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**INTERDESIGN LANDSCAPE ARCHITECTS: PROPOSED  
POMONA AGRICULTURAL HOLDINGS WAREHOUSE  
DEVELOPMENT PROJECT, EKURHULENI MUNICIPALITY,  
GAUTENG PROVINCE**

**Archaeological Impact Assessment**



**Innovation in  
Sustainability**

The logo for EOH, consisting of the letters 'EOH' in a bold, white, sans-serif font with a small triangle above the 'O'.

**Prepared for: Interdesign Landscape Architects**

**Prepared by: Exigo Sustainability Heritage Unit**

## **ARCHAEOLOGICAL IMPACT ASSESSMENT (AIA) FOR THE PROPOSED ESTABLISHMENT OF WAREHOUSES ON HOLDINGS 122, 123, 124 AND PORTION 1 OF HOLDING 281, POMONA AGRICULTURAL HOLDINGS, POMONA, EKURHULENI MUNICIPALITY, GAUTENG PROVINCE**

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**Conducted on behalf of:**



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### **Document History**

Document Version 1 (Final Draft) – 2 October 2017

Document Version 2 (Final) – 6 November 2017

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**DECLARATION**

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I, Nelius Le Roux Kruger, declare that –

- I act as the independent specialist;
- I am conducting any work and activity relating to the proposed Pomona Agricultural Holdings Warehouse Development Project in an objective manner, even if this results in views and findings that are not favourable 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 (Gauteng-PHRA, SAHRA 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

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**Date:** 6 November 2017

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**EXECUTIVE SUMMARY**

This report details the results of an Archaeological Impact Assessment (AIA) study on Pomona Agricultural Holdings 122, 123, 124, and Portion 1 of Holding 281, subject to an Environmental Basic Assessment (BA) process for the proposed Pomona Agricultural Holdings Warehouse Development Project in the Ekurhuleni Municipality of the Gauteng Province. The project entails the proposed development of industrial warehouses over a surface area of approximately **8.16ha**. The report includes background information on the area’s archaeology, its representation in Southern Africa, and the history of the larger area under investigation, survey methodology and results as well as heritage legislation and conservation policies. A copy of the report will be supplied to the Gauteng Provincial Heritage Resources Authority (Gauteng-PHRA) and recommendations contained in this document will be reviewed.

<b>Project Title</b>	Pomona Agricultural Holdings Warehouse Development
<b>Project Location (S E Coordinates)</b>	S26.278299° E 28.433981° (approximate midpoint)
<b>1:50 000 Map Sheet</b>	2628AB
<b>Farm Portion / Parcel</b>	Pomona Agricultural Holdings 122, 123, 124, and Portion 1 of Holding 281.
<b>Magisterial District / Municipal Area</b>	Ekurhuleni
<b>Province</b>	Gauteng Province

A number of academic archaeological and historical studies have been conducted in this section of the Gauteng Province and these studies all infer a relatively rich and diverse archaeological landscape, representative of most phases of human and cultural development in Southern Africa. Contained in its archaeology are traces of conquests by Bantu-speakers, Europeans and British imperialism encompassing the struggle for land, resources and political power. The history and archaeology of the greater Kempton Park area is well known for its Iron Age Farmer Period, Historical Period as well as industrial archaeological horizons. However, the proposed Pomona Agricultural Holdings Warehouse Development Project is situated in environments that have been transformed and degraded as a result urbanisation and natural elements. Still, features of heritage potential were documented here and the following general recommendations are made based on general observations in the proposed project footprint:

- According to the South African Heritage Resources Agency Information System (SAHRIS) Palaeo Map, the project area falls within a potentially sensitive fossiliferous zone and a Palaeontological Desktop Assessment is recommended, subject to review and recommendations by the relevant heritage authorities. Should fossil remains such as fossil fish, reptiles or petrified wood be exposed during construction, these objects should carefully safeguarded and the relevant heritage resources authority (SAHRA) should be notified immediately so that the appropriate action can be taken by a professional palaeontologist.
- A number of contemporary period building structures and houses (**Site EXIGO-PWD-FT01 - Site EXIGO-PWD-FT04**) were documented in the project footprint. As the features are of recent age and no special cultural or social association thereof could be established, the sites are rated as of low heritage significance. As such, no specific mitigation measures in terms of further heritage resources management are required but it is suggested that local residents and communities be consulted with

regards to these buildings and their function, a process which could possibly be incorporated into the Social impact Assessment (SIA) for the project.

- A late Historical Period house in the project area (**Site EXIGO-PWD-HP01**) is older than 60 years and it is generally protected under the NHRA. However, the house carries no established cultural or social association and it does not represent unique architectural or scientific attributes. The site is believed to be of little research potential and it is rated as of low heritage significance. However, application for a destruction permit should be made with relevant heritage authorities (SAHRA, SAHRA Built Environment) prior to the alteration or destruction of the site.
- Considering the localised nature of heritage remains, the general monitoring of the development progress by an ECO 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

***A single site of heritage potential was identified within the footprint proposed for the Pomona Agricultural Holdings Warehouse Development. The site is rated as of low heritage significance but it is older than 60 years, it is generally protected under the NHRA and a SAHRA destruction permit will be required prior to the sterilisation of the site. This said, it is the informed opinion of the author of this Archaeological Impact Assessment Report that the proposed Pomona Agricultural Holdings Warehouse Development may proceed from a culture resources management perspective provided that no subsurface heritage remains are encountered during development, and subject to relevant management / mitigation requirements.***

It is essential that cognisance be taken of the larger archaeological landscape of the Gauteng Province and the Pomona region in order to avoid the destruction of previously undetected heritage sites. Water sources such as salt pans, drainage lines and rivers should also be regarded as potentially sensitive in terms of possible Stone Age deposits. The possible existence of Colonial Period resources deriving from the area's more recent history should also be considered. Should any previously undetected heritage resources be exposed or uncovered during construction phases of the proposed project, these should immediately be reported to SAHRA. 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. A full social consultation process should occur in conjunction with the mitigation of cemeteries and burials.

This report details the methodology, limitations and recommendations relevant to these heritage areas, as well as areas of proposed development. It should be noted that recommendations and possible mitigation measures are valid for the duration of the development process, and mitigation measures might have to be implemented on additional features of heritage importance not detected during this Phase 1 assessment (e.g. uncovered during the construction process).

## NOTATIONS AND TERMS/TERMINOLOGY

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

**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.

**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.

**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.

**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

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

**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.

**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.

**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.

**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.

**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

**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.

**LIST OF ABBREVIATIONS**

<b>Abbreviation</b>	<b>Description</b>
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)
MSA	Middle Stone Age
NHRA	National Heritage Resources Act No.25 of 1999
PFS	Pre-Feasibility Study
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

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### 1.1 Scope and Motivation

The Heritage Unit of Exigo Sustainability was commissioned by Interdesign Landscape Architects, on behalf of Morgan Cargo Developments (Pty) Ltd, for an Archaeological Impact Assessment (AIA) study subject to an Environmental Basic Assessment (BA) process for the Pomona Agricultural Holdings Warehouse Development Project in the Ekurhuleni, Gauteng Province. The rationale of this AIA is to determine the presence of heritage resources such as archaeological and historical sites and features, graves and places of religious and cultural significance in previously unstudied areas; 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 Nelius 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 Brief

The proposed Pomona Agricultural Holdings Warehouse Development Project entails the establishment of warehouses on Holdings 122, 123, 124, and Portion 1 of Holding 281, Pomona Agricultural Holdings in the Ekurhuleni Municipality of the Gauteng Province. The properties measure 2.0229ha, 2.0228ha, 2.0957ha and 2.0225ha respectively, and have a combined property area measuring some **8.1639ha**.



Figure 1-1: Aerial image indicating the location and extent of the Pomona Agricultural Holdings Warehouse Development Project (provided by client).

#### 1.4 Terms of Reference

Heritage specialist input into the Environmental Impact Assessment (EIA) process is essential to ensure that, through the management of change, developments still conserve our heritage resources. It is also a legal requirement for certain development categories which may have an impact on heritage resources. Thus, EIAs 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. Based hereon, this project functioned according to the following **terms of reference** for heritage specialist input:

- *Provide a detailed description of all archaeological artefacts, structures (including graves) and settlements which may be affected, if any.*
- *Assess the nature and degree of significance of such resources within the area.*
- *Establish heritage informants/constraints to guide the development process through establishing thresholds of impact significance;*
- *Assess and rate any possible impact on the archaeological and historical remains within the area emanating from the proposed development activities.*
- *Propose possible heritage management measures provided that such action is necessitated by the development.*
- *Liaise and consult with the South African Heritage Resources Agency (SAHRA)*

#### 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 its 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 Heritage Resources Act No 25 of 1999, section 35**

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**

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### **2.1 Area Location**

The proposed Pomona Agricultural Holdings Warehouse Development Project occurs on Pomona Agricultural Holdings 122, 123, 124, and Portion 1 of Holding 281 in Pomona, part of the Ekurhuleni in the Gauteng Province. It is located on the corner of Constantia and EP Malan Street in the Pomona extension of Kempton Park. The Kempton Park CBD occurs approximately 3km west of the site. The R21 highway routes to the west of the site and the O R Tambo International Airport is situated to the south. More specifically, the project area is situated at:

- **Midpoint:** S26.102579° E28.267630°

The site is located on 1:50 000 map sheet **2628AB**.

