

Heritage Impact Assessment Report

HERITAGE IMPACT ASSESSMENT FOR THE
PROPOSED VAN DYK PARK MIXED HOUSING
PROJECT DEVELOPMENT

PREPARED BY:
G&A HERITAGE



PREPARED FOR:



AND



CREDIT SHEET

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Disclaimer; Although all possible care is taken to identify all sites of cultural importance during the investigation of study areas, it is always possible that hidden or sub-surface sites could be overlooked during the study. G&A Heritage and its personnel will not be held liable for such oversights or for costs incurred as a result of such oversights.

SIGNED OFF BY: STEPHAN GAIGHER



MANAGEMENT SUMMARY

Site name and location: *Van Dyk Park Mixed Housing Project* Development on a Portion of the Farm Witpoortje 117 IR, Gauteng Province.

Municipal Area: Ekurhuleni Metropolitan Municipality.

Developer: Ekurhuleni Metropolitan Municipality

Consultant: G&A Heritage, PO Box 522, Louis Trichardt, 0920, South Africa. 38A Vorster Street, Louis Trichardt, 0920

Date of Report: 04 June 2015

The Ekurhuleni Metropolitan Municipality is proposing the development of a new mixed housing township on a Portion of the Farm Witpoortje 117IR, Gauteng Province.

Findings;

The main part of the proposed development is centred on an old mining village. Although very little information could be gathered regarding the origins of this village it was possible through the study of archival maps to determine that some areas at least was older than 60 years in age. The public participation process should gauge the feeling of the affected society groups as to the development of the area.

Recommendations;

Due to the importance of mining in the evolution of the East Rand urban landscape these structures have significant historic value. Many of these "mining villages" was also designed by Sir Herbert Baker making them even more significant. For these reasons it is important that the site undergoes a second phase of investigation to determine its architectural and historic significance before any structures are demolished.

Fatal Flaws;

No fatal flaws were identified.

TABLE OF CONTENTS

Introduction	8
Project Location	11
Methodology	12
Evaluating Heritage Impacts	13
Assessing Visual Impact.....	13
Previous Studies in the Area	13
Regional Cultural Context	15
Palaeontology	15
Stone Age.....	15
Iron Age.....	16
The Historic Era	17
The Cultural Landscape	19
Historic Maps and Built Environment.....	19
Built Environment	26
Building type A	27
Building Type B.....	29
Building Type C.....	32
Palaeontology	32
Archaeology.....	33
Assessment of Heritage Potential.....	35
Assessment Matrix	35
Determining Heritage Sensitivity	35
Significance Evaluation	37
Historic Significance.....	37
Architectural Significance	37
Spatial Significance.....	38

Impact Evaluation 38

Determination of Significance of Impacts 38

Impact Rating System 38

Rating System Used To Classify Impacts 39

Anticipated Impact of the Development..... 42

Type A, B & C Buildings 42

Resource Management Recommendations..... 42

References Cited & Researched 44

TABLE OF FIGURES

Figure 1. Location Map.....	10
Figure 1. Location Map.....	11
Figure 2. Aerial view of the study area.....	12
Figure 3. (1) handaxe on flake; (2) thick discoidal core; (3) polyhedral core (Pollarolo, Kuman, Bruxelles, 2010)	15
Figure 4. (1,2) Handaxes with large side removal; (3-6) handaxes (Pollarolo, Susino, Kuman, Bruxelles, 2010)	16
Figure 6. 1939 Map of study area.....	20
Figure 7. 1957 Map of study area.....	20
Figure 8. 1976 Map of study area.....	21
Figure 9. 1983 Map of study area.....	21
Figure 10. 1995 Map of study area.....	22
Figure 11. Study Area in 2002.....	22
Figure 12. Study Area in 2010.....	23
Figure 13. Study Area in 1944.....	23
Figure 14. Study Area in 1976.....	24
Figure 15. Study Area in 1995.....	24
Figure 16. Study Area in 2002.....	25
Figure 17. Study Area in 2010.....	25
Figure 18. Brakpan Old Location Site.....	26
Figure 19. Building Style A.....	27
Figure 20. Building Style A.....	27
Figure 21. Type A Buildings in Northern Section.....	28
Figure 22. Type B Buildings.....	30
Figure 23. Type B Building showing bay window.....	30
Figure 24. Building Type B.....	31
Figure 25. Type B Designs.....	31

2015/06/04

Figure 26. Type C Building.....32

Figure 27. Type C Buildings.....32



PROJECT RESOURCES

HERITAGE IMPACT REPORT

FIRST PHASE HERITAGE IMPACT ASSESSMENT REPORT FOR THE PROPOSED VAN DYK PARK MIXED HOUSING PROJECT DEVELOPMENT.

INTRODUCTION

Legislation and methodology

G&A Heritage was appointed by Metroprojects to undertake a first phase heritage impact assessment for the proposed *Van Dyk Park Mixed Housing Project* on a Portion of the Farm Witpoortje 117 IR. Section 38(1) of the South African Heritage Resources Act (25 of 1999) requires that a heritage study be undertaken for:

- (a) Construction of a road, wall, power line, pipeline, canal or other similar form of linear development or barrier exceeding 300 m in length;
- (b) Construction of a bridge or similar structure exceeding 50 m in length; and
- (c) Any development, or other activity which will change the character of an area of land, or water –
 - (1) Exceeding 10 000 m² in extent;
 - (2) Involving three or more existing erven or subdivisions thereof; or
 - (3) Involving three or more erven, or subdivisions thereof, which have been consolidated within the past five years; or
- (d) The costs of which will exceed a sum set in terms of regulations; or
- (e) Any other category of development provided for in regulations.

While the above describes the parameters of developments that fall under this Act, Section 38 (8) of the NHRA is applicable to this development. This section states that;

- (8) The provisions of this section do not apply to a development as described in subsection (1) if an evaluation of the impact of such development on heritage resources is required in terms of the Environment Conservation Act, 1989 (Act 73 of 1989), or the integrated environmental management guidelines issued by the Department of Environment Affairs and Tourism, or the Minerals Act, 1991 (Act 50 of 1991), or any other legislation: Provided that the consenting authority must ensure that the evaluation fulfils the requirements of the relevant heritage resources authority in terms of subsection (3), and any comments and recommendations of the relevant heritage resources authority with regard to such development have been taken into account prior to the granting of the consent.

In regards to a development such as this that falls under Section 38 (8) of the NHRA, the requirements of Section 38 (3) applies to the subsequent reporting, stating that;

- (3) The responsible heritage resources authority must specify the information to be provided in a report required in terms of subsection (2) (a): Provided that the following must be included:
 - (a) The identification and mapping of all heritage resources in the area affected;
 - (b) An assessment of the significance of such resources in terms of the heritage assessment criteria set out in section 6 (2) or prescribed under section 7;
 - (c) An assessment of the impact of the development on such heritage resources;

- (d) An evaluation of the impact of the development on heritage resources relative to the sustainable social and economic benefits to be derived from the development;
- (e) The results of consultation with communities affected by the proposed development and other interested parties regarding the impact of the development on heritage resources;
- (f) If heritage resources will be adversely affected by the proposed development, the consideration of alternatives; and
- (g) Plans for mitigation of any adverse effects during and after the completion of the proposed development.

A heritage impact assessment is not limited to archaeological artefacts, historical buildings and graves. It is far more encompassing and includes intangible and invisible resources such as places, oral traditions and rituals. A heritage resource is defined as any place or object of cultural significance i.e. of aesthetic, architectural, historical, scientific, social, spiritual, linguistic or technological value or significance. This includes the following:

- (a) Places, buildings, structures and equipment;
- (b) Places to which oral traditions are attached or which are associated with living heritage;
- (c) Historical settlements and townscapes;
- (d) Landscapes and natural features;
- (e) Geological sites of scientific or cultural importance;
- (f) Archaeological and paleontological sites;
- (g) Graves and burial grounds, including –
 - (1) Ancestral graves,
 - (2) Royal graves and graves of traditional leaders,
 - (3) Graves of victims of conflict (iv) graves of important individuals,
 - (4) Historical graves and cemeteries older than 60 years, and
 - (5) Other human remains, which are not covered under the Human Tissues Act, 1983 (Act No.65 of 1983 as amended);
- (h) Movable objects, including;
 - (1) Objects recovered from the soil or waters of South Africa including archaeological and paleontological objects and material, meteorites and rare geological specimens;
 - (2) Ethnographic art and objects;
 - (3) Military objects;
 - (4) Objects of decorative art;
 - (5) Objects of fine art;
 - (6) Objects of scientific or technological interest;
 - (7) Books, records, documents, photographic positives and negatives, graphic, film or video material or sound recordings; and
 - (8) Any other prescribed categories, but excluding any object made by a living person;
- (i) Battlefields;
- (j) Traditional building techniques.

A 'place' is defined as:

- (a) A site, area or region;
- (b) A building or other structure (which may include equipment, furniture, fittings and articles associated with or connected with such building or other structure);
- (c) A group of buildings or other structures (which may include equipment, furniture, fittings and articles associated with or connected with such group of buildings or other structures); and
- (d) An open space, including a public square, street or park; and in relation to the management of a place, includes the immediate surroundings of a place.

'Structures' means any building, works, device, or other facility made by people and which is fixed to land and any fixtures, fittings and equipment associated therewith older than 60 years.

'Archaeological' means:

- (a) Material remains resulting from human activity, which is in a state of disuse and is in or on land and is older than 100 years, including artefacts, human and hominid remains and artificial features and structures;
- (b) Rock art, being a 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 is older than 100 years including any area within 10 m of such representation; and
- (c) Wrecks, being any vessel or aircraft, or any part thereof, which was wrecked in South Africa, whether on land or in the maritime cultural zone referred to in section 5 of the Maritime Zones Act 1994 (Act 15 of 1994), and any cargo, debris or artefacts found or associated therewith, which are older than 60 years or which in terms of national legislation are considered to be worthy of conservation;
- (d) Features, structures and artefacts associated with military history, which are older than 75 years and the sites on which they are found.

'Paleontological' means any fossilised remains or fossil trace of animals or plants which lived in the geological past, other than fossil fuels or fossiliferous rock intended for industrial use, and any site which contains such fossilised remains or trace.

'Grave' means a place of interment and includes the contents, headstone or other marker of and any other structures on or associated with such place. The South African Heritage Resources Agency (SAHRA) will only issue a permit for the alteration of a grave if it is satisfied that every reasonable effort has been made to contact and obtain permission from the families concerned.

The removal of graves is subject to the following procedures as outlined by the SAHRA:

- Notification of the impending removals (using English, Afrikaans and local language media and notices at the grave site);
- Consultation with individuals or communities related or known to the deceased;
- Satisfactory arrangements for the curation of human remains and / or headstones in a museum, where applicable;
- Procurement of a permit from the SAHRA;
- Appropriate arrangements for the exhumation (preferably by a suitably trained archaeologist) and re-interment (sometimes by a registered undertaker, in a formally proclaimed cemetery);
- Observation of rituals or ceremonies required by the families.

The limitations and assumptions associated with this study are as follows;

- Sites were evaluated by means of description of the cultural landscape and analysis of written sources and available databases.
- It was assumed that layout as provided by *Galago Environmental* and *Metroprojects* was correct.
- We assumed that the public participation process performed as part of the Environmental Impact Assessment process would be sufficiently encompassing not to be repeated in the Heritage Impact Assessment.

Table 1. Impacts on the NHRA Sections

Act	Section	Description	Possible Impact	Action
National Heritage Resources Act (NHRA)	34	Preservation of buildings older than 60 years	Yes	Second phase investigation
	35	Archaeological, paleontological and meteor sites	No impact	None
	36	Graves and burial sites	No	None
	37	Protection of public monuments	No impact	None
	38	Does activity trigger a HIA?	Yes	HIA

Table 2. NHRA Triggers

Action Trigger	Yes/No	Description
Construction of a road, wall, power line, pipeline, canal or other linear form of development or barrier exceeding 300m in length.	No	N/A
Construction of a bridge or similar structure exceeding 50m in length.	No	N/A
Development exceeding 5000 m ²	Yes	Van Dyk Park Mixed Housing Project
Development involving more than 3 erven or sub divisions	No	N/A
Development involving more than 3 erven or sub divisions that have been consolidated in the past 5 years	No	N/A
Re-zoning of site exceeding 10 000 m ²	Yes	Possible rezoning
Any other development category, public open space, squares, parks or recreational grounds	No	N/A

PROJECT LOCATION

The proposed Van Dyk Park Mixed Housing Project Development is on a Portion of the Farm Witpoortje 117IR, Gauteng Province

