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HERITAGE IMPACT ASSESSMENT REPORT: PROPOSED RESIDENTIAL DEVELOPMENT AND ASSOCIATED INFRASTRUCTURE ON A 200 HA PORTION OF THE FARM BESTWOOD 429 RD AT KATHU, NORTHERN CAPE PROVINCE



SUBMITTED TO:

**Palaeontology, Archaeology and Meteorites Unit
SAHRA**

DATE: 3 September 2008

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HERITAGE SCOPING REPORT: PROPOSED RESIDENTIAL DEVELOPMENT AND ASSOCIATED INFRASTRUCTURE ON A 200 HA PORTION OF THE FARM BESTWOOD 429 RD AT KATHU, NORTHERN CAPE PROVINCE

SUBMITTED TO: Rowan van Tonder, Rock Environmental Consulting (Pty) Ltd
DATE OF SUBMISSION: 3 June 2008

EXECUTIVE SUMMARY

This report fulfils the requirements for a full Heritage Impact Assessment (HIA) as provided for in Section 38 of the National Heritage Resources Act (NHRA) (Act 25 of 1999). This report also fulfils the requirements of a Specialist Study in accordance with the EIA Regulations and procedures.

The investigation was carried out by an independent generalist heritage practitioner, Dr RC de Jong (Cultmatrix cc), with inputs from Dr Cobus Dreyer (accredited archaeologist, Bloemfontein) and Mr Roger Price (Researcher, Council for Geoscience, Pretoria).

The site for the proposed residential, development, 200 ha in extent, is located on the farm Bestwood 429 RD and is situated adjacent to the N 14 diagonally opposite Kathu Motors (Shell) and opposite the eastern entrance road to Kathu. The proposed sewage treatment plant to service the proposed development will be located directly east of the existing sewage treatment dam at Kathu.

The proposed development will involve the phased development of residential dwellings on a 200 ha portion of Bestwood and the establishment of the necessary infrastructure, such as access roads, water reservoir, sewage treatment plant, electricity and storm water infrastructure.

Both sites are flat and sandy with a sparse cover of grasses and clumps of trees. The Bestwood site is used for grazing whilst the sewage plant site seems not to be used for anything in particular. The aim of the full HIA investigation was to analyse and recommend heritage management mitigation measures and monitoring programmes.

The objectives were to analyse heritage issues, to research the chronology of the site and its role in the broader context, to undertake a comprehensive assessment of heritage significance, to analyse the nature and scale of the proposed development, to establish the compatibility of the proposed development with heritage and other statutory frameworks and to assess alternatives in order to promote heritage conservation issues.

Both sites are located in a region that is internationally known for its very large and significant deposits of artefacts and animal remains associated with the Early (Acheulean), Middle and Late Stone Age. Rock engravings are also found in the area. Both development sites are therefore very sensitive to any form of development and the risk of finding more deposits is therefore definite and high. The Kathu area is also known for its fossils of extinct vertebrates pre-dating the Early Stone Age.

There are at least three sites of major palaeontological and archaeological significance close to Bestwood and the chances are therefore good that more such sites could be present on both development sites.

No visible and significant features associated with the Iron Age and colonial settlements were identified.

The below table summarises heritage features as identified in Section 3(2) of the NHRA that are at a risk of being affected by the proposed development.

Based on the above findings, it is strongly recommended that:

1. A final HIA report that will be submitted to both SAHRA and the Northern Cape Provincial Heritage Resources Authority for authorising the proposed development should only be prepared once palaeontological and archaeological investigations by specialists have been completed in order to confirm and assess the presence or absence of palaeontological and archaeological deposits.
2. The developer appoints an accredited archaeologist familiar with the region to either undertake test excavations on both sites prior to development, or to be present when test pits for sampling

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the soil formations in connection with foundations are made; the objective being to establish the presence and significance of any fossils and artefacts.

3. No construction work should be allowed to start before the final HIA report has been authorised.



R C DE JONG
Principal Member: Cultmatrix cc

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S 3(2) NHRA heritage resource	Site no	Heritage Significance	Impact extent	Impact duration	Impact intensity	Impact probability	Impact confidence	Impact status	Impact nature		Impact significance	
									Direct	Accumulative	Without mitigation	With mitigation
Buildings, structure, places and equipment of cultural significance	-	-	-	-	-	-	-	-	-	-	-	-
Areas to which oral traditions are attached or which are associated with intangible heritage	-	-	-	-	-	-	-	-	-	-	-	-
Objects to which oral traditions are attached or which are associated with intangible heritage	-	-	-	-	-	-	-	-	-	-	-	-
Areas of significance related to labour history	-	-	-	-	-	-	-	-	-	-	-	-
Historical settlements and townscapes	-	-	-	-	-	-	-	-	-	-	-	-
Landscapes and natural features of cultural significance	-	-	-	-	-	-	-	-	-	-	-	-
Geological sites of scientific or cultural importance	Both sites	Unknown	Local	Perm.	Unknown	Possible	Low	Unknown	Destruction	Degradation	Unknown	Unknown
Archaeological and palaeontological sites	Both sites	Unknown	Local	Perm.	Unknown	Definite	High	Unknown	Exposure and destruction	Ongoing degradation	High neg.	Medium neg.
Objects recovered from the soil or waters of South Africa, including archaeological and palaeontological objects and material, meteorites and rare geological specimens	-	-	-	-	-	-	-	-	-	-	-	-
Ethnographic art and objects	-	-	-	-	-	-	-	-	-	-	-	-
Military objects	-	-	-	-	-	-	-	-	-	-	-	-
Objects of decorative or fine art	-	-	-	-	-	-	-	-	-	-	-	-

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S 3(2) NHRA heritage resource	Site no	Heritage Significance	Impact extent	Impact duration	Impact intensity	Impact probability	Impact confidence	Impact status	Impact nature		Impact significance	
									Direct	Accumulative	Without mitigation	With mitigation
Objects of scientific or technological interest	-	-	-	-	-	-	-		-	-	-	-
Books, records, documents, photographic positives and negatives, graphic, film or video material or sound recordings	-	-	-	-	-	-	-		-	-	-	-

PART 1: DEVELOPMENT OVERVIEW

The structure of this report is based on:

- SOUTH AFRICAN HERITAGE RESOURCES AGENCY, Heritage Impact Assessment: Notification of intent to develop (form)
- DEPARTMENT OF ENVIRONMENTAL AFFAIRS AND DEVELOPMENT PLANNING, PROVINCIAL GOVERNMENT OF THE WESTERN CAPE, 2005, Guideline for involving heritage specialists in EIA processes (document)
- DEPARTMENT OF ENVIRONMENT AFFAIRS AND TOURISM, Integrated Environmental Management Guidelines
- SOUTH AFRICAN HERITAGE RESOURCES AGENCY, 2006, *Minimum standards: Archaeological and palaeontological components of impact assessment reports* (unpublished).
- WORLD BANK, *Environmental Assessment Sourcebook Update No 8, September 1994: Cultural Heritage in Environmental Assessment*.
- Best-practice HIA reports submitted by Cultmatrix and other heritage consultants

1.1 Background

1.1.1 General

This heritage scoping report is part of the Environmental Impact Assessment (EIA) for a proposed residential, development, 200 ha in extent, located on the farm Bestwood 429 RD, situated adjacent to the N 14 diagonally opposite Kathu Motors (Shell) and opposite the eastern entrance road to Kathu. The proposed sewage treatment plant to service the proposed development will be located directly east of the existing sewage treatment dam at Kathu.

The proposed development will involve the phased development of residential dwellings on a 200 ha portion of Bestwood and the establishment of the necessary infrastructure, such as access roads, water reservoir, sewage treatment plant, electricity and storm water infrastructure.

The Kathu area has a long environmental history of human use and occupation, initiated by Early Stone Age communities associated with the Cradle of Humankind World Heritage Site, and preceded by geological changes that left behind a legacy of palaeontological sites. It includes a range of heritage resources as defined in the *National Heritage Resources Act (Act 25 of 1999)*:

- Places, buildings and structures and equipment of cultural significance;
- Places to which oral traditions are attached or that are associated with intangible heritage (ceremonies, memories, festivals, economic use etc);
- Historical settlements and townscapes;
- Landscapes and natural features of cultural significance;
- Graves and burial grounds;
- Archaeological sites;
- Sites related to the history of farm and industrial labour.