### **2.2 Area Description: Receiving Environment**

The Study Area lies within the Savanna biome which is the largest biome in Southern Africa. Although the site itself falls within the Savanna Biome, it is more representative of a transitional zone between the Savanna and the Grassland Biomes, with the woodland components representing the Savanna Biome and the grassveld areas representing the Grassland Biome. The most recent classification of the area by Mucina & Rutherford (2006) is the mixed woodland areas forming part of the Central Sandy Bushveld, with the grasslands more representative of the grassland biome due to the rocky and shallow nature of the soils preventing the growth of woody species. The major geological feature of this catchment is the large area of volcanic intrusive rock referred to as the Bushveld Igneous Complex. Formations in this complex are extremely rich in minerals.

### **2.3 Site Description**

The project footprint is located on the Pomona Agricultural Holdings on the corner of Constantia and EP Malan Street. A non-perennial drainage line forms the eastern boundary of the project site where tall grasses cover much of the surface. A small dam used to capture water from this drainage line in the north-eastern corner of the site but the reservoir seems to have disappeared in recent years. A number of houses and buildings occur along the western boundary of the site on EP Malan Street and a large truck depot is situated more or less in the middle of the project site. The site is currently fenced and parts thereof are used as grazing land. And its surrounds have been transformed by agriculture, urbanisation and alien vegetation and pioneering species occur in places. The OR Tambo International Airport precinct occurs south-west of the project footprint.



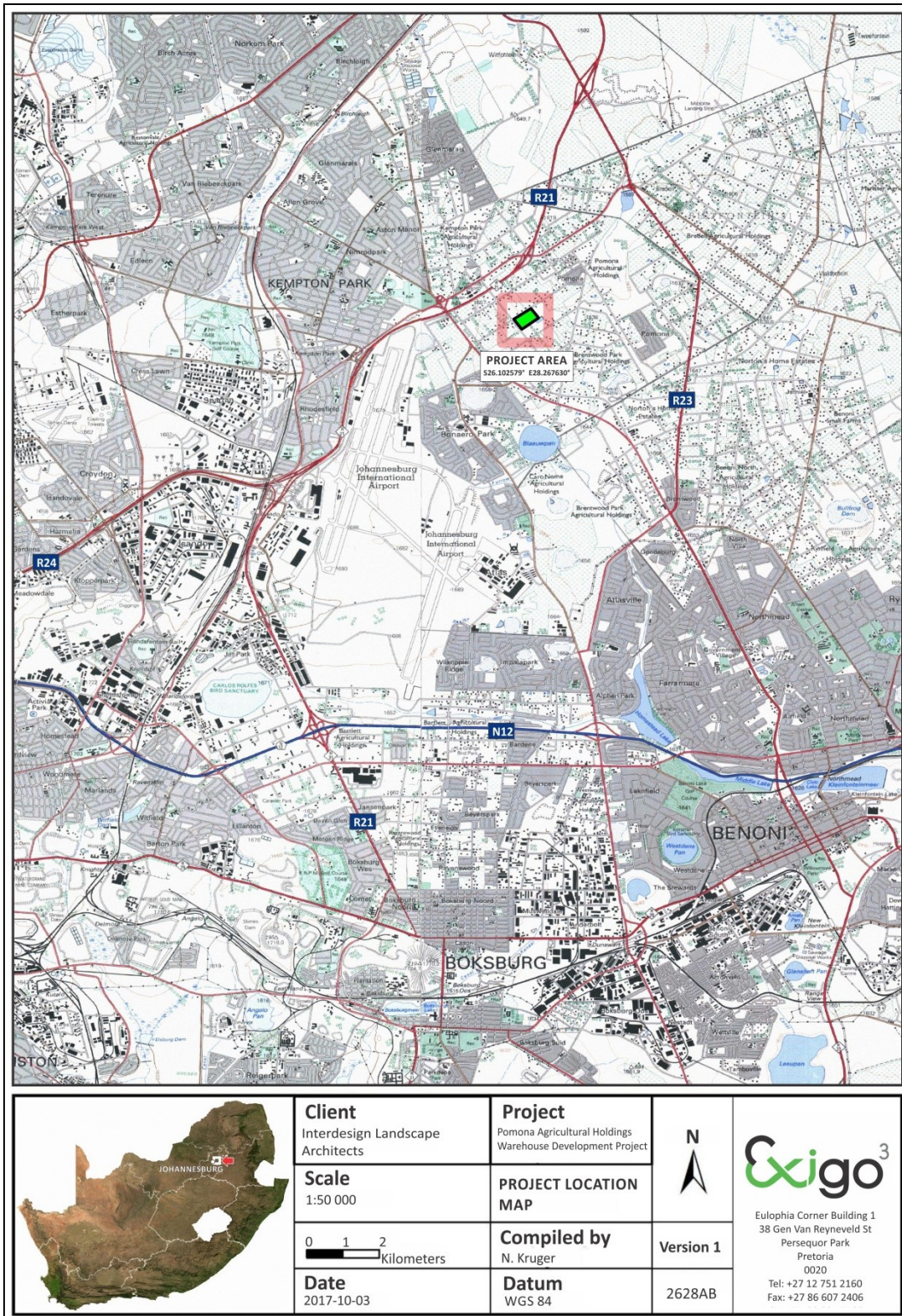


Figure 2-1: 1:50 00 Topographical map representation of the location of the Pomona Agricultural Holdings Warehouse Development Project (sheet 2628AB).



Figure 2-2: Aerial map providing a regional setting for the proposed Pomona Agricultural Holdings Warehouse Development location.

### 3 METHOD OF ENQUIRY

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#### 3.1 Sources of Information

Data from detailed desktop, aerial and field studies were employed in order to sample surface areas systematically and to ensure a high probability of heritage sites recording.

##### 3.1.1 Desktop Study

The larger landscape of Gauteng has been well documented in terms of its archaeology and history. A desktop study was prepared in order to contextualize the proposed project within a larger historical milieu. The study drew on available unpublished archival databases and unpublished Heritage Assessment reports to give a comprehensive representation of known sites in the study area. Furthermore, numerous academic papers and research articles supplied a historical context for the proposed project and archival sources, aerial photographs, historical maps and local histories were used to create a baseline of the landscape's heritage.

##### 3.1.2 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 site survey 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.

The aerial survey identified surface areas in the proposed Pomona Agricultural Holdings Warehouse Development Project footprints which have been subjected to historical and more recent site disturbances as a result of urbanisation. It is apparent from aerial imagery that a small dam in the north0earetn corner of the project area has disappeared in recent years (see Figure 3-1).