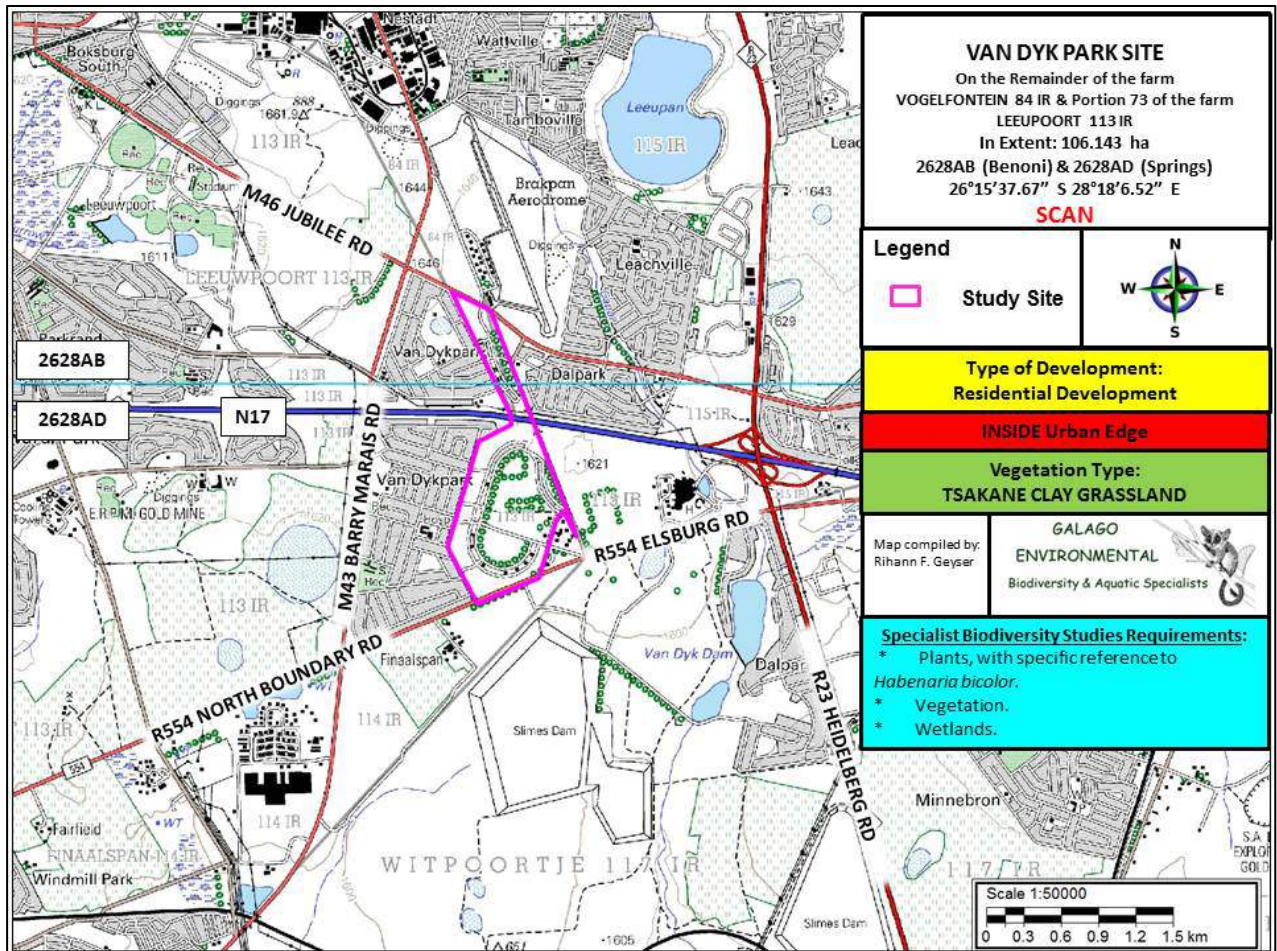


Figure 1. Location Map

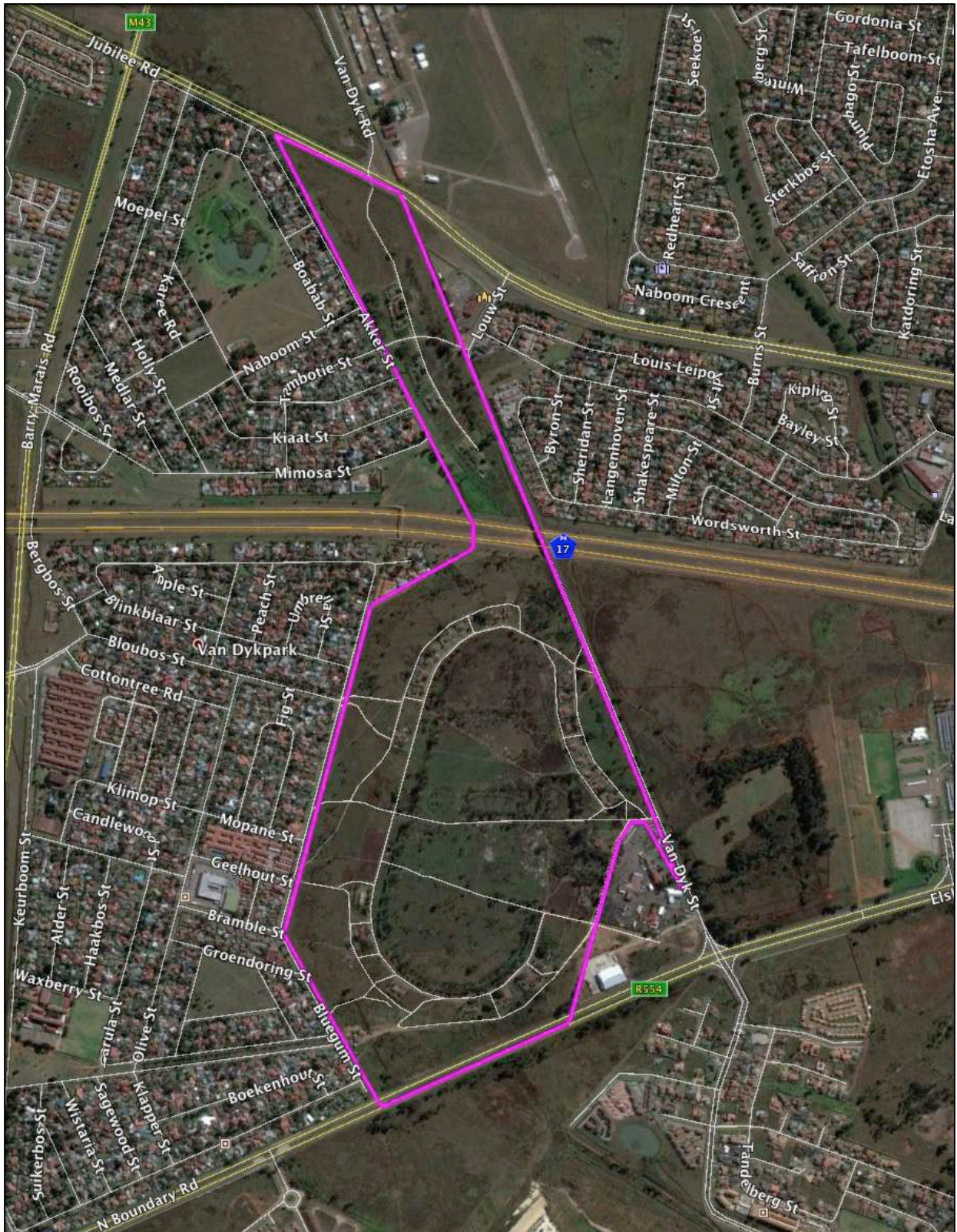


Figure 2. Aerial view of the study area

METHODOLOGY

This study defines the heritage component of the Environmental Impact Assessment process. It is described as a first phase Heritage Impact Assessment (HIA). This report attempts to evaluate both the accumulated heritage knowledge of the area as well as information derived from direct physical observations.

EVALUATING HERITAGE IMPACTS

A combination of document research as well as the determination of the geographic suitability of areas and the evaluation of aerial photographs determined which areas could and should be accessed.

After plotting of the site on GPS the areas were accessed using suitable combinations of vehicle access and access by foot.

Sites were documented by digital photography and geo-located with GPS readings using the WGS 84 datum.

Further techniques included interviews with local inhabitants, visiting local museums and information centres and discussions with local experts. All this information was combined with information from an extensive literature study as well as the result of archival studies based on SAHRA provincial databases.

ASSESSING VISUAL IMPACT

Visual impacts of developments result when sites that are culturally celebrated are visually affected by a development. The exact parameters for the determination of visual impacts have not yet been rigidly defined and are still mostly open to interpretation. CNdV and DEAP (2006) have developed some guidelines for the management of the visual impacts of wind turbines in the Western Cape, although these have not yet been formalized. In these guidelines they recommend a buffer zone of 1km around significant heritage sites to minimize the visual impact.

PREVIOUS STUDIES IN THE AREA

Previous Studies in the Boksburg Area:

- Pelsler, A. 2011. A Phase I Archaeological Impact Assessment for the rehabilitation of the Boksburg Lake Downstream Wetland in Boksburg, Gauteng Province.
- Van der Walt, J., Birkholtz, P. 2012, Phase 1 Heritage Impact Assessment for the Proposed Development of the ERPM Line Village, Boksburg, Gauteng.
- Birkholtz, P., Salomon, A. 2011. Phase 1 Heritage Impact Assessment: Proposed Development of Farrar Park, Ext. 1 Boksburg, Ekurhuleni Metropolitan Municipality, Gauteng Province.
- Birkholtz, P., Salomon, A. 2011. Phase 1 Heritage Impact Assessment: Proposed Development of Reiger Park Ext. 16 Boksburg, Ekurhuleni Metropolitan Municipality, Gauteng Province.
- Birkholtz, P., Salomon, A. 2011. Phase 1 Heritage Impact Assessment: Proposed Development of Reiger Park Ext. 18 Boksburg, Ekurhuleni Metropolitan Municipality, Gauteng Province.
- Van Schalkwyk, J., Terblanche, M. 2013. Cultural Heritage Impact Assessment for the Proposed Development on Portions 397 and 399 of the Farm Driefontein 85IR, Boksburg, Gauteng Province.
- Birkholtz, P., Salomon, A. 2011. Phase 1 Heritage Impact Assessment: Proposed Development of Farrar Park Ext. 2, Boksburg, Ekurhuleni Metropolitan Municipality, Gauteng Province.
- Birkholtz, P. 2014. Heritage Impact Assessment for Proposed Township Development: Vosloorus Ext 24, Vosloorus Ext 41 and Vosloorus Ext 43, Boksburg Local Municipality, Ekurhuleni Metropolitan Municipality, Gauteng Province.
- Schoeman, MHA., Van Doornum, B. 2001. Archaeological Assessment of the Abrahamson Cemetery, Boksburg.
- Birkholtz, P. 2011. Phase 1 Heritage Impact Assessment: Proposed Comet Ext 14 Development Located on Portion 43 of the Farm Driefontein 85-IR, Boksburg, Ekurhuleni Metropolitan Municipality, Gauteng Province.
- Pelsler, A. 2011. A Phase 1 Archaeological Impact Assessment for the Rehabilitation of the Libradene Wetland in Boksburg, Gauteng Province.
- Huffman, T. 2005. Archaeological Assessment of the Thubelisha Project, Boksburg.
- Birkholtz, P., Salomon, A. 2011. Phase 1 Heritage Impact Assessment: Proposed Leeuwpoort North Development located on the remainder of portion 51 and 52 as well as part of portion 22 of the Farm Leeuwpoort 113 IR, Boksburg, Ekurhuleni Metropolitan Municipality, Gauteng Province.
- Magoma, M., Salomon, A. 2013. Archaeological Investigation Study for the proposed Solar Power farm on Portion 12 & 13 of Farm Villa Liza 675 IR Mapleton, Ekurhuleni Metropolitan Municipality, Gauteng Province.

2015/06/04

- Van Schalkwyk, J. 2007. Heritage Survey report for the proposed development on portions 43 and 52 of the farm Vlakplaats in the Boksburg Magisterial District, Gauteng.
- Prins, F., Zuma, M. 2010. Cultural Heritage Impact Assessment of the Boksburg Mining Belt Development. (Comet Extension 8 HIA).

HERITAGE INDICATORS WITHIN THE RECEIVING ENVIRONMENTS

REGIONAL CULTURAL CONTEXT

PALAEONTOLOGY

The palaeontology of Western Gauteng is well researched in areas. The discovery of the Sterkfontein skeletons put this area in the forefront of palaeontology worldwide. The rule of “absence of evidence is not evidence of absence” should be applied to this area. Taken the rich palaeontology of Western Gauteng it is conceivable that similar finds could be made in this area.

STONE AGE

No substantial number of Stone Age sites from any period of the Stone Age is known to exist in this area – primarily as a result of a lack of research and general ignorance amongst the layman in recognizing stone tools that often may occur. However, it is possible that the first humans in the Benoni area may have been preceded by *Homo erectus*, who roamed large parts of the world during the Acheulean period of the Early Stone Age, 500 000 years ago. The predecessors of *Homo erectus*, *Australopithecus*, which is considered to be the earliest ancestor of modern humans, lived in the Blaauwbank Valley around Krugersdorp (today part of the Cradle of Humankind – a World Heritage Site) several million years ago.

During the Middle Stone Age, 200 000 years ago, modern man or *Homo sapiens* emerged, manufacturing a wider range of tools, with technologies more advanced than those from earlier periods. This enabled skilled hunter-gatherer bands to adapt to different environments. From this time onwards, rock shelters and caves were used for occupation and reoccupation over very long periods of time (Mitchell 2002). Two Middle Stone Age sites at the Withoek Spruit (Brakpan) were researched 17 years ago, but no information on this discovery has been published.

