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**A REPORT ON THE ARCHAEOLOGICAL IMPACT ASSESSMENT OF
VARIOUS QUARRY, STOCKPILE, ROAD CONSTRUCTION CAMPS, BORROW
PITS, DAM CONSTRUCTION CAMP SITES & OTHER
ASSOCIATED INFRASTRUCTURE RELATED TO THE NWAMITWA DAM
DEVELOPMENT PROJECT, LIMPOPO PROVINCE**

For:

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REPORT: APAC016/38

Project Reference Number: SZ/CE/Mop/EIA/02

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SUMMARY

APelser Archaeological Consulting (APAC) was appointed by C&K Environmental Services (Pty) Ltd, as part of the Construction of Nwamitwa Dam & Associated Infrastructure Development Project, to handle all matters pertaining to exhumation and relocation of graves, permits to relocate graves and implement recommendations of the previous heritage impact assessment (HIA) report submitted by Dr.J. van Schalkwyk (**See References for Report details**). As part of the current work, and prior to the required fieldwork, APELSER was requested to scrutinize the earlier reports and findings to properly identify and describe not only the grave sites that will be impacted, but also the other cultural heritage (archaeological & historical) sites identified and recorded by Van Schalkwyk. A preliminary report was submitted (**See APAC016/08**) to provide information on the processes that need to be followed and adhered to in order to successfully undertake the consultation related work in terms of the graves, obtain the necessary legal permits to exhume and relocated the impacted graves, as well as the negatively impacted archaeological resources.

A total of 26 archaeological and historical sites (including 8 grave sites) were identified and recorded by Van Schalkwyk during earlier work for the proposed dam development in the area. Based on the results of the previous Heritage work in the area and the report submitted it was recommended that the proposed development be allowed to continue, taking into consideration a number of recommendations for mitigation measures put forward. This included the exhumation & relocation of the impacted grave sites, and the more detailed archaeological investigation of some of the Iron Age & Stone Age sites identified.

The March 2016 fieldwork focused on the sites identified and recorded by Van Schalkwyk, and aimed at doing more detailed recording (i.e. determining the exact number of graves associated with each site; determining the extent & significance of the various archaeological/historical sites) of the already known sites, as well as to record any other unknown heritage sites and features. The final report on the March 2016 fieldwork (**See APAC016/20**) discussed the results of the field survey and also provided recommendations on the way forward in terms of the processes to be followed for the grave exhumations & relocations, as well as the mitigation work required on the various archaeological sites.

In June 2016 a second field assessment was undertaken to assess various Borrow Pit, Road Construction, Dam Construction Camp Sites, Stockpile areas, Quarries and other associated infrastructure areas related to the proposed Dam Development Project. The aim with this survey was to determine if there are any possible archaeological and historical sites located at these sites that might be impacted by the proposed development activities. The archaeological sites that were identified during earlier assessments and requires archaeological mitigation work was also revisited. This report is the result of this survey and recommendations on the way forward is provided at the end.

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1. INTRODUCTION

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A total of 26 archaeological and historical sites (including 8 grave sites) were identified and recorded by Van Schalkwyk during earlier work for the proposed dam development in the area. Based on the results of the previous Heritage work in the area and the report submitted it was recommended that the proposed development be allowed to continue, taking into consideration a number of recommendations for mitigation measures put forward. This included the exhumation & relocation of the impacted grave sites, and the more detailed archaeological investigation of some of the Iron Age & Stone Age sites identified.

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In June 2016 a second field assessment was undertaken to assess various Borrow Pit, Road Construction, Dam Construction Camp Sites, Stockpile areas, Quarries and other associated infrastructure areas related to the proposed Dam Development Project. The client indicated the location and boundaries of the Project Area, as well as the location of the various associated development areas, and the assessment focused on this.

2. TERMS OF REFERENCE

The Terms of Reference for this Project is as follows:

(1) To handle all matters pertaining to exhumation and relocation of graves, permits to relocate graves and implement recommendations of the heritage impact assessment report.

This includes:

(a) The investigation of graves to be exhumed and relocated;

(b) Site notices and do notices in the newspapers and consult with the local community to obtain consent letters for the exhumations and relocations;

(c) Consultation with community and reports to SAHRA; and

(d) Applications for permits from SAHRA/ COGTA/ SAP/ Provincial Health Department/Local Municipality etc.

2. To handle all matters pertaining to the archaeological investigations and mitigation of those identified archaeological sites that will be impacted upon by the proposed development

This will include:

(a) Obtaining the required permits from SAHRA to undertake the work, as well as permissions from the various landowners on which properties these sites are situated;

(b) Undertaking the archaeological investigations successfully and to provide reports to both the client and SAHRA in fulfillment of the permit requirements;

(c) And finally, to obtain permission for destruction of these sites once the archaeological work has been concluded

Over and Above this the Terms of Reference for the detailed fieldwork was to:

1. Identify all objects, sites, occurrences and structures of an archaeological or historical nature (cultural heritage sites) located on the portion of land that will be impacted upon by the proposed development;

2. Assess the significance of the cultural resources in terms of their archaeological, historical, scientific, social, religious, aesthetic and tourism value;

3. Describe the possible impact of the proposed development on these cultural remains, according to a standard set of conventions;

4. Propose suitable mitigation measures to minimize possible negative impacts on the cultural resources;

5. Review applicable legislative requirements;

3. LEGISLATIVE REQUIREMENTS

Aspects concerning the conservation of cultural resources are dealt with mainly in two acts. These are the National Heritage Resources Act (Act 25 of 1999) and the National Environmental Management Act (Act 107 of 1998).

3.1 The National Heritage Resources Act

According to the above-mentioned act the following is protected as cultural heritage resources:

- a. ***Archaeological artifacts, structures and sites older than 100 years***
- b. Ethnographic art objects (e.g. prehistoric rock art) and ethnography
- c. Objects of decorative and visual arts
- d. Military objects, structures and sites older than 75 years
- e. ***Historical objects, structures and sites older than 60 years***
- f. Proclaimed heritage sites
- g. ***Grave yards and graves older than 60 years***
- h. Meteorites and fossils
- i. Objects, structures and sites of scientific or technological value.

The National Estate includes the following:

- a. Places, buildings, structures and equipment of cultural significance
- b. Places to which oral traditions are attached or which are associated with living heritage
- c. Historical settlements and townscapes
- d. Landscapes and features of cultural significance
- e. Geological sites of scientific or cultural importance
- f. ***Sites of Archaeological and palaeontological importance***
- g. ***Graves and burial grounds***
- h. Sites of significance relating to the history of slavery
- i. Movable objects (e.g. archaeological, palaeontological, meteorites, geological specimens, military, ethnographic, books etc.)

A Heritage Impact Assessment (HIA) is the process to be followed in order to determine whether any heritage resources are located within the area to be developed as well as the possible impact of the proposed development thereon. An Archaeological Impact Assessment (AIA) only looks at archaeological resources. An HIA must be done under the following circumstances:

- a. The construction of a linear development (road, wall, power line, canal etc.) exceeding 300m in length
- b. The construction of a bridge or similar structure exceeding 50m in length
- c. Any development or other activity that will change the character of a site and exceed 5 000m² or involve three or more existing erven or subdivisions thereof
- d. Re-zoning of a site exceeding 10 000 m²
- e. Any other category provided for in the regulations of SAHRA or a provincial heritage authority

Structures

Section 34 (1) of the mentioned act states that no person may demolish any structure or part thereof which is older than 60 years without a permit issued by the relevant provincial heritage resources authority.

