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INTERDESIGN: PROPOSED MIXED USE DEVELOPMENT ON ERVEN 1 AND 2 OF A PORTION OF THE REMAINING EXTENT OF THE FARM WATERKLOOF 378JR (ERASMUS PARK), AND ASSOCIATED UPGRADE OF SOLOMON MAHLANGU DRIVE, CITY OF TSHWANE, GAUTENG PROVINCE

Phase 2 Heritage Site Assessment
SAHRA Permit Number 2518

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PHASE 2 HERITAGE SITE ASSESSMENT OF SITES WITHIN AREAS DEMARACTED FOR THE ERASMUS PARK MIXED USE DEVELOPMENT ON ERVEN 1 AND 2 OF A PORTION OF THE REMAINING EXTENT OF THE FARM WATERKLOOF 378JR, AND ASSOCIATED UPGRADE OF SOLOMON MAHLANGU DRIVE, CITY OF TSHWANE, GAUTENG PROVINCE

Conducted on behalf of:

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DECLARATION

I, Nelius Le Roux Kruger, declare that –

- I act as the independent specialist;
- I am conducting any work and activity relating to the proposed Erasmus Park Phase 2 Heritage Site Assessment Project in an objective manner, even if this results in views and findings that are not favour1able to the client;
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have the required expertise in conducting the specialist report and I will comply with legislation, including the relevant Heritage Legislation (National Heritage Resources Act no. 25 of 1999, Human Tissue Act 65 of 1983 as amended, Removal of Graves and Dead Bodies Ordinance no. 7 of 1925, Excavations Ordinance no. 12 of 1980), the Minimum Standards: Archaeological and Palaeontological Components of Impact Assessment (SAHRA, AMAFA and the CRM section of ASAPA), regulations and any guidelines that have relevance to the proposed activity;
- I have not, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- All the particulars furnished by me in this declaration are true and correct.

Signature of specialist
Company: Exigo Sustainability
Date: 25 May 2016

EXECUTIVE SUMMARY

This report details the results of a Phase 2 Heritage Site Assessment on Erven 1 and 2 situated on a Portion of the Remaining Extent of the Farm Waterkloof 378JR for the proposed Erasmus Park Mixed Use Development Project in the Gauteng Province. This further phase of assessment emanated from recommendations made in the Phase 1 AIA for the project in 2016, with regards to Historical Period sites in the proposed project area. A copy of the report will be supplied to the South African Heritage Resources Agency (SAHRA) and recommendations contained in this document will be reviewed where after application will be made for a destruction permit of the Erasmus Park archaeological site. In addition, all data captured for this study will be submitted to the South African Heritage Resources Agency (SAHRA) in order to establish a permanent archive for available data on the archaeology of Erasmus Park.

Project Title	Phase 2 Heritage Assessment for the Erasmus Park archaeological site
SAHRA Permit Number	2518
Project Location (S E Coordinates)	S25.81675° E28.24742° (approximate midpoint)
1:50 000 Map Sheet	2528BC
Farm Portion / Parcel	Erven 1 and 2 situated on a Portion of the Remaining Extent of the Farm Waterkloof 378JR
Magisterial District / Municipal Area	Tshwane Metropolitan Municipality
Province	Gauteng Province

A large number of archaeological and historical studies have been conducted in and around Pretoria and these studies all infer a varied and rich heritage landscape. Specifically, Pretoria is very rich in history and remnants of cultural activities from the past. Stone Age artefacts have been documented on farms and properties in Pretoria East and towards the town of Cuillinan. Several of the old Batswana tribes take their origins back to the Highveld and Magaliesberg region during the 18th century and 19th century. Moving into recent times, the first South African War of Independence (1880-1881) and the Anglo-Boer War (1899-1902) had a significant influence on the town of Pretoria and its environs, and many battles were fought over control over the capital in previous centuries. Pretoria and its surroundings was a nucleus of historical events and this history include the heritage of the Erasmus Family, which is regarded as one of the most important social entities during the formation years of Pretoria. The Erasmus family were true pioneers of their time and were well known throughout the whole community and the Waterkloof property stood testimony to this legacy.

A Phase 1 Archaeological Impact Assessment (AIA) was conducted for the proposed project in 2016 and this study located apparent Historical Period sites (**Site EXIGO-MDW-HP01**, **Site EXIGO-MDW-HP02**) were after it was recommended that ash middens and as the remains of foundation structures at the sites be documented by means of further Phase 2 Specialist Analysis (mapped, photographed and documented, described and contextualised by means of a desktop study, site sampling subject to the necessary excavation permits obtained from SAHRA). As such, the Phase 2 Assessment on a portion of this property attempted to adequately capture Historical Period Features at Erasmus Park in place and time. Here, this study envisaged to establish the spatial extent of archaeologically sensitive areas and to document the nature of the Historical period

dwellings in terms of occupation sequence, cultural context, temporality and site function by means of a desktop study as well as suitable data sampling strategies. In addition, an important aim was to archive of all collected data pertaining to Erasmus Park for future reference, in order to permanently conserve the historical fabric of the site.

It seems that the farm, which was first known as a portion of Waterkloof 29 was surveyed at around 1861 and the portions of the property changed ownership throughout the 20th century. However, for the largest part the Erasmus family owned much of the farm where a farmstead, agriculture an later, a dairy farm were established. The Erasmus Park project area was occupied from the early 19th century up to around 1960, during the terminal stages of the Historical Period and features under investigation in this assessment were possibly the houses of farm workers in the area. Similarly, the site survey indicated the presence of the foundations of these former dwellings, ranging from small 2 room buildings to larger 5 – 6 room structures constructed from stone and baked clay brick. The survey also indicated the distribution of surface artefact scatters and cultural material in subsurface midden deposits. For these deposits, controlled surface find documentation, surface testing and sub site excavation were employed to generate a significant data sample. Application for an excavation permit was made to SAHRA and this permit was issued prior to subsurface investigations (SAHRA Permit Nu8mber 2518). Two Shove Test Pit (STP) excavations were placed in two middens with a test trench excavated through a foundation feature at **Site EXIGO-MDW-HP01.** At **Site EXIGO-MDW-HP02,** two systematic excavations were conducted in two middens associated with a large foundations structure. The temporal provenience and possible site function could therefore be informed by the associated material culture from the site's depositional history.

The yield of artefact deposits from surface collections, middens and STP's at Erasmus Park are relatively low but the sample was sufficient to adequacy inform on the temporal provenience of the site in addition to addressing questions about consumption, subsistence and site function. Primarily, it is clear that the Erasmus Park archaeological site dates to the terminal phases of the Historical Period in Pretoria at around the middle of 20th century. This is inferred by the presence of historical period artefacts such as glass and metal in related stratigraphic deposits. Inferences drawn from the excavations and recovered material noted that the site was possibly occupied for a relatively short, or series of interrupted short periods of time (possibly around 15 years) by individuals with a lower income. This inference was drawn from the fact that the relatively small material culture sample from the site contained low numbers of glass, porcelain and specialised products as well a small fauna / bone sample (meat was generally a more expensive commodity during the post-World War 2 period in South Africa and faunal analysis of the site indicate consumption of "cheaper" meat cuts). This implies scales of consumption with the presence, or absence of general foodstuffs and utilitarian objects in middens. It was also observed that the occupation of the site might have lasted over a number of seasons where more intensive anthracite fuel burning in a coal stove perhaps over a winter period (i.e. for heating) presents as recurring layers of coarse anthracite ash in the middens. The excavations also provided insight into possible modes of subsistence where the use of both wood fires and anthracite stoves is apparent from associated ash residues. Thus, Erasmus Park Phase 2 excavations and the artefacts recovered from it provided us an opportunity to investigate a portion of Pretoria's history that would otherwise not have been possible. It presented a glimpse into the way of life of the specific community related to Pretoria and the Waterkloof property. The excavations and the interpretation of the data obtained with the analysis of the recovered material also supplements and compliments existing historic information on this area during this mid-20th century.

This Phase 2 Assessment adequately captured and documented the spatial, cultural and contextual extent of the Erasmus Park archaeological occurrences and it provides a cultural context, temporality and possible site function as well as historical provenience for the Erasmus Park site. It is believed that available on-site and off-site data have been adequately collated and captured for archiving proposes for future reference, in order to permanently conserve the historical fabric of the site. Thus, the author of this report is confident that the Erasmus Park archaeological site (**Site EXIGO-MDW-HP01** and **Site EXIGO-MDW-HP02**) has been adequately documented by the necessary means.

Thus, the author of this report is confident that the Erasmus Park archaeological site (Site EXIGO-MDW-HP01 and Site EXIGO-MDW-HP02) has been adequately documented by the necessary means and that application can be made for a destruction permit from the relevant heritage authority (SAHRA).

The following recommendations are made subsequent to this assessment:

- This report will be submitted to the relevant heritage authority for review where after application can be made for a destruction permit from the authority (SAHRA) prior to the destruction of the site.
- Considering the localised nature of heritage remains, the general monitoring of the development progress by an ECO or by the heritage specialist is recommended for all stages of the project. Should any subsurface palaeontological, archaeological or historical material, or burials be exposed during construction activities, all activities should be suspended and the archaeological specialist should be notified immediately.
- It is essential that cognisance be taken of the larger archaeological landscape of the Gauteng Province and the farm Waterkloof in order to avoid the destruction of previously undetected heritage sites. Here, care should be taken around rock faces and outcrops in the larger landscape, as rock art is known to occur on these outcrops. Water sources such as salt pans, drainage lines and rivers should also be regarded as potentially sensitive in terms of possible Stone Age deposits. Should any previously undetected heritage resources be exposed or uncovered during construction phases of the proposed project, these should immediately be reported to SAHRA.
- Since the intrinsic heritage and social value of graves and cemeteries are highly significant, these resources require special management measures. Should human remains be discovered at any stage, these should be reported to the Heritage Specialist and relevant authorities (SAHRA) and development activities should be suspended until the site has been inspected by the Specialist. The Specialist will advise on further management actions and possible relocation of human remains in accordance with the Human Tissue Act (Act 65 of 1983 as amended), the Removal of Graves and Dead Bodies Ordinance (Ordinance no. 7 of 1925), the National Heritage Resources

NOTATIONS AND TERMS/TERMINOLOGY

Absolute dating:

Absolute dating provides specific dates or range of dates expressed in years.

Archaeology:

The study of the human past through its material remains.

Archaeological record:

The archaeological record minimally includes all the material remains documented by archaeologists. More comprehensive definitions also include the record of culture history and everything written about the past by archaeologists.

Artefact:

Entities whose characteristics result or partially result from human activity. The shape and other characteristics of the artefact are not altered by removal of the surroundings in which they are discovered. In the Southern African context examples of artefacts include potsherds, iron objects, stone tools, beads and hut remains.

Assemblage:

A group of artefacts recurring together at a particular time and place, and representing the sum of human activities.

^{14}C or radiocarbon dating:

The ^{14}C method determines the absolute age of organic material by studying the radioactivity of carbon. It is reliable for objects not older 70 000 years by means of isotopic enrichment. The method becomes increasingly inaccurate for samples younger than ±250 years.

Ceramics:

The word ceramics is derived from the Greek word keramos (potter's earth / pottery). Today the term refers to objects made from fired clay or clay-like materials. They include household utensils and decorative items, flower pots, statues, clay smoking pipes, crucibles, linings of kilns and furnaces, and clay-derived building materials such as bricks and tiles.

Context:

An artefact's context usually consists of its immediate *matrix*, its *provenience* and its *association* with other artefacts. When found in *primary context*, the original artefact or structure was undisturbed by natural or human factors until excavation and if in *secondary context,* disturbance or displacement by later ecological action or human activities occurred.

Culture:

A contested term, "culture" could minimally be defined as the learned and shared things that people have, do and think.

Cultural Heritage Resource:

The broad generic term *Cultural Heritage Resources* refers to any physical and spiritual property associated with past and present human use or occupation of the environment, cultural activities and history. The term includes sites, structures, places, natural features and material of palaeontological, archaeological, historical, aesthetic, scientific, architectural, religious, symbolic or traditional importance to specific individuals or groups, traditional systems of cultural practice, belief or social interaction.

Cultural landscape:

A cultural landscape refers to a distinctive geographic area with cultural significance.

Cultural Resource Management (CRM):

A system of measures for safeguarding the archaeological heritage of a given area, generally applied within the framework of legislation designed to safeguard the past.

Ecofact:

Non artefactual material remains that has cultural relevance which provides information about past human activities. Examples would include remains or evidence of domesticated animals or plant species.

Excavation:

The principal method of data acquisition in archaeology, involving the systematic uncovering of archaeological remains through the removal of

the deposits of soil and the other material covering and accompanying it.

Feature:
Non-portable artefacts, in other words artefacts that cannot be removed from their surroundings without destroying or altering their original form. Hearths, roads, and storage pits are examples of archaeological features

GIS:
Geographic Information Systems are computer software that allows layering of various types of data to produce complex maps; useful for predicting site location and for representing the analysis of collected data within sites and across regions.

Historical archaeology:
Primarily that aspect of archaeology which is complementary to history based on the study of written sources. In the South African context it concerns the recovery and interpretation of relics left in the ground in the course of Europe's discovery of South Africa, as well as the movements of the indigenous groups during, and after the "Great Scattering" of Bantu-speaking groups – known as the *mfecane* or *difaqane*.

Impact: A description of the effect of an aspect of the development on a specified component of the biophysical, social or economic environment within a defined time and space.

Iron Age:
Also known as "Farmer Period", the "Iron Age" is an archaeological term used to define a period associated with domesticated livestock and grains, metal working and ceramic manufacture.

Lithic:
Stone tools or waste from stone tool manufacturing found on archaeological sites.

Management / Management Actions:
Actions – including planning and design changes - that enhance benefits associated with a proposed development, or that avoid, mitigate, restore, rehabilitate or compensate for the negative impacts.

Matrix:
The material in which an artefact is situated (sediments such as sand, ashy soil, mud, water, etcetera). The matrix may be of natural origin or human-made.

Megalith:
A large stone, often found in association with others and forming an alignment or monument, such as large stone statues.

Midden:
Refuse that accumulates in a concentrated heap.

Microlith:
A small stone tool, typically knapped of flint or chert, usually about three centimetres long or less.

Monolith:
A geological feature such as a large rock, consisting of a single massive stone or rock, or a single piece of rock placed as, or within, a monument or site.

Oral Histories:
The historical narratives, stories and traditions passed from generation to generation by word of mouth.

Phase 1 CRM Assessment:
An Impact Assessment which identifies archaeological and heritage sites, assesses their significance and comments on the impact of a given development on the sites. Recommendations for site mitigation or conservation are also made during this phase.

Phase 2 CRM Study:
In-depth studies which could include major archaeological excavations, detailed site surveys and mapping / plans of sites, including historical / architectural structures and features. Alternatively, the sampling of sites by collecting material, small test pit excavations or auger sampling is required. Mitigation / Rescue involves planning the protection of significant sites or sampling through excavation or collection (in terms of a permit) at sites that may be lost as a result of a given development.

Phase 3 CRM Measure:

A Heritage Site Management Plan (for heritage conservation), is required in rare cases where the site is so important that development will not be allowed and sometimes developers are encouraged to enhance the value of the sites retained on their properties with appropriate interpretive material or displays.

Prehistoric archaeology:

That aspect of archaeology which concerns itself with the development of humans and their culture before the invention of writing. In South Africa, prehistoric archaeology comprises the study of the Early Stone Age, the Middle Stone Age and the greater part of the Later Stone Age and the Iron Age.

Probabilistic Sampling:

A sampling strategy that is not biased by any person's judgment or opinion. Also known as statistical sampling, it includes systematic, random and stratified sampling strategies.

Provenience

Provenience is the three-dimensional (horizontal and vertical) position in which artefacts are found. Fundamental to ascertaining the provenience of an artefact is *association,* the co-occurrence of an artefact with other archaeological remains; and *superposition,* the principle whereby artefacts in lower levels of a matrix were deposited before the artefacts found in the layers above them, and are therefore older.

Random Sampling:

A probabilistic sampling strategy whereby randomly selected sample blocks in an area are surveyed. These are fixed by drawing coordinates of the sample blocks from a table of random numbers.

Relative dating:

The process whereby the relative antiquity of sites and objects are determined by putting them in sequential order but not assigning specific dates.

Remote Sensing:

The small or large-scale acquisition of information of an object or phenomenon, by the use of either recording or real-time sensing device(s) that is not in physical or intimate contact with the object (such as by way of aircraft, spacecraft or satellite). Here, ground-based geophysical methods such as Ground Penetrating Radar and Magnetometry are often used for archaeological imaging.

Rock Art Research:

Rock art can be "decoded" in order to inform about cultural attributes of prehistoric societies, such as dress-code, hunting and food gathering, social behaviour, religious practice, gender issues and political issues.

Scoping Assessment:

The process of determining the spatial and temporal boundaries (i.e. extent) and key issues to be addressed in an impact assessment. The main purpose is to focus the impact assessment on a manageable number of important questions on which decision making is expected to focus and to ensure that only key issues and reasonable alternatives are examined. The outcome of the scoping process is a Scoping Report that includes issues raised during the scoping process, appropriate responses and, where required, terms of reference for specialist involvement.

Sensitive:

Often refers to graves and burial sites although not necessarily a heritage place, as well as ideologically significant sites such as ritual / religious places. *Sensitive* may also refer to an entire landscape / area known for its significant heritage remains.

Site (Archaeological):

A distinct spatial clustering of artefacts, features, structures, and organic and environmental remains, as the residue of human activity. These include surface sites, caves and rock shelters, larger open-air sites, sealed sites (deposits) and river deposits. Common functions of archaeological sites include living or habitation sites, kill sites, ceremonial sites, burial sites, trading, quarry, and art sites,

Stratigraphy:

This principle examines and describes the observable layers of sediments and the arrangement of strata in deposits

Stratified Sampling:
A probabilistic sampling strategy whereby a study area is divided into appropriate zones – often based on the probable location of archaeological areas, after which each zone is sampled at random.

Systematic Sampling:
A probabilistic sampling strategy whereby a grid of sample blocks is set up over the survey area and each of these blocks is equally spaced and searched.

Tradition:
Artefact types, assemblages of tools, architectural styles, economic practices or art styles that last longer than a phase and even a horizon are describe by the term *tradition*. A common example of this is the early Iron Age tradition of Southern Africa that originated ± 200 AD and came to an end at about 900 AD.

Trigger: A particular characteristic of either the receiving environment or the proposed project which indicates that there is likely to be an *issue* and/or potentially significant *impact* associated with that proposed development that may require specialist input. Legal requirements of existing and future legislation may also trigger the need for specialist involvement.

LIST OF ABBREVIATIONS

Abbreviation	Description
ASAPA	Association for South African Professional Archaeologists
AIA	Archaeological Impact Assessment
BP	Before Present
BCE	Before Common Era
CRM	Culture Resources Management
EIA	Early Iron Age (also Early Farmer Period)
EIA	Environmental Impact Assessment
EFP	Early Farmer Period (also Early Iron Age)
ESA	Earlier Stone Age
GIS	Geographic Information Systems
HIA	Heritage Impact Assessment
ICOMOS	International Council on Monuments and Sites
K2/Map	K2/Mapungubwe Period
LFP	Later Farmer Period (also Later Iron Age)
LIA	Later Iron Age (also Later Farmer Period)
LSA	Later Stone Age
MIA	Middle Iron Age (also Early later Farmer Period)
MRA	Mining Right Area
MSA	Middle Stone Age
NHRA	National Heritage Resources Act No.25 of 1999, Section 35
PHRA	Provincial Heritage Resources Authorities
SAFA	Society for Africanist Archaeologists
SAHRA	South African Heritage Resources Association
YCE	Years before Common Era (Present)

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1 BACKGROUND

1.1 Scope and Motivation

Exigo Sustainability was commissioned by Interdesign Landscape Architects for a Phase 2 Heritage Site Assessment on Erasmus Park for the proposed Erasmus Park Mixed Use Development Project in the Gauteng Province. The rationale of this study is further investigate and document archaeological features at the site; to consider the impact of the proposed project on such heritage resources, and to submit appropriate recommendations with regard to the cultural resources management measures that may be required at affected sites / features.

1.2 Project Direction

Exigo Sustainability's expertise ensures that all projects be conducted to the highest international ethical and professional standards. As archaeological specialist for Exigo Sustainability, Mr Neels Kruger acted as field director for the project; responsible for the assimilation of all information, the compilation of the final consolidated AIA report and recommendations in terms of heritage resources on the demarcated project areas. Mr Kruger is an accredited archaeologist and Culture Resources Management (CRM) practitioner with the Association of South African Professional Archaeologists (ASAPA), a member of the Society for Africanist Archaeologists (SAFA) and the Pan African Archaeological Association (PAA) as well as a Master's Degree candidate in archaeology at the University of Pretoria.

1.3 Project Background and Brief

1.3.1 The Proposed Erasmus Park

Atterbury Property Fund Managers (Pty) Ltd propose to develop a mixed use commercial development on Erven 1 and 2 situated on a Portion of the Remaining Extent of the Farm Waterkloof 378JR, south east of Pretoria between the R21 and N1 highway. A portion of the Remaining Extent of the Farm Waterkloof 378 JR measures approximately 70.8711 Hectares in total extent, while Erven 1 and 2 occupy approximately a third of the total extent (±22 Hectares). The main future access to the development site will be from Solomon Mahlangu Drive, proposed for upgrade into a dual carriage-way within the existing road reserve.

1.3.2 Erasmus Park: Previous Heritage Study

The heritage Unit of Exigo Sustainability completed a Phase 1 Archaeological Impact Assessment (AIA)[1] on Waterkloof 378JR or the proposed project in 2016. During that archaeological investigation, apparent Historical Period sites (**Site EXIGO-MDW-HP01**, **Site EXIGO-MDW-HP02**) were located and it was recommended that ash middens and as the remains of foundation structures at the sites be documented by means of further Phase 2 Specialist Analysis – the subject of this assessment.

[1]KRUGER 2016: ARCHAEOLOGICAL IMPACT ASSESSMENT (AIA) OF AREAS DEMARACTED FOR A PROPOSED MIXED USE DEVELOPMENT ON ERVEN 1 AND 2 OF A PORTION OF THE REMAINING EXTENT OF THE FARM WATERKLOOF 378JR, AND ASSOCIATED UPGRADE OF SOLOMON MAHLANGU DRIVE, CITY OF TSHWANE, GAUTENG PROVINCE

Figure 1-1: Infrastructure layout map of the proposed Erasmus Park Mixed Use Development and Associated Infrastructure Project area and components.

1.4 Terms of Reference

Heritage specialist input into Environmental Management is essential to ensure that through the management of change, developments still conserve our heritage resources. Heritage specialist input in environmental management processes can play a positive role in the development process by enriching an understanding of the past and its contribution to the present. It is also a legal requirement for certain development categories which may have an impact on heritage resources (Refer to Section 2.5.2). New developments should always include an assessment of Heritage Resources. The heritage component of the EIA is provided for in the **National Environmental Management Act, (Act 107 of 1998)** and endorsed by section 38 of the **National Heritage Resources Act (NHRA - Act 25 of 1999)**. In addition, the NHRA protects all structures and features older than 60 years, archaeological sites and material and graves as well as burial sites. The objective of this legislation is to ensure that developers implement measures to limit the potentially negative effects that the development could have on heritage resources.

In addition, it a clear that the Phase 2 Assessment subject to this report is of interest as it is linked to the history of the Erasmus Family, which is regarded as one of the most important social entities during the formation years of Pretoria. The Erasmus family were true pioneers of their time and were well known throughout the whole community. Based hereon, this project functioned according to the following **terms of reference for** heritage specialist input**:**

- *Provide a description of **previously undocumented** archaeological artefacts, structures (including graves) and settlements in the project area;*
- *The establishment and mapping of the spatial extent of the archaeologically sensitive area on Erasmus Park.*
- *The establishment of the nature of the Historical period dwellings in terms of occupation sequence, cultural context, temporality and site function by means of suitable data sampling strategies.*
- *The establishment of the significance of all sites in question and the stipulation of further recommendations on destruction, mitigation, conservation and / or management of the sites.*
- *The archiving of all collected data pertaining to Erasmus Park for future reference, in order to permanently conserve the historical fabric of the site.*
- *Liaison with SAHRA during all stages of this process, including permitting and permissions for sub-surface investigations.*

1.5 CRM: Legislation, Conservation and Heritage Management

The broad generic term *Cultural Heritage Resources* refers to any physical and spiritual property associated with past and present human use or occupation of the environment, cultural activities and history. The term includes sites, structures, places, natural features and material of palaeontological, archaeological, historical, aesthetic, scientific, architectural, religious, symbolic or traditional importance to specific individuals or groups, traditional systems of cultural practice, belief or social interaction.

1.5.1 Legislation regarding archaeology and heritage sites

The South African Heritage Resources Agency (SAHRA) and their provincial offices aim to conserve and control the management, research, alteration and destruction of cultural resources of South Africa. It is therefore vitally important to adhere to heritage resource legislation at all times.

a. National Heritage Resources Act No 25 of 1999, section 35

According to the National Heritage Resources Act No 25 of 1999 (section 35) the following features are 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.

In addition, 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. Archaeological and paleontological importance
g. Graves and burial grounds
h. Sites of significance relating to the history of slavery
i. Movable objects (e.g. archaeological, paleontological, meteorites, geological specimens, military, ethnographic, books etc.)

