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PROJECT 2010/35

**FINAL HERITAGE IMPACT ASSESSMENT REPORT:
PROPOSED LAND USE CHANGE TO PROVIDE FOR THE DEO
GLORIA OLIVE ESTATE ON PORTION 67 AND THE
REMAINDER OF THE FARM VAALKOPPIES 40 NEAR
UPINGTON, KAI! GARIB MUNICIPALITY, NORTHERN CAPE
PROVINCE**



SUBMITTED FOR CONSIDERATION TO

**SAHRA Archaeology, Palaeontology and Meteorites Unit
SAHRA Burial Grounds and Graves Unit
Northern Cape Provincial Heritage Resources Authority**

On behalf of

**Marquerite Geldenhuys
MEG Omgewingsimpakstudies
Upington**

DATE: 5 November 2010

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DEO GLORIA ESTATE FINAL HIA NOVEMBER 2010

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EXECUTIVE SUMMARY

This report contains a heritage impact assessment (HIA) investigation in accordance with the provisions of Sections 38(1) and 38(3) of the *National Heritage Resources Act (25/1999)* for purposes of authorising a proposed change of land use on Portion 67 and the Remainder of the farm Vaalkoppies 40 (Kenhardt Registration Division) near Upington.

This HIA consists of the following components:

- A main HIA report that includes built environment issues
- An Archaeological Impact Assessment Report

The report is accompanied by a separate archaeological impact assessment report (JA van Schalkwyk). No separate palaeontological study was deemed necessary since a desktop study was done for another farming development in the same type of geological area. The results of this study have been included in this report.¹

This HIA forms part of the process of obtaining the necessary environmental authorisations for the project, which comprises a change of land use of 1300 hectares of vacant farm land to provide for the development of the Deo Gloria Olive Estate that will consist of olive tree orchards with associated infrastructure. The proposed development site is situated directly adjacent to the Upington/Groblershoop road, approximately 15 km south-east of Upington, in the Northern Cape Province. The proposed development site is also situated directly to the south of the Straussburg/Ntsikelelo community.²

The affected area consists of mostly vacant farm land located in a typical Lower Orange River environment. This land displays features that occur in the Orange River Broken Veld, such as fences, tracks, numerous dry gullies, sandy and gravelly areas, undulating and irregular plains and low scattered shrubs. The site is characterised by hilly features (the probable origin of the farm name) rising about 100 meters above surrounding irregular plains that gently slope down towards the Orange River valley in the north. A large dry river bed (no name known) with smaller tributaries and other drainage lines divide the site into smaller land parcels. Other noteworthy features include olive orchards, an estate complex under construction (workshops, sheds, houses, and hangar), a network of farm roads, pipelines, boreholes, two abandoned amethyst quarries (on the northern periphery) and a memorial (dedicated to JC Strauss) near one of the two quarries. The proposed development site borders on the Straussburg and Ntsikelelo settlements in the north and two cemeteries (located just outside the proposed development site) are associated with these settlements.

As a cultural landscape this environment can be classified as relic farmland and to a lesser extent an archaeological landscape with reference to Stone Age artefacts that are known to occur in the broader region, examples of which were identified on the proposed development site in the form of two quarries (where Late Stone Age artefacts were manufactured) and scatters of artefacts.

The proposed project affects an irregularly-shaped site of 1523 hectares (of which 1300 hectares will be developed), bordered by the Straussburg and Ntsikelelo settlements and the R 32/R 64 (Groblershoop) road in the north and portions of the same farm (east, south and west).

The corner co-ordinates of the site are:³

DG 1 28°26'21.23"S 21°19'57.80"E
DG 2 28°26'6.72"S 21°21'32.82"E
DG 3 28°26'55.20"S 21°22'31.98"E
DG 4 28°29'5.58"S 21°22'13.50"E
DG 5 28°27'49.80"S 21°20'22.62"E
DG 6 28°27'11.00"S 21°19'49.17"E

The study area is development is underlain by rocks of the Namaqua-Natal Metamorphic Province which are Precambrian in age. From current knowledge the Namaqua-Natal Metamorphic Province, which

¹ B Rubidge, 2009, Farm Keboes 37, Upington: Palaeontological impact

² Figures 1 and 2

³ Based on approximate locations

comprises igneous and metamorphic rocks, does not contain any fossils and as these rocks are Precambrian age the only fossils which could be expected at the time of formation would be microfossils. Despite the proximity of the study area to the Orange River, from the 1:250 000 Geological Map (2820 Upington, 1997) there are no Tertiary or Quaternary deposits present in the area to be developed and it is thus unlikely that fossils of Tertiary or Quaternary age are present. ⁴

The intended development comprises the change of land use for irrigation farming and this provided the following “triggers” for an HIA:

- Development larger than 5000 square meters
- The broader region is known for its Stone Age artefacts

The general aim of any HIA is to ensure that the needs of socio-economic development are balanced by the needs to preserve significant heritage resources.

The purpose of this report is to identify and assess features of heritage significance, identify possible impacts and propose management measures to mitigate negative impacts. This information must enable the relevant heritage resources authority to approve the proposed development as required in terms of Section 38 of the NHRA.

The investigation was conducted as follows:

- Desktop study, including historic maps, cadastral diagrams and general publications about the broader area
- Field survey in August 2010, during which the development site was investigated on foot. Certain parts of the landscape were found to exhibit lower visibility and were checked at random intervals, while features in the respective landscapes that were more likely to have been foci for past human activity (e.g stands of trees, dumps, rubble, outcrops, hillocks, bare patches of veld, excavations etc.) were assessed more systematically. In general the archaeological visibility was good due to the sandy and gravelly soil and sparse vegetation.

In summary, the most significant heritage features that were identified are:

- A site where Late Stone Age artefacts were quarried and manufactured, located near the western boundary fence
- A large cemetery just outside the northern boundary near Straussburg and Ntsikelelo
- Another cemetery next to the Upington-Groblershoop road
- A recent monument dedicated to JC Strauss, the founder of Straussburg, near the northern boundary overlooking the two quarries

Heritage impacts are categorised as:

- Neutral (no impact)
- Direct or physical impacts, implying alteration or destruction of heritage features within the project boundaries
- Indirect impacts, e.g. restriction of access or visual intrusion concerning the broader environment
- Cumulative impacts that are combinations of the above

The predicted heritage impacts on the development areas within the site are:

- Neutral (no impact) where no significant heritage features were found
- Direct impacts where the two Late Stone Age quarry sites and the western of the two cemeteries are affected

Visual impacts are of less importance because the wider study area is already being transformed by residential and farming developments.

Heritage impacts can be managed through one or a combination of the following measures:

⁴ B Rubidge, 2009, Farm Keboes 37, Upington: Palaeontological impact

- Mitigation (minimising adverse impacts through further documentation and research and other activities before a place is altered or destroyed)
- Avoidance
- Compensation (balancing of making good the destruction of one heritage feature by the preservation of another one)
- Enhancement (positive impacts on heritage features)
- Rehabilitation (re-use of preserved heritage features)
- Interpretation (providing information on heritage features)
- Memorialisation (retaining the memory of important heritage features that have been destroyed)
- No action
- Relocation (historic equipment, graves)
- Alternatives

Of the above measures, “no action”, avoidance and mitigation apply in the case of this project.⁵

This report complies as follows with the provisions of Section 38 (3) of the *National Heritage Resources Act* (Act 25 of 1999):

(a) Identification and mapping of heritage resources

(b) Cultural significance

(c) Predicted impacts

(f) Impact management measures

See Table 1 (below).

TABLE 1: Identification of heritage features, impacts and mitigation measures

S 3(2) NHRA heritage resource	(a) Identification		(b) Significance	(c) Impact		(d) Recommended impact management
	Site	GPS		Study area	Impact type, certainty and significance	
Buildings, structures, places and equipment of cultural significance	Abandoned amethyst quarry 1	28°26'26.31"S 21°20'34.81"E	Low local	Northern section overlooking dry river	Definite neutral: No farming possible here	No action
	Abandoned amethyst quarry 2	28°26'4.76"S 21°20'47.27"E	Low local	Northern section next to main road	Definite neutral: No farming possible here	No action
	Strauss memorial	28°26'12.64"S 21°20'33.88"E	Medium local	Northern section on hillock overlooking main road	Possible low negative (depending on where farming will take place)	Avoid and protect
Areas to which oral traditions are attached or which are associated with intangible heritage	None	-	-	-	-	-
Historical settlements and landscapes	None	-	-	-	-	-
Landscapes and natural features of cultural significance	None	-	-	-	-	-
Geological sites of scientific or cultural importance						
Archaeological and palaeontological sites	LSA quarry 1	28°27'28.44"S 21°20'12.62"E	Medium local	Western section near main fence	Possibly low negative	Avoid and protect

⁵ Table 1

S 3(2) NHRA heritage resource	(a) Identification		(b) Significance	(c) Impact		(d) Recommended impact management
	Site	GPS		Study area	Impact type, certainty and significance	
	LSA quarry 2	28°27'28.30"S 21°20'13.42"E	Medium local	Western section near main fence	Possibly low negative	Avoid and protect
	Small scatters of Stone Age artefacts	-	Low local	Sporadically across site	Possibly low negative to neutral	No action. Mitigation: Report and evaluate any <u>large</u> scatters of artefacts when found
Graves and burial sites	GY 1 (Ntsikelelo cemetery)	28°26'49.71"S 21°20'2.30"E	Medium local	Just outside northern section	Neutral	Avoid and ensure 15 m wide surrounding buffer zone and access
	GY 2 (Straussburg cemetery)	28°26'10.12"S 21°20'21.06"E	Medium local	Well outside northern section next to main road	Neutral	No action
Features associated with labour history	None	-	-	-	-	
Movable objects	None	-	-	-	-	

(d) Social and economic benefits

The proposed development will have some direct benefits related to the conservation of heritage resources that have been identified:

- Recommended avoidance and protection of LSA quarries
- Recommended avoidance and protection of Strauss memorial
- Recommended avoidance and protection of Ntsikelelo cemetery (GY 1)

The socio-economic benefits are associated with the production of olives for export purposes and the retention and creation of jobs. The proposed project is an agricultural empowerment project.

(e) Public consultation

This was part of the EIA process. Appendix 4 contains a summarised report. There were no comments or objections against the proposed land-use change from a heritage perspective.

(g) Mitigation during site preparation and planting

Except for monitoring of any chance finds (graves, archaeological features) during site preparation, no mitigation measures apply.

Findings

The areas proposed for olive farming are located in a cultural landscape classified primarily as historic farmland. This class of landscape is of relatively low heritage sensitivity because it is able to absorb new development with few adverse effects.

The features of heritage significance that were identified are two Late Stone Age quarries, two cemeteries and a memorial. The two amethyst quarries have no special heritage significance. No other visible heritage features were identified.

