HERITAGE IMPACT ASSESSMENT REPORT FOR THE PROPOSED STINKWATER AGRICULTURAL VILLAGE

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Submitted by

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A HERITAGE IMPACT ASSESSMENT STUDY FOR THE PROPOSED STINKWATER AGRICULTURAL VILLAGE, CITY OF TSHWANE METROPOLITAN MUNICIPALITY, GAUTENG PROVINCE, SOUTH AFRICA

17 April 2013

ACKNOWLEDGEMENT OF RECEIPT

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DECLARATION OF INDEPENDENCE

This report has been compiled by Nkosinathi Tomose, leading archaeologist and heritage consultant for NGT Project and Heritage Consultants. The views expressed in this report are entirely those of the author and no other interest was displayed during the decision making process for the project.

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EXECUTIVE SUMMARY

NGT Projects and Heritage Consultants (Pty) Ltd was sub-contracted by Green Gold Consulting to conduct a Heritage Impact Assessment (HIA) (exclusive of Palaeontological desktop study) for the proposed development (Stinkwater Agricultural Village City of Tshwane Metropolitan Municipality) as part of specialists' inputs into the impact assessment studies required to fulfil the Environmental Impact Assessment (EIA) process. Nkosinathi Tomose, the lead archaeologist and heritage consultant of NGT Projects and Heritage Consultants, conducted the HIA study for the proposed Stinkwater Agricultural Village spanning an area covering approximately 40ha, within the City Tshwane, Gauteng Province, South Africa.

The following conclusions and recommendations are made about the proposed Stinkwater Agricultural Village, based on existing literature about the project area, observations made during the physical survey of the proposed development area, assessment and evaluation methods using SAHRA minimum standards for evaluation and grading of archaeological and other heritage resources as well as the National Heritage Resources Act (NHRA), No 25 of 1999 for the protection, conservation and management of the Nation Estate (Section 3 of the NHRA, No 25 of 1999), and assessment of associated impacts in term of the Basic Assessment guidelines translated to suite the EIA requirements.

The physical survey of the proposed project area, which took place between the 29 March 2013 and 03 April 2013 did not yield any archaeological (Stone Age, Iron Age, Historical), built environment and landscape (mostly dominated by settlers and colonial architecture, civil and industrial sites) and burial grounds and graves, and other cultural features such as places of worship and prayer. The only features identified at the site were recent built environment and landscape features such as shacks and roads. Based on the results of the assessment and evaluation of the identified features the following conclusion and recommendations are made about the project area:

- It is conclude that there are no objections to the project and no negative perceptions about the project, Stinkwater Agricultural Village.
- It is also recommended that both SAHRA and PHRA-G approve the project in terms of cultural resources management since there were no heritage resources found within and immediately outside the project area.

* For detail conclusions and recommendations, read the conclusions and recommendations section of this report.

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ABBREVIATIONS

Acronyms	Description
AIA	Archaeological Impact Assessment
ASAPA	Association of South African Professional Archaeologists
ARCH	Archaeological
BEL	Built Environment and Landscape
BGG	Burial Grounds and Graves
BGG	Proven not to be Burial Ground and Grave
CBD	Central Business District
CRM	Cultural Resource Management
DEA	Department of Environmental Affairs
DoE	Department of Energy
EAP	Environmental Assessment Practitioner
EIA	Environmental Impact Assessment
ESA	Early Stone Age
GIS	Geographic Information System
GPS	Global Positioning System
HIA	Heritage Impact Assessment
I&AP	Interested and Affected Party
K.y.a	Thousand years ago
LHRA	Limpopo Province Heritage Resources Authority
LSA	Late Stone Age
LIA	Late Iron Age
MSA	Middle Stone Age
MIA	Middle Iron Age
NHRA	National Heritage Resources Act
NEMA	National Environmental Management Act
NWA	National Water Act
PHRA	Provincial Heritage Resources Authority
PSSA	Palaeontological Society of South Africa
ROD	Record of Decision
PDAFP	Proposed Development Area Footprint
SAHRA	South African Heritage Resources Agency

TERMS AND DEFINITIONS

Archaeological resources

This includes:

- material remains resulting from human activities which are in a state of disuse and are in or on land and which are older than 100 years including artefacts, human and hominid remains and artificial features and structures;
- rock art, being any form of painting, engraving or other graphic representation on a fixed rock surface or loose rock or stone, which was executed by human agency and which is older than 100 years, including any area within 10m of such representation;
- wrecks, being any vessel or aircraft, or any part thereof which was wrecked in South Africa, whether on land, in the internal waters, the territorial waters or in the maritime culture zone of the republic as defined in the Maritimes Zones Act, and any cargo, debris or artefacts found or associated therewith, which is older than 60 years or which SAHRA considers to be worthy of conservation;
- features, structures and artefacts associated with military history which are older than 75 years and the site on which they are found.

Cultural significance

This means aesthetic, architectural, historical, scientific, social, spiritual, linguistic or technological value or significance

Development

This means any physical intervention, excavation, or action, other than those caused by natural forces, which may in the opinion of the heritage authority in any way result in the change to the nature, appearance or physical nature of a place or influence its stability and future well-being, including:

- construction, alteration, demolition, removal or change in use of a place or a structure at a place;
- carrying out any works on or over or under a place;

- subdivision or consolidation of land comprising a place, including the structures or airspace of a place;
- constructing or putting up for display signs or boards;
- any change to the natural or existing condition or topography of land; and
- any removal or destruction of trees, or removal of vegetation or topsoil

Heritage resources

This means any place or object of cultural significance

1. INTRODUCTION

1.1. Project Background

This project is one of City of Tshwane projects through its Department of Agriculture and it involves development of an Agricultural Village and associated infrastructure on a Portion of Portion 6 of the Farm Stinkwater 97 JR, north and north-west of Pretoria CBD, City of Tshwane. This Heritage Impact Assessment (HIA) study forms part of specialists' studies inputs into the Environmental Impact Assessment (EIA) process. The study aims to advise on some of the best suitable heritage mitigation measures for heritage resources in terms of known heritage resources management measures (Figure 1).

1.1.1. Proposed Project Aims

The aim of the proposed Agricultural Village is to contribute towards rural development and to attend to and address issues of unemployment in the area with high levels of poverty and un employment. It is an initiative by the City of Tshwane to assist local communities to earn income and contribute to skills development and transfer in terms farming and other agricultural activities. The current survey area would have been selected as the best suitable place for the proposed development out of a number of other proposed alternatives. Therefore, the aim of the current study is to advise City of Tshwane on the suitable and sustainable measures to use during the construction and operational phases of the project and it closure in terms of management of the cultural environment- it does this through a compilation of various impact assessment studies that will eventually feed into the Environmental Management Plan (EMP) document following the completion of the EIA process. This HIA study will contribute to the development of such documents through assessing and evaluating impacts that affect or have the potential to impact on the cultural environment. The proposed project consists of the following:

- An agricultural village to be known as Stinkwater Agricultural Village
- Survey of a total area covering 40ha
- The nature of agricultural village structures is still to be determined, but it will possibly include the following services: dosing, dipping, vaccination of cattle and cultivation infrastructure.

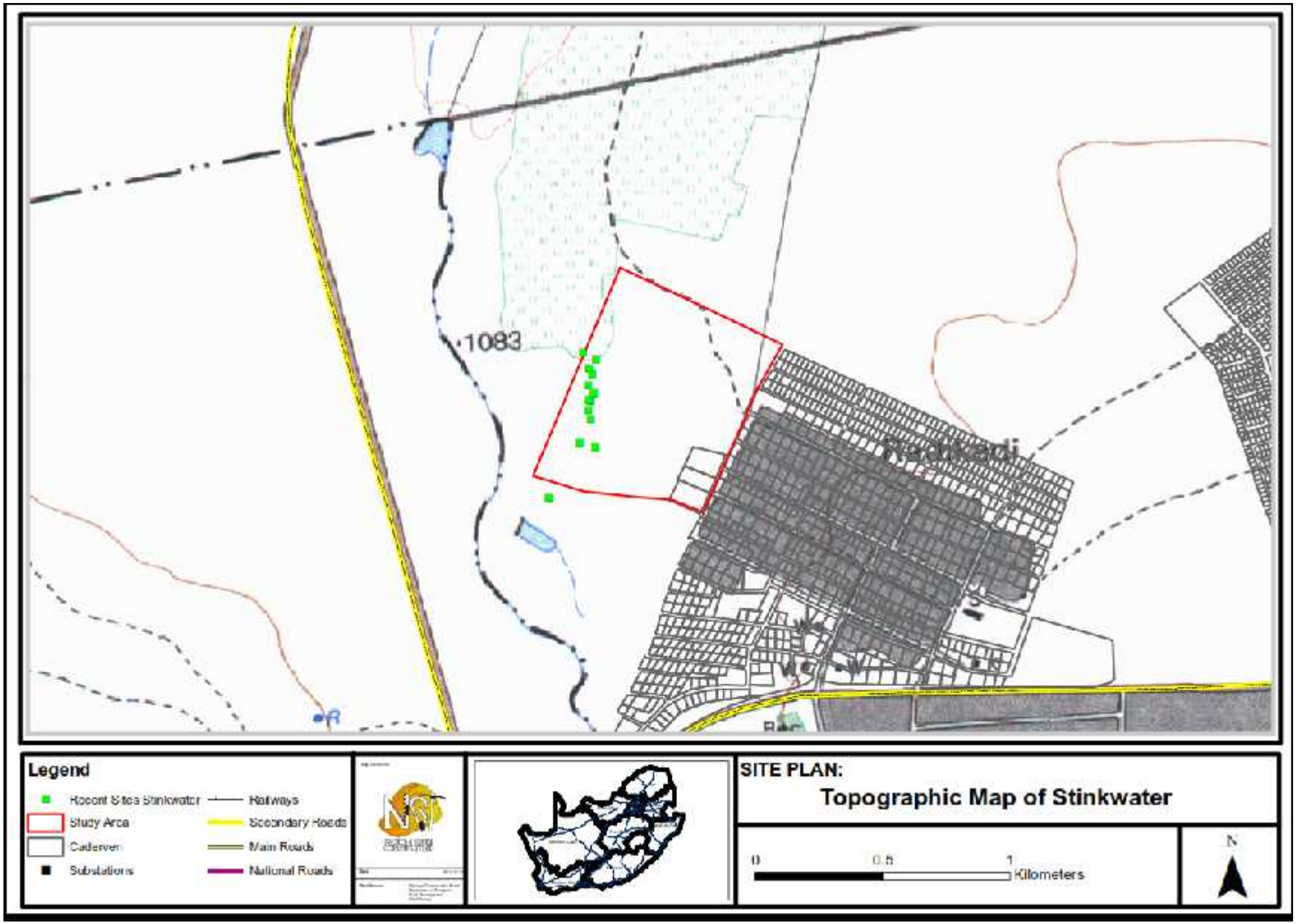

Figure 1- Topographic Map of Stinkwater showing Distribution of recent built environment and landscape within the project area

