

Table Error! No text of specified style in document.-4: Mean monthly maximum temperatures °C Kimberley Station (Station number 0290468 4)

Year	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1992	36.20	36.70	32.30	29.50	23.60	19.30	19.90	20.00	27.80	27.40	28.80	33.90
1993	33.60	27.90	28.50	24.70	22.50	18.90	20.40	21.40	28.30	28.50	29.50	32.10
1994	29.90	28.60	30.00	27.10	23.60	17.20	18.20	22.20	26.80	28.20	30.70	34.10
1995	34.40	35.80	28.60	25.60	20.90	18.80	18.40	22.80	27.80	27.50	29.70	28.40
1996	32.60	30.00	30.10	24.00	21.50	19.60	15.40	18.20	25.30	29.00	27.80	30.50
1997	30.50	32.80	26.30	22.50	19.60	17.90	18.40	23.40	27.50	28.80	30.60	34.30
1998	31.20	31.30	29.60	27.80	21.90	21.50	19.20	21.70	26.60	28.30	29.80	33.10
1999	34.00	35.10	32.70	28.10	21.00	19.90	20.50	22.00	24.90	28.20	33.70	29.10
2000	27.90	31.70	29.00	24.20	21.80	20.60	18.60	23.80	24.10	29.70	29.60	32.40
2001	33.70	33.10	30.80	23.80	21.60	19.70	17.90	21.60	24.60	31.50	29.10	30.50
2002	31.30	32.80	30.40	29.30	22.40	17.80	18.20	21.30	25.30	30.20	29.80	31.90
2003	34.00	33.00	30.80	27.20	21.90	19.40	21.20	20.70	25.70	30.10	24.90	32.60
2004	31.00	30.60	28.40	26.10	22.80	19.30	18.00	23.30	23.90	28.00	34.10	34.60
Total Average	32.33	32.26	29.81	26.15	21.93	19.22	18.79	21.72	26.05	28.88	29.85	32.12

Source: South African Weather Service, Pretoria

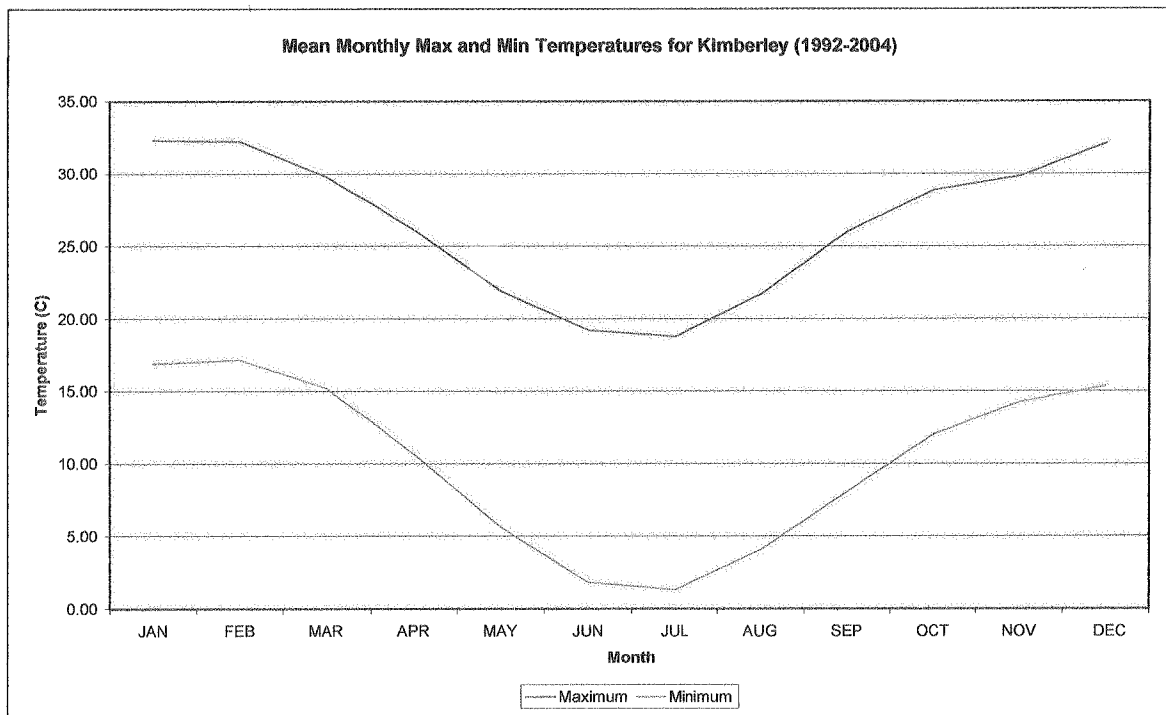


Figure 2: Mean Monthly Max and Min Temperatures for Kimberley (1992-2004)

iii. Mean monthly wind direction and speed

The average wind direction for the Kimberley station is predominantly from the north to northwest (Figure 3).

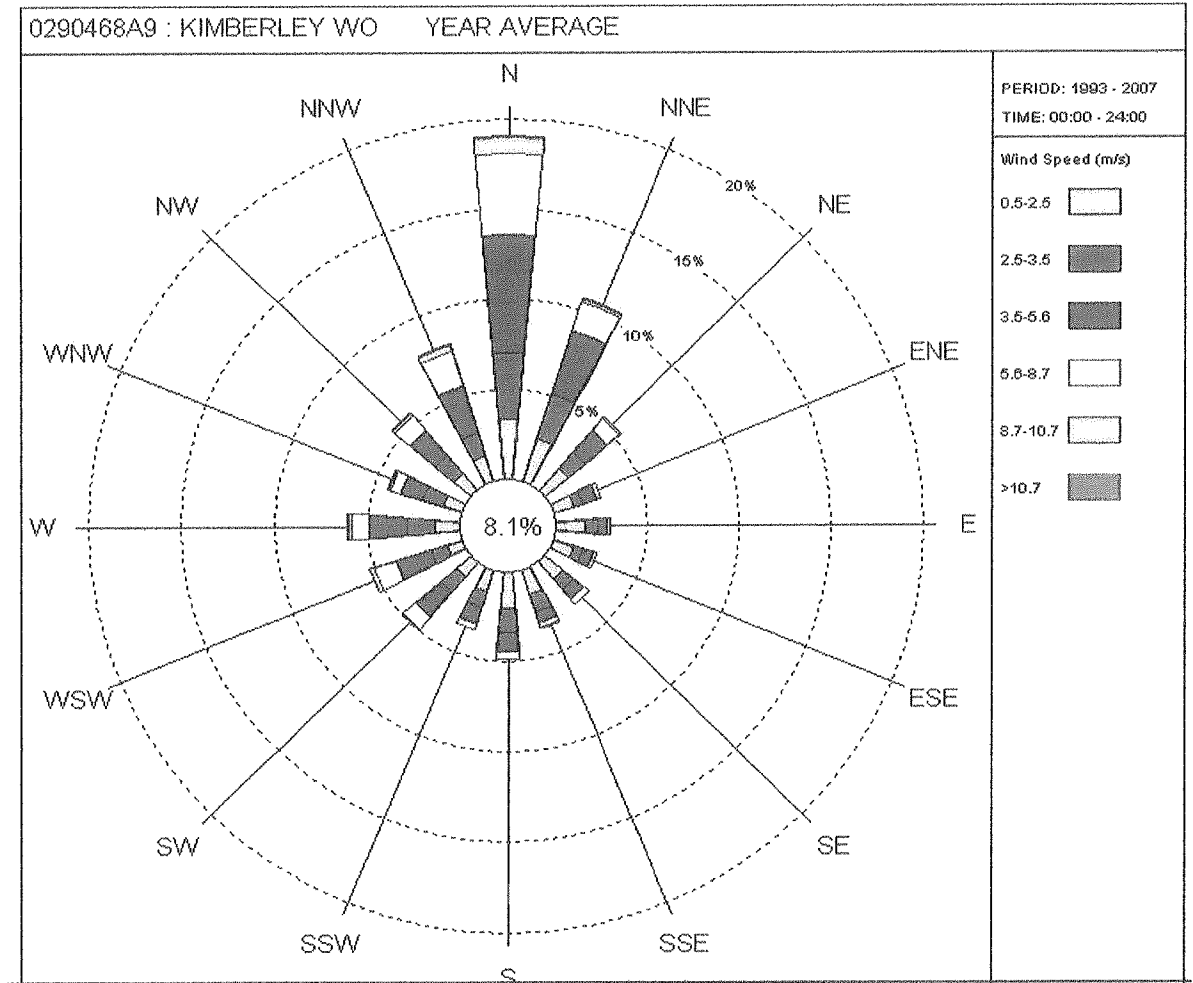


Figure 3: Kimberley Wind Rose diagram (1993-2007) for the Kimberley Climate Station. (Station number 0290468 4)