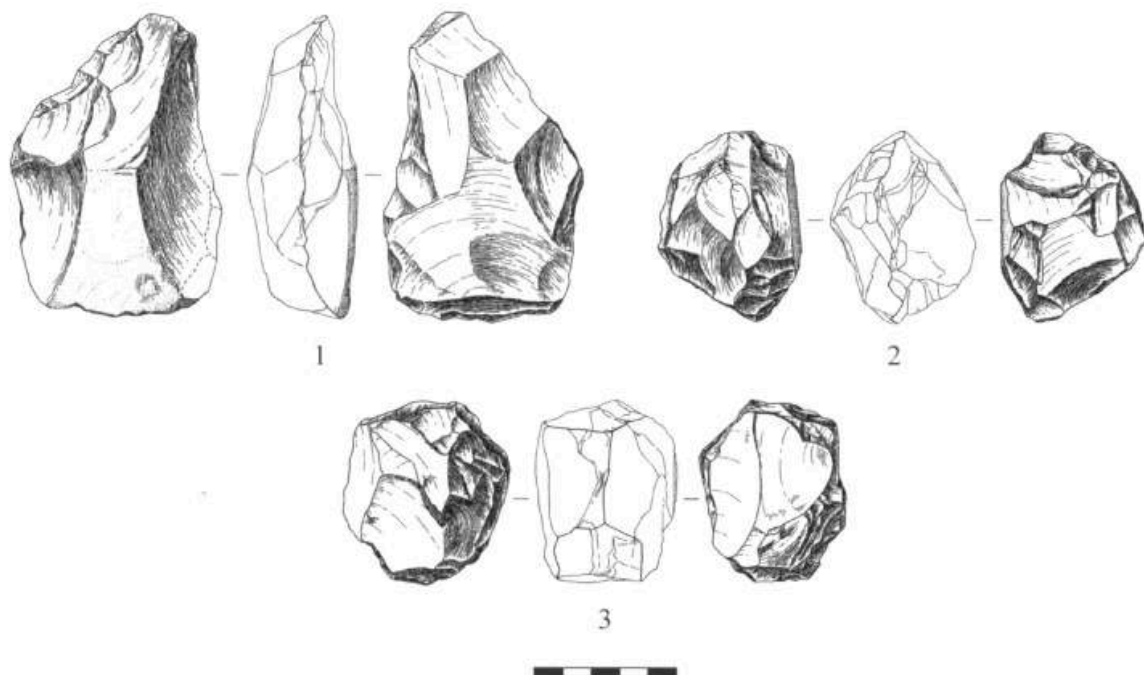


Figure 3. (1) handaxe on flake; (2) thick discoidal core; (3) polyhedral core (Pollarolo, Kuman, Bruxelles, 2010)

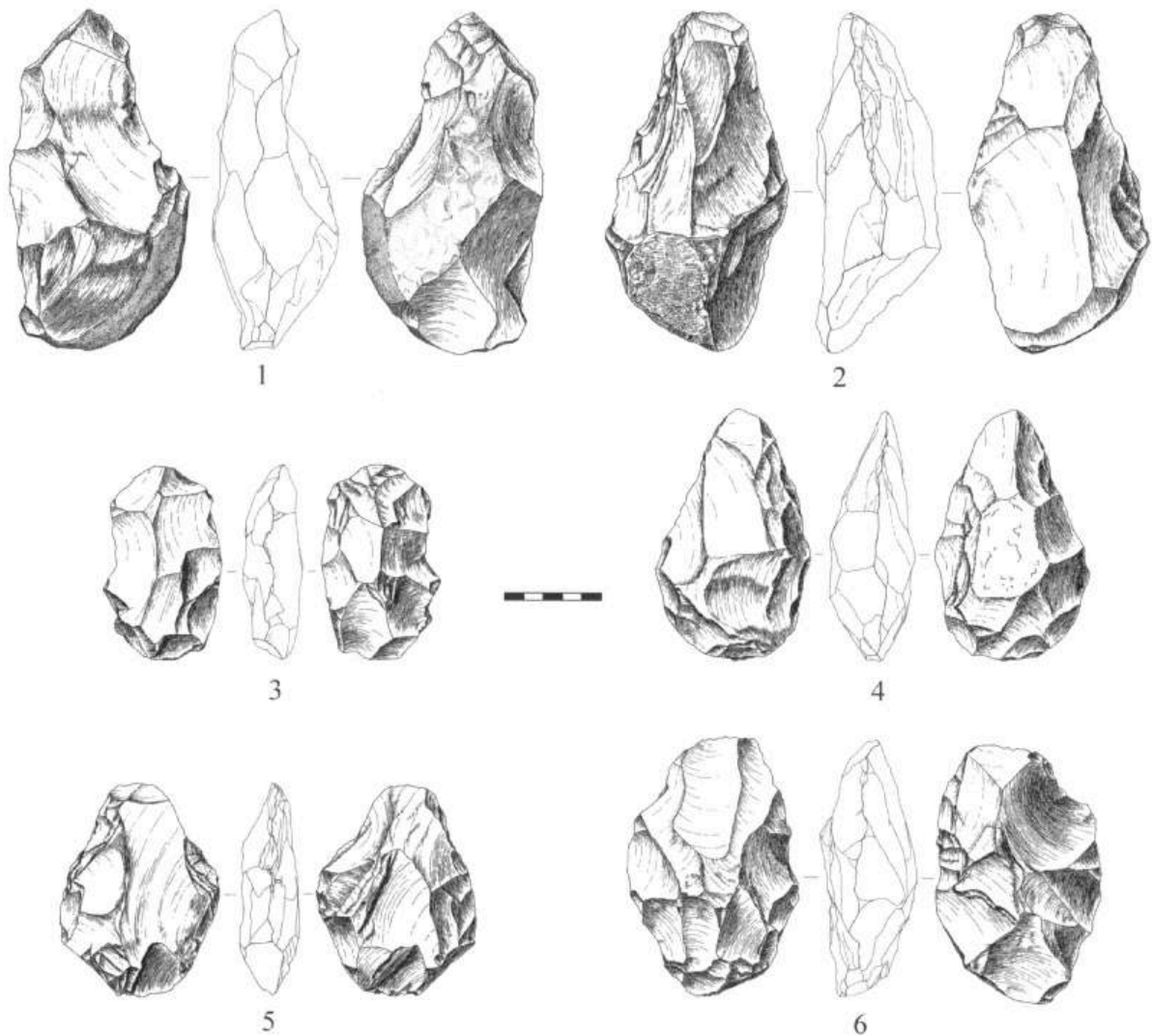


Figure 4. (1,2) Handaxes with large side removal; (3-6) handaxes (Pollarolo, Susino, Kuman, Bruxelles, 2010)

The Late Stone Age, considered to have started some 20 000 years ago, is associated with the predecessors of the San and Khoi Khoi. San hunter-gatherer bands with their small (microlithic) stone tools may have lived in Eastern Gauteng, as a magnificent engraving site near Duncanville attests to their presence in Vereeniging, south of, but close to Ekurhuleni. Stone Age hunter-gatherers lived well into the 19th century in some places in SA, but may not have been present in Brakpan when the first European colonists crossed the Vaal River during the early part of the 19th century. Stone Age sites may occur all over the area where an unknown number may have been obliterated by mining activities, urbanization, industrialization, agriculture and other development activities during the past decades (Morris 2004).

Reverent Patterson discovered some Stone Age deposits in Benoni during 1933, close to the train station. These were probably from the Middle to Late Stone Age.

IRON AGE


A considerable number of Late Iron Age, stone walled sites, dating from the 18th and the 19th centuries (some of which may have been occupied as early as the 16th century), occur along and on top of the rocky ridges of the eastern part of the Klipriviersberg towards Alberton. These settlements and features in these sites, such as huts, were built with dry stone, reed and clay available from the mountain and the Klip River (Mason 1968, 1986).


The Late Iron Age sites within Ekurhuleni's south-eastern border are a 'spill-over' from a larger concentration which are located further towards the west, in the Witwatersrand, while large concentrations of stone walled sites are also located directly to the south of Johannesburg, in the mountainous area around the Suikerbosrand in Heidelberg. The stone walled

settlements are concentrated in clusters of sites and sometimes are dispersed over large areas making them vulnerable to developments of various kinds. A site consists of a circular or elliptical outer wall that is composed of a number of scalloped walls facing inwards towards one or more enclosures. Whilst the outer scalloped walls served as dwelling quarters for various family groups, cattle, sheep and goat were stocked in the centrally located enclosures. Huts with clay walls and floors were built inside the dwelling units. Pottery and metal items are common on the sites. However, iron and copper were not produced locally on these sites (Killick 2004).

THE HISTORIC ERA

Historic Overview of the Study Area and Surroundings.

DATE	DESCRIPTION
1836	The first Voortrekker parties crossed the Vaal River and started occupying the area.
1860's – 1880's	The present municipal area of Boksburg and its surroundings were mainly the farms Leeuwpoot, Klippootjie, Klipfontein and Driefontein.
1886 – 1890's	In September 1886 Peter Killian discovered quartz reefs on Leeuwpoot. He later also discovered quartz reefs on the farm Vogelfontein. Samples of the quarts were sent to Pretoria for assaying and confirmed the presence of gold. Dr. W.E. Bok (Secretary of the State for the Transvaal Republic) was informed of the discovery and he proclaimed the two farms as public diggings. Carl Ziervogel, who owned the farm Leeuwpoot, opened the first gold mine in the area and named it "Ziervogel Gold Mining Company". He was unable to financially maintain the mine and the farm Leeuwpoot was bought by Mr. Abe Bailey (of the Barnato Group, who owned the Johannesburg Consolidated Investment Company, JCI).
1887 – 1903	The town of Boksburg was established by Pres. Paul Kruger on 21 March 1887 and named in honour of Dr. W.E. Bok and in 1903 the town became a municipality. Also in 1887 the Republican Government built the Post Office and the Mining Commissioner's Office. A township for the black and coloured workers was established and named Juwele.
	 <p>(boksburghistorical.com)</p>
1888	Coal deposits were discovered in the area and the first coal mine (named Gauf's Mine, after the Manager, Mr. J.L. Gauf) in was established in the Transvaal.
1888	Montague White was tasked with building a lake at the north side of the town. It took until 1891 before the lake was filled.
1890	In 1890 the "Rand Tram" was opened to transport passengers between Johannesburg and Boksburg. The line was later extended to Brakpan and Springs where larger deposits of coal had been discovered.
1895	An underground fire rendered the entire coal mining area unsafe and the activities were seized.

1900's	<p>In late 1900, the Boers attacked the New Kleifontein Mine and mine houses on the Driefontein Farm. As a result, a mine defense unit, the Rand Rifles, was formed to protect the gold mines from attack.</p> <p>The British built fortifications along the Johannesburg-Pretoria railway line and road and along the Rand Tram. These fortifications, or blockhouses, appear to be the first of what later grew into a grid of about 8000 blockhouses countrywide.</p> <p>The map from Leo Amery (ed) <i>The Times History of the War in South Africa</i>, shows the local blockhouse lines running next to railway lines and the SAC police post lines in open veld. By July 1901, a constabulary post line stretched from Heidelberg via Springs to Eerstefabrieken and, by November 1901, a similar SAC line ran from Greylingstad to Wilge River Station.</p>  <p>During the British occupation of Boksburg from June 1900 to May 1902, the British built a so-called 'refugee camp' (or concentration camp) for black residents in the area north of what was then Boksburg Station (later re-named Boksburg East Station). The precise location of this concentration camp has been lost and it is not known if any gravestones or other artefacts from the camp still exist.</p>
1905	The Boksburg Coloured School (now known as Goedehoop Primary) was opened in 1905, with Mr G.W. van Rooyen as the first principal. It is the oldest school in Boksburg.
1911	Juwale was renamed Stirtonville.
1963 - 1983	<p>Vosloorus was established in 1963 when Black Africans were removed from Stirtonville because it was considered by the government too close to a white town. Stirtonville, renamed Reiger Park, has since become home to Boksburg's coloured community. A local authority was established in 1983 when Vosloorus was given full municipal status.</p> <p>It has been said that Former Pres. Nelson Mandela was hiding out in the Stirtonville area and surrounds.</p>
1988	<p>In 1988, the town councils of Vosloorus and Reiger Park staged a consumer boycott in Boksburg on the East Rand. The boycott by black and coloured residents followed the reintroduction of petty apartheid measures of the Boksburg Town Council, which at the time was controlled by the Conservative Party (CP).</p> <p>The boycott found enthusiastic corporate support. A number of multinational companies like Colgate-Palmolive, American Cyanamid and Unilever provided buses to ferry shoppers to shops in neighbouring towns, cancelled expansion</p>

	plans and ran advertisements denouncing the racist Council. The economy of the town suffered and several businesses had to close down.
2001	The Boksburg Municipality was incorporated into the Ekurhuleni metropolitan Municipality.
2007	The Hercules Mine Shaft, the deepest shaft in the world, was demolished in 2007.
2010	Foundations of the Boksburg Blockhouse, dating from 1899 – 1902, was re-discovered in 2010.

Sources:

- SA History Online/Boksburg
- SA History Online/Consumer Boycotts
- Boksburg Historical.com
- SA Military History.org

THE CULTURAL LANDSCAPE

The current superficial character of this specific cultural landscape is one of undeveloped and unmanaged urban open areas. Presently large areas are being used for the dumping of domestic waste. The rest of the area consists of the remains of the Brakpan Old Location giving it a strong sense of history.



