

**NOTICE OF INTENT TO DEVELOP (NID) & HERITAGE STATEMENT IN
TERMS OF SECTION 38(8) OF THE NATIONAL HERITAGE RESOURCES
ACT, 1999 (ACT 25 OF 1999): BEAUFORT WEST PHOTOVOLTAIC PARK**

**KUILSPOORT 161/9 & LEMOENFONTEIN SOUTH 162/REM, DISTRICT
BEAUFORT WEST**



ON BEHALF OF: EAB Astrum Energy (Pty) Ltd

JUNE 2011

STÉFAN DE KOCK
PERCEPTION Heritage Planning
PO Box 9995
GEORGE
6530
Tel: 082 568 4719
Fax: 086 510 8357
E-mail: perceptionenvplg@gmail.com



COPYRIGHT RESERVED

CONTENTS:

1. INTRODUCTION
2. BACKGROUND
3. STUDY AREA
4. PROPOSED DEVELOPMENT
5. RELEVANT POLICY GUIDELINES
 - 5.1 *Beaufort West Draft Spatial Development Framework, May 2007*
6. HISTORICAL BACKGROUND
 - 6.1 *Introduction*
 - 6.2 *Anglo Boer War*
 - 6.3 *Deed search*
 - 6.4 *Conclusion*
7. HERITAGE RESOURCES & ISSUES
 - 7.1 *Cultural landscape Issues*
 - 7.2 *Built Environment*
 - 7.3 *Archaeology*
 - 7.4 *Palaeontology*
8. PUBLIC PARTICIPATION
9. RECOMMENDATIONS

ANNEXURES:

1. Official Notice of Intent to Develop (NID) form
2. HWC comments
3. Site in relation to historic farm boundaries
4. Photographs
5. Preliminary site layout
6. S.G. Diagrams

REFERENCES and ACKNOWLEDGEMENTS:

1. Cape Town Archives
2. George Museum Archives
3. Schulz, K, (2010). *Historical background report –Beaufort West Wind Farm*. Unpublished report, George
4. Survey General Office, Cape Town

ABBREVIATIONS:

1. CDSM – Chief Directorate Surveys & Mapping
2. DLA – Department of Land Affairs
3. DWAF – Department of Water Affairs & Forestry
4. NHRA - National Heritage Resources Act, 1999 (Act 25 of 1999)
5. HIA – Heritage Impact Assessment
6. HWC – Heritage Western Cape
7. NID – Notice of Intent to Develop
8. PHRA – Provincial Heritage Resources Agency

1. INTRODUCTION

PERCEPTION Heritage Planning was appointed by *EAB Astrum Energy (Pty) Ltd* to compile and lodge a Notice of Intent to Develop and Heritage Statement to Heritage Western Cape in terms of Section 38(8) of the National Heritage Resources Act, 1999 (Act 25 of 1999) in relation to a proposed Photovoltaic Power Station. Sanction for submission of this Notice of Intent to Develop was provided by *EAB Astrum Energy (Pty)*, being the developer, and is attached hereto as part of Annexure 1 ("Part 5" to the NID form).

2. BACKGROUND

After reaching an agreement between the developer and Beaufort West Municipality for undertaking a renewable energy project on the total site (consisting of four separate cadastral units measuring 1,810ha and registered to the municipality), an EIA process was initiated to obtain permission for the same. An application in terms of Section 38(8) of the NHRA for a wind farm on the above site has already been submitted to HWC and resulted in two comments dated 10th July 2010 and 20th April 2011 respectively (attached as Annexure 2). The developer has subsequently decided to change to layout to include a photovoltaic park on 160ha of the overall site, thus necessitating a new EIA process.

The developer has been made aware of the potential heritage-related sensitivities on and around the site from the outset and as such, a number of specialist studies (AIA, PIA, VIA) have already been commissioned and are in progress. The purpose of this assessment is therefore not only to serve as a NID application to Heritage Western Cape, but also to assist/contribute to the project as follows:

- To identify heritage issues, development constraints and opportunities at an early stage;
- To avoid potential negative impacts of the proposed development on heritage – related aspects;
- To provide guidance for planning and design of the proposed development.