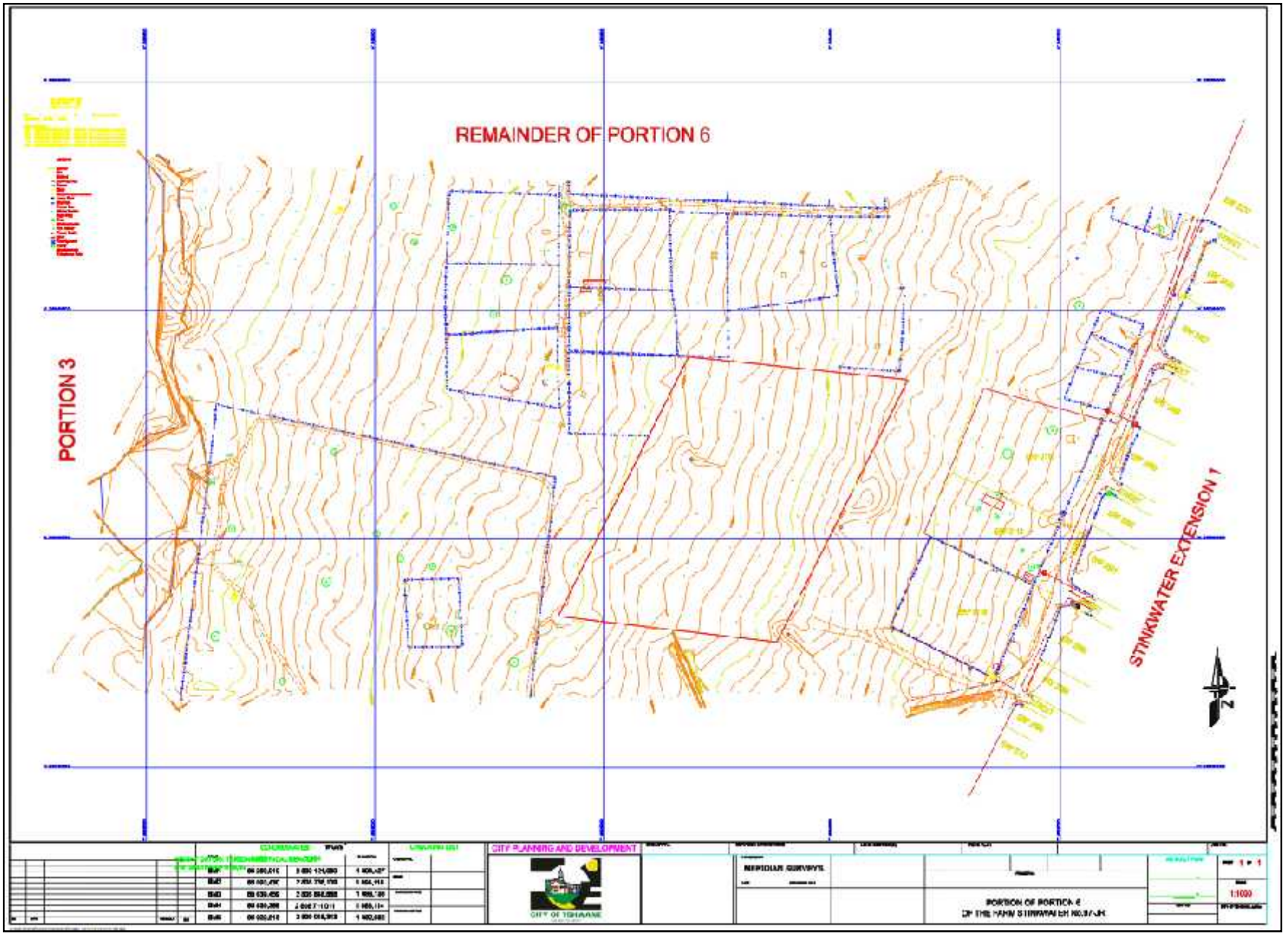

Figure 2- Location of the project area in Gauteng Province, South Africa. Red rectangular block is the current fenced off area for development activities or infrastructure.

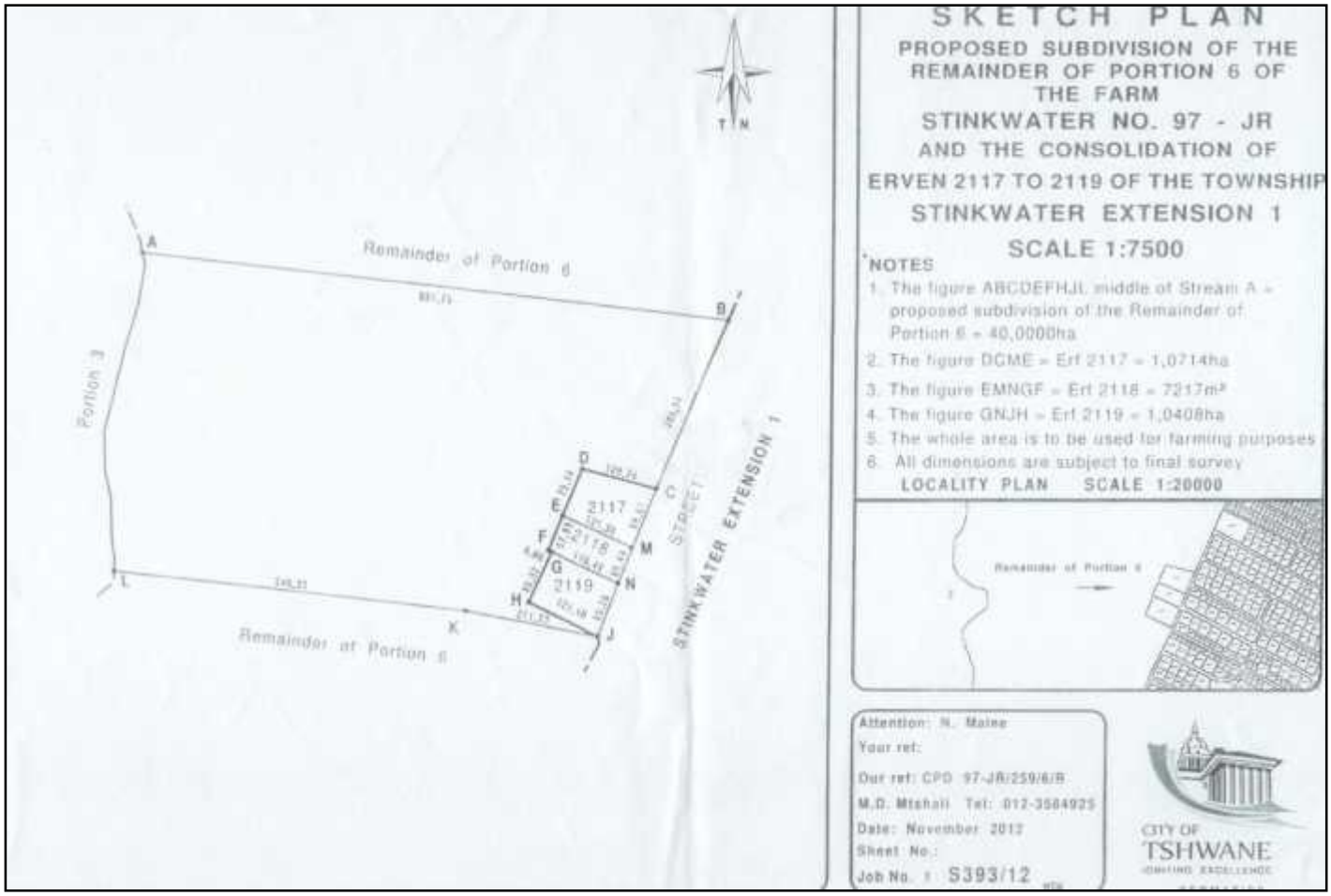

Figure 3- Schematic representation of the proposed development area at City of Tshwane

2. BACKGROUND OF THE STUDY AREA

South Africa is rich in diverse forms and types of heritage, ranging from natural to cultural heritage. The natural includes among other things: Geological, Palaeontological, and the various plant and animal species that define the country. The cultural heritage, which dates as far back as 2.5 million years ago (m.y.a), includes - the different periods of Stone Age Archaeology, the Iron Age Archaeology, Historical and Industrial Archaeology, as well as the "Political/Historic" geographies of South Africa.

2.1. Description of the affected environment

Table 1 -Agricultural Village Stinkwater, Gauteng Province, South Africa

Location	• The project area is located approximately 40km north and north-west of the Pretoria CBD, within Tshwane, Ward 13 of Region 2, Gauteng Province of South Africa. It covers approximately 40haof the land located west and

	south-west of Stinkwater Extension 1 (Figure 2-3)
Surrounding Towns/Townships/Villages	• Dilopye, Sururman, Mjaneng, Mashimong and Nuwe Eesterust
Land Uses	• Residential (e.g. Extension 1 Stinkwater) and Subsistence Farming (e.g. cattle (Figure 5), goat, sheep, pig (Figure 6), and crop farming in form of maize and chilli(Figure 4). • Government
Land Owner(s)	• Government - City of Tshwane
Current Conditions	• Highly disturbed landscape - mix of informal residence and government infrastructure (Figure 7)
Applicant	• GreenGold Consulting on behalf of City of Tshwane Department of
Proposed Development	• Development of an agricultural village west of Stinkwater Extension 1 (and associated infrastructure)on a land covering a total are of 40ha, Gauteng Province, South Africa
Access	• Existing national, provincial and local roads, routes and human foot paths. • The study area is ensconced between Soshanguve-T Extension (west), Mogogelo (north and north-west), Dilopye (east) and is north of M21 (Lucas Mangope Dr) (Figure 7).
Defining natural features	• A big tributary is found west of the proposed development area (Figure 7). Appies River is a biggest river in the broader study area (Figure 11)

Figure 4- Subsistence crop farming - maize

Figure 5 - Type of cattle found on site

Figure 6 -Pig farm found on site

Figure 7 - 2011 Google Earth Image showing the extent of disturbance in and around the proposed development area as marked by red oblong circle.