With regards to activities and work on archaeological and heritage sites this Act states that:

"No person may alter or demolish any structure or part of a structure which is older than 60 years without a permit by the relevant provincial heritage resources authority." (34. [1] 1999:58)

and

"No person may, without a permit issued by the responsible heritage resources authority-

(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 which assist in the detection or recovery of metals or archaeological and palaeontological material or objects, or use such equipment for the recovery of meteorites. (35. [4] 1999:58)."

and

"No person may, without a permit issued by SAHRA or a provincial heritage resources agency-

(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;

(c) bring onto or use at a burial ground or grave referred to in paragraph (a) or (b) and excavation equipment, or any equipment which assists in the detection or recovery of metals (36. [3] 1999:60)."

b. Human Tissue Act of 1983 and Ordinance on the Removal of Graves and Dead Bodies of 1925

Graves and burial grounds are commonly divided into the following subsets:

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

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 Ordinance on Excavations (Ordinance no. 12 of 1980) 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 MEC as well as the relevant local authorities.

c. National Environmental Management Act No 107 of 1998

This act (Act 107 of 1998) 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.

1.5.2 Background to HIA and AIA Studies

South Africa's unique and non-renewable archaeological and palaeontological heritage sites are 'generally' protected in terms of the National Heritage Resources Act (Act No 25 of 1999, section 35) and may not be disturbed at all without a permit from the relevant heritage resources authority. Heritage sites are frequently threatened by development projects and both the environmental and heritage legislation require impact assessments (HIAs & AIAs) that identify all heritage resources in areas to be developed. Particularly, these assessments are required to make recommendations for protection or mitigation of the impact of the sites. HIAs and AIAs should be done by qualified professionals with adequate knowledge to (a) identify all heritage resources including archaeological and palaeontological sites that might occur in areas of developed and (b) make recommendations for protection or mitigation of the impact on the sites.

A detailed guideline of statutory terms and requirements is supplied in Addendum 1.

2 REGIONAL CONTEXT

2.1 Area Location

The Project area occurs along the southern outskirts of Pretoria in the Erasmus Park area of the City of Tswhane Municipality, Gauteng Province. The proposed development footprint is situated at the following location:

- **S25.81675° E28.24742°**

The site is bordered to north by Solomon Mahlangu Drive and to the east by the N1 Highway. The R21 Highway passes directly south-west of the site and the Leisure Bay Residential Complex occurs along the south-eastern periphery of the site. The study areas appear on 1:50000 map sheet 2528BC (see Figure 2-1).

2.2 Area Description: Receiving Environment

The development site lies within the Savanna biome which is the largest biome in Southern Africa. It is characterized by a grassy ground layer and a distinct upper layer of woody plants (trees and shrubs). The most recent classification of the area by Mucina & Rutherford shows that the site is classified as Marikana Thornveld. The project area is characterised by slightly undulating to flat plains with a small drainage line forming the southern boundary. The topography across the site is slightly undulating. The study area is drained mainly by surface run-off with surface water flowing into non-perennial streams of the study area. This water eventually drains into the Apies River.

2.3 Site Description

The study area is located on Portions of the Farm Waterkloof. Certain portions of the study have been disturbed and transformed where a farming compound, pits and a quarries and refuse dumping occurs. General site modification as a result of topsoil removal, refuse dumping and informal settlement are prevalent throughout. However portions of the surface and vegetation remain intact along a drainage line to the south. A large advertisement billboard has been erected on the north-eastern corner of the site and homeless persons occupy a number of clearings on the property.

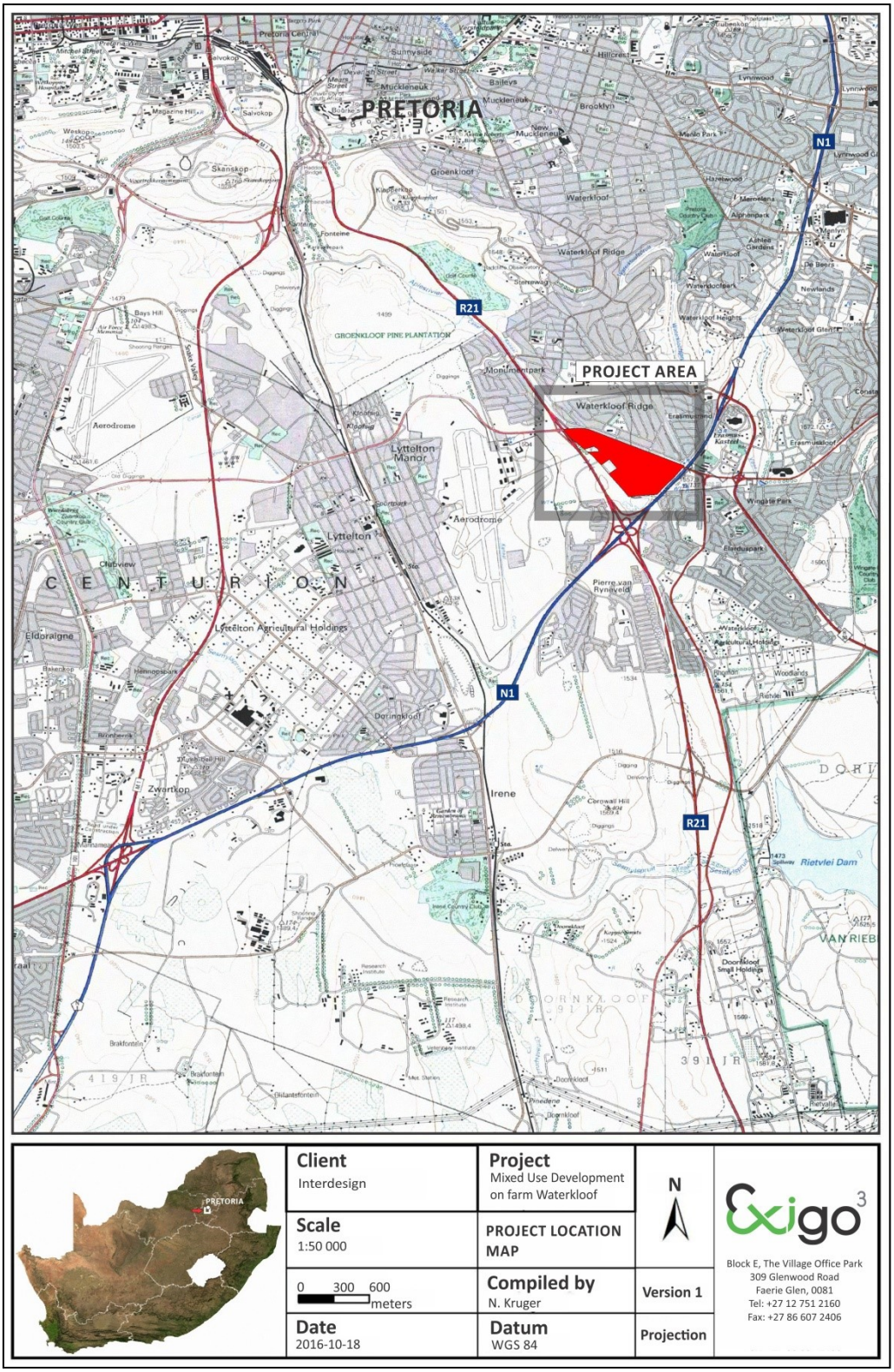


Figure 2-1: 1:50 00 Map representation of the location of the proposed Erasmus Park Mixed Use Development and Associated Infrastructure Project (sheet 2528BC).

Figure 2-2: Aerial representation of the regional setting for the proposed Erasmus Park Mixed Use Development and Associated Infrastructure Project

3 ERASMUS PARK ARCHAEOLOGICAL SITE DESCRIPTION

The Erasmus Park archaeological site is characterised by a number of ruined foundation structures, associated ash middens and scattered cultural material, presumably dating to the late Historical Period. For the purposes of this assessment, two clusters of foundations (or "features") and middens were identified; **Site EXIGO-MDW-HP01** and **Site EXIGO-MDW-HP02**.

Figure 3-1: High resolution aerial image indicating the locations of EXIGO-MDW-HP01 and EXIGO-MDW-HP02 at the Erasmus Park.

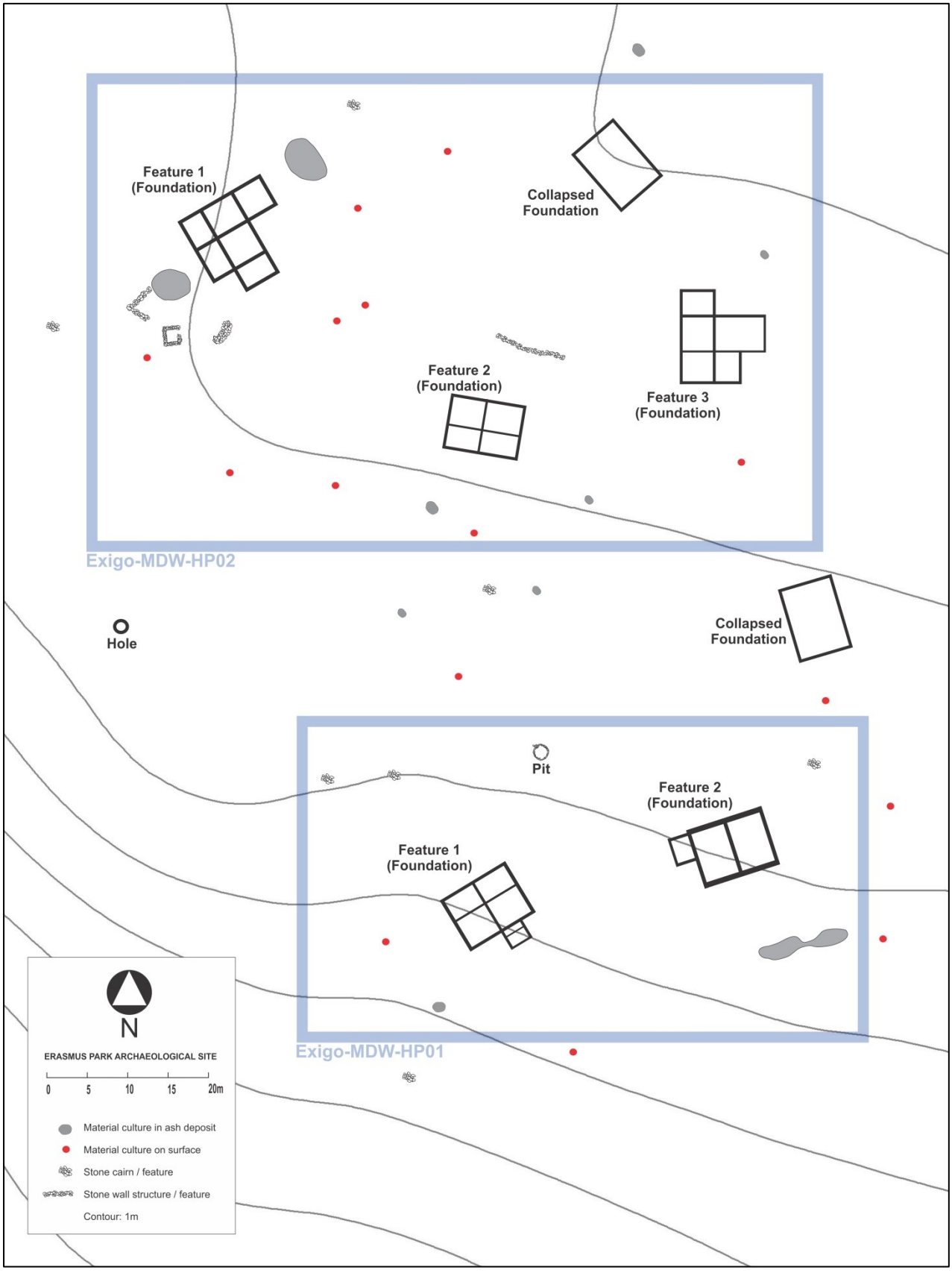


Figure 3-2: Site map of the Erasmus Park archaeological site.

3.1 Site Exigo-MDW-HP01

- **Feature 1**

Site Exigo-MDW-HP1 Feature 1 consists of the remains of a 4 room dwelling measuring approximately 12m x 8m. The sizes of the two north-westerly rooms are approximately 3m x 6m respectively and the south-easterly rooms are roughly 6m x 8m in dimensions. A small platform, possibly a porch extends to the south of the structure. At the site, stone foundations with single in-situ brick wall segments occur with large amounts of individual bricks scattered across the interior and exterior. In addition, a small ash middens containing material culture occur to the south-west of the site. A small pit, enclosed by stones occurs approximately 20m north-east of the feature and a large upright monolith of unknown function occurs directly north of the structure. The general preservation of the site and the foundation structures are poor due to site disturbances and natural site degradation over time.

- **Feature 2**

Site Exigo-MDW-HP1 Feature 2, situated approximately 30m east of Feature 1 is the remains of a 2 room dwelling measuring approximately 10m x 8m. The sizes of the rooms are approximately 5m x 8m respectively. Here, a small platform, possibly a porch extends to the west of the structure. The site is characterised by stone foundations with large amounts of individual bricks scattered across the interior and exterior. An ash middens containing material culture occur to the south of the site. The general preservation of the site and the foundation structures are very poor due to site disturbances and natural site degradation over time.

3.2 Site Exigo-MDW-HP02

- **Feature 1**

At Site Exigo-MDW-HP2 Feature 1, a relatively large 6 room dwelling measuring approximately 12m x 14m occurs on a small ridge. The sizes of the two westerly rooms are approximately 3m x 4m respectively, two central rooms measure approximately 4,5m x 4m, a southerly room measures 3m x 4m and the other room to the east is 4m x4m in dimensions. Similar to other sites in the area, stone foundations with in-situ and collapsed brick wall segments occur with large amounts of individual bricks scattered across the interior and exterior. Two large small ash middens containing material culture occur to the south-west and north-east of the structure. A small square stone structure, possibly a cooking chamber, as well as a stone wall section occur west and south of one of the middens. A large stone cairn occurs to the south of the foundation structure. The general preservation of the site and the foundation structures are poor due to site disturbances and natural site degradation over time.

- **Feature 2**

Site Exigo-MDW-HP2 Feature 2, situated approximately 35m south-east of Feature 1 is the remains of a 4 room dwelling measuring approximately 12m x 8m. The sizes of the western rooms are approximately 4m x 6m respectively and the eastern rooms measure approximately 3m x 6m each. The site is characterised by stone foundations with large amounts of individual bricks scattered across the interior and exterior. The foundation of a stone wall of about 12m occurs west of the foundation. The general preservation of the site and the foundation structure are very poor, where parts of the foundation are missing, possibly due to site disturbances and natural site degradation over time.

- **Feature 3**

Site Exigo-MDW-HP2 Feature 2 is characterised by a 5 room dwelling measuring approximately 12m x 12m, occurring 20m east of Feature 2. The sizes of two of the westerly rooms are approximately 4m x 4m with another measuring 3m x 4m. A large central room measures approximately 8m x 4m and a south-easterly room measures 3m x 4m. Similar to other sites in the area, stone foundations with in-situ and collapsed

brick wall segments occur with large amounts of individual bricks scattered across the interior and exterior. A small ash midden occurs to the north-east of the structure. The general preservation of the site and the foundation structures are very poor due to site disturbances and natural site degradation over time.

3.3 Other Features

At least two further ruined foundation structures occur in the vicinity of Site Exigo-MDW-HP1 and Site Exigo-MDW-HP2. However, these features - consisting out of scatters of bricks - are in such a state of degradation that they could not be adequately mapped or documented. Elsewhere, cultural material such as glass, porcelain, metal and plastic occurs across the site.

Figure 3-3: A brick foundation visible on the surface at Site Exigo MDW-HP01 Feature 1.

Figure 3-4: The remains of a brick wall at Site Exigo MDW-HP01 Feature 1.

Figure 3-5: Metal, porcelain and glass visible in the midden deposit at Site Exigo MDW-HP02 Midden 2.

Figure 3-6: Collapsed walling and brick foundations at Site Exigo MDW-HP02 Feature 1.

Figure 3-7: Scattered stones and clay bricks at Site Exigo MDW-HP02 Feature 2.

Figure 3-8: An upright stone (monolith) of unknown function at Site Exigo MDW-HP01 Feature 1.

Figure 3-9: Detail of baked clay bricks in the project area.

Figure 3-10: Brick foundation structure at Site Exigo MDW-HP02 Feature 3.

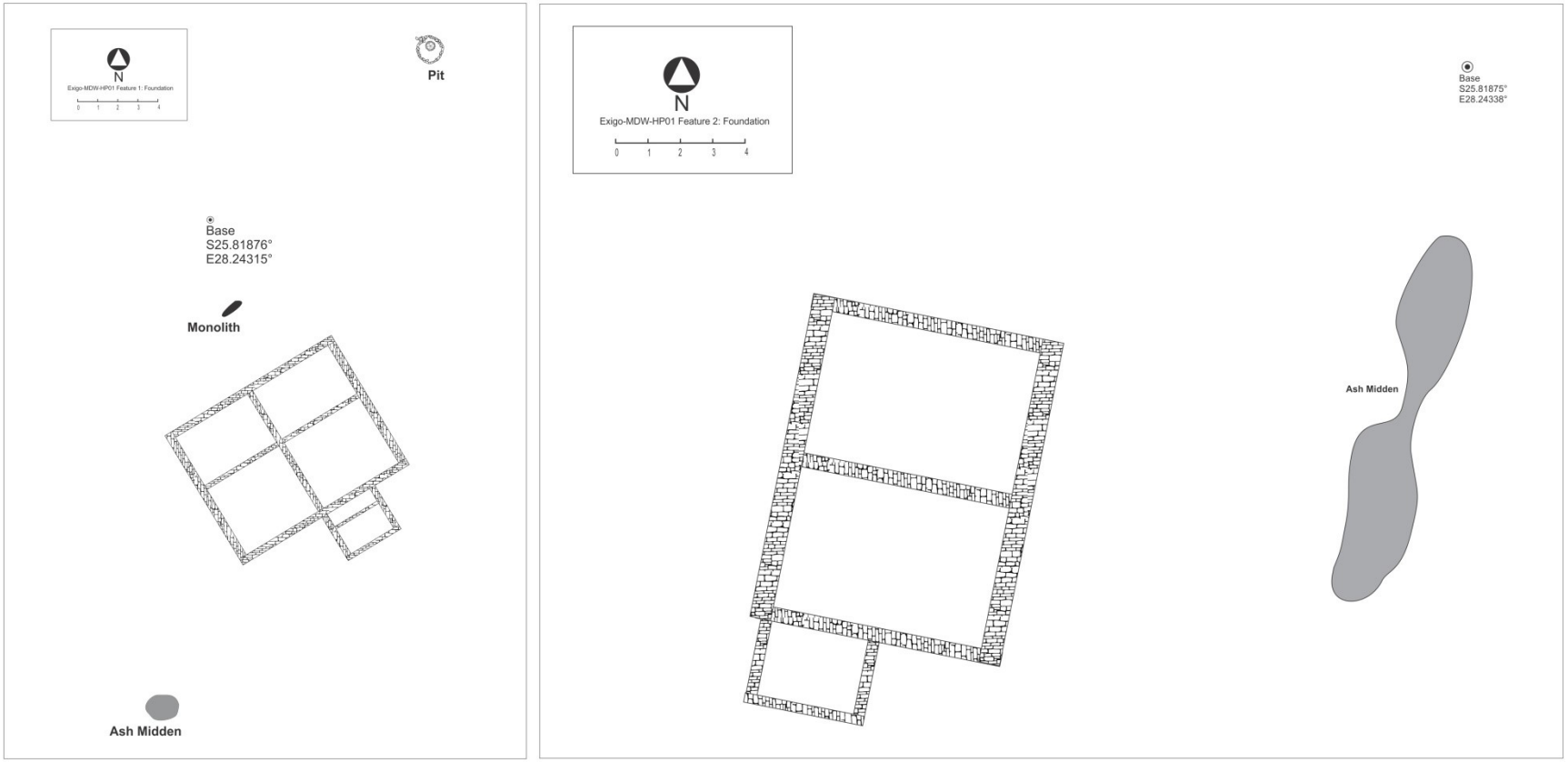


Figure 3-11: Site plans indicating structures and features at Site EXIGO-MDW-HP01 Feature 1 and Feature 2.

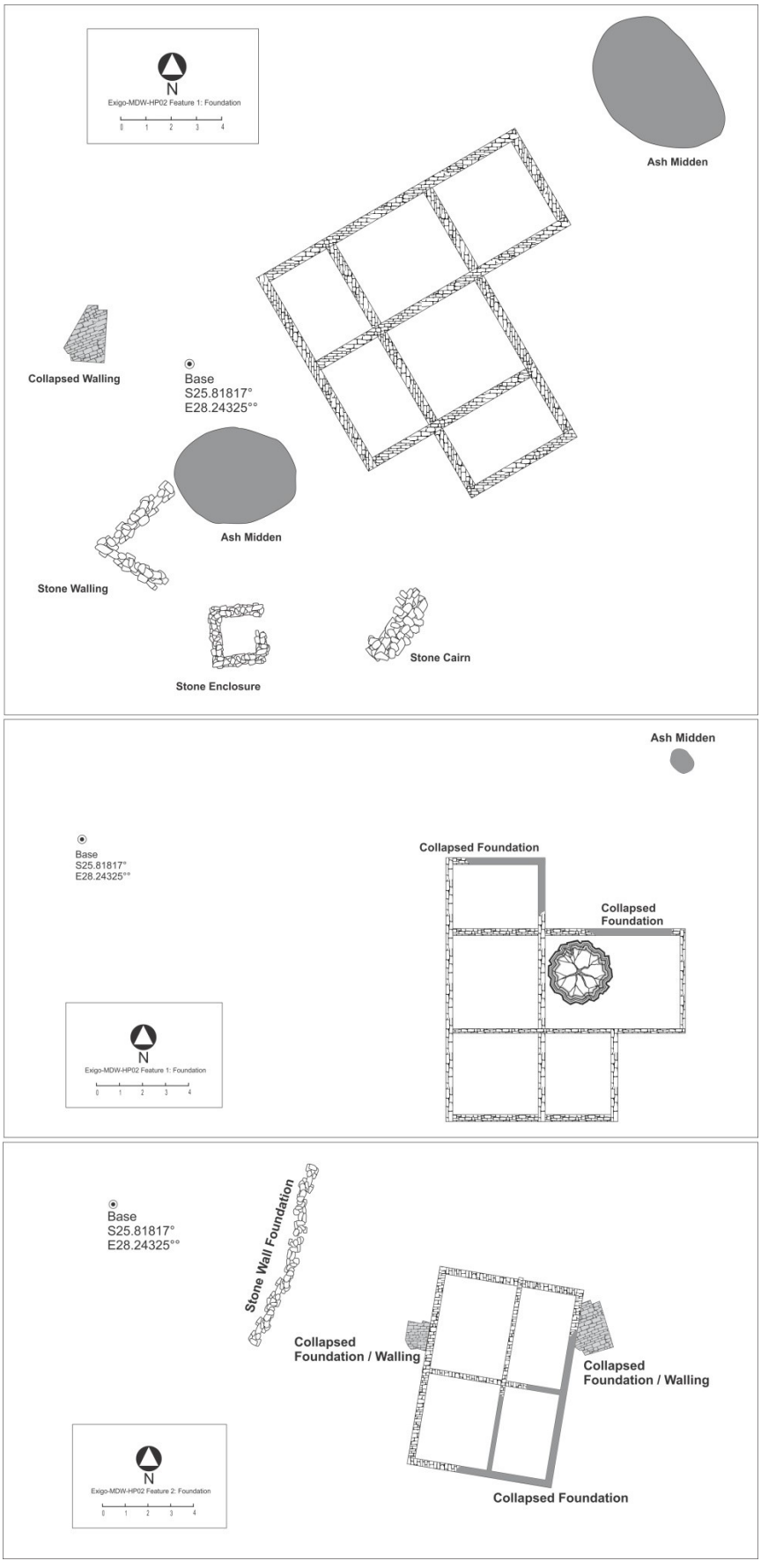


Figure 3-12: Site plans indicating structures and features at Site EXIGO-MDW-HP02 Feature 1, Feature 2 and Feature 3.

4 METHOD OF ENQUIRY

4.1 Study Approach and Project Mythology

As noted previously, Phase 1 archaeological investigations on the Waterkloof property identified two probable Historical Period sites consisting primarily out of ruined foundation structures and ash middens. Since surface and subsurface artefact deposits were noted and cognisant of the fact that the larger landscape proves rich in heritage value, a further phase of site investigation was recommended. As such, the objective of the Erasmus Park Phase 2 Assessment was to adequately capture archaeological features and cultural material in place and time; in other words to document all archaeological surface features and subsurface occurrences and provide a cultural interpretation of these features. Ultimately, the study envisaged the preservation of the cultural fabric of the site, prior to the physical destruction of these heritage resources during mining of Erasmus Park. For the study, standard archaeological field methodology was used and adapted to suit the site specific conditions during this project. The methodology was based on the aims and objectives of the study aimed at establishing site extent, approximate age, settlement layout and spatial features of the site. As a result the methodology was adapted for four phases, namely:

- **Off-site Analysis**

  - Literature Review

  - Informant Interview/s Aerial Representation and Survey

- **On-site Analysis**

  - Site survey by means of aerial and pedestrian methods

  - Site mapping

  - Site Sampling: STP Excavations

  - Site Sampling: Systematic Excavations

- **Materials analyses and documentation**

- **Collection management**

4.1.1 Off-site Analysis

- **Literature Review**

A desktop study was prepared in order to contextualize the proposed project within a larger historical milieu. The study focused on relevant previous studies, archaeological and archival sources, aerial photographs, historical maps and local histories, all pertaining to the Waterkloof area and the larger landscape of this section of the Gauteng Province. The desktop study examined a number of archaeological and historical impact assessments conducted in Pretoria and the Midrand regions.