The predicted heritage impacts are neutral to low negative (in the case of the LSA quarries). Visual intrusion as an indirect impact is not an issue since farming is already practised on adjacent areas. Noise, dust, pollution and restrictions of access patterns as indirect impacts are also not issues.

The nature and significance of what has been found in terms of heritage is, however, not of such importance that the proposed location for the development area should be changed or that other alternatives should be considered.

Cultmatrix states that there are no compelling reasons not to authorise the proposed change of land use and that the proposed development can continue provided that the following mitigation measures are adopted as a heritage management tool:

1. Should any hidden human remains (highly unlikely) be disturbed, exposed or uncovered during site preparation and planting, these should immediately be reported to an archaeologist. Burial remains should not be disturbed or removed until inspected by an archaeologist.
2. Site preparation and planting activities must be monitored for the occurrence of any hidden large deposits of archaeological material (Stone Age tools) and similar chance finds and if any are exposed this should be reported to an archaeologist so that an investigation and evaluation of the finds can be made.
3. The significance of the Strauss memorial should be retained by avoiding and protecting the place.
4. The significance of the two LSA quarries should be retained by avoiding and protecting them through a fence and a 15 m wide buffer zone around each site.
5. The significance of the Ntsikelelo cemetery (GY 1) should be retained by avoiding it and ensuring a buffer zone of at least 15 m wide around the periphery and by ensuring access from the village.



(Signed electronically)
RC DE JONG
Public Officer and Principal Investigator

Date: 5 November 2010

1. REPORT CONTEXT

1.1 General notes

1. 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
2. This report is informed by the *National Heritage Resources Act (25/1999)* (NHRA) and is consistent with the various ICOMOS charters for places of cultural significance.
3. Recommendations contained in this application do not exempt the applicant from complying with any national, provincial and municipal legislation or other regulatory requirements, including any protection or management or general provision in terms of the NHRA.
4. Rights and responsibilities that arise from this report are those of the applicant and not that of Cultmatrix cc. Cultmatrix cc assumes no responsibility for compliance with conditions that may be required by SAHRA in terms of this report.
5. Cultmatrix assumes no responsibility whatsoever for any loss or damages that may be suffered as a direct or indirect result of information contained in this application. Any claim that may however arise is limited to the amount paid to Cultmatrix for services rendered to compile this report.
6. Although all possible care is taken to identify all sites of cultural importance during the survey of study areas, the nature of archaeological and historical sites are as such that it always is possible that hidden or subterranean sites could be overlooked during the study. Cultmatrix and its subcontractors will not be held liable for such oversights or for costs incurred as a result thereof.

1.2 Purpose of the report

The purpose of this report is to identify and assess features of heritage significance, identify possible impacts and propose management measures to mitigate negative impacts. This information must enable the relevant heritage authority to decide about the approval of the proposed development as required in terms of Section 38 of the NHRA.

The below table lists and describes the three general categories of heritage impact assessment studies and reports, which offices are involved (i.e. to which SAHRA or provincial offices reports should be submitted) and which type of response is required from these offices.

TABLE 2: Applicable category of heritage impact assessment study and report

Type of study and report	Aim	Office involved	Requested response
Screening: Not this report	The aim of the screening investigation is to provide an informed heritage-related opinion about the proposed development by an appropriate heritage specialist.	-	-

Type of study and report	Aim	Office involved	Requested response
	The objectives of this investigation are to screen potential heritage issues through a site inspection, to develop a broad understanding of heritage policy-related context, to review any existing data on the history and heritage significance of the site, to check if the site has any formal heritage status, to discuss the proposed development with heritage contacts and to scan the development proposals. The result of this investigation is a brief statement indicating potential heritage impacts/issues and the need for further investigation.	-	-
		-	-
Scoping (basic assessment): Not this report	The aim of the scoping investigation is to analyse heritage issues and how to manage them within the context of the proposed development. The objectives are to assess heritage significance (involving site inspections and basic desktop and archival research); to identify the need for further detailed inputs by heritage specialists, to consult with local heritage groups and experts, to review the general compatibility of the development proposals with heritage policy and to assess the acceptability of the proposed development from a heritage perspective. The result of this investigation is a heritage scoping report indicating the presence/absence of heritage resources and how to manage them in the context of the proposed development.	-	-
		-	-
		-	-
Full HIA: This report	The aim of the full HIA investigation is to analyse and recommend heritage management mitigation measures and monitoring programmes. The objectives are 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 consult with local heritage groups and experts as part of the broader EIA stakeholder engagement process, 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.	Northern Cape Provincial Heritage Resources Authority (Boswa)	Comments on built environment and approval of development
		SAHRA Palaeontology, Archaeology and Meteorites Unit (Cape Town)	Comments
		SAHRA Burial Grounds and Graves Unit (Pretoria)	Comments

1.3 Terms of reference

- To survey the proposed development site as well as the surrounding environment
- To identify and map heritage resources that may be affected directly and
- To assess the cultural significance of these heritage resources
- To assess the impact of the development on these heritage resources
- To assess the benefits of conserving these heritage resources in relationship to the socio-economic benefits of the development
- To provide the public with an opportunity to comment on the heritage aspects of the proposed development
- To consider alternatives if heritage resources will be affected in a negative manner
- To determine methods to mitigate negative impacts before, during and after site preparation activities

1.4 History of the report

This report is the final report and has been preceded by a draft report (August 2010).

1.5 Legal context of the report

ACT	COMPONENT	IMPLICATION	RELEVANCE	COMPLIANCE
NHRA	S 34	Impacts on buildings and structures older than 60 years	None	-
	S 35	Impacts on archaeological and palaeontological heritage resources	Chance finds	Monitor during site preparation work and obtain relevant permits if necessary for

ACT	COMPONENT	IMPLICATION	RELEVANCE	COMPLIANCE
				sampling, destruction etc.
	S 36	Impacts on graves	LSA quarries	Avoid and protect
	S 37	Impacts on public monuments	GY 1	Avoid
	S 38	Developments requiring an HIA	Strauss memorial	Avoid
			Development is listed activity	Full HIA
NEMA	EIA Regulations	Activities requiring an EIA	Development is subject to an EIA	HIA is part of EIA
Other	-	-	-	-

1.6 Planning context of the report

No specific planning information was available (except pertaining to the actual development) but it is assumed that the proposed activity falls within the broader planning context of the area as articulated through the IDP and spatial planning frameworks.

1.7 Development criteria in terms of Section 38 of the NHRA

1.7	Development criteria in terms of Section 38(1)	Yes/No details
1.7.1	Construction of road, wall, power line, pipeline, canal or other linear form of development or barrier exceeding 300m in length	Yes (internal roads)
1.7.2	Construction of bridge or similar structure exceeding 50m in length	No
1.7.3	Development exceeding 5000 sq m	Yes (1300 ha)
1.7.4	Development involving three or more existing erven or subdivisions	No
1.7.5	Development involving three or more erven or divisions that have been consolidated within past five years	No
1.7.6	Rezoning of site exceeding 10 000 sq m	No
1.7.7	Any other development category, public open space, squares, parks, recreation grounds	No

1.8 Property details

1.8	Property details	
1.8.1	Name and location of property	Deo Gloria Olive Estate
1.8.2	Erf or farm numbers	Portion 67 and RE of Vaalkoppies 40, Kenhardt RD
1.8.3	Magisterial district	Gordonia
1.8.4	Closest town	Upington
1.8.5	Local authority	Kai! Garib
1.8.5	Current use	Vacant (partially)
1.8.5	Current zoning	Agricultural
1.8.5	Predominant land use of surrounding properties	Agricultural, transport, vacant
1.8.9	Total extent of property	1523 hectares

1.9 Property ownership

1.9	Property owners	
1.9.1	Farm	Portion 67 and RE of Vaalkoppies 40
1.9.2	Name and contract address	Moneyline 645 (Pty) Ltd - Kobus van der Westhuizen
1.9.3	Telephone number	
1.9.4	Fax number	
1.9.5	E-mail	

1.10 Developer

1.10	Developer	
1.10.1	Name and contact address	Deo Gloria Olive Estate
1.10.2	Telephone number	

1.10.3	Fax	
1.10.4	E-mail	

1.11 Environmental practitioner

1.11	Environmental Specialist	
1.11.1	Name and contact address	Marquerite Geldenhuys, MEG Omgewingsimpakstudies, Private Bag X 5879, Postnet Suite 63, Upington 8800
1.11.2	Telephone number	(054) 491-3144
1.11.3	Fax	As above
1.11.4	E-mail	megeldenhuys@vodamail.co.za

1.12 Heritage assessment practitioners

1.12	Specialist (1)	
1.12.1	Name and contact address	Dr RC de Jong (Principal Member: Cultmatrix cc), PO Box 12013, Queenswood 0121, Pretoria
1.12.2	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
1.12.3	Relevant experience in study area	HIA for farming developments in broader area (Kakamas, Keboes)
1.12.4	Telephone number	(082) 577-4741
1.12.5	Fax number	(086) 612-7383
1.12.6	E-mail	cultmat@iafrica.com

		Specialist 2
1.12.1	Name and contact address	Dr JA van Schalkwyk, PO Box 26389, Monument Park 0105
1.12.2	Qualifications and field of expertise	DLitt et Phil (UNISA), Post-Graduate Museology Diploma UP, general heritage management specialist with experience in museums and heritage, ASAPA accredited archaeologist
1.12.3	Relevant experience in study area	Archaeological studies for HIAs in the broader area
1.12.4	Telephone number	(012) 347-7270
1.12.5	Fax number	
1.12.6	E-mail	jvschalkwyk@mweb.co.za

2. DEVELOPMENT CONTEXT

2.1 Development site/area location and boundaries

The proposed development site is situated directly adjacent to the Upington/Groblershoop road, approximately 15 km south-east of Upington, in the Northern Cape Province. The proposed development site is also situated directly to the south of the Straussburg/Ntsikelelo community.⁶

