

# Environmental Impact Report

Application for authorisation in terms of the National Environmental Management Act 1998 (ACT NO. 107 OF 1998), re-amended in Environmental Impact Assessment Regulations, 2010 and Environmental Impact Assessment Regulations 2014.

DENC Reference: NC/EIA/05/NAM/KHA/PEL1/2015

## PROPOSED CONSTRUCTION OF AGRICULTURAL AREAS ON FARM KLEIN PELLA NO. 40 AND PORTIONS 1, 2 AND 3 OF FARM KAMBREEK No. 38, NAMAKWA DISTRICT, NORTHERN CAPE



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# EXECUTIVE SUMMARY

## Locality:

The proposed expansion of agricultural activities will take place on various properties, outlined in Table 1, within the Namaqualand District in the Northern Cape. Access to these farms are via a gravel road that links with the R358 towards Klein Pella, see Figure 1.

All properties mentioned in Table 1 below is zoned Agriculture. The owner of these properties is Karstens Boerdery (PTY) Ltd and has appointed PBPS as the independent consultant to undertake the EIA process.

Table 1: Property details

Property details	Property size	SG 21 digit codes	Ha of proposed new cultivation area.
The Farm Klein Pella no.40, Namaqualand	10389.2009ha	C05300140000004000000	25.97ha dates
Portion 1 of Farm Kambreek no. 38, Namaqualand	495.4432ha	C05300140000003800001	10ha dates
Portion 2 of Farm Kambreek no. 38, Namaqualand	267.9085ha	C05300140000003800002	21.73ha dates
Portion 3 of Farm Kambreek no. 38, Namaqualand	778.0390	C05300140000003800003	27.07 ha + 2.62ha +10.71ha vineyards

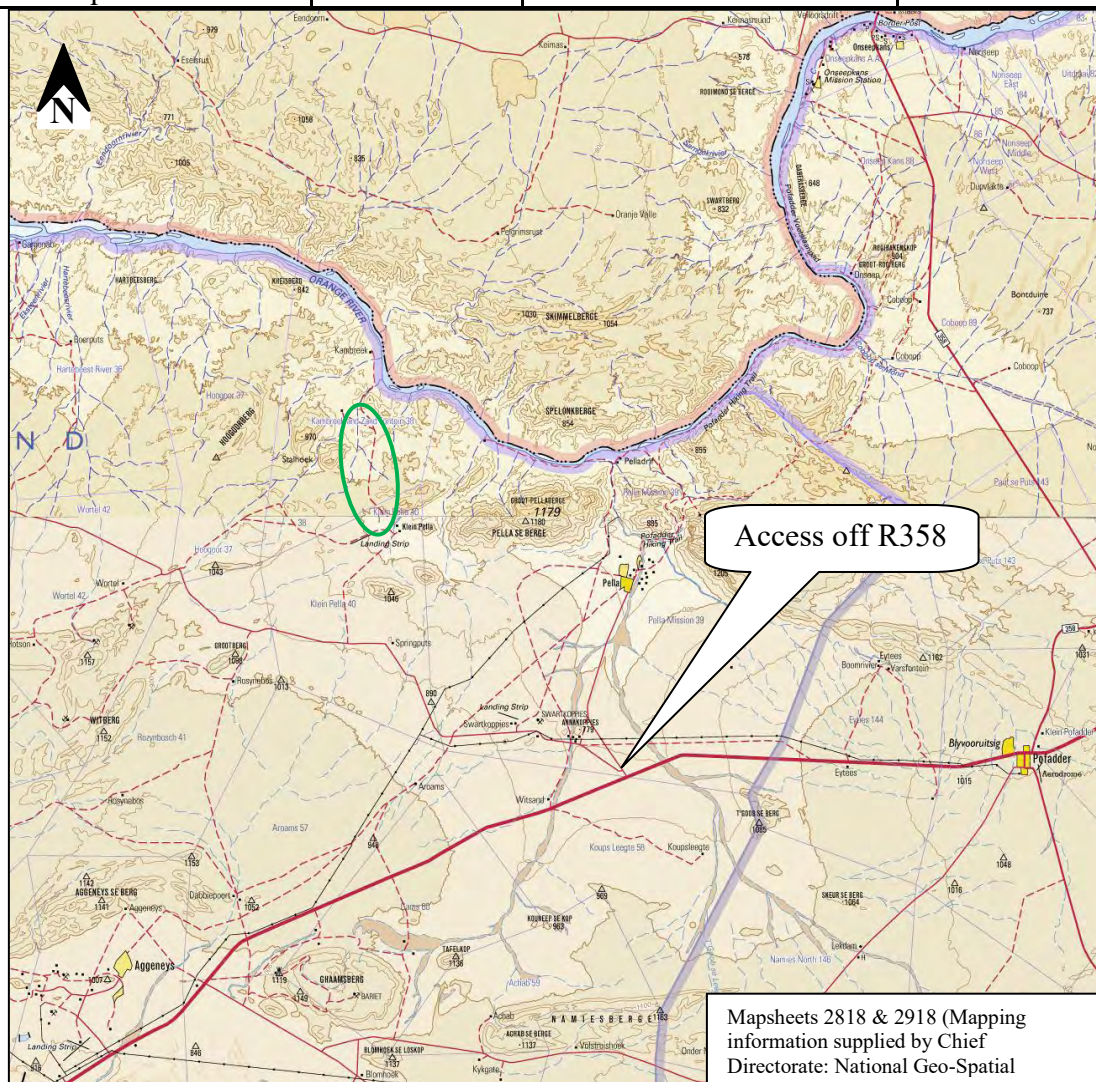


Figure 1: Locality

## Proposed development:

The proposed development is to establish additional agricultural areas for the cultivation of dates and vineyards, see Table 2 and Figure 2, within the subject properties. All proposed cultivation areas have existing access.

Table 2: Proposed agricultural areas.

Areas	Proposed area in ha	Proposed cultivation activity	Centre point coordinates	Vegetation/ Previously cultivated area
Area 1	31.73ha	Dates	28°56' 39.55"S 18°59' 37.36"E	Previously cultivated
Area 2	2.62ha	Vineyards	28°57' 24.89"S 18°58' 55.26"E	Previously cultivated
	10.71ha	Vineyards	28°57' 32.51"S 18°59' 03.52"E	Previously cultivated
Area 3	12.69ha	Vineyards	28°58' 00.16"S 18°59' 03.89"E	Undisturbed vegetation
	14.38ha	Vineyards	28°58' 15.34"S 18°58' 52.14"E	Undisturbed vegetation
Area 4	25.97 ha	Dates	29°00' 07.04"S 19°00' 13.69"E	Previously cultivated areas

The proposed agricultural areas are shown in the Figure 2. As per the above table it will provide transformation of approximately 27.07ha of undisturbed vegetation and establishment of new cultivation areas on 71.03ha of previously cultivated areas, which gives a total area of development of approximately 98.1ha.



Figure 2: Proposed Agricultural areas.

## Baseline information

### 1. Vegetation:

A Botanist, Dr Dave McDonald, was appointed to conduct a desktop study. As part of this a report written by Dr Noel Van Rooyen dated February 2008 was provided for background information. The following summary was provided by the specialist appointed:

*“The vegetation type found in the entire area envisaged for the agricultural development is Eastern Gariep Plains Desert. The plains sharply contrast with the rocky hills where Eastern Gariep Rocky Desert is found. The latter would not be affected by the proposed agriculture.*

*The plains desert habitat is found on sheet wash plains that lead down to the Orange River. The vegetation is sparse to very sparse with a low diversity of plant species. No endemic plant species are known to occur in this habitat and it has low botanical sensitivity despite the fact that according to Jürgens et al. (2006) few intact examples of this vegetation type still remain.*

*From the information at my disposal, both as a written report and aerial and ground photographs, I have formed the opinion that the sites (blocks) chosen for agriculture at Klein Pella would not result in High negative impact but on the contrary would result in Low negative impact as far as the vegetation is concerned. “*

Therefore no further studies will be conducted as part of the EIA phase.

### 2. Heritage, Archaeology and Paleontology

The Heritage specialist appointed was Mr. Jayson Orton from ASHA Consultancy, the following is summarised in the HIA compiled and submitted to SAHRA:

*“The only heritage indicators present are archaeological stone artefacts and the cultural landscape. The former is insignificant and the latter tends to be largely modern. No significant impacts to heritage resources are expected.*

*Because no significant impacts are expected, it is recommended that the proposed new lands be authorised with no further heritage studies required. However, if any archaeological material or human burials are uncovered during the course of development then work in the immediate area should be halted. The find would need to be reported to the heritage authorities and may require inspection by an archaeologist. Such heritage is the property of the state and may require excavation and curation in an approved institution.”*

The report will be submitted to SAHRA, for comment.

### 3. Socio-Economic Environment.

#### Socio:

The farm Klein Pella is a highly commercial agricultural (farming) unit in the area and is surrounded by other farms which are not being farmed on a highly commercial basis.

The closest communities to the farm are that of Pella, Goodhouse and Pofadder. People working on the farms are provided with temporary housing on the farm itself.

The other farms of the Karsten Boerdery Pty Ltd is managed by a very competent and motivated workforce, it has many success stories, which contributes positively to the local economy and the provision of job opportunities in the region and the Northern Cape Province.

According to the applicant the employment opportunities which will be created during the construction phase as well as the operational phase will be between 60 permanent and 450 seasonal jobs. These workers will all be from the previous disadvantaged communities. This will have a

positive impact on the overall social well-being of the communities in the area. The number of employment opportunities will rise in future.

Economic:

In order to ensure that the proposed project will be sustainable and economically viable, the applicant will also employ people from the neighbouring towns.

The estimated expected capital outlay for approximately 100 ha development such as this will be at least in the order of R50 million.

All of these additional work opportunities, as well as the creation of buying power, will contribute positively to the economic environment of the area.

4. Access

Existing roads to the site will be used.

5. Electricity

The development falls within the capacity of Eskom. Note that no additional electrical capacity is necessary for the development of the agricultural areas as existing usage is sufficient.

6. Land uses

The planned development is situated within a purely agricultural area with no other land uses in close proximity. The proposed development will therefore have no impact on any surrounding land uses in the area.

7. Plough certificate

A plough certificate is currently being applied for as part of the Water Use License Application and this EIA Process.

8. Water use

The applicant, Karsten Boerdery (Pty) Ltd is applying to transfer water rights within various farms that are in their ownership in terms of Section 25 (2) of the National Water Act, (Act 36 of 1998). The transfer of water will be from:

1. The Farm Kambreek 38 (Portion 1) to Farms Kambreek 38 (Portion 0) for a total of **330 000m<sup>3</sup>/a** at 15 000m<sup>3</sup>/ha (22ha).
2. The Farm Kambreek 38 (Portion 1) to Farms Kambreek 38 (Portion 2) for a total of **1005 000m<sup>3</sup>/a** at 15 000m<sup>3</sup>/ha (67ha).
3. The Farm Kambreek 38 (Portion 3) to the farm Klein Pella 40 (Portion 0) for a total of **390 000m<sup>3</sup>/a** at 15 000m<sup>3</sup>/ha (26ha).

This transfer of water is applied for to correct a deficit that has originated in the water balance for the different properties and also in order to establish an additional 91.8 ha of cultivation areas within the different properties. All of the proposed developments and water transfers will be undertaken within the existing water rights for the owners Karsten Boerdery Pty Ltd.

Activities	Purpose	From Property	Total Water (ha)	To property
Section 21(a)	Transfer of water	Kambreek no 38 Portion 1	330 000m <sup>3</sup> /a (22ha)	Kambreek no 38 Portion 0

Activities	Purpose	From Property	Total Water (ha)	To property
Section 21(a)	Transfer of water	Kambreek no 38 Portion 1	1005 000m <sup>3</sup> /a (67ha)	Kambreek no 38 Portion 2
Section 21(a)	Transfer of water	Kambreek no 38 Portion 3	390 000m <sup>3</sup> /a (26ha )	Pella no 40 Portion 0

The water use entitlements as allocated for the applicant's properties (see breakdown in the table below) which amounts to **405.5 ha (6082 500m<sup>3</sup>/a at 15 000m<sup>3</sup>/ha)** is for the irrigation of vineyard and dates. According to an analysis done only **247.8 ha (3717 000m<sup>3</sup>/a at 15 000m<sup>3</sup>/ha)** of this allotted water is currently used for irrigation and therefore leaving **157.6 ha (2364 000m<sup>3</sup>/a at 15 000m<sup>3</sup>/ha)** of the allocation for the new proposed development of **98.1ha** dates and vineyards.

	Farm	Water Allocation	Ha Already planted	Water currently available per portion	Planned cultivation Ha	Total HA per portion after proposed expansion	Water available after planned expansion
1	Kambreek no. 38 (Portion 0)	67.5ha	89.4ha	-21.9ha	0 ha	89.4ha	-21.9ha
2	Kambreek no. 38 (Portion 1) Area 1	198ha	49.9ha	148.1ha	10ha dates	59.9ha	138.1ha
3	Kambreek no. 38 (Portion 2) Area 1	50ha	95.2ha	-45.2ha	21.4ha dates	116.6ha	-66.6ha
4	Kambreek no. 38 (Portion 3) Area 2 and 3	90ha	8.05ha	81.9ha	40.4ha vineyards	48.4ha	41.5ha
5	Klein Pella 40 Portion 0 Area 4	0	5.3ha	-5.3ha	20 ha dates	25.3ha	-25.3ha
	Total	405.5ha	247.8ha	157.6ha	98.1ha	339.6ha	65.8ha

The proposed development will not result in any developments taking place within the small dry ephemeral streams/drainage areas that only receive water during heavy rainfall. Areas 1 to 3 is located more than 32m from the streams and only Area 4 is located closer to the streams. Area 4 is an existing cultivated area. The transfer of water rights will not have any effect on the quantity of available water from the water resources within the immediate vicinity as all the water use allotments will be transferred from existing allocations already registered to the applicant Karsten Boerdery Pty Ltd.

## 9. Ephemeral stream and drainage areas:

The proposed development areas fall within the Lower Orange River water management area and within two sub quaternary catchment areas. The two streams run across the farming properties one is the Fontein se stream and the other an unnamed tributary of the Orange River.

As Shown in Figure 3 are the location of an ephemeral streams (Light blue) and formally created drainage areas (turquoise) and natural drainage areas (yellow) located around the proposed development areas. These streams spring from mountainous outcrops surrounding the new proposed agricultural areas and then flows downwards towards the Orange River. The proposed agricultural developments will not impact on the flow towards the Orange River.



Figure 3: Ephemeral streams/drainage areas

## **Alternatives:**

The layout was developed using an opportunities and constraints analysis which included on the constraints side, mainly the suitability of the agricultural areas on the particular position from a design perspective as well as possible impacts on natural vegetation and drainage areas, this is clearly outlined in Alternative 1 (preferred alternative) and Alternative 2. From a technology perspective the suitability of the proposed agricultural activities to be established on the property, this is outlined in Alternative 1 and 3. For the Scoping Process the following were considered, Alternative 1 (preferred alternative), Alternative 2 alternative sites, Alternative 3 alternative agricultural activities and Alternative 4 the No-Go Option. For the EIA phase only Alternative 1 and Alternative 4, the No-Go Option, will be considered, however Alternative 2 and 3 is discussed below:

### **Alternative 1 (preferred site/location/design and technology alternative):**

This option will consist of agricultural land to be established, clearly outlined according to:

1. Location
2. Size
3. Proposed agricultural activity

It is shown below in Table 3 and Figure 4.

Table 3: Proposed agricultural areas

Areas	Proposed area in ha	Proposed cultivation activity	Centre point coordinates	Vegetation/ Previously cultivated area
Area 1	31.73ha	Dates	28°56' 39.55"S 18°59' 37.36"E	Previously cultivated
Area 2	2.62ha	Vineyards	28°57' 24.89"S 18°58' 55.26"E	Previously cultivated
	10.71ha	Vineyards	28°57' 32.51"S 18°59' 03.52"E	Previously cultivated
Area 3	12.69ha	Vineyards	28°58' 00.16"S 18°59' 03.89"E	Undisturbed vegetation
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Area 4	25.97 ha	Dates	29°00' 07.04"S 19°00' 13.69"E	Previously cultivated areas

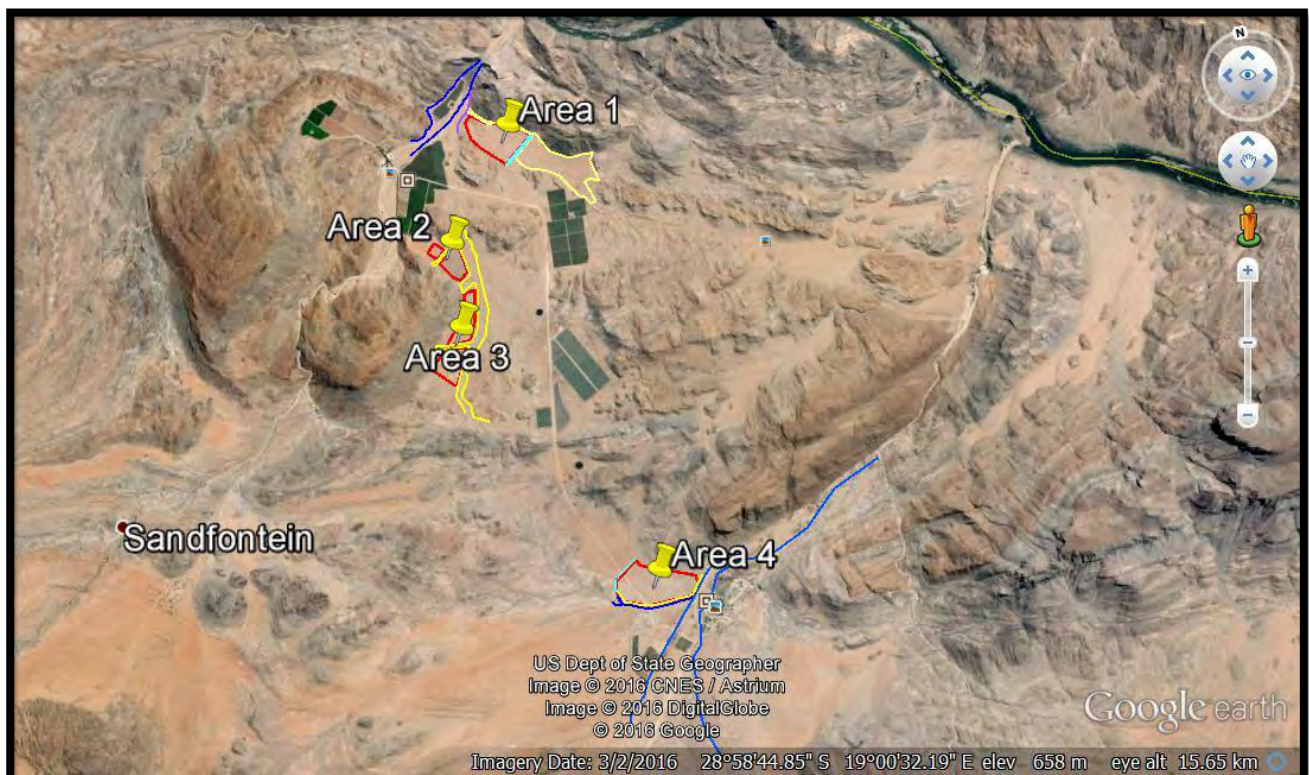


Figure 4: Alternative 1 –Area 1: Preferred proposed agricultural areas.

This alternative is considered as preferred for the following reasons:

- From a design perspective this alternative was the best option. It took into consideration design measures by establishing agricultural areas in the lower lying areas, and as far as possible areas that have already been disturbed.



- From a financial and an environmental perspective this alternative was the best option. The proposed areas are in close proximity to existing infrastructure and access routes.
- From a vegetation and fresh water ecology perspective this alternative is better as upper areas of the drainage areas are still in relative good condition. Also the impact on natural vegetation is low negative. This alternative is in the sections of the vegetation type Eastern Gariiep Plains Desert, the vegetation is sparse to very sparse with a low diversity of plant species. No endemic plant species are known to occur in this habitat. This alternative will have a low negative impact on indigenous vegetation.
- Direct impacts to archaeological resources will occur when the earthworks for the new plantations and vineyards are carried out. However, these impacts are of very low significance and should not inhibit the development in any way.
- There are no significant cultural landscape elements of concern and impacts are deemed to be neutral in status and of low significance. The proposed development is consistent with the present landuse and is not incompatible with the landscape.
- This alternative will also fully utilise the farms full agricultural potential according to existing water use rights.
- This alternative will also contribute socially to the upliftment of the existing workers through additional job opportunities.

It is clear therefore that this alternative meets the requirements of the Fresh Water Ecology, vegetation and design considerations, was deemed preferred.

### Alternative 2:

This option was for the development of approximately 160ha on Farm Klein Pella 40. This site is also a viable option for agricultural activities. However its location and proximity to existing infrastructure/water made it the second option. The intention is to in future develop this area as well, the applicant however has to obtain more water use rights for this area to be added additionally and is therefore a possible project in the future. This is however the only viable site alternative, but is not seen as the preferred option.