- **Informant Interviews**

In lieu of available published sources to assist in the interpretation and age determination of the site, local knowledge was utilised to assist in the interpretation of the site. Here, locals were questioned regarding their knowledge of the area and some of the finds. Additional inferred information was obtained through correspondence with specialists and academics in related fields.

- **Aerial Representations and Survey**

Aerial photography is often employed to locate and study archaeological sites, particularly where larger scale area surveys are performed. This method was applied to assist the foot and automotive site surveys where depressions, variation in vegetation, soil marks and landmarks were examined. Specific attention was given to shadow sites (shadows of walls or earthworks which are visible early or late in the day), crop mark sites (crop mark sites are visible because disturbances beneath crops cause variations in their height, vigour and type) and soil marks (e.g. differently coloured or textured soil (soil marks) might indicate ploughed-out burial mounds). Attention was also given to moisture differences, as prolonged dampening of soil as a result of precipitation frequently occurs over walls or embankments. By superimposing high frequency aerial photographs with images generated with Google Earth, potential sensitive areas were subsequently identified, geo-referenced and transferred to a handheld GPS device. These areas served as referenced points from where further foot surveys were carried out. From the aerial survey it is evident that some surface areas subject to the Erasmus Park Mixed Use Development and Associated Infrastructure Project have been subjected to historical and more recent disturbances and impacts as a result ruralisation, human settlement and intensive crop farming.

4.1.2 On-site Analysis

In order to best document the heritage site on Erasmus Park, and to generate adequate usable datasets for the interpretation of the site, a number of on-site sampling strategies were conducted:

- **Foot Survey and Site Mapping**

All archaeological sites and historical events have spatial definitions (e.g. a physical location) in addition to their cultural and chronological context. The geographical referencing of all sites and site features is of essence to site sampling and the study of archaeological sites. GIS technology is primarily employed to map sites on a regional scale in order to record the position of archaeological sites and to re-locate them afterwards for further research work. An archaeological terrain survey implies the systematic procedure of the identification and documentation of archaeological sites while field walking across a site. Focusing on these attributes, this process entailed the detailed site mapping and spatial recording of all archaeological features and occurrences at Erasmus Park. First, the approximate site boundaries were determined where after the entire site was walked in arbitrary east-west transects. The survey was done in a linear manner at approximately 2 m intervals. In this way as much of the visible surface features and artefacts were marked, and then recorded. This also allowed an initial assessment of areas of high depositional potential (where sampling may be done) and areas of negligible or no depositional potential (mainly severely disturbed or destroyed areas) to be made. A map was then generated to visually indicate the locations of heritage receptors based on data from the foot survey.

- **Site and Feature Survey**

After the foot and site survey, individual intra-site heritage features were surveyed and mapped. As the general area was densely overgrown, visibility on the surface was limited and the extent of many of the heritage features could not be determined through visual inspection. Here, the largest and most prominent

features were identified and surface vegetation at these features was cleared in order to expose surface features and artefacts. Each of the more prominent heritage features was subsequently mapped using a dumpy level and standard land survey techniques. The x, y and z values generated during the dumpy level survey were consequently converted to co-ordinates (latitude and longitude) using a GIS-based model. These coordinates were then captured and a GIS map with metadata created.

Figure 4-1: Aerial view of the Erasmus Park site indicating GPS tracks of transect surveys (white line).

4.1.3 On-site Analysis: Site Excavations and Sampling

A notable feature of the Erasmus Park site is not only the occurrence of multiple foundation structures, but also the distribution of surface artefact scatters and cultural material in subsurface midden deposits. As such, controlled surface find documentation, surface testing and sub site excavation would assumedly generate a significant data sample. Here, a number of sampling strategies were employed:

- **STP Sampling**

Shovel test pit (STP) sampling is a standard method CRM site testing methodology and a popular form of rapid archaeological survey to determine site extent, integrity and existence of deposit. It designates a single, or a series of test holes (0.50 m or less), usually dug out by a shovel (hence the name) in order to determine whether the soil contains any cultural remains that are not visible on the surface. The depth of an STP depends on the depth at which either the bedrock or the sterile subsoil is found. The soil is sifted or screened through wire mesh to recover possible artefacts. STPs will either be laid out over the project area in a grid-like fashion or in a consistently spaced line, creating a fairly systematic survey, or it might be placed in pre-selected site-specific locations (e.g. ash middens). After the holes have been dug, one may map artefact densities over the project area, pinpointing the locations of possible sites where further

investigation may be necessary. An excavation permit was requested from the South African Heritage Resources Agency (SAHRA) for the excavation of heritage deposits at Erasmus Park and, after receiving the permit, STP's and excavations commenced in May 2007. In order to test the density of subsurface deposits in middens at the Erasmus Park site, STP's were dug in 4 locations where the middens at **Site EXIGO-MDW-HP01** proved to contain low densities of cultural material whereas two middens at **Site EXIGO-MDW-HP02** contained larger numbers of artefacts. STP's at the latter where thus extended to full systematic site excavations.

- **Site Excavation: Systematic Excavation**

Based on STP results from two middens at **Site EXIGO-MDW-HP02** it was decided that these middens should be investigated by means of excavation as they might contain information on the history of this area. Archaeological excavation refers to the horizontal or vertical digging and recording of artifacts at an archaeological site in order to retrieve contextual artefact material for further laboratory analyses and it investigates the vertical and horizontal distribution of material at an archaeological site. Excavations are often conducted in activity areas, based on surface distribution of materials and features and excavations targeted some of these features and areas with dense concentrations, such as middens. Archaeological evidence comprises a variety of contexts at different scales and takes many different forms. At **Site EXIGO-MDW-HP02 Midden 1,** two adjacent 1m x 1m blocks (Block A & Block B) were initially excavated methodically in 'spits' (arbitrary layers) but after removal of Spit 1, excavations of the second block (Block B) was abandoned due to resource constraints. At **Site EXIGO-MDW-HP02 Midden 2,** a 1m x 1m block (Block A) was excavated. At both middens, the blocks and spits were numbered uniquely for recoding and documentation purposes. These excavation blocks were excavated in 10 cm spits down to sterile soil. These excavations were executed in order to generate as much in situ material as possible that may assist in the interpretation of the site. Excavated soil was sifted or screened through a wire mesh (10mm) to recover possible artefacts. Detailed notes, which include descriptions on excavation strategies, the procedures followed, stratigraphy, finds, etc., as well as fieldwork photographs and sketches were compiled during the excavation process.

- **Site Excavation: Test Trench Excavation**

At **Site EXIGO-MDW-HP01 Feature 1,** a test trench of 12m x 1m was excavated through a complete foundation section at the site in order to document architectural elements (building material, technique) and to expose previously undetected structural elements. The trench was divided into 1m x 1m blocks and, as with excavations elsewhere at the site, excavation blocks were excavated in 10 cm spits down to sterile soil or once structures were exposed. The trench, blocks and spits were numbered uniquely for recoding and documentation purposes. Detailed notes, which include descriptions on excavation strategies, the procedures followed, stratigraphy, finds, etc., as well as fieldwork photographs and sketches were compiled during the excavation process.

4.1.4 Data Analysis and Curation

This phase included the analysis of all representative samples including artefacts, fauna and botanical remains. This analytical application of data which entailed the technological and typological analyses of material culture obtained during sub-surface investigations, served to construct a chronological position and cultural context of the area's material culture. Due to time and resource constraints, on site data analyses were not done. However, all excavated and sampled material was cleaned packaged for long term storage. An accession register was created where descriptions of all artefacts and image numbers of photographs were recorded. Post-fieldwork collection management included the creation complementary GIS metadata.

5 DESKTOP FINDINGS: ARCHAEO-HISTORICAL CONTEXT FOR THE FARM WATERKLOOF

5.1 The archaeology of Southern Africa

Archaeology in Southern Africa is typically divided into two main fields of study, the **Stone Age** and the **Iron Age** or **Farmer Period**. The following table provides a concise outline of the chronological sequence of periods, events, cultural groups and material expressions in Southern African pre-history and history.

Table 1 Chronological Periods across Southern Africa

Period	Epoch	Associated cultural groups	Typical Material Expressions
Early Stone Age 2.5m – 250 000 YCE	Pleistocene	Early Hominins: *Australopithecines* *Homo habilis* *Homo erectus*	Typically large stone tools such as hand axes, choppers and cleavers.
Middle Stone Age 250 000 – 25 000 YCE	Pleistocene	First *Homo sapiens* species	Typically smaller stone tools such as scrapers, blades and points.
Late Stone Age 20 000 BC – present	Pleistocene / Holocene	*Homo sapiens sapiens* including San people	Typically small to minute stone tools such as arrow heads, points and bladelets.
Early Iron Age / Early Farmer Period 300 – 900 AD	Holocene	First Bantu-speaking groups	Typically distinct ceramics, bead ware, iron objects, grinding stones.
Middle Iron Age (Mapungubwe / K2) / early Later Farmer Period 900 – 1350 AD	Holocene	Bantu-speaking groups, ancestors of present-day groups	Typically distinct ceramics, bead ware and iron / gold / copper objects, trade goods and grinding stones.
Late Iron Age / Later Farmer Period 1400 AD -1850 AD	Holocene	Various Bantu-speaking groups including Venda, Thonga, Sotho-Tswana and Zulu	Distinct ceramics, grinding stones, iron objects, trade objects, remains of iron smelting activities including iron smelting furnace, iron slag and residue as well as iron ore.
Historical / Colonial Period ±1850 AD – present	Holocene	Various Bantu-speaking groups as well as European farmers, settlers and explorers	Remains of historical structures e.g. homesteads, missionary schools etc. as well as, glass, porcelain, metal and ceramics.

5.2 The Farm Waterkloof Historical Background

5.2.1 Sources Consulted

For the purposes of this assessment, it was necessary to use a range of sources in order to give an account of the history of the Waterkloof property and the larger landscape. Sources include secondary source

material, maps and archival documents. Unfortunately not many documents could be found in the National Archives that specifically relate to the historical land use of Waterkloof 428 JR. All available information was however recorded and analysed. Archival and other maps help to draw a clearer picture of the historical landscape. Several previous studies are on record for the general study area (van Schalkwyk *et al* 1992, van Schalkwyk 2014 & Coetzeee 2008). Van Schalkwyk *et al* (1992) conducted excavations close to the Fountains on historical farmsteads. Van Schalkwyk (2014) conducted an assessment for the development of six dams in the Waterkloof Ridge Nature Reserve and recorded no sites in the study area. Coetzee (2008) conducted a study for the proposed upgrade of Hans Strijdom Drive and also recorded no sites of significance. Neither the Genealogical Society nor the monuments database at Google Earth (Google Earth also include some archaeological sites and historical battlefields) have any recorded sites in the study area.

5.2.2 Larger Regional History

Pretoria was founded in 1855 by Marthinus Pretorius, leader of the Voortrekkers, who named it after his father Andries Pretorius. The elder Pretorius had become a national hero of the Voortrekkers after his victory over the Zulus in the Battle of Blood River. It became the capital of the South African Republic (ZAR) on 1 May 1860. The founding of Pretoria as the capital of the South African Republic can be seen as marking the end of the Boers' settlement movements of the Great Trek.

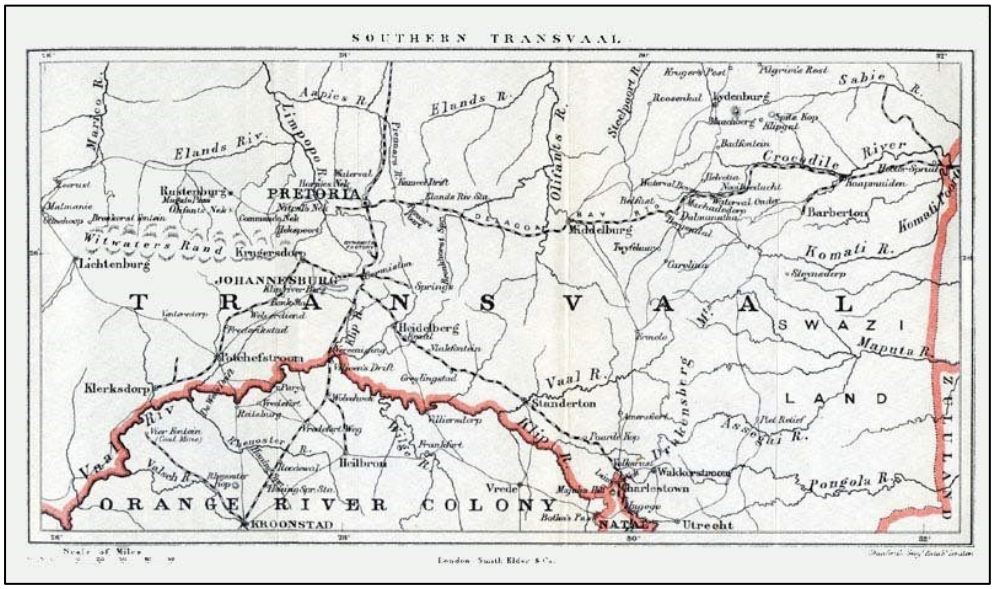


Figure 5-1: A map of the Transvaal at the turn of the 19th century.

For centuries the area east of Pretoria proved to be ideal farmland because of its water richness and the first white settlers trekked into this area during the early part of the 19th century. The Bronkhorst family were the first owners of the farms in the district where Pretoria would later be founded. Lucas Cornelius Bronkhorst (1795-1875) joined the Potgieter migration during the Great Trek with his family and his brother, Johannes Gerhardus Stephanus Bronkhorst (1798-1848). Before the British annexed Natal in 1842, they moved back over the Drakensberg Mountains and settled in the region of the Apies River. Lucas then established the farm 'Groenkloof' in 1841 which had a rich water supply. The two brothers also established the farm 'Elandsfontein'in 1842, where the first hartbees houses (reed huts) were built. Two years after Field Cornet Andries P.J. van der Walt (1814-1861) settled on the left bank of the Apies River after the battle of Boomplaats (1848), Andries Wilhelmus Jacobus Pretorius (1798-1853) established a farm next to the Magaliesberg Mountain. New settlers accompanied him from the Free State, Natal and Ohrigstad.

Since the mid-1800s up until the present, South Africa has been divided and re-divided into various districts. The district of Pretoria was established in 1857, and the land that would later be known as a portion of Waterkloof 29, and eventually Waterkloof 428 JR, formed part thereof. This remained the case up until 1994. As of 1994 the farm was located in the new province of Gauteng, still in the Pretoria magisterial district. The property under investigation first formed part of the farm Waterkloof 29, later Waterkloof 378 JR and was only recently proclaimed as the Remaining Extent of Waterkloof 428 JR.

5.2.3 Erasmuskloof and the Erasmus Legacy

The history of Pretoria-East is closely related to the Erasmus family. At around 1900 Carl Jacobus Erasmus and Albert Brodrick were the joint owners of the farm Waterkloof. In 1903, a portion of the farm was transferred to Jochemus Johannes Petrus Erasmus, born in Pretoria on 30 Augustus 1863, as inheritance from his father, Carl. Jochemus built the famed Erasmus Castle in 1903 and he lived here with his wife Johanna Jacoba Erasmus. Yes, my family were cattle farmers, and they used to move seasonally between Pretoria and Warmbaths with their cattle. In 1960, a large portion of the farm Waterkloof was left to Jochecmus' son, Jochemus Rasmus (Emus) Erasmus as inheritance. However, the farm was expropriated by the Transvaal Labour Department who wanted to build an academic hospital in the area, and Emus lost all ownership of the farm in in 1977. An interesting fact about the farm Waterkloof 378JR is that the property was one of the first to be survey by Johan Friedrich Bernhard Rissik, surveyor general of the Zuid-Afrikaansche Republiek, in the 1890's. For these properties, he used his initials "JR" in farm names and the nomenclature remains to this day.

Figure 5-2: The well-known Erasmus Castle shortly after completion in 1903

5.2.4 Waterkloof and **Erasmus Park**

The farm Waterkloof 29, Ward Witwatersrand, was inspected on 8 December 1859 by the Inspector A. P. van der Walt. The farm, measuring 2500 morgen, was sold by Government Transport to Lucas Cornelis Bronkhorst on 21 September 1861. The following record of historical owners exists:

Date	Portion	Landowner	New landowner	Price
1861/09/23	A	Lucas Cornelis Bronkhorst	Andries Francois du Toit	-
1865/04/25	A	A. F. du Toit	Jacobus Cornelis Rademeyer	-
1868/01/23	A	J. C. Rademeyer	Cornelis Moll Senior	£187.10
1869/11/23	A1	C. Moll Senior	Albert Brodrick	£300
1872/04/29	A2	C. Moll Senior	Albert Brodrick	£250
1887/02/23	A1&2	A. Brodrick	William Robertson Keet	£150
1891/09/23	A1&2	W. R. Keet	William Emil Hollard	£150
1864/03/17	RE	Lucas Cornelis Bronkhorst	Carel Jacobus Erasmus	-
1899/04/21	A1&2	W. M. Hollard	A. Brodrick	£1500
1902/09/11	A1&2	A. Brodrick	African Farms Ltd	£5500
1903/03/04	B	Estate C. J. Erasmus	Jochemus Johannes Petrus Erasmus	-
1909/11/03	A1&2	Certificate of Township Title issued under Section 50 of Township Amendment Act 1908	African Farms Ltd.	-
1910/02/09	A1&2	African Farms Ltd	Pretoria Townships Ltd	£5000
1910/02/09	A1&2	African Farms Ltd	Pretoria Townships Ltd	-
No record could be found of the landowners of the property for the period 1910 to 1942.				
1942/08/07	Portion 43	Consolidation	Albert White	-
1942/08/07	RE of	A. White	Rosema & Klaver Pty Ltd	Unknown
-	RE	-	City Lake Marina Pty Ltd	Unknown
2016	RE	Abland Pty Ltd	Stone Arch Development Co Pty Ltd	R130,000,000

(NASA *TAB, RAK: 2990;* NASA *TAB, RAK: 2998;* Windeed Search Engine 2016)

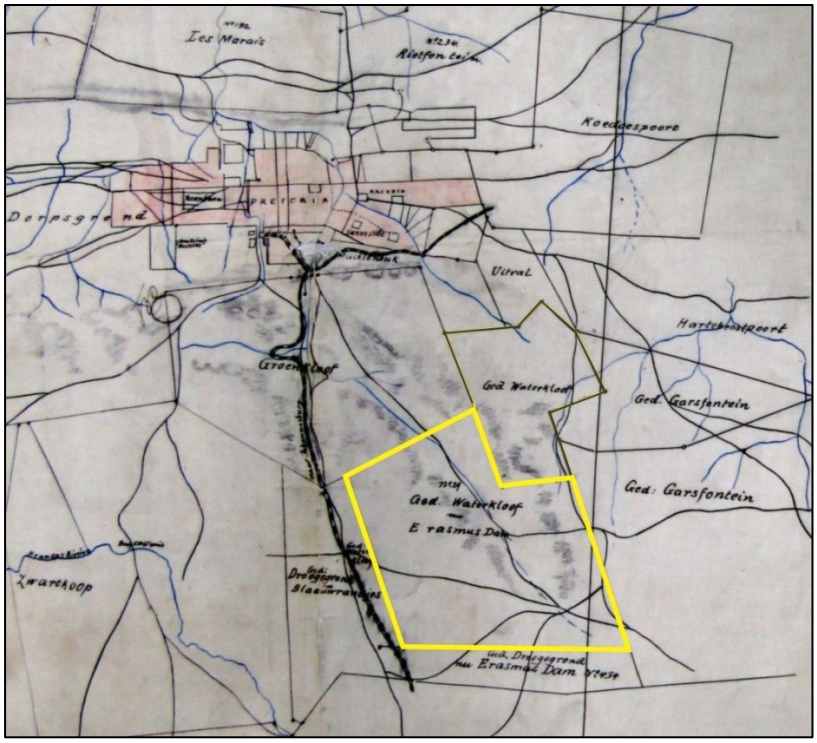


Figure 5-3: 1898 Map of Pretoria and the farms surrounding it with the farm Waterkloof 29 to the southeast (NASA TAB, Maps: S3/1855).

Figure 5-4: 1900 Map of Pretoria and its surrounds. At this time, the southern portion of Waterkloof known here as the farm Erasmusdam (green outline) (NASA TAB, Maps: 2/103)).

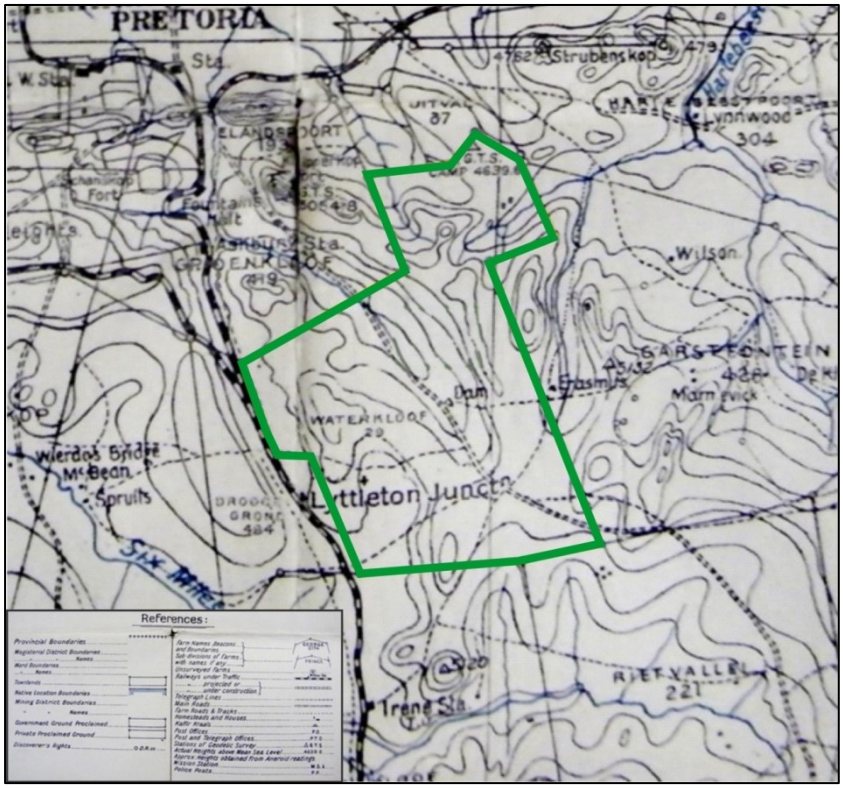


Figure 5-5: 1913 Map of the Pretoria District, showing the farm Waterkloof 29. A main road intersected the farm, and a number of farm roads can also be seen. Next to the main road, one can see Erasmus Dam (Union of South Africa 1913).

The area surrounding the Farm Waterkloof was situated on a travel route for the largest part of the precious centuries, with a dirt road connecting Pretoria with the south bisecting the farm. According to one of the last Waterkloof Farm owners Charl Erasmus[2], travellers in their ox wagons travelling between Johannesburg and Pretoria used to outspan at Erasmus Dam, which is fed by a tributary of the Apies River. It seems that the farm, which was first known as a portion of Waterkloof 29, had been surveyed by 1861. A number of buildings had already been constructed on the farm by 1939, although nothing was constructed in the study area by 1943. The property was purchased by Rosema and Klaver Pty Ltd in 1942, but it is not known if this company started the brick fields on the portion under investigation. By the late 1940s, the government was in the process of moving black squatters off a section of Waterkloof 29. The occupied land was far to the west of the portion under investigation, near the Waterkloof Airport and the western border of the Groenkloof State Plantation. By 1948 this land belonged to the African Townships, Mining & Finance Corporation Ltd. By 1955 the settlement had grown immensely, to about 400 dwellings, and most of those people living in this area were deemed to be illegal squatters. By June 1956, all of the squatters in this area had received notice to move from the premises. By December 1958 the removal of squatters from Waterkloof 29 was well underway. About 400 squatters had been removed from the land of nine different landowners on the farm, but this did not include the portion under investigation. Most of these people were moved to the Kaalfontein District Location. The Monument Park residential area was proclaimed On 22 April 1960 on the farm Waterkloof 29, Pretoria District. According to Mr Erasmus, his grandfather Emus ran an active dairy on the larger property around 45 years ago but this became increasing difficult as the city developed and road networks cut through farmland. He eventually ceased all farming activity in this area and the portion subject to this assessment has been vacant and unused for several years. Dwellings or buildings are indicated on historical 1:50 000 topographical maps of the area around “Erasmus Dam” dating to between 1939 and 1957. However, these structures disappear from later topographical maps, post 1964. In addition, an analysis of historical aerial imagery shows that area subject to this assessment was relatively densely populated by 1947 with the sites discussed in the report visible on these photos. The imagery indicates that the area remains unchanged in the 1950’s but it seems as though, by 1964 the dwellings subject to this assessment has even vacated and they disappear from aerial photos post-dating this time. We can thus argue with a measure of certainty that the Erasmus Park area was occupied from the early 19th century up to around 1960, during the terminal stages of the Historical period.