The wind gust speeds vary, with the strongest winds occurring in the summer months, and the average wind speed being between 12.22-14.52m/s, occurring around 35% of the year (refer Table Error! No text of specified style in document.-5). Winds for this area are light with strong winds of over 16.3m/s occurring on rare occasions (Figure 3).

Table Error! No text of specified style in document.-5: Average wind gust speeds per month (m/s) for the Kimberley Climate Station. (Station number 0290468 4)

Year	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1992	8.00	7.80	7.20	11.90	10.10	10.10	11.20	11.90	12.50	15.10	13.80	16.00
1993	16.00	12.50	12.90	11.90	9.60	10.40	9.40	12.40	12.70	14.90	14.00	16.30
1994	12.80	10.90	12.10	12.30	10.90	11.50	10.10	11.70	13.50	13.10	14.30	13.90
1995	13.60	13.10	11.20	10.30	9.50	9.30	10.30	11.70	12.40	14.10	14.20	14.10
1996	13.90	12.40	11.70	11.30	9.60	10.00	10.10	10.90	13.00	13.50	15.20	13.40
1997	12.70	12.20	11.40	10.40	9.90	10.10	9.10	10.80	10.60	13.80	14.40	14.30
1998	14.40	14.10	12.40	10.10	9.90	8.10	10.10	11.50	11.90	14.40	13.50	15.70
1999	14.40	13.10	12.50	11.10	10.50	10.00	10.60	10.90	13.50	13.70	13.90	14.30
2000	12.00	11.70	11.00	10.00	8.80	8.80	9.60	9.80	12.80	13.00	14.30	14.30
2001	14.10	13.80	11.60	10.90	9.00	8.60	11.20	10.10	12.10	14.40	13.90	12.80
2002	13.90	11.60	10.50	10.90	10.10	9.20	10.10	11.10	4.90	12.90	14.70	14.20
2003	13.90	13.10	12.40	10.00	9.20	8.00	9.60	12.50	12.50	14.10	12.00	14.90
2004	12.50	12.60	10.80	9.20	8.70	9.70	8.60	11.50	13.10	12.80	14.60	14.60
Total Average	13.25	12.22	11.36	10.79	9.68	9.52	10.00	11.29	11.96	13.83	14.06	14.52

Source: South African Weather Service, Pretoria

iv. Incidence of extreme weather conditions

Hail occurs on average 1, 2 days per a year in the area during summer. Frost occurs during the winter months, from April to October, during which temperatures become very low, the lowest recorded temperature for the area is -7, 8 °C. Due to the high temperatures and dry summers, the region is susceptible to droughts, which occur frequently. High winds occur infrequently in the region.

**ANNEXURE C:
DESCRIPTION
OF
SOIL TYPES
ON ERF 1
WINDSORTON**

**DESCRIPTION OF SOIL TYPES ON THE FARM
ERF 1 WINDSORTON: DISTRICT OF
BARKLEY-WEST.**

REPORT A.J7/2009

Compiled by A.J.Davids
On behalf of Breeze Court Investment 47 Pty Ltd
Tel: 053 5510089
053 5510355
Fax: 053 5510089
E-mail: gurty@telkomsa.net
P O Box 82
Windsorton
8510

Introduction

A soil survey was conducted on the farm with aerial photos and topographical maps (1:50 000) as baseline information. Soils were classified according to the Taxonomical System for South Africa (Soil classification working group, 1991). Soil type and depth was determined with the aid of a hand auger and clay content was estimated with a finger test.

The geographical position of the different soils is indicated on the attached map.

Broad Soil Types of the farm Erf 1 Windsorton.

Symbol	Dominant soil series/form	Depth (mm)	Clay % of the A horizon	Erodibility	Dryland potential	Irrigation potential
Z1	Bainsvlei Hutton Aval on	700-1 100	12-18	Low	Med	High
Z2	Sepane Westleigh	0-250	20-45	Moderate to High	Low	Low
Z3	Coega Mispah	0-150	15-20	Moderate	Low	Low
Z4	Gamoep Sepane	0-370	30-45	Moderate to high	Low	Low

Soil unit Z1

The Bainsvlei soil type with occasional outcrops of andesitic lava dominates this unit. Deep rooting depth and loamy texture of the soil allows for deep root penetration, high infiltration- and drainage rates. The soil is therefore suitable for crop production under dryland and irrigation. According to Crafford & Nott (1981) a long-term average maize yield of 2462 kg/ha can be realized with an average annual rainfall of 500 mm. These soils represent the higher areas in a relatively flat landscape. In some cases these soils are currently being cultivated to dry land crops like maize while other areas

had been converted to planted pastures. Fertility levels of these soils are low and relatively high amounts of fertilizer would be required for crop production.

Soil unit Z2

Sepane and Westleigh soil forms dominate this unit. These soils are very shallow due to the presence of a structured (or plinthic) soil layer of high clay content, which prevent penetration of annual crop roots. Infiltration and drainage rate is low because of the high clay content. Due to this severe restriction, potential for both dry land and irrigated crop production is low. Fertility levels of these soils are moderate due to the higher clay content. These soils represent the streams and floodplains located in the depressions. Occasional pans are found as indicated on the map.

Soil unit Z3

This unit is dominated by the Coega soil form and consists of sandy loam topsoil on hard carbonate subsoil. In some areas the hard carbonate (and occasional sandstone) is exposed on the surface. These soils are situated close to the big pan and are characterized by the stands of relatively big acacia trees in contrast to the bare grasslands of the adjacent area. Due to the very shallow nature of these soils, it is of low potential to dry land or irrigated crop production.

Soil unit Z4

Giamoep and Sepane soil forms dominate this unit. These soils are very shallow due to the presence of a neocutanic soil layer of high clay content, which prevent penetration of annual crop roots. Infiltration and drainage rate is low because of the high clay content. Due to this severe restriction, potential for both dry land and irrigated crop production is low. Fertility levels of these soils are moderate due to the higher clay content. These soils are found in a depression in the southern part of the study area.

Erodibility

Most soils on the farm are formed on top of andesitic lava with quartz amygdaloids present. In the depressions and floodplains, soils are shallow with higher clay content. Restricted drainage might lead to high runoff and therefore a moderate to high erosion hazard would exist especially if these soils are cultivated. Currently a good cover of natural grass would protect the soil from erosion. High stream velocities might occur during times of heavy rains, which can also contribute to erosion on these soils (Unit Z2, Z3 and Z4). The deeper Bainsvlei (Unit Z1) soils are not very erodible due to good infiltration and drainage rates. All soils of the study area are not prone to wind erosion, because wind erosion becomes prevalent when the clay content of the surface soil is below 10%.

References

SOIL CLASSIFICATION WORKING GROUP, 1991. Soil classification. A Taxonomical system for South Africa. Memoirs of the natural resources of South Africa. No 15. Department of Agricultural Development. Pretoria.