NOTE: This Heritage Statement should be read in conjunction with the completed NID application form attached as Annexure 1 hereto.

3. STUDY AREA

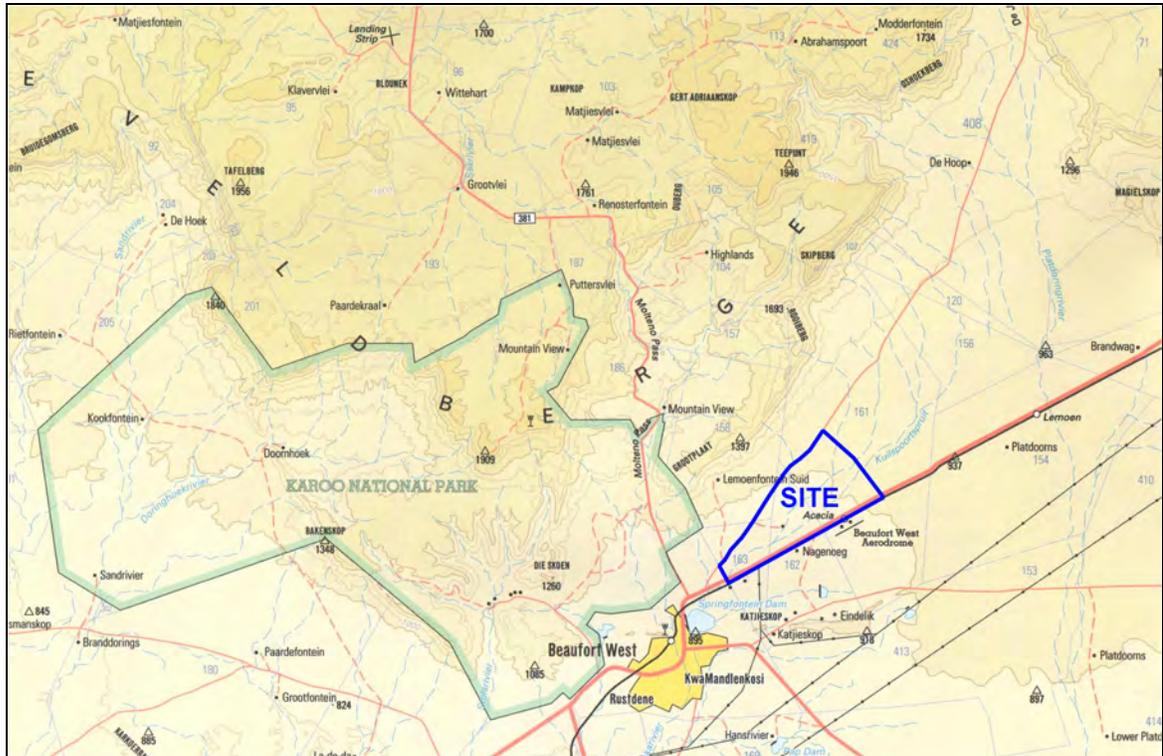
The subject site (approximately 160ha in extent) is comprised of portions of two individual cadastral land units listed below, all of which are registered to the Beaufort West Municipality (refer to Annexure 3 for diagram indicating historic property boundaries/ site boundary):

- Kuilspoor 161/9 – 845,8693 ha
- Lemoenfontein South 162/Rem – 531,9222 ha

As illustrated with the insert on the top of page 4¹, the site is located c. 8km northeast of the Beaufort West urban area and is defined by the N1 National Road (southern site boundary) and the De Jagers Pass Road to the village of Loxton (northern site boundary). The site is east of the Karoo National Park and northwest of the Beaufort West "Karoo Gateway" Airfield.