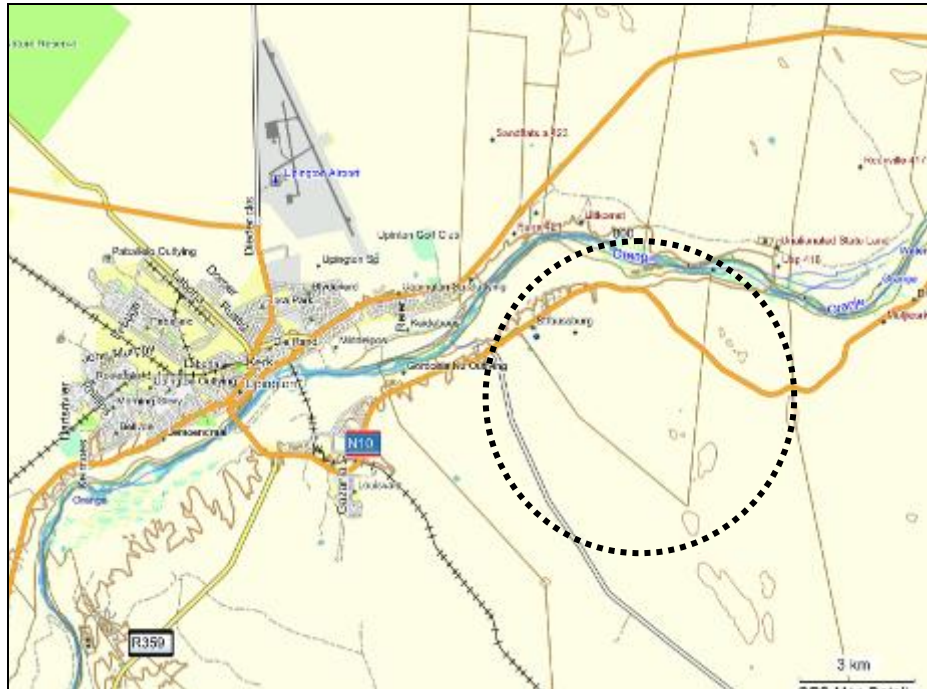


FIGURE 1: Location of the study area

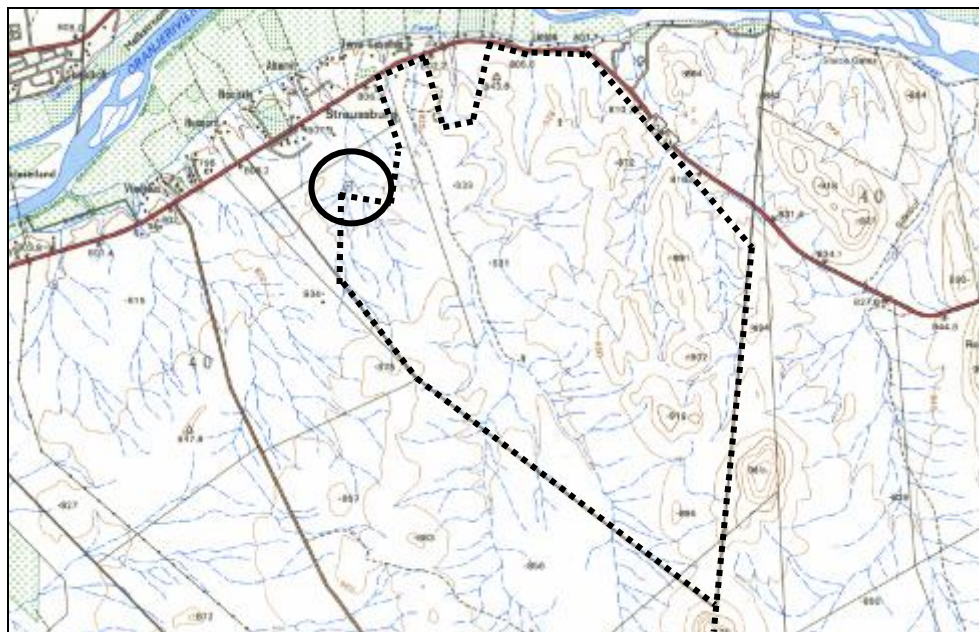


FIGURE 2: Portion of 2821 AD (1990) indicating the location of the development site – this map indicates GY 1 (circle)

⁶ Figures 1 and 2

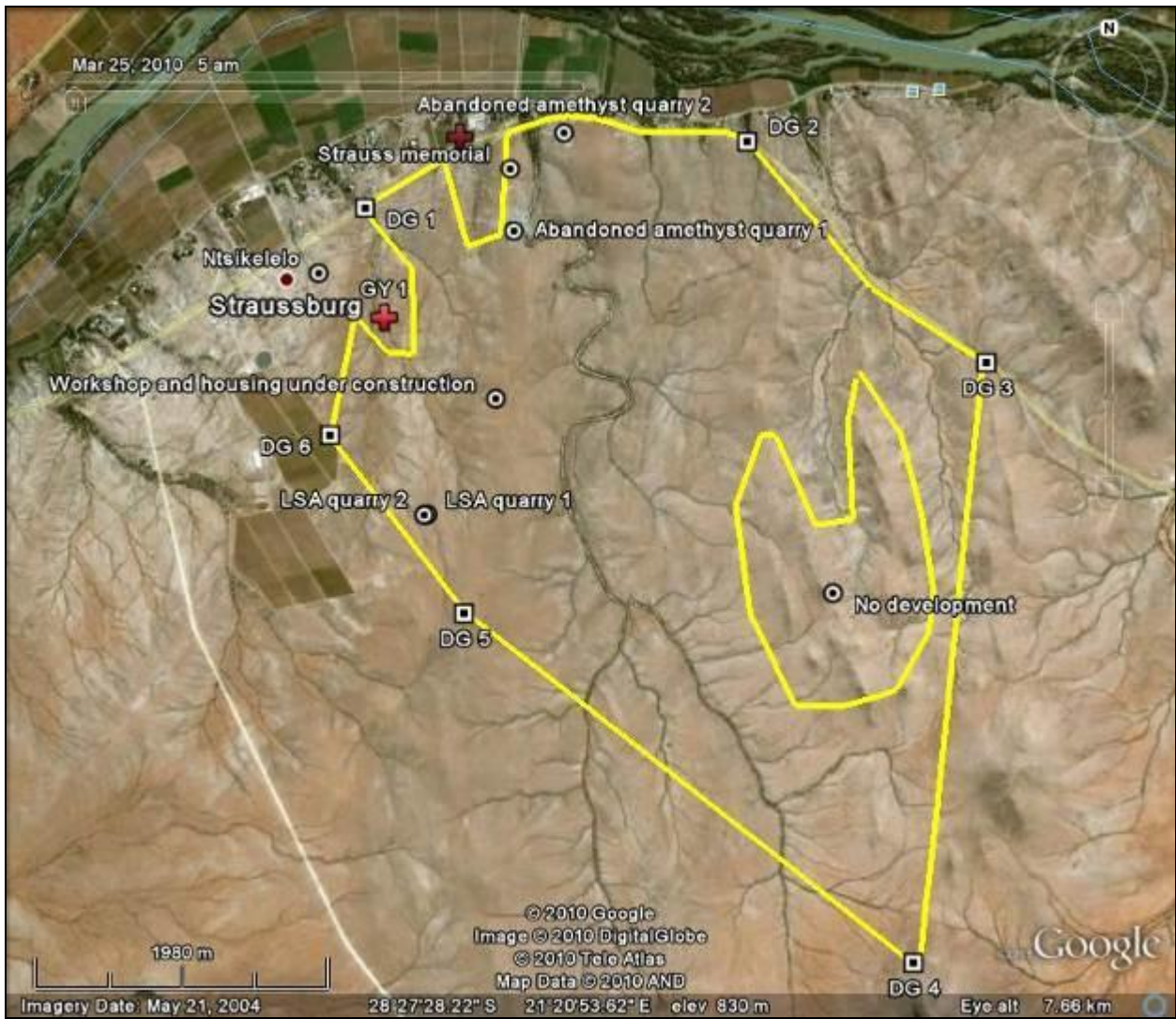


FIGURE 3: Google Earth image (2004) of the development site indicating the most significant heritage features

2.2 Description of distinguishing regional features

2.2.1 Environmental features

TABLE 3: Environmental features

COMPONENT	DESCRIPTION
Acocks veld type	Orange River Broken Veld
Geological and mining	Two abandoned amethyst quarries
Geology	Norite and lutaceous arenite
Hydrology	Dry river with tributaries and drainage lines, boreholes
Land cover	Shrubland
Land use	Vacant and farming (olives)
Vegetation	Orange River Nama Karoo
Landscape sensitivity index	1-3: Low to medium (hilly areas), 0-1: Low (remainder)
Slope	0-9%
Terrain morphology	Hills and extremely irregular plains
Wetlands	None

2.2.2 Heritage features

TABLE 4: Heritage features

S 3(2) NHRA heritage resource	DESCRIPTION
Buildings, structures, places and equipment of cultural significance	Network of tracks, fences, two quarries, memorial, boreholes, olive orchards
Areas to which oral traditions are attached or which are associated with intangible heritage	None
Historical settlements and landscapes	None
Landscapes and natural features of cultural significance	Historic farmland
Geological sites of scientific or cultural importance	None
Archaeological and palaeontological sites	Area is known for Middle and late Stone Age artefacts
Graves and burial grounds	Not inside study area (two cemeteries)
Areas of significance related to labour history	None
Movable objects	None

2.2.3 Site description

The affected area consists of mostly vacant farm land located in a typical Lower Orange River environment. This land displays features that occur in the Orange River Broken Veld, such as fences, tracks, numerous dry gullies, sandy and gravelly areas, undulating and irregular plains and low scattered shrubs. The site is characterised by hilly features (the probable origin of the farm name) rising about 100 meters above surrounding irregular plains that gently slope down towards the Orange River valley in the north. A large dry river bed (no name known) with smaller tributaries and other drainage lines divide the site into smaller land parcels. Other noteworthy features include olive orchards, an estate complex under construction (workshops, sheds, houses, and hangar), a network of farm roads, pipelines, boreholes, two abandoned amethyst quarries (on the northern periphery) and a memorial (dedicated to JC Strauss) near one of the two quarries. The proposed development site borders on the Straussburg and Ntsikelelo settlements in the north and two cemeteries (located just outside the proposed development site) are associated with these settlements.

As a cultural landscape this environment can be classified as relic farmland and to a lesser extent an archaeological landscape with reference to Stone Age artefacts that are known to occur in the broader region, examples of which were identified on the proposed development site in the form of two quarries (where Late Stone Age artefacts were manufactured) and scatters of artefacts.

The proposed project affects an irregularly-shaped site of 1523 hectares (of which 1300 hectares will be developed), bordered by the Straussburg and Ntsikelelo settlements and the R 32/R 64 (Groblershoop) road in the north and portions of the same farm (east, south and west).