Figure 5. Cultural Landscape

HISTORIC MAPS AND BUILT ENVIRONMENT

The following historic maps for the area were available for comparative study;

- 1939, 2628 AB
- 1957, 2628 AB
- 1976, 2628 AB
- 1983, 2628 AB
- 1995, 2628 AB
- 2002, 2628 AB
- 2010, 2628 AB

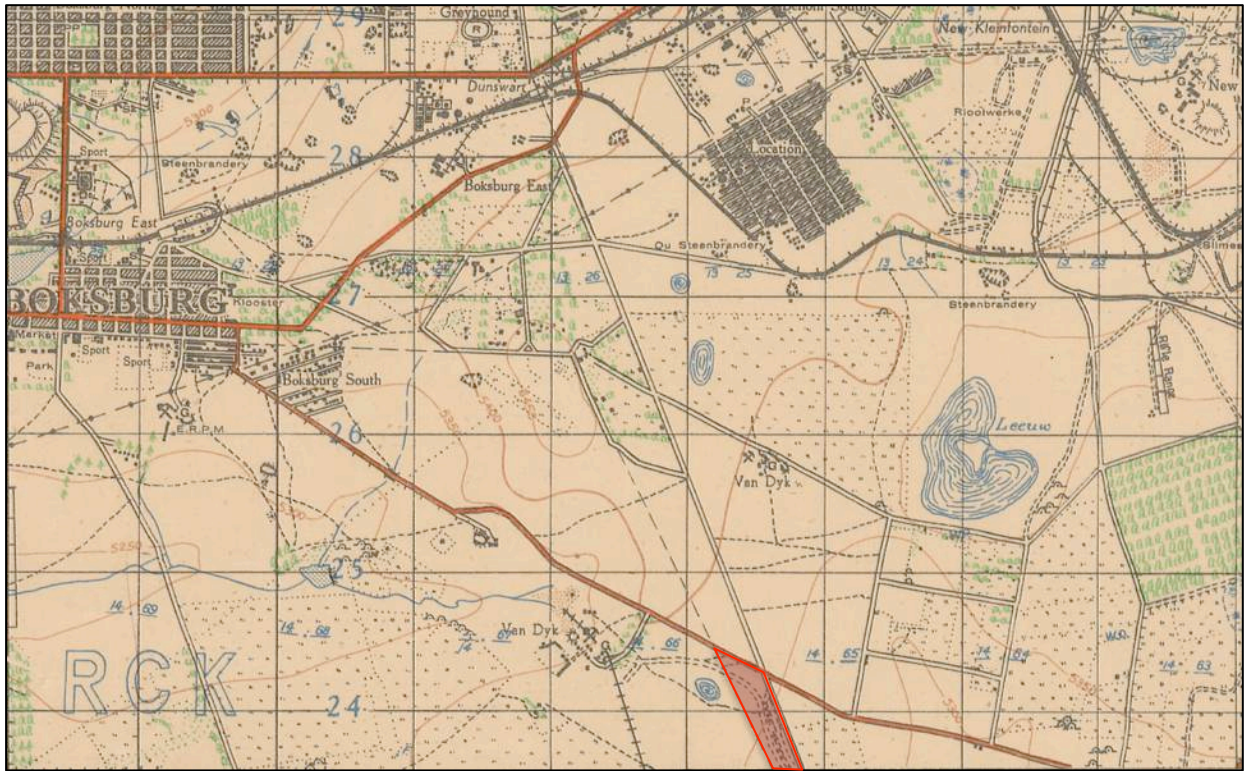


Figure 6. 1939 Map of study area

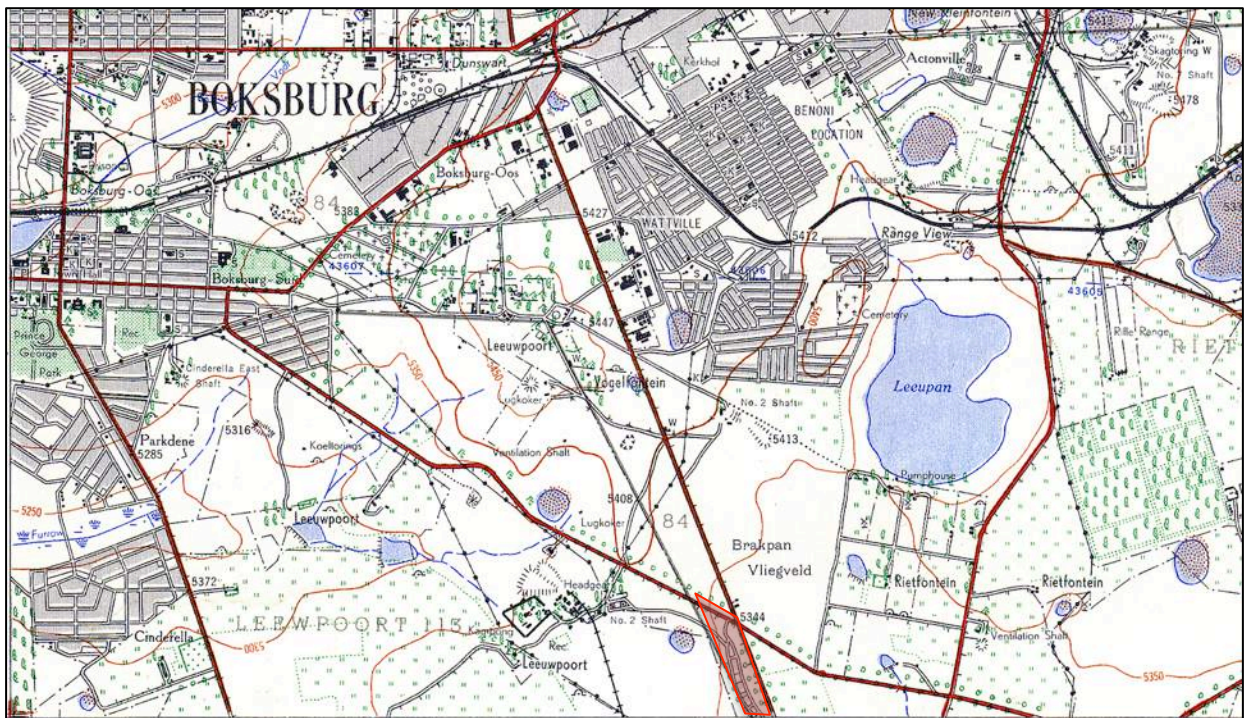


Figure 7. 1957 Map of study area

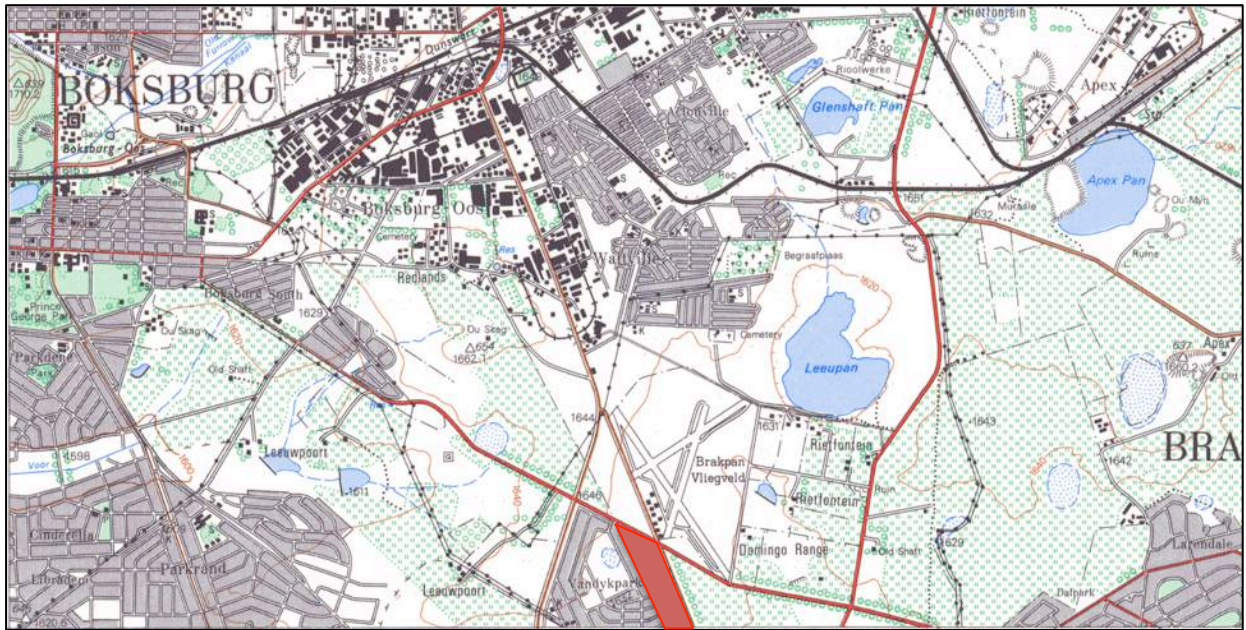


Figure 8. 1976 Map of study area

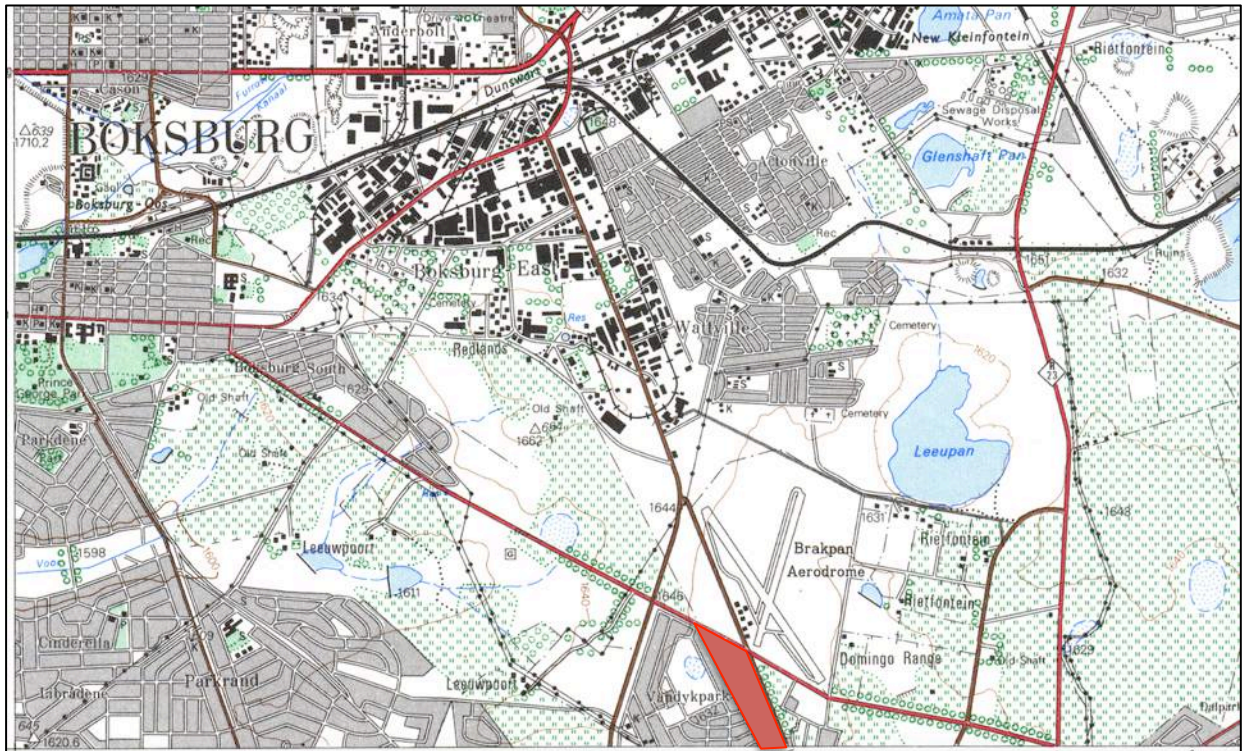


Figure 9. 1983 Map of study area

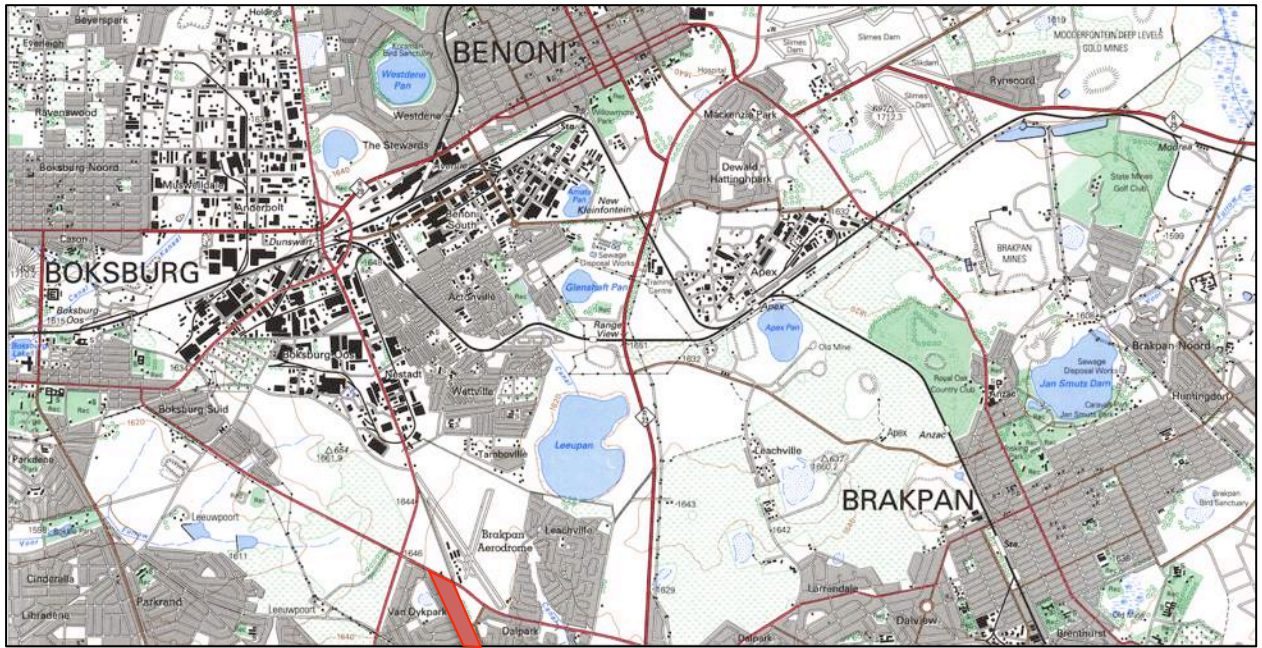


Figure 10. 1995 Map of study area