A structure means any building, works, device or other facility made by people and which is fixed to land, and includes any fixtures, fittings and equipment associated therewith.

Alter means any action affecting the structure, appearance or physical properties of a place or object, whether by way of structural or other works, by painting, plastering or the decoration or any other means.

Archaeology, palaeontology and meteorites

Section 35(4) of this act deals with archaeology, palaeontology and meteorites. The act states that no person may, without a permit issued by the responsible heritage resources authority (national or provincial)

- a. destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or palaeontological site or any meteorite;
- b. destroy, damage, excavate, remove from its original position, collect or own any archaeological or palaeontological material or object or any meteorite;
- c. trade in, sell for private gain, export or attempt to export from the Republic any category of archaeological or palaeontological material or object, or any meteorite; or
- d. bring onto or use at an archaeological or palaeontological site any excavation equipment or any equipment that assists in the detection or recovery of metals or archaeological and palaeontological material or objects, or use such equipment for the recovery of meteorites.
- e. alter or demolish any structure or part of a structure which is older than 60 years as protected.

The above mentioned may only be disturbed or moved by an archaeologist, after receiving a permit from the South African Heritage Resources Agency (SAHRA). In order to demolish such a site or structure, a destruction permit from SAHRA will also be needed.

Human remains

Graves and burial grounds are divided into the following:

- a. ancestral graves
- b. royal graves and graves of traditional leaders
- c. graves of victims of conflict
- d. graves designated by the Minister
- e. historical graves and cemeteries
- f. human remains

In terms of Section 36(3) of the National Heritage Resources Act, no person may, without a permit issued by the relevant 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 or 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, or any equipment which assists in the detection or recovery of metals.

Human remains that are less than 60 years old are subject to provisions of the Human Tissue Act (Act 65 of 1983) and to local regulations. Exhumation of graves must conform to the standards set out in the **Ordinance on Excavations (Ordinance no. 12 of 1980)** (replacing the old Transvaal Ordinance no. 7 of 1925).

Permission must also be gained from the descendants (where known), the National Department of Health, Provincial Department of Health, Premier of the Province and local police. Furthermore, permission must also be gained from the various landowners (i.e. where the graves are located and where they are to be relocated to) before exhumation can take place.

Human remains can only be handled by a registered undertaker or an institution declared under the **Human Tissues Act (Act 65 of 1983 as amended)**.

3.2 The National Environmental Management Act

This act states that a survey and evaluation of cultural resources must be done in areas where development projects, that will change the face of the environment, will be undertaken. The impact of the development on these resources should be determined and proposals for the mitigation thereof are made.

Environmental management should also take the cultural and social needs of people into account. Any disturbance of landscapes and sites that constitute the nation's cultural heritage should be avoided as far as possible and where this is not possible the disturbance should be minimized and remedied.

4. METHODOLOGY

4.1 Survey of literature

A survey of available literature was undertaken in order to place the development area in an archaeological and historical context. The sources utilized in this regard are indicated in the bibliography.

4.2 Field survey

The field assessment section of the study is conducted according to generally accepted HIA practices and aims at locating all possible objects, sites and features of heritage significance in the area of the proposed development. The location/position of all sites, features and

objects is determined by means of a Global Positioning System (GPS) where possible, while detail photographs are also taken where needed.

4.3 Oral histories

People from local communities are sometimes interviewed in order to obtain information relating to the surveyed area. It needs to be stated that this is not applicable under all circumstances. When applicable, the information is included in the text and referred to in the bibliography.

4.4 Documentation

All sites, objects, features and structures identified are documented according to a general set of minimum standards. Co-ordinates of individual localities are determined by means of the Global Positioning System (GPS). The information is added to the description in order to facilitate the identification of each locality.

5. DESCRIPTION OF THE AREA

The Nwamitwa Dam Project area is located on various farms in a section of the Groot Letaba River, north of the towns of Tzaneen and Letsitele in the Limpopo Province.

The vegetation in some areas during the field assessments is very dense and makes both access and visibility difficult. In some sections the vegetation is more sparse and/or have been recently removed, which makes work easier. Some sections are under agricultural fields (various citrus, vegetables, etc.) and have been disturbed through various activities such as ploughing; irrigation; planting; grazing; farm buildings (homesteads and related structures), as well as other rural and urban developments and activities such as roads, powerlines, fences, homesteads, etc. The topography for the most is relatively gentle, although there are areas with low hills, rocky outcrops and some mountainous stretches. The main water course is the Groot Letaba, with various tributaries and smaller rivers and streams found throughout the study area.

The following farms (various portions of these) form part of the study area:

- | | | |
|----------------------|------------------------|-----------------------------|
| 1. Deeside 733LT | 2. Laborie 515LT | 3. Nagude 517LT |
| 4. Belle Ombre 903LT | 5. The Plains 519LT | 6. La Gratitude 513LT |
| 7. Belle Ombre 518LT | 8. Eureka 563/564LT | 10. The Plains 828LT |
| 11. Riverside 514LT | 12. Languedoc 563LT | 13. The Junction 521LT |
| 14. Delhi 520LT | 15. La Motte 464LT | 16. Tagganashoek 465LT |
| 17. Janetsi 463LT | 18. Mamitwas Kop 462LT | 19. Mamitwas Location 461LT |

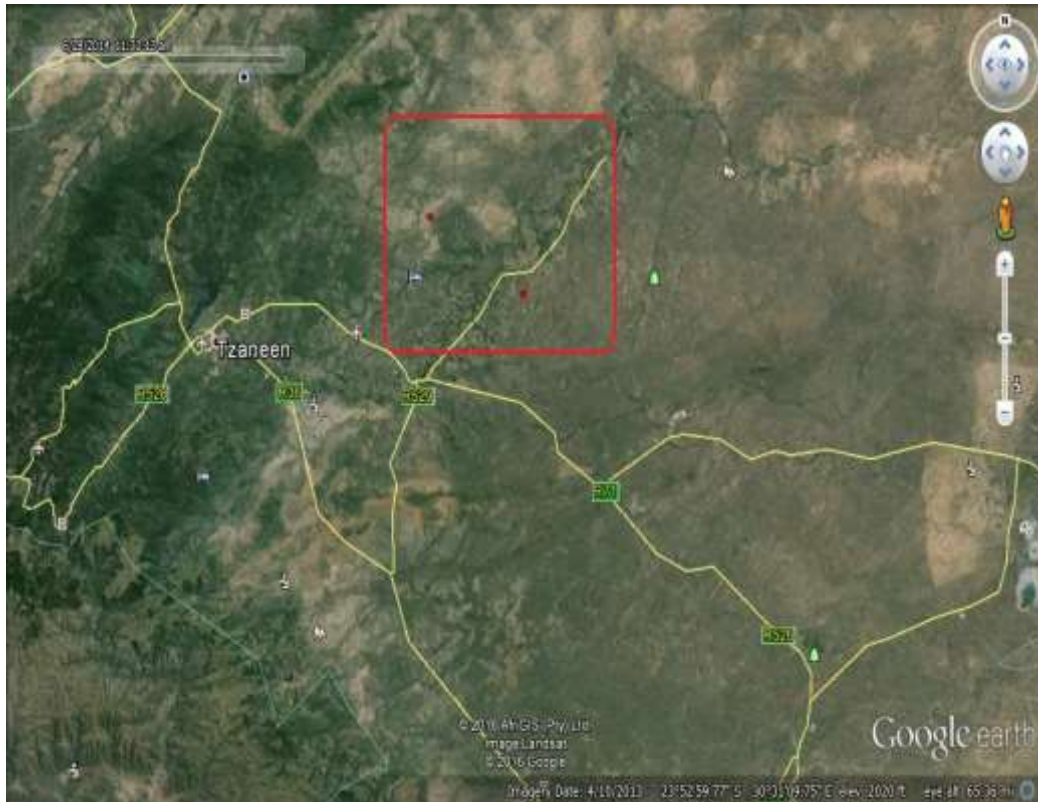


Fig.1: General location of study area shown in red rectangle (Google Earth 2016).