The corner co-ordinates of the site are:⁷

DG 1 28°26'21.23"S 21°19'57.80"E
 DG 2 28°26'6.72"S 21°21'32.82"E
 DG 3 28°26'55.20"S 21°22'31.98"E
 DG 4 28°29'5.58"S 21°22'13.50"E
 DG 5 28°27'49.80"S 21°20'22.62"E
 DG 6 28°27'11.00"S 21°19'49.17"E

⁷ Based on approximate locations

The study area is development is underlain by rocks of the Namaqua-Natal Metamorphic Province which are Precambrian in age. From current knowledge the Namaqua-Natal Metamorphic Province, which comprises igneous and metamorphic rocks, does not contain any fossils and as these rocks are Precambrian age the only fossils which could be expected at the time of formation would be microfossils. Despite the proximity of the study area to the Orange River, from the 1:250 000 Geological Map (2820 Upington, 1997) there are no Tertiary or Quaternary deposits present in the area to be developed and it is thus unlikely that fossils of Tertiary or Quaternary age are present.⁸

2.2.4 Surrounding environment

AREA	DESCRIPTION
East	Groblershoop road and farm land
North	Groblershoop road, Ntsikelelo, Strausburg
West	Farm land
South	Farm land

2.3 Development description

2.3	Development description	
2.3.1	Nature of proposed development	Olive Estate – see details below
2.3.2	Predicted impacts on heritage value of site and contents	Neutral to low negative (archaeological quarries)
2.3.3	Structures older than 60 years affected by proposed development	No
2.3.4	Rezoning or change of land use	Yes: Olive farming
2.3.5	Construction work	Yes: Site preparation, planting
2.3.6	Total floor area of proposed development	-
2.3.7	Extent of land coverage of development	1300 hectares
2.3.8	Earth moving and excavation	Yes
2.3.9	Number of storeys	-
2.3.10	Maximum height above ground level	-
2.3.11	Monetary value development	Not available
2.3.12	Time frames	Urgent

Moneyline 645 (Pty) Ltd, who is the applicant for this environmental impact study, have been registered in 2009 en operates its business under the name of Deo Gloria Olive Estate (Pty) Ltd. The proposed development will therefore be done by Deo Gloria Olive Estate who has a 51% ownership together with the IDC (Industrial Development Corporation) who has the remaining 49% ownership in the company.

This development will take place in phases of which phase 1, consisting of 100ha, will be developed for the planting of olive trees in 2011. The remainder of the development will be done in follow-up phases in order to be able to plant in 2011 and onwards.

Part of the development will include a nursery for new trees which will make use of imported plant material from Israel and Spain. Once the nursery has been established the planting of olive trees will commence at an estimated rate of 200 – 300 hectare per annum, starting from the north-easterly section of the property. Since the proposed development activities falls within the definition of agricultural use, no application for rezoning of the land will therefore be necessary.

The proposed development entails the preparation of the soil and the planting of the required olive tree orchards together with the necessary infrastructure. Together with the development of the land for agricultural purposes, the owner will provide additional, associated infrastructure such as irrigation, housing, farm road network, a runway, pump station etc.

⁸ B Rubidge, 2009, Farm Keboes 37, Upington: Palaeontological impact

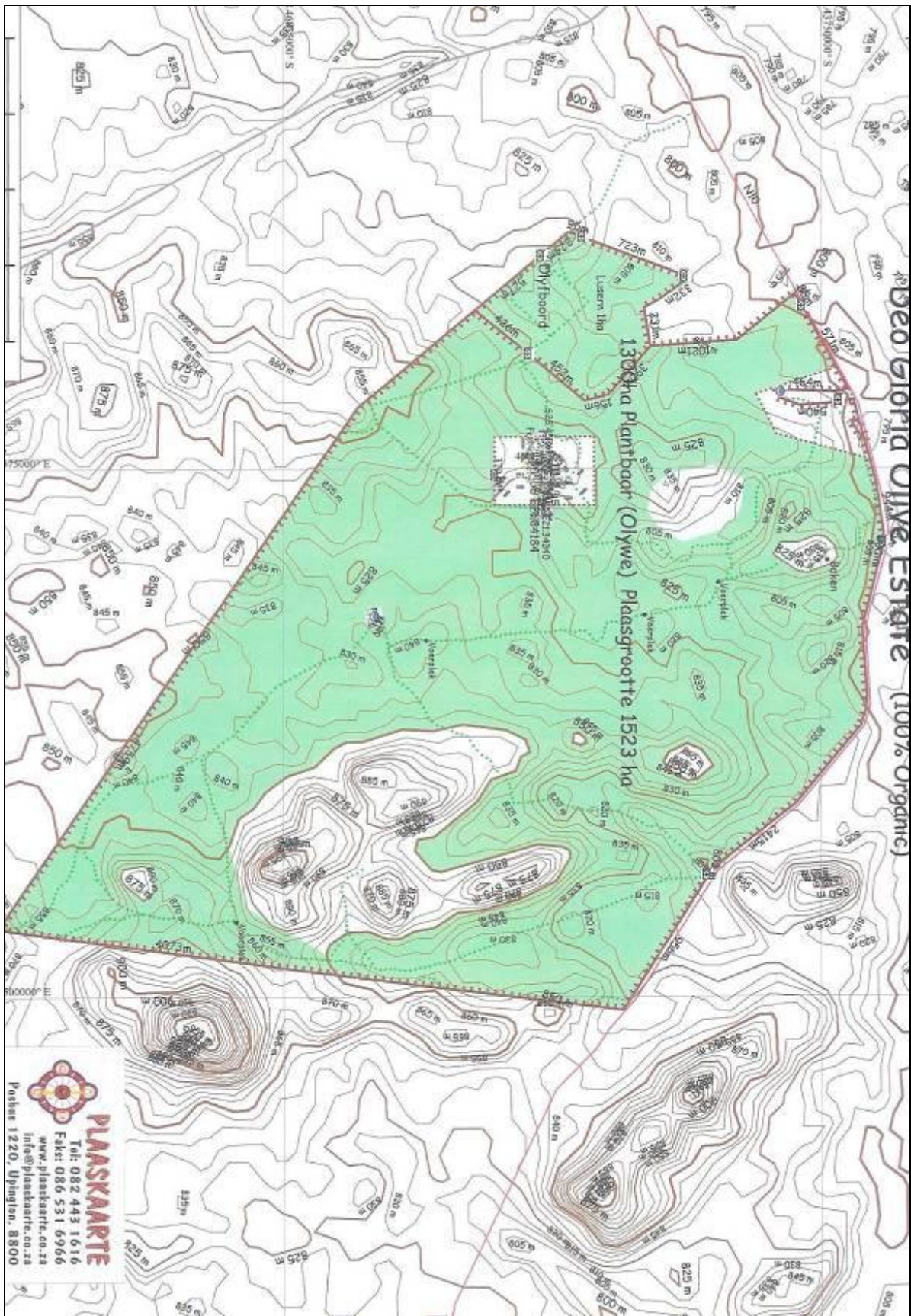


FIGURE 4: Development map of Deo Gloria Olive Estate

Some infrastructure were also developed on the 3 ha area which formed part of the R.24G-application, dated May 2010. This also includes residential houses; sheds, an olive processing facility; a nursery and nursery associated outbuildings as well as a hangar.

ESCOM has already approved an electrical supply of 25kVa for the site and provision has also been made for the future upgrading of this supply to 200kVa.

The total development area is 1523 hectares in extent, of which about 1300 hectares will be developed. No development will take place on the large hilly portion in the eastern section.

The site, portion 67 and remainder of the farm Vaalkoppies 40, is the property of the applicant, Moneyline 645 (Pty) Ltd owned by Mr Kobus van der Westhuizen, and therefore the owner's consent for this application will not be necessary.



FIGURE 5: General view along the western boundary fence looking south



FIGURE 6: General view from the western boundary fence looking east towards the hilly portion where no development will take place



FIGURE 7: General view towards the north indicating the location of the estate headquarters (arrow) under construction



FIGURE 8: Abandoned amethyst quarry No 1



FIGURE 9: View of the dry river bed from the No 1 amethyst quarry



FIGURE 10: Olive orchards in the north-western section of the development site



FIGURE 11: General view of the eastern section of the development site

3. HERITAGE IMPACT CONTEXT

3.1 Cultural landscape evidence

The concept of cultural landscapes is of more recent origin and, although the definitions of the National Heritage Resources Act bear reference, is primarily grounded in international doctrinal texts in the form of Charters and Recommendations produced by ICOMOS and UNESCO. The most recent and authoritative text is the World Heritage Cultural Landscapes handbook, published by the World Heritage Centre (2009).

The term “cultural landscape” embraces a diversity of manifestations of the interaction between humankind and its natural environment. Cultural landscapes often reflect specific techniques of sustainable *land-use*, considering the characteristics and limits of the natural environment they are established in, and a specific spiritual relation to nature. Cultural landscapes are illustrative of the evolution of human society and settlement over time, under the influence of the physical constraints and/or opportunities presented by their natural environment and of successive social, economic and cultural forces, both external and internal. They are categorized on the basis both of their value and of their representativity in terms of a clearly defined geo-cultural *region* and also for their capacity to illustrate the essential and distinct cultural elements of such regions. The term “cultural landscape” embraces a diversity of manifestations of the interaction between humankind and its natural environment.

The World Heritage Committee distinguishes between three categories of cultural landscapes:

- Clearly defined landscapes, designed and created intentionally by people, such as parkland and urban areas
- Organically evolved landscapes that has developed over time, including relic landscapes (where a certain activity has ceased to exist) and continuing landscapes (which retain an active social role and where the evolutionary process is still in progress)
- Associative landscapes, which are essentially natural landscapes with significant human associations in the realm of the intangible heritage

All three categories exist in the study area. However, they are too broad in terms of the practical mapping and assessment of heritage elements; hence, the following criteria for classifying the type of cultural landscape have been used:

TABLE 5: Cultural landscape classification

HERITAGE LANDSCAPE CONTEXT	ELEMENTS	EVIDENCE
A. PALAEOANTHROPOLOGICAL LANDSCAPE CONTEXT	Fossil remains. Such resources are typically found in specific geographical areas, e.g. the Karoo and are embedded in ancient rock and limestone/calcrete formations.	None
B. ARCHAEOLOGICAL LANDSCAPE CONTEXT	Archaeological remains dating to the following periods: <ul style="list-style-type: none"> • Early Stone Age • Middle Stone Age • Late Stone Age • Early Iron Age • Late Iron Age • Historical 	None
C. HISTORICAL BUILT URBAN LANDSCAPE CONTEXT	<ul style="list-style-type: none"> • Historical townscapes/streetscapes • Historical structures; i.e. older than 60 years • Formal public spaces • Formally declared urban conservation areas • Places associated with social identity/displacement 	None