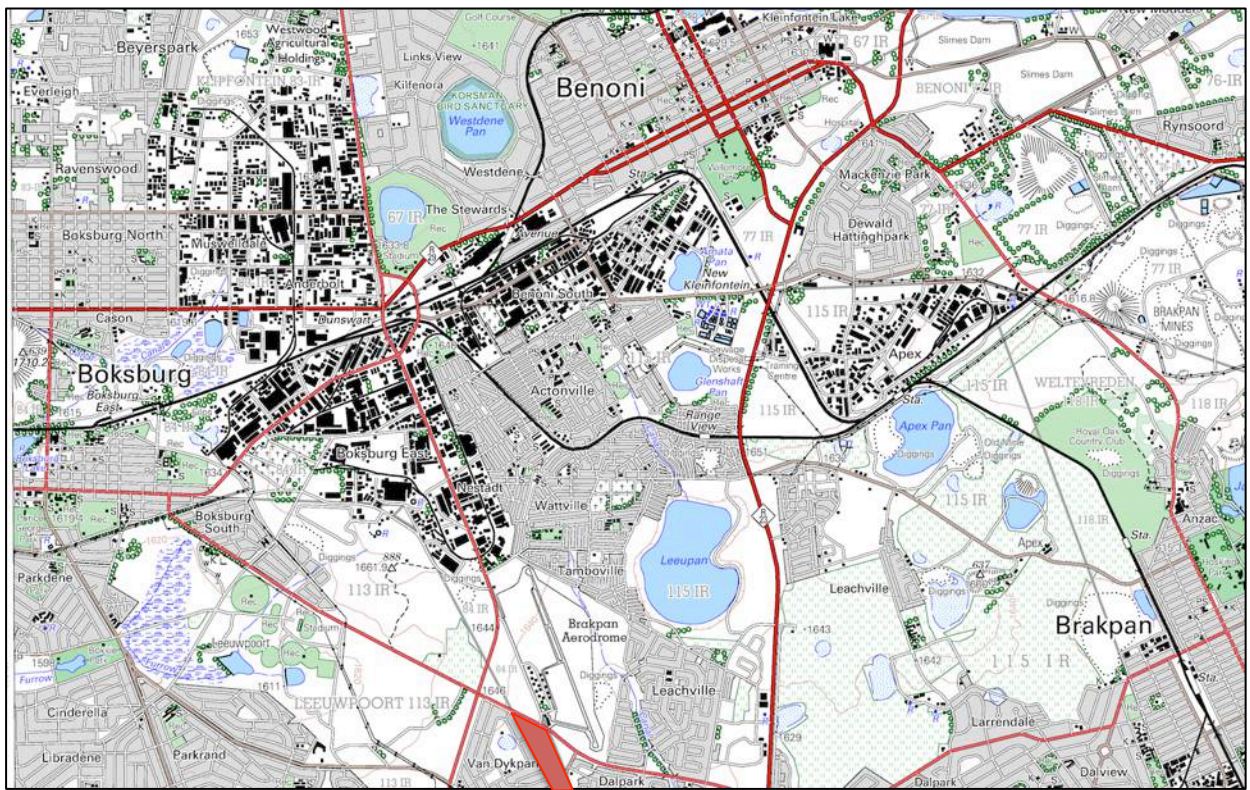


Figure 11. Study Area in 2002

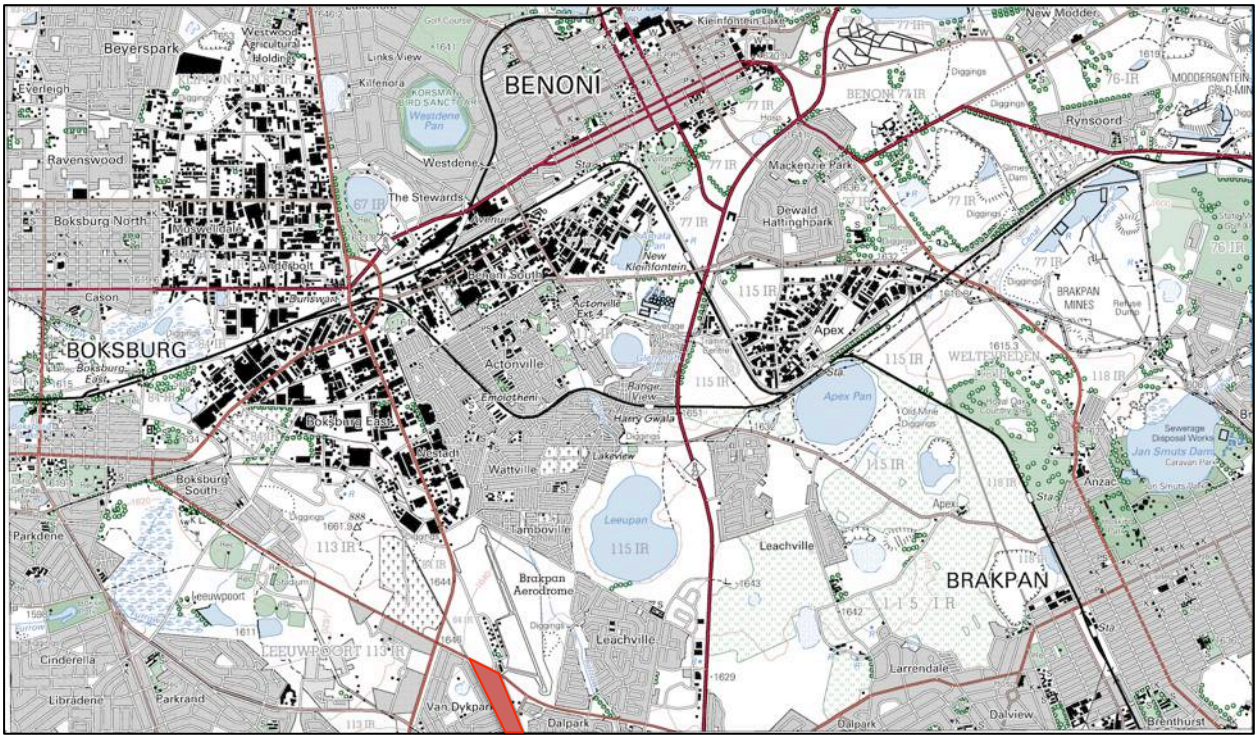


Figure 12. Study Area in 2010

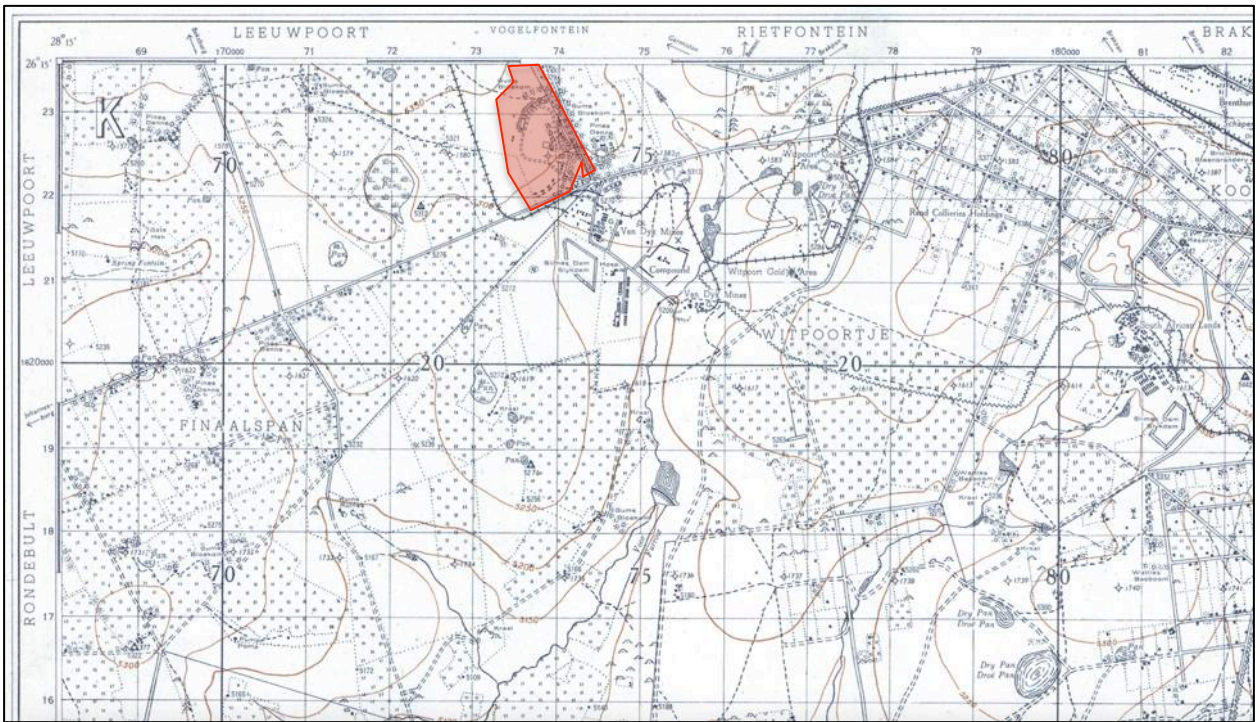


Figure 13. Study Area in 1944

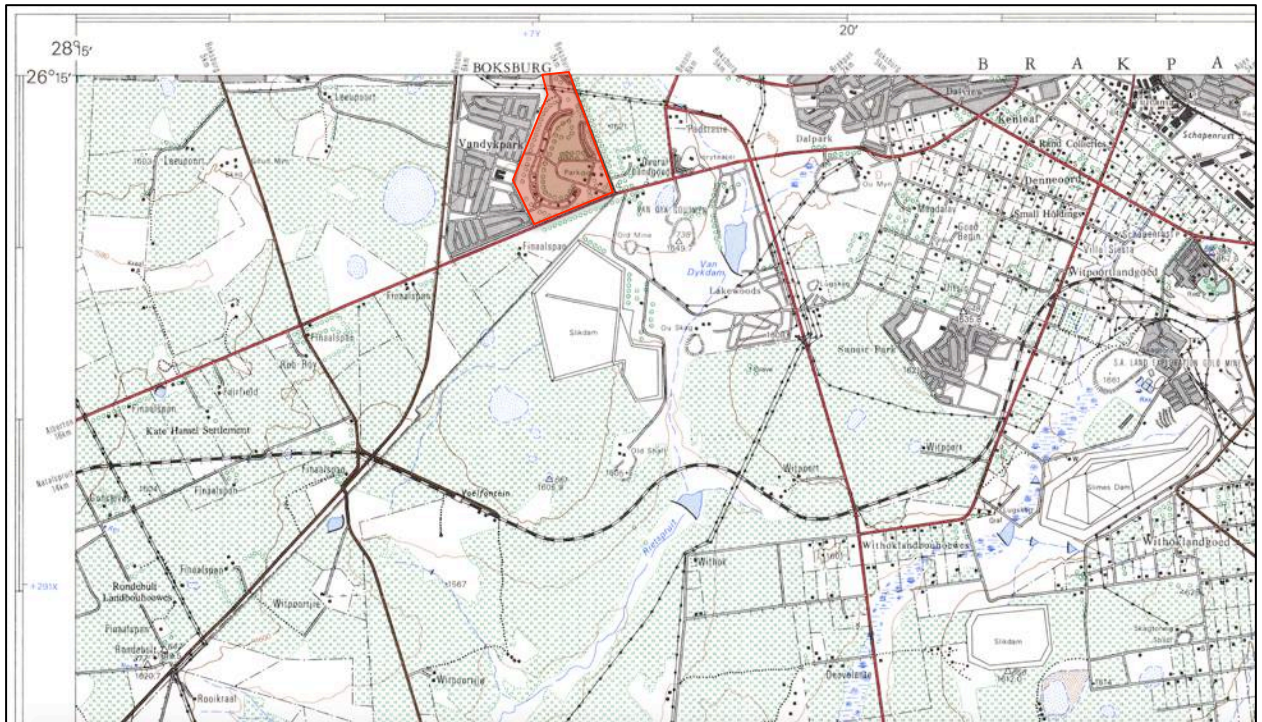


Figure 14. Study Area in 1976

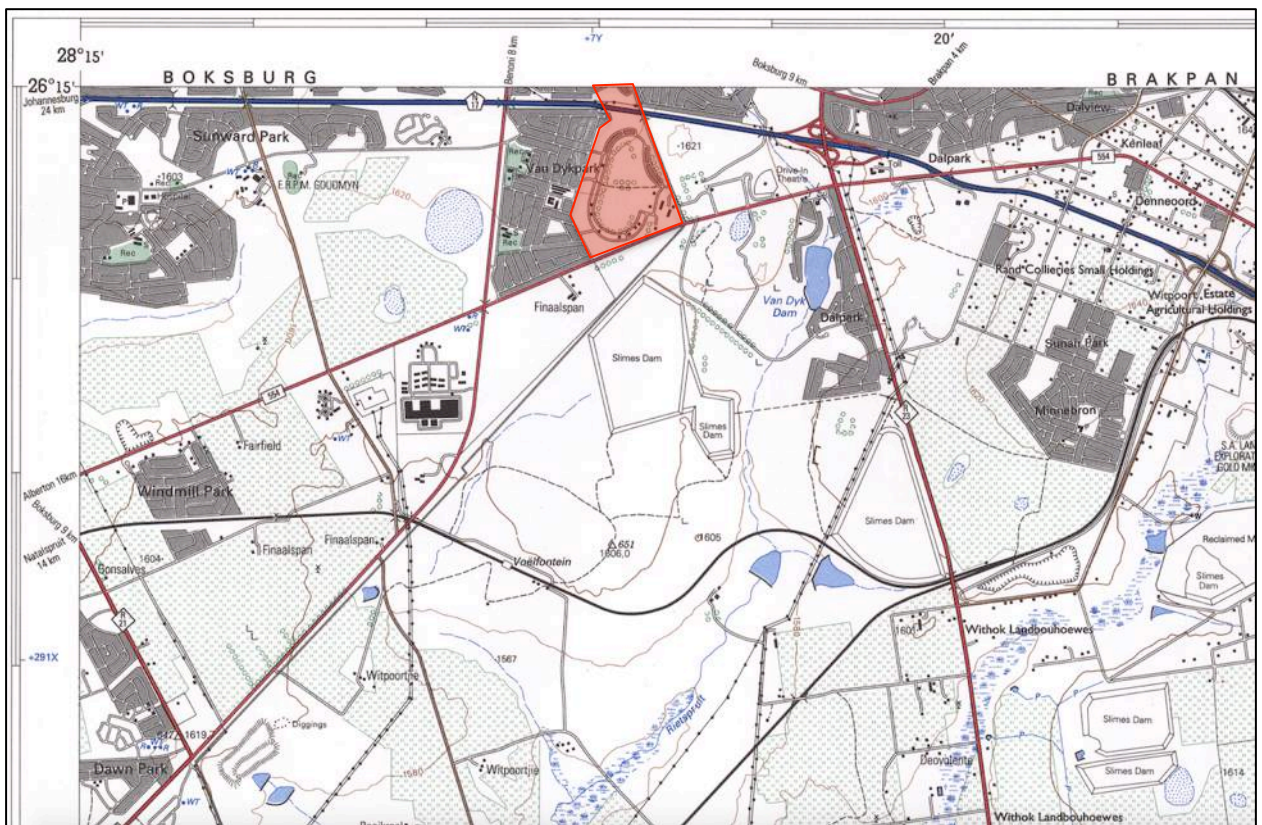


Figure 15. Study Area in 1995

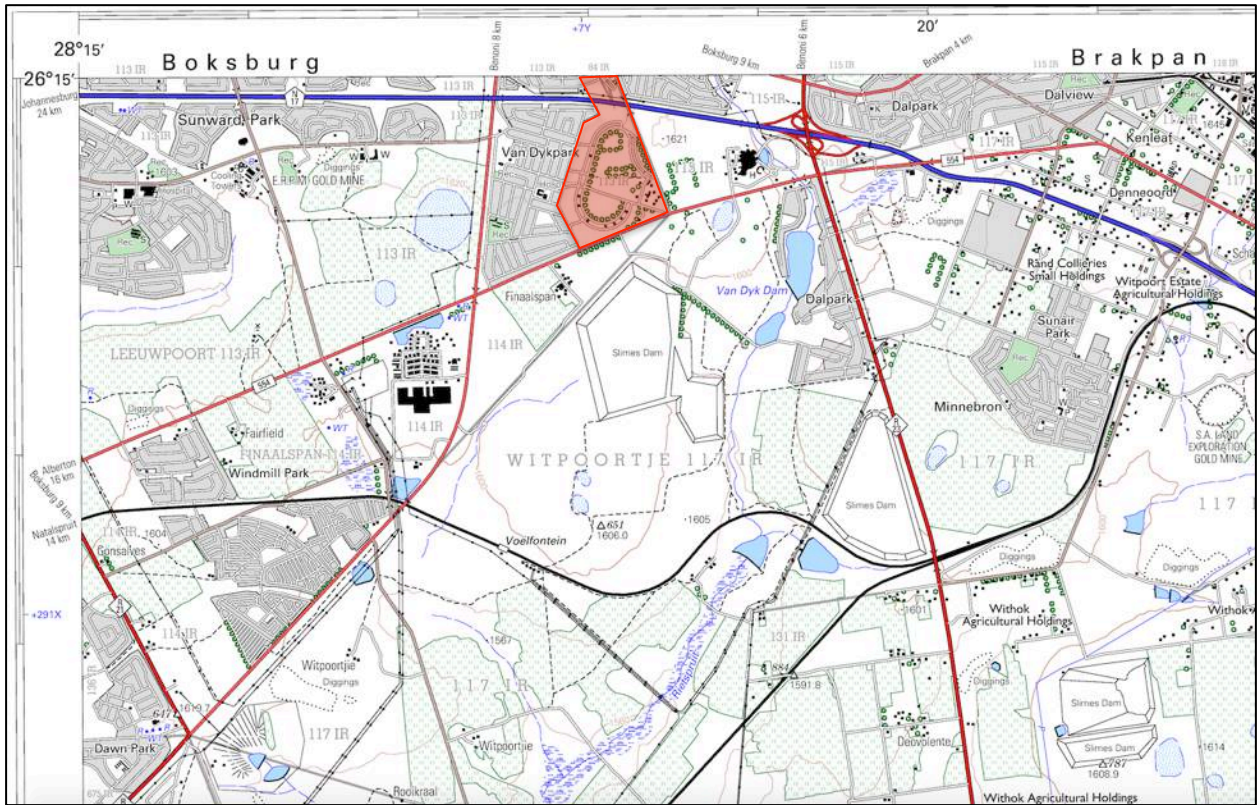


Figure 16. Study Area in 2002

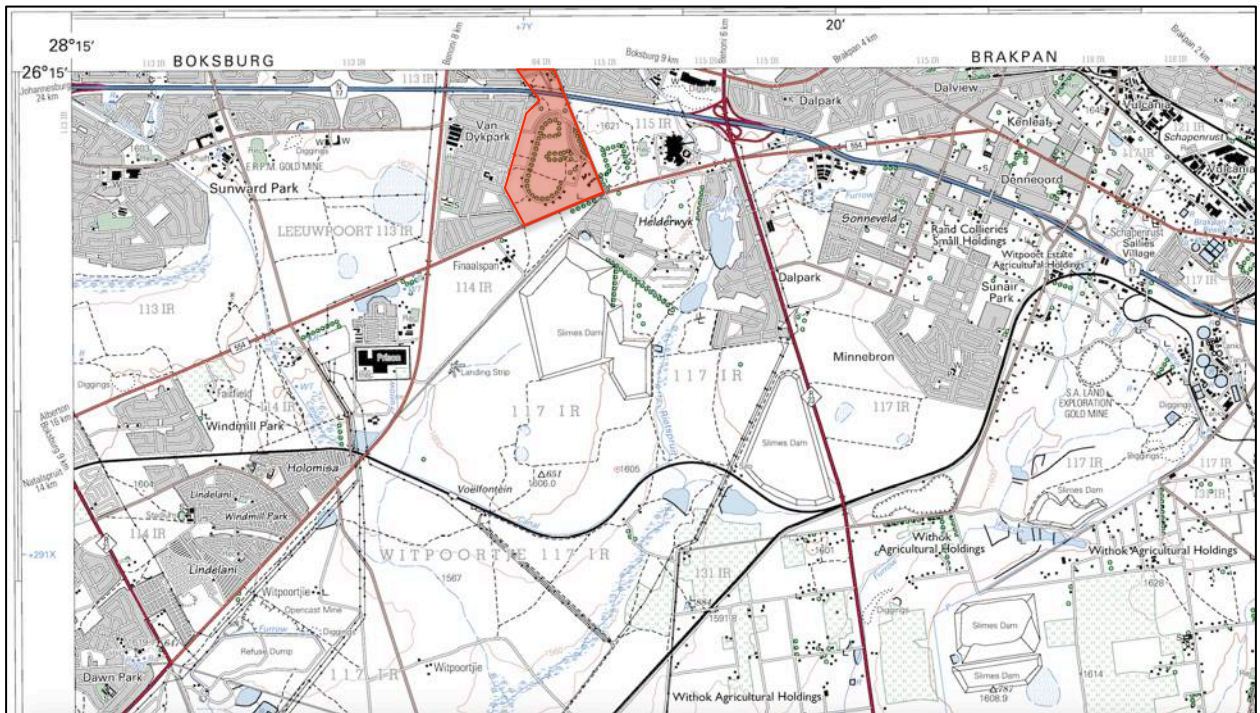


Figure 17. Study Area in 2010

The above maps indicates that the majority of the development was done somewhere between 1944 and 1976 although the northern earlier structures date from before 1936.