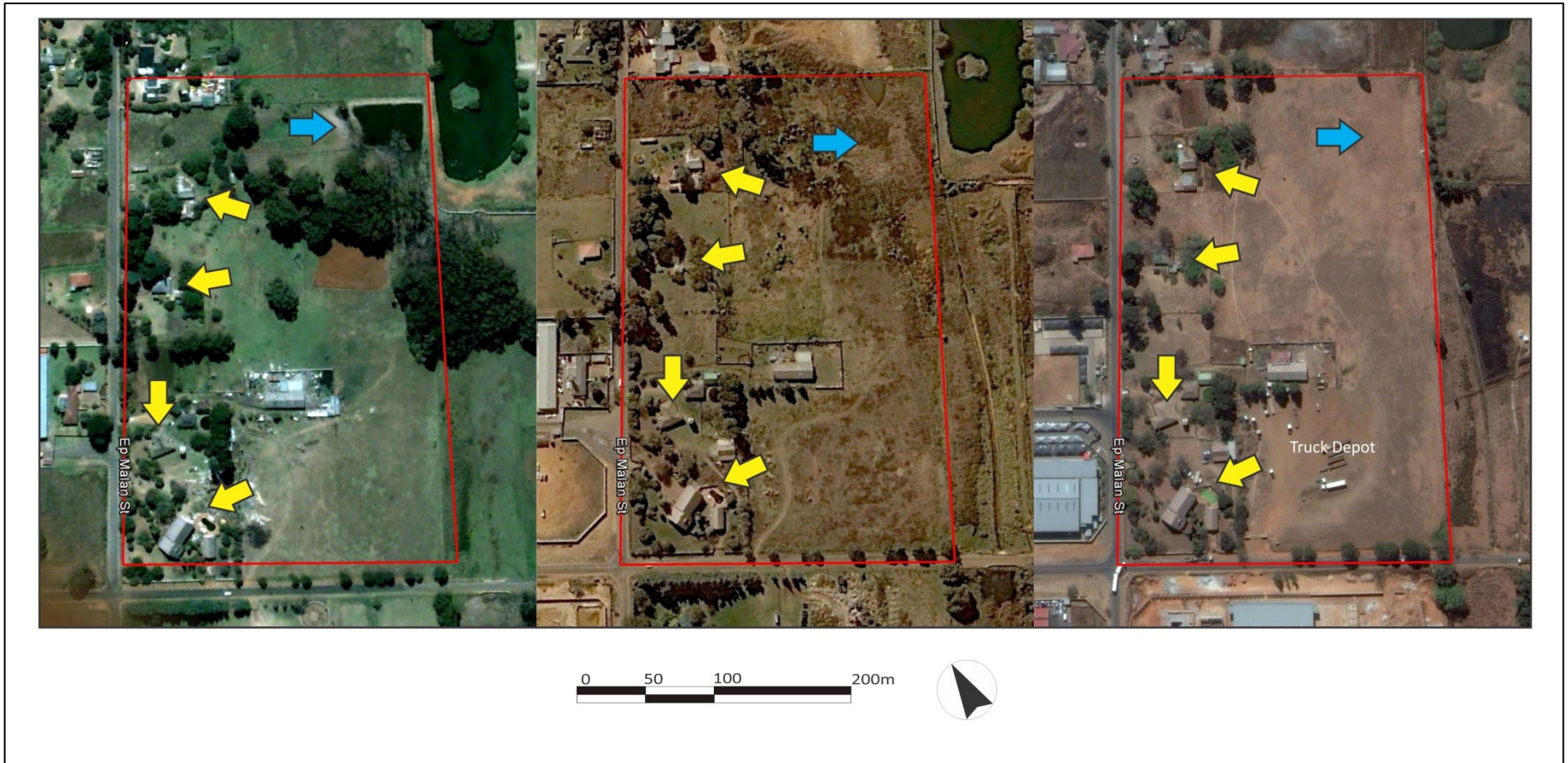


Figure 3-1: A series of Google Earth images (left:2003, middle: 2009, right:2016) indicating changes over time of the project area (red outline). Building structures on the site is indicated by yellow arrows and the small dam (discussed in the text) is indicated by the yellow arrow.

### 3.1.3 Field Survey

Archaeological survey implies the systematic procedure of the identification of archaeological sites. An archaeological survey of the footprint area subject to this study was conducted in September 2017. The process encompassed a field survey in accordance with standard archaeological practice by which heritage resources are observed and documented. In order to sample surface areas systematically and to ensure a high probability of site recording, the developmental footprint was systematically surveyed on foot. In addition, the surrounding landscape was investigated by means of a foot and vehicular survey. GPS reference points identified during the aerial survey were also visited and random spot checks were made (see detail in previous section). Using a Garmin E-trex Legend GPS objects and structures of archaeological / heritage potential were recorded and photographed with a Samsung S6 phone camera. Real time aerial mapping and positioning by means of a hand-held tablet-based Google Earth application was also employed on site to investigate possible disturbed areas during the survey.

## 3.2 Limitations

### 3.2.1 Access

The project area occurs across residential plots and a large open field which is fenced. Access is gained via a gate at the truck depot connecting to Constantia Street. Access control is applied to all area relevant to this assessment but no restrictions were encountered in terms of site access and movement.

### 3.2.2 Visibility

The surrounding vegetation in the study area is mostly comprised out of mixed grasslands and scattered trees as well as pioneering species in disturbed and transformed areas. The HIA site inspection was conducted in late winter months (September 2016) and with dense surface grass cover along the eastern section of the project site which somewhat constrained surface visibility and site observation (see Figures 3-3 to 3-9). In single cases during the survey sub-surface inspection was possible. Where applied, this revealed no archaeological deposits.



Figure 3-2: View of the project area, looking east towards the former location of the small dam (see discussion in the text).



Figure 3-3: View of the eastern boundary of the project area, looking south.



Figure 3-4: Large Eucalyptus trees along the southern boundary of the project area.



Figure 3-5: A vacant plot along the western boundary of the project area.



Figure 3-6: The truck depot in the centre of the project area.



Figure 3-7: View of dense surface grass cover in an eastern portion of the project area.



Figure 3-8: The building for the truck depot in the project area.



Figure 3-9: View of the truck depot and associated buildings and refuse dumps the project area.

### 3.2.3 Limitations and Constraints Summary

The foot site survey for the Pomona Agricultural Holdings Warehouse Development Project primarily focused around areas of potential heritage sensitivity as well as areas of high human settlement catchment probability (for example near drainage lines, in association with vegetation changes or around soil disturbances). The following constraints were encountered:

- **Visibility:** Visibility proved to be somewhat of a constraint in areas with denser surface cover along the east of the project area.

It should be noted that, even though it might be assumed that survey findings are representative of the heritage landscape of the project area for the Pomona Agricultural Holdings Warehouse Development Project, it should be stated that the possibility exists that individual sites could be missed due to the localised nature of some heritage remains as well as the possible presence of sub-surface archaeology. Therefore, maintaining due cognisance of the integrity and accuracy of the archaeological survey, it should be stated that the heritage resources identified during the study do not necessarily represent all the heritage resources present in the project area. The subterranean nature of some archaeological sites, dense vegetation cover and visibility constraints sometimes distort heritage representations and any additional heritage resources located during consequent development phases must be reported to the Heritage Resources Authority or an archaeological specialist.

### 3.3 Impact Assessment

For consistency among specialists, impact assessment ratings by Exigo Specialists are generally done using the Plomp<sup>1</sup> impact assessment matrix scale supplied by Exigo. According to this matrix scale, each heritage receptor in the study area is given an impact assessment. A cumulative assessment for the proposed project is also included.

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<sup>1</sup> Plomp, H., 2004



## 4 ARCHAEO-HISTORICAL CONTEXT

### 4.1 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: <i>Australopithecines</i> <i>Homo habilis</i> <i>Homo erectus</i>	Typically large stone tools such as hand axes, choppers and cleavers.
Middle Stone Age 250 000 – 25 000 YCE	Pleistocene	First <i>Homo sapiens</i> species	Typically smaller stone tools such as scrapers, blades and points.
Late Stone Age 20 000 BC – present	Pleistocene / Holocene	<i>Homo sapiens sapiens</i> 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.

### 4.2 The Southern Highveld Heritage Landscape

The history of central Gauteng is reflected in a rich archaeological landscape. Sites, documenting Earlier, Middle and Later Stone Age habitation occur across the province, mostly in open air locales or in sediments alongside rivers or pans. In addition, a wealth of Later Stone Age rock art sites, most of which are in the form of rock engravings are to be found in the larger landscape. These sites occur on hilltops, slopes, rock outcrops and occasionally in river beds. Later, Bantu-speaking tribes moved into this area from the northern parts of Southern Africa and settled here. These were presumably Sotho-Tswana herder groups during the Late Iron Age times during the period AD 1500-1800. Settlement by Iron Age communities took place near rivers and close to rocky outcrops. Clusters of trees often indicate the presence of remaining stone walls and other structures. White farmers, settling in the area since the middle of the 19th century, divided up the landscape into a number of farms, which even today form the framework for agricultural, residential and other forms of development. Stands of poplar, palm, eucalyptus, pine and other trees often indicate the presence of farmsteads and proved to be helpful in tracing these cultural resources. For the largest part, the central Gauteng landscape is today a large residential, industrial and commercial hub,

often engulfing and obliterating farmsteads, graveyards and other signs of earlier human occupation.

#### 4.2.1 The Stone Ages

According to archaeological research, the earliest ancestors of modern humans emerged some two to three million years ago. The remains of Australopithecine and *Homo habilis* have been found in dolomite caves and underground dwellings in the Bankeveld at places such as Sterkfontein and Swartkrans near Krugersdorp. *Homo habilis*, one of the Early Stone Age hominids, is associated with Oldowan artefacts, which include crude implements manufactured from large pebbles. The Acheulian industrial complex replaced the Oldowan industrial complex during the Early Stone Age. This phase of human existence was widely distributed across South Africa and is associated with *Homo erectus*, who manufactured hand axes and cleavers from as early as one and a half million years ago. Oldowan and Acheulian artefacts were also found four to five decades ago in some of the older gravels (ancient river beds and terraces) of the Vaal River and the Klip River in Vereeniging. The earliest ancestors of modern man may therefore have roamed the Vaal valley at the same time that their contemporaries occupied some of the dolomite caves near Krugersdorp. Middle Stone Age sites dating from as early as two hundred thousand years ago have been found all over South Africa. Middle Stone Age hunter-gatherer bands also lived and hunted in the Orange and Vaal River valleys. These people, who probably looked like modern humans, occupied campsites near water but also used caves as dwellings. They manufactured a wide range of stone tools, including blades and points that may have had long wooden sticks as hafts and were used as spears. The Late Stone Age commenced twenty thousand years ago or somewhat earlier. The various types of Stone Age industries scattered across the country are associated with the historical San and Khoi-Khoi people. The San were renowned as formidable hunter-gatherers, while the Khoi-Khoi herded cattle and small stock during the last two thousand years. Late Stone Age people manufactured tools that were small but highly effective, such as arrow heads and knives.