Rock Environmental Consulting (independent EIA consultants appointed by the developers) appointed Cultmatrix cc as an independent heritage consultant to conduct a heritage scoping of existing and potential places, buildings, objects and structures of heritage significance found within and around the boundaries of the areas that will be impacted upon directly and indirectly by the proposed development.

1.1.2 Terms of reference

This investigation is a heritage scoping investigation concerning the proposed development in accordance with the basic requirements of Section 38 of the National Heritage Resources Act (Act 25 of 1999).

The general aim of the investigation was to identify and assess existing (visible) and potential (hidden) sites of heritage significance that could influence the proposed development.

The general objectives were to research the chronology of the site and its role in the broader context, to undertake a comprehensive assessment of heritage significance, to analyse the nature and scale of the proposed development, to establish the compatibility of the proposed development with heritage and other statutory frameworks and to recommend short-term measures in order to promote heritage conservation issues.

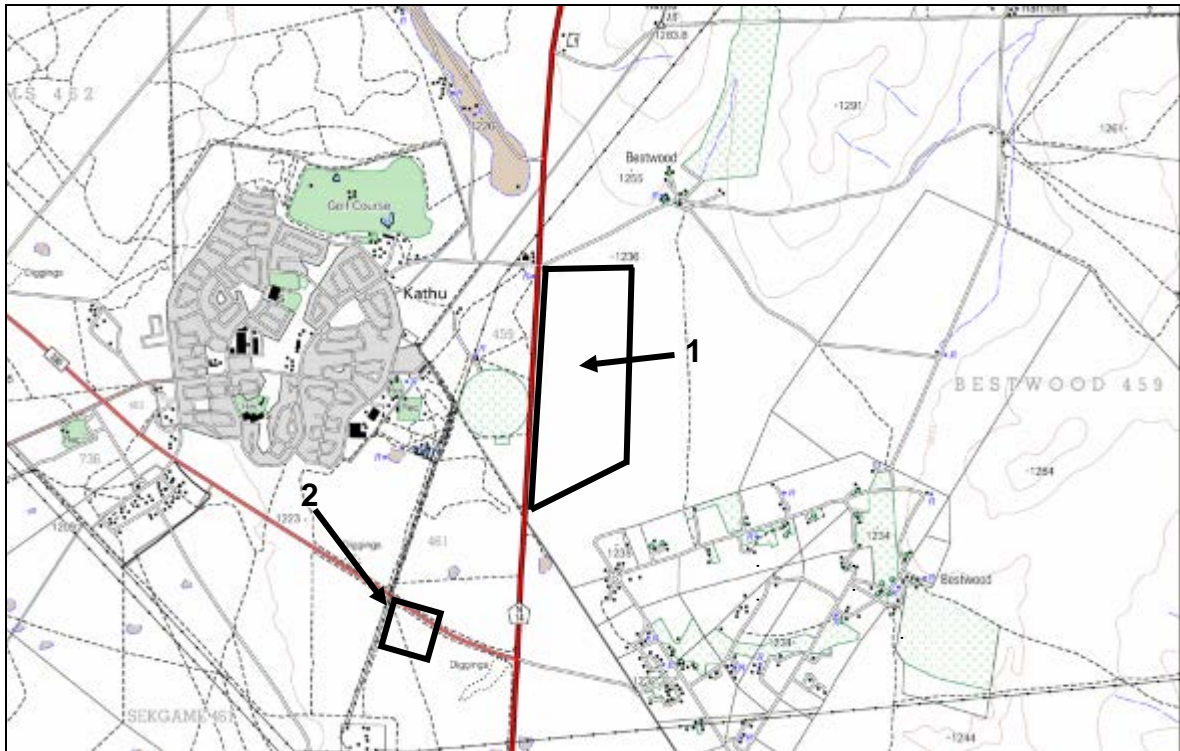


FIGURE 1: Map 2723 CA Kathu (2001) indicating location of the proposed development areas: 1 = residential estate, 2 = sewage treatment plant. North is at the top.

1.2 Study approach

1.2.1 Definitions and assumptions

The following aspects have a direct bearing on the investigation and the resulting report:

- *Cultural (heritage) resources* are all non-physical and physical human-made occurrences, as well as natural occurrences that are associated with human activity. These include all sites, structures and artefacts of importance, either individually or in groups, in the history, architecture and archaeology of human (cultural) development.
- The *significance* of the sites and artefacts is determined by means of their historical, social, aesthetic, technological and scientific value in relation to their uniqueness, condition of preservation and research potential. It must be kept in mind that the various aspects are not mutually exclusive, and that the evaluation of any site is done with reference to any number of these.
- The *value* is related to concepts such as *worth*, *merit*, *attraction* or *appeal*, concepts that are associated with the (current) usefulness and condition of a place or an object. Hence, in the development area, there are instances where elements of the place have a high level of significance but a lower level of value.
- It must be kept in mind that significance and value are not mutually exclusive, and that the evaluation of any feature is based on a combination or balance between the two.

- Isolated occurrences: findings of artefacts or other remains located apart from archaeological sites. Although these are noted and samples are collected, it is not used in impact assessment and therefore do not feature in the report.
- Traditional cultural use: resources which are culturally important to people.
- All archaeological remains, artificial features and structures older than 100 years and historic structures older than 60 years are protected by the relevant legislation, in this case the National Heritage Resources Act (NHRA) (Act No. 25 of 1999). No archaeological artefact, assemblage or settlement (site) and no historical building or structure older than 60 years may be altered, moved or destroyed without the necessary authorisation from the South African Heritage Resources Agency (SAHRA) or a provincial heritage resources authority. Full cognisance is taken of this Act in making recommendations in this report.
- The guidelines as provided by the NHRA (Act No. 25 of 1999) in Section 3, with special reference to subsection 3, and the Australian ICOMOS Charter (also known as the Burra Charter) are used when determining the cultural significance or other special value of archaeological or historical sites.
- It should be kept in mind that archaeological deposits usually occur below ground level. Should artefacts or skeletal material be revealed at the site during construction, such activities should be halted, and it would be required that the heritage consultants would be required to be notified in order for an investigation and evaluation of the find(s) to take place (*cf.* NHRA (Act No. 25 of 1999), Section 36 (6)).
- The development site is located within a known palaeontologically and archaeologically sensitive area. The assessment therefore assumed that damage to heritage resources potentially will occur in the proposed development.

1.2.2 Limiting/Restricting factors

The investigation has been influenced by the following factors related to the overall EIA:

- Availability and reliability of baseline information about the affected area;
- Unpredictability of buried archaeological/palaeontological remains (absence of evidence does not mean evidence of absence);

1.2.3 Field work

The approach used in the study entailed a foot survey of the proposed sites.

The assessment took place in March 2008.

1.2.4 Desktop study

Information was obtained from various internet sources, publications, the Kathu municipal library, Dr Cobus Dreyer (Archaeologist, Bloemfontein) and Mr Roger Price (Researcher, Council for Geoscience, Pretoria).

1.3 Legal context of the HIA

1.3.1 Section 38 of the NHRA

This study constitutes a heritage scoping investigation linked to the environmental impact scoping and impact assessment required for the development. The proposed development is a listed activity in terms of Section 38 (1) of the NHRA. Section 38 (2)(a) of the National Heritage Resources Act (Act 25 of 1999) requires the submission of a heritage impact assessment report for authorisation purposes to the responsible heritage resources agency, SAHRA.

Heritage conservation and management in South Africa (excluding KwaZulu Natal on a provincial level) is governed by the *National Heritage Resources Act* (Act 25 of 1999) (NHRA) and falls under the

overall jurisdiction of the *South African Heritage Resources Agency (SAHRA)* and its provincial offices and counterparts.