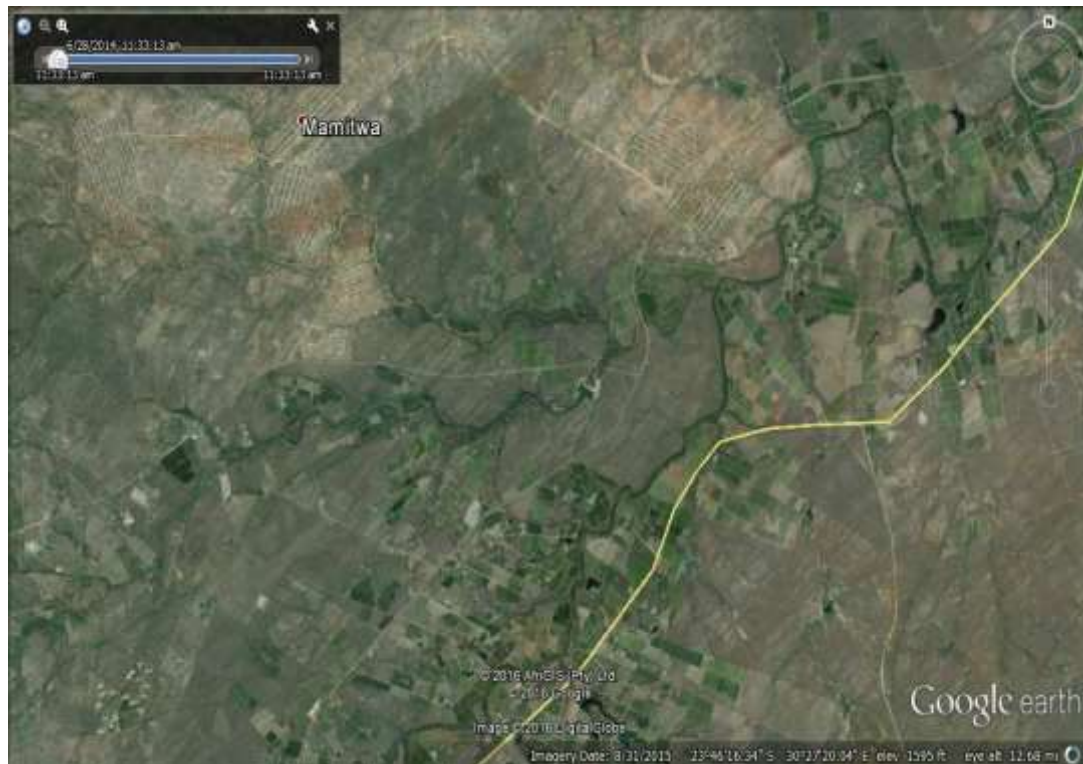


Fig.2: A closer view of a section of the study area show the fairly large-scale agricultural development and activities in the area, as well as the location of rural/urban settlements such as Mamitwa (Google Earth 2016).

in point is the large number of bored stones, dating to the Later Stone Age, that were ploughed out near the Letaba River on the farm Riverside of Mr J Barnard. Unfortunately, no primary (stratified/sealed) sites are known to exist in the survey area. The closest stratified site, known as Bushman Rock Shelter, is located at Echo Caves north of Ohrigstad. Here, early humans lived, discontinuously, for thousands of years, from the Early Stone Age, through what is known as the Middle Stone Age, and well into the Later Stone Age.

Iron Age

The term Iron Age is used by African archaeologists to refer to the advent of subsistence patterns based on farming and follow directly on the Stone Age. The Iron Age is characterized by the production and use of metals as well as characteristic types of pottery. Iron Age people moved into southern Africa by c. AD 200, entering the area either by moving down the coastal plains, or by using a more central route. It seems more likely that the first option was what brought people into the study area. From the coast they followed the various rivers inland. Being cultivators, they preferred the rich alluvial soils to settle on. Early Iron Age occupation of the region seems to have taken place on a significant scale and at least three different phases of occupation have been identified. One of the earliest known dated sites are located near Tzaneen. Called Silver Leaves, these people, belonging to the Kwale Branch of the Early Iron Age (Huffman 2007) seems to be the oldest Iron Age site discovered so far in southern Africa. As yet, no sites that can be related to this tradition have identified in the study area.

However, other sites dating somewhat later were also identified. Preliminary identification of the pottery indicates that it belong to the Doornkop phase of the Early Iron Age, and should have a date of between AD 600-900. These are the same group of people that produced the remarkable clay masks found near Lydenburg in the 1960s. These settlements seems to have been followed at a slightly later date by settlements linked to the Eiland Facies of the Middle Iron Age (c. AD 1000-1200). Early Iron Age sites are our only source of evidence for the occupation of the area by early farming communities. As such these sites are important and they are viewed to have medium significance, which implies that they would require mitigation measures. Over time these communities were replaced by people belonging to groups recognizable in modern times, e.g. Sotho-speakers, for example the Lobedu, Phalaborwa, Letswalo and Kgaga, and TsiTsonga-speakers, such as the Nkuna. Although located much further to the north, the Venda-speakers also had some influence in the study area, especially amongst the Lobedu. As this was a period of population movement, conflict and change, it in large part set the scene for the current population situation in the country, a situation that was exploited by the policy of separate development in the sense of the creation of various homelands. Considering the time period that they were occupied, they also feature in the early historic period. These sites are therefore viewed to have medium significance and would require mitigation.

Based on the occurrence of specific resources, some interesting though not unique industries developed that was aimed at the exploitation of local resources. Two examples are the copper and iron smelting at Phalaborwa and the extraction of salt at the Eiland mineral springs

The historic period started c. 1840s, with the arrival of the first white hunters, missionaries and prospectors in the area. The discovery of gold at what was to become Leydsdorp, set the

scene for outsiders to enter the area in large numbers. However, the gold did not last long and, after a heyday lasting approximately 10 years, the little town was largely forgotten.

As time went by, the area was divided into farms. This, of course, gave rise to conflict between the whites entering the area and the local Sotho and Tsonga communities. Soon conflict broke out, e.g. against the Kgosi Makgoba, occupying Magoebas Kloof, and the ZAR government. Still, development was very slow, with a few farms occupied by the early 20th century. It was only in the 1950s, after the success Dr. Siegfried Anneke had with the fight against malaria that population numbers increased significantly.

ETHNO-HISTORICAL OVERVIEW

Two different language groups are found in the study and surrounding area: Sotho-speakers and Tsonga-speakers. The Tsonga form the main group in the study area. Their origin is in Mozambique. Due to the wars in the coastal areas of Natal and Mozambique during the 1820-30s, they entered the (former) Transvaal, first in small groups and later, by the 1890's, due to Portuguese aggression, in larger groups with recognized chiefs. They were later given formal "locations" to settle in, which during the days of separate development under the previous government became the Homeland of Gazankulu.