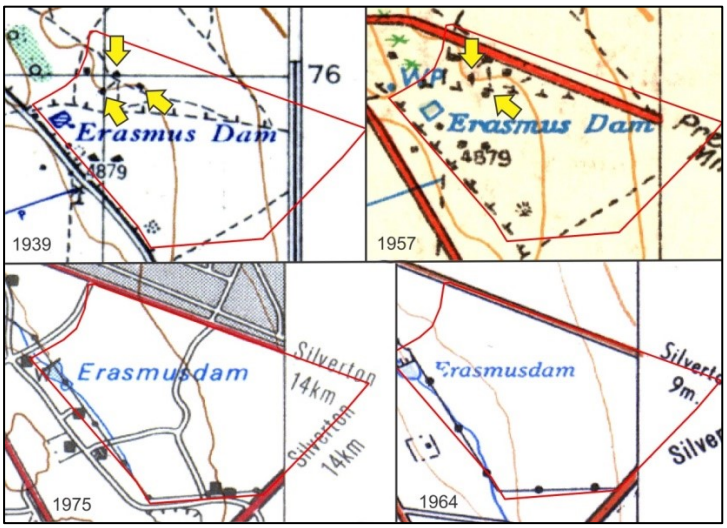


Figure 5-6: A series of topographical maps of the project area. Note the occurrence of structures / homesteads (black dots indicated by yellow arrows) on earlier maps (1939 and 1957) in the project area.

[2] See http://www.atterbury.co.za/erasmus-park-history-meets-future (unfortunately Mr Erasmus could not be reached for further historical information).

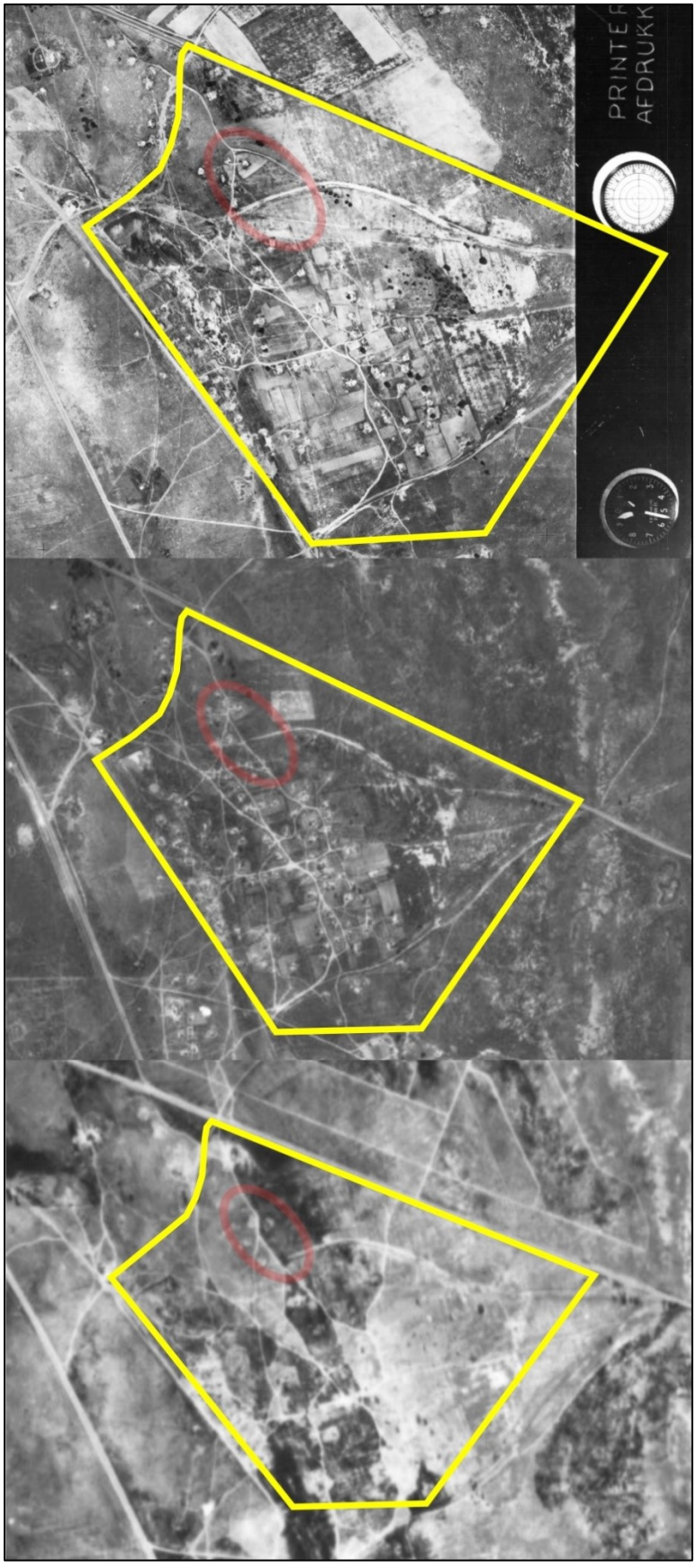


Figure 5-7: A series of historical aerial imagery indicating the position of the study area in the past 70 years (red shaded line). The images date as follows from top to bottom: 1947, 1958, 1964. Note the gradual disappearance of features in the study area over time.

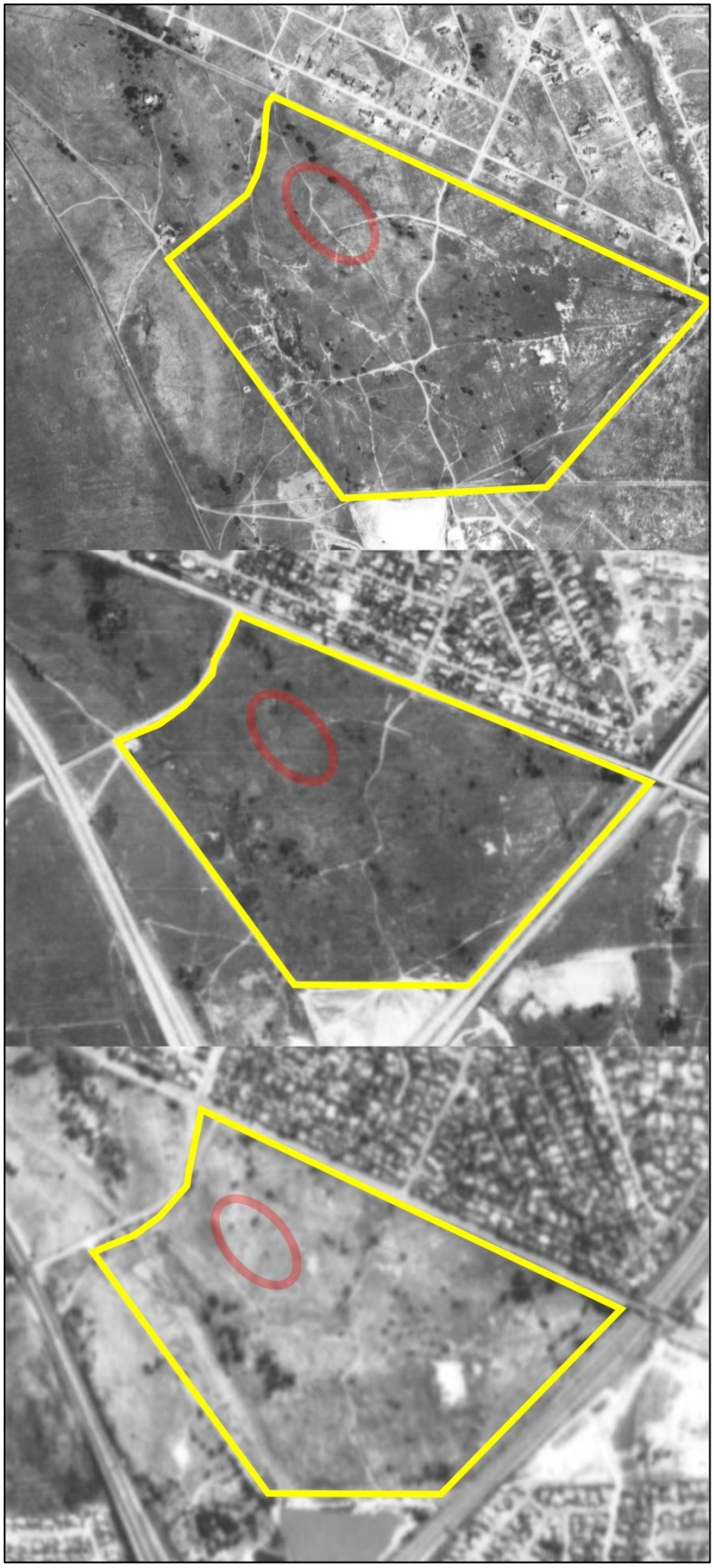


Figure 5-8: A series of historical aerial imagery indicating the position of the study area in the past 40 years (red shaded line). The images date as follows from top to bottom: 1968, 1978, 1984. Note the absence of features in the study area.

Figure 5-9: View of Erasmus Dam in its current state. The project area subject to this assessment is visible in the distance.

Figure 5-10: The remains of the old dam wall of the Erasmus Dam. (NASA TAB, Maps: 2/103).

6 INFERRED SITE INVESTIGATION FINDINGS

6.1 Site survey and mapping

The result of the site survey indicated the presence of a number of ruined foundation structures, associated ash middens and scattered cultural material across the Erasmus Park site. The survey suggests that certain portions of the site were used for agricultural fields and crop farming. The remains of a dam wall were mapped along the south-western periphery of the site in a drainage line and this site was later identified as the historical "Erasmus Dam", a prominent landmark in the historical landscape of the Waterkloof area (see reference in previous section). In addition, a clearing located along the northern periphery of the study area, indicated by a circular stone structure and an open sand surface, is probably used as a religious meeting place, assumedly by members of the Zionist Christian Church (ZCC). The survey noted the presence of a multi-room house west of the study area across the M28 (Van Ryneveld Ave) Road. The double storey building is located in an enclosed compound; which includes a second house, gardens and a cattle pen. The property is currently occupied. The site survey also indicated a degree of site disturbance as a result of occupation by loiterers and squatters, where a number of informal dwellings and shacks with interconnected footpaths occur throughout the site. In other places, the site has been used for refuse dumping. Mapped site components, disturbances and other attributes needed to be taken into account when interpreting the site and determining areas for further sampling, as it provided an indication of the extent to which the site may have been altered in previous events and during past years.

6.2 STP and Site Excavations

Five subsurface sampling excavations were conducted. Two STP excavations were placed in two middens with a test trench excavated through a foundation feature at **Site EXIGO-MDW-HP01.** At **Site EXIGO-MDW-HP02,** two systematic excavations were conducted in two middens associated with a large foundations structure.

6.2.1 STP Excavations (Site Exigo-MDW-HP01)

As noted above, STP's were excavated in ash midded deposits associated with foundation structures at **Site EXIGO-MDW-HP01.** These were:

- **Site EXIGO-MDW-HP01 M1 STP 1 (S25.81890° E28.24307°)**

This STP was placed in a small midden associated with **EXIGO-MDW-HP01 Feature 1** in order to test the density of cultural material content for possible further systematic excavation sampling. A location more or less in the centre of this midden was selected; surface artefacts were collected and documented where after a test pit of approximately 50cm x 50 cm was excavated. The STP's was dug up to sterile soil, which occurred at a depth of 35cm. Soil from the STP was screened through a wire mesh (10mm) to recover possible artefacts. Detailed notes, which include descriptions on excavation strategies, the procedures followed, stratigraphy, finds, etc., as well as fieldwork photographs and sketches were compiled during the excavation process. It was noted that the midden consisted of a uniform layer of organic, light grey ash with few anthracite coal inclusions. As illustrated in Figure 6 1, a small material culture sample were generated from this STP and surface areas at the midden and the site yielded 3% of the total sample of cultural material from the Erasmus Park site. Based on the low density of material culture from this STP, and thus the low potential to generate a representative and diagnostic sample of material culture, it was decided to exclude this midden from further sub-surface investigations.

Figure 6-1: View of the STP excavation at Site EXIGO-MDW-HP01 Midden 1.

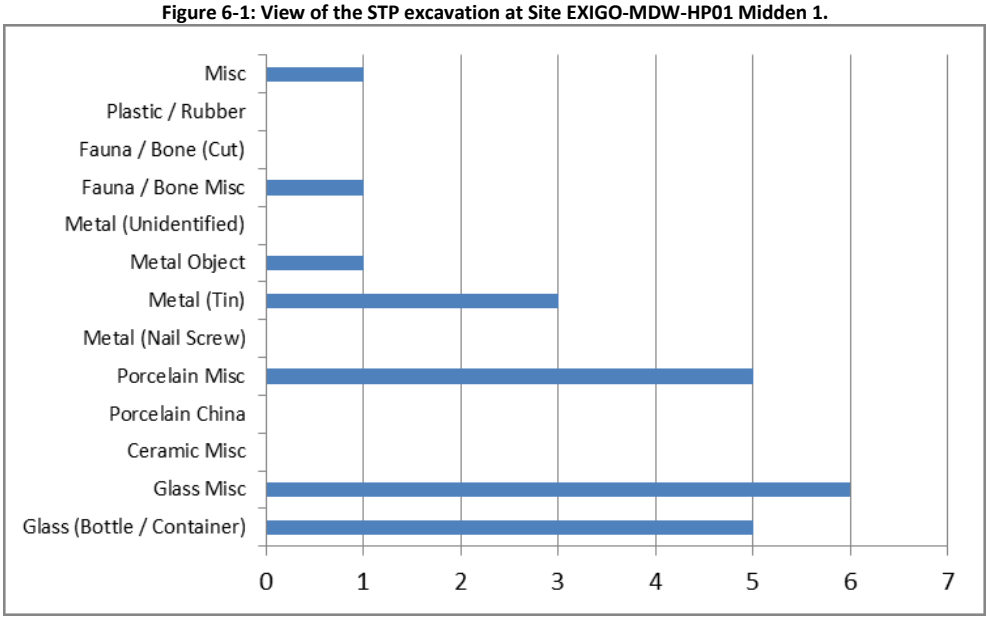


Figure 6-2: Chart indicating artefact yield from the STP excavation at Site EXIGO-MDW-HP01 Midden 1.

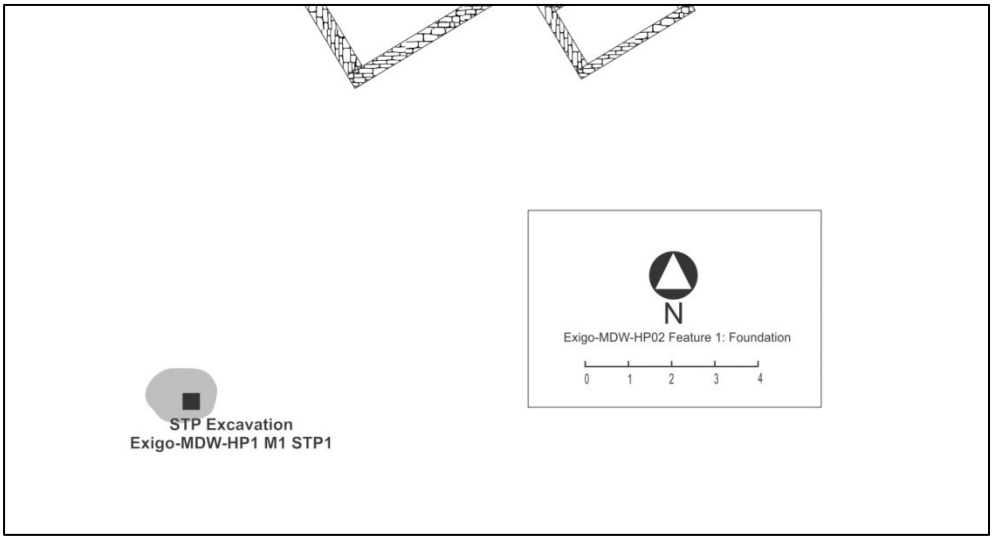


Figure 6-3: Site plan indicating the location of the STP excavation at Site EXIGO-MDW-HP01 Midden 1.

- **Site EXIGO-MDW-HP01 M2 STP 1 & Site EXIGO-MDW-HP01 M2 STP 2 (S25.81875° E28.24363°)**

Two STP's were placed in an elongated midden associated with **EXIGO-MDW-HP01 Feature 2** in order to test the density of cultural material content for possible further systematic excavation sampling. Two locations, towards the west and the east of the midden were selected selected; surface artefacts were collected and documented where after two test pits of approximately 50cm x 50cm each, were excavated. The STP's were dug up to sterile soil, which occurred at a depth of 45cm. Soil from the STP's was screened through a wire mesh (10mm) to recover possible artefacts. Detailed notes, which include descriptions on excavation strategies, the procedures followed, stratigraphy, finds, etc., as well as fieldwork photographs and sketches were compiled during the excavation process. This midden consisted of a uniform layer of organic, grey-brown ash with few anthracite coal and stone inclusions. A very small material culture sample were generated from this STP and surface areas at the midden, as illustrated in Figure 6 1. This site yielded 2% of the total sample of cultural material from the Erasmus Park site. Based on the low density of material culture from the STP's, and thus the low potential to generate a representative and diagnostic sample of material culture, it was decided to exclude this midden from further sub-surface investigations.

Figure 6-4: View of the STP excavation 1 at Site EXIGO-MDW-HP01 Midden 2.

Figure 6-5: View of the STP excavation 2 at Site EXIGO-MDW-HP01 Midden 2.

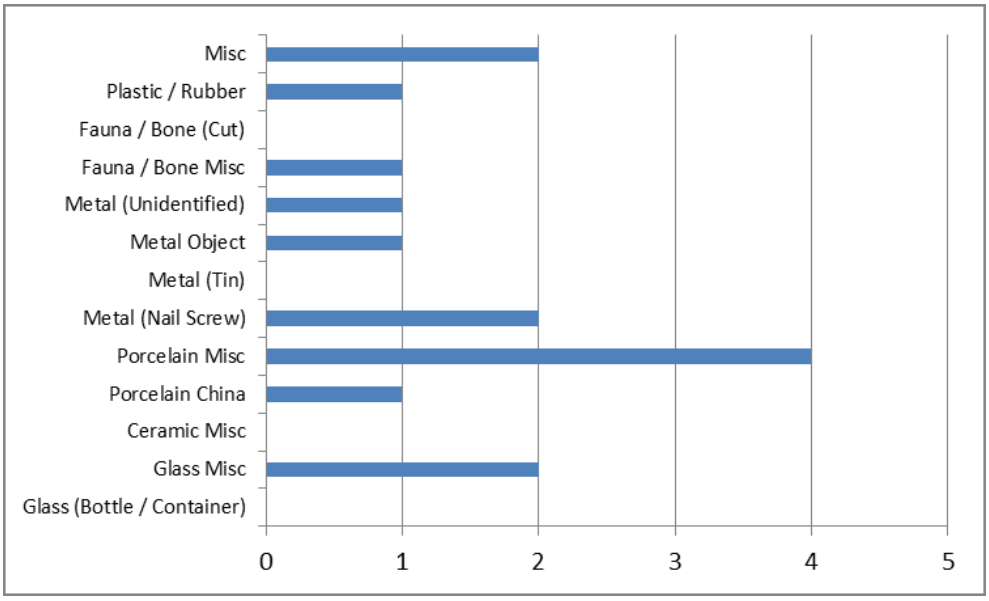


Figure 6-6: Chart indicating artefact yield from the STP excavations at Site EXIGO-MDW-HP01 Midden 2.

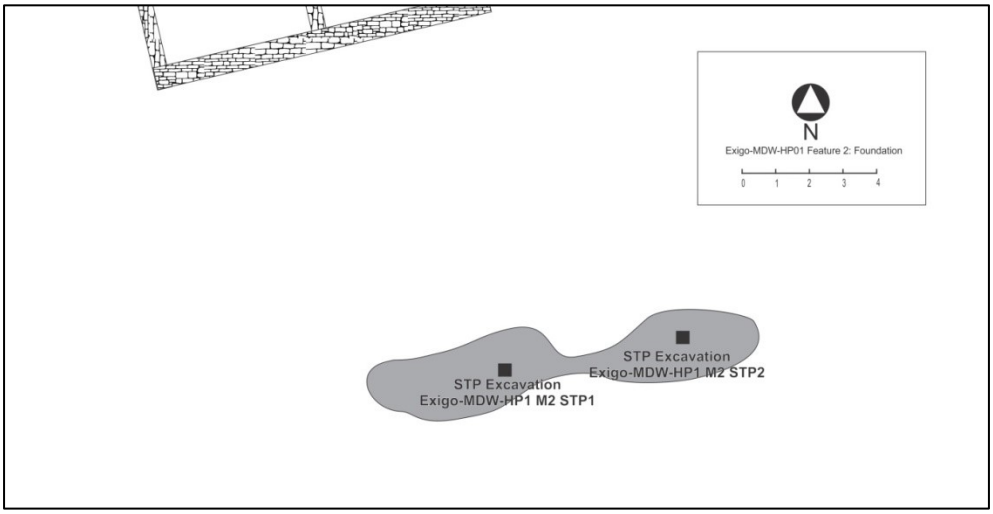


Figure 6-7: Site plan indicating the location of the STP excavations at Site EXIGO-MDW-HP01 Midden 2.

6.2.2 Test Trench Excavation

- **Site Exigo-MDW-HP01 Feature 1 (S25.81876° E28.24315° - Base)**

An elongated test trench measuring 12m x 1m was excavated through a complete foundation section of Feature 1 at Exigo-MDW-HP01. The aim of the excavation was to document architectural elements (building material, technique) and to expose previously undetected structural elements. In addition, the excavation tested the presence of cultural material with, or directly surrounding the ruin. The test trench was divided into 1m x 1m blocks, surface occurrences such as the locations of bricks and stones were documented, and arbitrary 10 cm spits were excavated down to sterile soil or once structures were exposed. These depths ranged according to the location of excavated block. The trench, blocks and spits were numbered uniquely for recoding and documentation purposes. Soil from the first excavated blocks was screened through a wire mesh (10mm) to recover possible artefacts but no material culture was noted at any stage. As such, it was decided to screen material from the excavation randomly while visually inspecting excavations and excavated soil in situ in order to detect material culture. No cultural material was generated from this excavation. Detailed notes, which include descriptions on excavation strategies, the procedures followed, stratigraphy, finds, etc., as well as fieldwork photographs and sketches were

compiled during the excavation process.

It was noted that excavated material consisted of a layer of red-brown organic soil with stone inclusions. Scattered bricks and a small number of stones and rocks occurred in the trench. Importantly, the trench exposed exterior wall foundation structures, an interior wall foundation structure and a small platform, possibly a patio to the south of the feature. The exterior wall foundation structures consisted of a base layer of rocks on which the brick walls were constructed. Similarly, the interior brick wall was built on a foundation of fashioned stones. The foundations of the small platform to the south are composed out of brick walls with compacted soil on a higher surface occurring here. No floor structures or other features were noted inside the foundations and it is possible that the wooden floor boards were used for the dwelling. From this excavation it is clear that the dwelling was constructed out of "Common Burnt Clay Bricks" or possibly reused bricks. These bricks are formed by pressing in moulds, dried and fired in a kiln and they have been used for much of the last century as affordable building material. Many of the bricks display shape distortions, bloating and signs of over firing which, in turn, are indicative of a lower quality product. The excavation provided the following dimensions for the foundation structure:

Exterior wall depth: 35cm

Interior wall depth: 40cm

Platform wall depth: 25cm

Apparent interior floor dimension from wall to wall: Approximately 3m

Apparent platform dimension from wall to wall: Approximately 1.9m

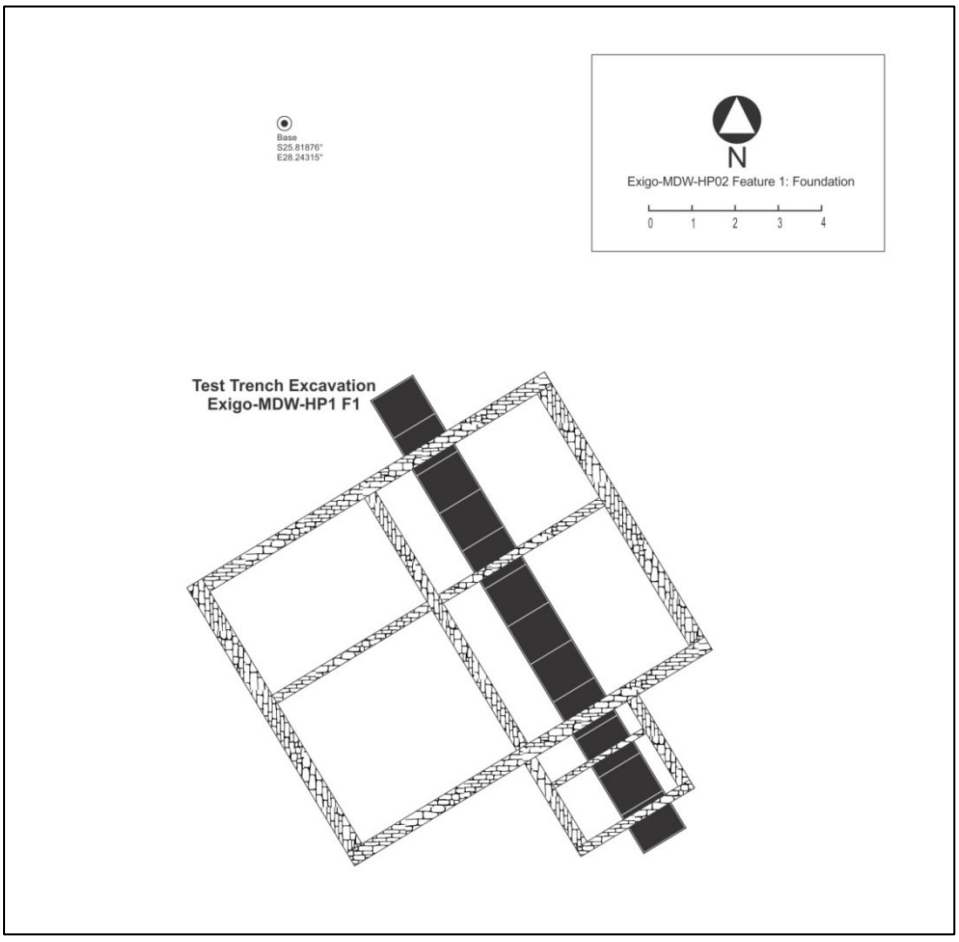


Figure 6-8: Site plan indicating the location of the test trench excavation at Site EXIGO-MDW-HP01 Feature 1.