Section 38 of the NHRA requires a Heritage Impact Assessment (HIA), to be conducted by an independent heritage management consultant, for the following development categories:

- Construction of a road, wall, power line, pipeline, canal or other linear form of development or barrier exceeding 300m in length
- Construction of bridge or similar structure exceeding 50m in length
- Development or other activity that will change the character of a site -
 - Exceeding 5000 sq m
 - Involving three or more existing erven or subdivisions
 - Involving three or more erven or divisions that have been consolidated within past five years
 - Rezoning of site exceeding 10 000 sq m
 - The costs of which will exceed a sum set in terms of regulations by SAHRA or a provincial heritage resources authority
- Any other development category, public open space, squares, parks, recreation grounds

The proposed development covers an area larger than 5000 sq m and is therefore a listed activity in terms of the NHRA.

In addition, the new EIA Regulations promulgated in terms of NEMA determine that any environmental reports will include cultural (heritage) issues.

Although this report is not a full HIA report, it can be submitted to SAHRA and the Northern Cape Heritage Resources Authority for comments. The purpose of this report is to alert the developer, the environmental consultant, Northern Cape Province and SAHRA about existing heritage resources that may be affected by the proposed development, and to recommend mitigatory measures aimed at reducing the risks of any adverse impacts on these heritage resources. Such measures could include the recording of any heritage buildings and structures older than 60 years prior to demolition, in terms of Section 34 of the NHRA and also other Sections of this act dealing with archaeological sites, buildings and graves. The implementation of these interventions constitutes separate, follow-up projects with separate permits.

Because of the size of the development, authorisation will be given or facilitated by SAHRA's Gauteng office based on a final and full HIA report, which should include the reports of specialists such as an archaeologist and a palaeontologist, the results of public participation and proposals for mitigating negative impacts before and during construction work. Final reports should therefore be submitted by the client (or, if agreed to, by Cultmatrix) to these offices for authorisation. Normally the HIA report is an extended HIA report.

In terms of the ECA, Section 38(1) of the NHRA is also applicable – thus any person undertaking any development in the categories of Section 38 (1) a-e, must at the very earliest stages of initiating such a development, notify the responsible heritage resources authority and furnish it with details regarding the location, nature and extent of the proposed development. In the case of an EIA, comments from the responsible heritage resources agency based on a heritage scoping report are required.

The NHRA Section 2 (xvi) states that a “heritage resource” means any place or object of cultural significance, and in Section 2 (vi) that “cultural significance” means aesthetic, architectural, historical, scientific, social, spiritual, linguistic or technological value or significance.

Apart from a heritage report assisting a client to make informed development decisions, it also serves to provide the relevant heritage resources authority with the necessary data to perform their statutory duties under the NHRA. After evaluating the heritage scoping report, the relevant heritage resources authority will decide on the status of the resource, whether the development may proceed as proposed or whether mitigation is acceptable, and whether the heritage resources require formal protection, i.e. as a Grade I, II or III resource, with relevant parties having to comply with all aspects pertaining to such Grading.

1.3.2 Section 35 of the NHRA

Section 35 (4) of the NHR Act stipulates that no person may, without a permit issued by SAHRA to destroy, damage, excavate, alter or remove from its original position, or collect, any archaeological material or object. This section applies when issuing a permit to an archaeologist to sample the developments sites.

1.3.3 Section 36 of the NHRA

Section 36 (3) of the NHR Act stipulates that no person may, without a permit issued by the South African Heritage Resources Agency (SAHRA), 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. This section applies when human remains are discovered.

1.3.4 Section 34 of the NHRA

Section 34 of the NHRA stipulates that no person may, without a permit issued by SAHRA and/or its provincial counterparts, alter, destroy, damage, relocate etc any building or structure older than 60 years. This section does not apply in this case since the proposed development does not affect such buildings or structures.

1.4 Development criteria in terms of Section 38(1)

1.4	Development criteria in terms of Section 38(1)	Yes/No details
1.4.1	Construction of road, wall, power line, pipeline, canal or other linear form of development or barrier exceeding 300m in length	Yes
1.4.2	Construction of bridge or similar structure exceeding 50m in length	No
1.4.3	Development exceeding 5000 sq m	Yes
1.4.4	Development involving three or more existing erven or subdivisions	No
1.4.5	Development involving three or more erven or divisions that have been consolidated within past five years	No
1.4.6	Rezoning of site exceeding 10 000 sq m	Yes
1.4.7	Any other development category, public open space, squares, parks, recreation grounds	No

1.5 Property ownership

1.5	Property owners	
1.5.1	Farm	Bestwood 429 RD
1.5.2	Name and contract address	Unknown
1.5.3	Telephone number	
1.5.4	Fax number	
1.5.5	E-mail	

1.6 Developer

1.6	Developer	
1.6.1	Name and contact address	Katu Property Developers (Pty) Ltd, Private Bag X 2005, Menlyn Retail Pak, 0063 Pretoria
1.6.2	Telephone number	
1.6.3	Fax	
1.6.4	E-mail	

1.7 Environmental specialist

1.7	Environmental Specialist	
1.7.1	Name and contact address	Rowan van Tonder, Rock Environmental Consulting (Pty) Ltd, PO Box 40541, Moreleta Park 0044
1.7.2	Telephone number	(012) 997 4742
1.7.3	Fax	(012) 997 0415

1.7	Environmental Specialist	
1.7.4	E-mail	Rock.rowan@lantic.net

1.8 Heritage impact assessment specialists

1.8	Specialist (1)	
1.8.1	Name and contact address	Dr RC de Jong (Principal Member: Cultmatrix cc), PO Box 12013, Queenswood 0121, Pretoria
1.8.2	Qualifications and field of expertise	PhD (Cultural History) UP (1990), Post-Graduate Museology Diploma UP (1979), generalist heritage management specialist with experience in museums and heritage since 1983
1.8.3	Relevant experience in study area	SOER for North-West Province (2008)
1.8.4	Telephone number	(082) 577-4741
1.8.5	Fax number	(086) 612-7383
1.7.6	E-mail	cultmat@iafrica.com

1.9 Property details

1.9	Property details	
1.9.1	Name and location of property	Bestwood
1.9.2	Erf or farm numbers	429 RD
1.9.3	Magisterial district	Postmasburg
1.9.4	Closest town	Kathu
1.9.5	Local authority	Gamagara Municipality
1.9.5	Current use	Grazing (Bestwood residential), vacant (sewage plant site)
1.9.5	Current zoning	Agricultural
1.9.5	Predominant land use of surrounding properties	Agricultural, residential, commercial, vacant
1.9.9	Total extent of property	200 ha

1.10 Development description

1.10	Development description	
1.10.1	Nature of proposed development	Consideration is being given to developing a residential estate with associated infrastructure
1.10.2	Possible impacts on heritage value of site and contents	Low to high negative, depending whether any archaeological and palaeontological features will be uncovered
1.10.3	Structures older than 60 years affected by proposed development	No
1.10.4	Rezoning or change of land use	Yes
1.10.5	Construction work	Yes: parking, buildings, roads, etc
1.10.6	Total floor area of proposed development	Not available
1.10.7	Extent of land coverage of development	Residential estate 200 ha
1.10.8	Earth moving and excavation	Yes: for foundations, levelling, landscaping
1.10.9	Number of storeys	Not available
1.10.10	Maximum height above ground level	Not available
1.10.11	Monetary value development	Not available
1.10.12	Time frames	Urgent

1.11 Legal requirements

1.11	Legal requirements	
1.11.1	Is planning permission required for any departures or consent use	Yes

1.11	Legal requirements	
	in terms of zoning schemes? Has an application been submitted to the planning authority and have any comments or approval from the planning authority been obtained?	
1.11.2	Is planning authority permission required for any subdivision or consolidation? Has an application been submitted to the planning authority and has any comment or approval from the planning authority been obtained?	It will be
1.11.3	Is the proposed development subject to EIA regulations and has an application been submitted to the provincial environmental agency?	Yes
1.11.4	Has any assessment of the impact of the proposed development on any heritage resources been undertaken in terms of EIA or planning processes?	Yes: part of this report
1.11.5	At what stage in the EIA process is the application?	
1.11.6	Title deed restrictions	Not available
1.11.6	Is affected area situated within or adjacent to conservation area, special area, scenic route or any other area that has special environmental or heritage protection?	No
1.11.6	Does affected area have any special conservation status?	No
1.11.6	Are there any other restrictions on the property?	No
1.11.10	Does the proposed development conform to local planning policies?	Yes
1.11.11	What interested and affected parties have been consulted?	Public participation process conducted as part of HIA and of EIA process
1.11.12	Is approval from any authority required?	Yes: SAHRA and GDACE
1.11.13	Has permission for similar development been refused by any authority in the past?	No