To the north and east of the study area is the Sotho-speakers, of which the Lobedu people is the best known because of their famous "rain queen" (Modjadji). They have a strong link to the Venda located more to the north. Other smaller Sotho groups such as the Thlabine and Sekororo are found to the west of the study area. A map by Van Warmelo (dating to 1935) illustrates the diversity of people found in the region. It is also significant that it showed a lack of people staying in the study area at the time. This situation obviously has changed drastically over the last few decades, largely as a result of the process of homeland development instituted by the previous government. As part of the process of homeland consolidation, people of Tsonga/Shangaan descent were forcibly removed from other areas and relocated in this area, which was to be part of what was planned to become an independent republic called Gazankulu.

For a further basic archaeological sequence background, the following is also provided for better understanding:

The Stone Age is the period in human history when lithics (or stone) was mainly used to produce tools. In South Africa the Stone Age can be divided basically into three periods. It is important to note that these dates are relative and only provide a broad framework for interpretation. A basic sequence for the South African Stone Age (Lombard et.al 2012) is as follows:

Earlier Stone Age (ESA) up to 2 million – more than 200 000 years ago

Middle Stone Age (MSA) less than 300 000 – 20 000 years ago

Later Stone Age (LSA) 40 000 years ago – 2000 years ago

It should also be noted that these dates are not a neat fit because of variability and overlapping ages between sites (Lombard et.al 2012: 125).

The Iron Age is the name given to the period of human history when metal was mainly used to produce metal artifacts. In South Africa it can be divided in two separate phases (Bergh1999: 96-98), namely:

*Early Iron Age (EIA) 200 – 1000 A.D
Late Iron Age (LIA) 1000 – 1850 A.D.*

Huffman (2007: xiii) however indicates that a Middle Iron Age should be included. His dates, which now seem to be widely accepted in archaeological circles, are:

*Early Iron Age (EIA) 250 – 900 A.D.
Middle Iron Age (MIA) 900 – 1300 A.D.
Late Iron Age (LIA) 1300 – 1840 A.D.*

RESULTS OF THE JUNE 2016 ASSESSMENT

Quarry A & Stockpile Area 1

Quarry A and Stockpile Area 1 is located adjacent to each other. Sections of both areas are densely vegetated, while some portions have been disturbed through agriculture (ploughing) in the recent past. Other impacts include fencing and Powerline Pylons. Although the topography of the two areas are relatively flat there are sections with low rocky ridges and outcrops.

Individual pieces of undecorated pottery were found scattered in both the areas, but these are not deemed significant to warrant further investigation. In and close to an old ploughed field bordering the Quarry A study area some stone-packed cairns were found. These could be unmarked graves, but only social consultation would be able to confirm the status. At one of these an old plough share was found at the head that could indicate the presence of a grave. As these possible graves will not be directly impacted by the development activities they need not be mitigated but care should be taken not to disturb them.

A marked grave was found right on the boundary of the Quarry A area and would have to be mitigated. The best practice would be to fence it off and to protect it that way, while still providing access to descendants. Alternatively the grave could be exhumed and relocated with the consent of family members and after the obtaining of the relevant permits to do so. The grave is that of one Jackson M. Mhlongo, who was born in 1929 and who died and was buried in 1972.

GPS Location of Grave: S23 42 00.70 E30 22 54.40

The foundations of a small, stone-packed, rectangular structure was also found in the Quarry A area. It is located on top of a low rocky ridge in the area. The function and age of the feature is unknown, but it is not deemed of great heritage significance. The recording done during the assessment is deemed as sufficient mitigation.

GPS Location of Structure: S23 41 58.90 E30 22 57.80



Fig.4: Dense vegetation in parts of the area.



Fig.5: Some areas are less vegetated.



Fig.6: The ploughed area adjacent to Quarry A.



Fig.7: Pottery close to Quarry A area.



Fig.8: One of the possible graves in the ploughed area next to Quarry A.



Fig.9: Fragment of pottery in the Stockpile 1 area.



Fig.10: More pottery in the general area.



Fig.11: The grave of Jackson Mhlongo.



Fig.12: The foundations of the small rectangular structure.

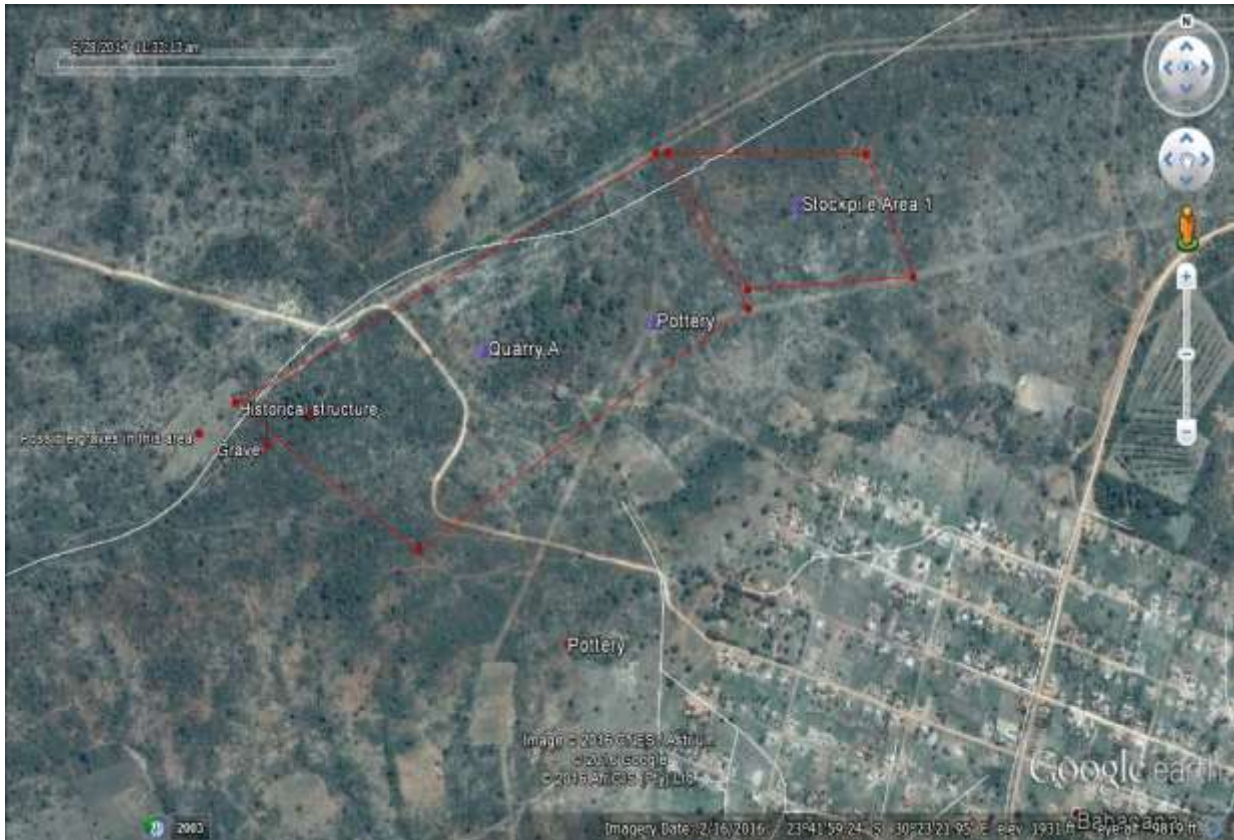


Fig.13: Aerial view of Quarry A & Stockpile Area 1 location. The sites recorded are shown (Google Earth 2016).

Quarry B & Stockpile Area 2

Quarry B is located close to and partially on a low granite/norite hill, and although tree cover was fairly dense visibility was good. Stockpile Area 2 is located adjacent to it in an area that has been disturbed in the recent past by what seems to be sand quarrying and recent bush clearing. No sites or cultural material were found in this area.