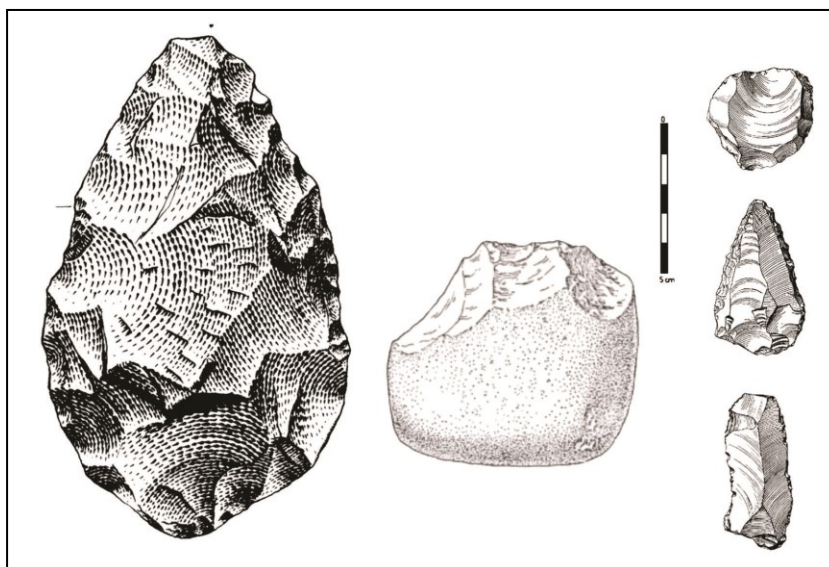


Figure 4-1: Typical ESA handaxe (left) and cleaver (center). To the right is a MSA scraper (right, top), point (right, middle) and blade (right, bottom).

The history of human occupation of and settlement in the Central Gauteng area, known so far, goes back at least 150 000 years, when groups of Early Stone Age people appeared periodically. These people survived by manufacturing simple tools and weapons of stone, bone and wood, which they used for hunting and gathering edible plants. No permanent settlement took place, and only deposits of stone artefacts, such as the one which previously existed on have remained behind. Following the Early Stone Age, Central Gauteng

was the scene of the periodic occupation by Middle and probably also by Late Stone age groups. Some of the local rock was suitable for manufacturing stone artefacts, as is evident on the farm Waterval. Settlement, which was only of a temporary nature, often occurred at sheltered spots close to rivers, such as Glenferness Cave. Numerous Middle Stone Age implements have been and are still are to be found along water-courses. The Later Stone Age (LSA) is of importance in geological terms as it marks the transition from the Pleistocene to the Holocene which was accompanied by a gradual shift from cooler to warmer temperatures. This change had its greatest influence on the higher lying areas of South Africa. Later Stone Age (LSA) sites occur both at the coast and inland as caves deposits, rock shelters, open sites and shell deposits. A number of Late Stone Age sites are located in the vicinity of Klipfontein 12 IR. These include the sites of Glenferness, Pietkloof and Zevenfontein.

**4.2.2 The Iron Age Farmer Period**

The beginnings of the Iron Age (Farmer Period) in Southern Africa are associated with the arrival of a new Bantu speaking population group at around the third century AD. These newcomers introduced a new way of life into areas that were occupied by Later Stone Age hunter-gatherers and Khoekhoe herders. Distinctive features of the Iron Age are a settled village life, food production (agriculture and animal husbandry), metallurgy (the mining, smelting and working of iron, copper and gold) and the manufacture of pottery. Iron Age people moved into Southern Africa by c. AD 200, entering the area either by moving down the coastal plains, or by using a more central route. From the coast they followed the various rivers inland. Being cultivators, they preferred rich alluvial soils. Iron Age occupation of the larger Highveld area seems to have taken place on a significant scale.

Complex stone wall clusters are scattered across the landscapes of the Southern Highveld and the Free State. These stone structures, commonly associated with Bantu speaking farming communities, are the remnants of a complex 500 year old sequence of stone wall building in central interior of South Africa. Tim Maggs, noted archaeologist of the later Farmer Period in southern Africa, named the first phase in this sequence “Type N” walling, dating to the 15<sup>th</sup> to 17<sup>th</sup> centuries AD (Maggs 1976). This phase, which mostly developed in the Free State, was characterised by central cattle kraals linked by outer walls, while the whole settlement was surrounded by a perimeter wall which also incorporated small stock enclosures. After the 17<sup>th</sup> century, the “Type N” style of building spread across the Vaal River in consecutive phases where it later became known as “Klipriviersberg” type walling (Taylor 1979a). These settlements typically displayed outer scalloped walls that demarcated back courtyards, a large number of small stock kraals and straight walls which separated household units in the domestic zone. Beehive huts would have housed communities on these sites.



Figure 4-2: Characteristic Klipriviersberg-type stone walled settlements east of Vereeniging on the Highveld (after Huffman [2007]).

The Klipriviersberg walling type dates to the 18<sup>th</sup> and 19<sup>th</sup> centuries and are associated with the Fokeng cluster of the Sotho-Tswana speaker group. The Difaqane (Sotho), or Mfekane (“the crushing” in Nguni) was a time of bloody upheavals in Natal and on the Highveld, which occurred around the early 1820’s until the late 1830’s. It came about in response to heightened competition for land and trade, and caused population groups like gun-carrying Griquas and Shaka’s Zulus to attack other tribes. At the beginning of the nineteenth century, the predominant black tribe in the area north of Pretoria was the Manala-Ndebele. In 1832, Shaka’s Zulu tribe passed by the south of Pretoria from the southeast in a westerly direction, through the current project landscape, in order to attack Mzilikazi’s Ndebele. This group also went on raids in various other parts of the country to expand their area of influence. A site such as The Boulders was probably occupied by early Iron Age groups between 350 and 600 AD, followed by new periods of settlement by Tswana-speaking groups since the early 16th century. Several previous studies are on record for the general study area (Mason 1997, Huffman 1999 and Marais & Botes 2014 as well as Van Schalkwyk 1998 & 2007 and Van der Walt 2014).

#### 4.2.3 Historical and Colonial Times and Recent History

During the time of the Difaqane, a northwards migration of white settlers from the Cape was also taking place. Some travellers, missionaries and adventurers had gone on expeditions to the northern areas in South Africa, some already as early as the 1720’s. In 1825 the Scottish adventurer David Hume made his journey a short distance to the north of the current project area, travelling first from the trade site at Kuruman in a north eastern direction towards the black village of Shoshong (today this is close to the present-day Mahalapye), then in a south eastern direction towards Pretoria, and finally back to Kuruman. In 1847 another famous traveller, David Livingstone, travelled through the area under investigation. Livingstone is probably the best-known traveller to have made his journey through the northern provinces of South Africa, but is even better known for his travels into Central Africa. He arrived at Kuruman in 1841 as a missionary of the London Missionary Society. Two years later, he commenced a second journey into the northern provinces of South Africa. He first established a mission station at Mabotsa under the Kgatla (northwest of the presentday Zeerust), then travelled in a south easterly direction past Rustenburg and turned near the north of Johannesburg. Livingstone then travelled past the area where Pretoria would later be established, through the farm area under investigation. Hereafter he made his way back to the mission station.

It was only by the late 1820’s that a mass-movement of Dutch speaking people in the Cape Colony started advancing into the northern areas. This was due to feelings of mounting dissatisfaction caused by economical and other circumstances in the Cape. This movement later became known as the Great Trek. This migration resulted in a massive increase in the extent of that proportion of modern South Africa dominated by people of European descent. Permanent occupation by white settlers commenced in the early 1840s, when Voortrekker farmers such as Frederik Andries Strydom and Johannes Elardus Erasmus established the farms Olifantsfontein and Randjesfontein respectively. Gradually the entire area was divided into farms, often with names which describe the local geographical conditions. However, it was only since the 1880s that farms were formally surveyed and mapped, and when not only their names, but also the names of rivers and other features became permanent landmarks on maps. Until well into the 20th century, the development of Central Gauteng was determined by local agriculture. The original farms, which became more and more subdivided as the number of farmers increased, supplied food and fibre to the burgeoning populations of Pretoria in the north and the Witwatersrand in the south. Of the 19th and early 20th century farmsteads, only a few have survived. The O. R. Tambo International Airport was founded in 1952 as "Jan Smuts Airport", two years after his death, near the town of Kempton Park on the East Rand. It displaced the "Palmietfontein International Airport", which had handled European flights since 1945.