1.12 Acknowledgements

- Dr Cobus Dreyer, Archaeologist, Bloemfontein
- Mr Roger Price, Researcher, Council for Geoscience, Pretoria
- Staff of the Kathu municipal library
- Farm owner, Bestwood

PART 2: HERITAGE ASPECTS OF THE AFFECTED AREA

2.1 General issues of site and context

2.1.1 Context		
	<i>(check box of all relevant categories)</i>	<i>Brief description/explanation</i>
	Urban environmental context	Farm land and veld surrounded by roads, power lines, fences, smallholdings, houses etc
x	Rural environmental context	
	Natural environmental context	
Formal protection (NHRA)		
	Is the property part of a protected area (S. 28)?	No
	Is the property part of a heritage area (S. 31)?	No
Other		
	Is the property near to or visible from any protected heritage sites?	No
	Is the property part of a conservation area or special area in terms of the Zoning Scheme?	Possibly Klip River
x	Does the site form part of a historical settlement or townscape?	Kathu and smallholdings on Bestwood
	Does the site form part of a rural cultural landscape?	No
	Does the site form part of a natural landscape of cultural significance?	No
	Is the site within or adjacent to a scenic route?	No
	Is the property within or adjacent to any other area which has special environmental or heritage protection?	No
	Does the general context or any adjoining properties have cultural significance?	No

2.1.2 Property features and characteristics		
	<i>(check box if YES)</i>	<i>Brief description</i>
	Has the site been previously cultivated or developed?	No
	Are there any significant landscape features on the property?	No
	Are there any sites or features of geological significance on the property?	No
	Does the property have any rocky outcrops on it?	No
	Does the property have any fresh water sources (springs, streams, rivers) on or alongside it?	No
	Does the property have any sea frontage?	No
	Does the property form part of a coastal dune system?	No
	Are there any marine shell heaps or scatters on the property?	No
	Is the property or part thereof on land reclaimed from the sea?	No

2.1.3 Heritage resources on the property		
	<i>(check box if present on the property)</i>	<i>Name / List / Brief description</i>
Formal protections (NHRA)		
	National heritage site (S. 27)	No
	Provincial heritage site (S. 27)	No
	Provisional protection (s.29)	No
	Place listed in heritage register (S. 30)	Possibly (archaeological sites on Kathu Townlands, Uitkomst and Hartnolls)
General protections (NHRA)		
	structures older than 60 years (S. 34)	No
x	archaeological site or material (S. 35)	Highly possible
x	palaeontological site or material (S. 35)	Highly possible
	graves or burial grounds (S. 36)	No
	public monuments or memorials (S. 37)	No
Other		
	Any heritage resource identified in a heritage survey (state author and date of survey and survey grading/s)	None
	Any other heritage resources (describe)	No

2.1.4 Property history and associations		
	<i>(check box if YES)</i>	<i>Brief description/explanation</i>
x	Provide a brief history of the property (e.g. when granted, previous owners and uses).	See 2.3 below
	Is the property associated with any important persons or groups?	No
	Is the property associated with any important events, activities or public memory?	No
	Does the property have any direct association with the history of slavery?	No
	Is the property associated with or used for living heritage?	No
	Are there any oral traditions attached to the property?	No

2.2 General description of environmental and heritage context of affected area

The proposed residential estate of 200 ha on Bestwood is roughly trapezoidal in shape with the longer side along the N 14. The northern boundary is formed by the access road to the Bestwood farmstead and a fence. The eastern and southern boundaries are not defined. The site is flat and covered with red sand, sparse grass cover and scattered clumps of trees. Scattered rocks and chunks of limestone cover the surface of the land. The area is used for grazing cattle.

The sewage treatment farm site has no defined boundaries and has the same landscape characteristics as the Bestwood residential estate.



FIGURE 2: View of residential site from the N 14



FIGURE 3: View of residential site towards N 14



FIGURE 4: Land cover

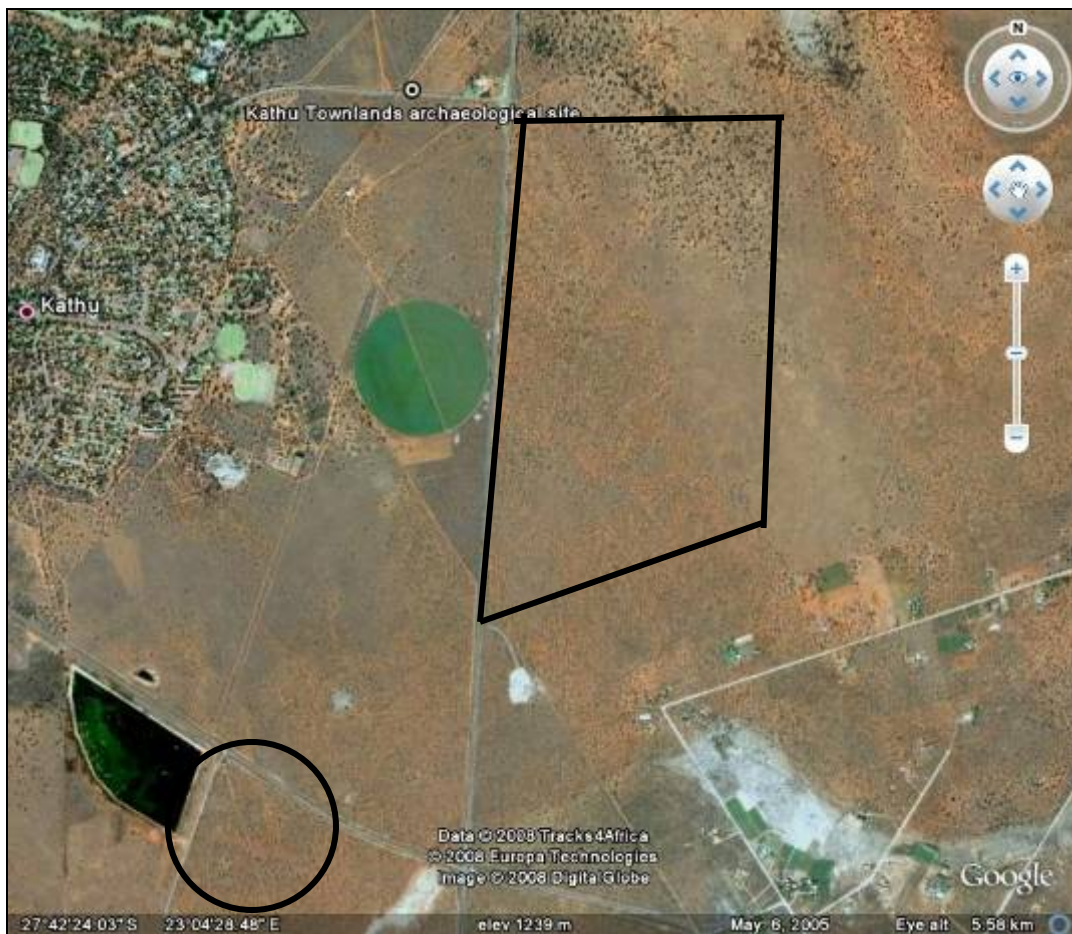


FIGURE 5: Google image of the sewage treatment farm site (circle) and residential estate

2.3 Short history of the development area

2.3.1 Palaeontological era

Bestwood is located in a part of the Northern Cape Province commonly referred to as the “Green Kalahari”. At the time of the appearance of the first hominids, the plains and hills would have consisted of widespread grasslands, scattered bushveld and broken woodlands. These grasslands would have been dominated by large herds of mammalian grazers and the predators feeding on them. River courses had woodland fringes, which would have been home to various primates, as well as hippopotamus, lechwe and waterbuck.