The remains of some recent rock quarrying were found in the Quarry B area. This is in the form of some cement/concrete and steel foundations related to these activities, as well as drill holes in the rocks. The age is not known but it is deemed of low significance and the recording done during the assessment is seen as sufficient.

GPS Location of Site in Quarry B area: S23 50 42.00 E30 21 49.00



Fig.14: General view of Quarry B area.



Fig.15: General view of area from top of hill.



Fig.16: One of the structures at the site in the Quarry B area.



Fig.17: Another structure in the area.



Fig.18: A view of the Stockpile Area 2 section.



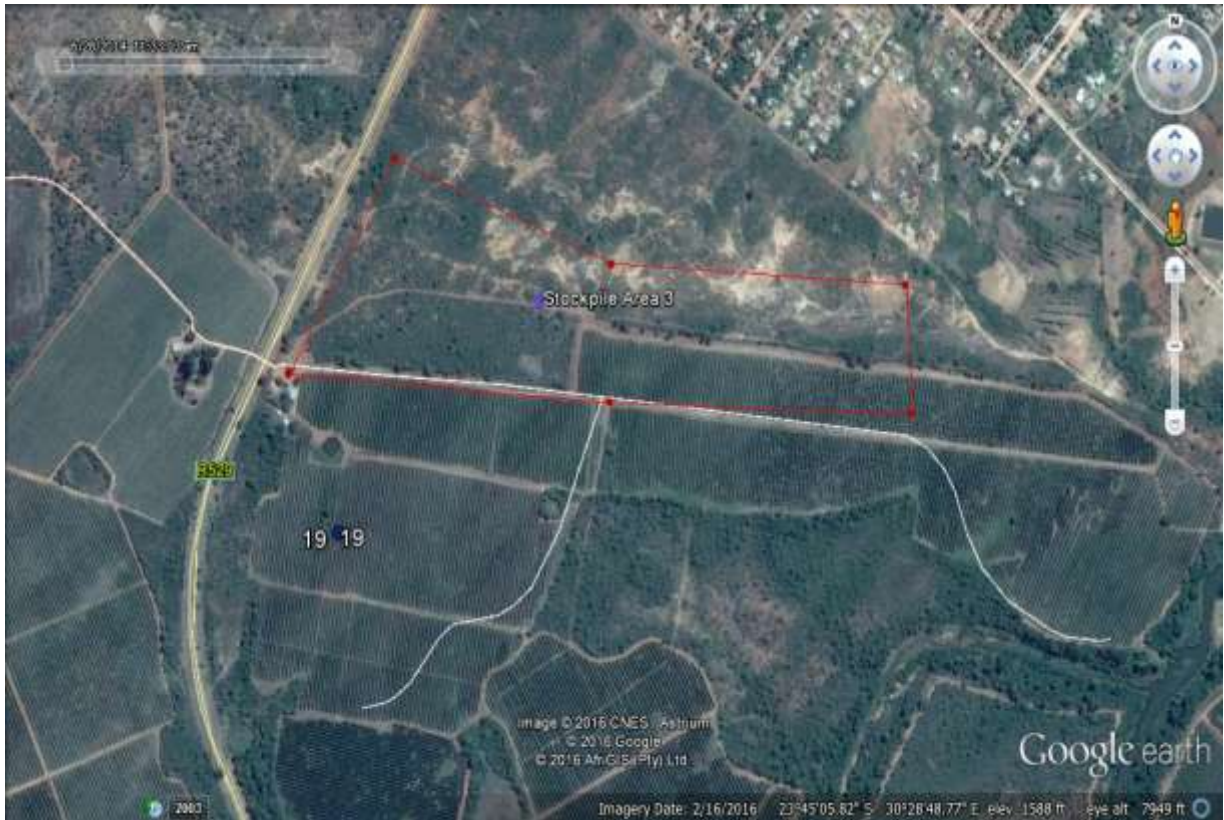
Fig.19: Another view of this area.



Fig.20: Aerial view of Quarry B & Stockpile Area 2 location (Google Earth 2016).

Stockpile Area 3

This stockpile area is located in an area that has been previously assessed (Gubitz farm – Janetsi East) and has been heavily disturbed through citrus farming activities. If any sites, features or material of cultural heritage (archaeological and/or historical) did exist here in the past it would have been disturbed or destroyed as a result. The owner/farmer was not available during the time of the assessment in order to gain access and no photographs were taken.



**Fig. 21: Aerial view of the location of Stockpile Area 3. Not the farming activities.
Google Earth 2016.**

Stockpile Area 4

This is also located in an area that has already been heavily disturbed by recent past agricultural activities (citrus farming), and is situated on a portion of the farm Laborie. No sites, features or cultural material were identified during the assessment.



Fig.22: Aerial view of location of Stockpile Area 4 (Google Earth 2016).

Road Construction Camp 1

This area was also not accessible during the field survey. From the Google Earth image for the site it is clear that vegetation in it is very dense and that some sections have been disturbed as well. It is located close to the R529 near the river. No photos were taken during the assessment and no survey was possible. Should any sites, features or cultural material be uncovered during the work on the establishment of the Camp then an archaeologist should be called in to investigate and recommend measures on the way forward.



Fig.23: Aerial view of Road Construction Camp 1 location (Google Earth 2016).

Road Construction Camp 2 & Borrow Pit A

These two areas border each other and is located in old agricultural fields (Borrow Pit A) and citrus (oranges) groves (Road Construction Camp 2). As a result these areas have been heavily disturbed in the past and if any sites, features or material of archaeological nature were situated here in the past it would have been disturbed or destroyed. No evidence of its existence was found during the assessment.



Fig.24: A view of the area where Road Construction Camp 2 will be located.



Fig.25: Aerial view showing location of Road Construction Camp 2 & Borrow Pit A (Google Earth 2016).

G6/7 Source

This area could also not be accessed during the field survey and no assessment was possible. However, based on the aerial image for the site, it is clear that although some portions does contain original vegetation (thorn trees, shrubs) and is fairly densely covered, large tracts are open and heavily disturbed by possible agricultural activities and bush clearing. Should any sites, features or cultural material be uncovered during the work on the establishment of the Camp then an archaeologist should be called in to investigate and recommend measures on the way forward.



Fig.26: Aerial view of G6/7 location (Google Earth 2016).

Dam Construction Camp 2 & Borrow Pit B

Dam Construction Camp 2 is located on a portion of the farm La Borie, and partially in agricultural fields and citrus orchards. Other disturbances include water pipelines. Some archaeological & historical finds were however made in this area. An erosion donga that forms part of the area produced a few individual Middle to Later Stone Age flakes but the site is not deemed of any significance. Some undecorated Iron Age pottery fragments were also found, while a small stone-packed feature (function and age unknown) was also recorded. No further mitigation measures for these finds are recommended.

GPS Locations: S23 46 35.80 E30 30 48.70 (Stone tools); S23 46 32.70 E30 30 47.40 (Stone feature) & S23 46 32.80 E30 30 48.30 (Pottery).

No sites, features or cultural material was recorded in the Borrow Pit B area. It is located in an area that has been previously disturbed by agricultural activities.



Fig.27: View of section of orchards where Dam Construction Camp 1 is located.



Fig.28: View of another section of the area.



Fig.29: View showing erosion donga.



Fig.30: Stone tools in the erosion donga.



Fig.31: The unknown stone-packed feature.



Fig.32: Undecorated pottery fragments.



Fig.33: A view of a section of the Borrow Pit B area.



Fig.34: Aerial view of location of Dam Construction Camp 2 & Borrow Pit B (Google Earth 2016).