It is located within a relatively flat arid landscape traversed by various natural drainage lines created over time by the non-perennial Kuilspootspruit. Due to significant overgrazing, the entire site is sparsely vegetated and evidence of erosion was noted across the site, particularly along natural drainage lines. No structures or ruins older than 60 years and/or gravesites could be located on the site. A former residence and associated outbuildings (most recently used by SAPD as the headquarters for the local livestock theft prevention unit), appear to have fallen in disuse.

¹ Note the locality plan on page 4 indicates the entire proposed renewable energy development site



Locality of total development site in relation to Beaufort West urban area and Karoo National Park (Source: 1:250,000 Topo-cadastral series, 3222 Beaufort West, CDSM)

The historic Lemoenfontein guesthouse is located along the slopes of the Nuweveld Mountains, directly northeast of the site. Photographs are attached as Annexure 4 to this report.

4. PROPOSED DEVELOPMENT

The proposal would entail establishment of a photovoltaic park on a 160ha portion of the total 1,810ha site indicated on the locality plan above. The location and extent of this proposal, to be operated in conjunction with the proposed adjoining wind farm, which is the subject of another application running concurrently with this proposal, is shown on the preliminary site layout attached as Annexure 5.

The proposed facility will have a peak capacity of 60MW by way of an array of approximately 264 000 photovoltaic panels. Each panel has a peak power of approximately 230W and a surface area of about 1,68m². The PV array forms an array of interconnected PV cells. Each PV cell consists of layers of p-type and n-type silicon semiconductors forming a p-n junction and consequently an electric field. When photons with sufficient energy strike electrons in the valence band of the semiconductor, they are excited into the conduction band and pulled through an externally connected circuit by the electric field caused by the p-n junction. The stream of electrons released by irradiation from the sun creates a DC current. Cells are connected and encapsulated behind glass to protect them from the environment forming a PV panel.

The infrastructure required for the facility will include:

- An array of PV panels
- Support structures of PV panels
- DC to AC Inverters
- Transformer
- Overhead power line (132kV) of approx. 6km feeding into Beaufort West Substation

- Underground cabling between PV panels
- Internal access roads
- Workshop area for maintenance and storage

The array of PV panels will be arranged in rows spaced in a way that avoids shading from one row to the next while minimizing the footprint of the facility. PV panels will be oriented at a tilt that maximizes annual energy yield. The facility will occupy a footprint of approximately 160ha.

The PV generator will produce a DC current which must be converted to AC current via power inverters. The voltage on the line must then be stepped up with a transformer to 132kV for transmission to the Beaufort West substation where the power will be injected into the Eskom grid. The transmission line to the substation will be shared with Wind Farm Beaufort West. PV panels are guaranteed to produce at least 80% of their rated power for 20 to 30 years. In practice, PV panels will perform satisfactorily well beyond this timeframe. The panels require almost no maintenance other than occasional cleaning. PV power stations produce zero emissions and have no moving parts. As such, the technology is very safe for the environment and the local population.

At the end of the 20-year lifespan of the system, the system will be decommissioned and its components, where possible, will be recycled.

5. RELEVANT POLICY GUIDELINES

5.1 *Beaufort West Draft Spatial Development Framework, May 2007*

According to the SDF, the municipality completed a feasibility study and EIA during November 2003 for the construction of an alternative energy generation facility (wind farm), "at the old Airport Site" (Section 8.1.3, Volume 1). While this project has not been implemented it is therefore clear that what is currently proposed herewith, had been contemplated by the municipality before. It further states that the said wind farm project was, "seen as one of the IDP strategies with a high community benefit as it will aim to avoid power cuts and also provide the opportunity to use energy in developing SMME.

Unfortunately no forward planning maps accompanied the document. Given the above statements however, we do not consider that the proposal would be inconsistent with the overall aims of the Draft SDF.

6. HISTORICAL BACKGROUND

An independent historical background study undertaken by Kathleen Schulz, was commissioned for the subject study area.

6.1 *Introduction*

Beaufort West was established on a farm named Hooyvlakte in 1818 near the foothills of the Nuweveld Mountain range. The Gamka River ran through the farm. The town was awarded municipal status in February 1837². The Koup³ and Nieweveld were regional names given to the Karoo interior prior to the establishment of towns Graaff Reinet⁴ and Beaufort West. Land surrounding the now Beaufort West region was more frequently referred to as the Nieweveld region.