During 1974 a discovery of animal fossils and Early Stone Age artefacts was made in the Kathu Pan by Naas Viljoen, a previous manager of the Sishen farm. Many prehistoric bone fossils and artefacts were picked up by people over a wide area without realising the significance of these finds.

Archaeological excavations by GJB Humphries and P Beaumont, both of the McGregor Museum in Kimberley, during 1975 and again from 1978-1990 led to the discovery that the pan was an ancient limestone sinkhole formation in which sedimentary materials were deposited. In these deposits the fossilised remains of a large variety of animals were found, such as springhaas, hippopotamus, giraffe, white rhino, as well as extinct species such as Reck’s elephant, which disappeared about 850 000 years ago.



FIGURE 6: Fossilised molar root from Reck’s elephant

2.3.2 Stone Age

The first communities were hunters and gatherers who were able to make tools and weapons from stone, bone and wood. About 2,4 million years BP, early hominids known as *Australopithecus africanus* lived at Taung (a national heritage site), one of South Africa’s most important palaeontological sites.

The australopithecines were gradually displaced by another early hominid, *Homo habilis*, and eventually disappeared. *Homo habilis* had evolved into the more advanced *Homo erectus* (also known as *Homo ergaster*) by 1,8 million years BP, which was responsible for the development of large stone cutters and cleavers that collectively constitute the so-called Early Stone Age (ESA).

By 250 000 years BP, the large cleavers and hand axes of the ESA disappeared and were replaced by a larger variety of smaller tools and weapons of diverse shapes and sizes, made by different techniques. This change in technology marks the beginning of the Middle Stone Age (MSA). During the MSA, early humans still settled in the open along or near water sources but also took shelter in caves. The MSA marks the transition from a more archaic *Homo* (*Homo ergaster*) to anatomically modern humans, *Homo sapiens*. With this physical development the first signs of art, decoration and symbolism began to appear.



FIGURE 7: Examples of Early Stone Age (Acheulean) artefacts found in the Kathu area (Photo Dr Cobus Dreyer)

The Later Stone Age (LSA), which occurred from about 20 000 years ago, is signalled by a series of technological innovations and social transformations within these early hunter-gatherer societies. The hunting apparatus now included two important innovations, the bow and the link-shaft arrow. Link-shaft arrows were constructed with a poisoned bone tip, a link and shaft that fell away on impact, leaving the poison tip imbedded in the animal. Other innovations included bored stones, used as digging-stick weights to aid in uprooting tubers and roots; small stone tools, often less than 25 mm in length, used for cutting meat and scraping hides; polished bone tools such as needles; twine made from plant fibre or leather; tortoiseshell bowls; fishing equipment, including hooks and sinkers; bone tools with decoration; high frequencies of ostrich eggshell beads and an increase in ornaments and artwork.

The LSA is associated with San communities as well as with Khoi groups that arrived from the northern interior about 2000 years BP.

All three Stone Age periods are well represented around Bestwood at the following sites:

Kathu Pan

At this shallow feature, about 30 ha in extent, the present natural water-table rises above the surface in summer, but lies 1-2 m below it in mid-winter. Superficial unconsolidated sediments are underlain by over 40 m of calcrete, followed by about 30 m of sands, clays and basal gravels, collectively of the Tertiary-aged Kalahari Group. Hand axes and faunal remains found in a newly formed subsidence there in 1974 led to investigation by Humphreys the following year, and extensive excavations in eight filled dolines by Beaumont, from 1978 to 1990. Taken together, archaeological assemblages from the Kathu Pan 1-8 sites represent two phases of the ESA, two phases of the MSA, and more or less the entire LSA (c 32 - 1 kyr BP).

Kathu Townlands

This site is located away from the pan, on the outskirts of the town. Two excavations, some 300 m apart, were undertaken there in 1982 and 1990. The superficial unconsolidated aeolian sand unit contains few if any artefacts, but the lower banded ironstone (jaspilite) rubble, up to a metre deep, is very largely composed of stone artefacts. These are attributable to an Acheulean phase, slightly later than Kathu Pan 4a in typological terms, that is distinguished by incipient blade production. The site has an estimated area of 250 000 sq m, and on the basis of the counts for Excavation 1a, it is calculated that it contains of the order of some 2 billion artefacts. This remarkable abundance of lithic debris clearly results from the protracted use of the high-grade banded ironstone outcrop as a raw

material source, with such a quarry/workshop interpretation being further supported by the high percentage of rough-outs in the total hand axe sample. Lithics from the two widely separated excavations are typologically identical and further evidence that this site formed during a single relatively brief (one interglacial?) time span is provided by the observation that artefacts showing weathering and trampling damage are confined to the surface of the rubble accumulation.

Uitkomst 4

Archaeological investigations by Beaumont between 1982 and 1992 produced an abundance of early Stone Age or Acheulian hand axes, cores and crude blades in and around Kathu. These artefacts were topologically uniform. The site at Uitkomst 463 covers less than 1km² and the excavations produced about 8000 artefacts per m². From these finds, Peter Beaumont estimated that the area could contain the astronomic number of about 10 billion flaked tools. The site containing Early Stone Age (ESA) or Acheulian hand axes was discovered during the first visit by the Dreyer to the farm Hartnolls 458 outside Kathu. An elaborate number of artefacts were found scattered on the surface. The artefacts were well preserved and without any patination or erosion. More artefacts were collected during a second visit to the site in November 2006 and during a third visit, accompanied by Beaumont in December 2006.

The Dreyer site is located east of the cemetery and is designated as Uitkomst 4 by Beaumont. The soil surface slopes up the hill towards the east, which overlooks Bestwood. Certain areas along the incline contain material and flakes indicating stone tool manufacturing activities in the region. The artefacts are located at the foot of the slope where it had been covered by red sterile sand.

Hartnolls

The Kathu area is also famous for its extensive stands of camel thorn trees. In view of proclaiming part of the farm Hartnolls (immediately north of Bestwood) as a nature reserve to protect some of them, Dreyer undertook a heritage assessment and discovered more Stone Age deposits on this farm.

The LSA is also associated with the advent of rock art. In Southern Africa rock paintings are primarily found in hilly and mountainous areas where there are shelters, whilst rock engravings occur in the open on scattered rocks and outcrops. The Kathu area has a significant collection of rock engravings. Most of these engravings are attributed to the Khoisan communities that evolved during the later periods of the LSA.



FIGURE 8: Rock engraving of guinea fowl and other birds, collected in the hills west of the Sishen Mine

2.3.3 Iron Age

The expansion of early farmers, who, among other things, cultivated crops, raised livestock, made ceramic containers (pots), mined ore and smelted metals, occurred in this area between AD 400 and AD 1100 and brought the Early Iron Age (EIA) to South Africa. They settled in semi-permanent villages. These communities migrated from the Lowveld and coastal areas to the higher regions in the interior (such as the Bankenveld) during the latter part of the EIA. Sites were found within 100m of water, either on a riverbank or at the confluence of streams. The close proximity to streams meant that the sites were often located on alluvial fans. The nutrient rich alluvial soils would have been favoured for agriculture. The availability of floodplains and naturally wetter soils would have been important for the practice of dryland farming.

While there is some evidence that the EIA continued into the 15th century in the lowveld, on the escarpment it had ended by AD1100. The Highveld became active again from the 15th century onwards due to a gradually warmer and wetter climate. From here communities spread to other parts of the interior. This later phase, termed the Late Iron Age (LIA), was accompanied by extensive stonewalled settlements, such as the Thlaping capital Dithakong, 40 km north of Kuruman.

Sotho-Tswana and Nguni societies, the descendants of the LIA mixed farming communities, found the region already sparsely inhabited by the Late Stone Age (LSA) Khoisan groups, the so-called 'first people'. Most of them were eventually assimilated by LIA communities and only a few managed to survive, such as the Korana and Griqua. This period of contact is sometimes known as the Ceramic Late Stone Age and is represented by the Blinkklipkop specularite mine near Postmasburg and finds at the Kathu Pan.