Figure 8 - Fenced off area for the proposed Agricultural Village construction activities

Figure 9 - Fenced off area for the proposed Agricultural Village construction activities

2.2. Description of proposed activities: Infrastructure Proposed

Table 2 - List of Activities

Activity 1	• Construction of an Agricultural Village, and associated infrastructure such as: dosing, dipping, vaccination of cattle and cultivation infrastructure.

Activity 2	• Clearing of access roads and bulk infrastructure to support the Agricultural Village such sewers etc.

2.3. Needs and Desirability

Table 3 –List of activities in-line with the project scope

Activity 1	• Desktop study of the heritage value and integrity of the area under consideration and its surrounding with a particular focus on resources within the proposed alignment (refer to 2.4 below for detailed overview of resources in the region under consideration). • Physical identification, documentation and recording of cultural resources within the proposed development area.
Activity 2	• The mapping, assessment and evaluation of the heritage value and integrity of the identified heritage resources and assessment of potential impacts as a result of the proposed development on these resources.
Activity 3	• Proposing heritage management measures for inclusion in the EMP document • Making recommendations to SAHRA and provincial heritage resources authority - PHRA-G

3. METHODOLOGY

This chapter outlines the methodologies used in conducting the HIA study for the proposed Stinkwater Agricultural Village. The study area covers Tshwane. This is done in accordance to the Terms of Reference provided by the client for the completion of this study. However, some areas of the report follow minimum standards for completion of professional HIA as stipulated in SAHRA minimum standard (2012) such as detailed account to the archaeological and historical background of the study area or region.

3. 1. Step I – Literature Review (Desktop Phase):

- Sources used in this study included, but not limited to published academic papers and HIA studies conducted in and around the region where the current development will take place.
- There was limited use of archival maps -one historical map and one archaeological map and one general travel map showing the proposed area of development and its surround were assessed to aid information about the proposed area of development and its surrounding.
- The above also included a review and assessment of relevant environmental and heritage legislations such as the NEMA (together with the 2010 EIA Regulations) and the NHRA.

3.2. Step II – Physical Survey:

The physical survey of the study area aimed to address the following main areas of concern raised by the client in the specialist Terms of Reference:

1. To conduct an onsite verification survey for the proposed Stinkwater Agricultural Village.
2. To identify all objects, sites, occurrences and structures of an archaeological or historical nature (cultural heritage sites) located on the proposed Stinkwater Agricultural Village footprint. Use will be made of notated maps where appropriate.

In order to address these concerns:

- The physical survey of the proposed Stinkwater Agricultural Village was conducted between 29 March 2013 and 03 April 2013.
- The survey covered an area of approximately 40ha - on foot and track logs of the survey were recorded using Garmin GPSmap 62s.
- The objective of the survey was to locate and identify archaeological and heritage resources and/or sites and objects, occurrence within and immediately outside the proposed development footprint. To record and map them using necessary and applicable tools and technology.
- The physical survey was deemed necessary since the desktop phase of the project yielded few known archaeological resources and other heritage/historic resources about the region in which the current study area is located. The survey also paid special attention to disturbed and exposed layers of soils as such as eroded surfaces because these areas are more likely to exposed or yield archaeological and other heritage resources that may be buried underneath the soil and be brought to the earth surface by animal and human activities such as animal barrow pits and human excavated grounds. The edges/sides of dirt roads were also inspected for possible Stone Age scatters as well as exposed Iron Age implements and other resources. Drainage and ephemeral wash were also investigated for resources.
- The following technological tools and platforms were deemed important for documenting and recording located and/or identified sites:
    - Garmin GPSmap 62s – to take Lat/Long coordinates of the identified sites and to take track logs of each of the three corridors.
    - Lenovo ThinkPad aided with Garmin Basecamp Software, Google Earth – to plot the propose corridors.
    - ArcGIS Software (ArcView Series 10) was used to plot all the identified heritage resources and to develop heritage maps in order to inform the heritage analysis of the three proposed corridors.
    - Maps provided by the client before the survey also proved invaluable.

- Survey coordinates and data provided by the client were used to map the development area footprint.
- Samsung camera – was used to take photos of the affected environment and the identified heritage sites.

3.3. Step III – Data Consolidation and Report Writing:

During field work and on the return from the field the following were addressed:

1. Assessment ofthesignificanceoftheculturalresourcesintermsoftheirarchaeological,historical,scientific, social, religious, aesthetic and tourism value"
2. Description of possible impact of the proposed development on these cultural remains, according to a standard set of conventions;
3. Proposal ofsuitable mitigation measures to minimize possible negative impacts on the culturalresources;
4. Review of applicable legislative requirements - Section 3.1. of this Chapter (i.e. Chapter 3) addresses this concern as well as Section 5.5 of Chapter 5 discusses Sections of the NHRA, No. 25 triggered by the current study findings
5. Highlighting of assumptions, exclusions and key uncertainties". Chapter 4 (below) of this report address this concern.

The final step involved the consolidation of the data collected using the various sources as described above. This involved the manipulation of data through ArcGIS. Assessing the significance and potential impact of the identified sites, discussing the finds, report writing and making recommendation on the management and mitigation measures of the identified sites and resources as well as the impact and influence of these sites and resources on the proposed corridor.

3.3. Assessment of Site Significance in Terms of Heritage Resources Management Methodologies

The significance of heritage sites was based on four 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)
  - Low - <10/50m^2

- Medium - 10-50/50m^2
- High - >50/50m^2

- Uniqueness and
- Potential to answer present research questions.

Management actions and recommended mitigation, which will result in a reduction in the impact on the sites, will be expressed as follows:

- A - No further action necessary;
- B - Mapping of the site and controlled sampling required;
- C - No-go or relocate pylon position
- D - Preserve site, or extensive data collection and mapping of the site; and
- E - Preserve site
- F - Impacts on these sites by the development will be evaluated as follows:

Measure of Heritage Sites Significance

The following site significance classification minimum standards as prescribed by the SAHRA (2006) and approved by the ASAPA for the SADC region were used for the purpose of this report.

Table 4: Site significance classification standards as prescribed by SAHRA

FIELD RATING	GRADE	SIGNIFICANCE	RECOMMENDED MITIGATION
National Significance (NS)	Grade 1	-	Conservation; National Site nomination
Provincial Significance (PS)	Grade 2	-	Conservation; Provincial Site nomination
Local Significance (LS)	Grade 3A	High Significance	Conservation; Mitigation not advised
Local Significance (LS)	Grade 3B	High Significance	Mitigation (Part of site should be retained)
Generally Protected A (GP.A)	-	High / Medium Significance	Mitigation before destruction
Generally Protected B (GP.B)	-	Medium Significance	Recording before destruction
Generally Protected C (GP.A)	-	Low Significance	Destruction

3.4. Methodology for Impact Assessment in terms of Environmental Impact Assessment Methodologies including Measures for Environmental Management Plan Consideration

The determination of the effects of environmental impact on an environmental parameter is determined through a systematic analysis of the various components of the impact. This is undertaken using information that is available to the environmental practitioner through the process of the Basic Assessment and EIA. The impact evaluation of predicted impacts was undertaken through an assessment of the significance of the impacts. This is in line with specialist requirements as required by the client. For example, the request that:

The impact methodology [should] concentrate on addressing key issues. This methodology to be employed in the report thus results in a circular route, which allows for the evaluation of the efficiency of the process itself. The assessment of actions in each phase [that should] be conducted in the following order:

- Assessment of key issues;
- Analysis of the activities relating to the proposed Stinkwater Agricultural Village;
- Assessment of the potential impacts arising from the activities, without mitigation, and
- Investigation of the relevant mitigation measures for both the construction and operational phases.

The following Assessment Criteria is Used for Impact Assessment

An impact can be defined as any change in the physical-chemical, biological, cultural and/or socio-economic environmental system that can be attributed to human activities related to alternatives under study for meeting a project need. The significance of the aspects/impacts of the process will be rated by using a matrix derived from Plomp (2004) and adapted to some extent to fit this process. These matrixes use the consequence and the likelihood of the different aspects and associated impacts to determine the significance of the impacts.

The significance of the impacts will be determined through a synthesis of the criteria below:

Probability: describes the likelihood of the impact actually occurring

- Improbable: the possibility of their impact occurring is very low, due to the circumstances, design or experience.
- Probable: there is a probability that the impact will occur to the extent that provision must be made therefore.

- Highly Probable: it is most likely that the impact will occur at some stage of the development.
- Definite: the impact will take place regard less of any prevention plans and there can only be relied on mitigatory measures or contingency plans to contain the effect.

Duration: the lifetime of the impact

- Short Term: the impact will either disappear with mitigation or will be mitigated through natural processes in a time span shorter than any of the phases.
- Medium Term: the impact will last up to the end of the phases, where after it will be negated.
- Long Term: the impact will last for the entire operational phase of the project but will be mitigated by direct human action or by natural processes thereafter.
- Permanent: the impact is non-transitory. Mitigation either by man or natural processes will not occur in such a way or in such a time span that the impact can be considered transient.

Scale: the physical and spatial size of the impact

- Local: the impacted area extends only as far as the activity, e.g. footprint
- Site: the impact could affect the whole, or measurable portion of the above mentioned properties.
- Regional: the impact could affect the area including the neighbouring residential areas.

Magnitude/Severity: Does the impact destroy the environment, or alter its function?

- Low: the impact alters the affected environment in such a way that natural processes are not affected.
- Medium: the affected environment is altered, but functions and processes continue in a modified way.
- High: function or process of the affected environment is disturbed to the extent where it temporarily or permanently ceases.