Kempton Park lies on what was two Boer farms in the South African Republic (ZAR) but the area was inhabited long before this time: first by nomadic hunters and cattle farmers, and later by white settlers who had made their journey from the Cape. The first farm in this region was Zuurfontein No 369 with the title deed issued to Johannes Stephanus Marais on 25 October 1859 and surveyed to be 3000 morgen on 12 December 1859. The second farm northwest of the first was registered to Cornelius Johannes Beukes in March 1865 and was called Rietfontein 32 IR. After the discovery of gold in Johannesburg, 22 km southeast of the farms in 1886, a railway connecting Pretoria to Vereeniging and to the Cape line was constructed in the early 1890s. The railway line did not go through Johannesburg, but passed to the east through the two farms with a station called Zuurfontein. That station would be linked by a side-rail to the Zuid-Afrikaansche Fabrieken voor Ontplofbare Stoffen, a dynamite factory a few kilometres north-west. Between 1939 and 1940, farm boundaries were drawn up in an area that includes the present-day Kempton Park magisterial area. The founder of Kempton Park was one Carl Friedrich Wolff, who was born in Kempton, the capital of the Bavarian district Allgau in South Germany. It is for this reason that the town was named Kempton Park. The town was established in 1903, and the first records of a government school in the area (on Zuurfontein) dates back to 1904.

## 5 RESULTS: ARCHAEOLOGICAL SURVEY

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In terms of heritage resources, the project landscape is known specifically for the occurrence of Iron Age farmer and Colonial Period heritage remains. However, large sections of the project footprint have been altered and transformed by urbanisation. A number of structures heritage potential were noted in the footprint proposed for the Pomona Agricultural Holdings Warehouse Development Project and these occurrences were arbitrarily coded **Site Exigo-PWD-HPxx** (Exigo Pomona Warehouse Development Historical Period xx) and **Site Exigo-PWD-FTxx** (Exigo Pomona Warehouse Development Feature xx).

### 5.1 The Stone Age

As noted in previous sections, Stone Age material occurs abundantly in the Gauteng Landscape and Stone Age remains associated with caves, outcrops/hills and river courses are known to exist in the larger Witwatersrand. This presence of Stone Age people in the landscape can probably be attributed to the abundance of locally available raw material for the manufacture of stone tools as well the presences of regions favourable for hominin and / or human occupation. However, the site inspection produced no Stone Age remains.

### 5.2 The Iron Age Farmer Period

A frontier zone between the east and the west, the Gauteng landscape is rich in precolonial Iron Age Farmer Period remnants. However, the site inspection produced no Iron Age farmer sites.

### 5.3 Colonial / Historical Period and recent times

White and local farming communities settled in Gauteng and along the Witwatersrand during the Colonial Period in the last century, the remnants of which are scattered across the landscape. Similarly, the East Rand contains a large number of Historical and Colonial Period buildings and features – many of them derived from intricate industrial and mining developments during the 19<sup>th</sup> and 20<sup>th</sup> centuries. A residential house dating to the late Historical Period was documented in the footprint demarcated for the project.

- **Site Exigo-PWD-HP01 (S26.101517° E28.268196°)**

A multi-room residential house occurs in a fenced yard along the north-western corner of the project site. The brick buildings were plastered up and painted with corrugated iron pitch roofing and a veranda along

its northern edge. The building resembles a mid-1900 architectural style in the area and preservation thereof is fair. It is currently occupied and a small vegetable garden and outhouse building occurs in the yard adjacent to the residence. An analysis of historical aerial photographs and topographic maps suggest that the structure was built in the time period between 1948 and 1952 on the Pomona Agricultural Holdings. No special cultural or social association for the structure could be established and it does not demonstrate unique architectural or scientific attributes. However, the structure is older than 60 years and the site is generally protected under the NHRA.



Figure 5-1: View of a residential house and small vegetable garden at Site EXIGO-PWD-HP01.

#### 5.4 Contemporary Period recent times

A number of houses and buildings of apparent recent age were noted in the footprint demarcated for the project. The absence of these houses / dwellings on historical aerial photographs and topographic maps suggest that structures were constructed in the last 50 years and as a consequence, they are not protected in under the NHRA.

- **Site Exigo-PWD-FT01 (S26.101755° E28.267505°)**

A multi-room residential house occurs in a fenced yard along the western boundary of the project site. The plastered building was constructed out of bricks with a corrugated iron pitch roof. The building is constructed in a contemporary architectural style and preservation thereof is good. It is currently occupied and a small concrete outhouse building occurs adjacent to the residence. No special cultural or social association for the structures could be established and the site is rated as of low heritage significance.



Figure 5-2: A contemporary period residence at Site EXIGO-PWD-FT01.



Figure 5-3: View of a concrete dwelling at Site EXIGO-PWD-FT01.

- **Site Exigo-PWD-FT03 (S26.102387° E28.266602°)**

A large multi-room residential house occurs in a fenced yard along the western boundary of the project site. The building was constructed out of bricks with cement plastering and a corrugated iron pitch roof. The house is constructed in a contemporary architectural style, preservation thereof is good and it is currently occupied. No special cultural or social association for the structures could be established and the site is rated as of low heritage significance.



Figure 5-4: Another contemporary period residence at Site EXIGO-PWD-FT02.

- **Site Exigo-PWD-FT04 (S26.102813° E28.266142°)**

A compound of contemporary period buildings occurs along the south-western boundary of the project area on the corner of Constantia and EP Malan Street. The compound consists out of a multi-storey brick house, a smaller brick outbuilding and a Spaza shop, all of which were built in modern architectural styles with pitched roofs. The compound is well preserved, it is fenced and most of the structures are currently in use. No special cultural or social association for the structures could be established and the site is rated as of low heritage significance.



Figure 5-5: View of a multi-storey contemporary period residence at Site EXIGO-PWD-FT03.





Figure 5-6: A small contemporary period outbuilding within the compound at Site EXIGO-PWD-FT03.



Figure 5-7: View of a small Spaza shop within the compound at Site EXIGO-PWD-FT03.

- **Site Exigo-PWD-FT05 (S26.102915° E28.267325°)**

A storage and office building for the large truck depot at the site, occurs more or less in the centre of the project area. The building was constructed out of bricks with a corrugated iron pitch roof, in a contemporary architectural style. The depot holds no cultural or social association and the site is not of heritage significance.



Figure 5-8: View of the buildings at the truck depot in the project area at Site EXIGO-PWD-FT04.

## 5.5 Graves

No human burials or graves were documented in the project area.



Figure 5-9: A series of historical aerial imagery of the project area (yellow outline) dating from left to right: 1948, 1952, 1961 and 1975. Note the appearance of the structure at Site EXIGO-PWD-HP01 in the 1952 image (red circle) with other buildings present in the 1975 image (red circles).

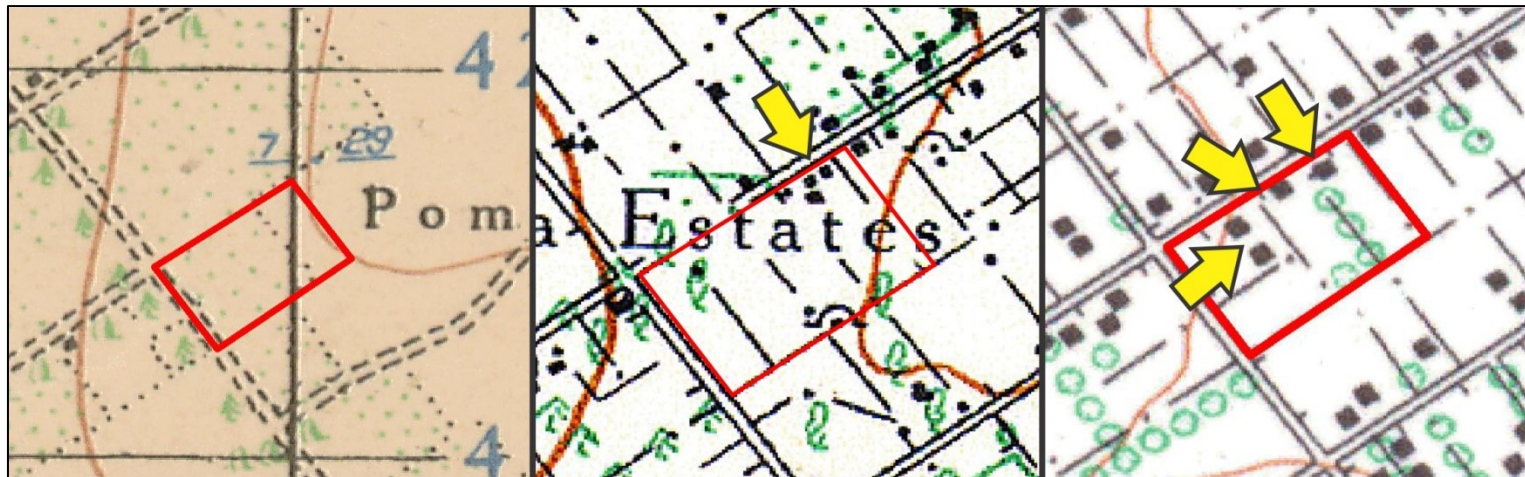


Figure 5-10: A series of historical topographic maps of the project area (red outline) dating from left to right: 1939, 1957 and 1976. Note the presence of Site EXIGO-PWD-HP01 on the 1957 map with other buildings indicated on the 1976 map (yellow arrows).