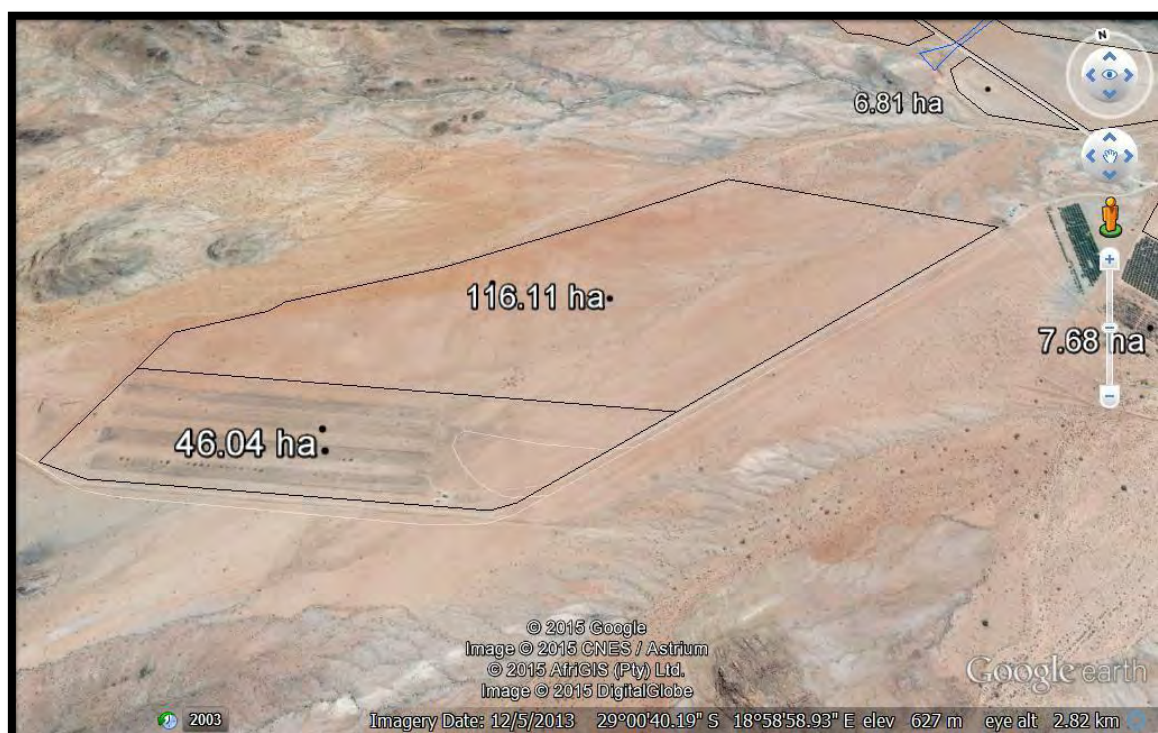


Figure 5: Alternative 2 –Development of large area on Klein Pella 40.

This alternative is not seen as preferred for the following reasons:

- From a design perspective this alternative is not preferred, as the existing small expansions as seen in Alternative 1 is extensions of existing agricultural activities and existing linkages with water infrastructure. Alternative 2 is furthest away from existing infrastructure and from the water access points.
- From a botanical perspective this alternative 2 will also have a low negative impact on vegetation.
- Direct impacts to archaeological resources will occur when the earthworks for the new plantations and vineyards are carried out. However, these impacts are of very low significance and should not inhibit the development in any way.
- There are no significant cultural landscape elements of concern and impacts are deemed to be neutral in status and of low significance. The proposed development is consistent with the present landuse and is not incompatible with the landscape.

This alternative was however not deemed preferred and not better suited than that of alternatives 1.

### **Alternative 3:**

Alternative 3 is the technology alternative, therefore the possible use of other agricultural activities on the property. The following are options that could be considered:

- Other agricultural activities, for instance, wine grapes or lusern etc.

This option is not considered viable as with studies undertaken with the early establishment of the farm it was found that dates and vineyards (eating grapes) were best suited for the climate and soils. The entire farming operation is designed for the purpose of export dates and grapes, packaging facility, cooling areas etc. The financial burden of trying to establish any new agricultural activities would be astronomical.

- Another option is grazing for cattle.

Even though this option is viable, from a financial perspective this is not best suited, as the low carrying capacity of the fields in the area, would result in a very small scale farming operation. Existing workers would lose job opportunities and existing jobs.

These alternatives are therefore not deemed preferred and not better suited than that of alternatives 1.

### **Alternative 4: No-go Option**

This alternative is the No-go Option, and is not seen as preferred for the following reason:

- The current agricultural activities on the property are not being utilised to full potential. For this to take place additional agricultural areas have to be established.
- No Social upliftment of existing workers and no additional job opportunities.

Therefore this alternative is not seen as preferred as the expansion of agricultural activities will contribute to the agricultural potential of the property and if this does not take place, the expansion of the farm to its full potential cannot take place.

### **Public participation included the following:**

- **Information and reporting for formal process**

A notice that included the Executive Summary and Environmental Impact Assessment Report was made available and distributed by registered post to all registered I&APs and

neighbours for the 30 day commenting period, from (Friday 01 July 2016 until Monday 01 August 2016). The notice also informed all I&AP's of the availability of the EIA Report which could be obtained from the EAP. Comments received will be included in the Final EIA Report. The actual comments received on the Executive Summary and EIA Report will be included in the final EIA Report. Digital copies will be made available on the website [www.pbpscon.co.za](http://www.pbpscon.co.za) and distributed to all I&AP's.

Hard copies of the report were also sent to the following Authorities: DENC, DWS, Dept of Agriculture, and Khai Ma Municipality, Nature Conservation Unit and Local Authority Pella.

- **I&AP database**

The I&AP database was developed from registered and listed I&APs. The database was updated to include new I&AP's that have submitted comments on the EIA Report.

## ENVIRONMENTAL STATEMENT

Two alternatives were assessed, Alternative 1, the preferred option and Alternative 4, the No-Go option. Alternative 1 is a layout alternative, please note other layout alternatives were not assessed because they were identified as not feasible due to project stopping impacts such as location of existing infrastructure, financial impacts and socio-economic impacts. The following table provides an overall summary of impacts with mitigation measures included:

<b>Legend</b>		
	<b>Negative</b>	<b>Positive</b>
<b>Very low to none</b>		
<b>Low</b>		
<b>Medium</b>		
<b>High</b>		
<b>EIA Assessment</b>	<b>Preferred Alternative 1</b>	<b>Alternative 4 - No-Go Option</b>
<b><u>Botanical</u></b>	The vegetation type found in the entire area envisaged for the agricultural development is Eastern Gariep Plains Desert. The plains sharply contrast with the rocky hills where Eastern Gariep Rocky Desert is found. The latter would not be affected by the proposed agriculture. The plains desert habitat is found on sheet wash plains that lead down to the Orange River. The vegetation is sparse to very sparse with a low diversity of plant species. No endemic plant species are known to occur in this habitat and it has a very low botanical sensitivity	No impact on vegetation if this takes place.

<b><u>Heritage</u></b>	There are no significant cultural landscape elements of concern and impacts are deemed to be neutral in status and of low significance. The proposed development is consistent with the present land use and is not incompatible with the landscape.	No impact
<b><u>Archaeological/paleontological.</u></b>	Direct impacts to archaeological resources will occur when the earthworks for the new plantations and vineyards are carried out. However, these impacts are of very low significance and should not inhibit the development in any way. There are no fatal flaws and no mitigation or further management measures are suggested. No further archaeological material of any significance is expected to be found in the study areas and, because of the generally sparse nature of the archaeology present, cumulative impacts are not expected to be of any concern.	No impact
<b><u>Water quality</u></b>	No impact on water quality as no development will take place within the streams and therefore no impact on the Orange River. No flow from agricultural areas as storm water berms will be constructed to ensure no flow into these streams. Also a buffer area/setback line of 32m between Area 4 and the unnamed tributary.	No impact
<b>Socio-Economic</b>	Overall impact is medium positive	No development during the construction phase will result in no jobs being created and no skill development. Upliftment of permanent workers will not take place, therefore medium negative impact.
<b>Air and Noise pollution</b>	Very low negative and only during construction phase	No Impact
<b>Sewage and waste disposal</b>	Very low negative and only during construction phase	No Impact
<b>Fauna</b>	Very low negative and only during construction phase. Thereafter free movement of animals allowed and mitigation of no hunting allowed.	No impact
<b>Overall</b>	The above indicate that the development will not cause any large scale negative impacts on the environment but in some cases it can have positive impacts. This means the overall impact can be seen as very low negative,	The development will result in one medium negative impact, mostly due to possibility of loss of socio-economic benefits. For the rest no impacts, therefore

	to very low positive.	summarised as low negative.
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It is required by law that projects must meet with the requirements of sustainable development. The concept is defined as follows “*the integration of social, economic and environmental factors into planning, implementation and decision-making so as to ensure that development serves present and future generations*”.

In achieving sustainable development, the focus therefore may not be restricted to environmental or nature conservation factors only. It should include economic and social realities. Social factors influence the livelihoods of people. They determine income, quality of life, social networks, and other means aimed at maintaining and improving the wellbeing of people. Economic factors deal with the affordability of processes, their potential to generate income over an extended period (into future generations) and to maintain the ability to support both the environmental and social needs of an area.

In short; if people are impoverished, there will be no environment to protect; if a project is not attractive economically, it will not be launched; but the environment is the essential basis for all development.

Overall it is clear that the preferred option best meets the above integration factors and has the biggest advantages and takes into account the NEMA principles.

## CONCLUSION

The proposed development has been positioned and the layout designed according to the findings of the Botanical Assessment, Heritage/Archaeology Assessment and Socio-Economic features and took into consideration impact on ephemeral streams/drainage areas as well as the Social aspects for the local community. All the findings of the Assessments support Alternative 1 as the preferred option.

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**List of abbreviations**

<b>AIA</b>	Archaeological Impact Assessment
<b>CBA</b>	Critical Biodiversity Areas
<b>CBD</b>	Central Business District
<b>DEA</b>	Department of Environmental Affairs
<b>DENC</b>	Department of Environment and Nature Conservation: Northern Cape
<b>DEIR</b>	Draft Environmental Impact Report
<b>DWS</b>	Department of Water and Sanitation
<b>EA</b>	Environmental Authorisation
<b>EAP</b>	Environmental Assessment Practitioner
<b>ECO</b>	Environmental Control Officer
<b>EIA</b>	Environmental Impact Assessment and the process to be followed in terms of regulations by the National Environmental Management Act, Act 107 of 1998 (NEMA), as amended and the Environmental Impact Assessment Regulations, 2014
<b>EIR</b>	Environmental Impact Report
<b>ELWU</b>	Existing Lawful Water Use
<b>EMF</b>	Environmental Management Framework
<b>EMP</b>	Environmental Management Programme
<b>FEIR</b>	Final Environmental Impact Report
<b>GDP</b>	Gross Domestic Product
<b>GVA</b>	Gross Value Added
<b>HIA</b>	Heritage Impact Assessment

<b>HWC</b>	Heritage Western Cape
<b>IDP</b>	Integrated Development Plan
<b>I&amp;AP</b>	Interested and Affected Party
<b>NEMA</b>	National Environmental Management Act, Act 107 of 1998, Amended Dec 2014.
<b>NGO</b>	Non Government Organisation
<b>NID</b>	Notice of Intent to Develop
<b>POS</b>	Plan of Study
<b>PoSEIA</b>	Plan of Study for EIA
<b>PSDF</b>	Provincial Spatial Development Framework
<b>ROD</b>	Record of Decision
<b>SAHRA</b>	South African Heritage Resource Agency
<b>TOR</b>	Terms of Reference
<b>WULA</b>	Water Use License Application

# 1. Introduction

## 1.1 Scoping Report acceptance and subsequent process

The Scoping process was completed in January 2016 and the final Scoping Report was accepted in a letter from DENC dated 07 March 2016 (see section 9.3.1, page 61 ).

The final Scoping Report and the Plan of Study for EIA indicated that the preferred and the “no go” options will be investigated in the EIA phase. The Plan of Study for EIA required that the following impact studies be undertaken in the EIA Phase:

- Heritage/Archaeology Assessment

Apart from the EIA impact studies listed above the following information studies will also be undertaken:

- EMP

Apart from the standard stipulations requirements of the regulations the letter dated 07 March 2016 also states as follows (shown in *italics*):

*“The final Scoping Report for environmental impact assessment which was submitted by you in respect of the abovementioned application and received by the Department on 14 January 2016 has been accepted by the Department. You may accordingly proceed with undertaking the environmental impact assessment in accordance with the tasks that are outlined in the plan of study for EIA.”*

This document serves as the Environmental Impact Assessment and will follow the assessments outlined in the plan of study for EIA.

After further consultation with the Department of Water and Sanitation it was deemed necessary to conduct a **Water Use License Application** as well. Thereafter an extension request was made to DENC in a letter dated 11 May 2016 for an additional 50 days for submission of the EIR. The extension was granted by DENC on 14 May 2016.

## 1.2 Purpose of the EIR

This report is compiled from all specialist and technical reports to capture all information in a format as required by the regulations as indicated below. The report has therefore been compiled using information, text and figures taken from the various specialists and technical reports.

Please note this process was initiated under NEMA 2014 Regulations and therefore will be completed under these regulations.

According to section 23 of the NEMA Regulation, point 3, an environmental impact: report must contain all information set out in Appendix 3 to these Regulations:

### Appendix 3:

*3. An environmental impact assessment report must contain the information that is necessary for the competent authority to consider and come to a decision on the application, and must include-*

**Table 1.1: EIA information**

Number	Information necessary for EIA Report:	Section in report
a)	details of- (i) the EAP who prepared the report; and (ii) the expertise of the EAP, including a curriculum vitae;	[see section 1.3] -

b)	the location of the activity, including: (i) the 21 digit Surveyor General code of each cadastral land parcel; (ii) where available, the physical address and farm name; and (iii) where the required information in items (i) and (ii) is not available, the coordinates of the boundary of the property or properties;	[see section 2.1]
c)	a plan which locates the proposed activity or activities applied for as well as the associated structures and infrastructure at an appropriate scale, or, if it is- (i) a linear activity, a description and coordinates of the corridor in which the proposed activity or activities is to be undertaken; (ii) on land where the property has not been defined, the coordinates within which the activity is to be undertaken;	[see section 2.1 and 9.1]
d)	a description of the scope of the proposed activity, including- (i) all listed and specified activities triggered and being applied for; and (ii) a description of the associated structures and infrastructure related to the development;	[see section 0 and 2]
e)	a description of the policy and legislative context within which the development is located and an explanation of how the proposed development complies with and responds to the legislation and policy context;	[see section 2 and 9.2]
f)	a motivation for the need and desirability for the proposed development, including the need and desirability of the activity in the context of the preferred location;	[see section 5]
g)	a motivation for the preferred development footprint within the approved site;	[see section 4 and 6.3]
h)	(i) details of the development footprint alternatives considered; [see section 4] (ii) details of the public participation process undertaken in terms of regulation 41 of the Regulations, including copies of the supporting documents and inputs; [see section 7] (iii) a summary of the issues raised by interested and affected parties, and an indication of the manner in which the issues were incorporated, or the reasons for not including them; [see section 7 and 9.4.7] (iv) the environmental attributes associated with the development footprint alternatives focusing on the geographical, physical, biological, social,	[See sections 3, 4, 6, 7, 9.4.7]

	<p>economic, heritage and cultural aspects; [see section 3]</p> <p>(v) the impacts and risks identified including the nature, significance, consequence, extent, duration and probability of the impacts, including the degree to which these impacts-</p> <ul style="list-style-type: none"> <li>(aa) can be reversed;</li> <li>(bb) may cause irreplaceable loss of resources;</li> <li>and</li> <li>(cc) can be avoided, managed or mitigated;</li> </ul> <p>[see section 6]</p> <p>(vi) the methodology used in determining and ranking the nature, significance, consequences, extent, duration and probability of potential environmental impacts and risks; [see section 6]</p> <p>(vii) positive and negative impacts that the proposed activity and alternatives will have on the environment and on the community that may be affected focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects; [see section 6]</p> <p>(viii) the possible mitigation measures that could be applied and level of residual risk; [see section 6]</p> <p>(ix) if no alternative development locations for the activity were investigated, the motivation for not considering such; and [see section 4]</p> <p>(x) a concluding statement indicating the preferred alternative development location within the approved site; [see section 4] and</p>	
h)	<p>a full description of the process followed to reach the proposed development footprint within the approved site, including:</p> <ul style="list-style-type: none"> <li>(i) a full description of the process undertaken to identify, assess and rank the impacts the activity and associated structures and infrastructure will impose on the preferred location through the life of the activity, including- <ul style="list-style-type: none"> <li>(i) a description of all environmental issues and risks that were identified during the environmental impact assessment process; and</li> <li>(ii) an assessment of the significance of each issue and risk and an indication of the extent to which the issue and risk could be avoided or addressed by the adoption of mitigation measures;</li> </ul> </li> </ul>	[see section 6]
j)	<p>an assessment of each identified potentially significant impact and risk, including-</p>	[see section 6]

	<ul style="list-style-type: none"> <li>(i) cumulative impacts;</li> <li>(ii) the nature, significance and consequences of the impact and risk;</li> <li>(iii) the extent and duration of the impact and risk;</li> <li>(iv) the probability of the impact and risk occurring;</li> <li>(v) the degree to which the impact and risk can be reversed;</li> <li>(vi) the degree to which the impact and risk may cause irreplaceable loss of resources; and</li> <li>(vii) the degree to which the impact and risk can be mitigated;</li> </ul>	
k)	where applicable, a summary of the findings and recommendations of any specialist report complying with Appendix 6 to these Regulations and an indication as to how these findings and recommendations have been included in the final assessment report;	[see section 6 and 8]
l)	<p>an environmental impact statement which contains-</p> <ul style="list-style-type: none"> <li>(i) a summary of the key findings of the environmental impact assessment;</li> <li>(ii) a map at an appropriate scale which superimposes the proposed activity and its associated structures and infrastructure on the environmental sensitivities of the preferred site indicating any areas that should be avoided, including buffers; and</li> <li>(iii) a summary of the positive and negative impacts and risks of the proposed activity and identified alternatives;</li> </ul>	[see section 8]
m)	based on the assessment, and where applicable, recommendations from specialist reports, the recording of proposed impact management objectives, and the impact management outcomes for the development for inclusion in the EMPr as well as for inclusion as conditions of authorisation;	[see section 6 and 9.8]
n)	the final proposed alternatives which respond to the impact management measures, avoidance, and mitigation measures identified through the assessment;	[see section 8]
o)	any aspects which were conditional to the findings of the assessment either by the EAP or specialist which are to be included as conditions of authorisation	[see section 6]
p)	a description of any assumptions, uncertainties and gaps in knowledge which relate to the assessment and mitigation measures proposed;	[see section 6.6]
q)	a reasoned opinion as to whether the proposed activity should or should not be authorised, and if the opinion is that it should be authorised, any conditions that should be made in respect of that authorisation;	[see section 6.8]

r)	where the proposed activity does not include operational aspects, the period for which the environmental authorisation is required and the date on which the activity will be concluded and the post construction monitoring requirements finalised;	[not applicable]
s)	an undertaking under oath or affirmation by the EAP in relation to:  (i) the correctness of the information provided in the reports; (ii) the inclusion of comments and inputs from stakeholders and I&APs; (iii) the inclusion of inputs and recommendations from the specialist reports where relevant; and (iv) any information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested or affected parties;	[see section 6 and 9.4]
t)	where applicable, details of any financial provisions for the rehabilitation, closure, and ongoing post decommissioning management of negative environmental impacts;	[not applicable, possible fine structure included in EMP in section 9.8]
u)	an indication of any deviation from the approved scoping report, including the plan of study, including-  (i) any deviation from the methodology used in determining the significance of potential environmental impacts and risks; and (ii) a motivation for the deviation;	[not applicable, no deviation, see section 1.1]
v)	any specific information that may be required by the competent authority; and	[none additional]
w)	any other matters required in terms of section 24(4)(a) and (b) of the Act.	[none additional]

The report therefore summarises all available data for DENC to make the final decision.

### 1.3 Details of the EAP

Pieter Badenhorst

The name and details of the EAP are provided in the front of the report. He has more than 42 years experience in project management and report writing. He worked at the CSIR in environmental, coastal and estuarine management for 16 years. During that time he was part of the team that developed coastal management guidelines, the first process for EIAs and undertook numerous environmental studies for DEAT in collaboration with a team of ecologists. The last 36 years he has worked mainly in environmental control and environmental impact assessments and has completed EIAs for many projects. He has also undertaken an EIA peer review on a major development for DEAT.

He has a B.Sc. Civil Engineering Degree as well as B.Honours Degree (Irrigation), M. Engineering (Civil) and an MBA from Stellenbosch University.





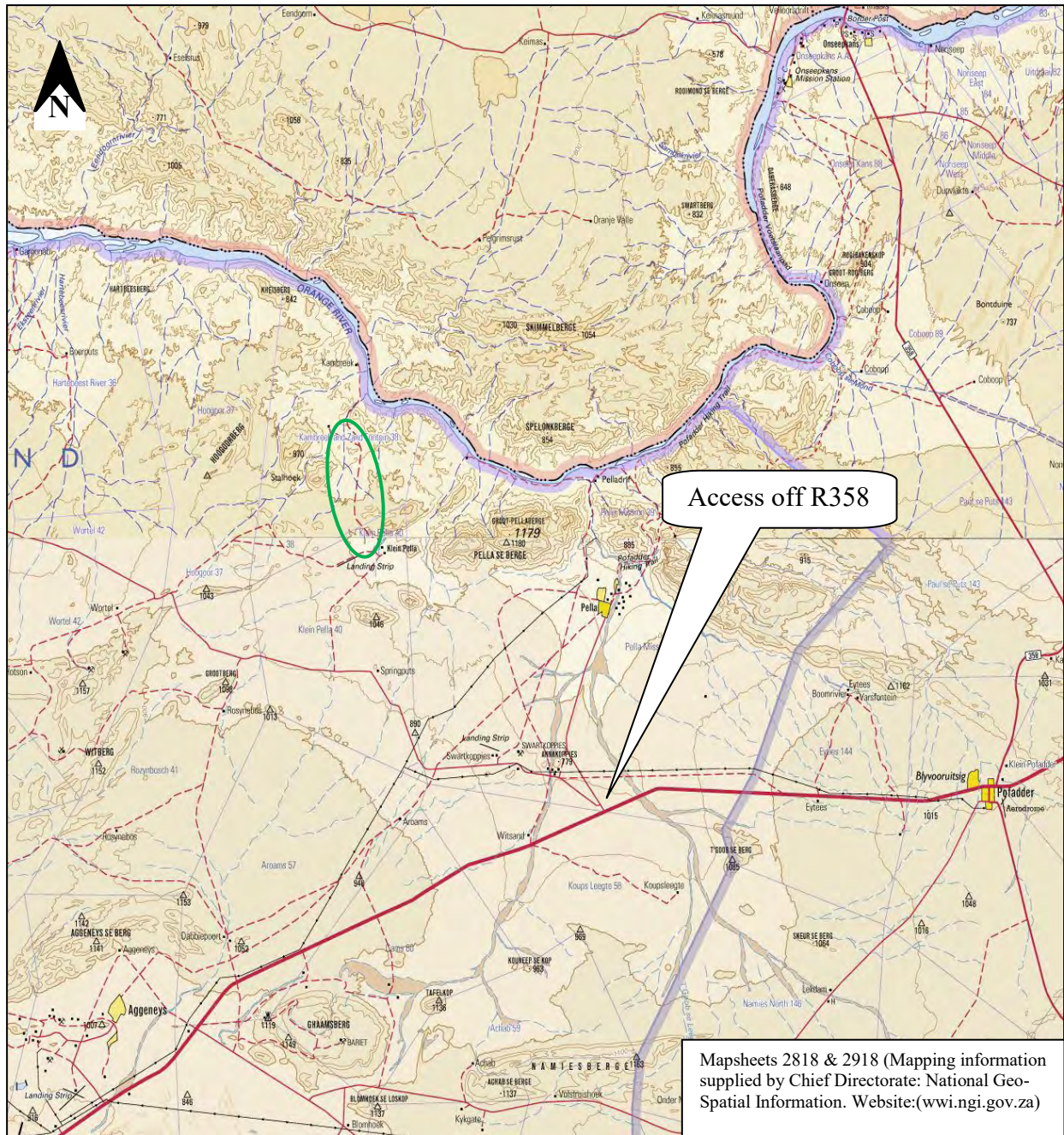


Figure 1.1: Locality

### 1.5 Proposed development:

The proposed development is to establish additional agricultural areas for the cultivation of dates and vineyards, see Table 1.3, within the subject properties. All proposed cultivation areas have existing access.