From LIA communities tribal societies emerged conveniently grouped according to their languages. The Kathu region became home to Western Sotho communities speaking Setswana, such as the Tlhaping, Rolong, Phiring, Fokeng, Kwena, Kgatla, Hurutshe, Taung and Ngwaketse tribal communities.

Factors such as population expansion, increasing pressure on natural resources, the emergence of power blocs, attempts to control trade and penetration by Griquas, Korana and white communities from the south-west resulted in a period of instability in Southern Africa that began in the late 18th century and effectively ended with the settlement of white farmers in the interior. This period, known as the *difaqane* or *Mfecane*, also affected the Northern Cape Province, although at a relatively late stage compared to the rest of Southern Africa. Here, the period of instability, beginning in the mid-1820s, was triggered by the incursion of displaced refugees associated with the Tlokwa, Fokeng, Hlakwana and Phuting tribal groups.

The *difaqane* coincided with the penetration of the interior of South Africa by white traders, hunters, explorers and missionaries. The first was PJ Truter's and William Somerville's journey of 1801, which reached Dithakong at Kuruman. They were followed by Cowan, Donovan, Burchell and Campbell and resulted in the establishment of a London Mission Society station near Kuruman in 1817 by James Read.

2.3.4 Griqua and Boer settlement

The Great Trek of the Boers from the Cape in 1836 brought large numbers of Voortrekkers up to the borders of large regions known as Bechuanaland and Griqualand West, thereby coming into conflict with many Tswana groups and also the missionaries of the London Mission Society. The conflict between Boer and Tswana communities escalated in the 1860s and 1870s when the Korana and Griqua communities became involved and later also the British government. The conflict mainly centred on land claims by various communities. For decades the western border of the Transvaal Boer republic was not fixed. Only through arbitration (the Keate Arbitration), triggered by the discovery of gold at Tati (1866) and diamonds at Hopetown (1867) was part of the western border finally determined in 1871. Ten years later, the Pretoria Convention fixed the entire western border, thereby finally excluding Bechuanaland and Griqualand West from Boer domination.

Geographically, Kathu is part of a region known as Griqualand West. At the end of the 18th century and the beginning of the 19th century Griqua tribes coming from the south settled in the region in order to escape encroachment of Afrikaner Trekboers who were active along the Orange River. They established the town of Klaarwater, renamed Griquatown in 1813. After the discovery of diamonds in 1867 a serious dispute over the ownership of the diamond fields ensued, involving the Transvaal and Orange Free State Boer republics, Griqua, Korana and Thlaping communities and the Cape colonial government. In October 1871 the diamond fields were proclaimed British territory under the name Griqualand West. In 1879 it was annexed to the Cape Colony.

The Griqua town of Blinkklip, originally a mission station, was renamed Postmasburg in 1890 and became the centre of a magisterial district which includes Kathu. Another town, Olifantshoek, was established in the 1880s. The region remained sparsely populated until the advent of the 20th century, when cattle farming became popular. Government-owned land was surveyed and divided into farms, which were transferred to farmers. Following the establishment of a communal cattle-watering facility at Deben (now Dibeng) during 1907-1908, the farm Bestwood was surveyed and given out in 1911.



FIGURE 9: Oldest known aerial image of Bestwood (1957) before Kathu was established, indicating the location of the residential estate (Job 391/1957, Strip 12, No 2226)

2.3.5 Kathu

Indigenous communities, travellers and missionaries had been aware of the presence of iron ore in the Bestwood area, the missionary Robert Moffat recording on a journey to Kuruman in 1834 that he saw hills of glittering black rock. These hills are known today as the Gamagara Ridge that dominates the iron mine at Kathu.

In 1947 ISCOR obtained prospecting and mining rights in connection with iron ore deposits in the area. These turned out to be high-grade haematite deposits and a year later ISCOR purchased the farm Sishen. In 1952 a town named Sishen was established (today Dingleton). The rapid expansion of mining activities necessitated the establishment of a much larger town, which was started in 1972-1974 with 2000 erven on the fringe of the Kathu Forest Reserve, about 20km from Sishen. The new

town was named Kathu and it obtained municipal status in 1979. With further expansion of the Sishen Mine, the construction of a railway line to Saldanha, improved roads etc, the population grew and Kathu became the centre of various other settlements, such as Seshen and Dingleton (African townships in terms of apartheid legislation), Dibeng, a small industrial area and smallholdings on the south-western portion of Bestwood.

PART 3: FINDINGS AND RECOMMENDATIONS

Part 3 is based on the requirements for heritage scoping reports and HIAs in accordance with Section 38(3) of the NHRA.

3.1 Identification of significant heritage features

No visible features of heritage significance were identified on the sites proposed for the residential estate and the sewage treatment farm.

However, there is a definite possibility that both sites could contain Stone Age deposits similar to those found at Kathu Townlands, Uitkomst and Hartnolls.

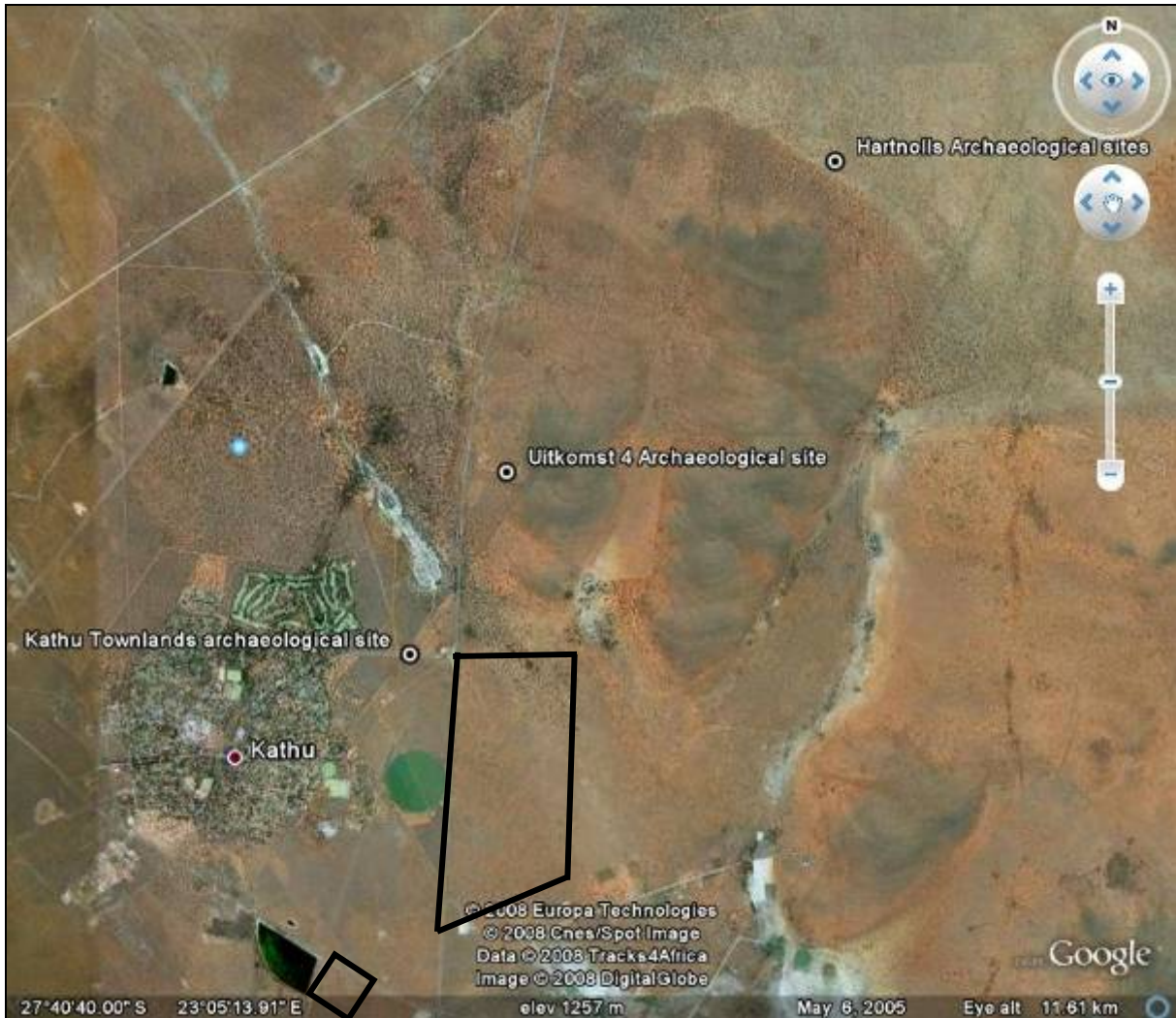


FIGURE 10: Google Earth image indicating the position of the sewage and residential sites in relationship to known sites of palaeontological and archaeological significance