HERITAGE LANDSCAPE CONTEXT	ELEMENTS	EVIDENCE
D. HISTORICAL FARMLAND CONTEXT (PRIMARY LANDSCAPE)	<p>These possess distinctive patterns of settlement and historical features such as:</p> <ul style="list-style-type: none"> • Historical farm werfs • Historical farm workers villages/settlements • Irrigation furrows • Tree alignments and groupings • Historical routes and pathways • Distinctive types of planting • Distinctive architecture of cultivation e.g. planting blocks, trellising, terracing, ornamental planting. 	Yes (Farm established in the 1890s)
E. HISTORICAL RURAL TOWN CONTEXT	<ul style="list-style-type: none"> • Historical mission settlements • Historical townscapes 	None
F. PRISTINE/NATURAL LANDSCAPE CONTEXT	<ul style="list-style-type: none"> • Historical patterns of access to a natural amenity • Formally proclaimed nature reserves • Evidence of pre-colonial occupation • Scenic resources, e.g. view corridors, viewing sites, visual edges, visual linkages • Historical structures/settlements older than 60 years • Pre-colonial or historical burial sites • Geological sites of cultural significance. 	None
G. RELIC LANDSCAPE CONTEXT	<ul style="list-style-type: none"> • Past farming settlements • Past industrial sites • Places of isolation related to attitudes to medical treatment • Battle sites • Sites of displacement, 	None
H. BURIAL GROUND & GRAVE SITE CONTEXT	<ul style="list-style-type: none"> • Pre-colonial burials (marked or unmarked, known or unknown) • Historical graves (marked or unmarked, known or unknown) • Human remains (older than 100 years) • Associated burial goods (older than 100 years) • Burial architecture (older than 60 years) 	None
I. ASSOCIATED LANDSCAPE CONTEXT	<ul style="list-style-type: none"> • Sites associated with living heritage e.g. initiation sites, harvesting of natural resources for traditional medicinal purposes • Sites associated with displacement & contestation • Sites of political conflict/struggle • Sites associated with an historic event/person • Sites associated with public memory 	None
J. HISTORICAL FARM WERF CONTEXT	<ul style="list-style-type: none"> • Setting of werf and its context • Composition of structures • Historical/architectural value of individual structures • Tree alignments • Views to and from • Axial relationships • System of enclosure, e.g. werf walls • Systems of water reticulation and irrigation, e.g. furrows • Sites associated with slavery and farm labour • Colonial period archaeology 	None
K. HISTORICAL INSTITUTIONAL LANDSCAPE CONTEXT	<ul style="list-style-type: none"> • Historical prisons • Hospital sites • Historical school/reformatory sites • Military bases 	None
L. SCENIC/VISUAL	<ul style="list-style-type: none"> • Scenic routes 	None

HERITAGE LANDSCAPE CONTEXT	ELEMENTS	EVIDENCE
K. AMENITY LANDSCAPE CONTEXT	<ul style="list-style-type: none"> View sheds View points Views to and from Gateway conditions Distinctive representative landscape conditions Scenic corridors 	

3.2 Determining levels of sensitivity and potential impacts

Sensitivity is the ability of a cultural landscape (or heritage resource) to absorb changes or adapt to changes whilst maintaining an acceptable degree of cultural significance.

Within the context of this study, levels of sensitivity can generally be associated with certain classes or categories of cultural landscapes as tabulated below.

TABLE 6: Relationship between cultural landscape classes and levels of sensitivity

Sensitivity level	Implication	Landscape class	Evidence
D	Ability to absorb without adverse effects and very little mitigation	Relic landscapes	Of little or no intrinsic, associational or contextual heritage value due to disturbed, degraded conditions or extent of irreversible damage
C	Ability to absorb with some adverse effects and some mitigation	Historical farmland Historical farm werfs Institutional landscapes	Of medium to low intrinsic, associational or contextual heritage value within a national, provincial and local context
B	Ability to absorb with considerable adverse effects and intensive mitigation	Burial grounds and graves Palaeontological and archaeological landscapes Associated landscapes	Of moderate to high intrinsic, associational and contextual value within a local context
A	No or very little ability to absorb	Historical built environments Natural landscapes Amenity/Visual/Scenic landscapes	Of high intrinsic, associational and contextual heritage value within a national, provincial and local context

3.3 Determining potential impacts

TABLE 7: Categories of development types

CATEGORY	DESCRIPTION	EVIDENCE
A: Minimal intensity development	<ul style="list-style-type: none"> No rezoning involved; within existing use rights No subdivision involved Upgrading of existing infrastructure within existing envelopes Minor internal changes to existing structures New building footprints limited to less than 1000m² 	No
B: Low-intensity development	<ul style="list-style-type: none"> Spot rezoning with no change to overall zoning of a site Linear development less than 100m Building footprints between 1000m²-2000m² Minor changes to external envelop of existing structures (less than 25%) Minor changes in relation to bulk and height of immediately adjacent structures (less than 25%). 	No
C: Moderate intensity development	<ul style="list-style-type: none"> Rezoning of a site between 5000m²-10 000m² Linear development between 100m and 300m Building footprints between 2000m² and 5000m² Substantial changes to external envelop of existing 	Irrigation farming

CATEGORY	DESCRIPTION	EVIDENCE
	structures (more than 50%) <ul style="list-style-type: none"> • Substantial increase in bulk and height in relation to immediately adjacent buildings (more than 50%) 	
D: High intensity development	<ul style="list-style-type: none"> • Rezoning of a site in excess of 10 000m² • Linear development in excess of 300m • Any development changing the character of a site exceeding 5000m² or involving the subdivision of a site into three or more erven • Substantial increase in bulk and height in relation to immediately adjacent buildings (more than 100%) 	None

3.4 Expected impact significance

TABLE 8: Expected impact significance matrix

HERITAGE CONTEXT	TYPE OF DEVELOPMENT			
	CATEGORY A	CATEGORY B	CATEGORY C	CATEGORY D
A: High heritage value	Moderate heritage impact expected	High heritage impact expected	Very high heritage impact expected	Very high heritage impact expected
B: Medium to high heritage value	Minimal heritage impact expected	Moderate heritage impact expected	High heritage impact expected	Very high heritage impact expected
C: Medium to low heritage value	Little or no heritage impact expected	Minimal heritage impact expected	Moderate heritage impact expected	High heritage impact expected
D: Low heritage value	Little or no heritage impact expected	Little or no heritage impact expected	Minimal heritage impact expected	Moderate heritage impact expected

4. HERITAGE IMPACT ASSESSMENT

4.1 Approach

4.1.1 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 *cultural significance* of 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)).

4.1.2 Limiting/Restricting factors

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

- Unpredictability of buried archaeological remains (absence of evidence does not mean evidence of absence)

4.1.3 Field work

A field survey was conducted in August 2010, during which the development site was investigated on foot. Certain parts of the landscape were found to exhibit lower visibility and were checked at random intervals, while features in the respective landscapes that were more likely to have been foci for past human activity (e.g stands of trees, dumps, rubble, outcrops, hillocks, bare patches of veld, excavations, drainage lines, river beds, etc.) were assessed more systematically. In general the archaeological visibility was good due to the sandy soil and sparse vegetation.

4.1.4 Desktop study

- Published literature
- Aerial images (contemporary)
- Cadastral diagrams
- Maps (historical and contemporary)

4.1.5 Verbal information

None

4.2 General issues of site and context

4.2.1 Context		
	<i>(check box of all relevant categories)</i>	<i>Brief description/explanation</i>
	Urban environmental context	<ul style="list-style-type: none"> • Roads • Vacant land • Quarries • Olive orchards
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?	No
	Does the site form part of a historical settlement or townscape?	No
x	Does the site form part of a rural cultural landscape?	Yes: Historic farm land
	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

4.2.2 Property features and characteristics		
	<i>(check box if YES)</i>	<i>Brief description</i>
x	Have there been any previous development impacts on the property	Yes: Roads, tracks, fences, quarries, workshop and other buildings (under construction), boreholes
x	Are there any significant landscape features on the property?	Dry river beds and hilly areas
	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

4.2.3 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)	No
General protections (NHRA)		
	structures older than 60 years (S. 34)	No
x	archaeological site or material (S. 35)	Two LSA quarries and scatters of Stone Age artefacts
	palaeontological site or material (S. 35)	No
x	graves or burial grounds (S. 36)	Two cemeteries (outside development site)
x	public monuments or memorials (S. 37)	JC Strauss memorial (just inside development site)
Other		
	Any heritage resource identified in a heritage survey (state author and date of survey and survey grading/s)	No
	Any other heritage resources (describe)	No

4.2.4 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 Appendix 1
x	Is the property associated with any important persons or groups?	Strauss family and Strausburg settlement
	Is the property associated with any important events, activities or public memory?	No

4.2.4 Property history and associations		
	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

4.3 Summarised identification and significance assessment of heritage resources

See Appendix 3 for significance assessment criteria

TABLE 9: Identification and significance assessment of heritage features

S 3(2) NHRA heritage resource category	ELEMENTS	INDICATORS OF HERITAGE SIGNIFICANCE										CUMULATIVE SIGNIFICANCE RATING (TOTAL 30) 1-9 = Low = 1 10-19 = Medium = 2 20-30 = High = 3
		HISTORICAL	RARE	SCIENTIFIC	TYPICAL	AESTHETIC	TECHNOLOGICAL	PERSON COMMUNITY	LANDMARK	MATERIAL CONDITION	SUSTAINABILITY	
Buildings, structures, places and equipment of cultural significance	Amethyst quarries	0	0	1	1	0	1	1	1	0	0	5 = Low local
	Strauss memorial	2	1	0	1	1	0	3	2	3	3	16 = Medium local
Areas to which oral traditions are attached or which are associated with intangible heritage	None	-	-	-	-	-	-	-	-	-	-	-
Historical settlements and landscapes	None	-	-	-	-	-	-	-	-	-	-	-
Landscapes and natural features of cultural significance	None	-	-	-	-	-	-	-	-	-	-	-
Geological sites of scientific or cultural importance	None	-	-	-	-	-	-	-	-	-	-	-
Archaeological and palaeontological sites	LSA quarries	1	1	3	2	0	3	2	0	1	0	13 = Medium local
Graves and burial grounds	None	-	-	-	-	-	-	-	-	-	-	-
Areas of significance related to labour history	Cemeteries	2	0	0	1	1	0	3	1	2	3	13 = Medium local
Movable objects	None	-	-	-	-	-	-	-	-	-	-	-

4.4 Impact assessment

4.4.1 Strauss memorial

S 3(2) NHRA heritage resource	(a) Identification		(b) Significance	(c) Impact		(d) Recommended impact management
	Site	GPS		Study area	Impact type, certainty and significance	
Buildings, structures, places and equipment of cultural significance	Strauss memorial	28°26'12.64"S 21°20'33.88"E	Medium local	Northern section on hillock overlooking main road	Possible low negative (depending on where farming will take place)	Avoid and protect



FIGURE 12: Google Earth image (2004) indicating the location of the memorial and the Straussburg cemetery



FIGURE 13: The memorial was erected in order to honour the founder of Straussburg

