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**BASIC HERITAGE IMPACT ASSESSMENT
FOR THE SALVOKOP TOWNSHIP ESTABLISHMENT
ON THE REMAINDER OF PORTION 406 OF THE FARM
PRETORIA TOWN AND TOWNLANDS 351JR,
SALVOKOP, TSHWANE, GAUTENG**

For:

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REPORT: APAC013/55

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SUMMARY

A Pelser Archaeological Consulting (APAC) was appointed by Seedcracker Environmental Consulting, in conjunction with Delta Built Environment Consultants, to conduct a Phase 1 HIA for the establishment of a township on the remainder of Portion 406 of the farm Pretoria Town & Townlands 351 JR (Salvokop). As part of this a Basic assessment of existing heritage resources, and the possible impact of such a development on these resources, had to be undertaken. This report is the result of this study, which included an assessment of existing historical and other sources on the area.

It is clear that the area has High Cultural Heritage significance (and includes the so-called NZASM Village Precinct) and this needs to be taken into consideration when any development is planned and undertaken here. The development of the STATS SA new headquarters here is also of relevance. A number of recommendations on the way forward are provided at the end of this report.

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1. INTRODUCTION

A Pelser Archaeological Consulting (APAC) was appointed by Seedcracker Environmental Consulting, in conjunction with Delta Built Environment Consultants, to conduct a Phase 1 HIA for the establishment of a township on the remainder of Portion 406 of the farm Pretoria Town & Townlands 351 JR (Salvokop). As part of this a Basic assessment of existing heritage resources, and the possible impact of such a development on these resources, had to be undertaken. This report is the result of this study, which included an assessment of existing historical and other sources on the area.

It is clear that the area has High Cultural Heritage significance (and includes the so-called NZASM Village Precinct) and this needs to be taken into consideration when any development is planned and undertaken here. The development of the STATS SA new headquarters here is also of relevance.

The client indicated the location of the study area and the extent of the planned development. A total of around 71ha of the Salvokop area is earmarked for the establishment of the township.

2. TERMS OF REFERENCE

The Terms of Reference for the study is to:

1. Identify all objects, sites, occurrences and structures of an archaeological or historical nature (cultural heritage sites) located on the portions of land at Salvokop that will be impacted upon by the proposed township establishment;
2. Assess the significance of the cultural resources in terms of their archaeological, historical, scientific, social, religious, aesthetic and tourism value;
3. Describe the possible impact of the proposed development on these cultural remains, according to a standard set of conventions;
4. Propose suitable mitigation measures to minimize possible negative impacts on the cultural resources;
5. Review applicable legislative requirements;

3. LEGISLATIVE REQUIREMENTS

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

3.1 The National Heritage Resources Act

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

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

The National Estate includes the following:

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

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

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

Structures

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

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

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

Archaeology, palaeontology and meteorites

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

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

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

Human remains

Graves and burial grounds are divided into the following:

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

In terms of Section 36(3) of the National Heritage Resources Act, no person may, without a permit issued by the relevant heritage resources authority:

- a. destroy, damage, alter, exhume or remove from its original position of otherwise disturb the grave of a victim of conflict, or any burial ground or part thereof which contains such graves;
- b. destroy, damage, alter, exhume or remove from its original position or otherwise disturb any grave or burial ground older than 60 years which is situated outside a formal cemetery administered by a local authority; or

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

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

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

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

Unidentified/unknown graves are also handled as older than 60 until proven otherwise.

3.2 The National Environmental Management Act

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

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

4. METHODOLOGY

4.1 Survey of literature

A survey of available literature was undertaken in order to place the development area in an archaeological and historical context, while previous studies done in the larger geographical area were also consulted. The sources utilized in this regard are indicated in the bibliography.

4.2 Field survey

The field assessment section of the study will be conducted according to generally accepted HIA practices and will aimed at locating all possible objects, sites and features of cultural heritage (archaeological and historical) significance in the area of the proposed development. The location/position of all sites, features and objects is determined by means of a Global Positioning System (GPS) where possible, while detail photographs are also taken where needed.