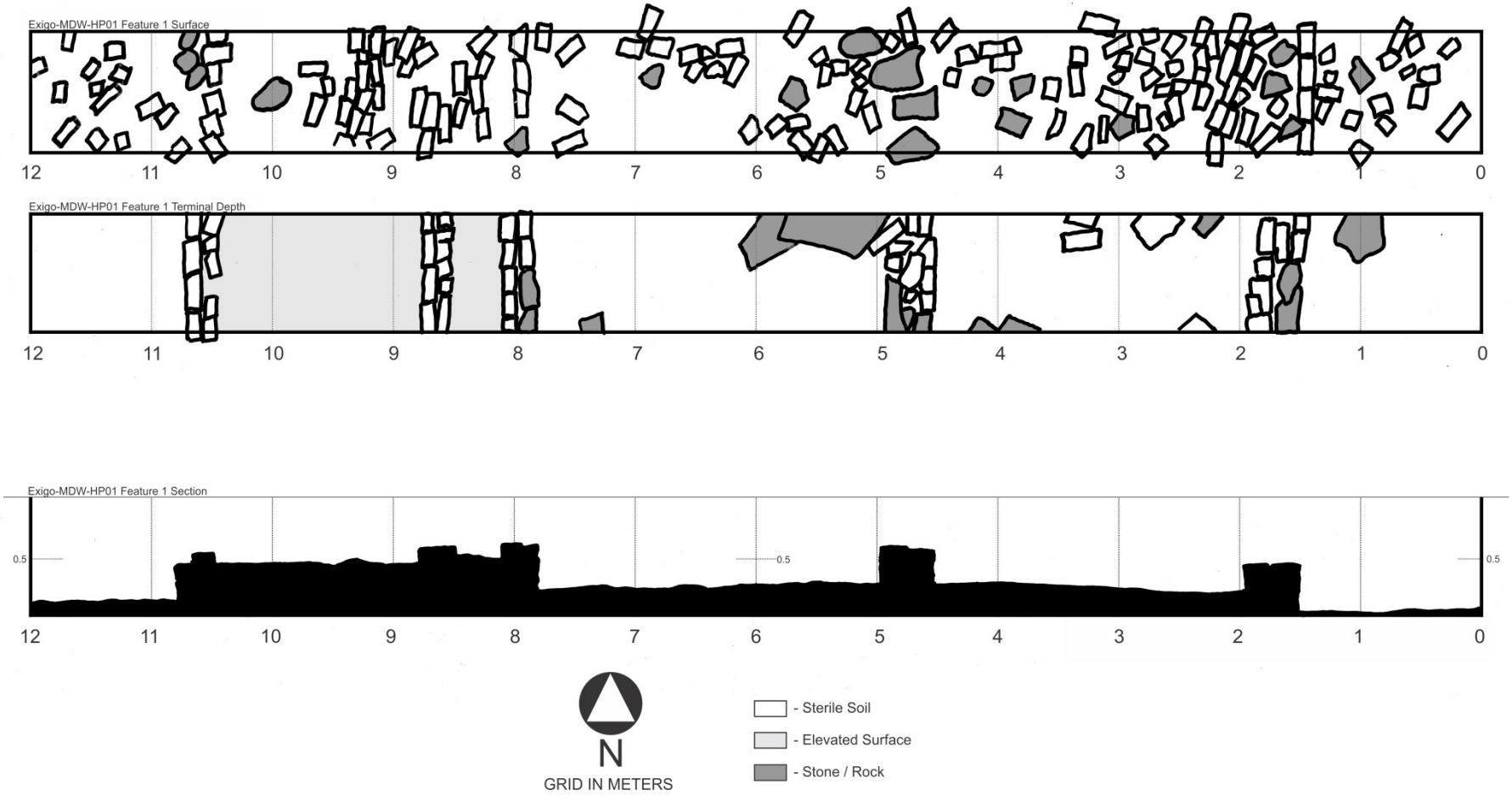


Figure 6-9: Top plan (top) and section diagram (bottom) of the of the test trench excavation at Site EXIGO-MDW-HP01 Feature 1.

Figure 6-10: View of the of the completed test trench excavation at Site EXIGO-MDW-HP01 Feature 1.

Figure 6-11: Close view of the of the completed test trench excavation at Site EXIGO-MDW-HP01 Feature 1.

Figure 6-12: View of a western section and foundation in the test trench excavation at Site EXIGO-MDW-HP01 Feature 1.

Figure 6-13: View of a western section and foundation in the test trench excavation at Site EXIGO-MDW-HP01 Feature 1.

Figure 6-14: View of a central section and foundation in the test trench excavation at Site EXIGO-MDW-HP01 Feature 1.

Figure 6-15: View of an eastern section and foundations in the test trench excavation at Site EXIGO-MDW-HP01 Feature 1.

Figure 6-16: View of the eastern section and foundation in the test trench excavation at Site EXIGO-MDW-HP01 Feature 1.

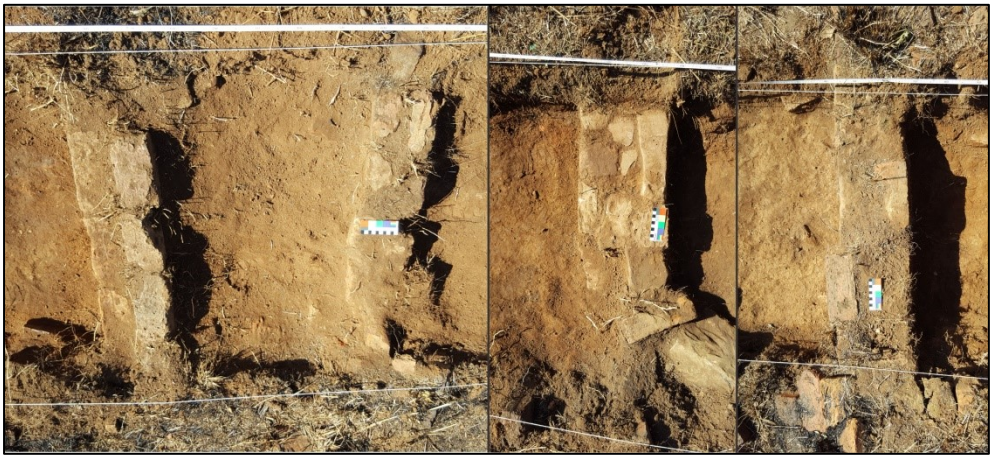


Figure 6-17: Different foundation structures exposed during excavations at Site EXIGO-MDW-HP01 Feature 1.

6.2.3 Systematic Excavations

- **Site Exigo-MDW-HP02 (S25.81813° E28.24282°- Base)**

As noted previously, two middens at **Site EXIGO-MDW-HP02** were sampled by means of systematic excavations, based on their potential to contain information on the history of this area. As such, the aim of these excavations was to retrieve contextual artefact material for further laboratory analyses and to investigate the vertical and horizontal distribution of material in the two middens.

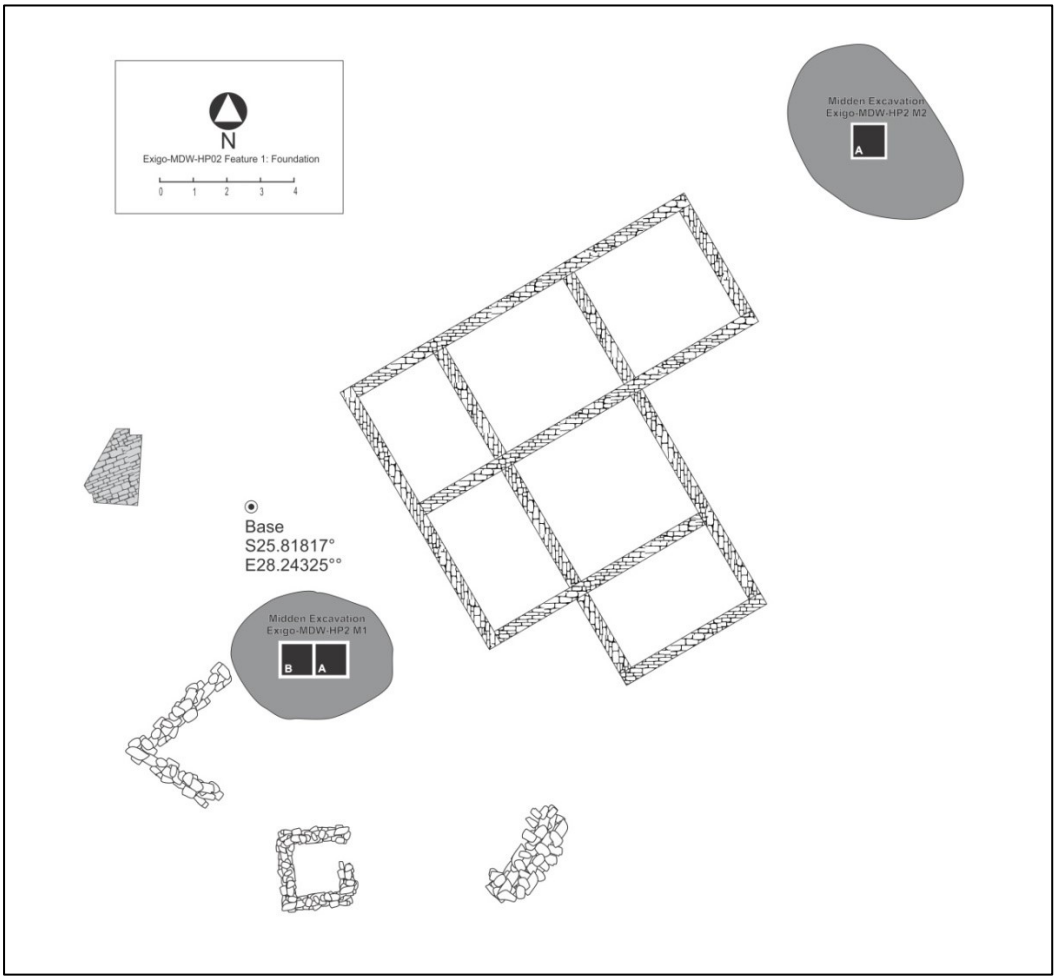


Figure 6-18: Site plan indicating the location of the excavations at Site EXIGO-MDW-HP02 Midden 1 and Midden 2.

- **Exigo-MDW-HP02 M1**

At site **EXIGO-MDW-HP02 M1,** the density of cultural material content was tested by means of an STP and based on the apparent high potential yield of material culture, it was decided to expand the STP to a systematic excavation of the midden deposit. Here, two adjacent 1m x 1m blocks (Block A & Block B) were mapped out over the midden, surfaces were swept clean and cleared from loose soil and vegetation, and surface artefacts were documented and collected. Then, a first 10cm layer or 'spit' was methodologically excavated over the two blocks. After removal of this spit, it was decided to suspend excavations of the second block (Block B) because of resource constraints in terms of removing and processing excavated material. Excavations continued in Block A in 10cm spits which reached sterile soil at 50cm. The block, spits and artefact finds were numbered uniquely for recoding and documentation purposes. Excavated soil was sifted or screened through a wire mesh (10mm) to recover possible artefacts. Detailed notes, which include descriptions on excavation strategies, the procedures followed, stratigraphy, finds, etc., as well as fieldwork photographs and sketches were compiled during the excavation process.

Figure 6-19: View of the excavation in Site EXIGO-MDW-HP01 Midden 1, Block A and B at Spit 2.

The sections of the excavation revealed a number of identifiable stratigraphical layers making up the midden deposit. These constituted (see Figure 6-23):

- A clear surface wash layer, consisting out of organic material, brown soil, stones and humus.
- A light grey fine organic ash layer, where ash probably mixed with organic soil on the surface.
- A layer of coarse ash with anthracite coal inclusions.
- A layer of dark brown organic ash.
- A layer of sterile soil.
- A layer of anthracite coal and ash.
- A deep layer of fine white ash, interrupted only by a layer of fine white ash with anthracite coal inclusions.
- Red-brown sterile soil at terminal depth.
- Larger stone inclusions in the western section of the excavation.

The possible meaning of this stratigraphical presentation is described in detail later. A number of randomly scattered stones occurred in the excavation in deeper spits and at terminal depth but no indication could be found that these stones were part of heritage features per se.

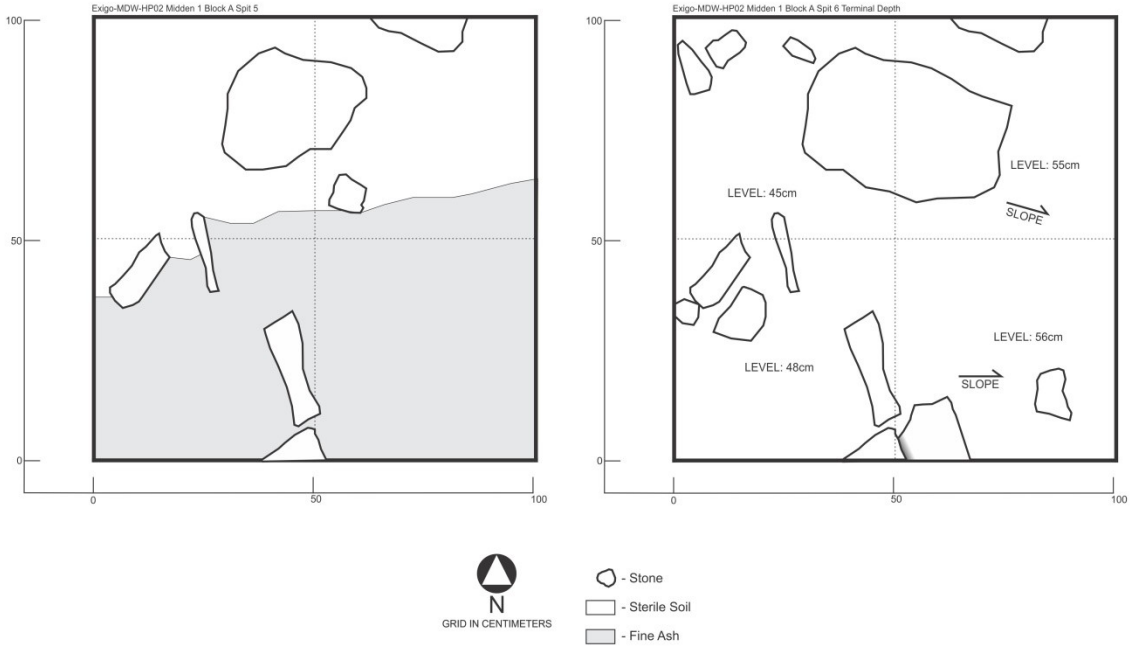


Figure 6-20: Top plan of excavations in Site EXIGO-MDW-HP02 Midden 1, Block A at Spit 5 (left) and terminal depth (right).

Figure 6-21: View of the excavation in Site EXIGO-MDW-HP01 Midden 1, Block A at terminal depth.

A large sample of material culture was recovered surface areas and the excavation at the midden, yielding 66% of the total sample of cultural material from the Erasmus Park site. As illustrated in Figure 6-22, this sample is comprised out of large amounts of metal (nails and screws) with glass, porcelain and bone

included in the sample in smaller numbers. The large quantities of nails and screws from the midden prove interesting and this might suggest that woodworking-related activities occurred at the site for much of its occupation. It might also be the result of the burning of scrap wood planks (for food preparation or heating) or it might even suggest the dismantling and removal of wooden floors from the adjacent dwelling. The small numbers of fauna / bone found seems peculiar since one would expect the consumption of meat to be prominent in e.g. a household setting with faunal remains discarded in household ash middens. This might imply limited consumption of meat and / or the consumption of meat cuts without bone. It might also suggest an affinity for processed foods (canned foods) or simply point to the consumption of foodstuffs other than meat. Similarly, the fragmented or intact remains of few porcelain / glass kitchenware were found in the midden excavation whereas one would expect larger quantities to be present in household refuse. The reason for this could be the use of enamel kitchenware rather than more expensive porcelain or glass or it could represent small breakage percentages of glass and enamelware during site occupation.

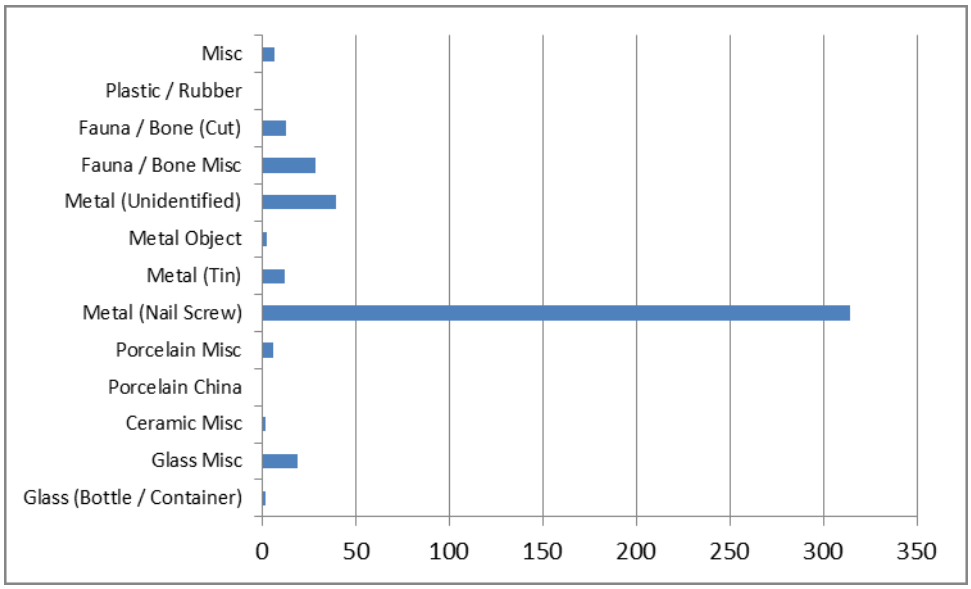


Figure 6-22: Chart indicating artefact yield from the excavations at Site EXIGO-MDW-HP02 Midden 1.

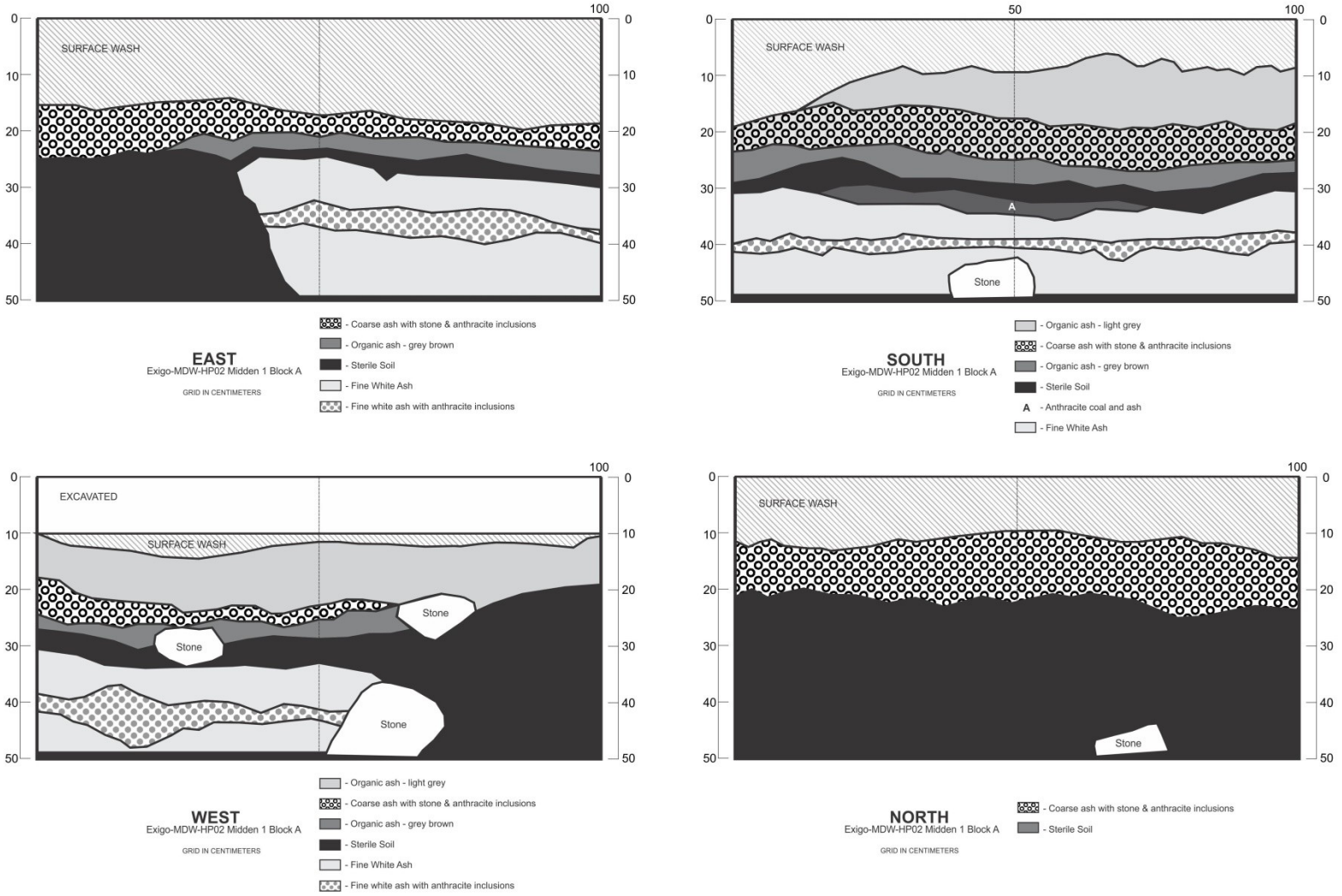


Figure 6-23: Section drawings of excavation trenches for Site EXIGO-MDW-HP02 Midden 1, Block A.

- **Discussion: Stratigraphical Reconstruction**

At this site, 5 spits (going down to spit 6 at terminal depth) were excavated and, as noted above, a number of stratigraphical sequences are clearly visible by combining the profile views of stratified deposits. Here, cultural material seems to belong to a series of events over a certain time period. An event, in this case, is the formation of a single "mound" or “layer”, through the rapid deposition of material. These deposits ultimately provide a relative guideline as to the spatial and temporal development of the Erasmus Park site. These events are discussed in detail below (refer to Figure 6-24 and Figure 6-25)

- **Surface**

A clear surface wash layer of approximately 10cm is present at the midden. This layer, consisting out of organic material, brown soil, stones and humus, is not associated with a specific depositional event in the lifecycle of the midden. According to all indications, this layer dates to the most recent history of the site where surface wash has covered archaeological deposits below.

- **Event 1**

The most recent event in this midden comprised more or less 25cm across Spit 2. This event presents as a light grey fine organic ash layer, where ash probably mixed with organic soil on the surface. A small amount of cultural material (8%) derives from this event. It might be assumed that the fine ash would have originated from wood fires, possibly primary for cooking. The small material culture sample might indicate that this event represents refuse mostly from burning fuel, rather than this discarding of household refuse.

- **Event 2**

The next and most prominent depositional event was found between 15cm and 25cm. This event is characterized by a layer of coarse ash with stone and anthracite inclusions. A small amount of cultural material (9%) derives from this event. It might be assumed that the ash and inclusions would have originated from coal stove wood fires, possibly primary for heating and cooking. The small material culture sample might indicate that this event represents refuse mostly from burning fuel, rather than this discarding of household refuse.

- **Event 3**

The next depositional event was found between 20cm and 30cm. This event is characterized by a single stratigraphic layer of dark brown organic ash. A relatively large amount of cultural material (22%) derives from this event with the occurrence of cut bone fragments. It might be assumed that this deposit constitutes ash from wood fires, possibly primary for cooking, as well as the sporadic consumption - and discarding - of household refuse and food remains at the site.

- **Event 4**

A layer of sterile soil occurs at a depth of approximately 30cm. This represents a possible hiatus in the use of this midden where no ash or other refuse were discarded at the site and deposits were covered by surface wash at the time.

- **Event 5**

A lens of anthracite coal and ash occurs below the sterile layout at a depth of approximately 30cm. this layer probably represents a period of intensive fuel burning in a coal stove at the site, perhaps over a winter period (i.e. for heating).

- **Event 6**

The next depositional event was found between 30cm and 40cm. This event is characterized by a deep layer of fine white ash. A relatively large amount of cultural material (22%) derives from this event with the occurrence of cut bone fragments. It might be assumed that this deposit constitutes ash from wood fires, possibly primary for cooking, as well as the sporadic consumption - and discarding - of household refuse and food remains.