4.4.2 Late Stone Age quarries

S 3(2) NHRA heritage resource	(a) Identification		(b) Significance	(c) Impact		(d) Recommended impact management
	Site	GPS		Study area	Impact type, certainty and significance	
Archaeological and palaeontological sites	LSA quarry 1	28°27'28.44"S 21°20'12.62"E	Medium local	Western section near main fence	Possibly low negative	Document, avoid and protect (fence) with 15 m buffer zone around site boundaries
	LSA quarry 2	28°27'28.30"S 21°20'13.42"E	Medium local	Western section near main fence	Possibly low negative	Document, avoid and protect (fence) with 15 m buffer zone around site boundaries

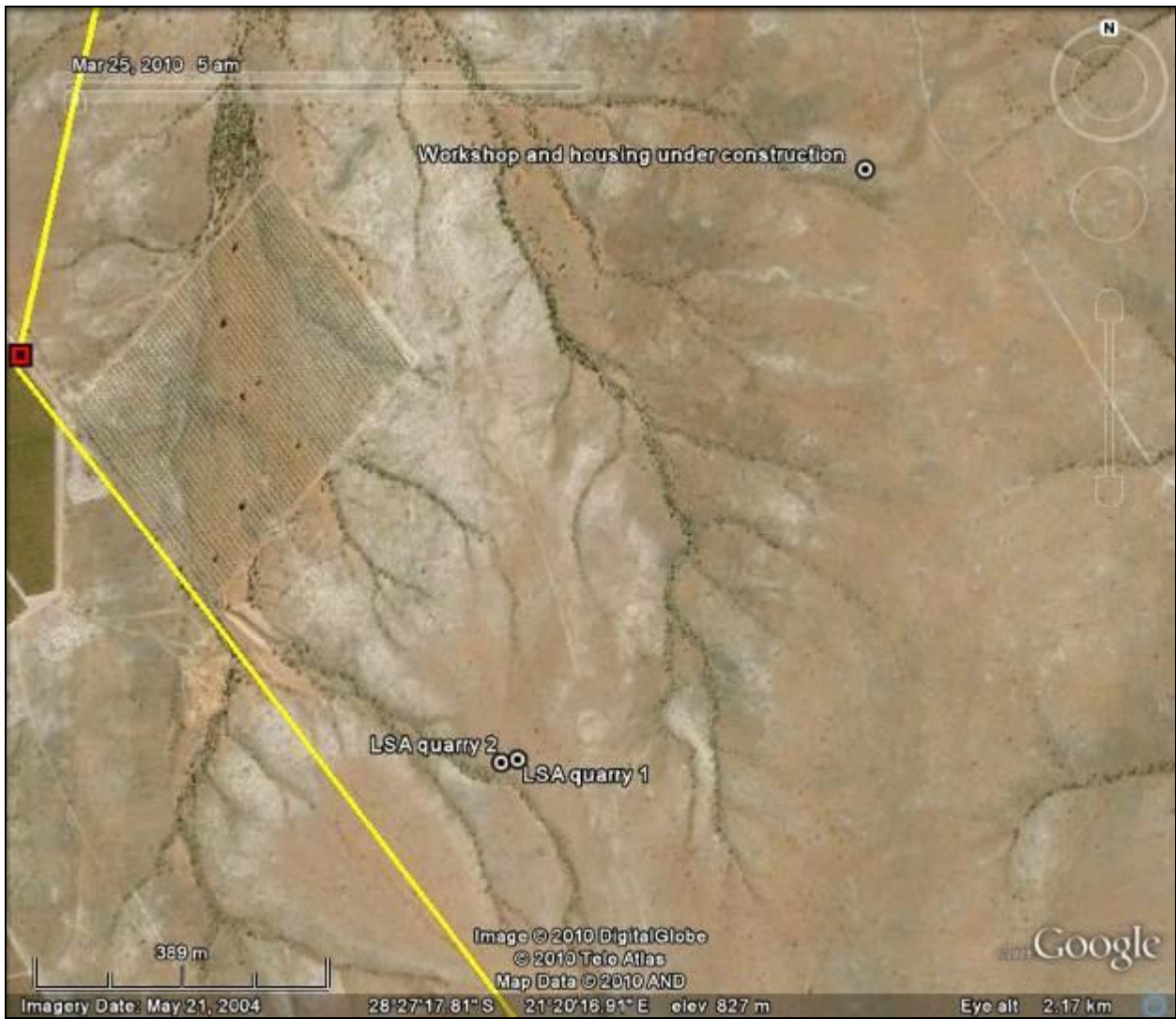


FIGURE 14: Google Earth image (2004) indicating the location of the LSA quarries in relationship to the workshop and housing development site



FIGURE 15: One of the LSA quarries, essentially consisting of large rocks from which flakes were struck for the manufacturing of artefacts

4.4.3 Cemeteries

S 3(2) NHRA heritage resource	(a) Identification		(b) Significance	(c) Impact		(d) Recommended impact management
	Site	GPS		Study area	Impact type, certainty and significance	
Graves and burial sites	GY 1 (Ntsikelelo cemetery)	28°26'49.71"S 21°20'2.30"E	Medium local	Just outside northern section	Neutral	Avoid and ensure 15 m wide surrounding buffer zone and access
	GY 2 (Straussburg cemetery)	28°26'10.12"S 21°20'21.06"E	Medium local	Outside northern section next to main road	Neutral	No action



FIGURE 16: Google Earth image (2004) indicating the location of the two cemeteries



FIGURE 17: Graveyard 2 (Straussburg cemetery)



FIGURE 18: Graveyard 1 (Ntsikelelo cemetery) (Photo ME Geldenhuys)

4.4.3 Summarised impact assessment

TABLE 10: Identification of heritage features, impacts and impact management measures

S 3(2) NHRA heritage resource	(a) Identification		(b) Significance	(c) Impact		(d) Recommended impact management
	Site	GPS		Study area	Impact type, certainty and significance	
Buildings, structures, places and equipment of cultural significance	Abandoned amethyst quarry 1	28°26'26.31"S 21°20'34.81"E	Low local	Northern section overlooking dry river	Definite neutral: No farming possible here	No action
	Abandoned amethyst quarry 2	28°26'4.76"S 21°20'47.27"E	Low local	Northern section next to main road	Definite neutral: No farming possible here	No action
	Strauss memorial	28°26'12.64"S 21°20'33.88"E	Medium local	Northern section on hillock overlooking main road	Possible low negative (depending on where farming will take place)	Avoid and protect
Areas to which oral traditions are attached or which are associated with intangible heritage	None	-	-	-	-	-
Historical settlements and landscapes	None	-	-	-	-	-
Landscapes and natural features of cultural significance	None	-	-	-	-	-
Geological sites of scientific or cultural importance						
Archaeological and palaeontological sites	LSA quarry 1	28°27'28.44"S 21°20'12.62"E	Medium local	Western section near main fence	Possibly low negative	Document, avoid and protect (fence) with 15 m buffer zone around site boundaries
	LSA quarry 2	28°27'28.30"S 21°20'13.42"E	Medium local	Western section near main fence	Possibly low negative	Document, avoid and protect (fence) with 15 m buffer zone around site boundaries
	Small scatters of Stone Age artefacts	-	Low local	Sporadically across site	Possibly low negative to neutral	No action. Mitigation: Report and evaluate any <u>large</u> scatters of artefacts when found
Graves and burial sites	GY 1 (Ntsikelelo cemetery)	28°26'49.71"S 21°20'2.30"E	Medium local	Just outside northern section	Neutral	Avoid and ensure 15 m wide surrounding buffer zone and access
	GY 2 (Straussburg cemetery)	28°26'10.12"S 21°20'21.06"E	Medium local	Outside northern section next to main road	Neutral	No action
Features associated with labour history	None	-	-	-	-	
Movable objects	None	-	-	-	-	

4.5 Social and economic benefits

The proposed development will have some direct benefits related to the conservation of heritage resources that have been identified:

- Recommended avoidance and protection of LSA quarries
- Recommended avoidance and protection of Strauss memorial
- Recommended avoidance and protection of Ntsikelelo cemetery (GY 1)

The socio-economic benefits are associated with the production of olives for export purposes and the retention and creation of jobs. The proposed project is an agricultural empowerment project.

4.6 Consultation with affected communities

This was part of the EIA process. Appendix 4 contains a summarised report. There were no comments or objections against the proposed land-use change from a heritage perspective.

4.7 Identification of other risk sources

The following project actions may impact negatively on any potential palaeontological and archaeological sites and remains.

The actions are likely to occur during the preparation phases of the proposed project:

- Earthworks and excavations may expose or uncover more objects and artefacts and unmarked human burials.

4.8 Key mitigation and enhancement measures before and during site preparation

- Monitor for chance finds (e.g. burial sites, old waste disposal sites, ruins, foundations, large scatters of Stone Age artefacts, etc)

4.9 Consideration of alternatives

The nature and significance of what has been found in terms of heritage is, however, not of such importance that the proposed location for the development area should be changed or that other alternatives should be considered.

4.10 Summarised findings and recommendations

The areas proposed for olive farming are located in a cultural landscape classified primarily as historic farmland. This class of landscape is of relatively low heritage sensitivity because it is able to absorb new development with few adverse effects.

The features of heritage significance that were identified are two Late Stone Age quarries, two cemeteries and a memorial. The two amethyst quarries have no special heritage significance. No other visible heritage features were identified.

The predicted heritage impacts are neutral to low negative (in the case of the LSA quarries). Visual intrusion as an indirect impact is not an issue since farming is already practised on adjacent areas. Noise, dust, pollution and restrictions of access patterns as indirect impacts are also not issues.

The nature and significance of what has been found in terms of heritage is, however, not of such importance that the proposed location for the development area should be changed or that other alternatives should be considered.

Cultmatrix states that there are no compelling reasons not to authorise the proposed change of land use and that the proposed development can continue provided that the following mitigation measures are adopted as a heritage management tool:

1. Should any hidden human remains (highly unlikely) be disturbed, exposed or uncovered during site preparation and planting, these should immediately be reported to an archaeologist. Burial remains should not be disturbed or removed until inspected by an archaeologist.
2. Site preparation and planting activities must be monitored for the occurrence of any hidden large deposits of archaeological material (Stone Age tools) and similar chance finds and if any are exposed this should be reported to an archaeologist so that an investigation and evaluation of the finds can be made.
3. The significance of the Strauss memorial should be retained by avoiding and protecting the place.
4. The significance of the two LSA quarries should be retained by avoiding and protecting them through a fence and a 15 m wide buffer zone around each site.

5. The significance of the Ntsikelelo cemetery (GY 1) should be retained by avoiding it and ensuring a buffer zone of at least 15 m wide around the periphery and by ensuring access from the village.