4.3 Oral histories

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

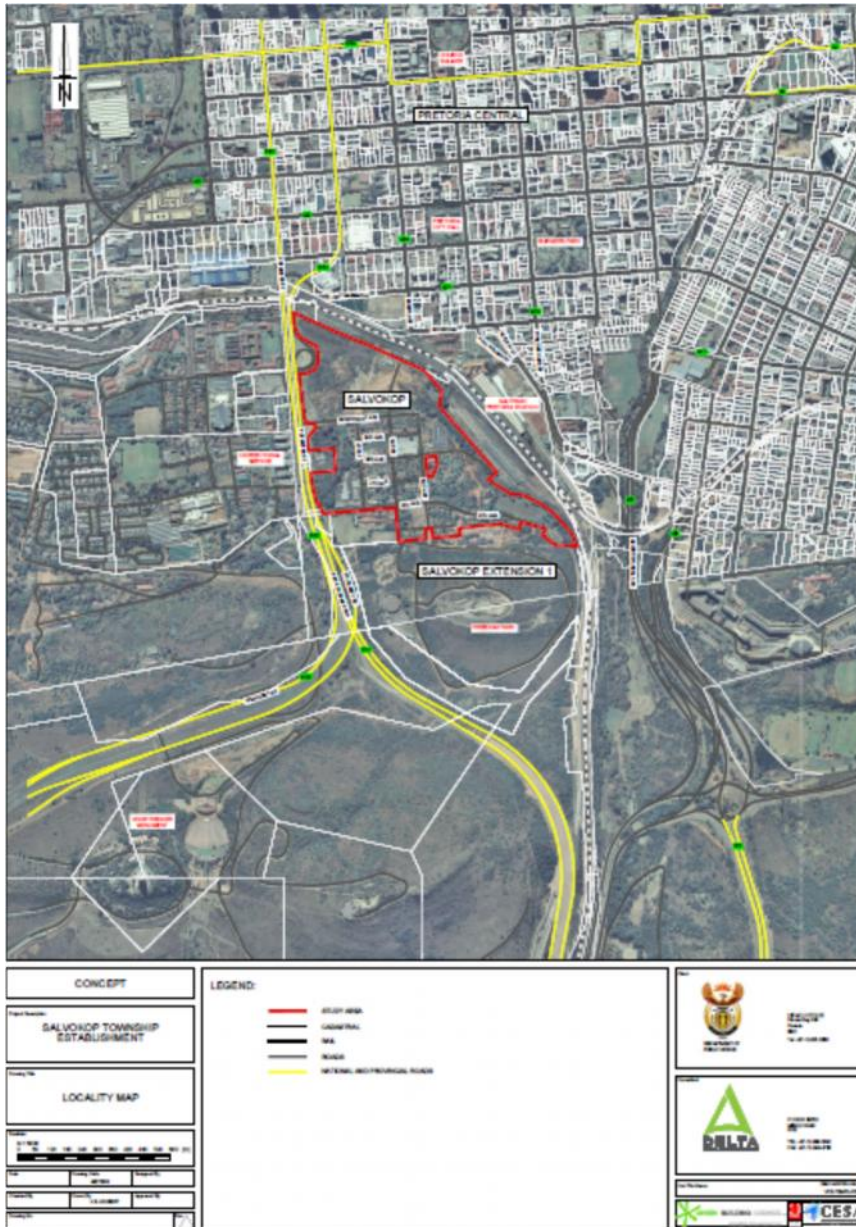
4.4 Documentation

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

5. DESCRIPTION OF THE AREA

The proposed township establishment area is located on the remaining extent of Portion 406 of the farm Pretoria Town & Townlands 351JR (known as the Salvokop precinct) and is roughly situated between Potgieter Street and the Pretoria Station and south of the CBD. The total area is approximately 79 hectares in size, with 71 ha of these earmarked for the township establishment. The larger area include the around 9 ha that will be used for the New Stats SA Head Office building.

The Salvokop Precinct has high cultural heritage significance and includes many structures that are older than 60 years of age and that are protected by the National Heritage Resources Act. This include the NZASM Heritage Village - a declared Cultural Heritage Resource. Any development in this area, such as the proposed township establishment, therefore needs to take these resources into consideration.