By the year 1800 colonial stock farmers were well established in the Koup and Nieweveld areas as attested by deceased residents' estate papers lodged with the Dutch East India Orphan Chamber during the eighteenth and nineteenth centuries. During the latter part of the

² A Dictionary of South African Place Names ; P E Raper Pub. J Ball Johannesburg. 1989.

³ Also spelt 'Coup', 'Ghaup', 'Gouph' in early written records.

⁴ Formally established in 1786.

18th century land ownership of the Koup and Nieweveld was bitterly contested between indigenous groups and colonial settlers and these border conflicts are historically significant. There is a possibility that material evidence may be still be found on or in the ground relating to this period.

Formal recorded commando attacks on nomadic tribes living in the Roggeveld and Coup began in 1770 and continued until 1799. Thereafter factional conflicts between indigenous people and colonial settlers continued to move towards the borders of the Eastern Cape. Conflict zones appear to have been on farms, areas near to the higher mountain ranges and along the wagon routes⁵.

Estate papers were found from archival sources referring to occupation of the Nieweveld region from as early as 1760⁶. Documents included inventories of goods owned by the deceased at the time of death and usually included the name of the farm or farms owned. No inventories were found for the farms under investigation. The absence of documentation from this source does not eliminate the possibility of informal colonial or indigenous occupation on the farms during the eighteenth century, or before this time.

No Dutch East India loan farm agreements were found to be registered against any of the four farms in the Cape Town archive repository⁷. Loan farm agreements ceased to exist between farmers and Government in 1813 when South African British government replaced loan farm agreements with the quitrent system. The quitrent system allowed tenants to own state land after paying an annual rental for a period of twenty years.

6.2 **Anglo Boer War**

British army camps were established in the Beaufort West region soon after the outbreak of the Anglo-Boer war in 1899. A camp was set up on the northern aspect of the dam site in order to be near a water source. Another was positioned across the Kuils River on the eastern side of town and a third between the Gamka River and the railway station. The fourth camp was positioned south of the town on the farm Weltevrede and housed approximately 800 soldiers. It was not established how many soldiers were stationed in Beaufort West altogether. 25 British war graves are said to be present in the Beaufort West town cemetery indicating that military contact took place in the district⁸.

Six blockhouses were erected for the duration of the war of which 5 were apparently demolished when the war ended in 1902. Although the position of these blockhouses is not known, it is presumed that they were positioned on the tops of hillocks and served as look-out points⁹. No evidence was found in the documentation consulted, of military contact or conflict having taken place on the farms being researched. Any number of artefacts relating to this period of conflict may be present on the ground.

It was felt necessary to spend a fair amount of time assessing the possibility of graves being present on the sites under review. While the possibility cannot be ruled out, no firm archival evidence was found confirming victims of struggle interments on the site.

6.3 **Deeds search**

The research included a Deeds Office search relating to former ownership and subdivision transactions for each of the two properties. Copies of original S.G. Diagrams for each of the four farms are attached as part of Annexure 6.

⁵ Sources consulted:- *The Shaping of South African Society 1650 – 1840*; Edited by Richard Elphick and Hermann Gilomee, Maskew Miller 1992. : *Moodie The Recort* : Reprint Balkema 1955: *Kaapse Archiefstukken 1781,1782, 1783*; Kathleen Jeffreys, *Cape Times Bep. 1931. Resolutions of the Cape*;www.tanap.net. MOOC series; www.tanap.net.