Chapter 3 FINDINGS

RESULTS OF THE SURVEY BUILT ENVIRONMENT

No	Description	GPS	Association	Significance
001	Mining Village	26° 22' 48" S 28° 25' 16" E	Built environment	High

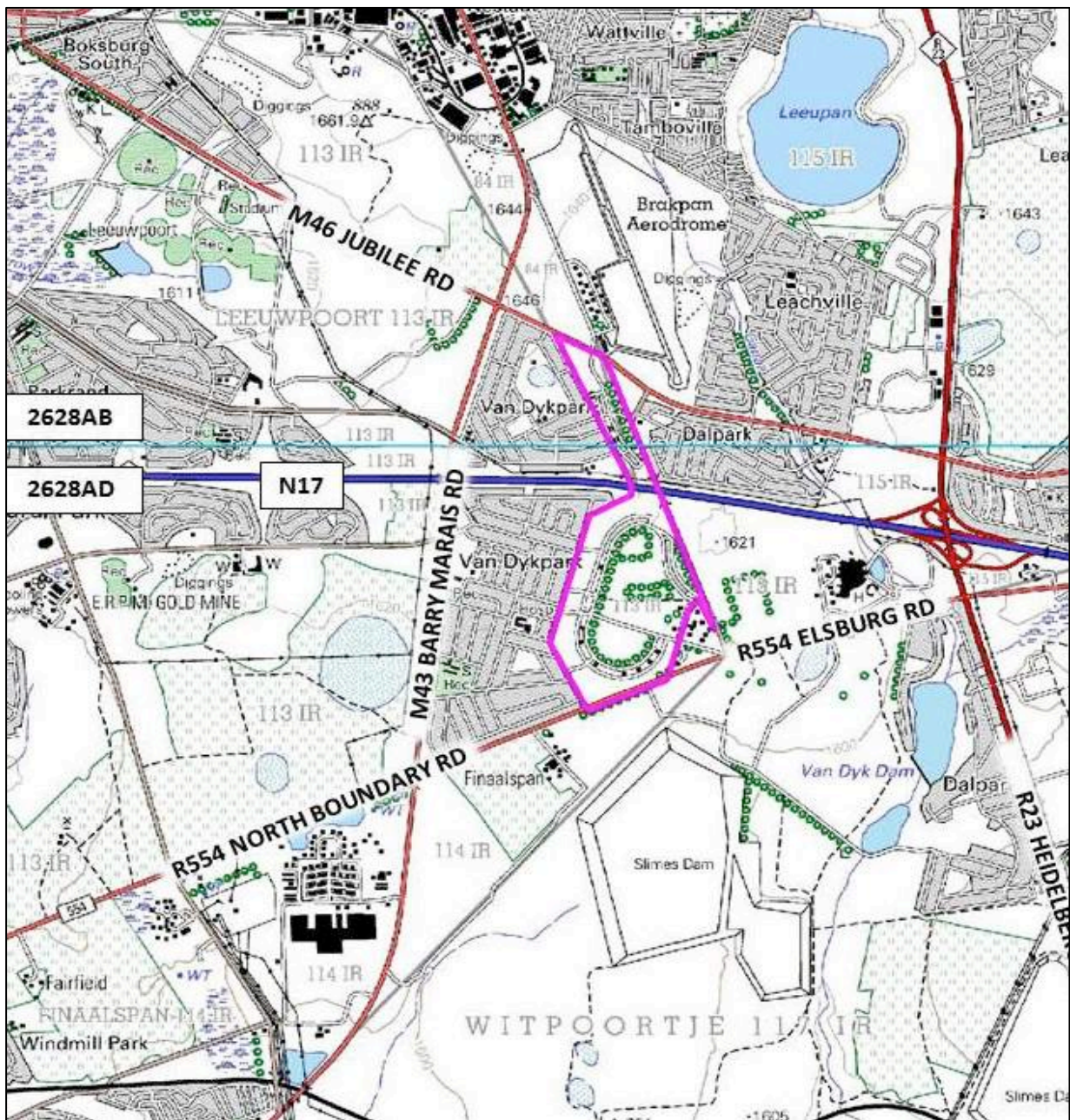


Figure 18. Brakpan Old Location Site

This site has different components from varying timespans. Some of the earliest structures seem to pre-date 1936. The development is roughly oval in layout with a central park area. Three distinct types of buildings are found here.

BUILDING TYPE A

This is the most common type of building within the development area. It consists of two semi-detached dwellings with a shared wall.