**Figure 1: Location of development (red block).
 The smaller red block in the image indicates the location of
 the proposed New Stats SA development
 (Image @Delta Built Environment Consultants).**

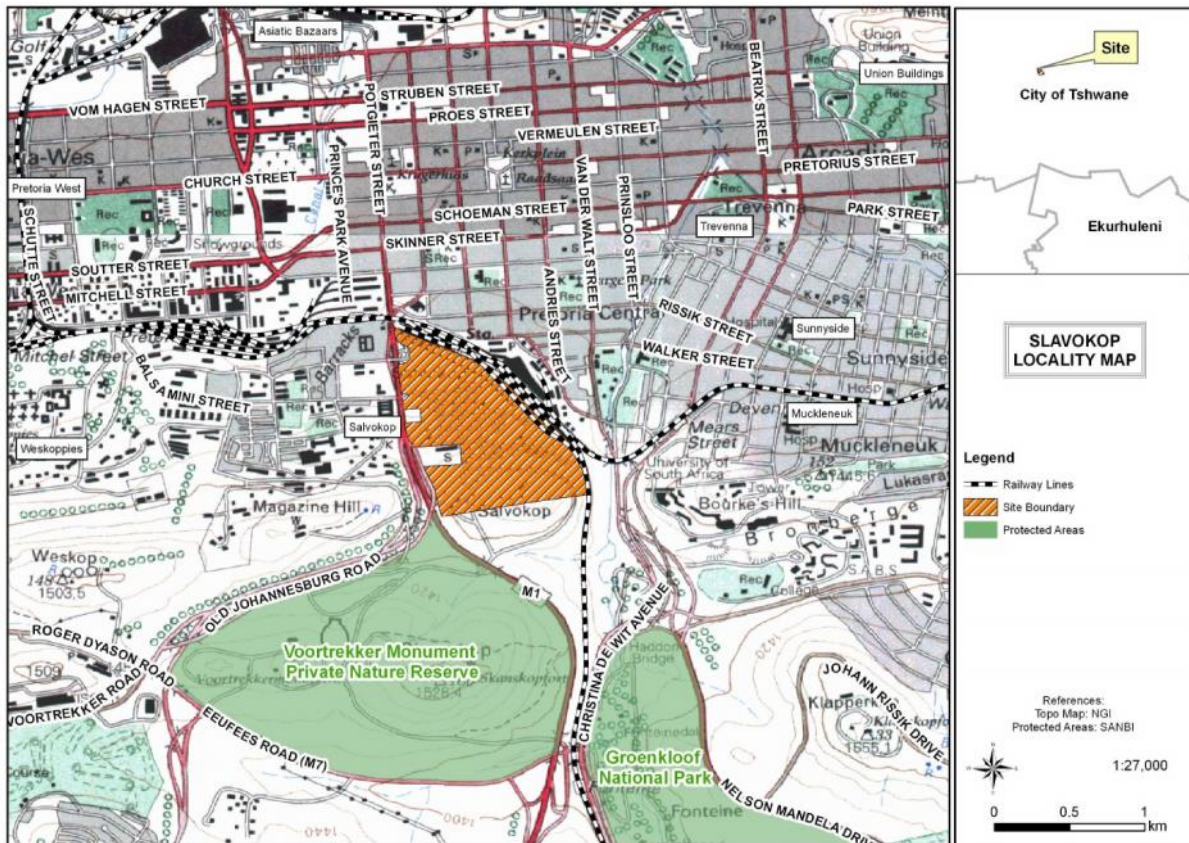


Figure 2: Topographic location of the study area (Map provided by Seedcracker Environmental Consulting).

6. DISCUSSION

Various recent heritage impact studies in the Salvokop area have been completed, including one for the proposed new Stats SA Head Office Building development, and the information obtained through these studies will be provided here in a summarized format. The conclusions from these studies, as well as the recommendations made here, are also applicable to a large degree this study.

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

- Earlier Stone Age (ESA) up to 2 million – more than 200 000 years ago
- Middle Stone Age (MSA) less than 300 000 – 20 000 years ago
- Later Stone Age (LSA) 40 000 years ago – 2000 years ago

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

There are no known Stone Age sites in the study area, while no sites or artifacts were identified during recent assessments. The entire area had been disturbed during past as well

as more recent development and earthmoving activities. The chances of locating archaeological sites on the surface are therefore fairly remote (Birkholtz et.al 2011: 32). The closest known Stone Age sites are the well-known Early Stone Age site at Wonderboompoort situated approximately 8 kilometers north-west of the subject property and a number of sites in the Magaliesberg area (Bergh 1999: 4).