Table 1.3: Proposed agricultural areas.

Areas	Proposed area in ha	Proposed cultivation activity	Centre point coordinates	Vegetation/ Previously cultivated area
Area 1	31.73ha	Dates	28°56' 39.55"S	Previously

Portion 1 and 2 of Farm Kambreek no. 38, Namaqualand.			18°59' 37.36"E	cultivated
<u>Area 2</u> Portion 3 of Farm Kambreek no. 38, Namaqualand.	2.62ha	Vineyards	28°57' 24.89"S 18°58' 55.26"E	Previously cultivated
	10.71ha	Vineyards	28°57' 32.51"S 18°59' 03.52"E	Previously cultivated
<u>Area 3</u> Portion 3 of Farm Kambreek no. 38, Namaqualand.	12.69ha	Vineyards	28°58' 00.16"S 18°59' 03.89"E	Undisturbed vegetation
	14.38ha	Vineyards	28°58' 15.34"S 18°58' 52.14"E	Undisturbed vegetation
<u>Area 4</u> The Farm Klein Pella no.40, Namaqualand.	25.97ha	Dates	29°00' 07.04"S 19°00' 13.69"E	Previously cultivated areas

The proposed agricultural areas are shown in the Figure 2.1. As per the above table it will provide transformation of approximately 27.07ha of undisturbed vegetation and establishment of new cultivation areas on 71.03ha of previously cultivated areas, which gives a total area of development of approximately 98.1ha.

## 1.6 Statutory requirements

### 1.6.1 NEMA Regulations

An application is made according to National Environmental Management Act, 1998 (Act No. 107 of 1998), Environmental Impact Assessment Regulations, December 2014. As shown in table 1.4 below is the listed activities applicable to this application.

**Table 1.4: Listed activities**

Government Notice R983 Activity No(s):	Describe the relevant <b>Basic Assessment Activity(ies)</b> in writing as per <b>Listing Notice 1</b> (GN No. R983)	Describe the portion of the development as per the project description that relates to the applicable listed activity
28	<p><b>Residential, mixed, retail, commercial, industrial or institutional developments where such land was used for agriculture or afforestation on or after 01 April 1998 and where such development:</b></p> <p><b>will occur inside an urban area, where the total land to be developed is bigger than 5 hectares; or</b></p> <p><b>will occur outside an urban area, where the total land to be developed is bigger than 1 hectare;</b></p> <p><b>excluding where such land has already been developed for residential, mixed, retail, commercial, industrial or institutional purposes.</b></p>	<p>For the development of agricultural land outside an urban area, larger than 1 hectare, after 01 April 1998.</p> <p>For the development of approximately 70ha of agricultural areas.</p> <p>However since it was agriculture and no change in land use took place this is not applicable.</p>
Government Notice R985 Activity No(s):	Describe the relevant <b>Basic Assessment Activity(ies)</b> in writing as per <b>Listing Notice 3</b> (GN No. R985)	Describe the portion of the development as per the project description that relates to the applicable listed activity
12.	<p><b>The development of—</b></p> <p>(i) <b>canals exceeding 100 square metres in size;</b></p> <p>(ii) <b>channels exceeding 100 square metres in size;</b></p> <p>(iii) <b>bridges exceeding 100 square metres in size;</b></p> <p>(iv) <b>dams, where the dam, including infrastructure</b></p>	For the development of infrastructure related to agricultural activities within 32m of a watercourse.

	<p>and water surface area, exceeds 100 square metres in size;</p> <p>(v) weirs, where the weir, including infrastructure and water surface area, exceeds 100 square metres in size;</p> <p>(vi) bulk storm water outlet structures exceeding 100 square metres in size;</p> <p>(vii) marinas exceeding 100 square metres in size;</p> <p>(viii) jetties exceeding 100 square metres in size;</p> <p>(ix) slipways exceeding 100 square metres in size;</p> <p>(x) buildings exceeding 100 square metres in size;</p> <p>(xi) boardwalks exceeding 100 square metres in size; or</p> <p>(xii) infrastructure or structures with a physical footprint of 100 square metres or more;</p> <p>where such development occurs—</p> <p>(a) within a watercourse;</p> <p>(b) in front of a development setback; or</p> <p>(c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse; —</p> <p>excluding—</p> <p>(aa) the development of infrastructure or structures within existing ports or harbours that will not increase the development footprint of the port or harbour;</p> <p>(bb) where such development activities are related to the development of a port or harbour, in which case activity 26 in Listing Notice 2 of 2014 applies;</p> <p>(cc) activities listed in activity 14 in Listing Notice 2 of 2014 or activity 14 in Listing Notice 3 of 2014, in which case that activity applies;</p> <p>(dd) where such development occurs within an urban area; or</p> <p>(ee) where such development occurs within existing roads or road reserves.</p>	
Government Notice R984 Activity No(s):	Describe the relevant <b>Scoping and EIA Activity (ies)</b> in writing as per <b>Listing Notice 2</b> (GN No. R984)	Describe the portion of the development as per the project description that relates to the applicable listed activity
15	<p><b><i>The clearance of an area of 20 hectares or more of indigenous vegetation, excluding where such clearance of indigenous vegetation is required for—</i></b></p> <p><b><i>(i) the undertaking of a linear activity; or</i></b></p> <p><b><i>(ii) maintenance purposes undertaken in accordance with a maintenance management plan.</i></b></p>	For the clearance of areas in total more than 20 hectares, approximately 25ha of indigenous vegetation.
<p><b>Please note:</b> Only those activities for which the applicant applies will be considered for authorisation. The onus is on the applicant to ensure that all the applicable listed activities are included in the application. Failure to do so may invalidate the application.</p>		

Please note that other NEMA principles that should be considered when evaluating this application are shown in section 9.1 on page 52.

## 1.7 Report layout

Section 2 of the report provides a description of the property. A description of the environment is in Section 3 with a description of the alternatives assessed in Section 4, the summary of need and desirability in Section 5, specialist studies and impacts in Section 6, public participation in Section 7, environmental impact statement in Section 8 and all appendices are included in Section 9.

## 2. Project description

### 2.1 Project description and layout

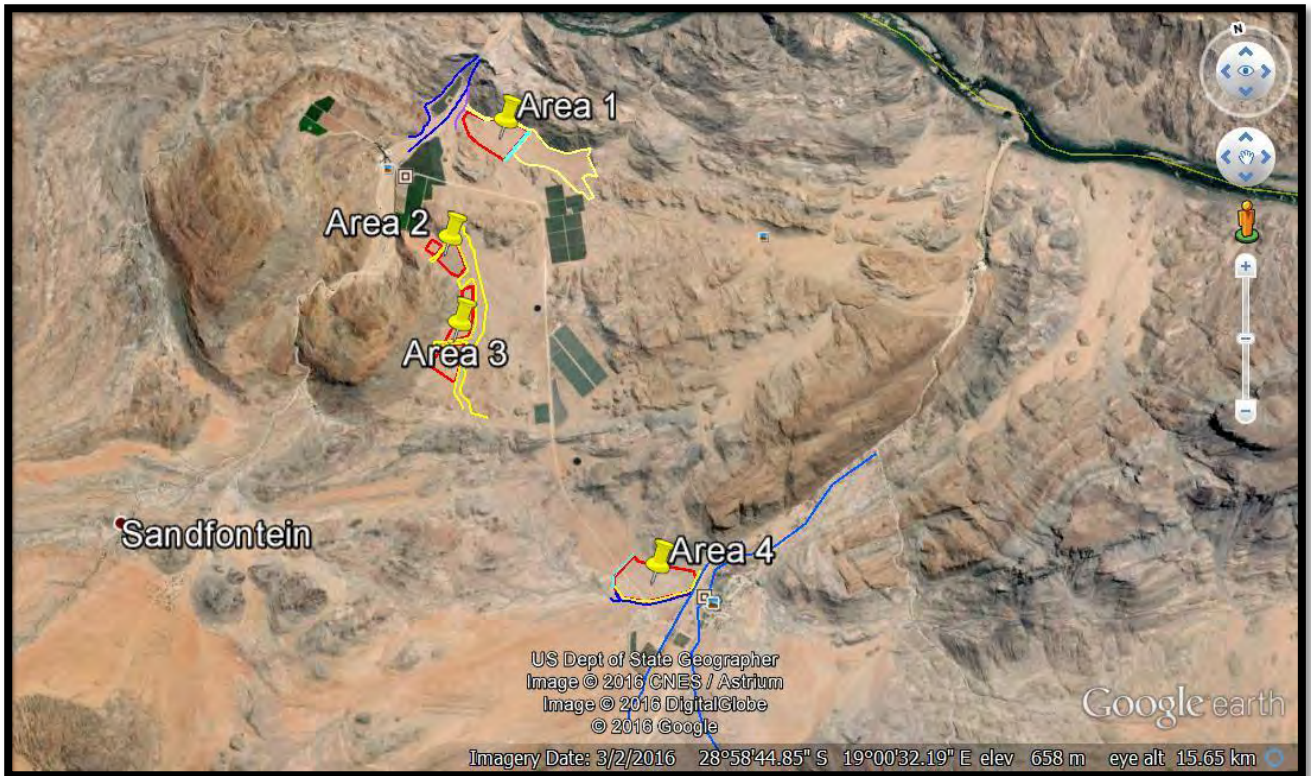
#### 2.1.1 Proposed development:

The proposed development is to establish additional agricultural areas for the cultivation of dates and vineyards, see Table 2.1, within the subject properties. All proposed cultivation areas have existing access.

**Table 2.1: Proposed agricultural areas.**

Areas	Proposed area in ha	Proposed cultivation activity	Centre point coordinates	Vegetation/Previously cultivated area
Area 1	31.73ha	Dates	28°56' 39.55"S 18°59' 37.36"E	Previously cultivated
Area 2	2.62ha	Vineyards	28°57' 24.89"S 18°58' 55.26"E	Previously cultivated
	10.71ha	Vineyards	28°57' 32.51"S 18°59' 03.52"E	Previously cultivated
Area 3	12.69ha	Vineyards	28°58' 00.16"S 18°59' 03.89"E	Undisturbed vegetation
	14.38ha	Vineyards	28°58' 15.34"S 18°58' 52.14"E	Undisturbed vegetation
Area 4	25.97 ha	Dates	29°00' 07.04"S 19°00' 13.69"E	Previously cultivated areas

The proposed agricultural areas are shown in the Figure 2. As per the above table 2.1 it will provide transformation of approximately 27.07ha of undisturbed vegetation and establishment of new cultivation areas on 71.03ha of previously cultivated areas, which gives a total area of development of approximately 98.1ha.



**Figure 2.1: Proposed new agricultural areas.**

## 2.2 Planning

The property is currently zoned for Agricultural purposes according to the zoning scheme. This application is for the development of additional agricultural areas on the said property. No planning application has to be submitted as the property is currently zoned agriculture and will remain as such.

## 2.3 Botanical

A Botanist Dr Dave McDonald was appointed to conduct a desktop study, find the letter included in section . As part of this the report written by Dr Noel Van Rooyen dated February 2008 was provided for background information, also included in section 9.5.1.1. The following summary was provided by the specialist:

*“The vegetation type found in the entire area envisaged for the agricultural development is Eastern Gariep Plains Desert. The plains sharply contrast with the rocky hills where Eastern Gariep Rocky Desert is found. The latter would not be affected by the proposed agriculture.*

*The plains desert habitat is found on sheet wash plains that lead down to the Orange River. The vegetation is sparse to very sparse with a low diversity of plant species. No endemic plant species are known to occur in this habitat and it has low botanical sensitivity despite the fact that according to Jürgens et al. (2006) few intact examples of this vegetation type still remain.*

*From the information at my disposal, both as a written report and aerial and ground photographs, I have formed the opinion that the sites (blocks) chosen for agriculture at Klein Pella would not result in High negative impact but on the contrary would result in Low negative impact as far as the vegetation is concerned.” No further studies were therefore required.*

## 2.4 Socio-Economic

### 2.4.1 Socio:

The farm Klein Pella is a highly commercial agricultural (farming) unit in the area and is surrounded by other farms which are not being farmed on a highly commercial basis.

The closest communities to the farm are that of Pella, Goodhouse and Pofadder. People working on the farms are provided with temporary housing on the farm itself.

The other farms of the Karsten Boerdery Pty Ltd is managed by a very competent and motivated workforce, it has many success stories, which contributes positively to the local economy and the provision of job opportunities in the region and the Northern Cape Province.

According to the applicant the employment opportunities which will be created during the construction phase as well as the operational phase will be between 60 permanent and 450 seasonal jobs. These workers will all be from the previous disadvantaged communities. This will have a positive impact on the overall social well-being of the communities in the area. The number of employment opportunities will rise in future.

### 2.4.2 Economic:

In order to ensure that the proposed project will be sustainable and economically viable, the applicant will also employ people from the neighbouring towns.

The estimated expected capital outlay for approximately 100 ha development such as this will be at least in the order of R50 million.

All of these additional work opportunities, as well as the creation of buying power, will contribute positively to the economic environment of the area.

## 2.5 Heritage & Archaeology

The Heritage specialist appointed was Mr. Jayson Orton (included in section 9.5.2) from ASHA Consultancy, the following is summarised in the HIA compiled and submitted to SAHRA:

*“The only heritage indicators present are archaeological stone artefacts and the cultural landscape. The former is insignificant and the latter tends to be largely modern. No significant impacts to heritage resources are expected.*

*Because no significant impacts are expected, it is recommended that the proposed new lands be authorised with no further heritage studies required. However, if any archaeological material or human burials are uncovered during the course of development then work in the immediate area should be halted. The find would need to be reported to the heritage authorities and may require inspection by an archaeologist. Such heritage is the property of the state and may require excavation and curation in an approved institution.”*

The report will be submitted to SAHRA, for comment.

## 2.6 Ephemeral stream and drainage areas:

The proposed development areas fall within the Lower Orange River water management area and within two sub quaternary catchment areas. There are two streams running across the farming properties one is the Fontein se stream and the other an unnamed tributary of the Orange River.

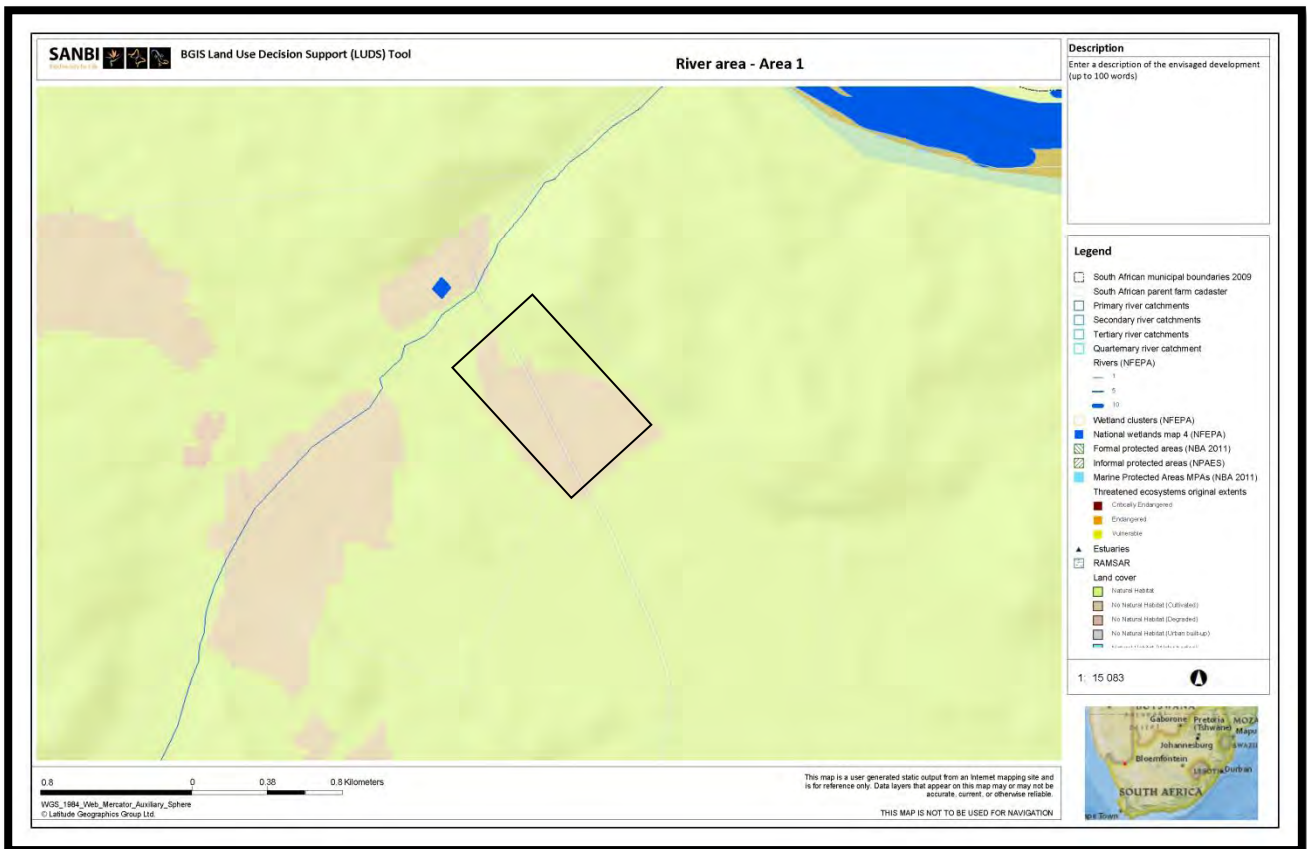
As Shown in Figure 2.2 to 2.8 are the location of an ephemeral stream and drainage areas surrounding the proposed agricultural area 1. Note the purple line (Figure 2.2) is the 100m buffer area, the 100m is measured from the agricultural area towards the stream. It can be clearly noted that the proposed development is located more than 150m from the stream.



**Figure 2.2: Water catchment area 1**

Area 1 would have fallen within the drainage areas of the Fontein se stream, note however this area was already utilised for agricultural activities and is separated with a formalised drainage area in turquoise as shown in Figure 2.2. Also in Figure 2.2 a 32m buffer area surrounding the drainage areas is provided as the yellow lines.

Area 1 is the only area located close to the existing stream called the Fontein se. This stream flows towards the Orange River. According to NEFPA and SANBI: BGIS (see Figure 2.3) this stream is identified as a Class B: Largely Natural. Note however this section of this stream has been largely transformed due to extensive agricultural development. The new proposed development is also located more than 150m from the stream and therefore will not impact negatively on the stream.



**Figure 2.3: SANBI Map – Area 1**

Area 2 falls adjacent to the drainage areas of the Fontein se stream. Area 2 has already been extensively utilised for agricultural activities.