CRAFFORD, D.J. & NOTT, R.W., 1981. Yield formulas for summer crops of the Highveld Region. Technical communication no 169. Department of Agriculture and Fisheries. Pretoria

ANNEXURE D:

BIOPHYSICAL

REPORT

Breeze Court Investments 47 Pty Ltd

Biophysical Specialist Report

Date: 13 August 2009

Lidwala EPS Ref:
84 Central Road
Kimberley
8503

Tel: 053 842 0035
Fax: 086 548 1271

Client Details:
448 Frere Street
P.O.Box 82
Windsorton
8510

Tel: 053 551 0089
Fax: 053 551 0089

Lidwala Environmental & Planning Services (Pty) Ltd

Randburg Office:
11th Church Avenue, Ruitershof, Randburg, 2194,
PO Box 4221, Northcliff, 2115,
Tel: 0673515145

Pretoria Office:
1415 Moulton Avenue, Waverley, Pretoria, 0186,
PO Box 32497, Waverley, Pretoria, 0135,
Tel/fax: 012-332 3027

Bloemfontein Office:
4 Bernakor Park 52 Keld Street, Westdene Bloemfontein, 9301,
P.O. Box 4213, Bloemfontein, 9300
Tel: 082 890 1918

Kimberley Office:
84 Central Road, Beaconfield, Kimberley, 8301,
PO Box 3585, Diamond, 8305,
Tel: 053 842 0035

TABLE OF CONTENTS

Description	Page
1. Introduction	1
2. Vegetation	2
3. Invader Plant Species	4
4. Fauna and Red Data	7
5. Avifauna, Red Data Birds and their habitat	7
6. Herpetofauna and Red Data Species	8
7. References	8

BIOPHYSICAL BACKGROUND REPORT – ABSTRACT AND CONCLUSIONS WILL BE USED IN THE EMP

1. Introduction

Report compiled by:

Frank van der Kooy (Pr Sci Nat) –

Registered with the SA Council for Natural Scientific Professions first as Botanical Technologist, reg number: 300002/95 and later registered as professional Natural Scientist, reg number: 400126/00.

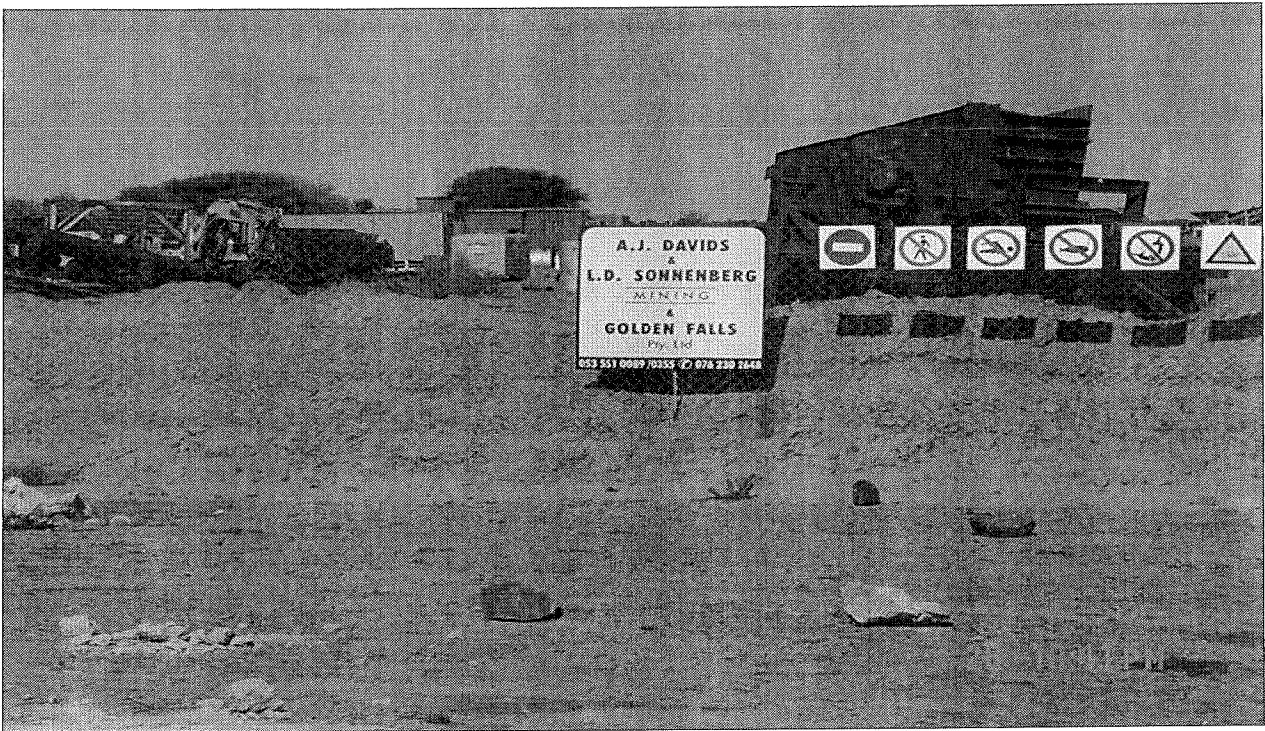
Fields of studies included: Botany, plant taxonomy, landscape planning, ecology, soil science, environmental management, project management, financial and management accounting and planning sciences.

Marizanne Vos (BTech, Nature Conservation) –

Fields of studies included: Vegetation studies; zoology; ecology; soil science; resource management; fresh water, marine and coastal management; conservation management; research methodology; resource economics.

This report aims to provide a general overview of the bio-physical situation of the area in which the proposed mining is situated. It is not the intention to duplicate or repeat information already available in the prospecting EMP. A summary of the important findings will be included into the EMP. Emphasis will be on those aspects that will be impacted by the proposed operations. It must however be stated that the proposed mining area was already heavily impacted by many previous mining operations. No rehabilitation of note was ever done. The background and overview provided in this report will serve as a basis for realistic rehabilitation methodologies as well as a guideline for proposed landscapes as well as vegetation to be used.

It must also be emphasized that no comprehensive or detailed vegetation survey was done. In order to do a comprehensive survey it must be done throughout the year in order to cover the various growth seasons. A brief field survey of the proposed mining site was performed on 29 July 2009 in order to verify the previous studies (EMP 2004) and to determine the necessity for further surveys and to include the findings in the mining right application. It will be recommended to the applicant that a regular vegetation survey during the mining process should continue in order to support the rehabilitation effort in a practical and cost affective manner. This is especially true in an area with hardly any topsoil and regularly flooded.



2. Vegetation

The town of Windsorton is situated within the Savanna Biome, and more specifically falls within the Eastern Kalahari Bushveld region of which the Kimberley- and Schmidtsdrif Thornveld vegetation types dominate the area (Mucina and Rutherford, 2006).