Significance: This is an indication of the importance of the impact in terms of both physical extent and time scale, and therefore indicates the level of mitigation required.

- Negligible: the impact is non-existent or unsubstantial and is of no or little importance to any stakeholder and can be ignored.
- Low: the impact is limited in extent, has low to medium intensity; whatever its probability

of occurrence is, the impact will not have a material effect on the decision and is likely to require management intervention with increased costs.

- Moderate: the impact is of importance to one or more stakeholders, and its intensity will be medium or high; therefore, the impact may materially affect the decision, and management intervention will be required.
- High: The impact could render development options controversial or the project unacceptable if it cannot be reduced to acceptable levels; and/or the cost of management intervention will be a significant factor in mitigation.

The significance is calculated by combining the criteria in the following formula:

Sum (Duration, Scale, Magnitude) x Probability(Table -2)

S = Significance weighting; Sc = Scale; D = Duration; M = Magnitude; P = Probability

Table 5 -The significance weightings for each potential impact are as follows:

Aspect	Description	Weight
Probability	Improbable	1
	Probable	2
	Highly Probable	4
	Definite	5
Duration	Short term	1
	Medium term	3
	Long term	4
	Permanent	5
Scale	Local	1
	Site	2
	Regional	3
Magnitude/Severity	Low	2
	Medium	6
	High	8

Significance	Sum (Duration, Scale, Magnitude) x Probability	
	Negligible	≤20
	Low	>20≤40
	Moderate	>40≤60
	High	>60

The significance of each activity was rated without mitigation measures (WOM) and with mitigation (WM) measures for both construction, operational and closure phases of the proposed development. To address the question of Heritage Management Plan the following table is used for Measures to be included in the EMP. This table is relevant in that it addresses key issues at the various stages of the project by also addresses how some of the key concerns that develop from a heritage point of view can be mitigated.

Table 6 -Measures for inclusion in the draft Environmental Management Plan:

OBJECTIVE: Description of the objective, which is necessary in order to meet the overall goals; these take into account the findings of the environmental impact assessment specialist studies		
Project component/s	List of project components affecting the objective	
Potential Impact	Brief description of potential environmental impact if objective is not met	
Activity/risk source	Description of activities which could impact on achieving objective	
Mitigation: Target/Objective	Description of the target; include quantitative measures and/or dates of completion	
Mitigation: Action/control	Responsibility	Timeframe
List specific action(s) required to meet the mitigation target/objective described above	Who is responsible for the measures	Time periods for implementation of measures
Performance Indicator	Description of key indicator(s) that track progress/indicate the effectiveness of the management plan.	
Monitoring	Mechanisms for monitoring compliance; the key monitoring actions required to check whether the objectives are being achieved, taking into consideration responsibility, frequency, methods and reporting	

4. ASSUMPTIONS, EXCLUSIONS AND UNCERTAINTIES

The assumptions, exclusions and uncertainties that exist in terms of the present study are discussed the following sub-sections.

4.1. Assumptions

The current study is Phase 1 HIA. As such, a historical and archival desktop study as well as a field survey were undertaken to identify tangible heritage resources located in and around the proposed development area footprint. The assumption is that a heritage social consultative process would have taken place with some of the locals or farm owners to uncertain known archaeological or heritage sites in their properties such as presence or existence of graves and cemeteries etc. However, there was no formal heritage social consultation that took place as part of the study - this is due to the fact that nature of the current study.

The study assumes that the amount of heritage resources located in and around the propose Tshwane Agriculture represents the total amount of physical or tangible resources distributed in and around it.

4.2. Exclusions

The following exclusions or limitations have direct consequence to the study and its results:

- There was no deeds search for the proposed Stinkwater Agricultural Village
- The survey was conducted in March and April 2013, summer period - as such there was high level of vegetation cover for the archaeologist/heritage surveyor to pick up all the different archaeological and heritage features in the landscape such as unmarked graves, the different Stone Age, Iron Age and Historical Archaeology material culture and artefacts. This forms one major limitation in terms of observing and recording all forms of archaeological and heritage sites in and immediately outside or along the proposed development area. The issue of graves was, however, addressed through informal social consultation with one of the locals.
- The survey took place during summer and the Gauteng Province is known to fall within the summer rainfall region of South Africa.

4.3. Uncertainties

Heritage studies like most other specialist studies often experience many challenges during and after the physical survey of the proposed development area. From an archaeological and general heritage perspective, the assumption is often made that, the amount of identified archaeological and heritage resources during physical survey of the proposed development area represent some of the total amount of resources that exist in and around or along the development area. This is not often true because the nature of some the archaeological and heritage resources are subterranean in nature and as such, one cannot totally rule out their

presence or existence within the proposed development area even though they are not recorded and map as part of the current study. These resources may be exposed or brought to the surface of the earth during the construction phase of the project which will involve excavation for infrastructure development and clearing of vegetation and top soil in some instances. This presents one of the major uncertainties regarding the 'holistic' management or archaeological and heritage resources within and around the proposed development area.

Archaeologist and heritage specialist alike refer to discovery of such resources as chance finds and to mitigate such uncertainty, it is advisable that should such chance finds be made of archaeological and heritage resources on site, the Environmental Control Officer (ECO) responsible for the site should report them to the nearest SAHRA office or the nearest museum or call an archaeologist and heritage specialist to investigate the finds make necessary recommendations.

5. FINDINGS

5.1. Cadastral Search

The following maps of the study area were used to assess the evolutions of the landscape in and around the area in which the proposed Stinkwater Agricultural Village will be developed:

Both the 1909 and the 1905 maps showing the study area do not show any human activities in the areas in which the proposed Stinkwater Agricultural Village is to be developed. The 1909 map shows the Appies River as the dominant physical and natural feature in the landscape (Figure 11). The 1905 map shows that the area under consideration falls within the Middle Veld and Low Veld (Figure 12).

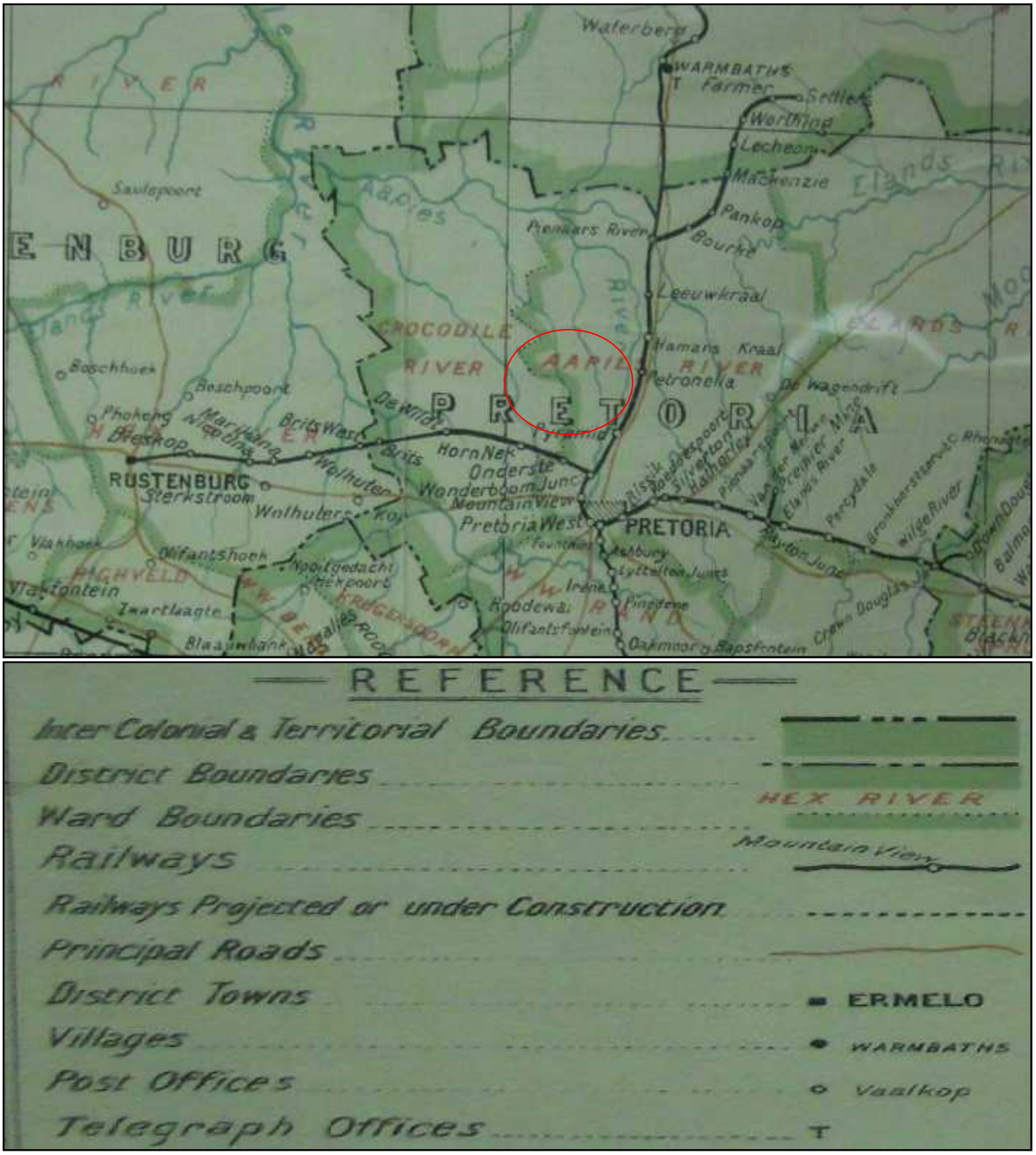

Figure 10- Map of the Transvaal Colony. Compiled and lithographed in the surveyor-general's office Pretoria in December 1902. Revised in January 1909.