3.2 Summary of cultural significance of the property or any part thereof (Section 3(3))

	<i>(check box of all relevant categories)</i>	<i>Brief description/explanation</i>
X	Important in the community or pattern of South Africa's history.	Potential for deposits that could shed more light on palaeoenvironments and early human settlements
	Associated with the life or work of a person, group or organisation of importance in history.	No
	Associated with the history of slavery.	No

	Strong or special association with a particular community or cultural group for social, cultural or spiritual reasons	No
	Exhibits particular aesthetic characteristics valued by a community or cultural group	No
	Demonstrates a high degree of creative or technical achievement at a particular period	No
X	Has potential to yield information that will contribute to an understanding of natural or cultural heritage	Yes: Palaeontological and archaeological deposits
	Typical: Demonstrates the principal characteristics of a particular class of natural or cultural places	No
	Rare: Possesses uncommon, rare or endangered aspects of natural or cultural heritage	No
Statement of significance		
The <u>potential</u> palaeontological and archaeological remains have been rated as having high national significance.		

3.3 Impact assessment (refer to the proposed layout of the development, Figure 11 below)

3.3.1 General remarks

The predicted impact on palaeontological and archaeological sites is difficult since no objects or artefacts of palaeontological or archaeological significance were identified yet.

3.3.2 Nature of impact

With all sites, any direct impact nature will imply **exposure and destruction** during the construction phases. The indirect (accumulative) nature during the operational phases will imply **ongoing degradation** of sites. The term "sites" only refers to potential palaeontological and archaeological sites.

3.3.3 Extent of impact

In all cases the impact extent will be **localised** affecting only potential palaeontological and archaeological sites in the development area.

3.3.4 Duration of impact

The impact duration on potential palaeontological and archaeological sites will be irreversible and **permanent**.

3.3.5 Intensity of impact

In all cases the impact intensity will be **high**.

3.3.6 Probability of occurrence of impact

In all cases the probability/risk of an impact will be **possible**.

3.3.7 Status of impact

In all cases the impact status will be **negative** implying the destruction of sites.

3.3.8 Accumulative impact

The indirect (accumulative) nature during the operational phases will imply **ongoing degradation** of sites.

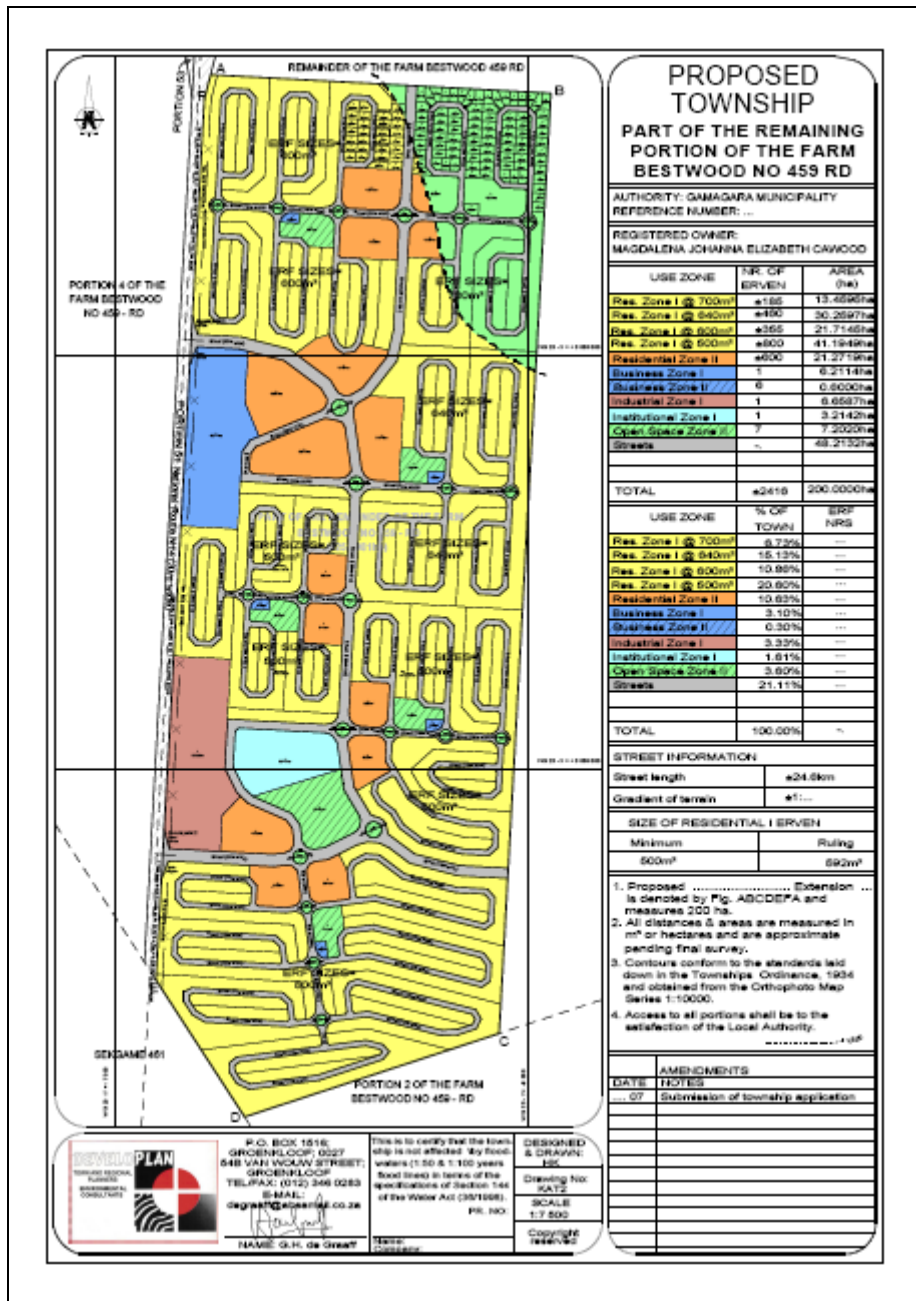


FIGURE 11: Layout of proposed residential estate on Bestwood

3.3.9 Degree of confidence in predictions of impacts

In all cases the degree of confidence is **high** since other sites of potential palaeontological and archaeological have been identified in the vicinity (see Figure 10).

3.3.10 Impact significance

The impact significance varies from **medium negative** to **high negative**. This can be reduced to low negative through mitigation measures.

3.4 Social and economic benefits

The development could have direct benefits from a heritage conservation perspective depending upon the size and variety of any palaeontological and archaeological deposits that may exist.

The Kathu population is increasing and unemployment is a problem. In addition, there is a need for more upmarket and exclusive housing.

3.5 Consultation with affected communities

This process will be part of the EIA as a whole.

3.6 Identification of risk sources

The following project actions will very likely impact negatively on any potential palaeontological and archaeological sites and remains.

The actions are likely to occur during both the Construction and Operational Phase of the proposed project.

- Vegetation clearing operations could expose objects and artefacts.
- Bulk earthworks and excavations will possibly expose or uncover objects and artefacts and unmarked human burials.
- Uncontrolled public use of the area during the Operational Phase of the project will also result in on-going degradation of any archaeological remains. These cumulative (i.e. long-term impacts) will need to be carefully managed and controlled.