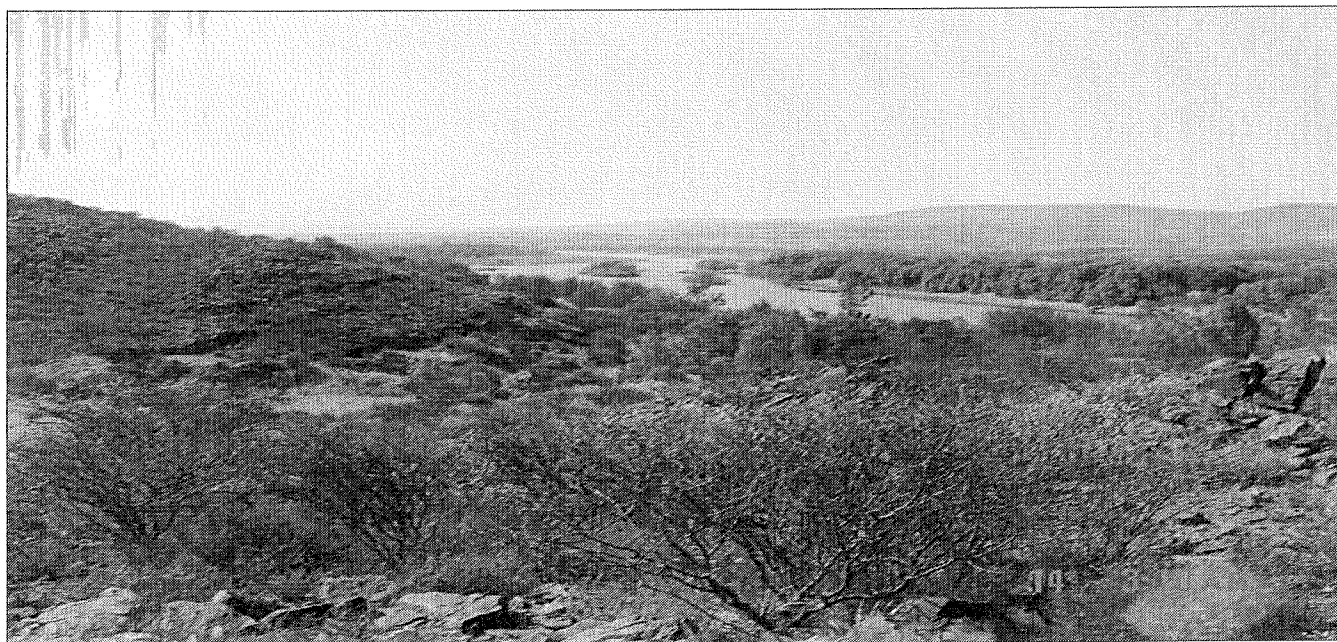
The Savanna Biome consists of both an herbaceous - and woody layer. The presence of woody elements indicates sufficient soil moisture to support trees but insufficient moisture to sustain closed canopies (forests). This phenomenon is visible along the perennial rivers within the area of which the proposed mining area is a good example.

A well developed tree layer can be distinguished, supporting species such as *Acacia erioloba*, *A. tortilis*, *A. karroo* and *Boscia albitrunca*. *A. erioloba* (camelthorn/kameeldoring) and *B. albitrunca* (shepard's tree/witgat) are both protected tree species in South Africa. The evergreen shrub community is in turn dominated by species such as *Tarchonanthus camphorates* and *A. mellifera*. Apart from grasses, bulbous and annual herbaceous plant species are also prominent. Graminoids (grasses) include species such as *Eragrostis lehmanniana*, *Aristida canescens* and *Enneapogon cenchroides*. According to Mucina and Rutherford (2006:518) the vegetation is sometimes very disturbed due to overgrazing by goats and other browsers.



Searsia lancea (previous Rhus lancea) along the river at the proposed mining site

Riparian thickets also occur along the banks, see photo example below where thickets are clearly visible, of the Vaal River meandering through the respective site. Important species include *Salix mucronata*, *Ziziphus mucronata*, *Grewia flava* and *Celtis africana*, amongst others.



Included as appendix is a comprehensive vegetation list of all plants collected in the area: (Grid: 2824BC) within which the proposed mining area is situated. This is the record of the South African

Botanical Institute (SANBI) herbarium and represents collections over many years. From this information no protected, rare or endangered plant species were ever recorded in this area.

Grasses such as *Eragrostis lehmanniana* var *lehmanniana* and *Digitaria eriantha* were present. Grasses will form the bases for the rehabilitation for this area. A seed cocktail of various grasses should be used for rehabilitation.

3. Invader plant species:

Due to the high and long term disturbance, a few generations of miners went through this area; many exotic vegetation species established and are actually thriving. One can only support the findings in the prospecting EMP and add a few problem species to the list:



***Nicotiana glauca* with reeds and blue-gum in background**



Opuntia ficus-indica

Others:

Atriplex lindleya subsp *inflata* – Soutbos.

Eucalyptus camaldulesis – river red gum

Datura stramonium – thorn apple.

Salix babylonica L. var. *babylonica* - Willow

A plant species list was obtained from the South African National Botanical Institute (SANBI) that lists all species that have been collected up to date in the Grid Reference 2824BC, which include the

Windsorton area. These lists include the status of plants, indicating whether they are endangered or not. According to the list below no threatened species occur in the respective area.

Table A: SANBI plant species list for Grid Ref 2824BC

Location: NC		
Grid: 2824BC		
Family	Species	Threat status
ACANTHACEAE	<i>Barleria rigida</i> Nees	
ACANTHACEAE	<i>Glossochilus burchellii</i> Nees	
ACANTHACEAE	<i>Monechma divaricatum</i> (Nees) C.B.Clarke	
AMARANTHACEAE	<i>Hermbstaedtia odorata</i> (Burch.) T.Cooke var. <i>odorata</i>	
AMARANTHACEAE	<i>Kyphocarpa angustifolia</i> (Moq.) Lopr.	
APOCYNACEAE	<i>Huernia longituba</i> N.E.Br. subsp. <i>longituba</i>	
ASPARAGACEAE	<i>Asparagus suaveolens</i> Burch.	
ASTERACEAE	<i>Helichrysum cerastioides</i> DC. var. <i>cerastioides</i>	
ASTERACEAE	<i>Helichrysum lineare</i> DC.	
ASTERACEAE	<i>Lasiospermum pedunculare</i> Lag.	
ASTERACEAE	<i>Pentzia calcarea</i> Kies	
ASTERACEAE	<i>Pteronia sordida</i> N.E.Br.	
BIGNONIACEAE	<i>Rhigozum obovatum</i> Burch.	
BORAGINACEAE	<i>Anchusa capensis</i> Thunb.	
BORAGINACEAE	<i>Ehretia alba</i> Retief & A.E.van Wyk	
BRASSICACEAE	<i>Coronopus integrifolius</i> (DC.) Spreng.	
BRASSICACEAE	<i>Erucastrum griquense</i> (N.E.Br.) O.E.Schulz	
BRASSICACEAE	<i>Rapistrum rugosum</i> (L.) All.	
CAMPANULACEAE	<i>Wahlenbergia nodosa</i> (H.Buek) Lammers	
CAPPARACEAE	<i>Cleome monophylla</i> L.	
CHENOPODIACEAE	<i>Atriplex semibaccata</i> R.Br. var. <i>typica</i> Aellen	
CHENOPODIACEAE	<i>Salsola kali</i> L.	
COMMELINACEAE	<i>Commelina africana</i> L. var. <i>barberae</i> (C.B.Clarke) C.B.Clarke	
CONVOLVULACEAE	<i>Convolvulus boedeckerianus</i> Peter	
CONVOLVULACEAE	<i>Falkia oblonga</i> Bernh. ex C.Krauss	
CONVOLVULACEAE	<i>Ipomoea oenotheroides</i> (L.f.) Raf. ex Hallier f.	
CRASSULACEAE	<i>Crassula lanceolata</i> (Eckl. & Zeyh.) Endl. ex Walp. subsp. <i>lanceolata</i>	
CYPERACEAE	<i>Cyperus indecorus</i> Kunth var. <i>decurvatus</i> (C.B.Clarke) Kük.	
CYPERACEAE	<i>Cyperus longus</i> L. var. <i>tenuiflorus</i> (Rottb.) Boeck.	
CYPERACEAE	<i>Cyperus margaritaceus</i> Vahl var. <i>margaritaceus</i>	
CYPERACEAE	<i>Isolepis hemiuncialis</i> (C.B.Clarke) J.Raynal	
CYPERACEAE	<i>Isolepis setacea</i> (L.) R.Br.	
CYPERACEAE	<i>Kyllinga alba</i> Nees	
EBENACEAE	<i>Diospyros austro-africana</i> De Winter var. <i>microphylla</i>	
ELATINACEAE	<i>Bergia anagalloides</i> E.Mey. ex Fenzl	
ERIOSPERMACEAE	<i>Eriospermum porphyrium</i> Archibald	
EUPHORBIACEAE	<i>Euphorbia duseimata</i> R.A.Dyer	
EUPHORBIACEAE	<i>Euphorbia fusca</i> Marloth	
FABACEAE	<i>Acacia tortilis</i> (Forssk.) Hayne subsp. <i>heteracantha</i> (Burch.) Brennan	
FABACEAE	<i>Cullen tomentosum</i> (Thunb.) J.W.Grimes	
FABACEAE	<i>Dichilus lebeckioides</i> DC.	