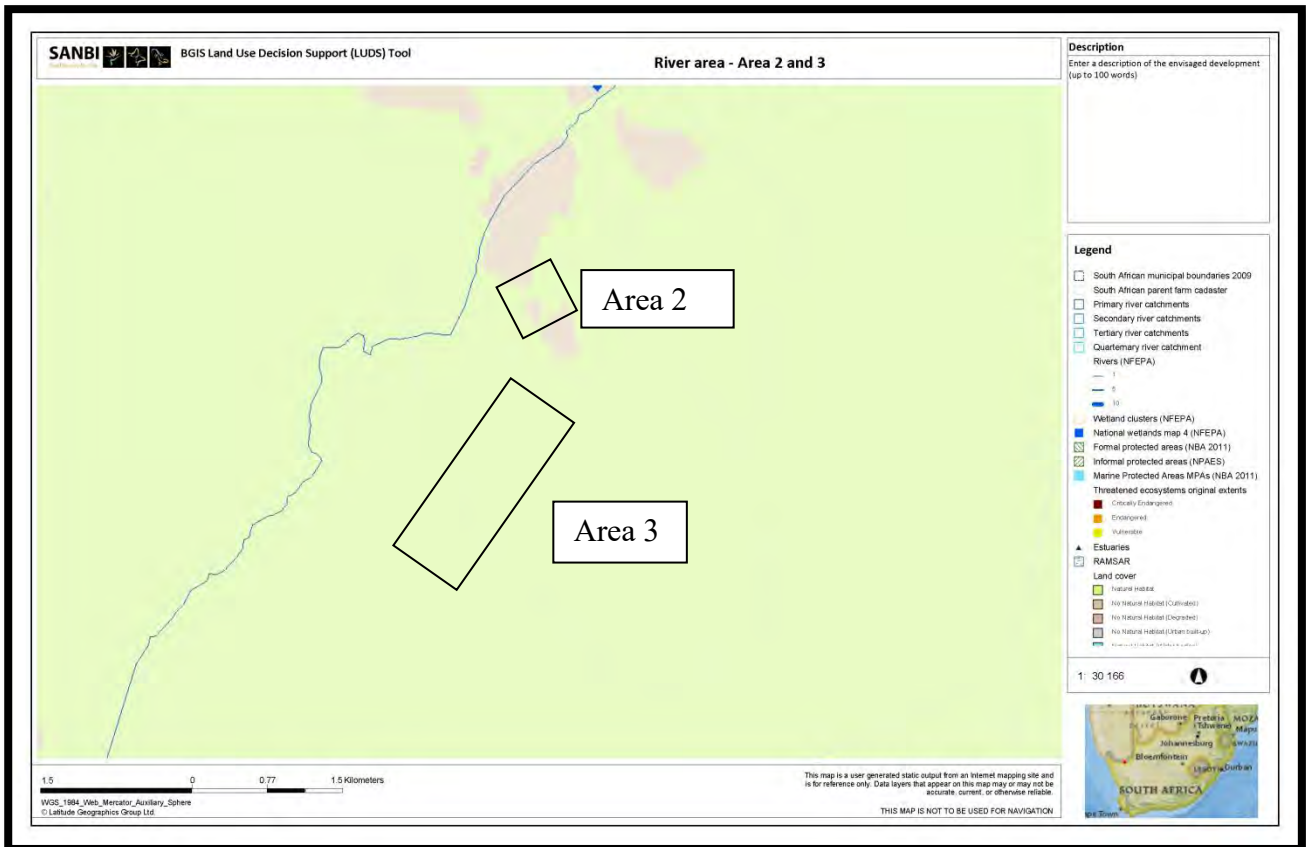


**Figure 2.4: Water catchment area 2 and 3**

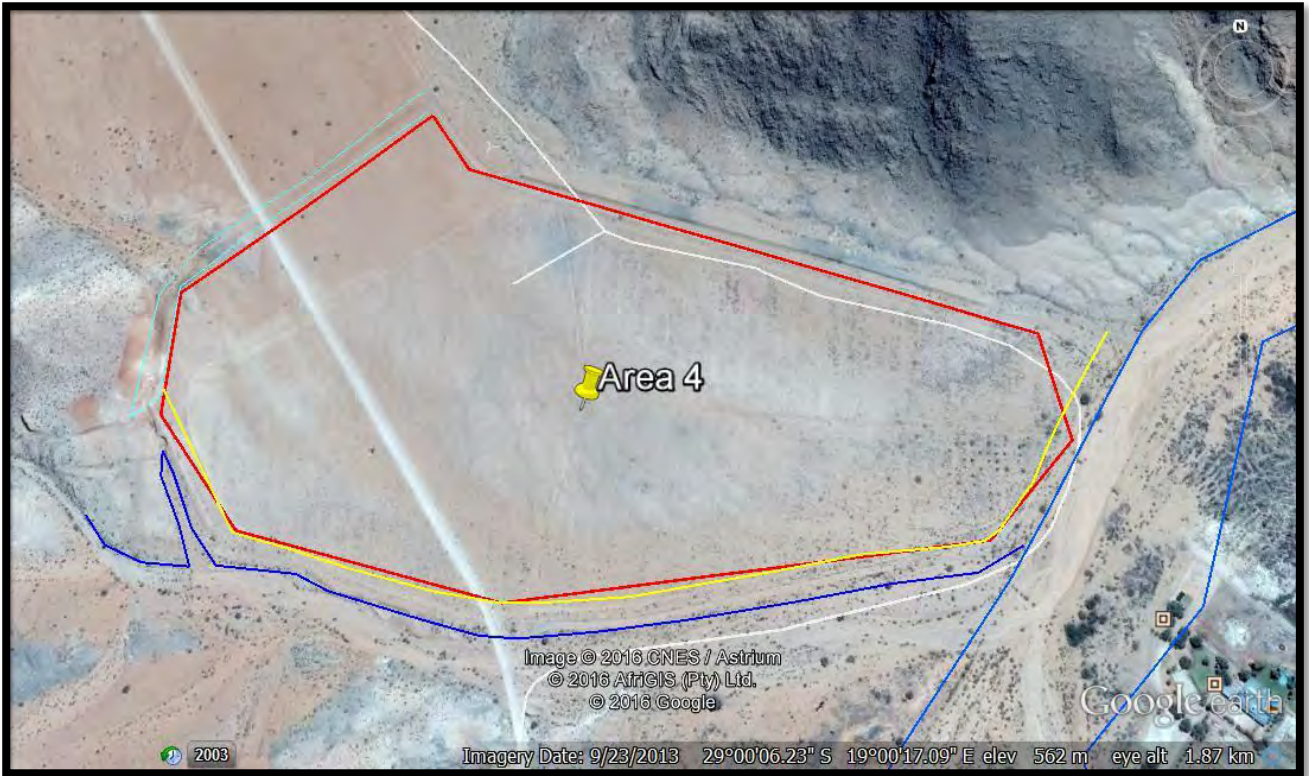


Area 2 and 3 is located not located close to the Fontein se stream, see Figures 2.4. As shown in Figure 2.4 a 32m buffer area (yellow) for drainage areas will be provided so as to comply with DWS recommendations.

As shown in BGIS: SANBI Maps in Figure 2.5 area 3 is not located close to the Fontein se stream. Area 2 is located on land already extensively utilised for agriculture, however also more than 200m from the Fontein se stream.



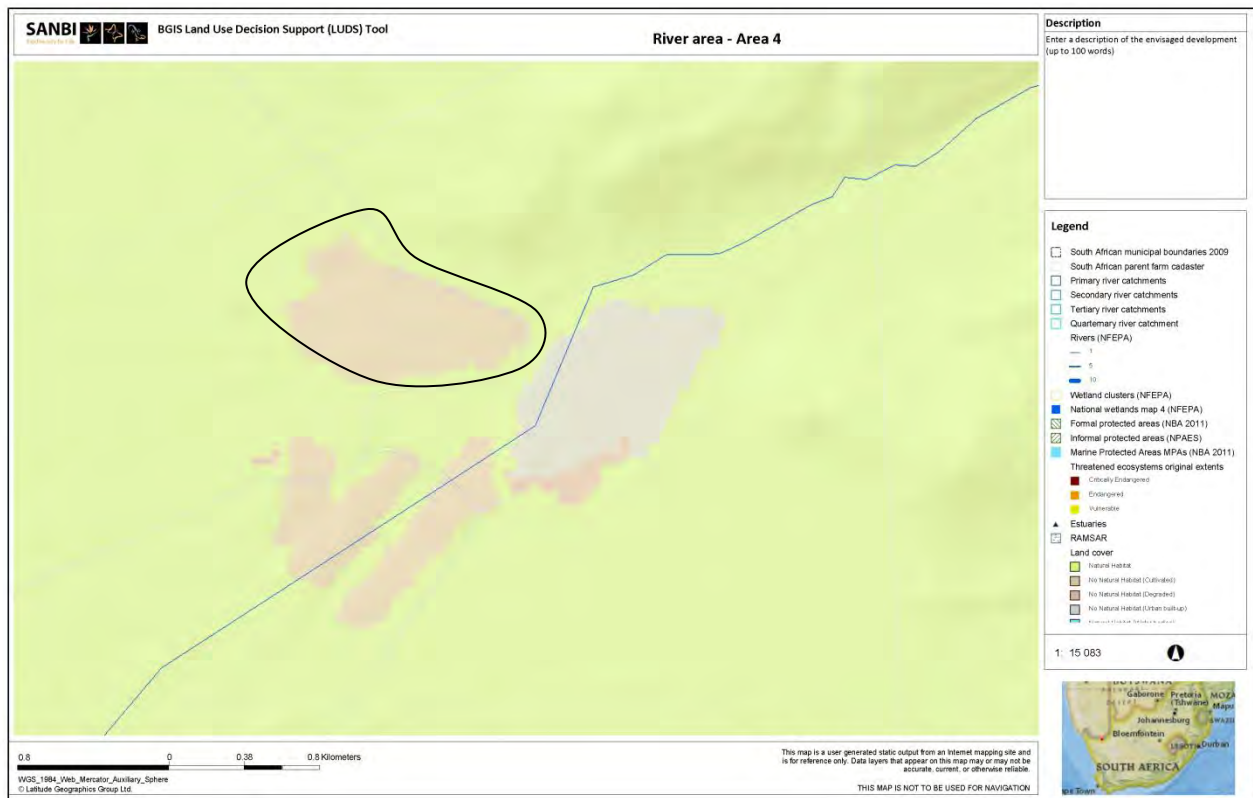
**Figure 2.5: SANBI Map – Area 2 and 3**



**Figure 2.6: Water catchment area 4**

Area 4, see Figure 2.6 would have fallen within the drainage area of an unnamed tributary of the Orange River. Note however this area has already been extensively utilised for agricultural activities.

Area 4 is the only area located within 100m to the existing unnamed tributary. This stream flows towards the Orange River. According to NEFPA and SANBI: BGIS (see Figure 2.7) this stream is identified as a Class B: Largely Natural. Note however this section of this stream has been largely transformed due to extensive agricultural development. Care will be taken with a buffer area (Figure 2.6 – yellow line) and demarcation of 32m from the stream and drainage areas. Please note this is an previously cultivated area.



**Figure 2.7: SANBI: BGIS Maps – Area 4**

It is clear from the images in Figure 2.2 to 2.7 that these development areas will not have a significant impact on the ephemeral streams/drainage areas and no impact on the Lower Orange River water management system.

## 2.7 Access

Existing roads to the site will be used.

## 2.8 Electricity

The development falls within the capacity of Eskom. Note that no additional electrical capacity is necessary for the development of the agricultural areas as existing usage is sufficient.

## 2.9 Land uses

The planned development is situated within a purely agricultural area with no other land uses in close proximity. The proposed development will therefore have no impact on any surrounding land uses in the area.

## 2.10 Water use

The applicant, Karsten Boerdery (Pty) Ltd is applying to transfer water rights within various farms that are in their ownership in terms of Section 25 (2) of the National Water Act, (Act 36 of 1998). The transfer of water will be from:

1. The Farm Kambreek 38 (Portion 1) to Farms Kambreek 38 (Portion 0) for a total of **330 000m<sup>3</sup>/a** at 15 000m<sup>3</sup>/ha (22ha).
2. The Farm Kambreek 38 (Portion 1) to Farms Kambreek 38 (Portion 2) for a total of **1005 000m<sup>3</sup>/a** at 15 000m<sup>3</sup>/ha (67ha).
3. The Farm Kambreek 38 (Portion 3) to the farm Klein Pella 40 (Portion 0) for a total of **390 000m<sup>3</sup>/a** at 15 000m<sup>3</sup>/ha (26ha).

This transfer of water is applied for to correct a deficit that has originated in the water balance for the different properties and also in order to establish an additional 98.1 ha of cultivation areas within the different properties. All of the proposed developments and water transfers will be undertaken within the existing water rights for the owners Karsten Boerdery Pty Ltd.

Activities	Purpose	From Property	Total Water (ha)	To property
Section 21(a)	Transfer of water	Kambreek no 38 Portion 1	330 000m <sup>3</sup> /a (22ha)	Kambreek no 38 Portion 0
Section 21(a)	Transfer of water	Kambreek no 38 Portion 1	1005 000m <sup>3</sup> /a (67ha)	Kambreek no 38 Portion 2
Section 21(a)	Transfer of water	Kambreek no 38 Portion 3	390 000m <sup>3</sup> /a (26ha)	Pella no 40 Portion 0

The water use entitlements as allocated for the applicant's properties (see breakdown in the table 2.2 below) which amounts to **405.5 ha (6082 500m<sup>3</sup>/a at 15 000m<sup>3</sup>/ha)** is for the irrigation of vineyard and dates. According to an analysis done only **247.8 ha (3717 000m<sup>3</sup>/a at 15 000m<sup>3</sup>/ha)** of this allotted water is currently used for irrigation and therefore leaving **157.6 ha (2364 000m<sup>3</sup>/a at 15 000m<sup>3</sup>/ha)** of the allocation for the new proposed development of **98.1ha** dates and vineyards.

**Table 2.2: Water Use Entitlements**

	Farm	Water Allocation	Ha Already planted	Water currently available per portion	Planned cultivation Ha	Total HA per portion after proposed expansion	Water available after planned expansion
1	Kambreek no. 38 (Portion 0)	67.5ha	89.4ha	-21.9ha	0 ha	89.4ha	-21.9ha
2	Kambreek no. 38 (Portion 1) Area 1	198ha	49.9ha	148.1ha	10ha dates	59.9ha	138.1ha
3	Kambreek no. 38 (Portion 2) Area 1	50ha	95.2ha	-45.2ha	21.4ha dates	116.6ha	-66.6ha

4	Kambreek no. 38 (Portion 3) Area 2 and 3	90ha	8.05ha	81.9ha	40.4ha vineyards	48.4ha	41.5ha
5	Klein Pella 40 Portion 0 Area 4	0	5.3ha	-5.3ha	20 ha dates	25.3ha	-25.3ha
	Total	405.5ha	247.8ha	157.6ha	91.8ha	339.6ha	65.8ha

The proposed development will not result in any developments taking place within the small dry ephemeral streams/drainage areas that only receive water during heavy rainfall. Areas 1 to 3 is located more than 32m from the streams and only Area 4 is located closer to the streams. Area 4 is an existing cultivated area. The transfer of water rights will not have any effect on the quantity of available water from the water resources within the immediate vicinity as all the water use allotments will be transferred from existing allocations already registered to the applicant Karsten Boerdery Pty Ltd.

The Water Use License Application included in 9.6.1.

## 2.11 Plough certificate

A plough certificate has to be obtained for the proposed development. This will be undertaken as part of the WULA and this EIA process.

## 2.12 Alternative energy and optimisation

The proposed development of the agricultural areas will in effect result in the following measures to reduce energy and water usage:

- Thus the water is used sparingly and the latest irrigation technology and scheduling methods are always implemented.
- Best practices to reduce water consumption.
- Test pits and data collections from these pits are taken on a regular basis to determine the moisture content for soil etc.
- Most (more than half) of grapes under shade cover, therefore evaporation tempo substantially lower.

## 3. Description of the environment

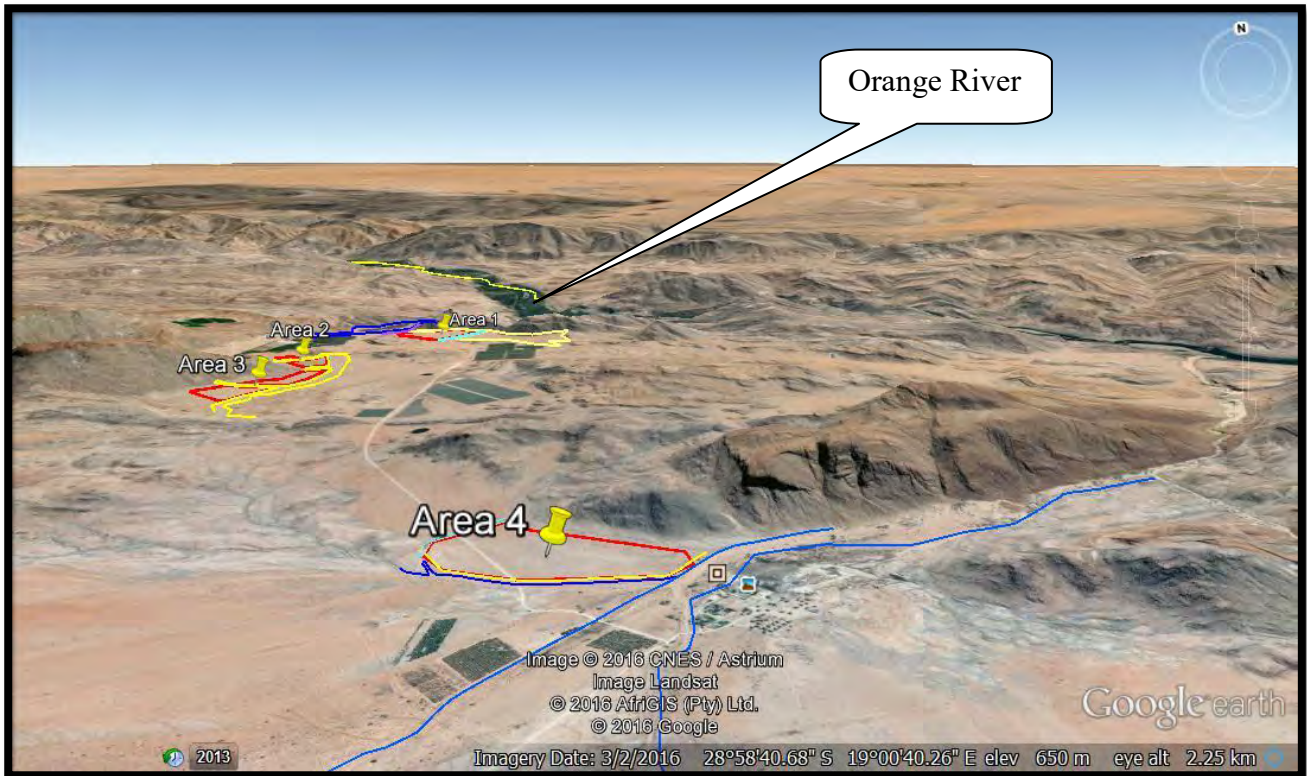
### 3.1.1 Location in landscape

The characteristic of the area is typical of a farm utilised for the cultivation of grapes and dates. The area where the proposed development will take place consists mainly of natural veld with the remains of previous livestock farming. There is existing infrastructure at the proposed development areas and all areas have existing roads and infrastructure to link into. Therefore no new roads would have to be constructed; pipeline linkages will be within the road reserves. The water for the irrigation purposes is currently being abstracted from the Orange River via an existing abstraction site and pipeline on the Farm Kambreek 38, see Figure 3.1.



*Figure 3.1: Existing water abstraction point.*

The application area is situated on land with a relatively even surface except for some individual rocky outcrops to the south-western side of the property. The area where the development will take place has however a relatively even surface which is suitable for a development of this nature. The general incline of the area is to the north-west in the direction of the Orange River, see Figure 3.2, and the existing natural drainage area. Rocky outcrops occur at various places on the site and have an important influence on the planning of the proposed development.



**Figure 3.2: Location in the landscape**

### 3.1.2 Climate

The property is located in the Summer Rainfall Region of the Northern Cape. The area is well known for low rainfall, dry climate and high temperatures with high evaporation levels. In summer the maximum temperatures often rise more than 40°C, occasionally reaching 50°C.

The average annual rainfall for the area is about 45-80 mm with rainfall peak in late summer and early autumn. The evaporation in the area is estimated at 3 000 mm per annum, which is quite high. During the summer months, northerly winds are dominant and during the winter months the prevailing wind directions is from the south.

### 3.1.3 Geology

The geology of the site comprises of the coverage by recent alluvium and calcrete. The soils derived from the ancient basement granites and gneisses of the Namaqualand Mobile Belt on the south edge of the Richtersveld Craton.

The soils of most of the area are red-yellow apedal soils, freely drained, with a high base status and < 450mm deep, see Figure 3.3.

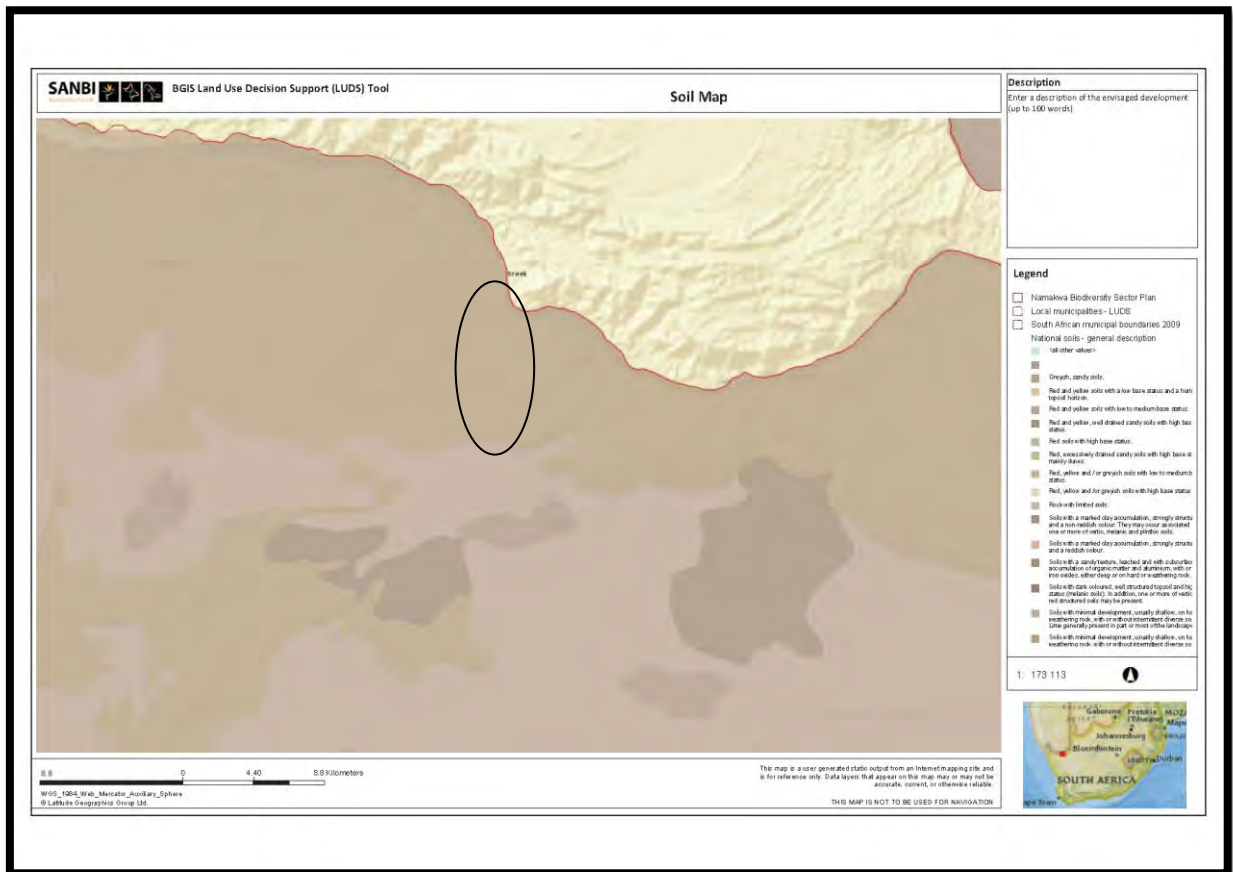


Figure 3.3: Soils map for the area and surroundings (SANBI Biodiversity GIS, 2014)

### 3.1.4 Geohydrology

According to previous reports the ground water level in this zone varies from between 10 and 50 below surface. Ground water is very difficult to locate in this zone and no boreholes yielding more than 2 l/s is known in this zone. In much of these areas, the ground water therefore needs to be desalinated before it can be considered acceptable for human consumption.