3.7 Key mitigation and enhancement measures before and during construction

- An accredited archaeologist with access to a palaeontologist should be present when test pits for soil sampling are made. As many test pits should be made as possible in order to broaden the possibility of finding covered material.
- Alternatively, an accredited archaeologist must be appointed to dig test trenches for sampling both development sites before the final HIA report is submitted to SAHRA and the province.
- Vegetation clearing operations must also be monitored by an accredited archaeologist on a regular basis during the construction phase of the project. Should any archaeological remains be uncovered during these operations, test excavations (and possibly) systematic archaeological sampling may be required.
- Bulk earthworks and excavations must also be monitored by an accredited archaeologist during the construction phase of the project. Should any archaeological remains be uncovered during these operations, test excavations (and possibly) systematic archaeological sampling may be required.
- Should any human remains be disturbed, exposed or uncovered during excavations for the proposed project, these should immediately be reported to Cultmatrix and the South African Heritage Resources Agency. Burial remains should not be disturbed or removed until inspected by the archaeologist.

3.8 Consideration of alternatives

No site alternatives seem to be in existence.

From a heritage perspective this “no-go option” with regard to the two development sites cannot be adequately supported until the presence of sites, objects and artefacts of heritage significance has been established.

3.9 Final recommendations

Based on the findings in the report, it is recommended that SAHRA Gauteng authorises the proposed development with the following conditions:

Based on the above findings, it is strongly recommended that:

1. A final HIA report that will be submitted to both SAHRA and the Northern Cape Provincial Heritage Resources Authority for authorising the proposed development should only be prepared once palaeontological and archaeological investigations by specialists have been completed in order to confirm and assess the presence or absence of palaeontological and archaeological deposits.

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2. The developer appoints an accredited archaeologist familiar with the region to either undertake test excavations on both sites prior to development, or to be present when test pits for sampling the soil formations in connection with foundations are made; the objective being to establish the presence or absence of any fossils and artefacts.
3. No construction work should be allowed to start before the final HIA report has been authorised.

PART 4: INFORMATION SOURCES USED IN THIS REPORT

4.1 Databases

Environmental Potential Atlas, Department of Environmental Affairs and Tourism.

4.2 Literature

BEAUMONT, P.B. & MORRIS, D. (Eds.). 1990. *Guide to the Archaeological Sites in the Northern Cape*. Kimberley: McGregor Museum.

BERGH, JS (ed), 1998, *Geskiedenisatlas van Suid-Afrika. Die vier noordelike provinsies*. Pretoria: JL van Schaik.

ICOMOS Australia. 1999. *The Australia ICOMOS Burra Charter for the conservation of places of cultural significance*.

MITCHELL, P, 2002, *The archaeology of Southern Africa*. Cambridge: Cambridge University Press.

National Heritage Resources Act (Act 25 of 1999)

Noord-Kaap Toerismebylaag. *Gemsbok*, 2007.

Prehistoric riches of the Kathu area, nd. Kathu: Sishen Iron Ore Mine (Kumba Resources).

SNYMAN, PHR, nd, *Danielskuil*.

Staal in Suid-Afrika, 1953. Pretoria: Yskor.

Standard Encyclopedia of Southern Africa, Vols 2, 9, 1969-1971. Cape Town: Nasou

The Northern Cape – Yours to discover. nd

Tourist Guide to the Namakwasi, nd. Cape Town: The Argus

4.3 Unpublished reports and other sources

DREYER, J, 2007, *First phase archaeological and cultural heritage assessment of the proposed Garona-Mercury transmission power line, Northern Cape, North-West Province and Free State*. Unpublished report submitted to ESKOM.

Northern Cape State of the Environment Report, 2004: Human settlements specialist report.

4.4 Maps

2723 CA Kathu (1974, 2001)

Cadastral diagrams for Bestwood (Chief Surveyor-General)

4.5 Aerial photos

Job 391/1957, Strip 12, No 2226

Google Earth 2008

4.6 Other information sources

Dr Cobus Dreyer, consulting archaeologist, Bloemfontein

Mr Roger Price, Researcher, Council for Geoscience, Pretoria

PART 5: TERMINOLOGY USED IN THIS REPORT

Cultural significance (Burra Charter)

Aesthetic, historic, scientific, social or spiritual importance, meaning or noteworthiness for past, present or future generations

Cultural significance is embodied in the place itself (intrinsic significance), its fabric, setting, use, associations, meanings, records, related places and related objects

Heritage resources/features (NHRA)

Any place or object of cultural significance, including:

- (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 natural features of cultural significance;
- (e) geological sites of scientific or cultural importance;
- (f) archaeological and palaeontological sites;
- (g) graves and burial grounds, including—
 - (i) ancestral graves;
 - (ii) royal graves and graves of traditional leaders;
 - (iii) graves of victims of conflict;
 - (iv) graves of individuals designated by the Minister by notice in the *Gazette*;
 - (v) historical graves and cemeteries; and
 - (vi) other human remains, which are not covered in terms of the Human Tissue Act, 1983 Act No. 65 of 1983;
- (h) sites of significance relating to the history of slavery in South Africa;
- (i) movable objects, including—

- (i) objects recovered from the soil or waters of South Africa, including archaeological and palaeontological objects and material, meteorites and rare geological specimens;
- (ii) objects to which oral traditions are attached or which are associated with living heritage;
- (iii) ethnographic art and objects;
- (iv) military objects;
- (v) objects of decorative or fine art;
- (vi) objects of scientific or technological interest; and
- (vii) books, records, documents, photographic positives and negatives, graphic, film or video material or sound recordings, excluding those that are public records as defined in section 1(xiv) of the National Archives of South Africa Act, 1996 (Act No. 43 of 1996).

Heritage significance (NHRA)

- (a) its importance in the community, or pattern of South Africa's history;
- (b) its possession of uncommon, rare or endangered aspects of South Africa's natural or cultural heritage;
- (c) its potential to yield information that will contribute to an understanding of South Africa's natural or cultural heritage;
- (d) its importance in demonstrating the principal characteristics of a particular class of South Africa's natural or cultural places or objects;
- (e) its importance in exhibiting particular aesthetic characteristics valued by a community or cultural group;
- (f) its importance in demonstrating a high degree of creative or technical achievement at a particular period;
- (g) its strong or special association with a particular community or cultural group for social, cultural or spiritual reasons;
- (h) its strong or special association with the life or work of a person, group or organisation of importance in the history of South Africa; and
- (i) sites of significance relating to the history of slavery in South Africa.

Historic period

Since the arrival of the white settlers - c. AD 1840 in this part of the country

Impact

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

Impact assessment

Issues that cannot be resolved during screening (Level 1) and scoping (Level 2) and thus require further investigation

Iron Age

Early Iron Age (EIA)	AD 200 - AD 1000
Late Iron Age (LIA)	AD 1000 - AD 1830

Issue

A question that asks what the impact of the proposed development will be on some element of the environment

Maintenance

Keeping something in good health or repair.

Management actions

Actions that enhance benefits associated with a proposed development or avoid, mitigate, restore, rehabilitate or compensate for the negative impacts

Preservation

Conservation activities that consolidate and maintain the existing form, material and integrity of a cultural resource.

Reconstruction

Re-erecting a structure on its original site using original components.

Rehabilitation

Re-using an original building or structure for its historic purpose or placing it in a new use that requires minimal change to the building or structure characteristics and its site and environment.

Restoration

Returning the existing fabric of a place to a known earlier state by removing additions or by reassembling existing components.

SAHRA - South African Heritage Resources Agency

Stone Age

Early Stone Age (ESA)	2 000 000 - 150 000 Before Present
Middle Stone Age (MSA)	150 000 - 30 000 BP
Late Stone Age (LSA)	30 000 - until c. AD 200

Value

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Worth, conservation utility, desirability to conserve etc in terms of physical condition, level of significance (importance), economy (feasibility), possible new uses and associations/comparisons with similar features elsewhere