FABACEAE	Indigastrum argyraeum (Eckl. & Zeyh.) Schrire	
FABACEAE	Lessertia pauciflora Harv. var. pauciflora	
FABACEAE	Lotononis curtii Harms	
FABACEAE	Senna italica Mill. subsp. arachoides (Burch.) Lock	
HYACINTHACEAE	Dipcadi rigidifolium Baker	
HYACINTHACEAE	Drimia angustifolia Baker	LC
HYACINTHACEAE	Drimia intricata (Baker) J.C.Manning & Goldblatt	
IRIDACEAE	Freesia andersoniae L.Bolus	
LAMIACEAE	Leucas capensis (Benth.) Engl.	
MALVACEAE	Grewia flava DC.	
MALVACEAE	Hermannia bicolor Engl. & Dinter	
MALVACEAE	Hermannia coccoarpa (Eckl. & Zeyh.) Kuntze	
MALVACEAE	Hermannia eenii Baker f.	
MALVACEAE	Hermannia erodioides (Burch. ex DC.) Kuntze	
MALVACEAE	Hermannia modesta (Ehrenb.) Mast.	
MALVACEAE	Hermannia tomentosa (Turcz.) Schinz ex Engl.	
MALVACEAE	Hibiscus marlothianus K.Schum.	
MALVACEAE	Melhania virescens (K.Schum.) K.Schum.	
MOLLUGINACEAE	Hypertelis salsoloides (Burch.) Adamson var. salsoloides	
NYCTAGINACEAE	Boerhavia coccinea Mill. var. coccinea	
PAPAVERACEAE	Argemone ochroleuca Sweet subsp. ochroleuca	
PAPAVERACEAE	Papaver aculeatum Thunb.	
POACEAE	Aristida congesta Roem. & Schult. subsp. congesta	
POACEAE	Aristida scabrivalvis Hack. subsp. scabrivalvis	
POACEAE	Cymbopogon pospischilii (K.Schum.) C.E.Hubb.	
POACEAE	Cynodon incompletus Nees	
POACEAE	Digitaria eriantha Steud.	
POACEAE	Eragrostis bicolor Nees	
POACEAE	Eragrostis curvula (Schrad.) Nees	
POACEAE	Eragrostis homomalla Nees	
POACEAE	Eragrostis porosa Nees	
POACEAE	Eragrostis rigidior Pilg.	
POACEAE	Eragrostis superba Peyr.	
POACEAE	Eragrostis trichophora Coss. & Durieu	
POACEAE	Eragrostis x pseud-obtusa De Winter	
POACEAE	Eustachys paspaloides (Vahl) Lanza & Mattei	
POACEAE	Heteropogon contortus (L.) Roem. & Schult.	
POACEAE	Melinis repens (Willd.) Zizka subsp. repens	
POACEAE	Panicum coloratum L. var. coloratum	
POACEAE	Panicum stapfianum Fourc.	
POACEAE	Paspalum dilatatum Poir.	
POACEAE	Schmidtia pappophoroides Steud.	
POACEAE	Setaria verticillata (L.) P.Beauv.	
POACEAE	Sporobolus coromandelianus (Retz.) Kunth	
POACEAE	Sporobolus discosporus Nees	
POACEAE	Stipagrostis obtusa (Delile) Nees	
POACEAE	Stipagrostis uniplumis (Licht.) De Winter var. neesii	
POACEAE	Themeda triandra Forssk.	
POACEAE	Tragus racemosus (L.) All.	
POLYGONACEAE	Persicaria attenuata (R.Br.) Soják subsp. africana K.L.Wilson	
POLYGONACEAE	Rumex crispus L.	

POLYGONACEAE	Rumex lanceolatus Thunb.	
RUBIACEAE	Anthospermum rigidum Eckl. & Zeyh. subsp. rigidum	
RUBIACEAE	Nenax microphylla (Sond.) T.M.Salter	
SALICACEAE	Salix babylonica L. var. babylonica	
SCROPHULARIACEAE	Jamesbrittenia aurantiaca (Burch.) Hilliard	
SCROPHULARIACEAE	Nemesia pubescens Benth. var. pubescens	
SCROPHULARIACEAE	Peliostomum leucorrhizum E.Mey. ex Benth.	
SCROPHULARIACEAE	Selago albida Choisy	
SCROPHULARIACEAE	Selago geniculata L.f.	
SOLANACEAE	Lycium cinereum Thunb.	
SOLANACEAE	Lycium pilifolium C.H.Wright	
VERBENACEAE	Verbena officinalis L.	
ZYGOPHYLLACEAE	Tribulus terrestris L.	

4. Fauna & Red Data

The Savanna Biome is world renowned for the large herds of ungulates it supports, especially prior to the 1900's.

A literature and desktop review of the IUCN Global list of Red Data Mammals determined that the following sixteen species, which occur in the region, are considered threatened on a global scale:

Atelerix frontalis (South African Hedgehog), *Crocidura cyaena* (Reddish-grey Musk Shrew), *Crocidura hirta* (Lesser Red Musk Shrew), *Damaliscus lunatus* (Tsessebe), *Diceros bicornis* (Black Rhinoceros), *Hippotragus equines* (Roan Antelope), *Hyaena brunnea* (Brown Hyaena), *Lutra maculicollis* (Spotted-necked Otter), *Mellivora capensis* (Honey Badger), *Miniopterus schreibersi* (Schreibers' Long-fingered Bat), *Panthera leo* (Lion), *Poecilogale albinucha* (African Weasel), *Rhinolophus clivosus* (Geoffroy's Horseshoe Bat), *Rhinolophus darlingi* (Darling's Horseshoe Bat) and *Rhinolophus denti* (Dent's Horseshoe Bat) and *Tatera leucogaster* (Bushveld Gerbil).

Due to the high disturbance of the area no indigenous mammals can be sustained in the area. After rehabilitation some small mammals might migrate back to the area.

5. Avifauna Information, Red Data Birds and their habitat

STATUS QUO

A total of thirty (30) birds are considered threatened. Of the 30 species, 57% is associated with terrestrial ecosystems and 30% specifically with grassland areas, 43% is associated with aquatic ecosystems and 23% specifically with pans.

The thirty species are:

2009-08-13 Windsorton mining – mining application EMP – Bio-physical

Anthropoides paradisea (Blue Crane), *Aquila rapax* (Tawny Eagle), *Ardeotis kori* (Kori Bustard), *Charadrius pallidus* (Chestnut-banded Plover), *Ciconia nigra* (Black Stork), *Circus macrourus* (Pallid Harrier), *Circus maurus* (Black Harrier), *Circus ranivorus* (African Marsh-Harrier), *Eupodotis caerulescens* (Blue Korhaan), *Falco biarmicus* (Lanner Falcon), *Falco naumanni* (Lesser Kestrel), *Falco peregrinus* (Peregrine Falcon), *Glareola nordmanni* (Black-winged Pratincole), *Gyps africanus* (White-backed Vulture), *Gyps coprotheres* (Cape Vulture), *Leptoptilos crumeniferus* (Marabou Stork), *Mirafra cheniana* (Melodious Lark), *Mycteria ibis* (Yellow-billed Stork), *Neotis ludwigii* (Ludwig's Bustard), *Pelecanus onocrotalus* (Great White Pelican), *Pelecanus rufescens* (Pink-backed Pelican), *Phoenicopterus minor* (Lesser Flamingo), *Phoenicopterus ruber* (Greater Flamingo), *Polemaetus bellicosus* (Martial Eagle), *Rostratula benghalensis* (Greater Painted-snipe), *Rynchops flavirostris* (African Skimmer), *Sagittarius serpentarius* (Secretarybird), *Sarothrura ayresi* (White-winged Flufftail), *Sterna caspia* (Caspian Tern) and *Torgos tracheliotus* (Lappet-faced Vulture).