Figure 5-11: Aerial map indicating the location of building structures discussed in the text.

## 6 RESULTS: STATEMENT OF SIGNIFICANCE AND IMPACT RATING

### 6.1 Potential Impacts and Significance Ratings<sup>2</sup>

The following section provides a background to the identification and assessment of possible impacts and alternatives, as well as a range of risk situations and scenarios commonly associated with heritage resources management. A guideline for the rating of impacts and recommendation of management actions for areas of heritage potential within the study area is supplied in Section 10.2 of the Addendum.

#### 6.1.1 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.

#### 6.1.2 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).

*A number of contemporary building structures (Site EXIGO-PWD-FT01 - Site EXIGO-PWD-FT04) occur in the project area but the heritage significance of these features are rated as low significance and no impact is anticipated in terms of the cultural fabric of the sites and the landscape.*

*A house structure dating to the late Historical Period (Site EXIGO-PWD-HP01) occurs in the project area but it is rated as of low significance due to the fact that it carries no apparent cultural or social association and it does not represent unique architectural or scientific attributes. The following table summarizes potential impacts to the site:*

<b>NATURE OF IMPACT:</b> Impacts could involve displacement or destruction of heritage sites / features in the general project footprint zone.		
	<b>Without mitigation</b>	<b>With mitigation</b>
<b>EXTENT</b>	Local	Local
<b>DURATION</b>	Permanent	Permanent
<b>MAGNITUDE</b>	Minor	Minor
<b>PROBABILITY</b>	Probable	Very improbable

<sup>2</sup> Based on: Winter, S. & Baumann, N. 2005. *Guideline for involving heritage specialists in EIA processes: Edition 1.*

<b>SIGNIFICANCE</b>	Low	Low
<b>STATUS</b>	Negative	Neutral
<b>REVERSIBILITY</b>	Non-reversible	Non-reversible
<b>IRREPLACEABLE LOSS OF RESOURCES?</b>	Yes	No
<b>CAN IMPACTS BE MITIGATED?</b>	Yes	
<b>MITIGATION:</b> Site monitoring by ECO, Destruction Permitting.		
<b>CUMULATIVE IMPACTS:</b> No cumulative impact is anticipated.		
<b>RESIDUAL IMPACTS:</b> n/a		

**6.2 Evaluation Impacts**

Previous studies conducted along the Gauteng Highveld suggest a rich and diverse archaeological landscape but the surroundings of the Pomona Agricultural Holdings Warehouse Development Project area have been transformed by past and recent development and natural agents. Cognisance should nonetheless be taken of archaeological material that might be present in surface and sub-surface deposits along drainage lines and in pristine areas.

*A single site of heritage potential was identified within the footprint proposed for the Pomona Agricultural Holdings Warehouse Development. The site is rated as of low heritage significance but it is older than 60 years, it is generally protected under the NHRA and a SAHRA destruction permit will be required prior to the sterilisation of the site. This said, it is the informed opinion of the author of this Archaeological Impact Assessment Report that the proposed Pomona Agricultural Holdings Warehouse Development may proceed from a culture resources management perspective provided that no subsurface heritage remains are encountered during development, and subject to relevant management / mitigation requirements.*

**6.2.1 Archaeology**

No archaeological objects or sites were noted in the proposed project footprint area. No impact on archaeological material is anticipated.

**6.2.2 Built Environment**

The study identified a number of contemporary building structures in the project area of low heritage significance and one late Historical Period residential house which is older than older than 60 years. All of these structures and features are situated within the demarcated development area and the impact on the site by the proposed activity is anticipated to be direct. However, the occurrences are generally is rated as of low heritage significance and the threshold of the impact can be mitigated to a negligible impact by the implementation of mitigation measures (monitoring, destruction permitting) for the site/s, if / when required. For the rest of the project area, the general landscape holds varied significance in terms of the built environment as the area comprises relatively newly established residences and townlands. However, no impact on built environment sites is therefore anticipated.

### 6.2.3 Cultural Landscape

Even though the larger Witwatersrand and southern Gauteng area comprises a rich cultural landscape, the proposed project area has been transformed and degraded by urbanisation and development. Further away from the project area, the landscape is typical of the urban and suburban zones of Gauteng with the Suikerbosrand to the east and undulating hills to the south with flatter built-up plains in-between. This landscape stretches over many kilometres and the proposed project is unlikely to result in a significant impact on the landscape.

### 6.2.4 Graves / Human Burials Sites

No human burials or graves were documented in the project area. In the rural areas of the Gauteng Province graves and cemeteries sometimes occur within settlements or around homesteads but they are also randomly scattered around archaeological and historical settlements. The probability of additional and informal human burials encountered during development should thus not be excluded. In addition, human remains and burials are commonly found close to archaeological sites; they may be found in "lost" graveyards, or occur sporadically anywhere as a result of prehistoric activity, victims of conflict or crime. It is often difficult to detect the presence of archaeological human remains on the landscape as these burials, in most cases, are not marked at the surface.

Human remains are usually observed when they are exposed through erosion. In some instances packed stones or rocks may indicate the presence of informal pre-colonial burials. If any human bones are found during the course of construction work then they should be reported to an archaeologist and work in the immediate vicinity should cease until the appropriate actions have been carried out by the archaeologist. Where human remains are part of a burial they would need to be exhumed under a permit from SAHRA (for pre-colonial burials as well as burials later than about AD 1500). Should any unmarked human burials/remains be found during the course of construction, work in the immediate vicinity should cease and the find must immediately be reported to the archaeologist, or the South African Heritage Resources Agency (SAHRA). Under no circumstances may burials be disturbed or removed until such time as necessary statutory procedures required for grave relocation have been met.

### 6.3 Management actions

Recommendations for relevant heritage resources management actions are vital to the conservation of heritage resources. A general guideline for recommended management actions is included in Section 10.4 of the Addendum. The following management measures would be required during implementation of the proposed Pomona Agricultural Holdings Warehouse Development Project.

**OBJECTIVE:** prevent unnecessary disturbance and/or destruction of previously undetected heritage receptors.

*No specific mitigation measures in terms of further heritage resources management are required for the contemporary period building structures (Site EXIGO-PWD-FT01 - Site EXIGO-PWD-FT04) occurring in the project footprint.*

*Even though Site EXIGO-PWD-HP01 is rated as of low heritage significance, the following is required in terms of heritage management and mitigation:*

<b>PROJECT COMPONENT/S</b>	All phases of construction and operation.		
<b>POTENTIAL IMPACT</b>	Damage/destruction of sites.		
<b>ACTIVITY RISK/SOURCE</b>	Digging foundations and trenches into sensitive deposits that are not visible at the surface, demolition of structures of heritage potential.		
<b>MITIGATION: TARGET/OBJECTIVE</b>	To locate previously undetected heritage remains / graves as soon as possible after disturbance so as to maximize the chances of successful rescue/mitigation work.		
<b>MITIGATION: ACTION/CONTROL</b>	<b>RESPONSIBILITY</b>	<b>TIMEFRAME</b>	
Fixed Mitigation Procedure ( <b>required</b> )			
<b>Site Monitoring:</b> Regular examination of trenches and excavations. <b>Destruction Permitting:</b> The site is older than 60 years and it is generally protected under the NHRA. Application for a destruction permit should be made with relevant heritage authorities (SAHRA, SAHRA Built Environment) prior to the alteration or destruction of the site.	ECO HERITAGE SPECIALIST	Monitor as frequently as practically possible.	
<b>PERFORMANCE INDICATOR</b>	Archaeological sites are discovered and mitigated with the minimum amount of unnecessary disturbance.		
<b>MONITORING</b>	Successful location of sites by person/s monitoring.		