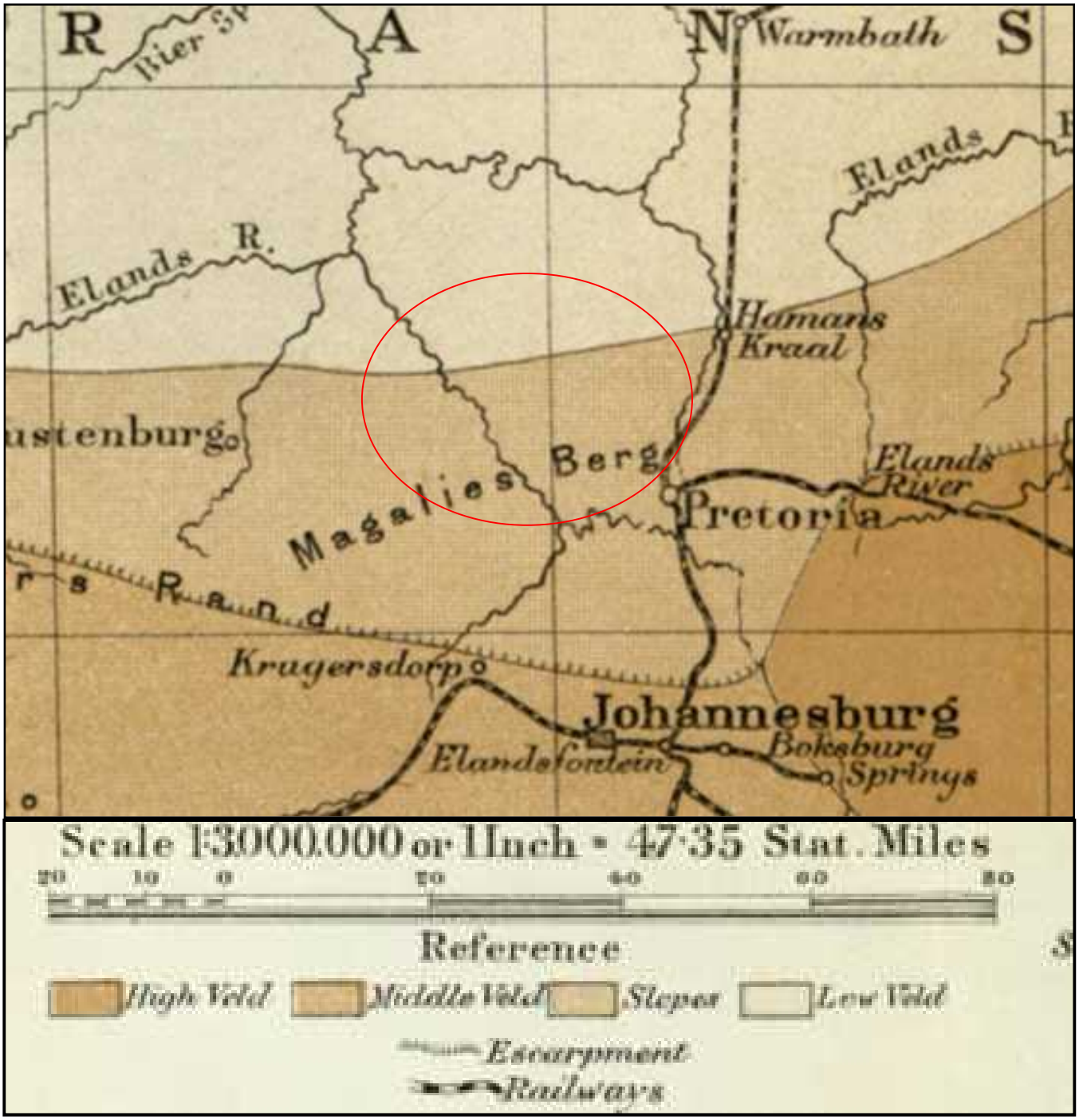

Figure 11-1905 Map illustrating the physical features of the Transvaal by Tudor G. Trevor, - F.G.S.A.R.S.M @ Trevor, 1906.

5.2. Deeds Search:

No deeds search was conducted as part of the study.

5.3. Field Survey and Identified Archaeological/Heritage Resources:

The proposed development area did not yield any archaeological, built environment and landscape, burial grounds and graves, and cultural features such as places or spaces of prayer both within and immediate outside the site -as well as the general surrounding landscape as described in the 'affected environment' section above.

Below is the description and evaluation of identified features within the proposed development area and immediate surroundings.

Stinkwater Agricultural Village- Built Environmental Features:

Site Name: STIN-1

Type: Built environment and landscape site (informal houses)

Density (Low): Approximately 4 structures

Location/GPS Coordinates: S25 23 09.0 E28 08 51.5

Approximate Age: Less than 60 years old

Applicable NHRA Section: Section 34 - would normally be applicable but not in this case

Site Description:

The site consists of four informal structures- three shacks and one wood and mud structure (Figure 13).

Nature of Impacts, Assessments and Predictions in terms of Standard Heritage and Basic Assessment (i.e. adopted from EIA Guidelines):

Field Rating	Grade	Impact	Impact Significance	Heritage Significance	Certainty of Impacts	Duration	Mitigation
Not a historic site	-	Local	Negligible	-	Probable	Short term	A

Nature of Activities: 1. Construction Phase: The site will be affected, but it is not a heritage site and is of negligible impact significance 2. Operation Phase: The site will be affected, but it is not a heritage site and is of negligible impact significance		
	Without Mitigation	With Mitigations
Probability	Probable (2)	Probable (2)
Duration	Short term (1)	Short term (1)
Scale	Local (1)	Local (1)
Magnitude/Severity	Low (2)	Low (2)
Significance	(8)Negligible	(8) Negligible
Status (positive or negative)	Positive	Positive
Reversibility	Highly	Highly
Irreplaceable loss of resources?	No	No
Can impacts be mitigated?	Yes- but it is not heritage sites and it does not require mitigation.	
Mitigation: No further action required - the site is not a heritage site and has negligible impact even though it falls directly within the proposed development footprint.		
Cumulative impacts: Construction and operational phases of the project will cumulatively impact on the site		
Residual Impacts: The project will positively contribute to the poverty alleviation and skills transfer in the Stinkwater area.		

Measures for inclusion in the draft Environmental Management Plan:

OBJECTIVE: The overall goal is to identify, manage and conserve heritage resources within and around the proposed development area footprint i.e. the proposed Stinkwater Agricultural Village. The site is not a heritage site - it is less than 60 years in age.

Project component/s	Construction phase of the project
Potential Impact	The site will be directly affected by the proposed development - it falls within the project footprint, but is not a heritage site
Project component/s	Operational phase of the project
Potential Impact	The site will be directly affected by the proposed development - it falls within the project footprint, but is not a heritage site
Activity/risk source	N/A

Mitigation: Target/Objective	There are not mitigation measures proposed for the site - it is not a heritage or historic site

Mitigation: Action/control	Responsibility	Timeframe
There are no mitigation measures proposed for the site - it is not a heritage or historic site	N/A	N/A

Performance Indicator	The type of indicator used here will be Actionable Indicators – this will measure action/progress in terms of completion of the above objectives with the approval of the EMP against their actual implementation.
Monitoring	N/A

Figure 12 - STIN-1

Site Name: STIN-2

Type: Built environment and landscape site (informal houses)

Density (Low): Two structures

Location/GPS Coordinates: S25 23 02.0 E28 08 55.4

Approximate Age: Less than 60 years old

Applicable NHRA Section: Section 34 - would normally be applicable but not in this case

Site Description:

The site consists of a shack and one steel container (Figure 14).

Nature of Impacts, Assessments and Predictions in terms of Standard Heritage and Basic Assessment (i.e. adopted from EIA Guidelines):

Field Rating	Grade	Impact	Impact Significance	Heritage Significance	Certainty of Impacts	Duration	Mitigation
Not a historic site	-	Local	Negligible	-	Probable	Short term	A

Nature of Activities:

1. Construction Phase: The site will be affected, but it is not a heritage site and is of negligible impact significance

2. Operation Phase: The site will be affected, but it is not a heritage site and is of negligible impact significance

	WOM	WM
Probability	Probable (2)	Probable (2)
Duration	Short term (1)	Short term (1)
Scale	Local (1)	Local (1)
Magnitude/Severity	Low (2)	Low (2)
Significance	(8)Negligible	(8) Negligible
Status (positive or negative)	Positive	Positive
Reversibility	Highly	Highly
Irreplaceable loss of resources?	No	No
Can impacts be mitigated?	Yes- but it is not heritage sites and it does not require mitigation.	

Mitigation:No further action required - the site is not a heritage site and has negligible impact even though it falls directly within the proposed development footprint.

Cumulative impacts: Construction and operational phases of the project will cumulatively impact on the site

Residual Impacts: The project will positively contribute to the poverty alleviation and skills transfer in the Stinkwater area.

Measures for inclusion in the draft Environmental Management Plan:

OBJECTIVE: The overall goal is to identify, manage and conserve heritage resources within and around the proposed development area footprint i.e. the proposed Stinkwater Agricultural Village. The site is not a heritage site - it is less than 60 years in age.

Project component/s	Construction phase of the project
Potential Impact	The site will be directly affected by the proposed development - it falls within the project footprint, but is not a heritage site
Project component/s	Operational phase of the project
Potential Impact	The site will be directly affected by the proposed development - it falls within the project footprint, but is not a heritage site
Activity/risk source	N/A
Mitigation: Target/Objective	There are no mitigation measures proposed for the site - it is not a heritage or historic site

Mitigation: Action/control	Responsibility	Timeframe
There are not mitigation measures proposed for the site - it is not a heritage or historic site	N/A	N/A

Performance Indicator	The type of indicator used here will be Actionable Indicators – this will measure action/progress in terms of completion of the above objectives with the approval of the EMP against their actual implementation.
Monitoring	N/A

Figure 13- STIN-2

Site Name: STIN-3

Type: Built environment and landscape site (informal houses)

Density (Low): One structure

Location/GPS Coordinates: S25 23 02.6 E28 08 57.4

Approximate Age: Less than 60 years old

Applicable NHRA Section: Section 34 - would normally be applicable but not in this case

Site Description:

The site consists of a shack.