When the natural vegetation, especially the riparian vegetation, is protected in some areas bordering the river, birds will migrate back after the mining operation.

6. Herpetofauna & Red Data Species

STATUS QUO

This category collectively represents reptiles and amphibians, of which only the Giant Bullfrog (*Pyxicephalus adspersus*) is listed as threatened. Bullfrogs can potentially occur within pan and seepage areas.

None were found or seen during the site visit. This should however remain part of the environmental monitoring programme.

7. References

MUCINA, L. and RUTHERFORD, M.C. (Eds). 2006. *The Vegetation of South Africa, Lesotho and Swaziland*. Strelitzia 19. SANBI, Pretoria.

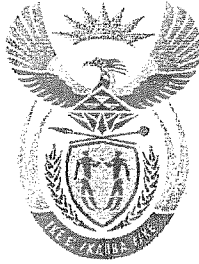
VAN DER KOOY, F. (Ed and compilation) African EPA (Pty) Ltd, 2004. Frances Baard District Strategic Environmental Management Programme (SEMP) -

ANNEXURE E:

EXISTING

WATER

REGISTRATION



water affairs

Department:
Water Affairs
REPUBLIC OF SOUTH AFRICA

NORTHERN CAPE REGION
PRIVATE BAG X6101, KIMBERLEY, 8301
Tel.: 053-8020500, Fax: 053-8321206, E-mail: vswarathle@dwa.gov.za



Lebogang Swarathle



WULATS Reference No. 16/2/7/c910/d/14

AMOS DAVIDS
P.O. Box 82
Windsorton
8510

ATTENTION: Mr. A J Davids

Dear Sir,

CONFIRMATION OF SUBMITTED APPLICATION FOR WATER USE AUTHORIZATION IN TERMS OF SECTION 40 OF THE NATIONAL WATER ACT, 1998 (ACT NO. 36 OF 1998): PORTION 0 OF ERF 1 WINDSORTON IRLAND SOUTH

Your application for a water use authorization in terms of Section 40 of the National Water Act (NWA), 1998, refers.

The Department would hereby wish to inform you that your application has been received and is awaiting final authorization and approving by our Department for the diversion and mining for alluvial diamonds within the Lower Vaal Mainstream Water Management area.

The department is aware of your application for diversion submitted to the Department of Minerals and Energy under the old order Act which therefore or hereby gives you the right to continue with your existing operation under provisions of Act 28 of the Minerals and Petroleum Resources Act 28 of 2002.

The following additional information is required before the application can be formally registered and processed further:

- ◆ Letter of consent to indicate public participation/consultation

Please submit the outstanding required information to:

The Regional Head: Northern Cape Region

DWA

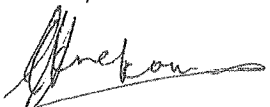
Private Bag X6101

Kimberley

8300

For attention: Lebogang Swarathle (053 802 0500)

Yours faithfully


pp
REGIONAL HEAD: NORTHERN CAPE

DATE: 2009/08/03



Department: Water Affairs and Forestry

National Register of Water Use Certificate 25021182

National Register of Water Use Certificate 25021182, issued in terms of the regulations requiring that a Water Use be registered, promulgated under Section 26(1)(c) of the National Water Act(Act 36 of 1998) to:

Applicant

Applicant Type: INDIVIDUAL
Name: MR AJ DAVIDS
ID Number: 6906265359085
Address: PO BOX 3039
WINDSORTON
8510

VAT Registration Number:

Property

Deeds Office: KIMBERLEY
Administrative District: WINDSORTON
Property Name: PLOT.71 WINDSORTON
Property Number: 71
Portion of Property: 0
Title Deed Number: BWF1/13

Property Owner

Name: DEPARTMENT OF PUBLIC WORKS
Address: PRIVATE BAG X5002
KIMBERLEY
8300


Water Management Area

Name: LOWER VAAL

Water Uses

Section 21(a) Taking water from a water resource.

See attached Annexure(s)


Office: Lower Vaal - Northern Cape Kimberley Regional Office: Northern Cape Region

Date stamp of issuing office

DISCLAIMER:

This certificate is:

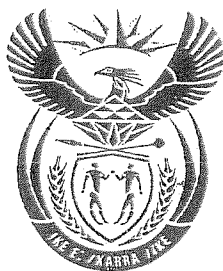
- not an acknowledgement of an entitlement to the registered water use;
- issued without alterations or erasures and is invalid if it contains alterations not in conformity with the Department's official copy; and
- in substitution of any National Register of Water Use Certificate the Department may have previously issued and the information is valid as at the date of issue. However, in the case of any water use having been identified as a licensed water use, this certificate is not to be regarded as a replacement of the applicable licence certificate. The license conditions that are applicable to the water use are not currently incorporated in this National Register of Water Use certificate.

**CORRESPONDANCE FROM
DEPARTMENT OF WATER
AFFAIRS AND
ENVIRONMENT.**

ANNEXURES:

1. Letter dated 21/10/2002
2. Letter dated 22/01/2008
3. Letter dated 20/12/2007
4. Temporary water authorization 16/09/2003
5. Letter dated 23/01/2008
6. Letter dated 18/03/2005 licence number 25021152





DEPT. VAN MINERALE EN ENERGIE
PRIVAATSAK/PRIVATE BAG X6093

21 OCT 2002

KIMBERLEY 8300

DEPARTEMENT VAN WATERWESE EN BOSBOUW / DEPARTMENT OF WATER AFFAIRS AND FORESTRY
LEFAPHA LA MERERO YA METSI LE JALO YA DIKGWA
NOORD KAAPSTREEK / NORTHERN CAPE REGION

Private Bag X 6101 Kimberley 8300	FAX: (053) 831 4534	TEL: (053) 831 4125
---	---------------------	---------------------

<i>Aan: To</i>	<i>Department Minerals and Energy</i>	<i>Faksnommer: Fax number:</i>	832 5631
<i>Aandag: Attention:</i>	Mnr. Borman/ Mev. R. Oosthuisen	<i>Datum: Date:</i>	18-10-2002
<i>Sender: Sender:</i>	J. Streit	<i>Aantal bladsye: Fax pages:</i>	1
<i>Gemagtig: Authorised:</i>		<i>Rang: Rank:</i>	<i>Deputy Regional Director</i>
<i>Verwysing: Reference:</i>		<i>U verwysing: Your reference:</i>	

<i>In Sake: Regarding:</i>	Proposed mining activity: Amos Davids, Erf 1, Windsorton
--------------------------------	---

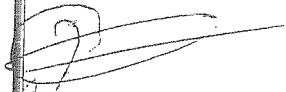
BOODSKAP / MESSAGE

It is the opinion of this office to recommend the approval of the mining license on the above-mentioned site. This recommendation will only be applicable to this specific site under the following conditions:

1. The required water use license for the abstraction of water, as discussed on site, must be obtained from the Department. The process was clearly discussed with Mr. Davids and he agreed to comply with the process.
2. Current mining activities will not exceed beyond the area as indicated. Rehabilitation will also commence as undertaken by the applicant in his rehabilitation plan. (Rehabilitation plan is attached)
3. No activities leading to the disturbance of the riparian habitat shall be permitted.
4. Non-compliance or deviation of the rehabilitation plan by Mr. Davids will lead to an immediate issuing of a directive to stop any further activities.
5. Regular inspections by officials from this office will be carried out.

We trust this meets your requirements. Should you have any queries please contact this office.

