January 2008 – 2014: Environmental and Heritage Impact Assessment Study for Eskom SOC Limited 765kV Powerline Development Northern to Western Cape Provinces.

Field Archaeologist and Assistant Heritage Manager: Environmental Authorisation (EIA) and Heritage Impact Assessment (HIA) studies for Eskom SOC Transmission Gamma-Kappa & Kappa-Omega 765kV Powerlines Development in Northern & Western Cape Provinces in South Africa 2012-14. The Field archaeologist and heritage manager responsibilities involve coordinating a team of 4 (Archaeology, Palaeontology, Visual and Cultural Landscapes and Built Environment). This power transmission project is one of the largest and strategic transmission projects Eskom has ever embarked on in the past two decades.

July 2011 – March 2012: Research, Deign and Development of the Delmas Treason Trials Commemorative Monument Project at Delmas Magistrate’s Court, Mpumalanga Province.

Project Heritage Manager and Research Assistant for archival, oral and historical research on the 1985-1989 Delmas 22 and 1989 Delmas 4 Treason Trials (the last of the infamous apartheid treason trials). The project entails detailed legal history on treason trials, conceptualise, design and develop and commission a public commemorative monument in honour of the treason Trialists. Hundreds of hours of digital recordings of interviews with legal struggle icons such as George Bizos, the late Justice Arthur Chaskalson, Advocate Gcina Malindi, Justice Yacob, former Premier Popo Molefe and all surviving Delmas trialists and their families were collected, project report was generated and South Africa’s first monument dedicated to commemoration of treason trials was developed and unveiled in March 2012 at Delmas Court in Delmas Town, Mpumalanga.

2009 – October 2010: eThekwini Metropolitan Shembe Baptist Nazareth Church Cultural Landscape Project

Commissioned by the eThekwini Metro Council as **Assistant Heritage Manager and Research Assistant** for the eThekwini Metropolitan Shembe Baptist Nazareth Church Cultural Landscape Project. The project involved conducting historical research into the evolution of Shembe Church, one of Africa’s older and continuous independent churches that were founded by Isaiah Shembe in 1910. The second object was to propose, nominate the Shembe Cultural Landscape as Provincial Heritage Site under the protection of provincial and national heritage laws. The project closed with development of the cultural heritage Conservation Management Plan and nomination of Shembe cultural Landscape as Provincial Heritage Site (Nomination Approved by the KwaZulu Natal Provincial Heritage Council (Amafa Council) on October. 18 2010).

2008- 2009: Mpumalanga Province Greening, Heritage and Greening Mpumalanga Flagship Program Management Unit [PMU]

Research Assistant (Heritage) for the Mpumalanga Provincial Government commissioned Mpumalanga Province Greeting, Heritage and Greening Mpumalanga Flagship Program Management Unit [PMU]. Mr Mliilo assisted in archaeological and heritage components of the project.

- **AUXILIARY PROFESSIONAL EXPERIENCE**

1996-2006: ‘O’ and ‘A’ Level History Examiner (Ministry of Education in collaboration with Cambridge University, UK).

- **AUXILLIARY SPECIALIST SKILLS**

Key Management skills

- Applied Environment & Heritage Management Research
- Sustainable development programmes assessment.
- Project Management
- Adult Education

Other skills

- Performance management
- Public Finance Management
- School administration and teaching
- Professional Archaeologist.

- **PROFESSIONAL AFFILIATIONS**

- **Member of Association of Southern African Professional Archaeologists** (ASAPA) No.396. Accredited by Amafa akwaZulu Natali and Eastern Cape Provincial Heritage Agency

- **REFEREES**

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