- **Event 7**

A thin layer of fine white ash with anthracite inclusions occurs at a depth of approximately 40cm. This event, along with Event 8 represents a fair amount of cultural material (18%) with the presence of bone. It might be assumed that the ash and inclusions would have originated from coal stove and wood fires, possibly primary for heating and cooking. The material culture sample might indicate that this deposit constitutes ash from wood fires, possibly primary for cooking, as well as the sporadic consumption - and discarding - of household refuse and food remains.

- **Event 8**

The final event in the site's depositional history is made up of a deep layer of fine white ash on top of red-brown sterile soil at terminal depth. This layer occurs at a depth of between 40cm and 50cm. A fair amount of cultural material (18%) derives from this event with the occurrence of cut bone fragments. It might be assumed that this deposit constitutes ash from wood fires, possibly primary for cooking, as well as the sporadic consumption - and discarding - of household refuse and food remains during initial stages of the occupation of the site.

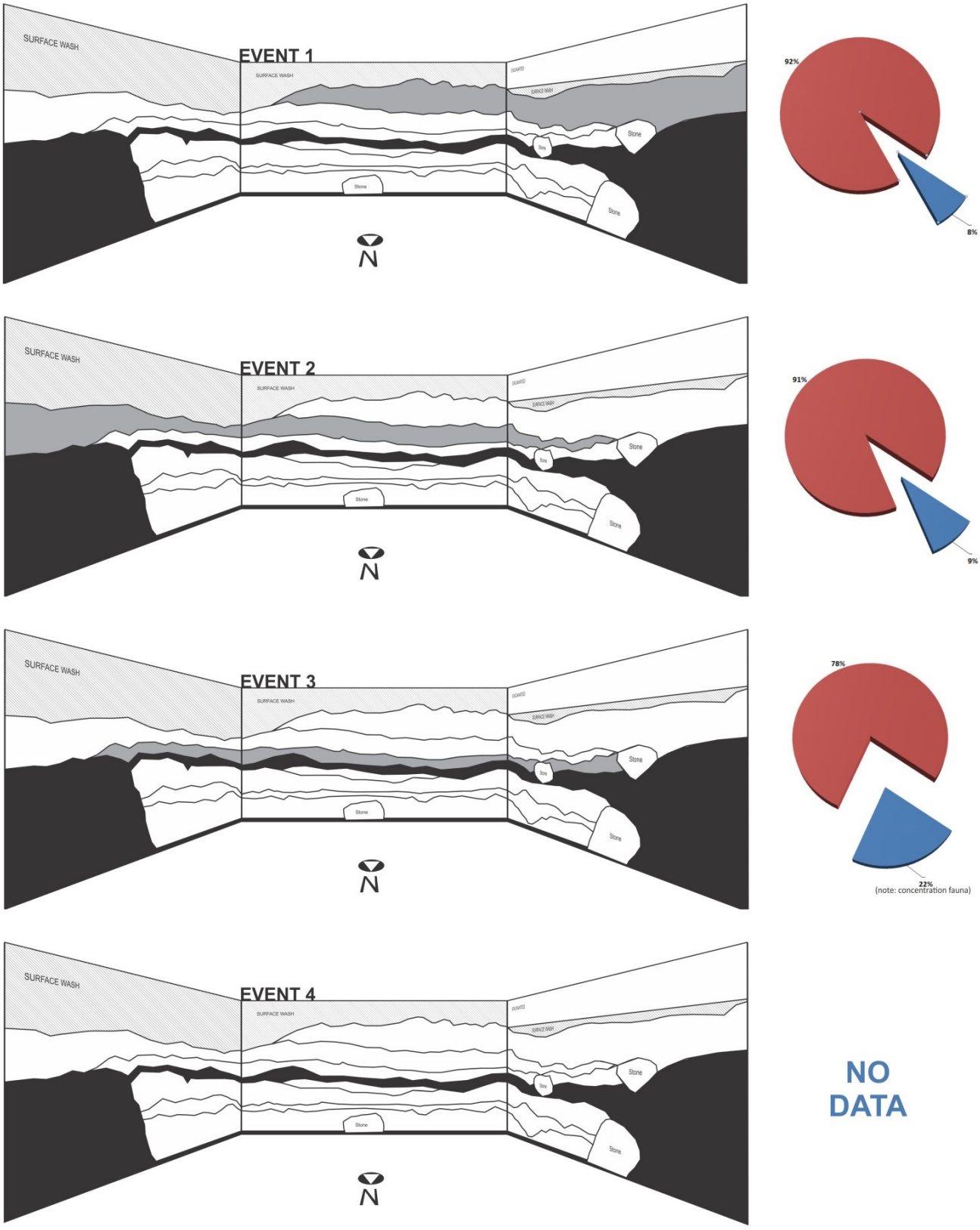
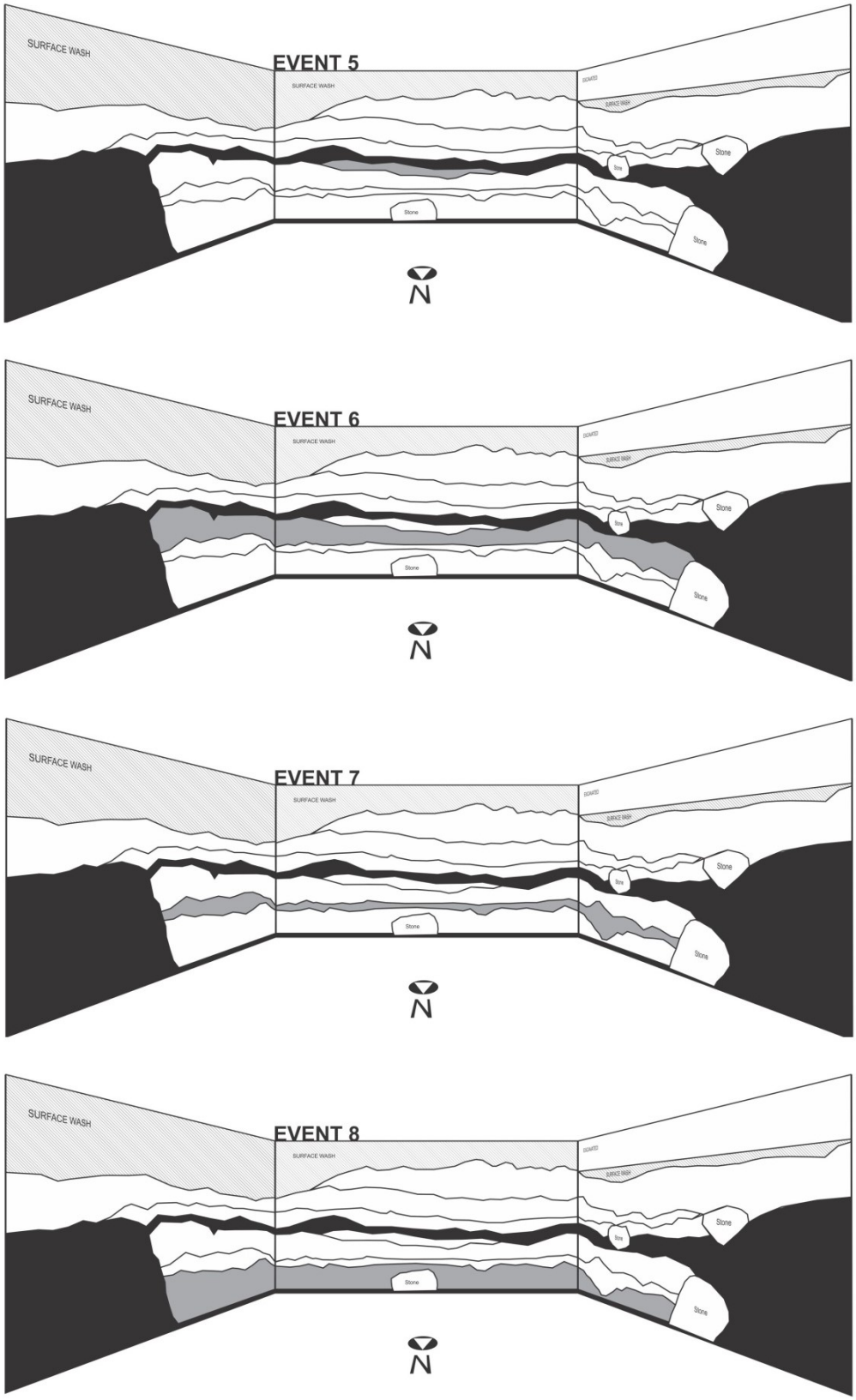
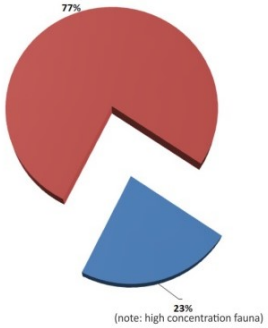


Figure 6-24:
Left: Reconstruction of excavation sections for Site EXIGO-MDW-HP01 Midden 1, Block A in order to illustrate event sequences in the midden. Events are indicated by grey shade and sterile soil is indicated by black shade.
Right: Associated percentage of material culture yield per event. The sample from this event is shaded in blue and the total sample is indicated in red.





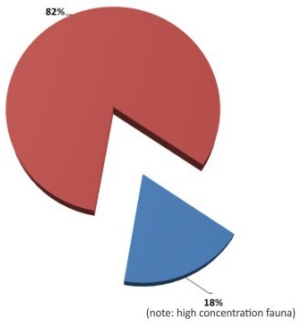


Figure 6-25:
Left: Reconstruction of excavation sections for Site EXIGO-MDW-HP01 Midden 1, Block A in order to illustrate event sequences in the midden. Events are indicated by grey shade and sterile soil is indicated by black shade.
Right: Associated percentage of material culture yield per event. The sample from this event is shaded in blue and the total sample is indicated in red

- **Exigo-MDW-HP02 M2 (S25.81813° E28.24282°- Base)**

For the sampling of **Site EXIGO-MDW-HP02 Midden 2,** the density of cultural material content was also tested by means of an STP and based on the apparent high potential yield of material culture it was decided to expand the STP to a systematic excavation of the midden deposit. A 1m x 1m block (Block A) was mapped out over the midden, its surface was swept clean and cleared from loose soil and vegetation, and surface artefacts were documented and collected. The block was then ethologically excavated in 10cm spits which reached sterile soil at 40cm. The block, spits and artefact finds were numbered uniquely for recoding and documentation purposes. Excavated soil was sifted or screened through a wire mesh (10mm) to recover possible artefacts. Detailed notes, which include descriptions on excavation strategies, the procedures followed, stratigraphy, finds, etc., as well as fieldwork photographs and sketches were compiled during the excavation process.

Figure 6-26: View of the excavation in Site EXIGO-MDW-HP01 Midden 2, Block A at Spit 1.

Similar to excavations in Midden 1, the sections of this excavation revealed a number of identifiable stratigraphical layers making up the midden deposit. These constituted (see Figure 6-30):

- A clear surface wash layer, consisting out of organic material, brown soil, stones and humus.
- A layer of coarse ash with anthracite coal and stone inclusions.
- A layer of coarse anthracite coal and ash.
- A layer of dark brown organic ash with anthracite inclusions.
- A lens of sterile soil.
- A layer of fine white organic ash.
- A layer of fine white ash with anthracite coal inclusions.
- A layer of coarse dark brown organic ash.
- Red-brown sterile soil at terminal depth.
- Larger stone inclusions in the western section of the excavation.

Again, the possible meaning of this stratigraphical presentation is described in detail later. The tunnel of a burrowing animal was noted in the excavation in deeper spits and at terminal depth.

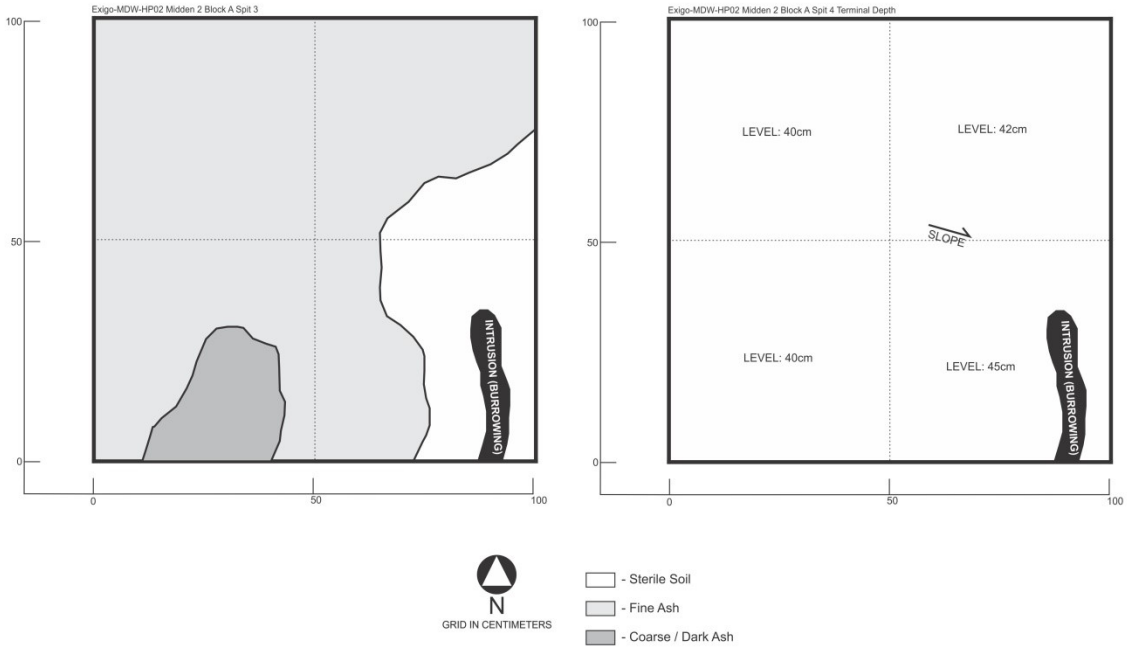


Figure 6-27: Top plan of excavations in Site EXIGO-MDW-HP02 Midden 2, Block A at Spit 3 (left) and terminal depth (right).

Figure 6-28: View of the excavation in Site EXIGO-MDW-HP01 Midden 2, Block A at terminal depth.

A fairly large sample of material culture was recovered from specifically the surface areas of the midden, with additional material collected from the excavation. This midden yielded 29% of the total sample of cultural material from the Erasmus Park site. Yet again, this sample is comprised out of large amounts of metal (nails and screws) and at the site larger quantities of glass and porcelain were received, as illustrated in Figure 6-29. Small amounts of were also found. Similar to Midden 1, the large quantities of nails and screws from the midden prove interesting and this might suggest that woodworking-related activities, the result of the burning of scrap wood planks or it might even suggest the dismantling and removal of wooden floors. The larger sample of fragmented or intact remains of porcelain / glass kitchenware might imply that

this midden was used for discarding household refuse and ash, whereas Midden 1 were possibly used for ash deposition.

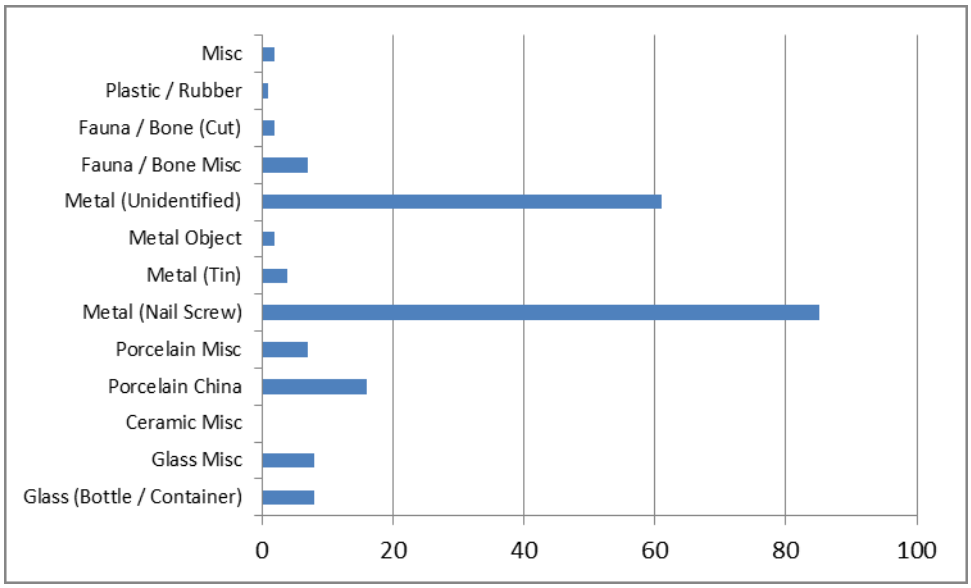


Figure 6-29: Chart indicating artefact yield from the excavations at Site EXIGO-MDW-HP02 Midden 2

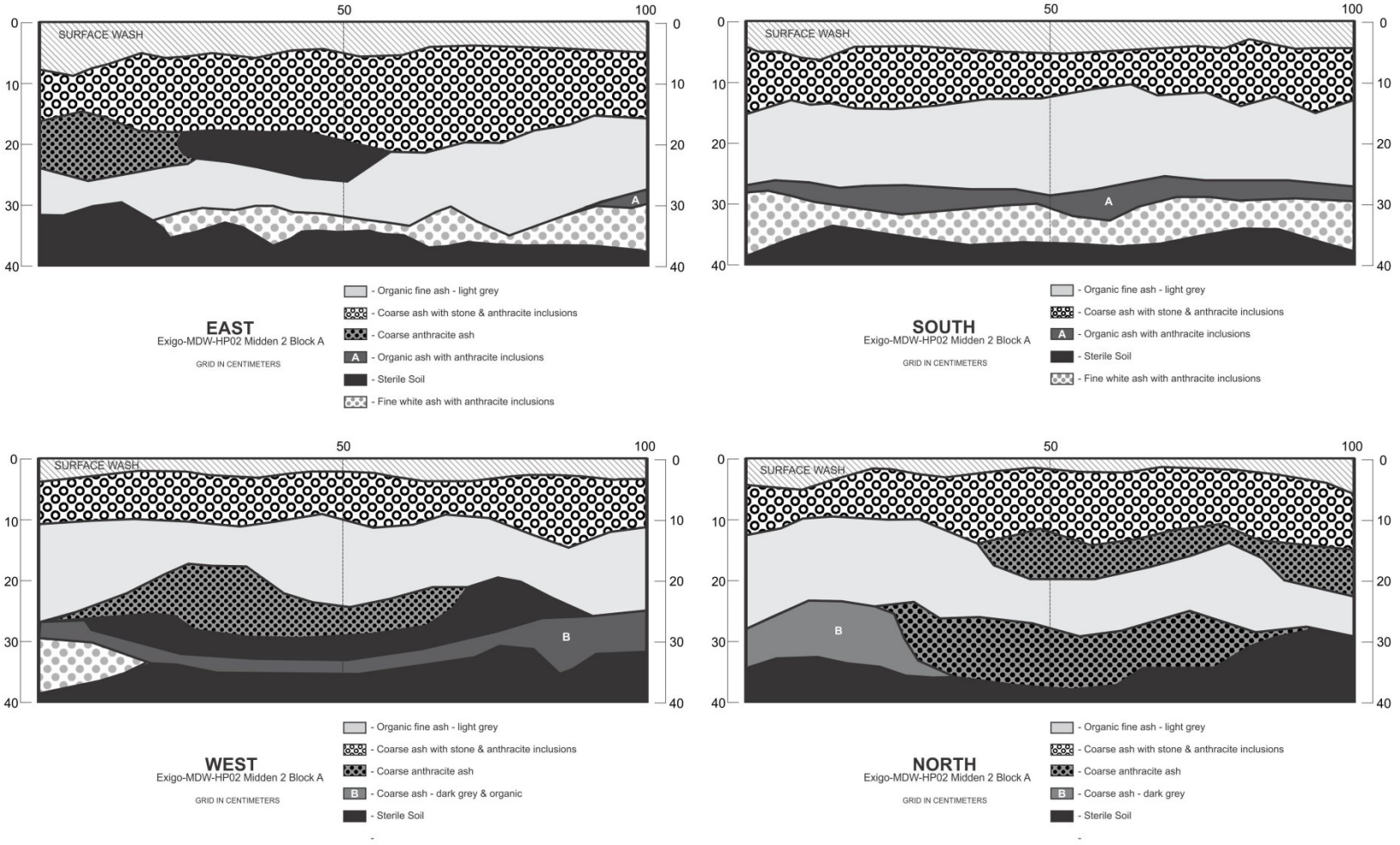


Figure 6-30: Section drawings of excavation trenches for Site EXIGO-MDW-HP02 Midden 2, Block A.

- **Discussion: Stratigraphical Reconstruction**

At Midden 2, 4 spits (going down to spit 5 at terminal depth) were excavated and stratigraphical sequences are clearly visible where cultural material seems to belong to a series of events over a certain time period. These events are discussed in detail below (refer to Figure 6-31)

- **Event 1: Surface**

A clear surface wash layer of approximately 10cm is present at the midden. A notable quantity of cultural objects (14%), most of which were porcelain and glass fragments, was collected from the surface, consisting out of organic material, brown soil, stones and humus. It is clear that a large amount of household refuse was discarded on the midden towards the end of the occupation of the site.

- **Event 2**

The next and most prominent depositional event was found between 5cm and 15cm. This event presents as a layer of coarse ash with anthracite coal and stone inclusions. A small amount of cultural material (11%) derives from this event. It might be assumed that coal inclusions would have originated from coal stove fires, possibly primary for heating and cooking. The small material culture sample might indicate that this event represents refuse mostly from burning fuel, rather than this discarding of household refuse.

- **Event 3**

This event is characterized by a deep layer of fine white organic ash at depths between 15cm and 30cm. A large amount of cultural material (29%) derives from this event with the occurrence of cut bone fragments. It might be assumed that this deposit constitutes ash from wood fires, possibly primary for cooking, as well as the sporadic consumption - and discarding - of household refuse and food remains at the site.

- **Event 4**

The next depositional event consists out of a number of coarse anthracite coal and ash lenses occurring between 15cm and 35cm. These event are characterized by prominent anthracite inclusions which might represent a period of intensive fuel burning in a coal stove at the site, perhaps over a winter period (i.e. for heating).

- **Event 5**

The next depositional event was found between 25cm and 35cm. This event is characterized by a layer of fine coarse, dark grey organic ash. A relatively large amount of cultural material (17%) derives from this event with the occurrence of cut bone fragments. It might be assumed that this deposit constitutes ash from prolonged wood fire burning, possibly primary for cooking, as well as the sporadic consumption - and discarding - of household refuse and food remains.

- **Event 6**

The final event in the site's depositional history is made up of a deep a layer of fine white ash with anthracite inclusions at a depth of approximately 40cm. This event represents a smaller sample of cultural material (10%). It might be assumed that the ash would have originated from wood fires, possibly primary for heating and cooking during the initial stages of occupation of the site. The layer terminates on a red-brown sterile soil surface.