Borrow Pit C

No sites, features or cultural material with an archaeological or historical origin were identified in this area during the assessment. Although vegetation was fairly dense (shrubs, thorn trees, grass cover) visibility was relatively good, with open sandy patches in the area. A telephone line servitude, as well as game fencing and a currently used refuse dump and sand quarry has impacted on the area in the recent past as well.



Fig.35: View of a section of the area.



Fig.36: Another section showing the fairly dense vegetation.



Fig.37: A view of the quarry and refuse dump that covers part of the Borrow Pit C area.

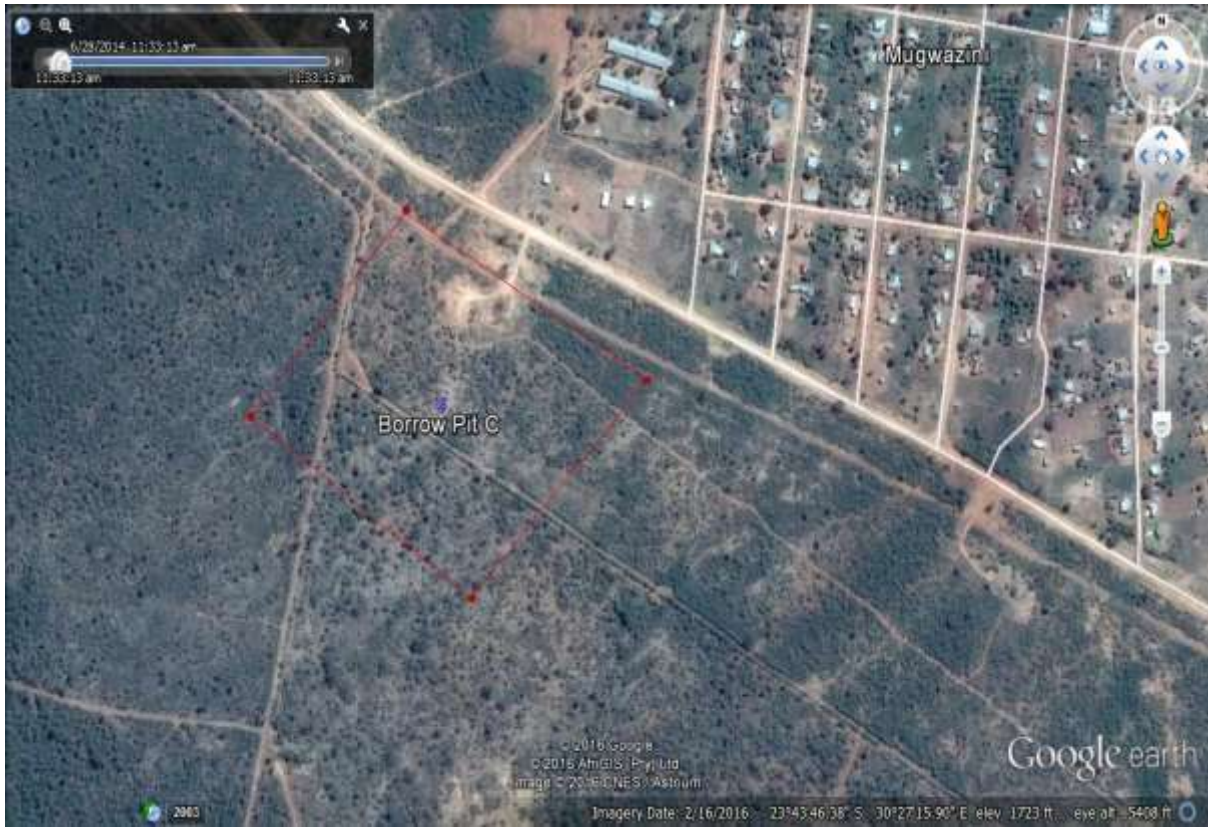


Fig.38: Aerial view of Borrow Pit C location.

Dam Construction Camp 1

Again no sites, features or material of cultural heritage (archaeological and/or historical) origin or significance) are known to exist in the area. Access was not possible during the assessment. Although sections of the area contains original vegetation (thorn trees, shrubs) large sections have been disturbed by recent agricultural activities as seen on the Google Earth image of the area. Should any sites, features or material be exposed during the establishment of the Camp site then an archaeologist should be called in to investigate and recommend on the way forward.



Fig.39: Aerial view of location of Dam Construction Camp 1 (Google Earth 2016).

Sand Source

This area is located mainly in an area already extensively disturbed and covered by citrus (orange) groves. If any archaeological and/or historical sites did exist here in the past it would have been disturbed or destroyed as a result.



Fig.40: Aerial view of Sand Source location (Google Earth 2016).

Clay Source & Archaeological Site 14

This area is located mainly in areas that have already been disturbed by agricultural activities (citrus, other), although small sections still contain some original vegetation and is fairly densely overgrown. Bush clearing has also commenced in some sections. Some fragments of undecorated Iron Age pottery, as well as a broken lower grinding stone (found on a heap of stone and other rubble) were however recorded in the area. These finds are likely associated with the known Iron Age Archaeological Site 14 in the area.

GPS Locations: S23 46 03.50 E30 29 58.20 (Pottery) & S23 46 06.70 E30 30 00.40 (Lower grinder)

Site 14 is an Early Iron Age site discussed in earlier reports. It contains pieces of pottery (undecorated and decorated), remains of hut floor and grinding stones. The material is eroding out and was also partially exposed by agricultural activities (ploughing/crop growing/irrigation). The extent of the site is difficult to determine.

The site will be archaeologically investigated through test excavations after obtaining a permit from SAHRA prior to development of the Nwamitwa Dam commencing.

GPS Location: S23.76487 E30.49501



Fig.41: View of section of Clay Source area.



Fig.42: Another section of the area.



Fig.43: View of another section where the site will be located.



Fig.44: View of area showing extensive bush clearing.



Fig.45: Pottery in the area.



Fig.46: Broken lower grinding stone.



Fig.47: View of section of Site 14.



Fig.48: Hut floor remains on Site 14.



Fig.49: Aerial view of Clay Source area showing location of Site 14 & other finds (Google Earth 2016).

Archaeological Sites 2,4, 9 & 11

These sites we re-visited during the June 2016 assessments in order to determine better their extents and significance in preparation for the application for Archaeological Permits from SAHRA.

Sites 2 & 4: Stone Age Open-air Sites

The sites contain fairly dense scatters of Early and Middle Stone Age (ESA/MSA) tools and flakes & cores in open erosion dongas and open areas and warrant the collection of material as representative samples of the Stone Age archaeology of the area. Permits from SAHRA will be applied for and obtained and detailed mapping of the sites and sampling of representative material will be undertaken.

Located on La Motte 464LT (Site 2) & Riverside 514LT (Site 4). GPS Locations: S23.78472 E30.47250 (Site 2) & S23.78806 E30.46694 (Site 4)

A new site (located in an erosion donga) was also recorded during the June 2016 assessment (closer to Sites 9 & 11), containing a fairly dense scatter of stone tools (ESA to LSA). The site will also be included in the archaeological permit application for Site 2 & 4 and mapping and sampling undertaken.

GPS Location: S23.77854 E30.48146

Sites 9 & 11: Iron Age

Both these sites – described by Van Schalkwyk as an Early Iron Age open site (Site 9) and an undated Iron Age open site – could not be accessed during the earlier 2016 assessment due to very dense vegetation (both sites are located in the same general area as the Site 2 & 4 Stone Age sites). He recommended archaeological excavations on both sites, giving them Grade III Significance (**Other heritage resources of local importance and therefore worthy of conservation**).