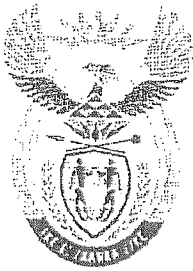
Yours faithfully



Regional Director: Northern Cape Region

DEPT. VAN WATERWESSE EN BOSBOU
NOORDKAAPSTREEK
Privaatsak/Private Bag X6101
21 OCT 2012
KIMBERLEY 8300
NORTHERN CAPE REGION
DEPT. WATER AFFAIRS & FORESTRY





water & forestry

Department:
Water Affairs and Forestry
REPUBLIC OF SOUTH AFRICA

(053) 830-8878

G. Stenekamp

(053) 8323803

A J Davids

stenekg@dwaf.gov.za

22/01/2008

NORTHERN CAPE REGION/ NOORDKAAP STREEK
PRIVATE BAG X6101
KIMBERLEY
8300

Jerry Remington Consultancy
P O Box 3690
Diamond Pavillion
8305

Dear Sir/Madame

APPLICATION FOR REGISTRATION OF WATER FOR INDUSTRIAL USE FOR MINING PURPOSES

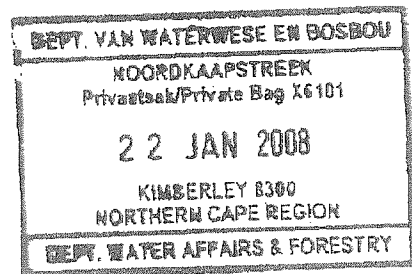
We acknowledge receipt of your submission of application for water use registration for mining purposes on Windsorton Erf 1 for Mr A J Davids.

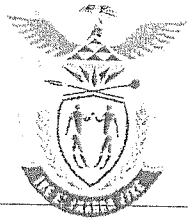
Should you require any further information please do not hesitate to contact us.

pp J. J. J. J.

REGIONAL HEAD
DEPARTMENT WATER AFFAIRS AND FORESTRY
NORTHERN CAPE

GS 00059





water & forestry

Department:
Water Affairs and Forestry
REPUBLIC OF SOUTH AFRICA

PRIVATE BAG X6101, KIMBERLEY, 8300
COURT BUILDING, CORNER KNIGHT & STEAD STREET, 4TH FLOOR, KIMBERLEY
TEL: 053 8308800, FAX: 053 8315682

✉ M. Noe

✉ 16/2/7/C910/D/14

✉ noem@dwaf.gov.za

Department of Minerals and Energy
Private Bag X6093
Kimberley
8300

Attention: Mrs. R. F. Sekepane

CONSULTATION IN TERMS OF SECTION 40 OF THE MINERAL AND PETROLEUM RESOURCES DEVELOPMENT ACT 2002, (ACT 28 OF 2002) FOR THE APPROVAL OF THE EMPR FOR CONVERSION OF OLD PROSPECTING RIGHT ON ERF 1 WINDSORTON SITUATED IN THE MAGISTERIAL DISTRICT OF BARKLY WEST, NORTHERN CAPE REGION: AMOS JACOB DAVIDS.

Reference is hereby made to application for a prospecting right as presented to this department by Department of Minerals and Energy under reference: NC6/2/2/2242 EM.

This office has no objections to the approval of the said Environmental Impact Assessment (EIA) and EMPR provided the following conditions are met and strictly adhered to:

- In terms of the National Water Act 1998 (Act 36 of 1998), all proposed water uses should be registered. The appropriate forms are available from this office or downloadable on the department website: WWW.DWAF.GOV.ZA.
- All applicable sections of the National Water Act as well as what was stipulated by the applicant in the above-mentioned EIA and EMPR must be met and strictly adhered to.
- The co-ordinates of the area to be mined must accompany the EMPR indicating the boundaries of the indicated mining area and all the nearby surrounding water resources.

- All the solid waste materials generated must be disposed off at the permitted waste disposal site.
- As this mining operations will take place within 100meters of the banks of a river, this activity need to be licensed.
- The minutes of the meetings with the interested and affected parties must be submitted to this office for the application to be processed.
- ~~All the commitments stipulated in the various parts of this report must be adhered to and any deviations must be communicated to this department.~~
- The regulations on the Use of Water for Mining and Related Activities aimed at the Protection of the Water Resources as published in the Government Notice No. 704 on 04 June 1999 (Government Gazette No. 20119) must be complied with.

This reply does not grant any exemption from the requirements of any applicable Act, Ordinance, Regulation or By-law.

You are invited to contact Mr M Noe of this office should you have any enquiries.

Yours sincerely



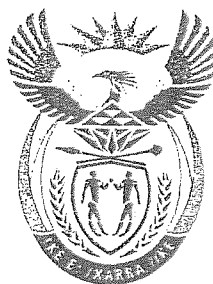
CHIEF DIRECTOR: NORTHERN CAPE

DATE: 20/12/2007



5/2/2/1474

(053) 831-4125
(053) 831-5682
DweniN@dwaf.ncape.gov.za



N.M Dweni
16/2/17/C91D/C
16 Sep. 03

DEPARTMENT OF WATER AFFAIRS AND FORESTRY
NORTHERN CAPE REGION
PRIVATE BAG N6101
KIMBERLEY
8300

Tel: (053) 8314125

Fax: (053) 8314534

Mr A.J Davids
P.O. Box 3039
WINDSORTON
8510

Sir,

**AUTHORISATION TO USE WATER FOR DIAMOND DIGGING PURPOSES:
ERF 1 WINDSORTON, THE MAGISTERIAL DISTRICT OF BARKLY WEST.**

I refer to your application regarding the above-mentioned matter. Attached hereto is the Temporary Authorisation to use water for diamond digging purposes as mentioned in your application dated February 2002 and thereafter forwarded to the Head Office for approval.

Your attention is invited to the following:

1. The responsibility for complying with the provisions of the attached authorisation is vested in the applicant and may not be ceded to any other person or body.
2. Any person prejudiced by the authorisation may in terms of section 148 of the National Water Act, Act 36 of 1998 of the Act, lodge with an the Water Tribunal an objection against the continuation of the authorisation and the Water Tribunal may confirm or withdraw the Exemption or amend any condition to which it is subject.
3. The Minister of Water Affairs and Forestry (the Minister) may at any time in terms of section 54 of the National Water Act, 1998 (Act 36 of 1998), withdraw the authorisation or render the continued validity thereof subject to such conditions as he may then determine, whether by the imposition of further or new conditions or by the cancellation or amendment of conditions then existing.
4. In terms of section 151 of the National Water Act, 1998, any contravention of or failure to comply with a condition of the authorisation, constitutes an offence.
5. In terms of section 124 of the National Water Act, 1998, the Minister and

any person authorised thereto by him in writing may at any time enter upon the premises of the applicant to perform the functions contemplated in sections 125(1), (2) and (3) of the said Act.

6. In all the conditions as stipulated in your application forms you are therefore, authorised to abstract 110 cubic metres of water per day from the Vaal River based on the average of 11 cubic metres per hour.

- You are also reminded that this Temporary Authorisation does not guarantee an approval of the Water Use License.

CONDITIONS TO USE WATER FOR MINING PURPOSES

1. This authorisation is only applicable to the following farm as mentioned in the application submitted to this office by the applicant:
ERF 1, WINDSORTON, THE MAGISTERIAL DISTRICT OF BARKLY WEST.
2. Applicant must comply with the condition of the reserve as attached (see annexure 1)
3. The condition as attached (annexure 2) must be complied with.
4. This Temporary Authorisation is valid until a License has been issued OR declined by the Head Office in Pretoria.

You are invited to contact this office should you have any inquiries.

This temporary authorisation will be revoked immediately when the applicant doesn't comply to attached conditions.