## 7 RECOMMENDATIONS

The history and archaeology of the Gauteng Highveld region is well known and the landscape around Kempton Park is relatively rich in archaeology of the Iron Age Farmer Period, Historical Period as well as a significant industrial development horizon. However, the proposed Pomona Agricultural Holdings Warehouse Development Project is situated in environments that have been transformed and degraded as a result of urbanisation and natural agents. The following general recommendations are made based on general observations in the proposed project footprint area:

- According to the South African Heritage Resources Agency Information System (SAHRIS) Palaeo Map, the project area falls within a potentially sensitive fossiliferous zone and a Palaeontological Desktop Assessment is recommended, subject to review and recommendations by the relevant heritage authorities. Should fossil remains such as fossil fish, reptiles or petrified wood be exposed during construction, these objects should carefully safeguarded and the relevant heritage resources authority (SAHRA) should be notified immediately so that the appropriate action can be taken by a professional palaeontologist.
- No specific mitigation measures in terms of further heritage resources management are required for the contemporary period building structures (**Site EXIGO-PWD-FT01 - Site EXIGO-PWD-FT04**) occurring in the project footprint. However, it is suggested that local residents and communities be consulted with regards to these buildings and their function, a process which could possibly be incorporated into the Social impact Assessment (SIA) for the project.
- A late Historical Period house in the project area (**Site EXIGO-PWD-HP01**) is older than 60 years and it is generally protected under the NHRA. However, the house carries no established cultural or social association and it does represent unique architectural or scientific attributes. As such, the site is believed to be of little research potential and it is rated as of low heritage significance. However, application for a destruction permit should be made with relevant heritage authorities (SAHRA, SAHRA Built Environment) prior to the alteration or destruction of the site.



- Considering the localised nature of heritage remains, the general monitoring of the development progress by an ECO 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 area in order to avoid the destruction of previously undetected heritage sites. It should be stated that the possibility of undetected archaeological remains occur elsewhere in the project area should not be excluded.

In addition to these site-specific recommendations, careful cognizance should be taken of the following:

- As Palaeontological remains occur where bedrock has been exposed, all geological features should be regarded as sensitive.
- Water sources such as drainage lines, fountains and pans would often have attracted human activity in the past. As Stone Age material the larger landscape should be regarded as potentially sensitive in terms of possible subsurface deposits.

## 8 GENERAL COMMENTS AND CONDITIONS

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This AIA report serves to confirm the extent and significance of the heritage landscape of the proposed Pomona Agricultural Holdings Warehouse Development Project area. The larger heritage horizon encompasses rich and diverse archaeological landscapes and cognisance should be taken of heritage resources and archaeological material that might be present in surface and sub-surface deposits. If, during construction, any possible archaeological material culture discoveries are made, the operations must be stopped and a qualified archaeologist be contacted for an assessment of the find. Such material culture might include:

- Formal Earlier Stone Age stone tools.
- Formal MSA stone tools.
- Formal LSA stone tools.
- Potsherds
- Iron objects.
- Beads made from ostrich eggshell and glass.
- Ash middens and cattle dung deposits and accumulations.
- Faunal remains.
- Human remains/graves.
- Stone walling or any sub-surface structures.
- Historical glass, tin or ceramics.
- Fossils.

If such sites were to be encountered or impacted by any proposed developments, recommendations contained in this report, as well as endorsement of mitigation measures as set out by Gauteng-PHRA, SAHRA, the National Resources Act and the CRM section of ASAPA will be required.

It must be emphasised that the conclusions and recommendations expressed in this archaeological heritage sensitivity investigation are based on the visibility of archaeological sites/features and may not therefore, represent the area's complete archaeological legacy. Many sites/features may be covered by soil

and vegetation and might only be located during sub-surface investigations. If subsurface archaeological deposits, artefacts or skeletal material were to be recovered in the area during construction activities, all activities should be suspended and the archaeological specialist should be notified immediately (**cf. NHRA (Act No. 25 of 1999), Section 36 (6)**). It must also be clear that Archaeological Specialist Reports will be assessed by the relevant heritage resources authority (SAHRA).

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## 10 ADDENDUM 1: HERITAGE LEGISLATION BACKGROUND

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### 10.1 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.

#### 10.1.1 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.

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

According to the National Heritage Resources Act of 1999 a historical site is any identifiable building or part thereof, marker, milestone, gravestone, landmark or tell older than 60 years. This clause is commonly known as the "60-years clause". Buildings are amongst the most enduring features of human occupation, and this definition therefore includes all buildings older than 60 years, modern architecture as well as ruins, fortifications and Iron Age settlements. "Tell" refers to the evidence of human existence which is no longer above ground level, such as building foundations and buried remains of settlements (including artefacts).

The Act identifies heritage objects as:

- objects recovered from the soil or waters of South Africa including archaeological and palaeontological objects, meteorites and rare geological specimens
- visual art objects
- military objects
- numismatic objects
- objects of cultural and historical significance
- objects to which oral traditions are attached and which are associated with living heritage
- objects of scientific or technological interest
- any other prescribed category

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-*

- (d) *destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or palaeontological site or any meteorite;*
- (e) *destroy, damage, excavate, remove from its original position, collect or own any archaeological or palaeontological material or object or any meteorite;*

- (f) *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*
- (g) *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-*

- (h) *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;*
- (i) *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;*
- (j) *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)."*

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

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

**10.1.2 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<sup>2</sup> 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<sup>2</sup> 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:*

- (k) The identification and mapping of all heritage resources in the area affected;*
- (l) 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;*
- (m) an assessment of the impact of the development on such heritage resources;*
- (n) 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;*
- (o) the results of consultation with communities affected by the proposed development and other interested parties regarding the impact of the development on heritage resources;*
- (p) if heritage resources will be adversely affected by the proposed development, the consideration of alternatives; and*
- (q) 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**

## 10.2 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.**

**11 ADDENDUM 2: CONVENTIONS USED TO ASSESS THE SIGNIFICANCE OF HERITAGE**

**11.1 Site Significance Matrix**

According to the NHRA, Section 2(vi) the **significance** of heritage sites and artefacts is determined by its aesthetic, architectural, historical, scientific, social, spiritual, linguistic or technical value in relation to the uniqueness, condition of preservation and research potential. It must be kept in mind that the various aspects are not mutually exclusive, and that the evaluation of any site is done with reference to any number of these. The following matrix is used for assessing the significance of each identified site/feature.

2. SITE EVALUATION			
2.1 Heritage Value (NHRA, section 2 [3])	High	Medium	Low
It has importance to the community or pattern of South Africa’s history or pre-colonial history.			
It possesses unique, uncommon, rare or endangered aspects of South Africa’s natural or cultural heritage.			
It has potential to yield information that will contribute to an understanding of South Africa’s natural and cultural heritage.			
It is of importance in demonstrating the principle characteristics of a particular class of South Africa’s natural or cultural places or objects.			
It has importance in exhibiting particular aesthetic characteristics valued by a particular community or cultural group.			
It has importance in demonstrating a high degree of creative or technical achievement at a particular period.			
It has marked or special association with a particular community or cultural group for social, cultural or spiritual reasons (sense of place).			
It has strong or special association with the life or work of a person, group or organisation of importance in the history of South Africa.			
It has significance through contributing towards the promotion of a local sociocultural identity and can be developed as a tourist destination.			
It has significance relating to the history of slavery in South Africa.			
It has importance to the wider understanding of temporal changes within cultural landscapes, settlement patterns and human occupation.			
2.2 Field Register Rating			
National/Grade 1 [should be registered, retained]			
Provincial/Grade 2 [should be registered, retained]			
Local/Grade 3A [should be registered, mitigation not advised]			
Local/Grade 3B [High significance; mitigation, partly retained]			
Generally Protected A [High/Medium significance, mitigation]			
Generally protected B [Medium significance, to be recorded]			
Generally Protected C [Low significance, no further action]			
2.3 Sphere of Significance	High	Medium	Low
International			
National			
Provincial			
Local			
Specific community			

**11.2 Impact Assessment Criteria**

The following table provides a guideline for the rating of impacts and recommendation of management actions for sites of heritage potential.

**Significance of the heritage resource**

This is a statement of the nature and degree of significance of the heritage resource being affected by the activity. From a heritage management perspective it is useful to distinguish between whether the significance is embedded in the physical fabric or in associations with events or persons or in the experience of a place; i.e. its visual and non-visual qualities. This statement is a primary informant to the nature and degree of significance of an impact and thus needs to be thoroughly considered. Consideration needs to be given to the significance of a heritage resource at different scales (i.e. sitespecific, local, regional, national or international) and the relationship between the heritage resource, its setting and its associations.

**Nature of the impact**

This is an assessment of the nature of the impact of the activity on a heritage resource, with some indication of its positive and/or negative effect/s. It is strongly informed by the statement of resource significance. In other words, the nature of the impact may be historical, aesthetic, social, scientific, linguistic or architectural, intrinsic, associational or contextual (visual or non-visual). In many cases, the nature of the impact will include more than one value.