During the June 2016 survey both these sites were accessed. The remains of huts (clay floor and wall fragments) were identified on both sites in various locations, while some stone tools in erosion areas were also identified. Archaeological Excavation permits will be applied for at SAHRA, and once provided archaeological excavations will be conducted on both sites.

Located on: La Motte 464LT. GPS Locations: S23.78028 E30.47889 (Site 9) & S23.78056 E30.47528 (Site 11)

GPS Locations for finds: S23.78110 E30.47586 (Stone tools); S23.78049 E30.47814; S23.78031 E30.47845; S23.78018 E30.47852 & S23.78022 E30.47878 (Hut clay).



Fig.50: General view of area where Sites 2 & 4 is located.



Fig.51: Some of the tools on Site 2.



Fig.52: Stone tools from Site 4.



Fig.54: General view of location of Site 9.



Fig.55: View of erosion donga on Site 9 where some stone tools were identified.



Fig.56: Hut clay on Site 11.



Fig.57: More hut clay fragments.



Fig.58: The new donga site near Site 11.



Fig.59: Some of the stone tools found close to and in the donga.

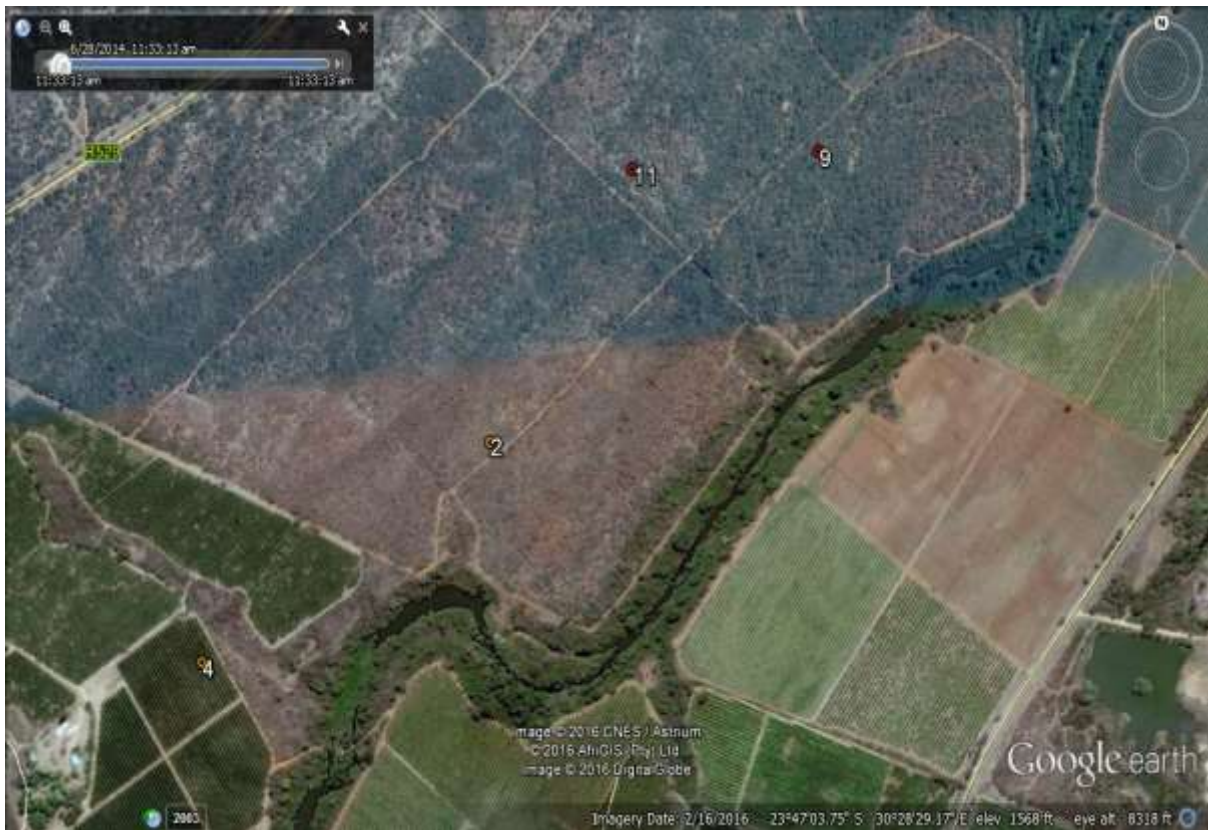


Fig.60: Aerial view showing the location of Sites 2,4,9 & 11 (Google Earth 2016).

Archaeological Site 18

This site was not revisited in June, but will be shortly discussed here again. This was described by Van Schalkwyk in 2009 as a historical homestead site that needed to be documented, mapped and photographed. Grave Site 25 is located in close proximity to it.

The earlier 2016 assessment found that the site was quite extensive, and contains the remains of a number of huts/rondavels; possible agricultural terraces; granary stands, as well as stone-walled enclosures (livestock enclosures or kraals). Cultural material identified included pottery and grinding stones.

This site will be archaeologically investigated through excavations, detailed mapping and drawing and photographic documentation. A permit from SAHRA will be applied for and once obtained the archaeological work will be undertaken.

Located on: Vallambria 681LT. GPS Location: S23.58386 E30.61112 & S23.58907 E30.60943 (furthest extent recorded in 2016)



Fig.61: Stone walling on Site 18.



Fig.62: Hut foundations on Site 18.



Fig.63: Hut foundations & Stone walling.



Fig.64: Remains of a possible grain bin on Site 18.



**Fig.65: Aerial view of location of Site 18.
Grave Site 25 is also shown (Google Earth 2016).**

Archaeological Sites 28 & 29

These sites, recorded during the earlier 2016 assessment, were revisited during June in order to determine their extent and significance in preparation for the intended permit applications and subsequent archaeological mitigation work. Site 28, a possible Iron/metal smelting site contains pieces of a clay furnace blow-pipe (tuyere) and although no other indication of an iron/metal smelting furnace was identified it is possible that such a feature could be present in the area. More fragments were found during the June survey.

It is recommended that the site be investigated and documented through archaeological test excavations.

Located on: Makube 425LT. GPS Location: S23.63572 E30.50659

Site 29 is also located in the same area as Site 28. It contains the remains (foundations) of a stone and clay built square structure and a rondavel similar to that found on Site 18. It is recommended that this site be mapped and documented as well as archaeologically excavated through test excavations.

Located on: Makube 425LT. GPS Location: S23.63618 E30.50642



Fig.66: Metal smelting furnace clay blowpipe fragment on Site 28.



Fig.67: More fragments found during June 2016.



Fig.68: Foundations of structure on Site 29.



Fig.69: Foundations of rondavel found on Site 29.



Fig.70: More hut remains on Site 29.



**Fig.71: Aerial view of location of Site 28 & 29.
Grave Site 24 is also shown (Google Earth 2016).**

During the site visit to Sites 28 & 29 we also met with Mr. Victor Mabunda of the Nyabane Tribal Authority who indicated that the land on which these sites are located belong to them and that we need to liaise with them in terms of access and permission to work here. They indicated that they would have no problem with the required work being undertaken and that they will provide valuable information on the history of the area and site as well.