If any Stone Age artifacts are to be found in the area, it would more likely be single, misplaced, stone tools of that period. Urbanization over the last 150 years would probably have destroyed any evidence if indeed it did exist in the area concerned.

The Iron Age is the name given to the period of human history when metal was mainly used to produce artifacts. In South Africa it can be divided in two separate phases (Bergh 1999: 96-98), namely:

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

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

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

No Early Iron Age sites are known to exist in the larger geographical area of Pretoria/Tshwane whilst Later Iron Age sites do occur (Bergh 1999: 7). The closest known LIA sites are at Silver Lakes and near Mamelodi on the farm Hatherley (Van Schalkwyk et.al 1996). These sites are related to the Manala Ndebele Tribe (Bergh 1999: 10) who resided in the area at the time when the first Europeans arrived during the mid 19th century. Once again no Iron Age sites, features or objects were identified in the study area.

The history of Salvokop, including the NZASM Heritage Village, is well known and researched and will not be repeated in detail in this document. A Heritage Sensitivity Study for the Stats SA Building Project conducted in 2011 gives a detailed study of the area's history and the significance of the Salvokop area and the NZASM Village.

The oldest map related to the study area dates to 1877. No development within the study area is shown on this map, with the closest development the main wagon road from Potchefstroom leading into Pretoria from the south-west and another road passing through Elandspoort and turning along the foot of Salvokop into Pretoria. The closest structures appear to be the Du Preez and Smithers farmsteads east-by-northeast of Salvokop. During that time-period the area formed part of the farm known as Elandspoort. The first owner of the farm was J.G.S. Bronkhorst who settled there in around 1842. After his death in 1848 the farm became the property of Andries van der Walt. Van der Walt and his son-in-law Johannes Petrus du Preez already lived in an area directly north-east of Salvokop and west of the Apies River. This area became known as Du Preezhoek (Birkholtz et.al. 2011: 9).

A second map indicating the study area was produced on the 14th of November 1879. Titled 'Sketchplan of Pretoria', the map was compiled during the British occupation of Pretoria

between 1877 and 1881. The study area and surroundings at the time comprised open farm land with no evidence for any other form of development. The only sign of development at the time was the two aforementioned roads. A telegraph line is also shown to the west of the study area (Birkholtz et.al. 2011: 11).

NZASM Village

The NZASM (Nederlandsche Zuid-Afrikaansche Spoorweg Maatschappij) was formed on the 21st of June 1887, but the planning and execution of Pretoria station as well as the structural and infrastructural development associated with it only commenced in 1891. A map probably dating to the mid 1890's shows the study area during the NZASM years. It shows the junction of the Eastern Line and Southern Line to the east of the study area, and depicts a large rectangular area (of which the study area forms part) as the 'Spoorweg Emplacement'. Another map depicting the study area during this period is a plan of the Pretoria station and surrounding vicinity as it appeared in 1901, and includes a section of the Salvokop area. The plan was drawn by the Imperial Railway Company (IMR). From this it is clear that a school, staff housing, skittle alley (and shooting gallery) as well as a recreation ground was located in the study area. Twenty-one individual staff houses can be seen on this map, as well as one unidentified building on its own to the west (Birkholtz et.al. 2011: 12).

Old photographs dating to the 1890's obtained for the same study shows the presence of historic structures in the study area, some of which still exists today and forms part of the NZASM Village and other historical developments. On a photo dating roughly to 1890 the NZASM staff quarters, the beginnings of a recreation ground and an unidentified building located to the east of the other buildings (both not in existence any more) are shown. A photograph taken around 1899 clearly shows additional developments that had taken place in the interim years. By this time the recreation ground had been established with a fence around it. The NZASM dwellings located in the north-western corner of the study area are also shown for the first time. Of interest as well is the open undeveloped land located between the various elements and clusters of elements, and especially so between the staff quarters located in the north-western corner of the study area and the other elements of the study area. Extensive undeveloped land is also shown to the south of NZASM staff quarters. These areas form part of the southern boundary of the present study area, and were later partially developed with the construction of houses (Birkholtz et.al 2011: 15).