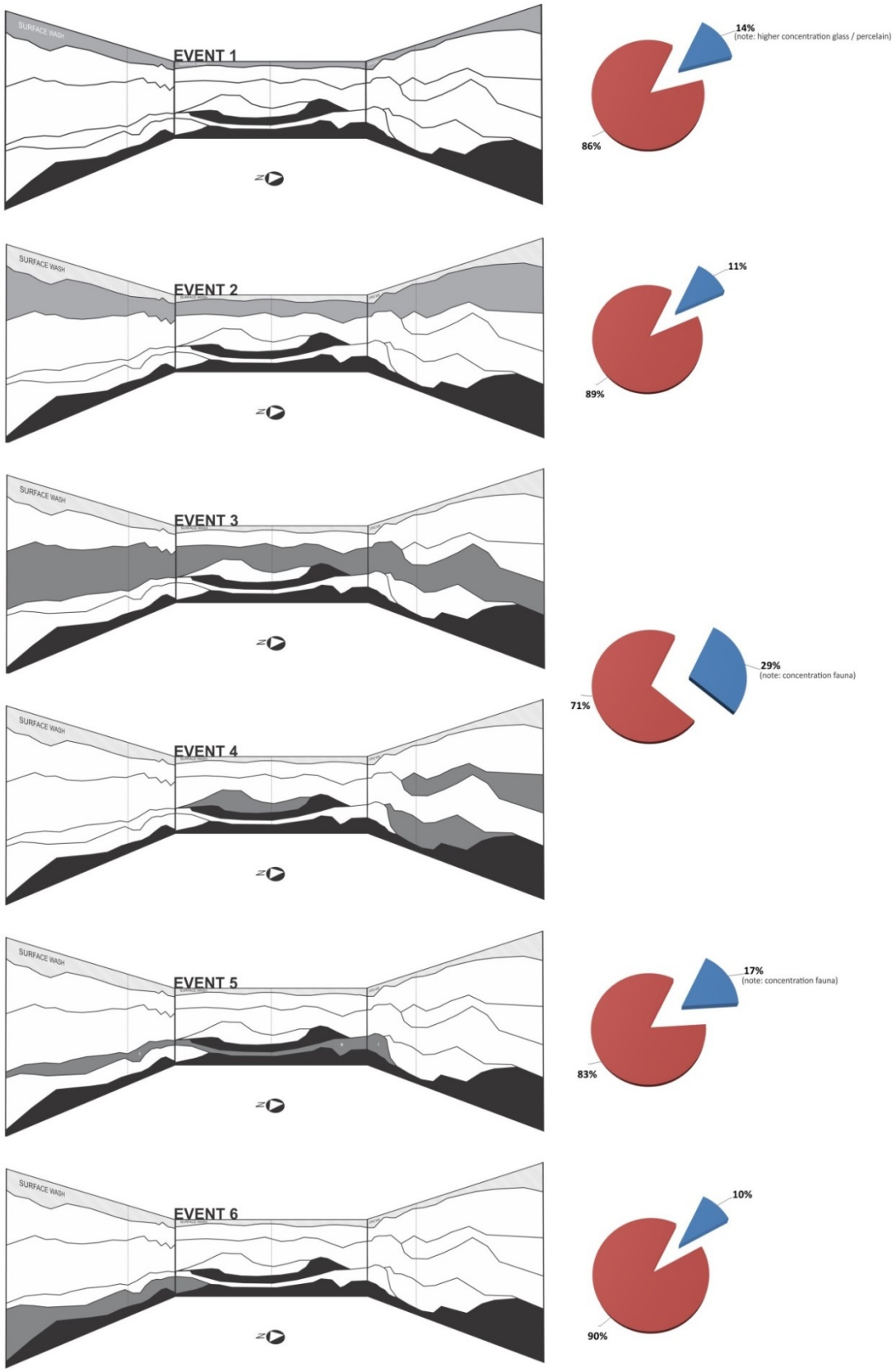


Figure 6-31:
Left: Reconstruction of excavation sections for Site EXIGO-MDW-HP01 Midden 2, Block A in order to illustrate event sequences in the midden. Events are indicated by grey shade and sterile soil is indicated by black shade.
Right: Associated percentage of material culture yield per event. The sample from this event is shaded in blue and the total sample is indicated in red

6.2.4 Excavation Findings

Based on observations and inferences from the excavation in the 5 localities the following assumptions regarding the site can be made:

- The larger landscape has been altered and, in places destroyed as a result of occupation by loiterers and squatters, where a number of informal dwellings and shacks with interconnected footpaths occur throughout the site. In other places, the site has been used for refuse dumping.
- The site dates to the 20th century, based on building materials used in the construction of foundation structures.
- Dwellings at the site ranged from small 2 room buildings to larger 5 – 6 room structures. Dwellings were constructed out of stone and baked clay brick, in some cases of poor quality. These dwellings probably had wooden floors and single structures have porches.
- Generally, artefact deposit densities in middens at both **EXIGO-MDW-HP01** and **EXIGO-MDW-HP02** are relatively low. This might indicate a short, or series of interrupted short occupation events of the site and the dwellings at the site. It might also infer a certain economic potential of occupants or it might be the result of site disturbance. Finally, it might point to a site function other than residential occupation which generally generates larger amounts of cultural material.
- In most cases, the small numbers of fauna / bone found seems peculiar since one would expect the consumption of meat to be prominent in e.g. a household setting with faunal remains discarded in household ash middens. This might imply limited consumption of meat and / or the consumption of meat cuts without bone. It might also suggest an affinity for processed foods (canned foods) or simply point to the consumption of foodstuffs other than meat. Finally, it might be the result of poor preservation of organic remains. Similarly, the low numbers of fragmented or intact remains of porcelain / glass kitchenware in the middens is curious since one would expect larger quantities to be present in household refuse. The reason for this could be the use of enamel kitchenware rather than more expensive porcelain or glass – implying a certain economic potential for the residents. It could also represent small breakage percentages of glass and enamelware during site occupation or it could simply be the result of site disturbance agents.
- A number of events are apparent from middens at **EXIGO-MDW-HP02.** Firstly, these events imply a seasonal occupation of the site where more intensive fuel burning in a coal stove at the site, perhaps over a winter period (i.e. for heating) presents as recurring layers of coarse anthracite ash. Secondly, the events imply a mode of subsistence where the use of both wood fires and anthracite stoves is apparent from associated ash residues. Lastly, the events imply scales of consumption with the presence, or absence of general foodstuffs and utilitarian objects in middens.
- The possibility that the middens – and the site as such – might to have been used by different groups of people at different times should not be excluded. However, it is likely that the site was not occupied for prolonged periods of time.

The temporal provenience of the site is informed by the associated material culture from the site's depositional history which suggest a relatively recent age for the dwellings and middens. This is inferred by the presence of historical period artefacts such as glass and metal in related stratigraphic deposits. This aspect will be discussed in more detail in the following section.

6.3 Cultural Material Data Analyses and Interpretation

The yield of artefact deposits from surface collections, middens and STP's at Erasmus Park are relatively low. Yet, the sample is sufficient to adequacy inform on the temporal provenience of the site in addition to addressing questions about consumption, subsistence and site function. Primarily, it is clear that the Erasmus Park archaeological site dates to the terminal phases of the Historical Period in Pretoria at around the middle of 20th century. This is inferred by the presence of historical period artefacts such as glass and metal in related stratigraphic deposits. It should be noted that there were no discernible difference in the recovered material from any of the STP's or spits in excavations, and it is therefore clear that the artefacts are largely contemporary. The largest cultural material sample was collected from Site **EXIGO-MDW-HP01** where a large amount of cultural material was recovered from Midden 1 and 2, including glass, ceramics, metal and faunal remains and other miscellaneous materials such as rubber, plastic and wood.

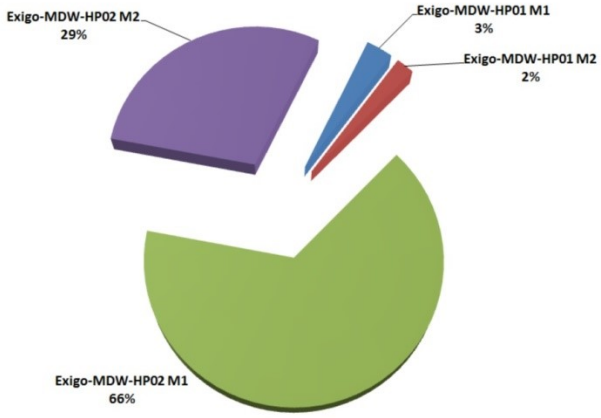


Figure 6-32: Chart indicating artefact yield distribution from all excavations.

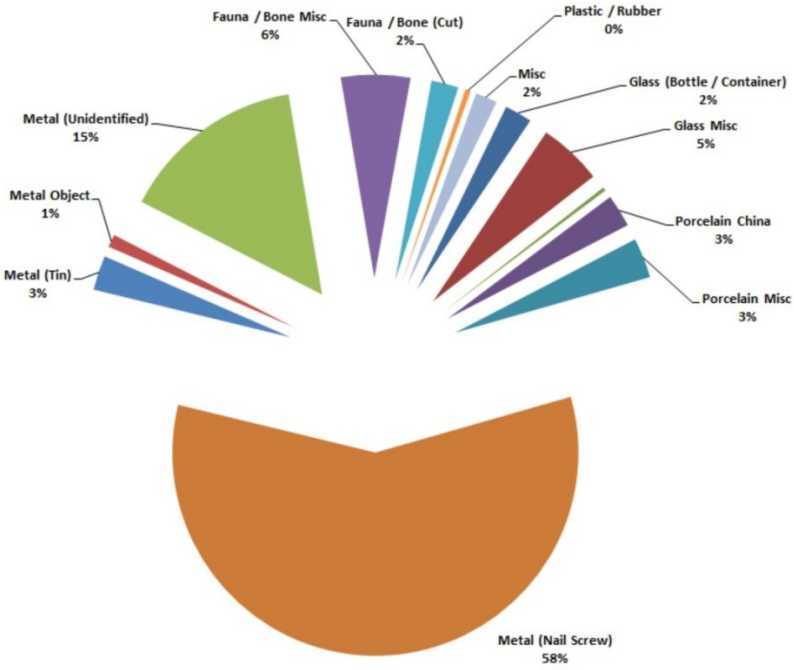


Figure 6-33: Chart indicating artefact types recovered from all excavations.

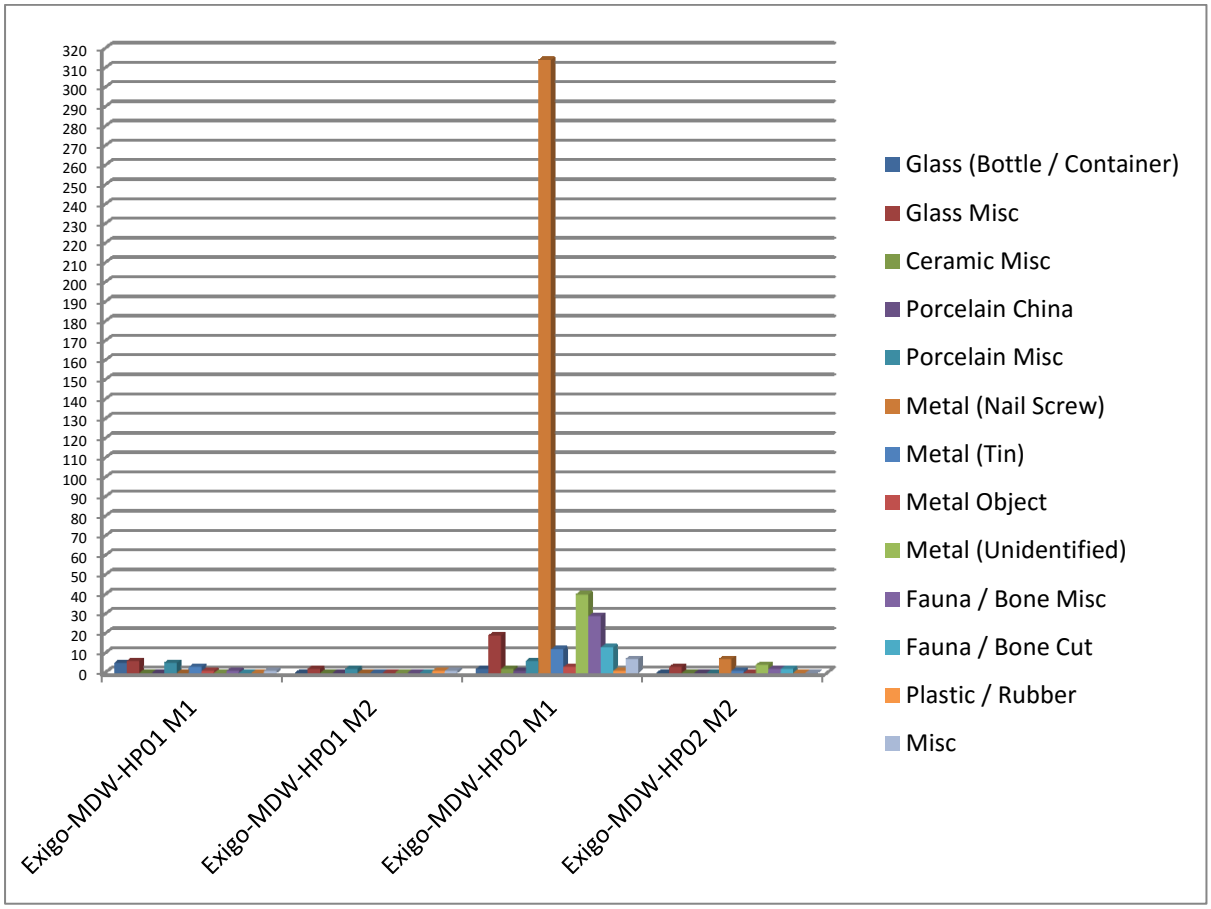


Figure 6-34: Chart indicating artefact types recovered from each of the excavations.

6.3.1 Diagnostic Finds

- **Glass**

The glass sample from the site included bottles and bottle fragments from beverages such as wine, mineral and soda water as well as glass containers for medicines, cosmetic products and other household items. Here, mid to later 20th century glass bottle fragments (soft drink bottles, wine bottles) were recovered where soft drink bottles display printed labels but no embossing. The embossing of bottles was carried to extreme lengths in the latter half of the 19th century but the cheap printed label began replacing embossing after about 1900. By the late 1930's and into the 1940 and 1950s painted bottles labels (especially for soda and milk bottles) became popular and replaced embossing. An example from the site is a "Sunshine Aerated Sparkling Beverages" bottle that was produced in Pretoria mid-20th century. In addition to this bottle, a small screw-top medicine bottle was found. Another container has the words "Herculene – Hercules Brand" embossed on the front surface. The Hercules Brand has been in existence for over 80 years, providing over-the-counter health for skin care, constipation, insect bites, immune boosting, nasal congestion, bacterial infection and muscular pain. It couldn't be established which Hercules product this glass bottle contained. Interestingly, an unmarked ink bottle container

Patent medicines appeared towards the end of the 18th century and the manufacturer often marketed his product in odd-shaped, easily recognisable bottles. A similar bottle, probably of pharmaceutical nature was located at the site bit this small, oval (probable castor oil) seems to be of later origin as it displays a screw top which were common after the 1920's. A number of bottle bases dating to the mid – late 20th century were also recovered. These bases are embossed with lettering and they have textured base surfaces

known as “stippling”. Generally, the bases of mid to late 20th century, machine-made bottles very commonly have a textured effect covering all or a portion of the base, decreasing drag on the conveyor belts moving them within the glass factory.

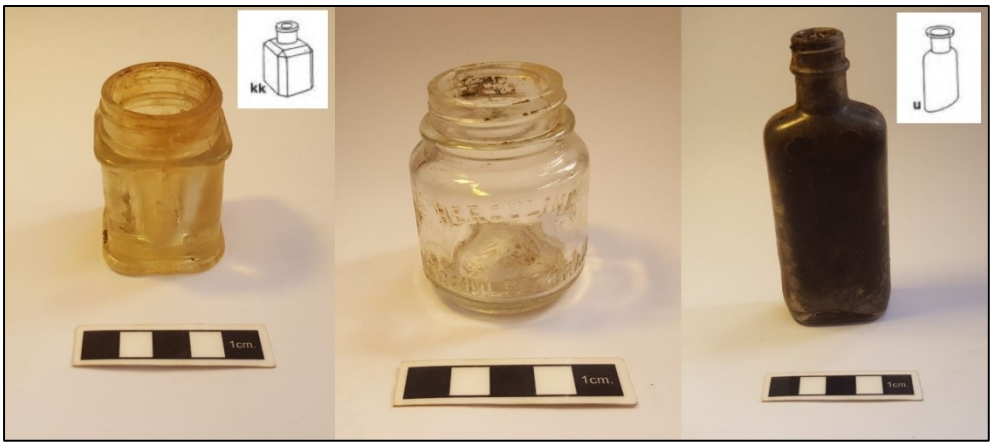


Figure 6-35: Glass containers from EXIGO-MDW-HP02: a presumed ink bottle (left), Herculine medicinal product (centre) and screw top medicine bottle (right). The inserts indicate the associated general bottle type.

Figure 6-36: A “sunshine Aerated Sparkling Beverage” bottle from EXIGO-MDW-HP02.

Figure 6-37: Fragments of a cold drink bottle (left) and a wine bottle neck (right) from EXIGO-MDW-HP02.

Figure 6-38: A selection of wine and cold drink bottle bases EXIGO-MDW-HP02.

Figure 6-39: Glass and porcelain fragments from EXIGO-MDW-HP01.

- **Ceramics**

Traditional ceramics more or less fall into three major groups; **earthenware**, **stoneware** and **porcelain**. These categories reflect increasing hardness of the ceramic body and the order in which they were discovered and used. A small sample of ceramic fragments from the site denotes a typical 20th century typological character. Prominently, porcelain fragments from a blue-and-white China plate display lithographic printing (from second half 19th century, becoming the standard type). Interestingly, these recovered fragments included a piece stamped “Made in Occupied Japan”. "Occupied Japan" is a term used for the time period from 1945 (after World War II) through April 25, 1952; it was during this time that the Allies "occupied" Japan. During the year after WWII, Japanese manufactures were banned from exporting goods but, as Japan needed to rebuild their economy after the war, part of the agreement to allow them to export goods out of the country was they had to mark 50% of all items with "Occupied Japan" or "Made in Occupied Japan." They could do this with a paper label, cloth label, engraving, handwritten or stamp. After the regulation was lifted, much of the same tooling was used so the marking continued until about 1955. This particular porcelain object thus provides a relative date of manufacture of between 1945 and 1952. It could therefore have arrived at the Erasmus Park site at any time after 1945.

In addition, fragments of other mid-20th century ceramics were also located, and specifically the fragments of a “whiteware” lined cup. Whitewares are the largest category of white-bodied industrial wares, usually, but not always, with a transparent clear glaze. Decoration on such wares includes moulded rims, printed, painted, enamelled, industrial slipware, coloured glaze; sponged; lined, etc. Similarly, the fragments from the site illustrate the remains of a white bodied cup with “lining”; printed coloured glaze decorations in green and gold. Lining was a cheap and fast method of decorating tea and table wares. It was used on whiteware or creamware plates and these wide underglaze bands are seen on late 19th to early 20th century wares.

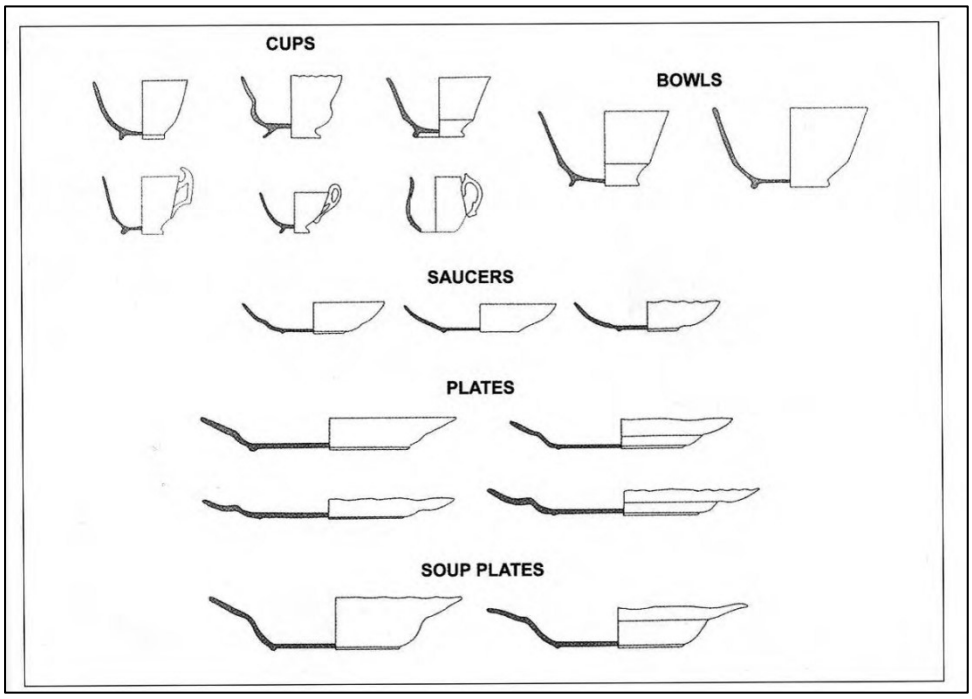


Figure 6-40: A selection of common vessel profiles used for identification (Blake & Freeman 1998).

Figure 6-40: Fragments of Blue=-and-white China from EXIGO-MDW-HP02.

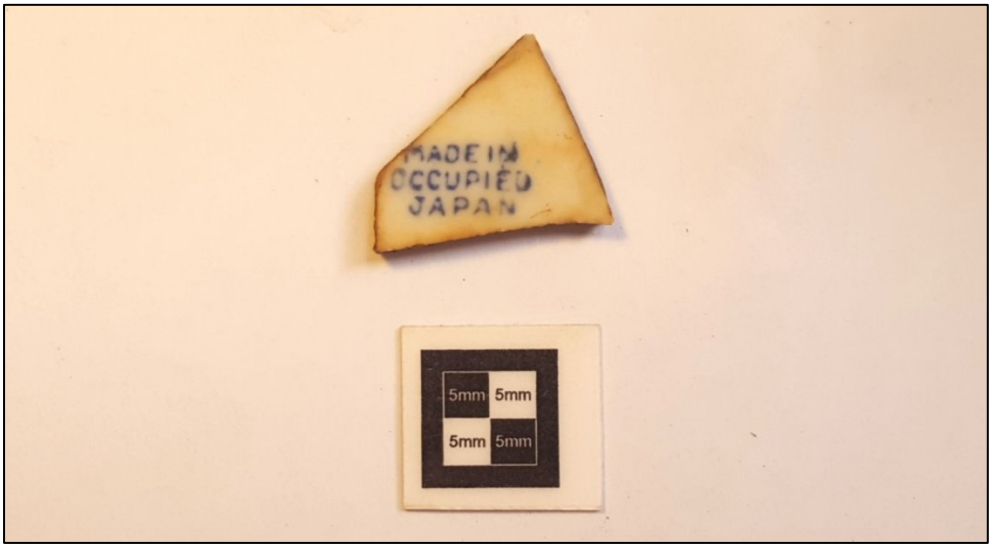


Figure 6-41: Detail of a manufacturer stamp on a China fragment from EXIGO-MDW-HP02.

Figure 6-42: Fragments of lined whiteware porcelain from EXIGO-MDW-HP02.

- **Faunal Remains**

A small sample of faunal remains (animal bones) was recovered from the site. A brief analysis of the archaeological / historical faunal remains was done to determine their potential to contribute towards the interpretation of the associated archaeological material and context of the site[3]. The analysis was done in accordance with international standards and methods. The faunal sample consisted of 41 animal bone fragments, only three of which were diagnostic (i.e. could be identified to taxon). The faunal sample can definitely be associated with the human occupation of the site, as several fragments showed evidence of having been sawn into smaller portions, most likely by a hand or mechanical saw. The diagnostic bones include a young pig (*Sus domesticus*) mandibular premolar, a probable cattle (*Bos taurus*) distal first phalanx and distal metapodial fragment. The phalanx and metapodial were both sawn through horizontally. Mandibles, lower legs and feet portions are not particularly meat-rich and are considered to be "cheaper" meat cuts (although they do contain nutritious marrow). Head and foot elements may also be associated with butchery refuse, but the sample is too small to suggest such an association. The remaining 38 bones include rib, vertebra, limb bone and miscellaneous fragments that cannot be positively identified to taxonomic level. The difficulty in identifying these remains mainly stems from the extent of fragmentation, which is fairly high in this sample. Features noted in the sample suggest that fragmentation resulted from a number of causes, which include portioning (e.g. to fit into cooking pots; to extract marrow), repeated exposure to heating/cooling processes that weaken the bone structure (e.g. cooking; natural fluctuations in daily/yearly temperatures) and carnivore gnawing. The incidence of bone surface flaking, erosion and sun bleaching was low, indicating fairly rapid burial after disposal. A single rib fragment showed signs of having been exposed to the elements for a much longer period, which is typical of bones from surface collections. The rib fragments seem to be mainly from larger mammals (possibly bovid, e.g. cattle), although smaller sized mammals (e.g. smaller livestock and/or pig) are also represented. An unfused sub-adult vertebra and a probable femur (upper limb) fragment may also be from one of these smaller mammals. Several rib and limb bone fragments were sawn or cut into smaller portions.

In summary, although many of the bone fragments were unidentifiable, it can be assumed that the middens represent a household function where "cheaper" meat cuts from pig, cattle and possibly sheep were disposed of after it was cooked and consumed.

NISP / Unit	HP1 M1 STP1	HP2 M1 Spit3	HP2 M1 Spit4	HP2 M1 Spit5	HP2 M1 Spit6	HP1 M2 STP2 Surf	HP2 M2 Spit4	No tag	Total
Identifiable	0	1	0	2	0	0	0	0	3
Unidentifiable	1	4	0	20	4	1	4	4	38
Total	1	5	0	22	4	1	4	4	41

Figure 6-43: Total faunal sample analysed. NISP = Number of Identified Specimens.

[3] Antonites, A. 2017. Report on Faunal Analysis of samples from Erasmus Park.

Figure 6-44: Cut bone fragments and a cut tooth (right) from EXIGO-MDW-HP02.

Figure 6-45: Cut bone fragments and single unidentified fragments of microfauna (right) from EXIGO-MDW-HP02.

- **Metals**

The remains of tin cans, large numbers of nails, a metal bicycle valve cap as well as two spent bullet cartridges were retrieved from the site. Even though the function and age of much of these artefacts could not be established, they might indicate a use of tinned food at the site as well as possible site function, where woodworking or the discarding of wood (and consequently nails) seems to have occurred. As noted previously, the large quantities of nails recovered might also be the result of the removal of wooden floors at the site and the burning of wood for fuel.

Figure 6-46: Metal objects from EXIGO-MDW-HP02: fragments of tin cans (left and right), a large metal peg and a metal bicycle valve cap (left).

Figure 6-47: A selection of degraded metal nails from EXIGO-MDW-HP02.

One of the bullet cartridges recovered clearly displays the following headstamp:

U ♦ 1942
VII

This headstamp provides information on the calibre, date of manufacture and manufacturer. The letter "U" indicates that the shell was manufactured by the Royal Mint in Kimberley, the date is then provided and "VII" indicates a .303 caliber. Wartime headstamps were marked with "U" and ♦ signifying the Union of South Africa. Interestingly, the Royal Mint in Kimberley was initially a Sub-factory of the Pretoria Mint who produces the bulk of ammunition during this period. The ♦ stamp related to Kimberley being the site of SA's Diamond fields and largest mines. This shell was thus manufactured in Kimberly in 1942 where after it made its way to Erasmus Park where it was fired, possibly while hunting game in the area.