**Extent**

Here it should be indicated whether the impact will be experienced:

- On a site scale, i.e. extend only as far as the activity;
- Within the immediate context of a heritage resource;
- On a local scale, e.g. town or suburb
- On a metropolitan or regional scale; or
- On a national/international scale.

**Duration**

Here it should be indicated whether the lifespan of the impact will be:

- Short term, (needs to be defined in context)
- Medium term, (needs to be defined in context)
- Long term where the impact will persist indefinitely, possibly beyond the operational life of the activity, either because of natural processes or by human intervention; or
- Permanent where mitigation either by natural process or by human intervention will not occur in such a way or in such a time span that the impact can be considered transient.

Of relevance to the duration of an impact are the following considerations:

- Reversibility of the impact; and
- Renewability of the heritage resource.

**Intensity**

Here it should be established whether the impact should be indicated as:

- Low, where the impact affects the resource in such a way that its heritage value is not affected;
- Medium, where the affected resource is altered but its heritage value continues to exist albeit in a modified way; and
- High, where heritage value is altered to the extent that it will temporarily or permanently be damaged or destroyed.

**Probability**

This should describe the likelihood of the impact actually occurring indicated as:

- Improbable, where the possibility of the impact to materialize is very low either because of design or historic experience;
- Probable, where there is a distinct possibility that the impact will occur;
- Highly probable, where it is most likely that the impact will occur; or
- Definite, where the impact will definitely occur regardless of any mitigation measures

**Confidence**

This should relate to the level of confidence that the specialist has in establishing the nature and degree of impacts. It relates to the level and reliability of information, the nature and degree of consultation with I&AP's and the dynamic of the broader socio-political context.

- High, where the information is comprehensive and accurate, where there has been a high degree of consultation and the socio-political context is relatively stable.

- Medium, where the information is sufficient but is based mainly on secondary sources, where there has been a limited targeted consultation and socio-political context is fluid.
- Low, where the information is poor, a high degree of contestation is evident and there is a state of socio-political flux.

**Impact Significance**

The significance of impacts can be determined through a synthesis of the aspects produced in terms of the nature and degree of heritage significance and the nature, duration, intensity, extent, probability and confidence of impacts and can be described as:

- Low; where it would have a negligible effect on heritage and on the decision
- Medium, where it would have a moderate effect on heritage and should influence the decision.
- High, where it would have, or there would be a high risk of, a big effect on heritage. Impacts of high significance should have a major influence on the decision;
- Very high, where it would have, or there would be high risk of, an irreversible and possibly irreplaceable negative impact on heritage. Impacts of very high significance should be a central factor in decision-making.

**11.3 Direct Impact Assessment Criteria**

The following table provides 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

HERITAGE CONTEXT	TYPE OF DEVELOPMENT			
	CATEGORY A	CATEGORY B	CATEGORY C	CATEGORY D
<b>CONTEXT 1</b> High heritage Value	Moderate heritage impact expected	High heritage impact expected	Very high heritage impact expected	Very high heritage impact expected
<b>CONTEXT 2</b> Medium to high heritage value	Minimal heritage impact expected	Moderate heritage impact expected	High heritage impact expected	Very high heritage impact expected
<b>CONTEXT 3</b> Medium to low heritage value	Little or no heritage impact expected	Minimal heritage impact expected	Moderate heritage impact expected	High heritage impact expected
<b>CONTEXT 4</b> Low to no heritage value	Little or no heritage impact expected	Little or no heritage impact expected	Minimal heritage value expected	Moderate heritage impact expected

**NOTE: A DEFAULT "LITTLE OR NO HERITAGE IMPACT EXPECTED" VALUE APPLIES WHERE A HERITAGE RESOURCE OCCURS OUTSIDE THE IMPACT ZONE OF THE DEVELOPMENT.**

HERITAGE CONTEXTS	CATEGORIES OF DEVELOPMENT
<p><b>Context 1:</b> Of high intrinsic, associational and contextual heritage value within a national, provincial and local context, i.e. formally declared or potential Grade 1, 2 or 3A heritage resources</p> <p><b>Context 2:</b> Of moderate to high intrinsic, associational and contextual value within a local context, i.e. potential Grade 3B heritage resources.</p> <p><b>Context 3:</b> Of medium to low intrinsic, associational or contextual heritage value within a national, provincial and local context, i.e. potential Grade 3C heritage resources</p> <p><b>Context 4:</b> Of little or no intrinsic, associational or contextual heritage value due to disturbed, degraded conditions or extent of irreversible damage.</p>	<p><b>Category A: Minimal intensity development</b></p> <ul style="list-style-type: none"> <li>- No rezoning involved; within existing use rights.</li> <li>- No subdivision involved.</li> <li>- Upgrading of existing infrastructure within existing envelopes</li> <li>- Minor internal changes to existing structures</li> <li>- New building footprints limited to less than 1000m2.</li> </ul> <p><b>Category B: Low-key intensity development</b></p> <ul style="list-style-type: none"> <li>- Spot rezoning with no change to overall zoning of a site.</li> <li>- Linear development less than 100m</li> <li>- Building footprints between 1000m2-2000m2</li> <li>- Minor changes to external envelop of existing structures (less than 25%)</li> <li>- Minor changes in relation to bulk and height of immediately adjacent structures (less than 25%).</li> </ul> <p><b>Category C: Moderate intensity development</b></p> <ul style="list-style-type: none"> <li>- Rezoning of a site between 5000m2-10 000m2.</li> </ul>

	<ul style="list-style-type: none"> <li>- Linear development between 100m and 300m.</li> <li>- Building footprints between 2000m2 and 5000m2</li> <li>- Substantial changes to external envelop of existing structures (more than 50%)</li> <li>- Substantial increase in bulk and height in relation to immediately adjacent buildings (more than 50%)</li> </ul> <p><b>Category D: High intensity development</b></p> <ul style="list-style-type: none"> <li>- Rezoning of a site in excess of 10 000m2</li> <li>- Linear development in excess of 300m.</li> <li>- Any development changing the character of a site exceeding 5000m2 or involving the subdivision of a site into three or more erven.</li> <li>- Substantial increase in bulk and height in relation to immediately adjacent buildings (more than 100%)</li> </ul>
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### 11.4 Management and Mitigation Actions

The following table provides a guideline of relevant heritage resources management actions is vital to the conservation of heritage resources.

<p><b>No further action / Monitoring</b></p> <p>Where no heritage resources have been documented, heritage resources occur well outside the impact zone of any development or the primary context of the surroundings at a development footprint has been largely destroyed or altered, no further immediate action is required. Site monitoring during development, by an ECO or the heritage specialist are often added to this recommendation in order to ensure that no undetected heritage\ remains are destroyed.</p> <p><b>Avoidance</b></p> <p>This is appropriate where any type of development occurs within a formally protected or significant or sensitive heritage context and is likely to have a high negative impact. Mitigation is not acceptable or not possible. This measure often includes the change / alteration of development planning and therefore impact zones in order not to impact on resources.</p> <p><b>Mitigation</b></p> <p>This is appropriate where development occurs in a context of heritage significance and where the impact is such that it can be mitigated to a degree of medium to low significance, e.g. the high to medium impact of a development on an archaeological site could be mitigated through sampling/excavation of the remains. Not all negative impacts can be mitigated.</p> <p><b>Compensation</b></p> <p>Compensation is generally not an appropriate heritage management action. The main function of management actions should be to conserve the resource for the benefit of future generations. Once lost it cannot be renewed. The circumstances around the potential public or heritage benefits would need to be exceptional to warrant this type of action, especially in the case of where the impact was high.</p> <p><b>Rehabilitation</b></p> <p>Rehabilitation is considered in heritage management terms as a intervention typically involving the adding of a new heritage layer to enable a new sustainable use. It is not appropriate when the process necessitates the removal of previous historical layers, i.e. restoration of a building or place to the previous state/period. It is an appropriate heritage management action in the following cases:</p> <ul style="list-style-type: none"> <li>- The heritage resource is degraded or in the process of degradation and would benefit from rehabilitation.</li> <li>- Where rehabilitation implies appropriate conservation interventions, i.e. adaptive reuse, repair and maintenance, consolidation and minimal loss of historical fabric.</li> <li>- Where the rehabilitation process will not result in a negative impact on the intrinsic value of the resource.</li> </ul> <p><b>Enhancement</b></p> <p>Enhancement is appropriate where the overall heritage significance and its public appreciation value are improved. It does not imply creation of a condition that might never have occurred during the evolution of a place, e.g. the tendency to sanitize the past. This management action might result from the removal of previous layers where these layers are culturally of low significance and detract from the significance of the resource. It would be appropriate in a range of heritage contexts and applicable to a range of resources. In the case of formally protected or significant resources, appropriate enhancement action should be encouraged. Care should, however, be taken to ensure that the process does not have a negative impact on the character and context of the resource. It would thus have to be carefully monitored</p>
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