Nature of Impacts, Assessments and Predictions in terms of Standard Heritage and Basic Assessment (i.e. adopted from EIA Guidelines):

Field Rating	Grade	Impact	Impact Significance	Heritage Significance	Certainty of Impacts	Duration	Mitigation
Not a historic site	-	Local	Negligible	-	Probable	Short term	A

Nature of Activities:

1. Construction Phase: The site will be affected, but it is not a heritage site and is of negligible impact significance

2. Operation Phase: The site will be affected, but it is not a heritage site and is of negligible impact significance

	WOM	WM
Probability	Probable (2)	Probable (2)
Duration	Short term (1)	Short term (1)
Scale	Local (1)	Local (1)
Magnitude/Severity	Low (2)	Low (2)
Significance	(8)Negligible	(8) Negligible
Status (positive or negative)	Positive	Positive
Reversibility	Highly	Highly
Irreplaceable loss of resources?	No	No
Can impacts be mitigated?	Yes- but it is not heritage sites and it does not require mitigation.	

Mitigation:No further action required - the site is not a heritage site and has negligible impact even though it falls directly within the proposed development footprint.

Cumulative impacts: Construction and operational phases of the project will cumulatively impact on the site
Residual Impacts: The project will positively contribute to the poverty alleviation and skills transfer in the Stinkwater area.

Measures for inclusion in the draft Environmental Management Plan:

OBJECTIVE: The overall goal is to identify, manage and conserve heritage resources within and around the proposed development area footprint i.e. the proposed Stinkwater Agricultural Village. The site is not a heritage site - it is less than 60 years in age.

Project component/s	Construction phase of the project		
Potential Impact	The site will be directly affected by the proposed development - it falls within the project footprint, but is not a heritage site		
Project component/s	Operational phase of the project		
Potential Impact	The site will be directly affected by the proposed development - it falls within the project footprint, but is not a heritage site		
Activity/risk source	N/A		
Mitigation: Target/Objective	There are no mitigation measures proposed for the site - it is not a heritage or historic site		
Mitigation: Action/control		Responsibility	Timeframe
There are no mitigation measures proposed for the site - it is not a heritage or historic site		N/A	N/A
Performance Indicator	The type of indicator used here will be Actionable Indicators – this will measure action/progress in terms of completion of the above objectives with the approval of the EMP against their actual implementation.		
Monitoring	N/A		

Site Name:	STIN-4
Type:	Built environment and landscape site (informal houses)
Density (Low):	Approximately three structures
Location/GPS Coordinates:	S25 22 59.8 E28 08 56.8
Approximate Age:	Less than 60 years old

Applicable NHRA Section: Section 34 - would normally be applicable but not in this case

Site Description:

The site consists of two shacks and a cement brick wall (Figure 15).

Nature of Impacts, Assessments and Predictions in terms of Standard Heritage and Basic Assessment (i.e. adopted from EIA Guidelines):

Field Rating	Grade	Impact	Impact Significance	Heritage Significance	Certainty of Impacts	Duration	Mitigation
Not a historic site	-	Local	Negligible	-	Probable	Short term	A

Nature of Activities:

1. Construction Phase: The site will be affected, but it is not a heritage site and is of negligible impact significance

2. Operation Phase: The site will be affected, but it is not a heritage site and is of negligible impact significance

	WOM	WM
Probability	Probable (2)	Probable (2)
Duration	Short term (1)	Short term (1)
Scale	Local (1)	Local (1)
Magnitude/Severity	Low (2)	Low (2)
Significance	(8)Negligible	(8) Negligible
Status (positive or negative)	Positive	Positive
Reversibility	Highly	Highly
Irreplaceable loss of resources?	No	No
Can impacts be mitigated?	Yes- but it is not heritage sites and it does not require mitigation.	

Mitigation: No further action required - the site is not a heritage site and has negligible impact significance even though it falls directly within the proposed development footprint.

Cumulative impacts: Construction and operational phases of the project will cumulatively impact on the site

Residual Impacts: The project will positively contribute to the poverty alleviation and skills transfer in the Stinkwater area.

Measures for inclusion in the draft Environmental Management Plan:

OBJECTIVE: The overall goal is to identify, manage and conserve heritage resources within and immediately outside the proposed development area footprint i.e. the proposed Stinkwater Agricultural Village. The site is not a heritage site - it is less than 60 years in age.

Project component/s	Construction phase of the project
Potential Impact	The site will be directly affected by the proposed development - it falls within the project footprint, but is not a heritage site
Project component/s	Operational phase of the project
Potential Impact	The site will be directly affected by the proposed development - it falls within the project footprint, but is not a heritage site
Activity/risk source	N/A
Mitigation: Target/Objective	There are not mitigation measures proposed for the site - it is not a heritage or historic site

Mitigation: Action/control	Responsibility	Timeframe
There are no mitigation measures proposed for the site - it is not a heritage or historic site	N/A	N/A

Performance Indicator	The type of indicator used here will be Actionable Indicators – this will measure action/progress in terms of completion of the above objectives with the approval of the EMP against their actual implementation.
Monitoring	N/A

Figure 14- STIN-4

Site Name: STIN-5

Type: Built environment and landscape site (informal houses)

Density (Low): Approximately 3 structures

Location/GPS Coordinates: S25 22 59.7 E28 08 56.5

Approximate Age: Less than 60 years old

Applicable NHRA Section: Section 34 - would normally be applicable but not in this case

Site Description:

The site consists of three structures –two shacks and a drop toilet (Figure 16).

Nature of Impacts, Assessments and Predictions in terms of Standard Heritage and Basic Assessment (i.e. adopted from EIA Guidelines):

Field Rating	Grade	Impact	Impact Significance	Heritage Significance	Certainty of Impacts	Duration	Mitigation
Not a historic site	-	Local	Negligible	-	Probable	Short term	A

Nature of Activities:

1. Construction Phase: The site will be affected, but it is not a heritage site and is of negligible impact significance

2. Operation Phase: The site will be affected, but it is not a heritage site and is of negligible impact significance

	WOM	WM
Probability	Probable (2)	Probable (2)
Duration	Short term (1)	Short term (1)
Scale	Local (1)	Local (1)
Magnitude/Severity	Low (2)	Low (2)
Significance	(8)Negligible	(8) Negligible
Status (positive or negative)	Positive	Positive
Reversibility	Highly	Highly
Irreplaceable loss of resources?	No	No
Can impacts be mitigated?	Yes- but it is not heritage sites and it does not require mitigation.	
Mitigation: No further action required - the site is not a heritage site and has negligible impact even though it		

falls directly within the proposed development footprint.
Cumulative impacts: Construction and operational phases of the project will cumulatively impact on the site
Residual Impacts: • The project will positively contribute to the poverty alleviation and skills transfer in the Stinkwater area.

Measures for inclusion in the draft Environmental Management Plan:

OBJECTIVE: The overall goal is to identify, manage and conserve heritage resources within and around the proposed development area footprint i.e. the proposed Stinkwater Agricultural Village. The site is not a heritage site - it is less than 60 years in age.

Project component/s	Construction phase of the project
Potential Impact	The site will be directly affected by the proposed development - it falls within the project footprint, but is not a heritage site
Project component/s	Operational phase of the project
Potential Impact	The site will be directly affected by the proposed development - it falls within the project footprint, but is not a heritage site
Activity/risk source	N/A
Mitigation: Target/Objective	There are no mitigation measures proposed for the site - it is not a heritage or historic site

Mitigation: Action/control	Responsibility	Timeframe
There are no mitigation measures proposed for the site - it is not a heritage or historic site	N/A	N/A

Performance Indicator	The type of indicator used here will be Actionable Indicators – this will measure action/progress in terms of completion of the above objectives with the approval of the EMP against their actual implementation.
Monitoring	N/A

Figure 15- STIN-5

Site Name: STIN-6

Type: Built environment and landscape site (informal houses)

Density (Low): Approximately three structures

Location/GPS Coordinates: S25 22 59.1 E28 08 56.8

Approximate Age: Less than 60 years old

Applicable NHRA Section: Section 34 - would normally be applicable but not in this case

Site Description:

The site consists of three structures, one residential shack and piggery structures (Figure 17).

Nature of Impacts, Assessments and Predictions in terms of Standard Heritage and Basic Assessment (i.e. adopted from EIA Guidelines):

Field Rating	Grade	Impact	Impact Significance	Heritage Significance	Certainty of Impacts	Duration	Mitigation
Not a historic site	-	Local	Negligible	-	Probable	Short term	A

Nature of Activities:

1. Construction Phase: The site will be affected, but it is not a heritage site and is of negligible impact significance

2. Operation Phase: The site will be affected, but it is not a heritage site and is of negligible impact significance

	WOM	WM
Probability	Probable (2)	Probable (2)
Duration	Short term (1)	Short term (1)
Scale	Local (1)	Local (1)
Magnitude/Severity	Low (2)	Low (2)
Significance	(8)Negligible	(8) Negligible
Status (positive or negative)	Positive	Positive
Reversibility	Highly	Highly
Irreplaceable loss of resources?	No	No
Can impacts be mitigated?	Yes- but it is not heritage sites and it does not require mitigation.	
Mitigation: No further action required - the site is not a heritage site and has negligible impact even though it falls directly within the proposed development footprint.		
Cumulative impacts: Construction and operational phases of the project will cumulatively impact on the site		
Residual Impacts: The project will positively contribute to the poverty alleviation and skills transfer in the Stinkwater area.		

Measures for inclusion in the draft Environmental Management Plan:

OBJECTIVE: The overall goal is to identify, manage and conserve heritage resources within and immediately outside the proposed development area footprint i.e. the proposed Stinkwater Agricultural Village. The site is not a heritage site - it is less than 60 years in age.

Project component/s	Construction phase of the project
Potential Impact	The site will be directly affected by the proposed development - it falls within the project footprint, but is not a heritage site
Project component/s	Operational phase of the project
Potential Impact	The site will be directly affected by the proposed development - it falls within the project footprint, but is not a heritage site
Activity/risk source	N/A

Mitigation: Target/Objective	There are no mitigation measures proposed for the site - it is not a heritage or historic site		
Mitigation: Action/control		Responsibility	Timeframe
There are no mitigation measures proposed for the site - it is not a heritage or historic site		N/A	N/A
Performance Indicator	The type of indicator used here will be Actionable Indicators – this will measure action/progress in terms of completion of the above objectives with the approval of the EMP against their actual implementation.		
Monitoring	N/A		

Figure 16-STIN-6, 2 residential shacks (left) and piggery structure (right)

Site Name:	STIN-7
Type:	Built environment and landscape site (informal houses)
Density (Low):	One structure
Location/GPS Coordinates:	S25 22 57.9 E28 08 56.5
Approximate Age:	Less than 60 years old
Applicable NHRA Section:	Section 34 - would normally be applicable but not in this case

Site Description:

The site consists of a single residential shack (Figure 18).