Figure 19. Building Style A

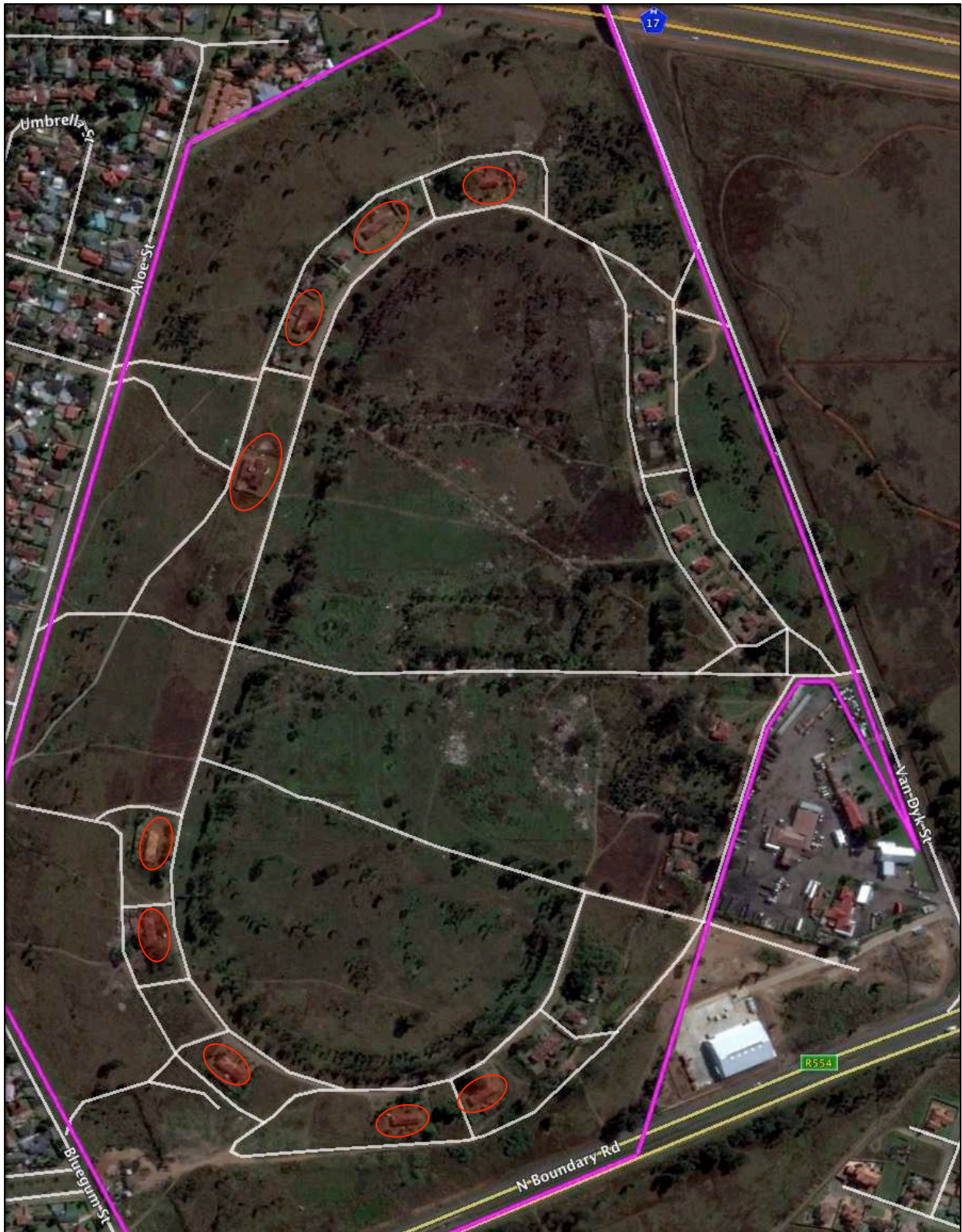


Figure 20. Building Style A

This style is found both in the northern section as well as in the south of the proposed development area indicating that the building style was applied during different development phases.



Figure 21. Type A Buildings in Northern Section



BUILDING TYPE B

These structures seem to be the oldest design and also the most characteristic with a distinct feature being the bay windows on the front of the houses.



Figure 22. Type B Buildings



Figure 23. Type B Building showing bay window



Figure 24. Building Type B



Figure 25. Type B Designs

BUILDING TYPE C

These are buildings, which have been severely altered from their original design, as well as newer buildings that have been constructed in the interim. These designs are found scattered over the site.



Figure 26. Type C Building



Figure 27. Type C Buildings

PALAEONTOLOGY

It is not anticipated that bedrock will be affected and therefore a detailed palaeontological study was not deemed necessary.

2015/06/04

ARCHAEOLOGY

No archaeological sites were identified on site.

MEASURING AND EVALUATING THE CULTURAL SENSITIVITY OF THE STUDY AREA

In 2003 the South African Heritage Resource Agency (SAHRA) compiled the following guidelines to evaluate the cultural significance of individual heritage resources;

TYPE OF RESOURCE;

- Place
- Archaeological Site
- Structure
- Grave
- Paleontological Feature
- Geological Feature

TYPE OF SIGNIFICANCE

1. HISTORIC VALUE

It is important in the community, or pattern of history

- o Important in the evolution of cultural landscapes and settlement patterns
- o Important in exhibiting density, richness or diversity of cultural features illustrating the human occupation and evolution of the nation, province, region or locality.
- o Important for association with events, developments or cultural phases that have had a significant role in the human occupation and evolution of the nation, province, region or community.
- o Important as an example for technical, creative, design or artistic excellence, innovation or achievement in a particular period.

It has strong or special association with the life or work of a person, group or organisation of importance in history;

- o Importance for close associations with individuals, groups or organisations whose life, works or activities have been significant within the history of the nation, province, region or community.

It has significance relating to the history of slavery

- o Importance for a direct link to the history of slavery in South Africa.

2. AESTHETIC VALUE

It is important in exhibiting particular aesthetic characteristics valued by a community or cultural group.

- o Important to a community for aesthetic characteristics held in high esteem or otherwise valued by the community.
- o Importance for its creative, design or artistic excellence, innovation or achievement.
- o Importance for its contribution to the aesthetic values of the setting demonstrated by a landmark quality or having impact on important vistas or otherwise contributing to the identified aesthetic qualities of the cultural environs or the natural landscape within which it is located.
- o In the case of an historic precinct, importance for the aesthetic character created by the individual components which collectively form a significant streetscape, townscape or cultural environment.

3. SCIENTIFIC VALUE

It has potential to yield information that will contribute to an understanding of natural or cultural

Heritage.

- Importance for information contributing to a wider understanding of natural or cultural history by virtue of its use as a research site, teaching site, type locality, reference or benchmark site.
- Importance for information contributing to a wider understanding of the origin of the universe or of the development of the earth.
- Importance for information contributing to a wider understanding of the origin of life; the development of plant or animal species, or the biological or cultural development of hominid or human species.
- Importance for its potential to yield information contributing to a wider understanding of the history of human occupation of the nation, Province, region or locality.
- It is important in demonstrating a high degree of creative or technical achievement at a particular period
- Importance for its technical innovation or achievement.

4. SOCIAL VALUE

- It has strong or special association with a particular community or cultural group for social, cultural or spiritual reasons
- Importance as a place highly valued by a community or cultural group for reasons of social, cultural, religious, spiritual, symbolic, aesthetic or educational associations.
- Importance in contributing to a community's sense of place.

DEGREES OF SIGNIFICANCE

In 2006 SAHRA prescribed classification standards for determining the heritage significance of sites within the SADC region. These recommendations were subsequently approved by ASAPA and are reproduced here to indicate the measuring standards for heritage sensitivity used in this report;

Field Rating	Grade	Significance	Mitigation
National Significance (NS)	Grade 1	-	Conservation; National Heritage Site nomination
Provincial Significance (PS)	Grade 2	-	Conservation; Provincial Heritage Sites nomination
Local Significance (LS)	Grade 3A	High	Conservation; mitigation not advised
Local Significance (LS)	Grade 3B	High	Mitigation with part of site retained in original
Generally Protected A (GP.A)	-	High/Medium	Mitigation before destruction
Generally Protected B (GP.B)	-	Medium	Recording before destruction
Generally Protected C (GP.C)	-	Low	Destruction

Table 3. SAHRA Assigned Heritage Site Significance Grading

Assessment of Heritage Potential

Assessment Matrix

Determining Heritage Sensitivity

In addition to guidelines provided by the National Heritage Resources Act (Act No. 25 of 1999), a set of criteria based on Deacon (J) and Whitelaw (1997) for assessing archaeological significance has been developed for Northern Cape settings (Morris 2007a). These criteria include estimation of landform potential (in terms of its capacity to contain archaeological traces) and assessing the value to any archaeological traces (in terms of their attributes or their capacity to be construed as evidence, given that evidence is not given but constructed by the investigator).

Estimating site potential

Table 4 (below) is a classification of landforms and visible archaeological traces used for estimating the potential of archaeological sites (after J. Deacon and, National Monuments Council). Type 3 sites tend to be those with higher archaeological potential, but there are notable exceptions to this rule, for example the renowned rock engravings site Driekopseiland near Kimberley which is on landform L1 Type 1 – normally a setting of lowest expected potential. It should also be noted that, generally, the older a site the poorer the preservation, so that sometimes any trace, even of only Type 1 quality,

could be of exceptional significance. In light of this, estimation of potential will always be a matter for archaeological observation and interpretation.

Table 4. Classification of landforms and visible archaeological traces for estimating the potential for archaeological sites (after J. Deacon, NMC as used in Morris)

Class	Landform	Type 1	Type 2	Type 3
L1	Rocky Surface	Bedrock exposed	Some soil patches	Sandy/grassy patches
L2	Ploughed land	Far from water	In floodplain	On old river terrace
L3	Sandy ground, inland	Far from water	In floodplain or near features such as hill/dune	On old river terrace
L4	Sandy ground, coastal	>1 km from sea	Inland of dune cordon	Near rocky shore
L5	Water-logged deposit	Heavily vegetated	Running water	Sedimentary basin
L6	Developed urban	Heavily built-up with no known record of early settlement	Known early settlement, but buildings have basements	Buildings without extensive basements over known historical sites
L7	Lime/dolomite	>5 myrs	<5000 yrs	Between 5000 yrs and 5 myrs
L8	Rock shelter	Rocky floor	Loping floor or small area	Flat floor, high ceiling
Class	Archaeological traces	Type 1	Type 2	Type 3
A1	Area previously excavated	Little deposit remaining	More than half deposit remaining	High profile site
A2	Shell of bones visible	Dispersed scatter	Deposit <0.5 m thick	Deposit >0.5 m thick; shell and bone dense
A3	Stone artefacts or stone walling or other feature visible	Dispersed scatter	Deposit <0.5m thick	Deposit >0.5 m thick

Table 5. Site attributes and value assessment (adapted from Whitelaw 1997 as used in Morris)

Class	Landforms	Type 1	Type 2	Type 3
1	Length of sequence /context	No sequence Poor context Dispersed distribution	Limited sequence	Long sequence Favourable context High density of arte / ecofacts
2	Presence of exceptional items (incl. regional rarity)	Absent	Present	Major element
3	Organic preservation	Absent	Present	Major element
4	Potential for future archaeological investigation	Low	Medium	High
5	Potential for public display	Low	Medium	High
6	Aesthetic appeal	Low	Medium	High
7	Potential for implementation of a long-term management plan	Low	Medium	High

Assessing site value by attribute

Table 5 is adapted from Whitelaw (1997), who developed an approach for selecting sites meriting heritage recognition status in KwaZulu-Natal. It is a means of judging a site's archaeological value by ranking the relative strengths of a range of attributes (given in the second column of the table). While aspects of this matrix remain qualitative, attribute assessment is a good indicator of the general archaeological significance of a site, with Type 3 attributes being those of highest significance.

SIGNIFICANCE EVALUATION

As the criteria set out in the National Heritage Resources Act tend to approach heritage from the level of 'national' significance and few heritage sites and features fall within this category, a second set of criteria are used to determine the regional and local significance of heritage sites. Three sub-categories are used to determine this significance:

- (a) Historical significance – this category determines the social context in which a heritage site and resource need to be assessed. These criteria focus on the history of the 'place' in terms of its significance in time and the role they played in a particular community (human context).
- (b) Architectural significance – The objective of this set of criteria is to assess the artefactual significance of the heritage resource, its physical condition and meaning as an 'object'.
- (c) Spatial significance – focuses on the physical context in which the object and place exists and how it contributed to the landscape, the region, the precinct and neighbourhood.

HISTORIC SIGNIFICANCE

No	Criteria	Significance Rating
1	Are any of the identified sites or buildings associated with a historical person or group? No	-
2	Are any of the buildings or identified sites associated with a historical event? Yes, the growth of the mining sector on the East Rand	Grade 3B
3	Are any of the identified sites or buildings associated with a religious, economic social or political or educational activity? No	-
4	Are any of the identified sites or buildings of archaeological significance? No	-
5	Are any of the identified buildings or structures older than 60 years? Yes, some of the Type A and B structures could most probably be older than 60 years.	Grade 3B

ARCHITECTURAL SIGNIFICANCE

No	Criteria	Rating
1	Are any of the buildings or structures an important example of a building type? No	-
2	Are any of the buildings outstanding examples of a particular style or period? Yes, The Type A and B buildings are good examples of the early mining boom era on the East Rand	Grade 3B
3	Do any of the buildings contain fine architectural details and reflect exceptional craftsmanship? No	-
4	Are any of the buildings an example of an industrial, engineering or technological development? No	-
5	What is the state of the architectural and structural integrity of the building? Most buildings are either severely dilapidated or altered to a great extent.	Grade 3B
6	Is the building's current and future use in sympathy with its original use (for which the building was designed)? No	-
7	Were the alterations done in sympathy with the original design? No	-

8	Were the additions and extensions done in sympathy with the original design? No	-
9	Are any of the buildings or structures the work of a major architect, engineer or builder? It is possible that some of the older buildings could have been designed by Sir Herbert Baker	Grade 3A

SPATIAL SIGNIFICANCE

Even though each building needs to be evaluated as single artefact the site still needs to be evaluated in terms of its significance in its geographic area, city, town, village, neighbourhood or precinct. This set of criteria determines the spatial significance.

No	Criteria	Rating
1	Can any of the identified buildings or structures be considered a landmark in the town or city? No	-
2	Do any of the buildings contribute to the character of the neighborhood? No	-
3	Do any of the buildings contribute to the character of the square or streetscape? No	-
4	Do any of the buildings form part of an important group of buildings? No	-

IMPACT EVALUATION

This HIA Methodology assists in evaluating the overall effect of a proposed activity on the heritage environment. The determination of the effect of a heritage impact on a heritage parameter is determined through a systematic analysis of the various components of the impact. This is undertaken using information that is available to the heritage practitioner through the process of the heritage impact assessment. The impact evaluation of predicted impacts was undertaken through an assessment of the significance of the impacts.