No boreholes are to be found on the site. The proposed development will take place in such a manner that it will make use of the existing water rights for the property. According to the applicant, Klein Pella has water existing water rights for future development of 406ha.

### 3.1.5 Vegetation

Floristically the site falls in the Karoo-Namib Zone of White (1983), an extensive region stretching from Namibia into the western interior of South Africa. Most of the vegetation types in the Orange River valley and surrounds falls in the Nama-Karoo Biome as described by Mucina & Rutherford (2006). However, vegetation types such as the Eastern Gariep Plains Desert and Eastern Gariep Rocky Desert fall in the Gariep Desert Bioregion of the Desert Biome. Acocks (1953), Mostert et al. (1971) and Gubb (1980) described the area as the Orange River Broken Veld, while Low & Rebelo (1998) classified the area as part of the Orange River Nama Karoo. Only 1.47% of the latter vegetation type is formally conserved although little of the area is transformed, except along the Orange River (Low & Rebelo 1996).

According to Mucina & Rutherford (2006), the vegetation types occurring in the Klein Pella region are the Eastern Gariep Plains Desert and the Eastern Gariep Rocky Desert.

The vegetation type found in the entire area envisaged for the agricultural development is Eastern Gariep Plains Desert, see Figure 3.5. The plains sharply contrast with the rocky hills where Eastern



Gariep Rocky Desert is found. The latter would not be affected by the proposed agriculture. The plains desert habitat is found on sheet wash plains that lead down to the Orange River. The vegetation is sparse to very sparse with a low diversity of plant species. No endemic plant species are known to occur in this habitat and it has low botanical sensitivity despite the fact that according to Jürgens et al. (2006) few intact examples of this vegetation type still remain.



*Figure 3.4: Previously cultivated areas of Area 2.*



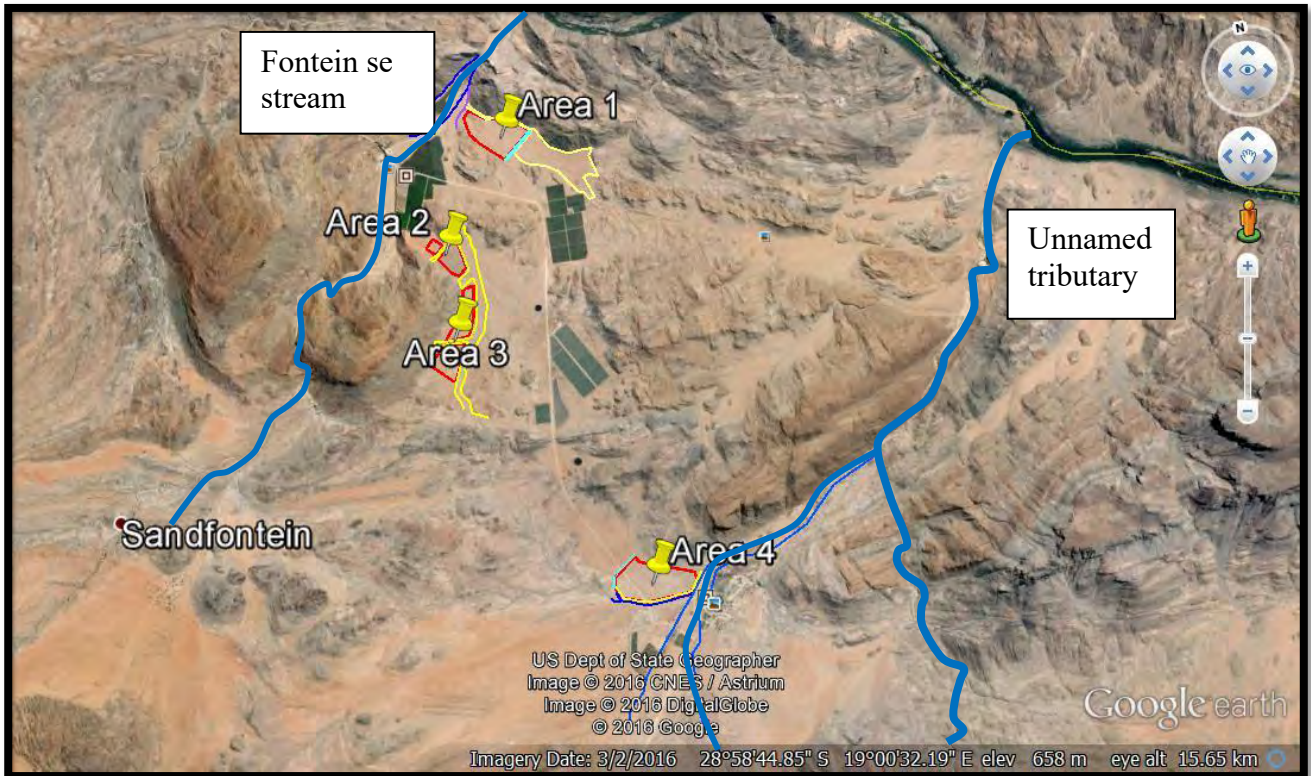
*Figure 3.5: Eastern Gariep Plains Desert*

### **3.1.6 Fresh Water Features**

The proposed development areas fall within the Lower Orange River water management area and within two sub quaternary catchment areas. The two streams run across the farming properties one is the Fontein se stream and the other an unnamed tributary of the Orange River. Both these streams

can be classified as ephemeral streams that are mostly dry and have floods/flow only during heavy rain periods.

As Shown in Figure 3.6 are the location of an ephemeral streams (Light blue) and formally created drainage areas (turquoise) and natural drainage areas (yellow) located around the proposed development areas. These streams spring from mountainous outcrops surrounding the new proposed agricultural areas and then flows downwards towards the Orange River. The proposed agricultural developments will not impact on the flow towards the Orange River.



**Figure 3.6: Ephemeral streams/drainage areas**

Area 1 is located close to an existing stream called the Fontein se. This stream flows towards the Orange River. According to NEFPA and SANBI: BGIS (see Figure 2.3) this stream is identified as a Class B: Largely Natural. Note however this section of this stream has been largely transformed due to extensive agricultural development. The new proposed development is also located more than 150m from the stream.

As shown in BGIS: SANBI Maps in Figure 2.5 area 3 is not located close to the Fontein se stream. Area 2 is located on land already extensively utilised for agriculture, however also more than 100m from the Fontein se stream. Area 2 and 3 is also located more than 32m from drainage areas (yellow buffer area) flowing towards these streams as per DWS specifications.

Area 4 is the only area located close to the existing unnamed tributary. This stream flows towards the Orange River. According to NEFPA and SANBI: BGIS (see Figure 2.7) this stream is identified as a Class B: Largely Natural. Note however this section of this stream has been extensively transformed due to extensive agricultural development. Care will be taken with a buffer area and demarcation more than 32m from the stream.

Note the developer is aware of the risks (financial and insurance related) if development is situated within the 100m buffer area from a stream and will not hold DWS or any other part liable.

## 4. Alternatives

The development layout was developed using an opportunities and constraints analysis which included on the constraints side, mainly the suitability of the agricultural areas on the particular position from a design perspective as well as possible impacts on natural vegetation and drainage areas, this is clearly outlined in Alternative 1 (preferred alternative) and Alternative 2. From a technology perspective the suitability of the proposed agricultural activities to be established on the property, this is outlined in alternative 1 and 3. For the Scoping Process the following were considered, Alternative 1 (preferred alternative), Alternative 2 alternative sites, Alternative 3 alternative agricultural activities and Alternative 4 the No-Go Option. For the EIA phase only Alternative 1 and Alternative 4, the No-Go Option, will be assessed in detail. For A3 Layouts see section 9.1. The alternatives considered for the development are described below:

### Alternative 1 (preferred site/location/design and technology alternative):

This option will consist of agricultural land to be established, clearly outlined according to:

1. Location
2. Size
3. Proposed agricultural activity

It is shown below in Table 4.1 and Figure 4.1 to 4.5.

**Table 4.1: Proposed agricultural areas**

Areas	Proposed area in ha	Proposed cultivation activity	Centre point coordinates	Vegetation/ Previously cultivated area
Area 1	31.73ha	Dates	28°56' 39.55"S 18°59' 37.36"E	Previously cultivated
Area 2	2.62ha	Vineyards	28°57' 24.89"S 18°58' 55.26"E	Previously cultivated
	10.71ha	Vineyards	28°57' 32.51"S 18°59' 03.52"E	Previously cultivated
Area 3	12.69ha	Vineyards	28°58' 00.16"S 18°59' 03.89"E	Undisturbed vegetation
	14.38ha	Vineyards	28°58' 15.34"S 18°58' 52.14"E	Undisturbed vegetation
Area 4	25.97 ha	Dates	29°00' 07.04"S 19°00' 13.69"E	Previously cultivated areas



**Figure 4.1: Alternative 1 –Area 1: Preferred proposed agricultural areas.**



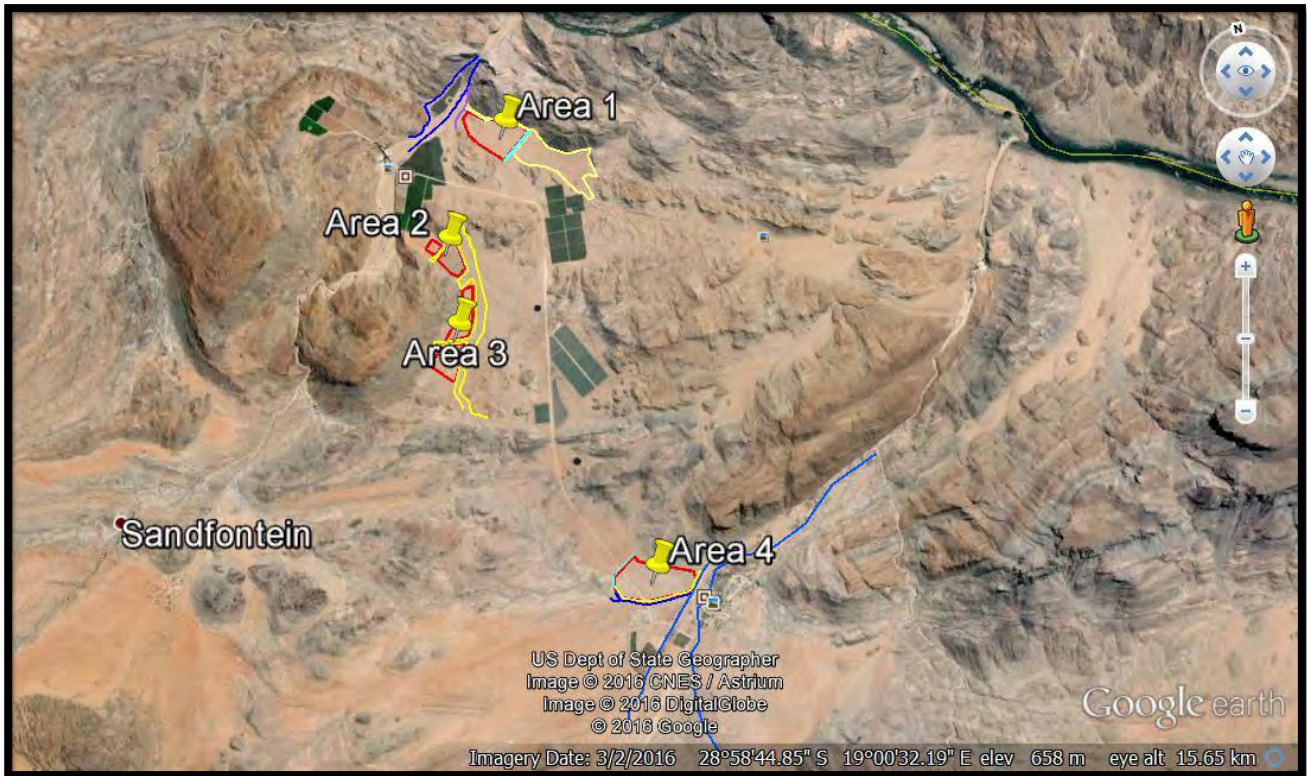
**Figure 4.2: Alternative 1 –Area 2: Preferred proposed agricultural areas.**



**Figure 4.3: Alternative 1 –Area 3: Preferred proposed agricultural areas.**



**Figure 4.4 Alternative 1 –Area 4: Preferred proposed agricultural areas.**



**Figure 4.5: Alternative 1 – All areas – Google imagery**

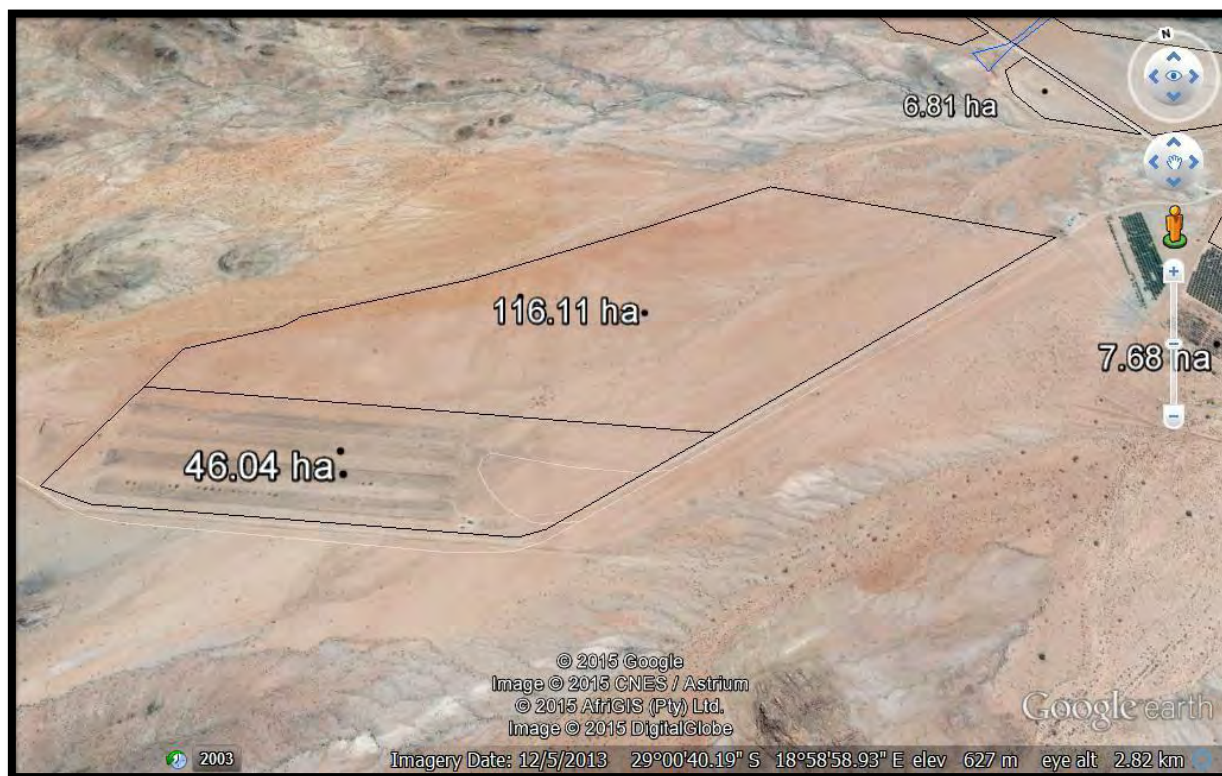
This alternative is considered as preferred for the following reasons:

- From a design perspective this alternative was the best option. It took into consideration design measures by establishing agricultural areas in the lower laying areas, and as far as possible areas that have already been disturbed.
- From a financial and an environmental perspective this alternative was the best option. The proposed areas are in close proximity to existing infrastructure and access routes.
- From a vegetation and fresh water ecology perspective this alternative is better as upper areas of the drainage areas are still in relative good condition, no impact on streams as the development is located more than 32m from the stream. Also the impact on natural vegetation is low negative. This alternative is in the sections of the vegetation type Eastern Gariep Plains Desert, the vegetation is sparse to very sparse with a low diversity of plant species. No endemic plant species are known to occur in this habitat. This alternative will have a low negative impact on indigenous vegetation.
- From a heritage/archaeological perspective this alternative will not have a significant impact.
- This alternative will also fully utilise the farms full agricultural potential according to existing water use rights.
- This alternative will also contribute socially to the upliftment of the existing workers through additional job opportunities.

It is clear therefore that this alternative meets the requirements of the Fresh Water Ecology, vegetation and design considerations, was deemed preferred.

### Alternative 2:

This option was for the development of approximately 160ha on Farm Klein Pella 40. This site is also a viable option for agricultural activities. However its location and proximity to existing infrastructure/water made it the second option. The intention is to in future develop this area as well, the applicant however has to obtain more water use rights for this area to be added additionally and is therefore a possible project in the future. This is however the only viable site alternative, but is not seen as the preferred option.



**Figure 4.6 Alternative 2**

This alternative is not seen as preferred for the following reasons:

- From a design perspective this alternative is not preferred, as the existing small expansions as seen in Alternative 1 is extensions of existing agricultural activities and existing linkages with water infrastructure. Alternative 2 is furthest away from existing infrastructure and from the water access points.
- From a botanical perspective this alternative 2 will also have a low negative impact on vegetation.
- From a heritage/archaeological perspective this alternative will also not have a significant impact.

This alternative was however not deemed preferred and not better suited than that of alternatives 1.

### Alternative 3:

Alternative 3 is the technology alternative, therefore the possible use of other agricultural activities on the property. The following are options that could be considered:

- Other agricultural activities, for instance, wine grapes of lusern etc.

This option is not considered viable as with studies undertaken with the early establishment of the farm it was found that dates and vineyards (eating grapes) were best suited for the climate and soils. The entire farming operation is designed for the purpose of export dates and grapes, packaging facility, cooling areas etc. The financial burden of trying to establish any new agricultural activities would be astronomical.

- Another option is grazing for cattle.

Even though this option is viable, from a financial perspective this is not best suited, as the low carrying capacity of the fields in the area, would result in a very small scale farming operation. Existing workers would lose job opportunities and existing jobs.

These alternatives are therefore not deemed preferred and not better suited than that of alternatives 1.

#### **Alternative 4: No-go Option**

This alternative is the No-go Option, and is not seen as preferred for the following reason:

- The current agricultural activities on the property are not being utilised to full potential. For this to take place additional agricultural areas have to be established.
- No Social upliftment of existing workers and no additional job opportunities.

Therefore this alternative is not seen as preferred as the expansion of agricultural activities will contribute to the agricultural potential of the property and if this does not take place, the expansion of the farm to its full potential cannot take place.



## 5. Need and desirability

As stated in the NEMA 2014 Guidelines on Needs and Desirability “....*the need for and desirability of an proposed activity must specifically and explicitly be addressed throughout the EIA process (screening, "scoping", and assessment) when dealing with individual impacts and specifically in the overall impact summary by taking into account the answers to inter alia the following questions...*”

“it is therefore assumed that for Environmental Impact Assessment Phase, Needs and Desirability was adequately addressed within the table below which includes all the questions outlined in the Guidelines.