APPENDIX 1: SOCIO-CULTURAL HISTORY OF DEVELOPMENT AREA

When the Swedish-born traveller and explorer Hendrik Wikar reached the middle reaches of the Orange River in 1778 after a long land journey that started in Cape Town, he met Khoisan communities who called themselves the *Einiqua*, or *River People*, divided into three “kraals”: the Namnykoa near the Augrabies Falls, the Kaukoa on islands west of Keimoes, and the Aukokoa of Kanoneiland and other islands to the east. He was followed by Robert Gordon, a Cape officer who was appointed to survey the interior. Gordon likewise documented the people and the landscape. Many years later the Gordonia District was named after him. Both Wikar and Gordon probably would have travelled past the area where Keboes is located.

The Einiqua were not the first communities who lived along the Orange River. Occupation of the larger region took place since the Early Stone Age, with occurrences of Middle Stone Age more frequent than the Early Stone Age. However, it is mostly during the Later Stone Age when population density increased. The Stone Age quarries and artefacts that were found in the course of the investigation are associated with this period of human settlement. The spread of Iron Age communities did not extend this far to the west.

By 1730 the first wave of *Trekboere* reached the middle Orange River, nomadic farmers who periodically settled where there was water and grazing for their livestock. Very few of them chose to settle permanently, even after the Orange River was proclaimed as the Cape Colony’s northern border in December 1847. However, the Cape Colonial government did not have the resources to manage this vast area, which was regarded as a semi-desert only suitable to the *Trekboere* and the Khoisan communities (in particular the Korana) who likewise led a nomadic lifestyle. From the mid-1880s it was administered as part of British Bechuanaland, which was established a separate British colony in the interior.

Droughts and other environmental factors eventually resulted in increasing competition between the *Trekboere* and the Khoisan communities, which increased in violence in the mid-1860s and ended in the First Korana War of 1868-1869. This was exacerbated when the colonial government started granting grazing licenses to the *Trekboere* in 1867. By 1878 the land south of the Orange River had been surveyed into enormous farms, which were available for rental as grazing for periods between one and five years. Amongst these was Vaalkoppies 40, a very large farm that was formally surveyed and established in 1883.

The town of Upington, originally known as Olijvenhoutsdrift, was founded in 1871 as part of a mission station by the German missionary Rev Schröder. The town was renamed in 1884 after Sir Thomas Upington, who was the Prime Minister of the Cape Colony and who visited the town in 1884. In 1895 British Bechuanaland became part of the Cape Colony, which meant that the Lower Orange River regions, Gordonia, Namaqualand and Bushman land, now fell under the Cape Colonial Government.

The severe drought of 1895-1897, followed by the rinderpest outbreak in 1897, left many farmers destitute. As early as 1886 BPJ Marchand, NG Kerk minister of Knysna, pleaded with the Synod for assistance to the Poor White members of the church. In 1893 John Merriman broached the subject in the Cape Parliament, as a result of which the farms Kakamas, Zoetap and Neus along the Orange River, where irrigation works were relatively simple to build, were reserved for the purpose of a labour colony for Poor Whites. In 1894 the Synod appointed a Labour Colony Commission to investigate the possibility of resettling people on the land. In October 1897 this commission reported that settlement on irrigated land would be the best way of creating work for impoverished families.

In 1898 the first settlers arrived at Neus, near the spot where the south furrow was diverted from the river. Work on this furrow was begun under the management of Rev Schröder, assisted by JJ Lutz, after whom Lutzburg was named. During the Anglo-Boer War work on the south furrow was suspended. The south furrow was resumed in 1906 and the north furrow was started in 1908.

JC Strauss (commemorated by the memorial) was one of the early settlers. In 1916 he started work on his own canal originating from a dam on his farm Matjiesrivier (adjacent to Vaalkoppies). In 1920 he established a new settlement on Vaalkoppies, later known as Strausburg, when he built his house and made available stands for a school, church and mission church. After the school closed down in 1939 its building was used for church services. The two cemeteries are associated with Strausburg and its “township”, known today as Ntsikelelo.

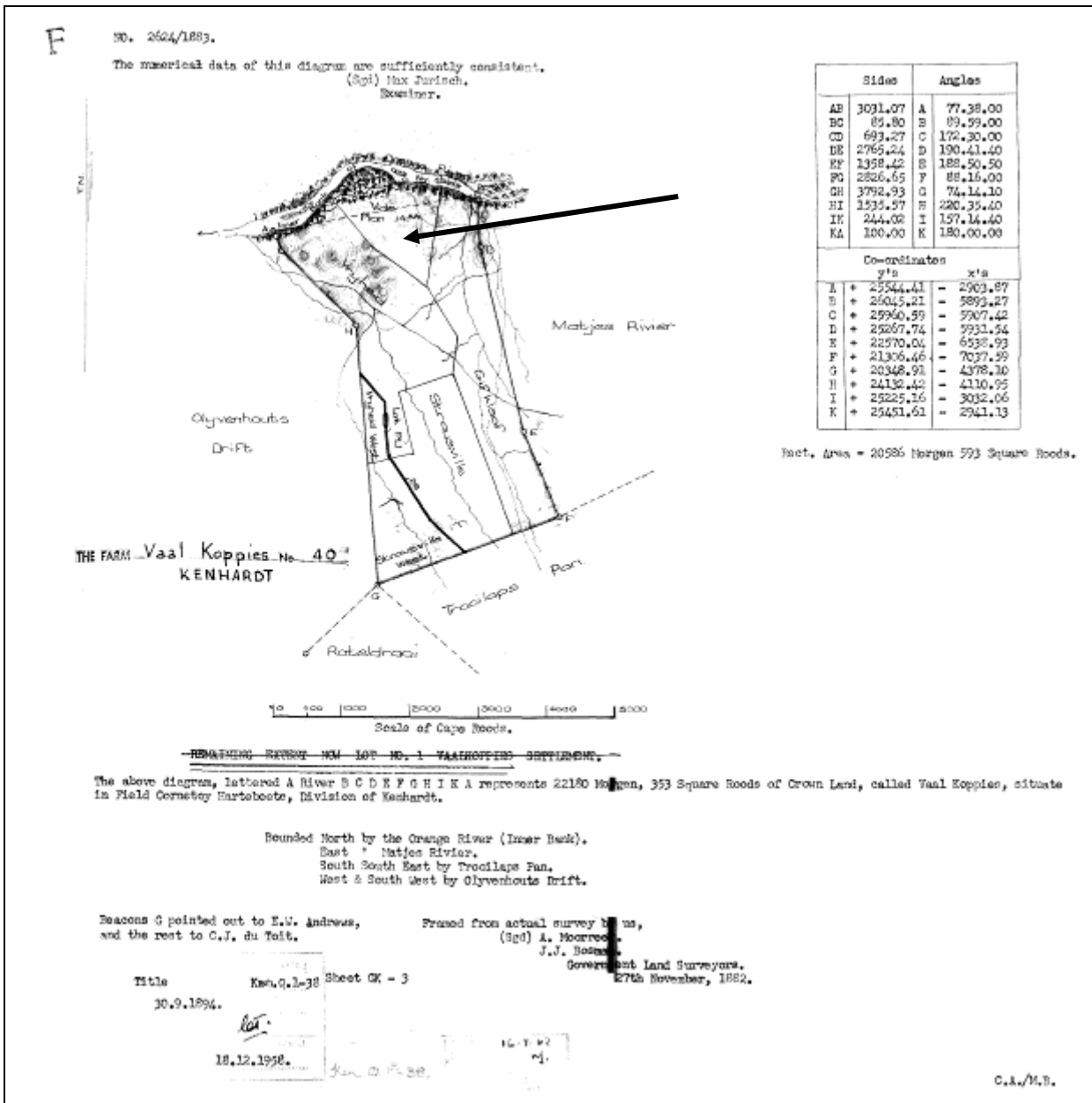


FIGURE 19: Survey diagram of Vaalkoppies (1883, redrawn 1958) indicating the location of the development site (arrow)

In the 1930s Vaalkoppies was divided into a number of smaller portions with names such as Straussville, Gifkloof and Vryheid. What was left was a triangular portion that became the development site.

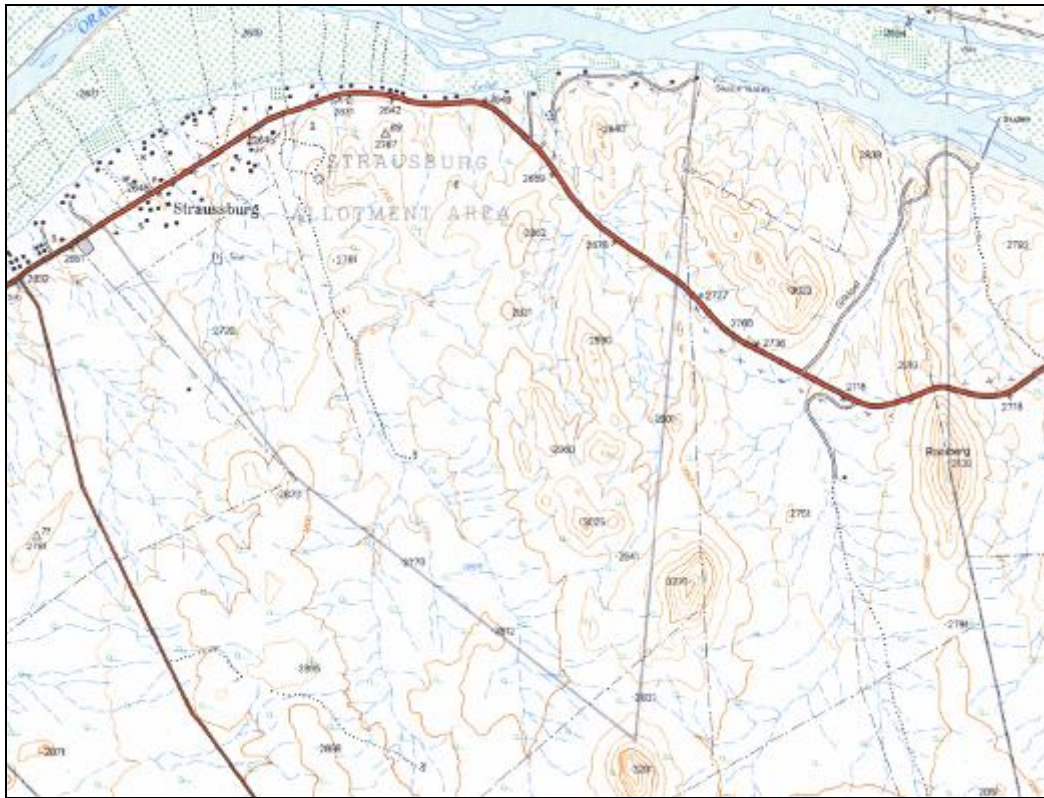


FIGURE 20: Portion of 2821 AD (1971) indicating the development site that was known at the time as the Straussburg Allotment Area

Mining was another economic activity, though of less importance than farming. The presence of amethyst deposits gave rise to quarrying activities on Vaalkoppies. Amethyst is a purple-coloured form of crystalline quartz. The colour varies from deep purple to light violet. The colouration is in patches and zones, and rarely uniform. Crystals are transparent to translucent. Gem-quality amethyst is deep purple in colour and is usually faceted. Amethyst is also manufactured synthetically and is cut and used as gemstones, but its price is not much less than that of the natural gemstone. Amethyst is found in the Northern Cape Province, Gordonia district and Gauteng Province (poor quality crystals). Better-quality amethyst is found near Pofadder. Four deposits have been identified by the Council of the Geological Survey, the size of the largest, which occurs at the Soverby berg deposit on the farm Curries Camp 457 is indicated as containing between 500 and 1 000 k g of amethyst. Other deposits not covered by CGS include one just outside Upington on the farm Vaalkoppies 40 where some mining has taken place for export to the East.