Nature of Impacts, Assessments and Predictions in terms of Standard Heritage and Basic Assessment (i.e. adopted from EIA Guidelines):

Field Rating	Grade	Impact	Impact Significance	Heritage Significance	Certainty of Impacts	Duration	Mitigation
Not a historic site	-	Local	Negligible	-	Probable	Short term	A

Nature of Activities:

1. Construction Phase: The site will be affected, but it is not a heritage site and is of negligible impact significance

2. Operation Phase: The site will be affected, but it is not a heritage site and is of negligible impact significance

	Without Mitigation	With Mitigation
Probability	Probable (2)	Probable (2)
Duration	Short term (1)	Short term (1)
Scale	Local (1)	Local (1)
Magnitude/Severity	Low (2)	Low (2)
Significance	(8)Negligible	(8) Negligible
Status (positive or negative)	Positive	Positive
Reversibility	Highly	Highly
Irreplaceable loss of resources?	No	No
Can impacts be mitigated?	Yes- but it is not heritage sites and it does not require mitigation.	

Mitigation: No further action required - the site is not a heritage site and has negligible impact even though it falls directly within the proposed development footprint.

Cumulative impacts: Construction and operational phase of the project will cumulatively impact on the site

Residual Impacts: The project will positively contribute to the poverty alleviation and skills transfer in the Stinkwater area.

Measures for inclusion in the draft Environmental Management Plan:

OBJECTIVE: The overall goal is to identify, manage and conserve heritage resources within and around the proposed development area footprint i.e. the proposed Stinkwater Agricultural Village. The site is not a heritage site - it is less than 60 years in age.

Project component/s	Construction phase of the project
Potential Impact	The site will be directly affected by the proposed development - it falls within the project footprint, but is not a heritage site
Project component/s	Operational phase of the project
Potential Impact	The site will be directly affected by the proposed development - it falls within the project footprint, but is not a heritage site
Activity/risk source	N/A
Mitigation: Target/Objective	There are no mitigation measures proposed for the site - it is not a heritage or historic site

Mitigation: Action/control	Responsibility	Timeframe
There are no mitigation measures proposed for the site - it is not a heritage or historic site	N/A	N/A

Performance Indicator	The type of indicator used here will be Actionable Indicators – this will measure action/progress in terms of completion of the above objectives with the approval of the EMP against their actual implementation.
Monitoring	N/A

Figure 17- STIN-7, residential shack

Site Name: STIN-8

Type: Built environment and landscape site (informal houses)

Density (Low): One structure

Location/GPS Coordinates: S25 22 55.8 E28 08 57.2

Approximate Age: Less than 60 years old

Applicable NHRA Section: Section 34 - would normally be applicable but not in the case

Site Description:

The site consists of a single residential shack (Figure 19).

Nature of Impacts, Assessments and Predictions in terms of Standard Heritage and Basic Assessment (i.e. adopted from EIA Guidelines):

Field Rating	Grade	Impact	Impact Significance	Heritage Significance	Certainty of Impacts	Duration	Mitigation
Not a historic site	-	Local	Negligible	-	Probable	Short term	A

Nature of Activities:

1. Construction Phase: The site will be affected, but it is not a heritage site and is of negligible impact significance

2. Operation Phase: The site will be affected, but it is not a heritage site and is of negligible impact significance

	WOM	WM
Probability	Probable (2)	Probable (2)
Duration	Short term (1)	Short term (1)
Scale	Local (1)	Local (1)
Magnitude/Severity	Low (2)	Low (2)
Significance	(8)Negligible	(8) Negligible
Status (positive or negative)	Positive	Positive
Reversibility	Highly	Highly
Irreplaceable loss of resources?	No	No

Can impacts be mitigated?	Yes- but it is not heritage sites and it does not require mitigation.
Mitigation: No further action required - the site is not a heritage site and has negligible impact significance even though it falls directly within the proposed development footprint.	
Cumulative impacts: Construction and operational phases of the project will cumulatively impact on the site	
Residual Impacts: The project will positively contribute to the poverty alleviation and skills transfer in the Stinkwater area.	

Measures for inclusion in the draft Environmental Management Plan:

OBJECTIVE: The overall goal is to identify, manage and conserve heritage resources within and around the proposed development area footprint i.e. the proposed Stinkwater Agricultural Village. The site is not a heritage site - it is less than 60 years in age.

Project component/s	Construction phase of the project
Potential Impact	The site will be directly affected by the proposed development - it falls within the project footprint, but is not a heritage site
Project component/s	Operational phase of the project
Potential Impact	The site will be directly affected by the proposed development - it falls within the project footprint, but is not a heritage site
Activity/risk source	N/A
Mitigation: Target/Objective	There are no mitigation measures proposed for the site - it is not a heritage or historic site

Mitigation: Action/control	Responsibility	Timeframe
There are no mitigation measures proposed for the site - it is not a heritage or historic site	N/A	N/A

Performance Indicator	The type of indicator used here will be Actionable Indicators – this will measure action/progress in terms of completion of the above objectives with the approval of the EMP against their actual implementation.
Monitoring	N/A

Figure 18- STIN-8, residential shack

Site Name: STIN-9

Type: Built environment and landscape site (informal houses)

Density (Low): One structure

Location/GPS Coordinates: S25 22 54.7 E28 08 56.5

Approximate Age: Less than 60 years old

Applicable NHRA Section: Section 34 - would normally be applicable but not in the case

Site Description:

The site consists of a single residential shack (Figure 20).

Nature of Impacts, Assessments and Predictions in terms of Standard Heritage and Basic Assessment (i.e. adopted from EIA Guidelines):

Field Rating	Grade	Impact	Impact Significance	Heritage Significance	Certainty of Impacts	Duration	Mitigation
Not a historic site	-	Local	Negligible	-	Probable	Short term	A

Nature of Activities: 1. Construction Phase: The site will be affected, but it is not a heritage site and is of negligible impact significance 2. Operation Phase: The site will be affected, but it is not a heritage site and is of negligible impact significance		
	WOM	WM
Probability	Probable (2)	Probable (2)
Duration	Short term (1)	Short term (1)
Scale	Local (1)	Local (1)
Magnitude/Severity	Low (2)	Low (2)
Significance	(8)Negligible	(8) Negligible
Status (positive or negative)	Positive	Positive
Reversibility	Highly	Highly
Irreplaceable loss of resources?	No	No
Can impacts be mitigated?	Yes- but it is not heritage sites and it does not require mitigation.	
Mitigation: No further action required - the site is not a heritage site and has negligible impact even though it falls directly within the proposed development footprint.		
Cumulative impacts: Construction and operational phase of the project will cumulatively impact on the site		
Residual Impacts: • The project will positively contribute to the poverty alleviation and skills transfer in the Stinkwater area.		

Measures for inclusion in the draft Environmental Management Plan:

OBJECTIVE: The overall goal is to identify, manage and conserve heritage resources within and immediately outside the proposed development area footprint i.e. the proposed Stinkwater Agricultural Village. The site is not a heritage site - it is less than 60 years in age.

Project component/s	Construction phase of the project
Potential Impact	The site will be directly affected by the proposed development - it falls within the project footprint, but is not a heritage site
Project component/s	Operational phase of the project
Potential Impact	The site will be directly affected by the proposed development - it falls within the project footprint, but is not a heritage site
Activity/risk source	N/A

Mitigation: Target/Objective	There are no mitigation measures proposed for the site - it is not a heritage or historic site

Mitigation: Action/control	Responsibility	Timeframe
There are no mitigation measures proposed for the site - it is not a heritage or historic site	N/A	N/A

Performance Indicator	The type of indicator used here will be Actionable Indicators – this will measure action/progress in terms of completion of the above objectives with the approval of the EMP against their actual implementation.
Monitoring	N/A

Figure 19-STIN-9, residential shack. Note the calves in poor health condition

Site Name:	STIN-10
Type:	Built environment and landscape site (informal houses)
Density (Low):	Approximately six or more structures
Location/GPS Coordinates:	S25 22 53.3 E28 08 57.0
Approximate Age:	Less than 60 years old

Applicable NHRA Section: Section 34 - would normally be applicable but not in the case

Site Description:

The site is probable one of the largest of the 13 subsistence farmers consisting of approximately six or more structures and a big kraal that accommodates sheep, goat and cattle (Figure 21).

Nature of Impacts, Assessments and Predictions in terms of Standard Heritage and Basic Assessment (i.e. adopted from EIA Guidelines):

Field Rating	Grade	Impact	Impact Significance	Heritage Significance	Certainty of Impacts	Duration	Mitigation
Not a historic site	-	Local	Negligible	-	Probable	Short term	A

Nature of Activities: 1. Construction Phase: The site will be affected, but it is not a heritage site and is of negligible impact significance 2. Operation Phase: The site will be affected, but it is not a heritage site and is of negligible impact significance		
	WOM	WM
Probability	Probable (2)	Probable (2)
Duration	Short term (1)	Short term (1)
Scale	Local (1)	Local (1)
Magnitude/Severity	Low (2)	Low (2)
Significance	(8)Negligible	(8) Negligible
Status (positive or negative)	Positive	Positive
Reversibility	Highly	Highly
Irreplaceable loss of resources?	No	No
Can impacts be mitigated?	Yes- but it is not heritage sites and it does not require mitigation.	
Mitigation: No further action required - the site is not a heritage site and has negligible impact significance even though it falls directly within the proposed development footprint.		
Cumulative impacts: Construction and operational phase of the project will cumulatively impact on the site		
Residual Impacts: The project will positively contribute to the poverty alleviation and skills transfer in the		

Stinkwater area.

Measures for inclusion in the draft Environmental Management Plan:

OBJECTIVE: The overall goal is to identify, manage and conserve heritage resources within and around the proposed development area footprint i.e. the proposed Stinkwater Agricultural Village. The site is not a heritage site - it is less than 60 years in age.