With the end of the Anglo-Boer War in May 1902, the former railway network of the defeated ZAR, as well as that of the Orange Free State, was taken over by the Central South African Railways (CSAR) until 31 May 1910 with the establishment of the South African Railways and Harbours (SAR&H). A 1911 map shows that most of the buildings associated with the previous phase (1891 – 1902) still existed at the time. The so-called Skittle Alley and Shooting Gallery building and the recreation ground is not shown anymore and partially in its place a roundhouse (and/or turntable) for housing and turning locomotives around is shown. A total of 14 new buildings are shown on this map but it is known that the CSAR constructed a large number of staff quarters between 1902 and 1906 in the area (Birkholtz et.al. 2011: 18).

In 1981 the South African Transport Services (SATS) was established. A number of aerial photographs, dating between 1937 and this period show structures in the study area. The 1937 aerial photograph shows that most of the buildings associated with the 1891 – 1902 phase and

which were still depicted on the 1911 map, were still in existence at the time. Of the 14 buildings associated with the phase dating to between 1902 and 1910, 13 are shown on the image. Five new buildings are shown. Most significant of these are a cluster of buildings on the eastern end of the study area, one of which is very extensive and has the appearance of a workshop (Birkholtz et.al 2011: 20).

The second aerial photograph dates to 1948. It shows that of the 22 buildings associated with the phase dating between 1891 and 1902 which were still depicted on the 1937 map, only 21 still existed in 1948. Of the 13 buildings associated with the phase dating to between 1902 and 1910 and which appeared on the 1937 aerial photograph, 10 are shown on the image. All five the buildings depicted on the 1937 aerial photograph are again shown on the 1948 aerial photograph. Nine new buildings are depicted on the aerial photograph. Most significant of these are seven dwellings on the southern boundary of the study (Birkholtz et.al. 2011: 22).

The maps and photographs used in the 2011 sensitivity study clearly show that there are a large number of recent historical (late 19th to 20th century) cultural heritage resources in the study area. This includes the proclaimed National Heritage site of the NZASM Village or Court which currently houses Stats SA, as well as a number of other historical structures that form part of the historic fabric of Salvokop. The Birkholtz study identified 17 dwellings older than 60 years of age; 2 brick-constructed buildings associated with a hostel (age unknown), 1 recent office building (unused and redundant) and 11 structures associated with the NZASM Village (Birkholtz et.al. 2011: 24-31). The significance of the Village and other historical structures on Salvokop is clearly high and the impact of any proposed development on these needs to be mitigated.

One aim of this basic study was to determine the exact boundaries of the proclaimed NZASM heritage court. Although the electronic database (SAHRIS) of SAHRA, the Chief Surveyor General database and other sources were consulted no specific reference to its proclamation as National Heritage Site could be recovered as yet, while the specific portion of land proclaimed could also not be determined. However, the physical boundaries of the NZASM Village/Court on the ground are clearly defined and could possibly be used as indication. A record for the declaration of the Old NZASM Goods Office declaration as a National Monument (in Railway Street) was found on SAHRIS. The declaration was gazetted on 02/10/1981. According to a report by Stats SA extensive restoration work on some of the NZASM Court structures were done in 1981, while the Monument erected here also dates to this time. It is therefore quite possible that the site was also declared in 1981.