FIGURE 21: Sample of amethyst

APPENDIX 2: INFORMATION SOURCES USED IN THIS REPORT

Databases

Environmental Potential Atlas, Department of Environmental Affairs and Tourism.
Heritage Sites Database, Pretoria
SAHRA database of archaeological impact assessment reports (2009)

Literature

BERGH, JS (ed), 1999, *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*.

Living with the land. A manual for documenting cultural landscapes in the Northwest Territories. Yellowknife (Canada), 2007.

LOUBSER, JA, 1959, *Kakamas: Geskiedkundige Dorp van die Oranje*. Cape Town: Matthee-Mitchell.

National Heritage Resources Act (Act 25 of 1999)

RAPER, PE, 2004, *New Dictionary of South African Place Names*. Johannesburg/Cape Town: Jonathan Ball.

ROSSOUW, PJ, 1939, *Die arbeidskolonie Kakamas*. Unpublished MA thesis, University of Stellenbosch.

SMITH, AB (ed), 1995, *Einiqualand: Studies of the Orange River Frontier*. Cape Town: UCT Press.

Standard Encyclopedia of Southern Africa.

WILSON, MGC, & ANHAEUSSER, CR, 1998, *The mineral resources of South Africa*, Council for Geoscience Handbook 16. Pretoria: Council for Geoscience.

Maps

2821 AD Upington East (1971, 1990)
Cadastral diagrams of the farm (Chief Surveyor-General)
Maps (and other information) provided by client

Aerial photos

Google Earth (2004)

Unpublished reports

RUBIDGE, B, 2009, *Farm Keboes 37, Upington: Palaeontological impact*. Unpublished desktop report prepared for Cultmatrix by Wits University.

Internet sources

www.ngkerk.org.za

<http://www.northern-cape.gov.za/oldsite/ncpgds/mining/sec6.pdf>

APPENDIX 3: GLOSSARY OF TERMS

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.

Cultural significance is assessed in terms of the following criteria, some of which are embodied in the NHRA:

- Historic value: Material or intangible evidence resulting from changing social, political and environmental circumstances or conditions
- Rarity: Unique or unusual features also possess rarity value, apart from their age. Section 34 of the NHRA provided general protection for all structures older than 60 years. This does not imply that recently erected structures cannot possess rarity, or for that matter cultural value.
- Scientific value: Indicates research potential (the capacity to yield more knowledge)
- Typical: Indicates that the feature is a good example of a certain class or type of heritage resource
- Aesthetic: Other than artistic or architectural expression, aesthetic value can also be evident in craftsmanship, technique, visual cohesion (harmony), visual evidence of permanence and stability, setting etc.
- Technological: Indicates value in terms of a technological achievement
- Personal/Community: Indicates value in terms of association with a certain person, community, organisation or cultural group
- Landmark: A sense of place or belonging involves the physical and visual relationship between a feature and its environment.
- Condition (material integrity): Indicates substantial evidence of authentic fabric with minor degree of lost or obliterated fabric; also refers to a structure's restoration potential
- Sustainability: The potential for lasting economic viability (use) and the perpetuation of the original use or part thereof.

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

Intangible heritage

Defined in terms of the UNESCO Convention for the Safeguarding of the Intangible Cultural Heritage (2003) as:

- Oral traditions and expressions, including language as a vehicle of the intangible cultural heritage;
- Performing arts;
- Social practices, rituals and festive events;
- Knowledge and practices concerning nature and the universe;
- Traditional craftsmanship.

The "intangible cultural heritage" means the practices, representations, expressions, knowledge, skills – as well as the instruments, objects, artefacts and cultural spaces associated therewith – that communities, groups and, in some cases, individuals recognize as part of their cultural heritage. This intangible cultural heritage, transmitted from generation to generation, is constantly recreated by communities and groups in response to their environment, their interaction with nature and their history, and provides them with a sense of identity and continuity, thus promoting respect for cultural diversity and human creativity.

Visual and social impact assessments as part of an HIA are directly associated with intangible cultural heritage.

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

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

APPENDIX 4: PUBLIC PARTICIPATION REPORT

DEO GLORIA OLIVE OIL ESTATE – 1300HA

4. PUBLIC PARTICIPATION

The following steps were taken in accordance with the plan of study for EIA.

4.1 Notification

During the public participation process the following interested and affected parties were identified and had been consulted:

NAME	ADDRESS	NOTIFIED BY:
DENC Department of Environment and Nature Conservation	Private Bag X6102, KIMBERLEY, 8300	SCOPING REPORT
DWA Department of Water Affairs	Private Bag X5912, UPINGTON, 8800	SCOPING REPORT
DAFF Department Agriculture, Forestry and Fisheries	Private Bag X5912, UPINGTON, 8801	SCOPING REPORT
DAFF Department of Agricultural , Forestry and Fisheries	P O Box 52, UPINGTON, 8801	SCOPING REPORT
ADJACENT LAND OWNERS AND INTERESTED PARTIES:		
//Khara Hais Municipality	Private Bag X6003, UPINGTON, 8801	LETTER
Straussburg Irrigation Board	P O Box 2142, UPINGTON, 8801	LETTER
Johan van der Colff Trust	P O Box 1928, UPINGTON, 8800	LETTER
Vredelus Boerdery	P O Box 1932, UPINGTON, 8801	LETTER
Gordonia Verspreiders CC	P O Box 759, UPINGTON, 8801	LETTER
New Haven Trust	P O Box 93, UPINGTON, 8801	LETTER
Mr JS Strauss	P O Box 1458, UPINGTON, 8801	LETTER

De Wet Strauss Familie Trust	P O Box 106, UPINGTON, 8801	LETTER
ESKOM	PO Box 500, UPINGTON, 8801	LETTER

4.2 Issues identified

The following comments have been received from adjacent land owners as well as interested and affected parties (See Annexure 3-8):

NAME	DATE RECEIVED	COMMENTS AND RESPONSE
DWA Department of Water Affairs (annexure 3)	10.09.2010	<p>The department indicated that during the site inspection a big seasonal stream, several small seasonal tributaries together with natural drainage systems were observed on site. The department recommends that no development should take place within 32m of the water course and if so, the water course should be delineated in order to provide an appropriate buffer to maintain such water course.</p> <p>The department stated that, as indicated in the Scoping report, there are only 14.3 ha of water rights which are allocated to portion 67 of the farm Vaalkoppies 40, Strausburg. The applicant must note that the 14.3 ha water rights can be used in portion 67 only (which is 230 ha) and cannot be used on the remainder of the farm. If the applicant intends to use these waterrights on the remainder of the farm Vaalkoppies 40, the applicant must apply for the temporary or permanent transfer of water rights from the Department of Water Affairs before the authorization can be granted.</p> <p>The department also stated that in order to obtain additional water rights for portion 67 and the remainder of the farm Vaalkoppies 40, a license application must be submitted to their office and authorization obtained before</p>

		<p>the development commences.</p> <p>Should any new installation for a pump station on a new site on the river bank be required, it constitutes to a water use and it must be authorized in terms of section 21 (i) of the Act.</p> <p>The applicant indicated that olive trees require approximately 200 liter water/tree per month and that 14.3 ha of water rights can provide water for 107 ha olive plantation. – The Dept. of Water Affairs indicated that the applicant must submit a substantiate document supporting this statement. – The applicant will provide the department of Water Affairs with the required information in this regard.</p> <p>The department requested that a detailed layout plan for the sewerage system and its connection to the closed tank needs to be submitted to the Department of Water Affairs before the development commences.</p> <p>The department takes note that the applicant will provide the necessary rubbish bins in order to prevent littering on the farm.</p> <p>The Department of Water Affairs will have no objection to the development, if the above stipulated issues be taken into consideration and the needed information provided.</p>
DAFF Department of Agricultural , Forestry and Fisheries (Annexure 4)	06.09.2010	Indicated that they are also responsible for the issuing of plough certificates and that this will be considered once the necessary test has been done to determine the possibility to irrigate the soil. These tests will be done in conjunction with the said department and will also be a legal requirement before the commencement of the project.
DAFF Department of Agricultural, Forestry and Fisheries (Annexure 5)	23.08.2010	The department stated that layout plans must take protected tree species, if any, into consideration during the layout planning process for the proposed development. If layouts cannot be

		<p>adopted the necessary Forest Act License must be applied for in order to remove and/or disturb the trees. As requested a copy of the ecological report will be given to the mentioned Department.</p> <p>Herbicides containing the active ingredients of <i>bromacil</i> and <i>tebuthiuron</i> must be avoided during the management of invader species.</p> <p>A copy of the EMP will be forwarded to the department.</p> <p>Note was taken on the address change.</p> <p>In principle, the department has no objection against the proposed development as long as protected trees are not adversely affected by this development.</p>
//Khara Hais Municipality (annexure 6)	12.08.2010	//Khara Hais Municipality indicated that the proposed development of this agricultural area will contribute to an improved usage of the land and economic development in the area. They also indicated that the proposed development is within the properties existing landuse rights of Agricultural zone 1 and they do not have any objection to the proposed development. They also indicated that they support the development.
ESKOM (Annexure 7)	02.08.2010	No objection to the proposed development.
ADJACENT LAND OWNERS AND INTERESTED PARTIES (Annexure 8)		
Mr Van der Colff	25.08.2010	No objection to the proposed development
Mr D de Wet Strauss	04.08.2010	The landowner indicated that he had a discussion with the applicants and that he requested them to ensure that workers do not trespass on his property. He also wishes the applicant best of luck with the proposed development.
Newhaven Trust (Mr NS Strauss)	07.09.2010	Mr. Strauss expressed his concern if the applicant will make use of groundwater for irrigation purposes as he is of the

		<p>opinion that it will not be sustainable. – The applicant confirmed that he will not make use of any groundwater resources for irrigation purposes. Should any groundwater however be used, an application must first be lodged with the Department of Water Affairs.</p>
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