7. CONCLUSIONS AND RECOMMENDATIONS

APelser Archaeological Consulting (APAC) was appointed by C&K Environmental Services (Pty) Ltd, as part of the Construction of Nwamitwa Dam & Associated Infrastructure Development Project, to handle all matters pertaining to exhumation and relocation of graves, permits to relocate graves and implement recommendations of the previous heritage impact assessment (HIA) report submitted by Dr. J. van Schalkwyk (See References for Report details). As part of the current work, and prior to the required fieldwork, APELSER was requested to scrutinize the earlier reports and findings to properly identify and describe not only the grave sites that will be impacted, but also the other cultural heritage (archaeological & historical) sites identified and recorded by Van Schalkwyk. A preliminary report was submitted (See **APAC016/08**) to provide information on the processes that need to be followed and adhered to in order to successfully undertake the consultation related work in terms of the graves, obtain the necessary legal permits to exhume and relocated the impacted graves, as well as the negatively impacted archaeological resources.

A total of 26 archaeological and historical sites (including 8 grave sites) were identified and recorded by Van Schalkwyk during earlier work for the proposed dam development in the area. Based on the results of the previous Heritage work in the area and the report submitted it was recommended that the proposed development be allowed to continue, taking into consideration a number of recommendations for mitigation measures put forward. This included the exhumation & relocation of the impacted grave sites, and the more detailed archaeological investigation of some of the Iron Age & Stone Age sites identified.

The March 2016 fieldwork focused on the sites identified and recorded by Van Schalkwyk, and aimed at doing more detailed recording (i.e. determining the exact number of graves associated with each site; determining the extent & significance of the various archaeological/historical sites) of the already known sites, as well as to record any other unknown heritage sites and features. The final report on the March 2016 fieldwork (**See APAC016/20**) discussed the results of the field survey and also provided recommendations on the way forward in terms of the processes to be followed for the grave exhumations & relocations, as well as the mitigation work required on the various archaeological sites.

In June 2016 a second field assessment was undertaken to assess various Borrow Pit, Road Construction, Dam Construction Camp Sites, Stockpile areas, Quarries and other associated infrastructure areas related to the proposed Dam Development Project. The aim with this survey was to determine if there are any possible archaeological and historical sites located at these sites that might be impacted by the proposed development activities. The archaeological sites that were identified during earlier assessments and requires archaeological mitigation work was also revisited.

It can be concluded that the June 2016 assessment of various sites, such as Borrow Pits, Road & Dam Construction Camp Sites, Stockpile Areas and others associated with the Nwamitwa Dam Construction, was conducted successfully. Although some sites, features and cultural material (of archaeological and/or historical nature) were identified in these areas, none is deemed of high significance and no further mitigation work is required. A number of recent graves found close to the Quarry A area is the only highly significant finds, while Archaeological Site 14 within the Clay Source Area is also of significance and will be mitigated as per previous recommendations.

The following is therefore recommended based on the June 2016 assessment:

(a) Development activities in the areas assessed can continue. Should any previously unknown and invisible sites, features or cultural material of archaeological and/or historical nature & significance be exposed during these activities then an archaeologist should be called in to investigate and recommend on the best way forward

(b) Archaeological mitigation on the following sites needs to be conducted once the required permits have been issued by SAHRA:

- **Sites 2, 4, 9, 11, 14, 18, 28 & 29**
- **The permit application process is being finalized and once the permits have been issued the work can be scheduled and concluded. Work related to the Nwamitwa Dam Project can then be commenced with in these areas.**

Finally, issues regarding the Investigation, Exhumation and Relocation of the graves located on various grave sites in the development area still need to be handled as well. This includes the appointment of a registered undertaker to assist with the Social Consultation Phase of this work in order to obtain consent from descendants/community members for this work to be undertaken. Once the consents have been obtained then the various legal permits to conduct the exhumations and relocations can be applied for and be approved. This aspect of the Project is by far the most important facet and the risks involved with this big. If proper consultation is not undertaken in the beginning stages of the project and consent is not given or obtained it could mean many lengthy delays and cost implications in the long run.

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APPENDIX A
DEFINITION OF TERMS:

Site: A large place with extensive structures and related cultural objects. It can also be a large assemblage of cultural artifacts, found on a single location.

Structure: A permanent building found in isolation or which forms a site in conjunction with other structures.

Feature: A coincidental find of movable cultural objects.

Object: Artifact (cultural object).

(Also see Knudson 1978: 20).

APPENDIX B
DEFINITION/ STATEMENT OF HERITAGE SIGNIFICANCE:

Historic value: Important in the community or pattern of history or has an association with the life or work of a person, group or organization of importance in history.

Aesthetic value: Important in exhibiting particular aesthetic characteristics valued by a community or cultural group.

Scientific value: Potential to yield information that will contribute to an understanding of natural or cultural history or is important in demonstrating a high degree of creative or technical achievement of a particular period

Social value: Have a strong or special association with a particular community or cultural group for social, cultural or spiritual reasons.

Rarity: Does it possess uncommon, rare or endangered aspects of natural or cultural heritage.

Representivity: Important in demonstrating the principal characteristics of a particular class of natural or cultural places or object or a range of landscapes or environments characteristic of its class or of human activities (including way of life, philosophy, custom, process, land-use, function, design or technique) in the environment of the nation, province region or locality.

APPENDIX C SIGNIFICANCE AND FIELD RATING:

Cultural significance:

- Low: A cultural object being found out of context, not being part of a site or without any related feature/structure in its surroundings.
- Medium: Any site, structure or feature being regarded less important due to a number of factors, such as date and frequency. Also any important object found out of context.
- High: Any site, structure or feature regarded as important because of its age or uniqueness. Graves are always categorized as of a high importance. Also any important object found within a specific context.

Heritage significance:

- Grade I: Heritage resources with exceptional qualities to the extent that they are of national significance
- Grade II: Heritage resources with qualities giving it provincial or regional importance although it may form part of the national estate
- Grade III: Other heritage resources of local importance and therefore worthy of conservation

Field ratings:

- i. National Grade I significance: should be managed as part of the national estate
- ii. Provincial Grade II significance: should be managed as part of the provincial estate
- iii. Local Grade IIIA: should be included in the heritage register and not be mitigated (high significance)
- iv. Local Grade IIIB: should be included in the heritage register and may be mitigated (high/medium significance)
- v. General protection A (IV A): site should be mitigated before destruction (high/medium significance)
- vi. General protection B (IV B): site should be recorded before destruction (medium significance)
- vii. General protection C (IV C): phase 1 is seen as sufficient recording and it may be demolished (low significance)

APPENDIX D
PROTECTION OF HERITAGE RESOURCES:

Formal protection:

National heritage sites and Provincial heritage sites – Grade I and II

Protected areas - An area surrounding a heritage site

Provisional protection – For a maximum period of two years

Heritage registers – Listing Grades II and III

Heritage areas – Areas with more than one heritage site included

Heritage objects – e.g. Archaeological, palaeontological, meteorites, geological specimens, visual art, military, numismatic, books, etc.

General protection:

Objects protected by the laws of foreign states

Structures – Older than 60 years

Archaeology, palaeontology and meteorites

Burial grounds and graves

Public monuments and memorials

APPENDIX E
HERITAGE IMPACT ASSESSMENT PHASES

1. Pre-assessment or Scoping Phase – Establishment of the scope of the project and terms of reference.
2. Baseline Assessment – Establishment of a broad framework of the potential heritage of an area.
3. Phase I Impact Assessment – Identifying sites, assess their significance, make comments on the impact of the development and makes recommendations for mitigation or conservation.
4. Letter of recommendation for exemption – If there is no likelihood that any sites will be impacted.
5. Phase II Mitigation or Rescue – Planning for the protection of significant sites or sampling through excavation or collection (after receiving a permit) of sites that may be lost.
6. Phase III Management Plan – For rare cases where sites are so important that development cannot be allowed.