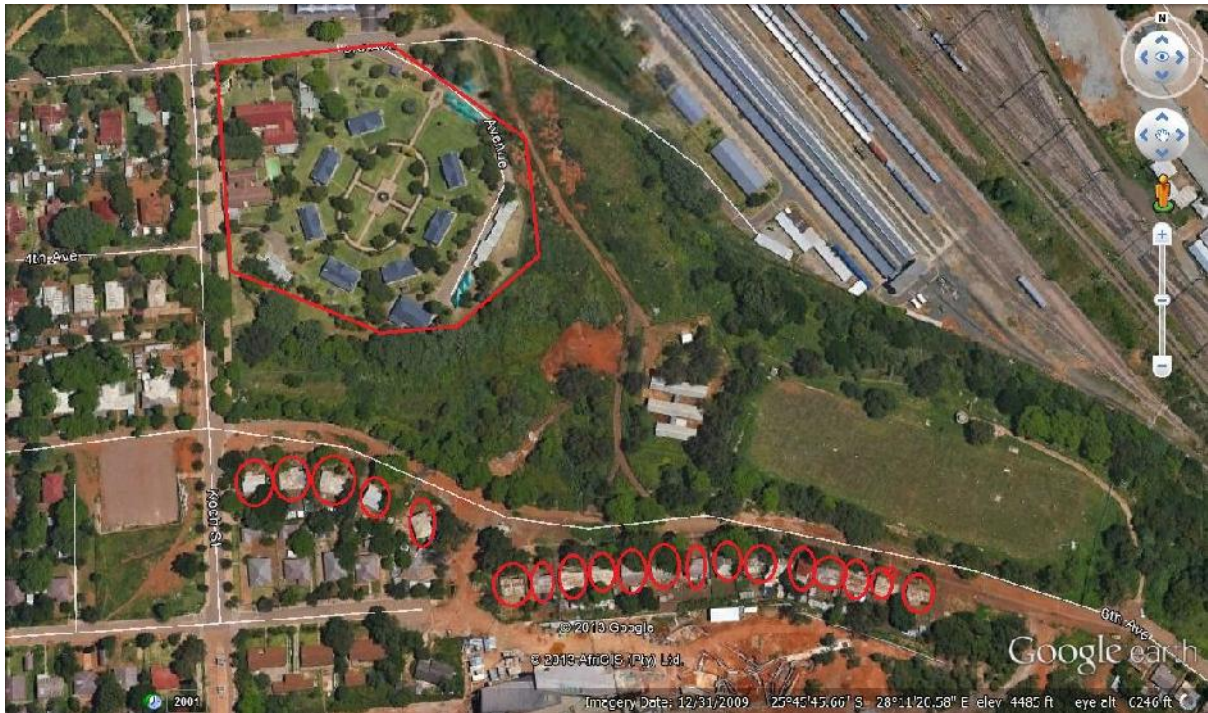


Figure 3: Aerial view of area showing NZASM Village Court. The approximate boundary of the heritage site is shown. The row of circles below that show other historical houses (1948?) recorded during earlier studies. There are more historical structures in the larger Salvokop study area (Google Earth 2013 – Image date 2009/12/31).

7. CONCLUSIONS AND RECOMMENDATIONS

The study area has been extensively disturbed through various residential, industrial and other developments over the last 140 years or so. These developments include the railway line and station and other infrastructure related to the NZASM railway company and the various companies replacing it over the years, including the CSAR, Imperial Railway Company, SAR&H and South African Transport Services. Prior to the founding of NZASM the first European farmers in the area impacted on the area through agricultural and related activities. If any sites, features or objects dating to prehistoric (Stone Age or Iron) times existed here in the past it would have been extensively disturbed or destroyed to a large degree.

Based on various historical records (archival, photographic) it is clear that a large amount of development had taken place in the study area since 1887. Even though most of these would have been destroyed or replaced over the years, remnants could possibly still be uncovered during development activities. This could include foundations of historic structures, cultural material (from refuse dumps) and other remains that are hidden underground. Some of the historical structures from the late 19th and early 20th century is still present, and includes the proclaimed National Heritage site of the NZASM Village and these needs to be considered during any planned developments in the area.

The following is recommended (based on the recent Heritage Conservation Management Plan drafted for the Stats SA development):