### 5.1 Needs and Desirability

**Table 5.1: Questions and answers pertaining to Needs and Desirability.**

Question	Answer
<p>1. How will this development (and its separate elements/aspects) impact on the ecological integrity of the area?</p> <p>1.1. How were the following ecological integrity considerations taken into account?:</p> <p>1.1.1. Threatened Ecosystems,</p> <p>1.1.2. Sensitive, vulnerable, highly dynamic or stressed ecosystems, such as coastal shores, estuaries, wetlands, and similar systems require specific attention in management and planning procedures, especially where they are subject to significant human resource usage and development pressure,</p> <p>1.1.3. Critical Biodiversity Areas ("CBAs") and Ecological Support Areas ("ESAs"),</p> <p>1.1.4. Conservation targets,</p> <p>1.1.5. Ecological drivers of the ecosystem,</p> <p>1.1.6. Environmental Management Framework,</p> <p>1.1.7. Spatial Development Framework, and</p> <p>1.1.8. Global and international responsibilities relating to the environment (e.g. RAMSAR sites, Climate Change, etc.).</p>	<p>By making use of a specialist Dr Dave McDonald and a previous Botanical Assessment conducted by Dr Noel Van Rooyen. All the mitigation measures of this assessment report were included and as per the letter from Dr Dave McDonald the impact was identified as low negative on the vegetation types.</p>
<p>1.2. How will this development disturb or enhance ecosystems and/or result in the loss or protection of biological diversity? What measures were explored to firstly avoid these negative impacts, and where these negative impacts could not be avoided altogether, what measures were explored to minimise and remedy (including offsetting) the impacts? What measures were explored to enhance positive impacts?</p>	<p>These areas were chosen due to their location on Eastern Gariep desert Plains and as far as possible on areas that have already been utilised for agricultural activities. No offsets were provided as these areas or of low botanical sensitivity.</p> <p>No development to take place within 32m of the watercourse, except existing cultivation area 4, a buffer will be created of a minimum of 15m to prevent an erosion or degradation of the area.</p>
<p>1.3. How will this development pollute and/or degrade the biophysical environment? What measures were explored to firstly avoid these impacts, and where impacts could not be avoided altogether, what measures were explored to minimise and remedy (including offsetting) the impacts? What measures were explored to enhance positive impacts?</p>	<p>This development will not pollute or degrade the biophysical environment.</p>
<p>1.4. What waste will be generated by this development? What measures were explored to firstly avoid waste, and where waste could not be avoided altogether, what measures were explored to minimise, reuse and/or recycle the waste? What measures have been explored to safely treat and/or dispose of unavoidable waste?</p>	<p>Small amount of general household waste that will be taken to an approved landfill site.</p>
<p>1.5. How will this development disturb or enhance landscapes</p>	<p>The planned development is situated within a</p>

<p>and/or sites that constitute the nation's cultural heritage? What measures were explored to firstly avoid these impacts, and where impacts could not be avoided altogether, what measures were explored to minimise and remedy (including offsetting) the impacts? What measures were explored to enhance positive impacts?</p>	<p>purely agricultural area with no other land uses in close proximity. The proposed development will therefore have no impact on any surrounding land uses in the area.</p> <p>The only heritage indicators present are occasional archaeological stone artefacts and the cultural landscape. The former is insignificant and the latter tends to be largely modern. No significant impacts to heritage resources are expected.</p> <p>If archaeology is uncovered this was taken into account as part of mitigation measures put in place.</p>
<p>1.6. How will this development use and/or impact on non-renewable natural resources? What measures were explored to ensure responsible and equitable use of the resources? How have the consequences of the depletion of the non-renewable natural resources been considered? What measures were explored to firstly avoid these impacts, and where impacts could not be avoided altogether, what measures were explored to minimise and remedy (including offsetting) the impacts? What measures were explored to enhance positive impacts?</p>	<p>The only non-renewable natural resource to be used is water. This resource will be used for irrigational purposes and therefore contributes to the economy, therefore not a negative impact as it will be used sparingly/water wise to be used to its full potential. Note existing water rights will be used for the establishment of these areas.</p> <p>A small amount of electricity within the existing system.</p>
<p>1.7. How will this development use and/or impact on renewable natural resources and the ecosystem of which they are part? Will the use of the resources and/or impact on the ecosystem jeopardise the integrity of the resource and/or system taking into account carrying capacity restrictions, limits of acceptable change, and thresholds?</p> <p>What measures were explored to firstly avoid the use of resources, or if avoidance is not possible, to minimise the use of resources? What measures were taken to ensure responsible and equitable use of the resources? What measures were explored to enhance positive impacts?</p> <p>1.7.1. Does the proposed development exacerbate the increased dependency on increased use of resources to maintain economic growth or does it reduce resource dependency (i.e. de-materialised growth)? (note: sustainability requires that settlements reduce their ecological footprint by using less material and energy demands and reduce the amount of waste they generate, without compromising their quest to improve their quality of life)</p> <p>1.7.2. Does the proposed use of natural resources constitute the best use thereof? Is the use justifiable when considering intra- and intergenerational equity, and are there more important priorities for which the resources should be used (i.e. what are the opportunity costs of using these resources for the proposed development alternative?)</p> <p>1.7.3. Do the proposed location, type and scale of development promote a reduced dependency on resources?</p>	<p>The proposed development of expansion of agricultural activities in itself is a renewable resource. Therefore this development will have a positive impact on the resource and will not impact or jeopardise the integrity of the resource.</p>
<p>1.8. How were a risk-averse and cautious approach applied in terms of ecological impacts?:</p> <p>1.8.1. What are the limits of current knowledge (note: the gaps, uncertainties and assumptions must be clearly stated)?</p> <p>1.8.2. What is the level of risk associated with the limits of current knowledge?</p> <p>1.8.3. Based on the limits of knowledge and the level of risk,</p>	<p><u>Gaps, uncertainties and assumptions:</u></p> <p><u>Botanical:</u></p> <p>Assessment by Dr Dave McDonald was on assumptions from a previous study and photographic data took on a site visit conducted in March 2015.</p>

<p>how and to what extent was a risk-averse and cautious approach applied to the development?</p>	<p>The risk could be that something could be overlooked, however the previous assessment of the sites was thorough and therefore the risk is low.</p> <p><u>Heritage/archaeology:</u></p> <p>The study is carried out at the surface only and hence any completely buried archaeological sites will not be readily located. Similarly, it is not always possible to determine the depth of archaeological material visible at the surface.</p>
<p>1.9. How will the ecological impacts resulting from this development impact on people's environmental right in terms following:  1.9.1. Negative impacts: e.g. access to resources, opportunity costs, loss of amenity (e.g. open space), air and water quality impacts, nuisance (noise, odour, etc.), health impacts, visual impacts, etc. What measures were taken to firstly avoid negative impacts, but if avoidance is not possible, to minimise, manage and remedy negative impacts?  1.9.2. Positive impacts: e.g. improved access to resources, improved amenity, improved air or water quality, etc. What measures were taken to enhance?</p>	<p>The proposed development will not impact on the rights of other people.</p> <p>The proposed development might have a small impact on air quality as during construction of the agricultural areas dust may accumulate. This will however be mitigated.</p> <p>Visually no impact on surrounding land owners.</p> <p>Positive impacts can be access to renewable resources such as agricultural lands, food security, socio-economically provide additional job opportunities.</p>
<p>1.10. Describe the linkages and dependencies between human wellbeing, livelihoods and ecosystem services applicable to the area in question and how the development's ecological impacts will result in socio-economic impacts (e.g. on livelihoods, loss of heritage site, opportunity costs, etc.)?</p>	<p>The proposed development will not negatively impact on livelihoods or loss of heritage sites. It will however provide additional job opportunities for local workers.</p>
<p>1.11. Based on all of the above, how will this development positively or negatively impact on ecological integrity objectives/targets/considerations of the area?</p>	<p>Overall the proposed development will have a low negative impact on the vegetation type on the sites, no impact on heritage/archaeological indicators and have a positive impact from a socio-economic perspective through job creations and contributions to the economy.</p>
<p>1.12. Considering the need to secure ecological integrity and a healthy biophysical environment, describe how the alternatives identified (in terms of all the different elements of the development and all the different impacts being proposed), resulted in the selection of the "best practicable environmental option" in terms of ecological considerations?</p>	<p>The preferred alternative had a low negative impact on vegetation, no impact on heritage/archaeological indicators and have a positive impact from a socio-economic perspective through job creations and contributions to the economy, best location, most accessible to existing infrastructure, best technology alternative.</p>
<p>1.13. Describe the positive and negative cumulative ecological/biophysical impacts bearing in mind the size, scale, scope and nature of the project in relation to its location and existing and other planned developments in the area?</p>	<p>Positive Economic impact with the enlargement of the agricultural produce to be exported.</p> <p>Impact due to additional water resource, this is however an existing use, positive impact due to enhancement of production of agricultural produce, the same positive impact on electricity resource.</p>
<p>2.1. What is the socio-economic context of the area, based on, amongst other considerations, the following considerations?:  2.1.1. The IDP (and its sector plans' vision, objectives, strategies, indicators and targets) and any other strategic plans, frameworks of policies applicable to the area,</p>	<p>The farm Klein Pella is a highly commercial agricultural (farming) unit in the area and is surrounded by other farms which are not being farmed on a commercial basis. The proposed development does not fall within an urban area, however does fall within the boundaries of the Kai Ma Municipality.  The closest communities are that of Pella,</p>

<p>2.1.2. Spatial priorities and desired spatial patterns (e.g. need for integrated or segregated communities, need to upgrade informal settlements, need for densification, etc.),</p> <p>2.1.3. Spatial characteristics (e.g. existing land uses, planned land uses, cultural landscapes, etc.), and</p> <p>2.1.4. Municipal Economic Development Strategy ("LED Strategy").</p>	<p>Goodhouse and Pofadder. People working on the farm will be provided with temporary housing on the farm itself.</p> <p>The proposed development will contribute positively to the local economy and the provision of job opportunities in the region and the Northern Cape Province.</p> <p>The planned development is situated within a purely agricultural area with no other land uses in close proximity. The proposed development will therefore have no impact on any surrounding land uses in the area.</p>
<p>2.2. Considering the socio-economic context, what will the socio-economic impacts be of the development (and its separate elements/aspects), and specifically also on the socio-economic objectives of the area?</p> <p>2.2.1. Will the development complement the local socio-economic initiatives (such as local economic development (LED) initiatives), or skills development programs?</p>	<p>According to the applicant the employment opportunities which will be created during the construction phase as well as the operational phase will be between 60 permanent and 450 seasonal jobs. These workers will all be from the previous disadvantaged communities. This will have a positive impact on the overall social well-being of the communities in the area.</p> <p>The proposed development will greatly and positively impact on skills development as part of the companies BEE initiatives.</p>
<p>2.3. How will this development address the specific physical, psychological, developmental, cultural and social needs and interests of the relevant communities?</p>	<p>The proposed development will greatly and positively impact on skills development as part of the companies BEE initiatives.</p>
<p>2.4. Will the development result in equitable (intra- and inter-generational) impact distribution, in the short- and longterm? Will the impact be socially and economically sustainable in the short- and long-term?</p>	<p>Yes.</p>
<p>2.5. In terms of location, describe how the placement of the proposed development will:</p> <p>2.5.1. result in the creation of residential and employment opportunities in close proximity to or integrated with each other,</p> <p>2.5.2. reduce the need for transport of people and goods,</p> <p>2.5.3. result in access to public transport or enable non-motorised and pedestrian transport (e.g. will the development result in densification and the achievement of thresholds in terms public transport),</p> <p>2.5.4. compliment other uses in the area,</p> <p>2.5.5. be in line with the planning for the area,</p> <p>2.5.6. for urban related development, make use of underutilised land available with the urban edge,</p> <p>2.5.7. optimise the use of existing resources and infrastructure,</p> <p>2.5.8. opportunity costs in terms of bulk infrastructure expansions in non-priority areas (e.g. not aligned with the bulk infrastructure planning for the settlement that reflects the spatial reconstruction priorities of the settlement),</p> <p>2.5.9. discourage "urban sprawl" and contribute to compaction/densification,</p> <p>2.5.10. contribute to the correction of the historically distorted spatial patterns of settlements and to the optimum use of existing infrastructure in excess of current needs,</p> <p>2.5.11. encourage environmentally sustainable land development practices and processes,</p> <p>2.5.12. take into account special locational factors that might favour the specific location (e.g. the location of a strategic mineral resource, access to the port, access to rail, etc.),</p> <p>2.5.13. the investment in the settlement or area in question</p>	<p>Workers will be provided with accommodation and transport to and from the site. Not in close proximity to public transport.</p> <p>No bulk services infrastructure will be constructed as the proposed development is not situated within the urban edge.</p> <p>It took into consideration favourable spatial factors as the property has direct access to water (Orange River) as a resource.</p> <p>Will not impact on the sense of history or heritage/archaeological indicators.</p>

<p>will generate the highest socio-economic returns (i.e. an area with high economic potential),</p> <p>2.5.14. impact on the sense of history, sense of place and heritage of the area and the socio-cultural and cultural-historic characteristics and sensitivities of the area, and</p> <p>2.5.15. in terms of the nature, scale and location of the development promote or act as a catalyst to create a more integrated settlement?</p>	
<p>2.6. How were a risk-averse and cautious approach applied in terms of socio-economic impacts?:</p> <p>2.6.1. What are the limits of current knowledge (note: the gaps, uncertainties and assumptions must be clearly stated)?</p> <p>2.6.2. What is the level of risk (note: related to inequality, social fabric, livelihoods, vulnerable communities, critical resources, economic vulnerability and sustainability) associated with the limits of current knowledge?</p> <p>2.6.3. Based on the limits of knowledge and the level of risk, how and to what extent was a risk-averse and cautious approach applied to the development?</p>	<p>Gaps, uncertainties and assumptions:</p> <p><u>Botanical:</u> Assessment by Dr Dave McDonald was on assumptions from a previous study and photographic data took on a site visit conducted in March 2015. The risk could be that something could be overlooked, however the previous assessment of the sites was thorough and therefore the risk is low. This gap in knowledge will not impact on the socio-economic impacts of the proposed development, with regards to this no negative impacts or limits in knowledge.</p> <p><u>Heritage/archaeology:</u> The study is carried out at the surface only and hence any completely buried archaeological sites will not be readily located. Similarly, it is not always possible to determine the depth of archaeological material visible at the surface. The mitigation for possible impacts is to stop construction if any remains are found and contact SAHRA.</p>
<p>2.7. How will the socio-economic impacts resulting from this development impact on people's environmental right in terms following:</p> <p>2.7.1. Negative impacts: e.g. health (e.g. HIV-Aids), safety, social ills, etc. What measures were taken to firstly avoid negative impacts, but if avoidance is not possible, to minimise, manage and remedy negative impacts?</p> <p>2.7.2. Positive impacts. What measures were taken to enhance positive impacts?</p>	<p>According to the applicant the employment opportunities which will be created during the construction phase as well as the operational phase will be between 60 permanent and 450 seasonal jobs. These workers will all be from the previous disadvantaged communities. This will have a positive impact on the overall social well-being of the communities in the area. The proposed development will greatly and positively impact on skills development as part of the companies BEE initiatives.</p>
<p>2.8. Considering the linkages and dependencies between human wellbeing, livelihoods and ecosystem services, describe the linkages and dependencies applicable to the area in question and how the development's socio-economic impacts will result in ecological impacts (e.g. over utilisation of natural resources, etc.)?</p>	<p>The proposed development is for agricultural development.</p>
<p>2.9. What measures were taken to pursue the selection of the "best practicable environmental option" in terms of socio-economic considerations?</p>	<p>Design, comments, location, technology alternatives were considered to determine the best option.</p>
<p>2.10. What measures were taken to pursue environmental justice so that adverse environmental impacts shall not be distributed in such a manner as to unfairly discriminate against any person, particularly vulnerable and disadvantaged persons (who are the beneficiaries and is the development located appropriately)? Considering the need for social equity and justice, do the alternatives identified, allow the "best practicable environmental option" to be selected, or is there a need for other alternatives to be considered?</p>	<p>Provide the best practicable environmental option.</p>

<p>2.11. What measures were taken to pursue equitable access to environmental resources, benefits and services to meet basic human needs and ensure human wellbeing, and what special measures were taken to ensure access thereto by categories of persons disadvantaged by unfair discrimination?</p>	<p>The proposed development will occur according to the specific need of the site and the contractor will have to make use of trained staff.</p>
<p>2.12. What measures were taken to ensure that the responsibility for the environmental health and safety consequences of the development has been addressed throughout the development's life cycle?</p>	<p>Where local communities are employed, it will be the responsibility of the contractor to see to their safety and to provide the relevant training for the execution of their tasks.</p>
<p>2.13. What measures were taken to:</p> <p>2.13.1. ensure the participation of all interested and affected parties,</p> <p>2.13.2. provide all people with an opportunity to develop the understanding, skills and capacity necessary for achieving equitable and effective participation,</p> <p>2.13.3. ensure participation by vulnerable and disadvantaged persons,</p> <p>2.13.4. promote community wellbeing and empowerment through environmental education, the raising of environmental awareness, the sharing of knowledge and experience and other appropriate means,</p> <p>2.13.5. ensure openness and transparency, and access to information in terms of the process,</p> <p>2.13.6. ensure that the interests, needs and values of all interested and affected parties were taken into account, and that adequate recognition were given to all forms of knowledge, including traditional and ordinary knowledge, and</p> <p>2.13.7. ensure that the vital role of women and youth in environmental management and development were recognised and their full participation therein were be promoted?</p>	<p>Public participation was done in accordance to the NEMA 2014 Regulations specifications.</p> <p>Skills development will be done for staff.</p>
<p>2.14. Considering the interests, needs and values of all the interested and affected parties, describe how the development will allow for opportunities for all the segments of the community (e.g. a mixture of low-, middle-, and high-income housing opportunities) that is consistent with the priority needs of the local area (or that is proportional to the needs of an area)?</p>	<p>The proposed development will provide job opportunities for low and middle income groups and will provide foreign capital for high-income groups.</p>
<p>2.15. What measures have been taken to ensure that current and/or future workers will be informed of work that potentially might be harmful to human health or the environment or of dangers associated with the work, and what measures have been taken to ensure that the right of workers to refuse such work will be respected and protected?</p>	<p>Where local communities are employed, it will be the responsibility of the contractor to see to their safety and to provide the relevant training for the execution of their tasks.</p>
<p>2.16. Describe how the development will impact on job creation in terms of, amongst other aspects:</p> <p>2.16.1. the number of temporary versus permanent jobs that will be created,</p> <p>2.16.2. whether the labour available in the area will be able to take up the job opportunities (i.e. do the required skills match the skills available in the area),</p> <p>2.16.3. the distance from where labourers will have to travel,</p> <p>2.16.4. the location of jobs opportunities versus the location of impacts (i.e. equitable distribution of costs and benefits), and</p> <p>2.16.5. the opportunity costs in terms of job creation (e.g. a mine might create 100 jobs, but impact on 1000 agricultural jobs, etc.).</p>	<p>According to the applicant the employment opportunities which will be created during the construction phase as well as the operational phase will be between 60 permanent and 450 seasonal jobs. These workers will all be from the previous disadvantaged communities. This will have a positive impact on the overall social well-being of the communities in the area. The proposed development will greatly and positively impact on skills development as part of the companies BEE initiatives. The site is relatively far from the local areas, however transport and accommodation will be provided. No negative opportunity costs.</p>
<p>2.17. What measures were taken to ensure:</p> <p>2.17.1. that there were intergovernmental coordination and</p>	<p>All policies and legislation were taken into account, all relevant governmental institutions</p>

<p>harmonisation of policies, legislation and actions relating to the environment, and</p> <p>2.17.2. that actual or potential conflicts of interest between organs of state were resolved through conflict resolution procedures?</p>	<p>applicable to the applications were requested to comment on the process.</p>
<p>2.18. What measures were taken to ensure that the environment will be held in public trust for the people, that the beneficial use of environmental resources will serve the public interest, and that the environment will be protected as the people's common heritage?</p>	<p>Various mitigation measures to be implemented as part of the EA issued.</p>
<p>2.19. Are the mitigation measures proposed realistic and what long-term environmental legacy and managed burden will be left?</p>	<p>The mitigation measures were provided by specialists and are therefore realistic.</p>
<p>2.20. What measures were taken to ensure that the costs of remedying pollution, environmental degradation and consequent adverse health effects and of preventing, controlling or minimising further pollution, environmental damage or adverse health effects will be paid for by those responsible for harming the environment?</p>	<p>No costs as no remedy of pollution or environmental degradation or adverse health effects.</p>
<p>2.21. Considering the need to secure ecological integrity and a healthy bio-physical environment, describe how the alternatives identified (in terms of all the different elements of the development and all the different impacts being proposed), resulted in the selection of the best practicable environmental option in terms of socio-economic considerations?</p>	<p>According to the applicant the employment opportunities which will be created during the construction phase as well as the operational phase will be between 60 permanent and 450 seasonal jobs. These workers will all be from the previous disadvantaged communities. This will have a positive impact on the overall social well-being of the communities in the area. The proposed development will greatly and positively impact on skills development as part of the companies BEE initiatives.</p>
<p>2.22. Describe the positive and negative cumulative socio-economic impacts bearing in mind the size, scale, scope and nature of the project in relation to its location and other planned developments in the area?</p>	<p>Only a positive cumulative socio-economic impact in the form of job creation and foreign capital.</p>

## 6. Studies and impacts

The NEMA regulations require that the following be provided:

- an indication of methodology used in determining significance of potential impacts
- an assessment of alternatives
- a summary of findings and recommendation of specialist reports
- indication to what extent mitigation measures could address issues
- description of assumptions and gaps in knowledge
- an opinion whether the activity should be authorised with conditions that should be specified

### 6.1 Studies undertaken

All the specialist studies were undertaken under the TOR as described in the PoSfEIA as approved by the Scoping Report. The studies undertaken are as shown in Table 6.1 below.

**Table 6.1: EIA Studies and Reports**

<b>EIA study</b>	<b>Specialist</b> (Note – independence declarations included with reports)	<b>Section</b>
Botanical desktop study	Dr. Dave McDonald	9.5.1
Heritage Impact Assessment	Jayson Orton - ASHA	9.5.2
<b>Reports</b>	<b>Consultant</b>	<b>Page</b>
EMP	Elanie Kuhn (PBPS)	186
WULA	Nerine Lerm (PBPS)	109

### 6.2 Methodology used

#### 6.2.1 Botanical

The suggested and agreed upon work programme based on the above terms of reference included in the Botanical Summary Report were:

- Read the report on the vegetation of Klein Pella compiled by Dr Noel van Rooyen in 2007. He described the vegetation accurately and the report also provides a clear definition of the topographical and geological conditions at Klein Pella.
- Coupled with an examination of aerial imagery (Google Earth™), the use of overlays of the map of the Vegetation of South Africa, Lesotho and Swaziland and recent photographs it has been possible to determine the botanical sensitivity of the area with a moderate to high level of confidence.

#### 6.2.2 Heritage Impact Assessment

The suggested and agreed upon work programme based on the above terms of reference included in the Heritage Impact Assessment Report were:



## **1. Literature survey:**

A survey of available literature was carried out to assess the general heritage context into which the development would be set. This literature included published material, unpublished commercial reports and online material, including reports sourced from the South African Heritage Resources Information System (SAHRIS).

## **2. Field survey**

The proposed areas for the new vineyards and date plantations were provided by the environmental consultant. Most of the site was subjected to a detailed foot survey on 5<sup>th</sup> and 6<sup>th</sup> June 2015 by two archaeologists (Dr Jayson Orton & Chester Kaplan). Two areas, however, were only traversed by vehicle because it turned out that they had been relatively recently cultivated and it was clear that they were heavily disturbed. During the survey the positions of finds were recorded on a hand-held GPS receiver set to the WGS84 datum. Photographs were taken at times in order to capture representative samples of both the affected heritage and the landscape setting of the proposed agricultural development.

## **3. Grading**

Section 7 of the NHRA provides for the grading of heritage resources into those of National (Grade 1), Provincial (Grade 2) and Local (Grade 3) significance. Grading is intended to allow for the identification of the appropriate level of management for any given heritage resource. Grade 1 and 2 resources are intended to be managed by the national and provincial heritage resources authorities, while Grade 3 resources would be managed by the relevant local planning authority. These bodies are responsible for grading, but anyone may make recommendations for grading – something that is, at times, required in HIAs.

It is intended that the various provincial authorities formulate a system for the further detailed grading of heritage resources of local significance but this is generally yet to happen. Heritage Western Cape (2012), however, uses a system in which resources of local significance are divided into Grade 3A, 3B and 3C. These approximately equate to high, medium and medium-low local significance, while sites of low or very low significance (and generally not requiring mitigation or other interventions) are referred to as ungradeable.

## **4. Assumptions and limitations**

The study is carried out at the surface only and hence any completely buried archaeological sites will not be readily located. Similarly, it is not always possible to determine the depth of archaeological material visible at the surface.

## 6.3 Assessment of Alternatives and impacts

The development layout was developed using an opportunities and constraints analysis which included on the constraints side mainly the Botanical features and Heritage/Archaeology features as set out by the various Specialists. Additional were the comments received during the Scoping process. For the Scoping process four alternatives were considered, Alternative 1 (preferred alternative), Alternative 2 (layout alternative), Alternative 3 (technology alternative) and Alternative 4(No-Go Option). For the EIA these 3 alternatives were again considered, however, as identified in the scoping process only alternative 1 is a viable option and therefore only Alternative 1 and Alternative 4(no-Go Option) will be assessed below.