⁶ Desktop archive :

⁷ Cape Town Archives: *Loan Farm Indices. RLR series.*

⁸ www.communitywalk.com/beaufort_west

⁹ Vivier, W.G.H. & S. 1969. *Hooyvlakte: Die verhaal van Beaufort-Wes 1818-1968. Nasionale Boekhandel.*

6.3.1 *Kuilspoort 161/9*

1841: Quitrent grant number 6/18 dated 15th April in favour of Joseph Wood. Extent 12737 Morgen 250 rds (10910 hectares);

1842: J M Mynard. Title 1249/1842 dated 21st October. Amended Title in favour of W H Allhusen dated 13th October 1909. No Title number listed on Erf Register. No further information found;

2008: Municipality Beaufort West Title 17758/2008. To date this transaction has not been captured in the Surveyor Generals Office.

6.3.2 *Lemoenfontein South 162*

1909: William H Allhusen. Beaufort West Freeholds 3.1 dated 30th September. Extent 2294 morgen 234rds (1,965 hectares)

1922: Francisius Jacobus Weitz

From 1922 onwards, transactions continued on the same Title Deeds as with Lemoen Fontein.

6.4 **Conclusion**

Historically the Beaufort West region is highly significant, for the following reasons:

- The region bore witness to frontier wars, a period of history that has only recently been acknowledged as pertinent;
- Beaufort West played an important role in the Anglo-Boer war as a military base and encampment;
- Access roads to the hinterland from the Cape appear to be present on the earliest diagrams of the farms being researched

Recommendations:

- Identify the position of the early roads that cross the study area;
- Identify the position of the dwelling described on the 194 flight plan (South Lemoenfontein);
- Historical archaeology investigation for evidence of Frontier and Anglo-Boer war activity.

7. HERITAGE RESOURCES & ISSUES

7.1 **Cultural Landscape Issues**

As illustrated through the recent aerial photograph on page 8, some cultivation historically occurred directly south of the building complex, along the banks of a tributary of the Kuilspoort River. This land however appears to have been laying fallow for some time.

S.G. Diagram 6/1872 (Annexure 6) relating to the adjoining farm Bulskop 163 depicts two historic roads traversing the farm (marked in red and green respectively), which at the time of the survey measured an area of more than 9,364 morgen (c. 8,025 hectares). The historic road marked green (annotated as "Main Road to Interior") is the same as the current gravel road through the De Jagers Pass/ Loxton. The historic road marked red (no annotation on S.G. Diagram) relates to a historic road alignment that had been replaced by the current N1 National road. The latter historic road alignment partly follows the southern site boundary.

Analysis of the 1945 aerial photograph (CSDM) reveals a number of traditional (i.e. Pre-Modern) cultural landscape patterns on and around site, which would have to be subject to further detailed analysis as part of the HIA.

Given the visual prominence of the subject site in relation to the N1 National road, Karoo National Park and the town of Beaufort West, the proposal is likely to trigger a number of visual-spatial issues that would require further specialised input by ways of a visual impact assessment. Due to the fact that specific details concerning the proposed development are not available at present, such input would have to be made as part of the HIA.

7.2 **Built Environment**

A cluster of buildings, the main building of which is older than 60 years (confirmed through 1945 aerial photography), are located on the farm Lemoenfontein South 162/Rem (roughly in the centre of the site) as shown with the insert below. The building complex consists of a main building (most likely old farm residence, associated outbuildings and a few (2 or 3) former labourers cottages, the latter of which are not older than 60 years. With the exception of the main building, many of the more recently built buildings most likely relate to its former use as headquarters of the SAPD livestock theft prevention unit. From two site visits undertaken it is clear that all the buildings are vacant and are no longer utilised.



Recent aerial view of remaining building complex (not older than 60 years), formerly used by the SAPD (Source: GoogleEarth)

While the main residence (GPS: 32°17'55.53"S; 22°38'5.37"E) is older than 60 years, it is not considered to be of aesthetical, architectural or socio-historic significance. We could not locate any other structures (including ruins, foundations, public memorials and/or gravesites) older than 60 years on the site.

The Lemoenfontein Game Lodge is a historic farm residence older than 60 years but is located northwest of the site on a neighbouring portion of the farm Lemoenfontein, along the slopes of the Nuweveld Mountains. The proposal is however likely to trigger some visual-spatial issues, which may have an impact on this heritage resource.