Yours faithfully,



p.p. Regional Director: Northern Cape

DATE:

16/9/2003



ANNEXURE I

1. INFORMATION REGARDING THE RESERVE

The following information regarding the Reserve is applicable:

- 1.1 The section of the Vaal River is situated in the drainage region C91E and forms part of the Lower Vaal Water Management Area and this preliminary determination of the Reserve and the resource class in terms of section 14(1)(b) and 17(1)(b) of the National Water Act, 1998 (Act no. 36 of 1998) is only applicable to a part of the Vaal River, cumulative at the outlet of quaternary drainage region C91E at site 24° 41' 52'' S, 28° 30' 44'' E in the C91E quaternary catchment, close to Delpportshoop, in the vicinity of Kimberley (Northern Cape).
- 1.2 A low to medium confidence Reserve (quantity) was determined on the Vaal River at site 24° 04' 52'' S, 28° 30' 43'' E (C9H024Q01) in the C91E quaternary catchment, close to Schimidsdrif, in the vicinity of Kimberley (Northern Cape). This water Quality Reserve is applicable to the C91A, C91B, C91D, C91E and C92A quaternary drainage regions, since they fall in the same ecoregion (pers comm. S. Jooste)
- 1.3 The ecological importance and sensitivity (EI&S) of the above mentioned section of the Vaal River is moderate, whereas the present ecological status category (PESC) was determined to be C. The preliminary ecological Reserve category (ERC) for the water resource has been determined to be C, in accordance with Departmental policy to maintain or improve the current status.
- 1.4 This Reserve determination only support water use applications to the river and excludes all possible wetlands and groundwater components.
- 1.5 The preliminary determination of the Reserve in terms of section 17(1)(b) supports the authorisation of section 21(a), (b), (c), (f), (g), (h) and (i) water use in terms of the National Water Act, 1998 (Act no. 36 of 1998).
- 1.6 The level of confidence for the water quantity component of the preliminary ecological reserve is low to medium. The water quantity component of the reserve (river ecosystem component) for the Vaal River cumulative at the outlet of the quaternary catchment C92B and C92C was determined by making use of the rapid procedure.
- 1.7 The instream flow requirements at the outlet of quaternary catchment C92B and C92C are based on the natural flow contribution from the total upstream catchment.
- 1.8 The basic human needs of the resource in question includes water for drinking, food preparation and for personal hygiene amounts to a lifeline amount of 25 litres per person per day and was calculated from the population requirements provided by the Chief Directorate: Water Services, Directorate: Community Water Planning. The population figures used were based on the 1991 census and extensive field verification initiated in 1994. The total population figure in the C92B and C92C catchment was used to calculate the basic human needs reserve. In the cases where no population figures for the quaternary catchment were quoted, the median value of the available population figures in the tertiary catchment was used. In cases where the ecological Reserve was determined at sub-quaternary level, the basic human needs Reserve the median value of the available population figures in the tertiary catchment was used.
- 1.9 The above-mentioned information and other details regarding the reserve determination are available on request from the Department.



ANNEXURE II

2. CONDITIONS UNDER WHICH MINING IS AUTHORISED

1. A Diamond Digging permit must first be issued by the Department of Minerals and Energy as the lead agent in terms of the Minerals Act of 1991.
2. The Applicant is hereby authorised to use water drawn from the Vaal River for Diamond Digging purposes on the farm ERF 1 Windsorton, Magisterial District of Barkly West, Lower Vaal Water Management Area.
3. ~~The applicant shall comply with the applicable mining/prospecting management measures set out in the Standard Environmental Management Programme Report for prospecting on the farm ERF 1, Windsorton, Barkly West Magisterial District, Lower Vaal Water Management Area as approved by the Department of Minerals and Energy.~~
4. The conditions stipulated in this Authorisation shall not result in a potential negative impact on the water quality or water quantity of the Vaal River.
5. Officers from this Department will at any time have free access to the property and water pump or other abstraction equipment for supervision and control purposes and to calibrate meter readings.
6. The applicant must keep record of the meter readings on a daily basis and these readings must be provided to the Department every month. All recorded water meter readings must be provided to the Regional Director: Northern Cape, Department of Water Affairs and Forestry, Private Bag x 6101, KIMBERLEY, 8300 to enable the Department to provide regular accounts for the said water abstraction from the Vaal River. These reading should be made available to the Department on or before the 5th of each month.
7. The quality or suitability of the water for any purpose is not guaranteed.
8. The water use in terms of this Authorisation may be used for the Authorisation purpose only.
9. The taking of water from the Vaal River in terms of this Authorisation is subject to any regulations as may at any time be published in respect of the Government Water Controlled Area concerned.
10. The applicant shall take all possible precaution to the satisfaction of the Department to prevent the pollution of water.
11. The operation and storage of equipment within the riparian zone is not allowed.
12. All support operations (e.g. gravel washing) should be done outside the riparian zone.
13. Riparian vegetation, including dead trees, may not be removed during the mine site preparation and mining process. In particular, snags (fallen trees and branches) in the river must be protected (i.e. not collected for firewood or any other purpose).
14. Water transported to and from the Vaal River must only be carried/transported in closed pipes.
15. If the Applicant fails to obtain approval of an Environmental Management Program Report required in terms of section 39(1) of the Minerals Act, within a month after issuing of this Authorisation, the applicant shall rehabilitate any construction associated with this authorisation to the satisfaction of the Department. If the Applicant fails to rehabilitate any construction associated with this authorisation, or if the rehabilitation is not done to the satisfaction of the Department, the Department may after due legal consideration rehabilitate the area and recover all the costs incurred as the result of the rehabilitation.



20-JAN-2009 16:09 From: A.J KONSTRUKSIE

0535510089

To: 00866700323

P: 28/30

Annexure A9



water & forestry

Department:
Water Affairs and Forestry
REPUBLIC OF SOUTH AFRICA

PRIVATE BAG X6101, KIMBERLEY, 0000
COURT BUILDING, CORNER KNIGHT & GYDAD STREET, 4TH FLOOR, KIMBERLEY
TEL: 053 8300800, FAX: 053 8316687

M. Noe

noem@dwa.gov.za

16/2/09 09:10/D/14

The Mine Manager
P. O. Box 3039
Windsorton
8510

Fax: (053) 551 0068

Attention: Mr. A. Davids

EIA AND EMPR FOR PROSPECTING RIGHT APPLICATION AND MOTIVATION TO MINE ON ERF 1 ISLAND WINDSORTON

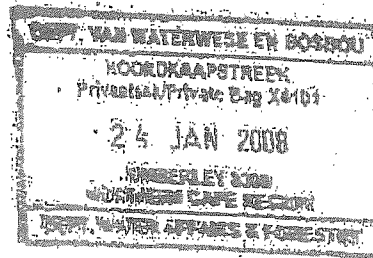
The department acknowledges receipt of the above-mentioned reports for mining on the Erf 1 Island in Windsorton; motivation for mining in that area and the request for extension of rehabilitation. The evaluation will be done and comments send to the relevant department.

You are invited to contact Mr. M. Noe of this office should you have any enquiries.

Yours sincerely,

CHIEF DIRECTOR: NORTHERN CAPE

DATE: 23/01/09





REGISTERED MAIL

DEPARTMENT: WATER AFFAIRS AND FORESTRY

Private Bag X313, Pretoria, 0001
 Sedibeng Building, 185 Schoeman Street, Pretoria
 Tel: (012) 336-7500 Fax: (012) 323-4472 / (012) 326-2715

✉ bbe@dwaf.gov.za

✉ M.P.Nethomboni

☎ (012)336-8549

cell 0827288381

📁 16/2/7/C910/C11/1

18 MAR 2005

Mine Manager
 A.J. Davids
 Posbus 3039
 WINDSORTON
 8510

Sir

Attention: Mr Amos Jacob Davids

LICENCE NO. 25021152 DATED 25 FEBRUARY 2005.


1. Your application refers.
2. Attached is Licence No. 25021152 dated 25 February 2005 as applied for.

Yours faithfully


 M.P. NETHOMBONI
 DIRECTOR-GENERAL

- 4.10 The proposed rehabilitation plan must be monitored and changes made after prior consultation with the Regional Director or his/her representative when and if deemed necessary.
- 4.11 If the licensee fails to obtain approval of an "Environmental Management Programme Report" or to comply with an amendment required in terms of section 9 of the Minerals and Petroleum Resources Development Act, 2002, within six months after the issuance of this licence, the licensee must cease all mining/prospecting operations and rehabilitate any disturbed areas associated with the mining activities or the taking of water from the Vaal River.

END OF LICENCE


Manager: Water Use 