### 6.3.1 Botanical

The Botanical impacts and mitigation measures with conclusions were identified in the Botanical Desktop study in section 9.5.1.1. The findings are inserted below:

#### 6.3.1.1 No Go: Alternative impact:

The vegetation type found in the entire area envisaged for the agricultural development is Eastern Gariep Plains Desert. The plains sharply contrast with the rocky hills where Eastern Gariep Rocky Desert is found. The latter would not be affected by the proposed agriculture.

The plains desert habitat is found on sheet wash plains that lead down to the Orange River. The vegetation is sparse to very sparse with a low diversity of plant species. No endemic plant species are known to occur in this habitat and it has low botanical sensitivity despite the fact that according to *Jürgens et al. (2006)* few intact examples of this vegetation type still remain.

Seeing as for this option no development will take place, therefore the No-Go Option will have no impact on the vegetation; however from Botanical perspective agriculture activities can be supported.

#### 6.3.1.2 Alternative 1(Preferred alternative)

This section provides an assessment of the impacts to botanical features that are likely to be associated with the proposed development of agricultural areas, Alternative 1 (preferred alternative). The possible impact on the preferred alternative is as follows:

- The vegetation type found in the entire area envisaged for the agricultural development is Eastern Gariep Plains Desert. The plains sharply contrast with the rocky hills where Eastern Gariep Rocky Desert is found. The latter would not be affected by the proposed agriculture.
- The plains desert habitat is found on sheet wash plains that lead down to the Orange River. The vegetation is sparse to very sparse with a low diversity of plant species. No endemic plant species are known to occur in this habitat and it has low botanical sensitivity despite the fact that according to *Jürgens et al. (2006)* few intact examples of this vegetation type still remain.
- I have formed the opinion that the sites (blocks) chosen for agriculture at Klein Pella would not result in High negative impact but on the contrary would result in Low negative impact as far as the vegetation is concerned.

It can therefore be summarised that the proposed development will not have a significant impact on vegetation.

## 6.3.2 Heritage Impact Assessment

The Heritage impacts and mitigation measures with conclusions were identified in the Heritage Impact Assessment in section 9.5.2. The findings are inserted below:

### 6.3.2.1 No Go: Alternative impact:

This option does not consider any development on property. The only heritage indicators present are archaeological stone artefacts and the cultural landscape. The former is insignificant and the latter tends to be largely modern. No significant impacts to heritage resources are expected. This is all true for the preferred Alternative 1. Therefore the No-Go Option will also have no negative or positive impact on the archaeology or cultural landscape. However, not preferred as no contribution to the surroundings from a social context.

### 6.3.2.2 Alternative 1(Preferred alternative)

This section provides an assessment of the impacts to Heritage features that are likely to be associated with the proposed development of agricultural areas, Alternative 1 (preferred alternative). The possible impact on the preferred alternative is as follows:

#### 1. Archaeology:

Direct impacts to archaeological resources will occur when the earthworks for the new plantations and vineyards are carried out. However, these impacts are of very low significance and should not inhibit the development in any way. There are no fatal flaws and no mitigation or further management measures are suggested. No further archaeological material of any significance is expected to be found in the study areas and, because of the generally sparse nature of the archaeology present, cumulative impacts are not expected to be of any concern.

#### 2. Cultural landscape:

There are no significant cultural landscape elements of concern and impacts are deemed to be neutral in status and of low significance. The proposed development is consistent with the present land use and is not incompatible with the landscape. No impacts are expected, there are no fatal flaws and no further mitigation or management are required. The cumulative impact of further plantations and vineyards is neutral and of no concern.

From a Heritage/Archaeological perspective the proposed development will have no impact except if any archaeological remains are found, then still very low negative, therefore still considered as the preferred option.

## 6.4 Summary of findings and mitigation measures

This section provides a summary of findings and recommendation and mitigation measures of specialist reports.

### 6.4.1 Botanical

The following impact rating prior to and after mitigation are summarised in terms of the above impacts and mitigation measures proposed:

- Low negative impact as far as the vegetation is concerned.

No mitigation necessary.

## 6.4.2 Heritage

According to the Heritage Impact Assessment Report there were only two heritage impacts requiring further consideration, they are archaeology and the cultural landscape. A summary of the impacts and possible mitigation is shown below:

### Archaeology:

Direct impacts to archaeological resources will occur when the earthworks for the new plantations and vineyards are carried out. However, these impacts are of very low significance and should not inhibit the development in any way (Table 6.2). There are no fatal flaws and no mitigation or further management measures are suggested. No further archaeological material of any significance is expected to be found in the study areas and, because of the generally sparse nature of the archaeology present, cumulative impacts are not expected to be of any concern.

**Table 6.2: Assessment of archaeological impacts.**

	Before mitigation	After mitigation
Extent	Site	n/a
Intensity	Negligible	n/a
Duration	Permanent	n/a
Probability	Probable	n/a
Significance	Very low	n/a
Status	Negative	n/a
Reversible	No	
Cumulative impacts	The archaeological material present in the immediate vicinity is of very low significance and the loss of larger areas containing such material is not significant.	

## 6.5 Cultural landscape

There are no significant cultural landscape elements of concern and impacts are deemed to be neutral in status and of low significance. The proposed development is consistent with the present landuse and is not incompatible with the landscape. No impacts are expected, there are no fatal flaws and no further mitigation or management are required. The cumulative impact of further plantations and vineyards is neutral and of no concern.

**Table 6.3: Assessment of cultural landscape impacts.**

	Before mitigation	After mitigation
Extent	Site	n/a
Intensity	Negligible Low Medium High	n/a
Duration	Transient Short term Long term Permanent	n/a
Probability	Probable Improbable	n/a
Significance	Very low	n/a
Status	Neutral	n/a

Reversible	Yes
Cumulative impacts	The impacts are considered to be neutral in status and wider development of plantations and vineyards will maintain the status quo and are therefore not significant.

No mitigation deemed necessary it is recommended that the proposed new lands be authorised with no further heritage studies required. However, if any archaeological material or human burials are uncovered during the course of development then work in the immediate area should be halted. The find would need to be reported to the heritage authorities and may require inspection by an archaeologist. Such heritage is the property of the state and may require excavation and curation in an approved institution.

### 6.5.1 Additional impacts and mitigation measures

Please note these impacts did not require specialist studies. These mitigation measures will be included as part of the EMP included in section 9.8.

#### 6.5.1.1 Socio-Economic

##### Socio:

According to the applicant the employment opportunities which will be created during the construction phase as well as the operational phase will be between 60 permanent and 450 seasonal jobs. This is a direct positive impact on the proposed development. These workers will all be from the previous disadvantaged communities. This will have a positive impact on the overall social well-being of the communities in the area. The number of employment opportunities will rise in future. The proposed development will also contribute to skills development of these additional employment opportunities.

##### Economic:

In order to ensure that the proposed project will be sustainable and economically viable, the applicant will also employ people from the neighbouring towns.

The estimated expected capital outlay for approximately 100 ha development such as this will be at least in the order of R50 million.

All of these additional work opportunities, as well as the creation of buying power, will contribute positively to the economic environment of the area.

#### 6.5.1.2 Ephemeral streams/drainage areas

The proposed development will not result in any developments taking place within the small dry ephemeral streams/drainage areas that only receive water during heavy rainfall. Areas 1 to 3 is located more than 32m from the streams and only Area 4 is located closer to the streams. Area 4 is an existing cultivated area.

##### **Mitigation**

As part of the construction of the development it is proposed to construct a storm water berm/canal to prevent any contamination downstream into any of these ephemeral streams/drainage areas.

For Area 4 it is proposed to create a 32m buffer area from the stream, which should be a strict “No-Go” area as part of the EMP.

### 6.5.1.3 Fauna:

Although not observed during the site visit, it is expected that small game such as klipspringer, steenbok, porcupines, baboons and dassies will be found in the area. However, it is not anticipated that the proposed development will have a significant negative impact on these species.

Habitat destruction and the possible genetic contamination of species are however all factors that can negatively impact on vertebrate species, but can be minimized through applying the following mitigation measures:

#### Mitigation

- Regular maintenance of the water network will minimize the damage done by porcupines.
- No hunting of small game with dogs will be allowed.
- To ensure environmentally friendly farming practices, the site manager will have to adhere to the requirements and prescriptions which will be included in the environmental management plan to be included as part of the EIA process. This plan will also deal with issues such as the prohibition of the hunting of small game etc.

### 6.5.1.4 Sewage disposal:

Chemical toilets will be provided for the workers in the vineyard/ agricultural land. These toilets will be emptied on a daily basis in the sewage tank system at the households and at the packing sheds.

#### Mitigation

With regard to the development work at the site it must be ensured that the applicant/ contractor provide sufficient sanitation facilities for the use of his employees during the actual construction period. The applicant/ contractor will be solely responsible for the proper use and maintenance thereof in conditions, which are to the satisfaction of both the contractor and the applicant. All facilities must be positioned within walking distance from wherever employees or labourers are at work.

Other specifications to be adhered to are, amongst others, the following;

- All facilities provided at the site must comply with the requirements of the Local Municipality.
- No sewerage facility may be erected within a radius of 100m from a water source.
- The applicant/ contractor must be held responsible for the cleaning of the sanitary facilities to prevent health hazards for the duration of the contract.
- Sanitary facilities must be provided at a ratio of one (1) facility for every fifteen (15) persons.
- All sanitation facilities must be sited, in terms of the specifications of the National Water Act no. 36 of 1998, in such a way that they do not cause water- or other pollution.

### 6.5.1.5 Solid waste disposal

The application area is located within the municipal area of Khai Ma Municipality. No household waste will be generated as part of this application.

All facilities in use during the construction phase must be utilized and maintained in a manner that prevents pollution of any groundwater sources. No waste of any kind may be disposed of in the surrounding environment.

#### Mitigation

A no-nonsense approach with regard to littering on the farm exists and the neatness of the workplace as well as the residential areas is all high priorities for the management.

Sufficient provision should be made for rubbish bins on the farm to prevent workers from littering. These rubbish bins should be clearly marked and be visible.

### **6.5.1.6 Air and noise pollution**

#### **Air Pollution**

During the construction phase, and due to the nature of the project, a small amount of dust could be generated. Dust pollution may have an impact on the operational workers.

#### **Mitigation**

In order to minimize the effect of dust pollution, the construction area should be kept wet as far as possible and the workers must wear the necessary safety clothing. The applicant is referred to section 19 of the National Water Act no. 36 of 1998 with regard to the prevention of, and remedies for, the effects of pollution. In terms of this section of the Act, the person who owns controls, occupies or uses the land in question is responsible for taking measures to prevent pollution of water resources and property.

#### **Noise Pollution**

During the construction phase there may be minimal and sporadic incidents of noise pollution due to the construction activities such as noise as a result of earthworks. Due to the fact that the area is situated within an agricultural environment, the impact is not expected to be severe.

#### **Mitigation**

The contractor should make adequate provision to prevent or minimize the possible effects of noise pollution. Should the noise from the construction work be found to cause problems, (which is not anticipated to be the case) work hours in these areas may be restricted between 06:00 and 20:00, or as otherwise agreed between the parties involved. Strict measures should therefore be enforced, especially in terms of the contract specifications, to prevent any negative impacts in this regard.

## **6.6 Gaps in knowledge**

### **6.6.1 Botanical**

The investigation was to read the report on the vegetation of Klein Pella compiled by Dr Noel van Rooyen in 2007. He described the vegetation accurately and the report also provides a clear definition of the topographical and geological conditions at Klein Pella. Coupled with an examination of aerial imagery (Google Earth™), the use of overlays of the map of the Vegetation of South Africa, Lesotho and Swaziland and recent photographs it has been possible to determine the botanical sensitivity of the area with a moderate to high level of confidence.

### **6.6.2 Heritage**

The study is carried out at the surface only and hence any completely buried archaeological sites will not be readily located. Similarly, it is not always possible to determine the depth of archaeological material visible at the surface.

## **6.7 Cumulative impacts**

The proposed studies and analysis has the following cumulative impacts:

- From a Heritage/Archaeological perspective - The archaeological material present in the immediate vicinity is of very low significance and the loss of larger areas containing such material is not significant.
- From a Socio-Economic perspective the cumulative impacts is the overall contribution to the agricultural sector in the form of job creation, skills development and poverty alleviation.

## 6.8 Opinion on whether activity should be authorised

Taking into account the impacts identified in the previous two sections it is clear that the proposed development will not have any large scale negative impacts and will in many instances generate positive impacts for the surrounding area. A number of mitigation measures were identified and summarised in section 6.4 that should be included as conditions for approval. The activity should therefore be authorised with conditions as follows:

Layout	Layout as per the preferred layout plan (Alternative 1) in section 9.1.2 on page 53, as well as the project description in section 2 (page 10).
Mitigation measures	All mitigation measures as outlined in section 6.4 must be made conditions of approval and included in the EMP.
EMP	The measures included in the EMP in section 9.8 (page 186) must be implemented.



## **7. Public participation**

### **7.1 I&AP list and notices**

The list in section 9.4.1 on page 66 includes all I&APs identified during the Scoping process. The I&APs will be informed about the availability of the draft EIR in a notice as shown in section 9.4.3. Proof of the distribution of notices of the draft report is shown in section 9.4.3.2.

The commenting period for the draft EIR will be from Friday 01 July 2016 until Monday 01 August 2016.

### **7.2 Comments**

The actual comments received from I&APs on the draft EIR will be included in section 9.4.6 on page 74. The Comments and Responses table is included in section 9.4.7.

### **7.3 Requests and responses**

A summary of the comments received on the draft EIR will be included once received.

Note after the submission of the Scoping Report to DENC: Northern Cape comments were received from the Department of Water and Sanitation.

These comments were addressed in section 9.4.7 in the comments and response table.

## 8. Environmental Impact Statement

### 8.1 Summary of findings

A summary of the impacts and mitigation measures has been compiled in section 6.3 (page 40).

### 8.2 Comparative assessment

Two alternatives were assessed, Alternative 1, the preferred option and Alternative 3, the No-Go option. Alternative 1 is a layout alternative, please note other layout alternatives were not assessed because they were identified as not feasible due to project stopping impacts such as heritage indicators, high priority infrastructure and socio-economic impacts. The following table provides an overall summary of impacts with mitigation measures included:

Legend		
	Negative	Positive
Very low to none		
Low		
Medium		
High		
EIA Assessment	Preferred Alternative 1	Alternative 4 - No-Go Option
<b><u>Botanical</u></b>	The vegetation type found in the entire area envisaged for the agricultural development is Eastern Gariep Plains Desert. The plains sharply contrast with the rocky hills where Eastern Gariep Rocky Desert is found. The latter would not be affected by the proposed agriculture. The plains desert habitat is found on sheet wash plains that lead down to the Orange River. The vegetation is sparse to very sparse with a low diversity of plant species. No endemic plant species are known to occur in this habitat and it has a very low botanical sensitivity	No impact on vegetation if this takes place.
<b><u>Heritage</u></b>	There are no significant cultural landscape elements of concern and impacts are deemed to be neutral in status and of low significance. The proposed development is consistent with the present land use and is not incompatible with the landscape.	No impact
<b><u>Archaeological/paleontological.</u></b>	Direct impacts to archaeological resources will occur when the earthworks for the new plantations and vineyards are carried out. However, these impacts are of very low significance and should not inhibit the	No impact

	development in any way. There are no fatal flaws and no mitigation or further management measures are suggested. No further archaeological material of any significance is expected to be found in the study areas and, because of the generally sparse nature of the archaeology present, cumulative impacts are not expected to be of any concern.	
<b><u>Water quality</u></b>	No impact on water quality as no development will take place within the streams and therefore no impact on the Orange River. No flow from agricultural areas as storm water berms will be constructed to ensure no flow into these streams. Also a buffer area/setback line of 15m between Area 4 and the unnamed tributary.	No impact
<b>Socio-Economic</b>	Overall impact is medium positive	No development during the construction phase will result in no jobs being created and no skill development. Upliftment of permanent workers will not take place, therefore medium negative impact.
<b>Air and Noise pollution</b>	Very low negative and only during construction phase	No Impact
<b>Sewage and waste disposal</b>	Very low negative and only during construction phase	No Impact
<b>Fauna</b>	Very low negative and only during construction phase. Thereafter free movement of animals allowed and mitigation of no hunting allowed.	No impact
<b>Overall</b>	The above indicate that the development will not cause any large scale negative impacts on the environment but in some cases it can have positive impacts. This means the overall impact can be seen as very low negative, to very low positive.	The development will result in one medium negative impact, mostly due to possibility of loss of socio-economic benefits. For the rest no impacts, therefore summarised as low negative.

It is required by law that projects must meet with the requirements of sustainable development. The concept is defined as follows “*the integration of social, economic and environmental factors into planning, implementation and decision-making so as to ensure that development serves present and future generations*”.

In achieving sustainable development, the focus therefore may not be restricted to environmental or nature conservation factors only. It should include economic and social realities. Social factors influence the livelihoods of people. They determine income, quality of life, social networks, and

other means aimed at maintaining and improving the wellbeing of people. Economic factors deal with the affordability of processes, their potential to generate income over an extended period (into future generations) and to maintain the ability to support both the environmental and social needs of an area.

In short; if people are impoverished, there will be no environment to protect; if a project is not attractive economically, it will not be launched; but the environment is the essential basis for all development.

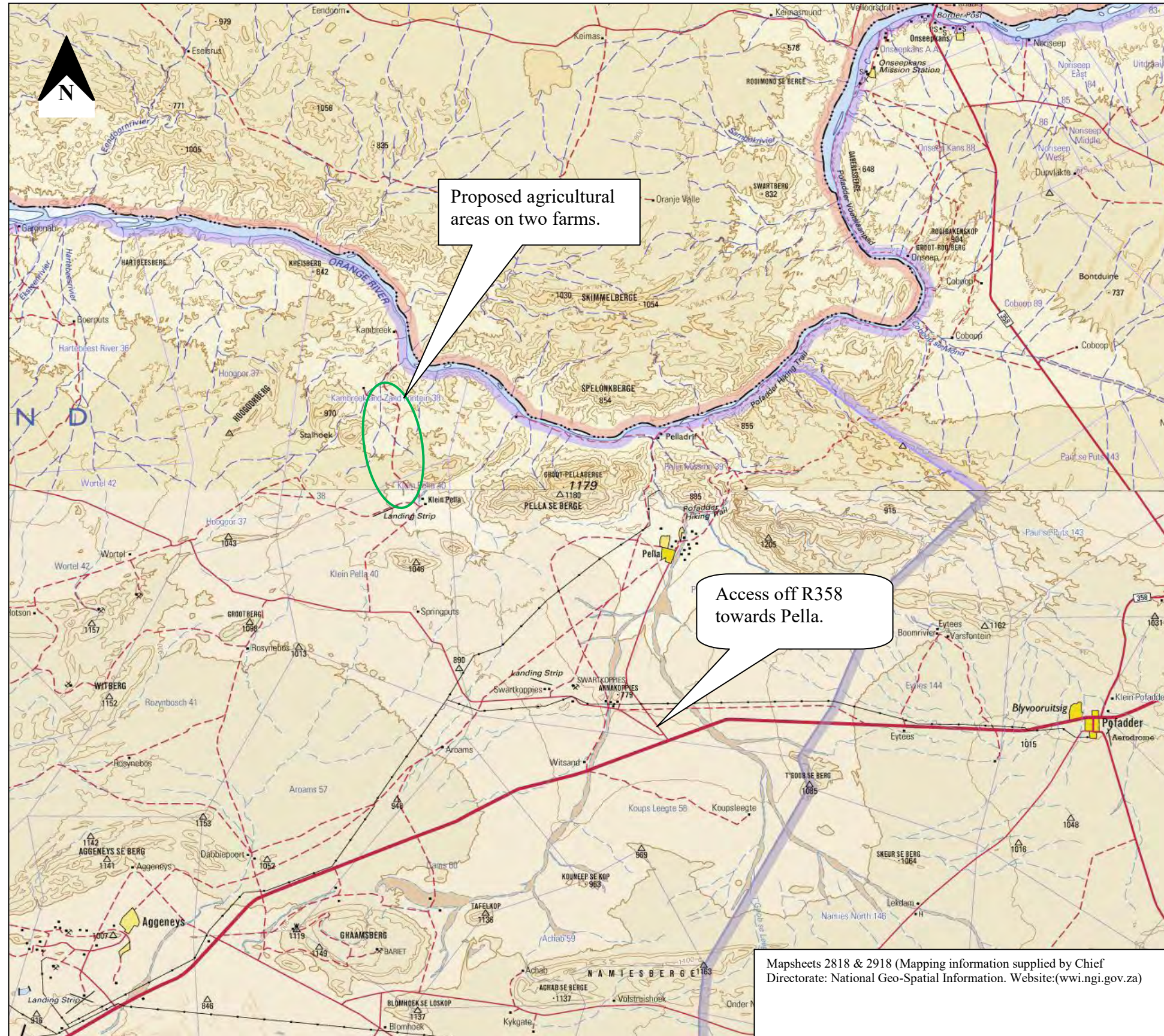
Overall it is clear that the preferred option best meets the above integration factors and has the biggest advantages and takes into account the NEMA principles.

Implementation of the project and protection of the environment must take place under control of the EMP as specified in section 9.8 (page 186).