7.3 **Archaeology**

CHARM (Dr. Peter Nilsson) has been appointed to conduct an Archaeological Impact Assessment (AIA) for the proposed development, details of which will be presented to Heritage Western Cape as part of the HIA. With relation to potential historical archaeology on the site (refer Section 6.4 of this report), Dr. Nilsson indicated that the initial archaeological assessment did not identify any sensitivities in this regard. However, several pre-colonial archaeological occurrences were found in the area and will be reported on in full detail in the AIA to be submitted as part of the HIA.

7.4 Palaeontology

Natura Vita (Dr. John Almond) has been appointed to conduct a Palaeontological Impact Assessment for the proposed development, details of which will be presented to Heritage Western Cape as part of the HIA.

8. PUBLIC PARTICIPATION

The proposed development triggers a number of development activities listed in terms of the National Environmental Management Act, 1998 (Act 107 of 1998). The EIA process is being managed by Cape Environmental Assessment Practitioners (Pty) Ltd and the Draft Scoping report will soon be put made available for public comment following which the Scoping Report will be submitted to the Department of Environmental Affairs and Development Planning (DEA&DP).

A further Public Participation Process will be invoked through the Land Use Planning Ordinance, 1985 (Ord. 15 of 1985) as part of the land use (temporary departure/ consent use) application to Beaufort West Municipality and the Provincial Administration: Western Cape.

9. RECOMMENDATIONS

Having regard to the above assessment, it is recommended:

- 9.1 That this Heritage Statement fulfils the requirements of a NID submission In terms of Section 38 (8) of the National Heritage Resources Act, 1999 (Act 25 of 1999);
- 9.2 That a Heritage Impact Assessment be undertaken, including the following specialist studies and detailed site analysis:
 - 9.2.1 Archaeological Impact Assessment (pre-colonial, historical);
 - 9.2.2 Palaeontological Impact Assessment;
 - 9.2.3 Visual Impact Assessment;
 - 9.2.4 Analysis of Cultural Landscape Issues;
 - 9.2.5 Analysis of Visual – Spatial Issues.

PERCEPTION Heritage Planning
27th May 2011

SE DE KOCK

B-Tech (TRP) MIPi TRP (IRL) EIA Mgmt (IRL) APHP

NOTE: Detailed photographic record to be provided as part of Phase One HIA



North-west facing panoramic view of the site with Nuweveld Mountains in background. Note existing wind monitoring mast in the foreground



West-facing panoramic view of site as seen from N2/ North-east property boundary (facing in direction of Beaufort West)



Former labourer's cottages



Former main residence (last use as SAPD headquarters)