Project component/s	Construction phase of the project
Potential Impact	The site will be directly affected by the proposed development - it falls within the project footprint, but is not a heritage site
Project component/s	Operational phase of the project
Potential Impact	The site will be directly affected by the proposed development - it falls within the project footprint, but is not a heritage site
Activity/risk source	N/A
Mitigation: Target/Objective	There are no mitigation measures proposed for the site - it is not a heritage or historic site

Mitigation: Action/control	Responsibility	Timeframe
There are no mitigation measures proposed for the site - it is not a heritage or historic site	N/A	N/A

Performance Indicator	The type of indicator used here will be Actionable Indicators – this will measure action/progress in terms of completion of the above objectives with the approval of the EMP against their actual implementation.
Monitoring	N/A

Figure 20-STIN-10. Kraal for cattle, sheep and goat as well as residential shacks

Site Name: STIN-11

Type: Built environment and landscape site (informal houses)

Density (Low): One structure

Location/GPS Coordinates: S25 22 52.6 E28 08 56.6

Approximate Age: Less than 60 years old

Applicable NHRA Section: Section 34 - would normally be applicable but not in the case

Site Description:

The site consists of a single residential shack (Figure 22).

Nature of Impacts, Assessments and Predictions in terms of Standard Heritage and Basic Assessment (i.e. adopted from EIA Guidelines):

Field Rating	Grade	Impact	Impact Significance	Heritage Significance	Certainty of Impacts	Duration	Mitigation
Not a historic site	-	Local	Negligible	-	Probable	Short term	A

Nature of Activities:

1. Construction Phase: The site will be affected, but it is not a heritage site and is of negligible impact significance

2. Operation Phase: The site will be affected, but it is not a heritage site and is of negligible impact significance

	With Mitigation	Without Mitigation
Probability	Probable (2)	Probable (2)
Duration	Short term (1)	Short term (1)
Scale	Local (1)	Local (1)
Magnitude/Severity	Low (2)	Low (2)
Significance	(8)Negligible	(8) Negligible

Status (positive or negative)	Positive	Positive
Reversibility	Highly	Highly
Irreplaceable loss of resources?	No	No
Can impacts be mitigated?	Yes- but it is not heritage sites and it does not require mitigation.	
Mitigation: No further action required - the site is not a heritage site and has negligible impact significance even though it falls directly within the proposed development footprint.		
Cumulative impacts: Construction and operational phases of the project will cumulatively impact on the site		
Residual Impacts: The project will positively contribute to the poverty alleviation and skills transfer in the Stinkwater area.		

Measures for inclusion in the draft Environmental Management Plan:

OBJECTIVE: The overall goal is to identify, manage and conserve heritage resources within and immediately outside the proposed development area footprint i.e. the proposed Stinkwater Agricultural Village. The site is not a heritage site - it is less than 60 years in age.

Project component/s	Construction phase of the project
Potential Impact	The site will be directly affected by the proposed development - it falls within the project footprint, but is not a heritage site
Project component/s	Operational phase of the project
Potential Impact	The site will be directly affected by the proposed development - it falls within the project footprint, but is not a heritage site
Activity/risk source	N/A
Mitigation: Target/Objective	There are no mitigation measures proposed for the site - it is not a heritage or historic site

Mitigation: Action/control	Responsibility	Timeframe
There are no mitigation measures proposed for the site - it is not a heritage or historic site	N/A	N/A

Performance Indicator	The type of indicator used here will be Actionable Indicators – this will measure action/progress in terms of completion of the above objectives with the approval of the EMP against their actual implementation.
Monitoring	N/A

Figure 21- STIN-11, residential shack

Site Name: STIN-12

Type: Built environment and landscape site (informal houses)

Density (Low): One structure

Location/GPS Coordinates: S25 22 50.7 E28 08 55.8

Approximate Age: Less than 60 years old

Applicable NHRA Section: Section 34 - would normally be applicable but not in this case

Site Description:

The site consists of a single residential shack.

Nature of Impacts, Assessments and Predictions in terms of Standard Heritage and Basic Assessment (i.e. adopted from EIA Guidelines):

Field Rating	Grade	Impact	Impact Significance	Heritage Significance	Certainty of Impacts	Duration	Mitigation
Not a historic site	-	Local	Negligible	-	Probable	Short term	A

Nature of Activities: 1. Construction Phase: The site will be affected, but it is not a heritage site and is of negligible impact significance 2. Operation Phase: The site will be affected, but it is not a heritage site and is of negligible impact significance		
	WOM	WM
Probability	Probable (2)	Probable (2)
Duration	Short term (1)	Short term (1)
Scale	Local (1)	Local (1)
Magnitude/Severity	Low (2)	Low (2)
Significance	(8)Negligible	(8) Negligible
Status (positive or negative)	Positive	Positive
Reversibility	Highly	Highly
Irreplaceable loss of resources?	No	No
Can impacts be mitigated?	Yes- but it is not heritage sites and it does not require mitigation.	
Mitigation: No further action required - the site is not a heritage site and has negligible impact even though it falls directly within the proposed development footprint.		
Cumulative impacts: Construction and operational phases of the project will cumulatively impact on the site		
Residual Impacts: The project will positively contribute to the poverty alleviation and skills transfer in the Stinkwater area.		

Measures for inclusion in the draft Environmental Management Plan:

OBJECTIVE: The overall goal is to identify, manage and conserve heritage resources within and around the proposed development area footprint i.e. the proposed Stinkwater Agricultural Village. The site is not a heritage site - it is less than 60 years in age.

Project component/s	Construction phase of the project
Potential Impact	The site will be directly affected by the proposed development - it falls within the project footprint, but is not a heritage site
Project component/s	Operational phase of the project
Potential Impact	The site will be directly affected by the proposed development - it falls within the project footprint, but is not a heritage site
Activity/risk source	N/A

Mitigation: Target/Objective	There are no mitigation measures proposed for the site - it is not a heritage or historic site

Mitigation: Action/control	Responsibility	Timeframe
There are no mitigation measures proposed for the site - it is not a heritage or historic site	N/A	N/A

Performance Indicator	The type of indicator used here will be Actionable Indicators – this will measure action/progress in terms of completion of the above objectives with the approval of the EMP against their actual implementation.
Monitoring	N/A

Site Name: STIN-13

Type: Built environment and landscape site (informal houses)

Density (Low): One structure

Location/GPS Coordinates: S25 22 51.5 E28 08 57.5

Approximate Age: Less than 60 years old

Applicable NHRA Section: Section 34 - would normally be applicable but not in this case

Site Description:

The site consists of a single big corrugated iron sheet kraal.

Nature of Impacts, Assessments and Predictions in terms of Standard Heritage and Basic Assessment (i.e. adopted from EIA Guidelines):

Field Rating	Grade	Impact	Impact Significance	Heritage Significance	Certainty of Impacts	Duration	Mitigation
Not a historic site	-	Local	Negligible	-	Probable	Short term	A

Nature of Activities:

1. Construction Phase: The site will be affected, but it is not a heritage site and is of negligible impact significance

2. Operation Phase: The site will be affected, but it is not a heritage site and is of negligible impact

significance		
	WOM	WM
Probability	Probable (2)	Probable (2)
Duration	Short term (1)	Short term (1)
Scale	Local (1)	Local (1)
Magnitude/Severity	Low (2)	Low (2)
Significance	(8)Negligible	(8) Negligible
Status (positive or negative)	Positive	Positive
Reversibility	Highly	Highly
Irreplaceable loss of resources?	No	No
Can impacts be mitigated?	Yes- but it is not heritage sites and it does not require mitigation.	
Mitigation: No further action required - the site is not a heritage site and has negligible impact significance even though it falls directly within the proposed development footprint.		
Cumulative impacts: Construction and operational phase of the project will cumulatively impact on the site		
Residual Impacts: The project will positively contribute to the poverty alleviation and skills transfer in the Stinkwater area.		

Measures for inclusion in the draft Environmental Management Plan:

OBJECTIVE: The overall goal is to identify, manage and conserve heritage resources within and around the proposed development area footprint i.e. the proposed Stinkwater Agricultural Village. The site is not a heritage site - it is less than 60 years in age.		
Project component/s	Construction phase of the project	
Potential Impact	The site will be directly affected by the proposed development - it falls within the project footprint, but is not a heritage site	
Project component/s	Operational phase of the project	
Potential Impact	The site will be directly affected by the proposed development - it falls within the project footprint, but is not a heritage site	
Activity/risk source	N/A	
Mitigation: Target/Objective	There are no mitigation measures proposed for the site - it is not a heritage or historic site	
Mitigation: Action/control	Responsibility	Timeframe

There are no mitigation measures proposed for the site - it is not a heritage or historic site	N/A	N/A
Performance Indicator	The type of indicator used here will be Actionable Indicators – this will measure action/progress in terms of completion of the above objectives with the approval of the EMP against their actual implementation.	
Monitoring	N/A	

6. SUMMARY OF RESULTS:

The physical survey of the area under consideration for the proposed Stinkwater Agricultural Village did not yield any heritage resources sites. It yielded 13 recent features all less than 60 years old in form of informal houses or shacks(Figure: 23-24). All the 13 features were photographed and their GPS coordinates were taken. Because there are no heritage sites in form archaeological, built environment and landscape, burial grounds and graves, and other places of cultural significance such as sites of gathering, worship and prayer or initiation sites - it is recommended that development may proceed as planned. However, it has to be noted that some archaeological and heritage resources such as unmarked graves are subterranean in nature and might have been missed by the current study. The developer should take note of this. In cases such resources are unearthed during the excavation processes for infrastructure development of the proposed Stinkwater Agricultural Village.

7. CONCLUSIONS

In conclusion, from a cultural resources management point of view, there are no objections to the project and no negative perceptions about the project, Stinkwater Agricultural Village.

8. RECOMMENDATIONS

- Base on the fact that the survey did not yield any heritage resources, it is recommended that SAHRA approves the project in terms of archaeological resources and burial grounds and graves management since there were no such sites identified within and immediately outside the project area.
- It is also recommended that GPHRA allows the project to go ahead in terms of the management of historical built environment and landscape resources.

Figure 22- Spot Image showing the distribution of recent built environment and landscape features in Stinkwater.

9. REFERENCES

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

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

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

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

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

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

SAHRA. What to do when Graves are uncovered accidentally.