1. The NZASM Court/Village has high cultural heritage significance. The site includes several buildings that were erected concurrently rendering the village with a certain architectural coherence and displaying a unique shape and form. To mitigate the impact of any new development, building or structure along these boundaries, a buffer zone or spatial edge must be created to serve as visual and spatial safety zone to lessen the negative visual, spatial, form and scale impact any new development may have on the site. The heritage must inform the design and not the other way round.
2. A linkage in function, scale and architectural vocabulary must be determined between the NZASM Court and the dwellings on the southern side of the site. All new work that forms part of this link must relate to the historic residential character and scale of the Salvokop village across the street. Any new proposed developments are an intrusion in the existing and former residential area of Salvokop. This implies that the land-use, site function and scale of any buildings to be erected on the site will have a deliberate and severe visual impact on the historic character of the Salvokop area and cultural significance of the Salvokop village. To mitigate the visual impact of these developments on the visual character, urban character and grain of the historic Salvokop landscape, it is proposed that a link is created between the circular NZASM Court and the remaining 1948 dwellings from within the study area using the strip of land along the street leading towards the main entrance to Freedom Park's main entrance. This link must serve as a functional link but should be executed in architectural character relating to the existing and historic streetscape of this street. To be sympathetic to the historical settlement and architecture west of the proposed development site, buildings and structures must relate to the scale, massing and architectural vocabulary typical of the historical and existing streetscape. This functional, visual and streetscape link must be at least 40m deep into the site allowing any buildings to be erected to relate in scale to the architectural character of the streetscape along the western side of the street.
3. No heritage resources, sites or areas where heritage resources are clustered may be deliberately decontextualized, cut-off or alienated from the principal land uses, infrastructural design, architectural and landscape design identified and approved for the site and tenant.
4. All buildings older than 60 years must be recorded prior to execution of any site development or site preparation work. Recording implies (a) site map with locations of all resources, (b) photographic recording with descriptions in standard architectural vocabulary (c) measured drawings (floor plans, elevations and details) and (d) report in which these are compiled.
5. The southern portion of the site is dominated by the curved street with small red brick dwellings erected along the street. This feature is considered an extension of the Salvokop urban pattern. Not only is it historically part of the Salvokop residential area, it is a unique feature as it deviates from the standard grid layout as the layout is linear and followed the natural flow of the contour of the ridge. This portion inside the proposed development area therefore makes a particular contribution to the later development of Salvokop as urban precinct and represents a more recent layer of the urban landscape as reflected in a different design paradigm and softer engineering solution to the layout of the residential area. In this

portion of Salvokop the residential development has been designed to conform to the landscape and natural characteristics of the ridge. The curved road is historically a more significant remnant of the infrastructure and a more important road arterial linking the older and later portions of Salvokop with each other than the upper street between the Freedom Park Museum site and the highest series of dwellings from within the present study area.

6. Drafting of rehabilitation guidelines for all heritage resources: every cluster or precinct and each building.

7. The drafting of a Conservation Management Plan for each heritage area and each building.

8. The presence of the Freedom Park National Heritage Site directly adjacent but located slightly higher than the study area, may impact on any new proposed development. The Freedom Park site consists of two development clusters (focus areas): (a) at the top of the ridge and (b) the development of the museum below the summit of Salvokop and directly adjacent to (and south of) the proposed STATS SA Head Office. The campus of the Freedom Park Museum will be overlooking the site of this proposed development. The Museum building will function as a closed container and the views towards the city from inside the building are not significant as the building is not designed in such a way that the cityscape need to be visible from the various stories of the structure. However, views, vistas and view-lines towards the city from the outside or landscaped area (pedestrian level) of the Freedom Park Museum are significant aspects that need to be taken cognizance of. These view-lines must not be obscured by any new building (or buildings) for any proposed new development in the study area. One way of protecting the views towards the cityscape is to retain the row of dwellings currently located along the southern boundary of the proposed development site. Another significant element on the proposed development site that may relate to the articulation and the creation of the edge between the proposed development site and the Freedom Park Museum is the existence of a pedestrian corridor (north-south element) that links the upper street (where the Museum is located) and lower street (southern side of the proposed development site) as a green grassy and shady pedestrian zone. This is an existing urban and landscape element that must be retained and can be extensively exploited to create a visual axis or vista from the Freedom Park Museum site towards the city if it is kept open and even enhanced and celebrated if the mass, scale and vertical elements of the new building are done in sympathy with these phenomena.

9. Urban scale buildings and structures should be located along the railway and station while residential and pedestrian scale buildings and structures should be located in the buffer zones around the heritage precincts and the periphery (streets cum vehicle and pedestrian arterials) of the Salvokop residential area.

10. Finally it is recommended that a more detailed Phase 1 Impact Assessment of the Salvokop study area be undertaken during which all historical structures should be identified and recorded photographically and via GPS coordinates in order to determine the location, number and significance of these resources. This will include the NZASM Village and known related structures, and will inform the proposed township establishment in terms of the scale of heritage resources present as well as the area available for development. It is recommended that any structures and areas of cultural significance present should be avoided and be left intact. Any indirect or direct impacts should then be mitigated.

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Aerial Map of study area location: Courtesy Delta Built Environment Consultants.

Topographic Map Location: Courtesy Seedcracker Environmental Consulting.

Aerial view of location of NZASM Village: Google Earth 2013 – Image date 2009/12/31.

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