Figure 6-48: Fired bullet cartridges from EXIGO-MDW-HP01 and EXIGO-MDW-HP02.

Figure 6-49: Example of a headstamp similar to that of a bullet cartridge found at EXIGO-MDW-HP01 (https://forum.cartridgecollectors.org/t/south-african-303/831/4).

- **Miscellaneous**

Other miscellaneous objects recovered from the site included two pieces of non-European clay pottery, large numbers of nails, glass fragments, rubber strands and fragments of unidentified metal objects. These artefacts are not diagnostic and could not be used to derive precise temporal or contextual information of the site.

Figure 6-50:Fragments of non-European clay pottery from EXIGO-MDW-HP02 .

Figure 6-51: A weathered rubber band (left), an unidentified metal object (centre) and a fragment of glazed pottery from EXIGO-MDW-HP02.

6.3.2 Discussion

The yield of artefact deposits from surface collections, middens and STP's at Erasmus Park are relatively low but the sample was sufficient to adequacy inform on the temporal provenience of the site in addition to addressing questions about consumption, subsistence and site function. Primarily, it is clear that the Erasmus Park archaeological site dates to the terminal phases of the Historical Period in Pretoria at around the middle of 20th century. This is inferred by the presence of historical period artefacts such as glass and metal in related stratigraphic deposits. Inferences drawn from the excavations and recovered material notes that the site was possibly occupied for a relatively short, or series of interrupted short periods of time (possibly around 15 years) by individuals with a lower income. This inference is drawn from the fact that the relatively small material culture sample from the site contained low numbers of glass, porcelain and specialised products as well a small fauna / bone sample (meat was generally a more expensive commodity during the post-World War 2 period in South Africa, and faunal analysis of the site indicate consumption of "cheaper" meat cuts). This implies scales of consumption with the presence, or absence of general foodstuffs and utilitarian objects in middens.

It is also observed that the occupation of the site might have lasted over a number of seasons where more intensive anthracite fuel burning in a coal stove perhaps over a winter period (i.e. for heating) presents as recurring layers of coarse anthracite ash in the middens. The excavations also provide insight into possible modes of subsistence where the use of both wood fires and anthracite stoves is apparent from associated ash residues. Artefact types point to a possible settlement and residential use of the site and associated foundation features but low quantities of artefacts might suggest otherwise.

7 GENERAL IMPACT RATING AND FURTHER SITE MANAGEMENT PROTOCOLS

7.1 Potential Impacts and Significance Ratings[4]

7.1.1 General assessment of impacts on resources

Generally, the value and significance of archaeological and other heritage sites might be impacted on by any activity that would result immediately or in the future in the destruction, damage, excavation, alteration, removal or collection from its original position, any archaeological material or object (as indicated in the National Heritage Resources Act (No 25 of 1999)). Thus, the destructive impacts that are possible in terms of heritage resources would tend to be direct, once-off events occurring during the initial construction period. However, in the long run, the proximity of operations in any given area could result in secondary indirect impacts. The EIA process therefore specifies impact assessment criteria which can be utilised from the perspective of a heritage specialist study which elucidates the overall extent of impacts.

7.1.2 Direct impact rating

Direct or primary effects on heritage resources occur at the same time and in the same space as the activity, e.g. loss of historical fabric through demolition work. **Indirect effects or secondary effects** on heritage resources occur later in time or at a different place from the causal activity, or as a result of a complex pathway, e.g. restriction of access to a heritage resource resulting in the gradual erosion of its significance, which is dependent on ritual patterns of access (refer to Section 10.3 in the Addendum for an outline of the relationship between the significance of a heritage context, the intensity of development and the significance of heritage impacts to be expected).

The following table summarizes impacts to the Erasmus Park LIA site emanating from the Erasmus Park Mixed Use Development.

NATURE OF IMPACT: Impacts will involve displacement or destruction of heritage features in the proposed Erasmus Park Mixed Use Development areas.		
	Without mitigation	**With mitigation**
EXTENT	Local	Local
DURATION	Permanent	Permanent
MAGINITUDE	Major	Minor
PROBABILITY	Probable	Improbable
SIGNIFICANCE	High	Low
STATUS	Negative	Neutral
REVERSIBILITY	Non-reversible	Non-reversible
IRREPLACEABLE LOSS OF RESOURCES?	Yes	No
CAN IMPACTS BE MITIGATED?	Yes	
MITIGATION: Further Phase 2 Specialist Analysis **(completed)**, destruction permitting, site monitoring by ECO		
CUMULATIVE IMPACTS: No cumulative impact is anticipated.		
RESIDUAL IMPACTS: n/a		

[4] Based on: W inter, S. & Baumann, N. 2005. *Guideline for involving heritage specialists in EIA processes: Edition 1.*

8 CONCLUSION & FURTHER RECOMMENDATIONS

Pretoria and its surroundings was a nucleus of prehistorical and historical events, interactions and developments. The area depicts the interaction between the communities and groups, their adaptation and utilization to the environment, the migration of people, technological advances, warfare and contact and conflict. Contained in its archaeology are traces of conquests by Bantu-speakers, Europeans and British imperialism encompassing the struggle for land, resources and political power as well as the expansion of industrialization and urban zones. This history includes the heritage of the Erasmus Family, which is regarded as one of the most important social entities during the formation years of Pretoria. The Erasmus family were true pioneers of their time and were well known throughout the whole community and the Waterkloof property stood testimony to this legacy.

The Phase 2 Assessment on a portion of this property attempted to adequately capture Historical Period Features at Erasmus Park in place and time. Here, this study envisaged to establish the spatial extent of archaeologically sensitive areas and to document the nature of the Historical period dwellings in terms of occupation sequence, cultural context, temporality and site function by means of a desktop study as well as suitable data sampling strategies. In addition, an important aim was to archive of all collected data pertaining to Erasmus Park for future reference, in order to permanently conserve the historical fabric of the site.

It seems that the farm, which was first known as a portion of Waterkloof 29 was surveyed at around 1861 and the portions of the property changed ownership throughout the 20th century. However, for the largest part the Erasmus family owned much of the farm where a farmstead, agriculture an later, a dairy farm were established. The Erasmus Park project area was occupied from the early 19th century up to around 1960, during the terminal stages of the Historical Period and features under investigation in this assessment were possibly the houses of farm workers in the area. Similarly, the site survey indicated the presence of the foundations of these former dwellings, ranging from small 2 room buildings to larger 5 – 6 room structures constructed from stone and baked clay brick. The survey also indicated the distribution of surface artefact scatters and cultural material in subsurface midden deposits. For these deposits, controlled surface find documentation, surface testing and sub site excavation were employed to generate a significant data sample. Two Shove Test Pit (STP) excavations were placed in two middens with a test trench excavated through a foundation feature at **Site EXIGO-MDW-HP01.** At **Site EXIGO-MDW-HP02,** two systematic excavations were conducted in two middens associated with a large foundations structure. The temporal provenience and possible site function could therefore be informed by the associated material culture from the site's depositional history.

The yield of artefact deposits from surface collections, middens and STP's at Erasmus Park are relatively low but the sample was sufficient to adequacy inform on the temporal provenience of the site in addition to addressing questions about consumption, subsistence and site function. Primarily, it is clear that the Erasmus Park archaeological site dates to the terminal phases of the Historical Period in Pretoria at around the middle of 20th century for a relatively short, or series of interrupted short periods of time (possibly around 15 years) by individuals with a lower income. Occupation of the site might have lasted over a number of seasons where more intensive anthracite fuel burning in a coal stove perhaps over a winter period (i.e. for heating) was noted and the use of both wood fires and anthracite stoves is apparent from associated ash residues at the site. Thus, Erasmus Park Phase 2 excavations and the artefacts recovered from it provided us an opportunity to investigate a portion of Pretoria's history that would otherwise not have been possible. It presented a glimpse into the way of life of the specific community related to Pretoria and the Waterkloof property. The excavations and the interpretation of the data obtained with the analysis

of the recovered material also supplements and compliments existing historic information on this area during this mid-20th century.

This Phase 2 Assessment adequately captured and documented the spatial, cultural and contextual extent of the Erasmus Park archaeological occurrences and it provides a cultural context, temporality and possible site function as well as historical provenience for the Erasmus Park site. It is believed that available on-site and off-site data have been adequately collated and captured for archiving proposes for future reference, in order to permanently conserve the historical fabric of the site. Thus, the author of this report is confident that the Erasmus Park archaeological site (**Site EXIGO-MDW-HP01** and **Site EXIGO-MDW-HP02**) has been adequately documented by the necessary means.

The following recommendations are made subsequent to this assessment:

- This report will be submitted to the relevant heritage authority for review where after application can be made for a destruction permit from the authority (SAHRA) prior to the destruction of the site.
- Considering the localised nature of heritage remains, the general monitoring of the development progress by an ECO or by the heritage specialist is recommended for all stages of the project. Should any subsurface palaeontological, archaeological or historical material, or burials be exposed during construction activities, all activities should be suspended and the archaeological specialist should be notified immediately.
- It is essential that cognisance be taken of the larger archaeological landscape of the Gauteng Province and the farm Waterkloof in order to avoid the destruction of previously undetected heritage sites. Here, care should be taken around rock faces and outcrops in the larger landscape, as rock art is known to occur on these outcrops. Water sources such as salt pans, drainage lines and rivers should also be regarded as potentially sensitive in terms of possible Stone Age deposits. Should any previously undetected heritage resources be exposed or uncovered during construction phases of the proposed project, these should immediately be reported to SAHRA.
- Since the intrinsic heritage and social value of graves and cemeteries are highly significant, these resources require special management measures. Should human remains be discovered at any stage, these should be reported to the Heritage Specialist and relevant authorities (SAHRA) and development activities should be suspended until the site has been inspected by the Specialist. The Specialist will advise on further management actions and possible relocation of human remains in accordance with the Human Tissue Act (Act 65 of 1983 as amended), the Removal of Graves and Dead Bodies Ordinance (Ordinance no. 7 of 1925), the National Heritage Resources Act (Act no. 25 of 1999) and any local and regional provisions, laws and by-laws pertaining to human remains.

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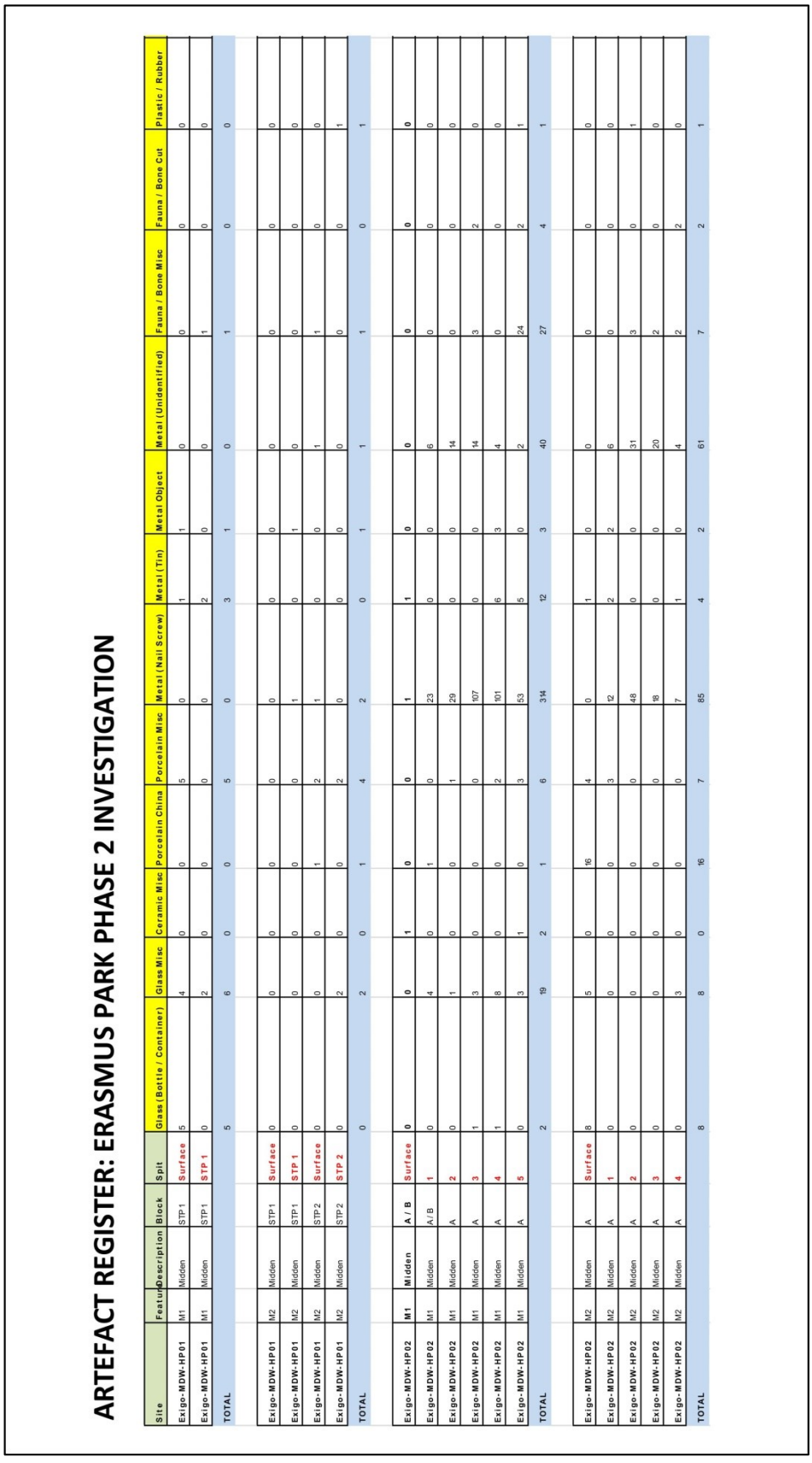
10 ADDENDUM 2: ARTEFACT REGISTER



ARTEFACT REGISTER: ERASMUS PARK PHASE 2 INVESTIGATION

Site	Feature	Description	Block	Spit	Glass (Bottle / Container)	Glass Misc	Ceramic Misc	Porcelain China	Porcelain Misc	Metal (Nail/ Screw)	Metal (Tin)	Metal Object	Metal (Unidentified)	Fauna / Bone Misc	Fauna / Bone Cut	Plastic / Rubber
Exigo-MDW-HP01	M1	Midden	STP 1	Surface	5	4	0	0	5	0	1	1	0	0	0	0
Exigo-MDW-HP01	M1	Midden	STP 1	STP 1	0	2	0	0	0	0	2	0	0	1	0	0
TOTAL					5	6	0	0	5	0	3	1	0	1	0	0
Exigo-MDW-HP01	M2	Midden	STP1	Surface	0	0	0	0	0	0	0	0	0	0	0	0
Exigo-MDW-HP01	M2	Midden	STP1	STP 1	0	0	0	0	0	1	0	1	0	0	0	0
Exigo-MDW-HP01	M2	Midden	STP2	Surface	0	0	0	1	2	1	0	0	1	1	0	0
Exigo-MDW-HP01	M2	Midden	STP 2	STP 2	0	2	0	0	2	0	0	0	0	0	0	1
TOTAL					0	2	0	1	4	2	0	1	1	1	0	1
Exigo-MDW-HP02	M1	Midden	A / B	Surface	0	0	1	0	0	1	1	0	0	0	0	0
Exigo-MDW-HP02	M1	Midden	A / B	1	0	4	0	1	0	23	0	0	6	0	0	0
Exigo-MDW-HP02	M1	Midden	A	2	0	1	0	0	1	29	0	0	14	0	0	0
Exigo-MDW-HP02	M1	Midden	A	3	1	3	0	0	0	107	0	0	14	3	2	0
Exigo-MDW-HP02	M1	Midden	A	4	1	8	0	0	2	101	6	3	4	0	0	0
Exigo-MDW-HP02	M1	Midden	A	5	0	3	1	0	3	53	5	0	2	24	2	1
TOTAL					2	19	2	1	6	314	12	3	40	27	4	1
Exigo-MDW-HP02	M2	Midden	A	Surface	8	5	0	16	4	0	1	0	0	0	0	0
Exigo-MDW-HP02	M2	Midden	A	1	0	0	0	0	3	12	2	2	6	0	0	0
Exigo-MDW-HP02	M2	Midden	A	2	0	0	0	0	0	48	0	0	31	3	0	1
Exigo-MDW-HP02	M2	Midden	A	3	0	0	0	0	0	18	0	0	20	2	0	0
Exigo-MDW-HP02	M2	Midden	A	4	0	3	0	0	0	7	1	0	4	2	2	0
TOTAL					8	8	0	16	7	85	4	2	61	7	2	1

11 ADDENDUM 3: HERITAGE LEGISLATION BACKGROUND

11.1 CRM: Legislation, Conservation and Heritage Management

The broad generic term *Cultural Heritage Resources* refers to any physical and spiritual property associated with past and present human use or occupation of the environment, cultural activities and history. The term includes sites, structures, places, natural features and material of palaeontological, archaeological, historical, aesthetic, scientific, architectural, religious, symbolic or traditional importance to specific individuals or groups, traditional systems of cultural practice, belief or social interaction.

11.1.1 Legislation regarding archaeology and heritage sites

The South African Heritage Resources Agency (SAHRA) and their provincial offices aim to conserve and control the management, research, alteration and destruction of cultural resources of South Africa. It is therefore vitally important to adhere to heritage resource legislation at all times. 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 MEC as well as the relevant Local Authorities.

11.1.2 Background to HIA and AIA Studies

South Africa's unique and non-renewable archaeological and palaeontological heritage sites are 'generally' protected in terms of the National Heritage Resources Act (Act No 25 of 1999, section 35) and may not be disturbed at all without a permit from the relevant heritage resources authority. Heritage sites are frequently threatened by development projects and both the environmental and heritage legislation require impact assessments (HIAs & AIAs) that identify all heritage resources in areas to be developed. Particularly, these assessments are required to make recommendations for protection or mitigation of the impact of the sites. HIAs and AIAs should be done by qualified professionals with adequate knowledge to (a) identify all heritage resources including archaeological and palaeontological sites that might occur in areas of developed and (b) make recommendations for protection or mitigation of the impact on the sites.

The National Heritage Resources Act (Act No. 25 of 1999, section 38) provides guidelines for Cultural Resources Management and prospective developments:

"38. *(1) Subject to the provisions of subsections (7), (8) and (9), any person who intends to undertake a development categorised as:*

(a) the construction of a road, wall, powerline, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length;

(b) the construction of a bridge or similar structure exceeding 50m in length;

(c) any development or other activity which will change the character of a site:

(i) exceeding 5 000 m^2 in extent; or

(ii) involving three or more existing erven or subdivisions thereof; or

(iii) involving three or more erven or divisions thereof which have been consolidated within the past five years; or

(iv) the costs of which will exceed a sum set in terms of regulations by SAHRA or a

provincial heritage resources authority;

(d) the re-zoning of a site exceeding 10 000 m^2 in extent; or

(e) any other category of development provided for in regulations by SAHRA or a provincial heritage

resources authority,

must at the very earliest stages of initiating such a development, notify the responsible heritage resources authority and furnish it with details regarding the location, nature and extent of the proposed development."

And:

"The responsible heritage resources authority must specify the information to be provided in a report required in terms of subsection (2)(a): Provided that the following must be included:

(d) The identification and mapping of all heritage resources in the area affected;

(e) an assessment of the significance of such resources in terms of the heritage assessment criteria set out in section 6(2) or prescribed under section 7;

(f) an assessment of the impact of the development on such heritage resources;

(g) an evaluation of the impact of the development on heritage resources relative to the sustainable social and economic benefits to be derived from the development;

(h) the results of consultation with communities affected by the proposed development and other interested parties regarding the impact of the development on heritage resources;

(i) if heritage resources will be adversely affected by the proposed development, the consideration of alternatives; and

(j) plans for mitigation of any adverse effects during and after the completion of the proposed development (38. [3] 1999:64)."

Consequently, section 35 of the Act requires Heritage Impact Assessments (HIAs) or Archaeological Impact Assessments (AIAs) to be done for such developments in order for all heritage resources, that is, all places or objects of aesthetics, architectural, historic, scientific, social, spiritual, linguistic or technological value or significance to be protected. Thus any assessment should make provision for the protection of all these heritage components, including archaeology, shipwrecks, battlefields, graves, and structures older than 60 years, living heritage, historical settlements, landscapes, geological sites, palaeontological sites and objects.Heritage resources management and conservation

11.2 Assessing the Significance of Heritage Resources

Archaeological sites, as previously defined in the National Heritage Resources Act (Act 25 of 1999) are places in the landscape where people have lived in the past – generally more than 60 years ago – and have left traces of their presence behind. In South Africa, archaeological sites include hominid fossil sites, places where people of the Earlier, Middle and Later Stone Age lived in open sites, river gravels, rock shelters and caves, Iron Age sites, graves, and a variety of historical sites and structures in rural areas, towns and cities. Palaeontological sites are those with fossil remains of plants and animals where people were not

involved in the accumulation of the deposits. The basic principle of cultural heritage conservation is that archaeological and other heritage sites are valuable, scarce and *non-renewable.* Many such sites are unfortunately lost on a daily basis through development for housing, roads and infrastructure and once archaeological sites are damaged, they cannot be re-created as site integrity and authenticity is permanently lost. Archaeological sites have the potential to contribute to our understanding of the history of the region and of our country and continent. By preserving links with our past, we may not be able to revive lost cultural traditions, but it enables us to appreciate the role they have played in the history of our country.

- Categories of significance

Rating the significance of archaeological sites, and consequently grading the potential impact on the resources is linked to the significance of the site itself. The significance of an archaeological site is based on the amount of deposit, the integrity of the context, the kind of deposit and the potential to help answer present research questions. Historical structures are defined by Section 34 of the National Heritage Resources Act, 1999, while other historical and cultural significant sites, places and features, are generally determined by community preferences. The guidelines as provided by the NHRA (Act No. 25 of 1999) in Section 3, with special reference to subsection 3 are used when determining the cultural significance or other special value of archaeological or historical sites. In addition, ICOMOS (the Australian Committee of the International Council on Monuments and Sites) highlights four cultural attributes, which are valuable to any given culture:

- *Aesthetic value:*

Aesthetic value includes aspects of sensory perception for which criteria can and should be stated. Such criteria include consideration of the form, scale, colour, texture and material of the fabric, the general atmosphere associated with the place and its uses and also the aesthetic values commonly assessed in the analysis of landscapes and townscape.

- *Historic value:*

Historic value encompasses the history of aesthetics, science and society and therefore to a large extent underlies all of the attributes discussed here. Usually a place has historical value because of some kind of influence by an event, person, phase or activity.

- *Scientific value:*

The scientific or research value of a place will depend upon the importance of the data involved, on its rarity, quality and on the degree to which the place may contribute further substantial information.

- *Social value:*

Social value includes the qualities for which a place has become a focus of spiritual, political, national or other cultural sentiment to a certain group.

It is important for heritage specialist input in the EIA process to take into account the heritage management structure set up by the NHR Act. It makes provision for a 3-tier system of management including the South Africa Heritage Resources Agency (SAHRA) at a national level, Provincial Heritage Resources Authorities (PHRAs) at a provincial and the local authority. The Act makes provision for two types or forms of protection of heritage resources; i.e. formally protected and generally protected sites:

Formally protected sites:

- Grade 1 or national heritage sites, which are managed by SAHRA
- Grade 2 or provincial heritage sites, which are managed by the provincial HRA (MP-PHRA).
- Grade 3 or local heritage sites.

Generally protected sites:

- Human burials older than 60 years.
- Archaeological and palaeontological sites.
- Shipwrecks and associated remains older than 60 years.
- Structures older than 60 years.

With reference to the evaluation of sites, the certainty of prediction is definite, unless stated otherwise and if the significance of the site is rated high, the significance of the impact will also result in a high rating. The same rule applies if the significance rating of the site is low. The significance of archaeological sites is generally ranked into the following categories.

Significance	Rating Action
No significance: sites that do not require mitigation.	None
Low significance: sites, which may require mitigation.	2a. Recording and documentation (Phase 1) of site; no further action required 2b. Controlled sampling (shovel test pits, augering), mapping and documentation (Phase 2 investigation); permit required for sampling and destruction
Medium significance: sites, which require mitigation.	3. Excavation of representative sample, C14 dating, mapping and documentation (Phase 2 investigation); permit required for sampling and destruction [including 2a & 2b]
High significance: sites, where disturbance should be avoided.	4a. Nomination for listing on Heritage Register (National, Provincial or Local) (Phase 2 & 3 investigation); site management plan; permit required if utilised for education or tourism
High significance: Graves and burial places	4b. Locate demonstrable descendants through social consulting; obtain permits from applicable legislation, ordinances and regional by-laws; exhumation and reinterment [including 2a, 2b & 3]

Furthermore, the significance of archaeological sites was based on six main criteria:

- Site integrity (i.e. primary vs. secondary context),
- Amount of deposit, range of features (e.g., stonewalling, stone tools and enclosures),
- Density of scatter (dispersed scatter),
- Social value,
- Uniqueness, and
- Potential to answer current and future research questions.

A fundamental aspect in assessing the significance and protection status of a heritage resource is often whether or not the sustainable social and economic benefits of a proposed development outweigh the conservation issues at stake. When, for whatever reason the protection of a heritage site is not deemed necessary or practical, its research potential must be assessed and mitigated in order to gain data / information, which would otherwise be lost.