DETERMINATION OF SIGNIFICANCE OF IMPACTS

Significance is determined through a synthesis of impact characteristics, which include context, and intensity of an impact. Context refers to the geographical scale i.e. site, local, national or global whereas Intensity is defined by the severity of the impact e.g. the magnitude of deviation from background conditions, the size of the area affected, the duration of the impact and the overall probability of occurrence.

Significance 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. The total number of points scored for each impact indicates the level of significance of the impact.

IMPACT RATING SYSTEM

Impact assessment must take account of the nature, scale and duration of effects on the heritage environment whether such effects are positive (beneficial) or negative (detrimental). Each issue / impact is also assessed according to the project stages:

- planning
- construction
- operation

- decommissioning

Where necessary, the proposal for mitigation or optimisation of an impact will be detailed. A brief discussion of the impact and the rationale behind the assessment of its significance has also been included.

RATING SYSTEM USED TO CLASSIFY IMPACTS

The rating system is applied to the potential impact on the receiving environment and includes an objective evaluation of the mitigation of the impact. Impacts have been consolidated into one rating. In assessing the significance of each issue the following criteria (including an allocated point system) is used:

NATURE		
Include a brief description of the impact of the heritage parameter being assessed in the context of the project. This criterion includes a brief written statement of the heritage aspect being impacted upon by a particular action or activity.		
GEOGRAPHICAL EXTENT		
This is defined as the area over which the impact will be expressed. Typically, the severity and significance of an impact have different scales and as such bracketing ranges are often required. This is often useful during the detailed assessment of a project in terms of further defining the determined.		
1	Site	The impact will only affect the site
2	Local/district	Will affect the local area or district
3	Province/region	Will affect the entire province or region
4	International and National	Will affect the entire country
PROBABILITY		
This describes the chance of occurrence of an impact		
1	Unlikely	The chance of the impact occurring is extremely low (Less than a 25% chance of occurrence).
2	Possible	The impact may occur (Between a 25% to 50% chance of occurrence).
3	Probable	The impact will likely occur (Between a 50% to 75% chance of occurrence).
4	Definite	Impact will certainly occur (Greater than a 75% chance of occurrence).
REVERSIBILITY		
This describes the degree to which an impact on a heritage parameter can be successfully reversed upon completion of the proposed activity.		
1	Completely reversible	The impact is reversible with implementation of minor mitigation measures
2	Partly reversible	The impact is partly reversible but more intense mitigation measures are required.
3	Barely reversible	The impact is unlikely to be reversed even with intense mitigation measures.
4	Irreversible	The impact is irreversible and no mitigation measures exist.

IRREPLACEABLE LOSS OF RESOURCES		
This describes the degree to which heritage resources will be irreplaceably lost as a result of a proposed activity.		
1	No loss of resource.	The impact will not result in the loss of any resources.
2	Marginal loss of resource	The impact will result in marginal loss of resources.
3	Significant loss of resources	The impact will result in significant loss of resources.
4	Complete loss of resources	The impact is result in a complete loss of all resources.
DURATION		
This describes the duration of the impacts on the heritage parameter. Duration indicates the lifetime of the impact as a result of the proposed activity		
1	Short term	The impact and its effects will either disappear with mitigation or will be mitigated through natural process in a span shorter than the construction phase (0 – 1 years), or the impact and its effects will last for the period of a relatively short construction period and a limited recovery time after construction, thereafter it will be entirely negated (0 – 2 years).
2	Medium term	The impact and its effects will continue or last for some time after the construction phase but will be mitigated by direct human action or by natural processes thereafter (2 – 10 years).
3	Long term	The impact and its effects will continue or last for the entire operational life of the development, but will be mitigated by direct human action or by natural processes thereafter (10 – 50 years).
4	Permanent	The only class of impact that will be non-transitory. Mitigation either by man or natural process will not occur in such a way or such a time span that the impact can be considered transient (Indefinite).
CUMULATIVE EFFECT		
This describes the cumulative effect of the impacts on the heritage parameter. A cumulative effect/impact is an effect, which in itself may not be significant but may become significant if added to other existing or potential impacts emanating from other similar or diverse activities as a result of the project activity in question.		
1	Negligible Cumulative Impact	The impact would result in negligible to no cumulative effects
2	Low Cumulative Impact	The impact would result in insignificant cumulative effects
3	Medium Cumulative impact	The impact would result in minor cumulative effects
4	High Cumulative Impact	The impact would result in significant cumulative effects
INTENSITY / MAGNITUDE		
Describes the severity of an impact		
1	Low	Impact affects the quality, use and integrity of the system/component in a way that is barely perceptible.

2	Medium	Impact alters the quality, use and integrity of the system/component but system/ component still continues to function in a moderately modified way and maintains general integrity (some impact on integrity).
3	High	Impact affects the continued viability of the system/component and the quality, use, integrity and functionality of the system or component is severely impaired and may temporarily cease. High costs of rehabilitation and remediation.
4	Very high	Impact affects the continued viability of the system/component and the quality, use, integrity and functionality of the system or component permanently ceases and is irreversibly impaired (system collapse). Rehabilitation and remediation often impossible. If possible rehabilitation and remediation often unfeasible due to extremely high costs of rehabilitation and remediation.
SIGNIFICANCE		
<p>Significance is determined through a synthesis of impact characteristics. Significance 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. This describes the significance of the impact on the heritage parameter. The calculation of the significance of an impact uses the following formula:</p> <p>(Extent + probability + reversibility + irreplaceability + duration + cumulative effect) x magnitude/intensity.</p> <p>The summation of the different criteria will produce a non weighted value. By multiplying this value with the magnitude/intensity, the resultant value acquires a weighted characteristic which can be measured and assigned a significance rating.</p>		
Points	Impact Significance Rating	Description
6 to 28	Negative Low impact	The anticipated impact will have negligible negative effects and will require little to no mitigation.
6 to 28	Positive Low impact	The anticipated impact will have minor positive effects.
29 to 50	Negative Medium impact	The anticipated impact will have moderate negative effects and will require moderate mitigation measures.
29 to 50	Positive Medium impact	The anticipated impact will have moderate positive effects.
51 to 73	Negative High impact	The anticipated impact will have significant effects and will require significant mitigation measures to achieve an acceptable level of impact.
51 to 73	Positive High impact	The anticipated impact will have significant positive effects.
74 to 96	Negative Very high impact	The anticipated impact will have highly significant effects and are unlikely to be able to be mitigated adequately. These impacts could be considered "fatal flaws".

74 to 96	Positive Very high impact	The anticipated impact will have highly significant positive effects.
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ANTICIPATED IMPACT OF THE DEVELOPMENT TYPE A, B & C BUILDINGS

IMPACT TABLE FORMAT		
Heritage component	<i>Van Dyk Park Mining houses</i>	
Issue/Impact/Heritage Impact/Nature	<i>Development of the Proposed Van Dyk Park Mixed Housing Project</i>	
<i>Extent</i>	<i>Local (2)</i>	
<i>Probability</i>	<i>Probable (3)</i>	
<i>Reversibility</i>	<i>Irreversible (4)</i>	
<i>Irreplaceable loss of resources</i>	<i>Partial loss of resources (3)</i>	
<i>Duration</i>	<i>Medium term (2)</i>	
<i>Cumulative effect</i>	<i>Medium cumulative effect (3)</i>	
<i>Intensity/magnitude</i>	<i>Very high (4)</i>	
<i>Significance Rating of Potential Impact</i>	<i>68 points. The impact will have a high negative effect rating.</i>	
	Pre-mitigation impact rating	Post mitigation impact rating
<i>Extent</i>	2	2
<i>Probability</i>	3	1
<i>Reversibility</i>	4	1
<i>Irreplaceable loss</i>	3	1
<i>Duration</i>	2	2
<i>Cumulative effect</i>	3	1
<i>Intensity/magnitude</i>	4	1
<i>Significance rating</i>	68 (high negative)	8 (low negative)
<i>Mitigation measure</i>	<i>It is recommended that the remains of the Type A, B & C buildings be subjected to a second phase of investigation and that the remains of the buildings be documented in detail to determine their historic significance. The social consultation phase should investigate the feeling from present inhabitants of the site into the demolition of the ruins.</i>	

RESOURCE MANAGEMENT RECOMMENDATIONS

Although unlikely, sub-surface remains of heritage sites could still be encountered during the construction activities associated with the project. Such sites would offer no surface indication of their presence due to the high state of alterations in some areas as well as heavy plant cover in other areas. The following indicators of unmarked sub-surface sites could be encountered;

- Ash deposits (unnaturally grey appearance of soil compared to the surrounding substrate)
- Bone concentrations, either animal or human
- Ceramic fragments such as pottery shards either historic or pre-contact
- Stone concentrations of any formal nature

Although no sites of heritage significance were identified within the proposed study area, the following recommendations are given should any sub-surface remains of heritage sites be identified as indicated above;

- All operators of excavation equipment should be made aware of the possibility of the occurrence of sub-surface heritage features and the following procedures should they be encountered.
- All construction in the immediate vicinity (50m radius of the site should cease).
- The heritage practitioner should be informed as soon as possible.
- In the event of obvious human remains the SAPS should be notified.
- Mitigative measures (such as refilling etc.) should not be attempted.
- The area in a 50m radius of the find should be cordoned off with hazard tape.
- Public access should be limited.
- The area should be placed under guard.
- No media statements should be released until such time as the heritage practitioner has had sufficient time to analyse the finds.

REFERENCES CITED & RESEARCHED

- Arts and Culture in the Ekurhuleni Metro Area, n.d. Published by the Ekurhuleni Metropolitan Municipality.
- Arts and Culture Task Group, (1995), Draft report for the Ministry of Arts, Culture, Science and Technology. *Pretoria: ACTAG.*
- Bewsher, P K, & De Jong, R C, (1997), Ecotourism and cultural resource management. Document prepared for the SA Wildlife College. Pretoria: Centre for Ecotourism.
- Canadian Parks Service, (1989). Proposed policy.
- Cultural Institutions Act, No 119 of 1998.
- De Jong, R.C., (1992). Draft policy guidelines for cultural resource management in nature conservation and forestry areas in South Africa. Pretoria: National Cultural History Museum (unpublished)
- Department of Arts, Culture, Science and Technology, (1996). White Paper on Arts, Culture and Heritage. Pretoria: SA Communication Service.
- DEAT, (1996). White Paper on the Development and Promotion of Tourism in South Africa. Pretoria: The Department.
- DEAT, (1998). A national strategy for Integrated Environmental Management in South Africa. Discussion document. Pretoria: The Department.
- DEAT, (1998). White Paper on environmental management policy for South Africa. Government Gazette, Vol 395, No 18894, 15 May 1998.
- Department of Public Works, (1998), White Paper 1997. Public Works towards the 21st century. Government Gazette, Vol 391, No 18616, 14 January 1998.
- *Cultural Heritage 146 Ekurhuleni SoER 2003*
- Entries on towns in the *Standard Encyclopedia of Southern Africa*, published by Nasou, 1970-1976 (11 volumes).
- Eskom Heritage website
- Files in Gauteng Office of SAHRA, Northwards, Parktown, Johannesburg
- Galla, A, (1996), Shifting the paradigm. A plan to diversify heritage practice in South Africa. Cape Town: South African Museums Association.
- Gauteng Department of Economic Affairs and Finance, (1997). Gauteng Tourism White Paper. Johannesburg: The Department.
- Hall, C.M, & McArthur, S. (eds), (1996). Heritage management in Australia and New Zealand. Draft publication.
- Harrison, R, (1994). Manual of heritage management. Oxford: Butterworth Heinemann.
- Jote, K, (1994). International legal protection of cultural heritage. Stockholm: Juristförlaget.
- Killick, D. 2004. Review Essay: "What Do We Know About African Iron Working?" *Journal of African Archaeology*. Vol 2 (1) pp. 135–152
- McCarthy, T.S. 2006. The Witwatersrand Supergroup. In: Johnson MR, Anhaeusser and Thomas RJ (Eds). *The Geology of South Africa*. Geological Society of South Africa, Johannesburg/Council for Geoscience, Pretoria. pp 155-186.
- McCarthy, T.S. and Rubidge, B.S. 2005. The story of Earth and Life – a southern African

perspective on the 4.6 billion year journey. Struik Publishers, Cape Town. pp 333.

- Mason, R. (1986). Origins of Black People of Johannesburg and the Southern Western Central Transvaal AD350-1880. Occasional Paper No. 16 of the Archaeological Research Unit.
- Musa, (1994). Museums for South Africa: Intersectoral investigation for national policy. Pretoria: MUSA Secretariat.
- National Heritage Council Act, No 11 of 1999.
- National Heritage Resources Act, No 25 of 1999.
- National Research Foundation, Nexus database of current and completed research projects
- Republic of South Africa, (1996). Constitution of the Republic of South Africa, Act 108 of 1996. Government Gazette, Vol 378, No 17678, 18 December 1996.
- Ross, M. (1996). Planning and the heritage. Policy and procedures. Second edition. London: E & FN Spon.
- SAHRA website <http://www.sahra.org.za>
- Stark, F, (1986). Germiston: The heart of South Africa. Germiston: Felstar Publishing.
- The City of Germiston: Official Guide, (1957). Germiston: Publicity Association.
- UNESCO, (1983). Conventions and recommendations concerning the protection of the cultural heritage. Paris: UNESCO.
- US National Parks Service, (1988). Management Policies.
- Webster, S, (1994). The Brakpan Story. Brakpan: Town Council.