Outbuilding, which has now also fallen into disuse



Formerly cultivated area

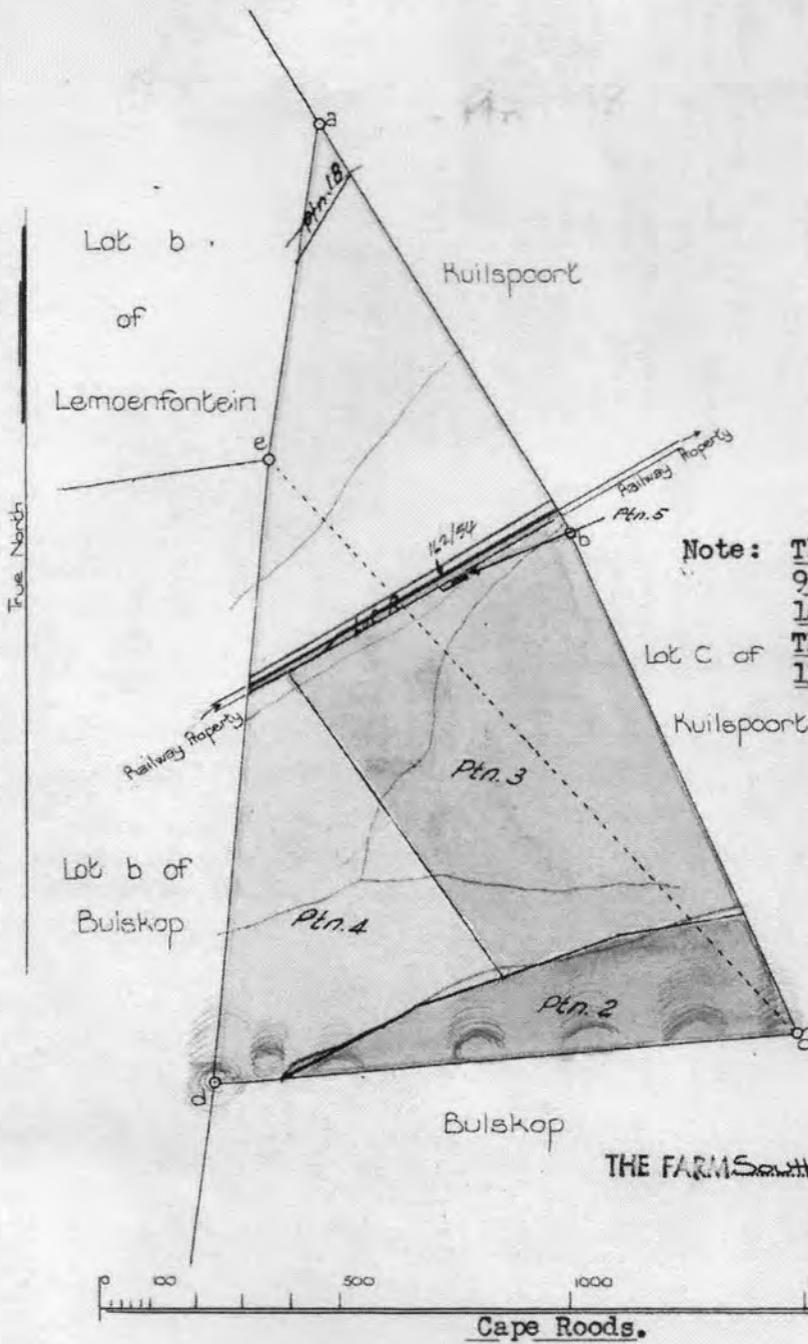


Two views of front façade of Lemoenfontein B&B main building on adjoining property

The numerical data of this diagram are sufficiently consistent,
 (Sgd.) M.C. Vos,
 Examiner.

Sides		Angles	
ab	1034.19	a	39.40.50
bc	1183.61	b	172.45.0
cd	1247.70	c	70.21.20
de	1343.93	d	80.33.20
ea	729.42	e	176.39.30

Coordinates		
	y	x
a	+ 2237.04	+ 1317.31
b	+ 2320.13	+ 286.46
c	+ 2265.58	- 895.89
d	+ 1111.08	- 422.72
e	+ 1817.89	+ 720.33



Note: The figure a.b.c.e represents 915 M. 587 Sq. Rds. of Quitrent land.
 The figure c.d.e represents 1378 M. 247 Sq. Rds. of land held under Act 15 of 1887.

Note: - For data of Lot R see Ex's Records No 1989-1909

The above diagram lettered a.b.c.d.e. represents the farm South Lemoenfontein in extent 2294 morgen 234 square roods, situate in the field-cornetcy of Beaufort, division of Beaufort West.

Bounded:- N.E. by Kuilsport, Railway Property and Lot C of Kuilsport
 S. " Bulskop
 W. " Lot b of Lemoenfontein, Railway Property and Lot b of Bulskop

Resurveyed under Act No. 9 of 1879 - and beaconed according to regulations
 (Sgd.) P.S. Dale,
 Govt. Surveyor. June, 1909.

Copied from the diagram relating to
 Title Deed No. Bf.W.F.3.1.
 dated 30th. September, 1909. in favour of
 William Hutt Alhusen.

For subdivisions of this diagram see outline Bf.W.L.1VA.

FOR LIST OF DEDUCTIONS SEE TABLE
 VIR AF TREKKE FOR SUBDIVISIONS

314
 B
 C