## **9. Appendices**

# 9.1 Layouts

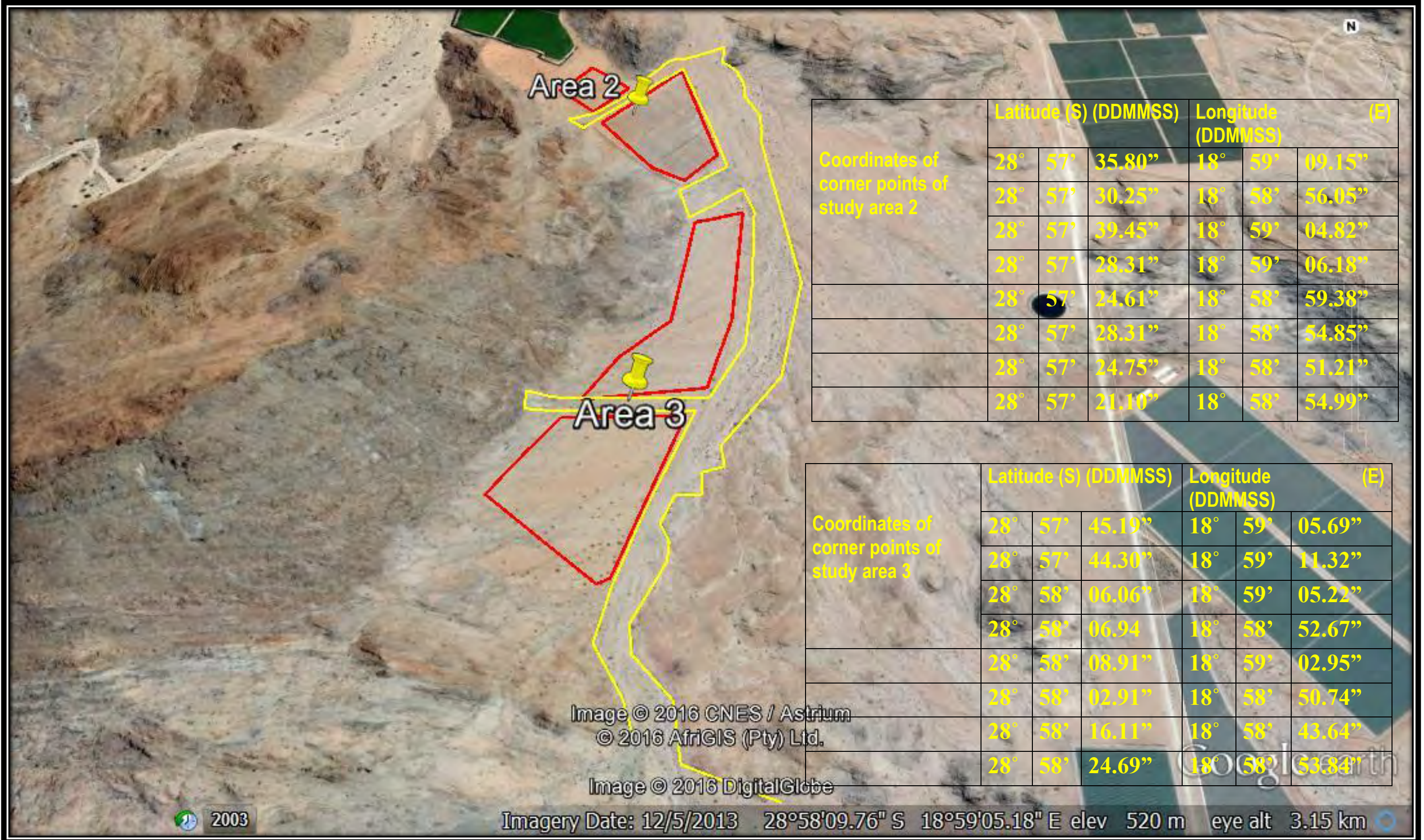
## 9.1.1 Locality



9.1.2 Layout – Agricultural areas

9.1.2.1 Area 1





Coordinates of corner points of study area 2	Latitude (S) (DDMMSS)			Longitude (E) (DDMMSS)		
		28°	57'	35.80"	18°	59'
	28°	57'	30.25"	18°	58'	56.05"
	28°	57'	39.45"	18°	59'	04.82"
	28°	57'	28.31"	18°	59'	06.18"
	28°	57'	24.61"	18°	58'	59.38"
	28°	57'	28.31"	18°	58'	54.85"
	28°	57'	24.75"	18°	58'	51.21"
	28°	57'	21.10"	18°	58'	54.99"

Coordinates of corner points of study area 3	Latitude (S) (DDMMSS)			Longitude (E) (DDMMSS)		
		28°	57'	45.19"	18°	59'
	28°	57'	44.30"	18°	59'	11.32"
	28°	58'	06.06"	18°	59'	05.22"
	28°	58'	06.94"	18°	58'	52.67"
	28°	58'	08.91"	18°	59'	02.95"
	28°	58'	02.91"	18°	58'	50.74"
	28°	58'	16.11"	18°	58'	43.64"
	28°	58'	24.69"	18°	58'	53.84"

Image © 2016 CNES / Astrium  
© 2016 Afrigis (Pty) Ltd.

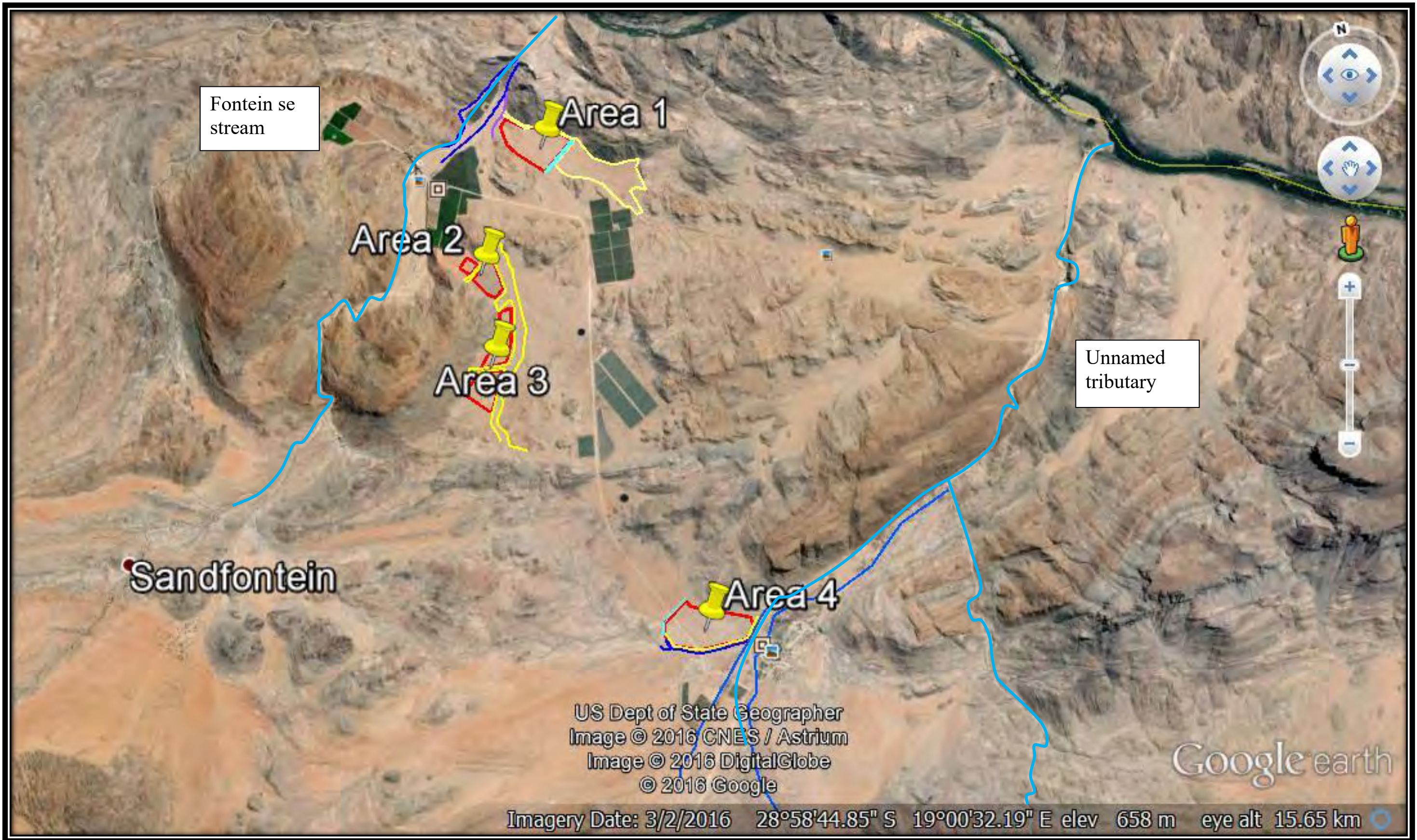
Image © 2016 DigitalGlobe

2003

Imagery Date: 12/5/2013 28°58'09.76" S 18°59'05.18" E elev 520 m eye alt 3.15 km







## 9.2 Environmental legislative context and other legislation

### 9.2.1 Purpose of the Regulations

#### National Environmental Management Act:

The National Environmental Management Act (Act No. 107 of 1998), as amended, (NEMA) makes provision for the identification and assessment of activities that are potentially detrimental to the environment and which require authorisation from the relevant authorities based on the findings of an environmental assessment. NEMA is a national act, which is enforced by the Department of Environmental Affairs (DEA). These powers are delegated in the Northern Cape to the Department of Environment and Nature Conservation (DENC).

The purpose of the Regulations as outlined in Chapter 1, section 2 of the regulations as follows:

#### Purpose of Regulations

*“2. The purpose of these Regulations is to regulate the procedure and criteria as contemplated in Chapter 5 of the Act relating to the preparation, evaluation, submission, processing and consideration of, and decision on, applications for environmental authorisations for the commencement of activities, subjected to environmental impact assessment, in order to avoid or mitigate detrimental impacts on the environment, and to optimise positive environmental impacts, and for matters pertaining thereto.”*

Section 28 (1) of NEMA (Duty of Care) states that the principles of Integrated Environmental Management (IEM) should be adhered to, to ensure sustainable development at all times. Section 2 further states that the impact on the environment must be considered, investigated and assessed in terms of the biophysical aspects, the socio-economic conditions and the cultural heritage. Public Participation from the initial stages of the projects is a basic tenant of IEM, as is integrating environmental considerations into all stages of development. Section 28 (1) of NEMA states that:

*“Every person who causes, has caused or may cause significant pollution or degradation of the environment must take reasonable measures to prevent such pollution or degradation from occurring, continuing or recurring...”*

#### Sustainable development realities

It is required by law that projects must meet with the requirements of sustainable development. The concept is defined in chapter 10 section 1 of the National Environmental Management Act, Act 107 of 1998, as *“the integration of social, economic and environmental factors into planning, implementation and decision-making so as to ensure that development serves present and future generations”*.

In achieving sustainable development, the focus therefore may not be restricted to environmental or nature conservation factors only. It should include economic and social realities. Social factors influence the livelihoods of people. They determine income, quality of life, social networks and other means aimed at maintaining and improving the wellbeing of people. Economic factors deal with the affordability of processes, their potential to generate income over an extended period (into future generations) and to maintain the ability to support both the environmental and social needs of an area.

In short: if people are impoverished, there will be no environment to protect; if a project is not attractive economically, it will not be launched; but the environment is the essential basis for all development.

## **9.2.2 Other applicable Acts/Guidelines**

### **9.2.2.1 South African Constitution (Act No. 108 of 1996)**

The 'environmental guarantee' clause in the Bill of Rights section of the Constitution of South Africa, Section 24, states that every person shall have the right to the following:

- (a) An environment that is not harmful to their health nor well being; and
- (b) To have that environment protected for the benefit of present and future generations, through reasonable legislative and other measures, which:
  - prevents pollution and ecological degradation;
  - promotes conservation; and
  - secures justifiable economic and social development and use of natural resources while promoting justifiable economic and social development.

### **9.2.2.2 National Water Act of 1998**

The unnamed tributary and the Fontein se stream is classified as an ephemeral streams/watercourse as it will only flow sporadically after heavy rain. These watercourses are not considered to be seasonal rivers which will regularly contain water in a seasonal pattern.

The proposed development areas fall within the Lower Orange River catchment area, and falls within two sub quaternary catchment areas (SANBI (BGIS Maps)). Both these sub quaternary catchment areas fall within no NEFPA catchment priority areas. No development will take place within these streams/ water courses.

### **9.2.2.3 Section 38 of the Heritage Resources Act (Act 25 of 1999)**

The National Heritage Resources Act (NHRA) No. 25 of 1999 protects a variety of heritage resources as follows:

- Section 34: structures older than 60 years;
- Section 35: palaeontological, prehistoric and historical material (including ruins) more than 100 years old;
- Section 36: graves and human remains older than 60 years and located outside of a formal cemetery administered by a local authority; and
- Section 37: public monuments and memorials.

Following Section 2, the definitions applicable to the above protections are as follows:

- Structures: "any building, works, device or other facility made by people and which is fixed to land, and includes any fixtures, fittings and equipment associated therewith";
- Palaeontological material: "any fossilised remains or fossil trace of animals or plants which lived in the geological past, other than fossil fuels or fossiliferous rock intended for industrial use, and any site which contains such fossilised remains or trace";
- Archaeological material: a) "material remains resulting from human activity which are in a state of disuse and are in or on land and which are older than 100 years, including artefacts, human and hominid remains and artificial features and structures"; b) "rock art, being any form of painting, engraving or other graphic representation on a fixed rock surface or loose rock or stone, which was executed by human agency and which is older than 100 years, including any area within 10m of such representation"; c) "wrecks, being any vessel or aircraft, or any part thereof, which was wrecked in South Africa, whether on land, in the

internal waters, the territorial waters or in the maritime culture zone of the Republic, as defined respectively in sections 3, 4 and 6 of the Maritime Zones Act, 1994 (Act No. 15 of 1994), and any cargo, debris or artefacts found or associated therewith, which is older than 60 years or which SAHRA considers to be worthy of conservation”; and d) “features, structures and artefacts associated with military history which are older than 75 years and the sites on which they are found”;

- Grave: “means a place of interment and includes the contents, headstone or other marker of such a place and any other structure on or associated with such place”; and
- Public monuments and memorials: “all monuments and memorials a) “erected on land belonging to any branch of central, provincial or local government, or on land belonging to any organisation funded by or established in terms of the legislation of such a branch of government”; or b) “which were paid for by public subscription, government funds, or a public-spirited or military organisation, and are on land belonging to any private individual.”

While landscapes with cultural significance do not have a dedicated Section in the NHRA, they are protected under the definition of the National Estate (Section 3). Section 3(2)(c) and (d) list “historical settlements and townscapes” and “landscapes and natural features of cultural significance” as part of the National Estate. Furthermore, Section 3(3) describes the reasons a place or object may have cultural heritage value.

Section 38 (2a) states that if there is reason to believe that heritage resources will be affected then an impact assessment report must be submitted. This report fulfils that requirement.

Under the National Environmental Management Act (No. 107 of 1998; NEMA), as amended, the project is subject to an EIA. Ngwao-Boswa Ya Kapa Bokoni (Heritage Northern Cape; for built environment and cultural landscapes) and the South African Heritage Resources Agency (SAHRA for archaeology and palaeontology) are required to provide comment on the proposed project in order to facilitate final decision making by the Northern Cape Department of Environment and Nature Conservation.

### **9.2.3 NEMA guidelines**

There are a number of guideline documents and conservation plans that must inform the work of both the environmental practitioner and the various specialists. The principles contained in these documents will be incorporated into the various aspects of the study and are not described in detail, but the relevant documents are noted below:

Guidelines considered include:

- General Guide to the EIA Regulations (DEAT Guideline)
- Guidelines on Public Participation (DEAT Guideline)
- Guideline on Assessment of Alternatives and Impacts (DEAT Guideline)
- The Information Document on the Interpretation of the Listed Activities (DEA).

These Guidelines attempt to clarify a number of issues including: key principles and concepts underpinning the involvement of specialists in EIA processes; different roles of specialists in EIA processes; the generic approach that can be used to determine at which point in the EIA process the specialists should be involved and for what purpose; prerequisites for a specialist to be involved efficiently and effectively in EIA processes; elements to be considered when determining the scope of specialist inputs and when developing specialist Terms of Reference; information required by specialists; and the responsibilities of different role-players in the EIA process.

#### **9.2.4 Northern Cape PSDF**

The following principles apply to the use of the PSDF as a broad land-use directive:

- a) Any land-use amendment has to conform to the PSDF. This means that the relevant organs of state must take account of, and apply relevant provisions of the PSDF when making decisions that affect the use of land and other resources.
- b) The PSDF does not create, or take away, land-use rights.
- c) The PSDF is to be applied in a flexible and pragmatic manner that focuses on promoting a developmental state and sustainability and which takes into account the merits and particular circumstances of each case as required by law, i.e. through an Environmental Impact Assessment (EIA) undertaken in terms of the National Environmental Management Act 107 of 1998 (NEMA).

## 9.3 Letters from authorities

### 9.3.1 DENC's letter of acceptance of Scoping Report.

From: DENC SPRINGBOK

To: \*04779900866721916

16/03/2016 12:28

#029 P.001/004



the denc

Department:  
Environment & Nature Conservation  
NORTHERN CAPE PROVINCE  
REPUBLIC OF SOUTH AFRICA

Private bag X6102, Kimberley, 8300, SASKO Building, Tel: 053-807 7430, Fax: 053-831 3530

Enquiries :  
Dipatisilo :  
Navrae :  
Imibuzo :  
*Onwabile Ndzumo*

Date :  
Letiha :  
Datum :  
Umhla :  
07 March 2016

Reference :  
Tshupelo :  
Verwysing :  
Isalathiso :  
NC/EIA/05/NAM/KHA/PEL1/2015

ATT: Elanie Kuhn  
Pieter Badenhorst Professional Services Cc  
P.O Box 1058  
Wellington  
7654  
Fax no: 086 672 1961

Dear Madam

**APPLICATION FOR ENVIRONMENTAL AUTHORIZATION: GNR 983: ACTIVITY 28 & GNR 984: ACTIVITY 15: THE PROPOSED CONSTRUCTION OF AGRICULTURAL AREAS ON THE FARM KLEIN PELLA NO.40, PORTION 1, 2 & 3 OF FARM KAMBREEK NO. 38, KHAI-MA LOCAL MUNICIPALITY, NAMAKWA DISTRICT MUNICIPALITY, NORTHERN CAPE PROVINCE.**

The scoping report for environmental impact assessment which was submitted by you in respect of the abovementioned application and received by the Department on 14 January 2016 has been accepted by the Department. You may accordingly proceed with undertaking the environmental impact assessment in accordance with the tasks that are outlined in the plan of study for environmental impact assessment.

## 9.3.2 Letter from Department of Water and Sanitation



### water & sanitation

Department:  
Water and Sanitation  
**REPUBLIC OF SOUTH AFRICA**

Northern Cape Region  
Lower Orange Water Management Area  
Private Bag X5912, Upington, 8800  
Tel: (054) 338-5800, Fax: (054) 334-0205, [www.dwa.gov.za](http://www.dwa.gov.za)

F 054 334 0205  
E [thebee@dws.gov.za](mailto:thebee@dws.gov.za)

L.E Thebe  
054 338 5800  
**By Registered Mail**

Date: 27 January 2016

**PIETER BADENHORST PROFESSIONAL SERVICES CC**  
PO Box 1058  
Wellington  
7654

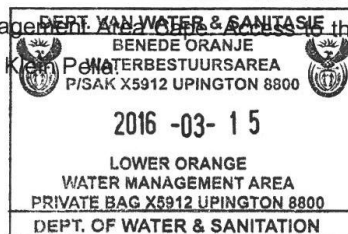
Attention Elanie Kühn

**PROPOSED CONSTRUCTION OF AGRICULTURAL AREAS ON FARM KLEIN PELLA NO 40, PORTION 1,2 AND 3, OF FARM KAMBREEK NO 38, NAMAQUALAND, NORTHERN CAPE.**

The Department of Water and Sanitation (DWS) received a draft scoping report for the proposed development of agricultural land on Farm Klein Pella No. 40, Portion 1, 2 and 3 of Farm Kambreek No. 38, from Pieter Badenhorst Professional Services CC, requiring comments. The document was then reviewed with reference to the National Water Act (Act No. 36 of 1998) and the following are the comments;

The proposed activity will take place in various properties, with in the Namakwa District Municipality and falls within the D82A quaternary catchments in the Northern. This area falls under the Lower Orange area of the Orange Water Management Area. Access to these farms is via a gravel road that links with the R358 towards Klein Pella.

Page 1 of 3





## **2. Distance from a water course**

Please note that our Department rates all perennial and non-perennial rivers together with all dry river beds and natural drainage and associated riparian areas extremely sensitive to development. An option of developing furthest away from the all water course would be the preferred option.

Please note that no development should be done within 100 m or 1:100 year flood line of the Orange River/or any water course and 32m of their drainage line without authorization from Department of Water and Sanitation. The water course should be delineated in order to provide appropriate buffer to maintain such water course. The delineation should be done according to the appropriate Department of Water and Sanitation delineation document.

## **3. Storm Water management**

Increased runoff due to vegetation clearance and/or soil compaction must be managed, and steps must be taken to ensure that storm water does not lead to bank instability and excessive levels of silt entering the watercourse. Storm water leaving the applicant's premises must in no way be contaminated by any substance, whether such substance is a solid, liquid, vapour or gas or a combination thereof which is produced, used, stored, dumped or spilled on the premises.

## **4. Invasive alien vegetation**

Alien vegetation must not be allowed to further colonise the area, and all new alien vegetation recruitment must be eradicated or controlled, using standard methods approved by the Department.

## **5. Waste Management**

All sewage, grey and wash water, as well as any waste generated during the development phase of the land should be collected, contained and disposed of at the permitted and / or licensed facilities of the Local Authority and this must please be confirmed in writing by the local authority.

## **6. Rehabilitation**

Soils that have become compacted through the activities of the development must be loosened to an appropriate depth to allow seed germination. The necessary erosion prevention

Page 2 of 3

mechanisms must be employed to ensure the sustainability of all structures and activities and to prevent in-stream sedimentation.

### 9. Water use entitlement

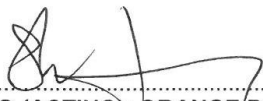
The Department takes note of your water use entitlement listed on the table below:

Property details	Warms information	Water use	Resisted ha for irrigation
Kambreek 38 Portion 1	25010416	Section 21(a)	198
Kambreek 38 Portion 2	25146262	Section 21(a)	50
Kambreek 38 Portion 3	25146280	Section 21(a)	90
Klein Pella 40 Portion 0	25156483	Section 21(c)&(i)	0

Please note that according to the Department of Water and Sanitation Water Authorisation Registration Management System (Warms) data there is no 67.5 ha of water use entitlement allocated to Klien Pella 40 Portion 0 as indicated in page 50 of the draft scoping report. Find copy of all mentioned water use entitlement certificates for your reference.

Please do not hesitate to contact this department should there be any queries.

Yours sincerely

  
.....  
CEO (ACTING), ORANGE/PROTO-CMA  
DATE: 04/03/2016

### 9.3.3 SAHRA Comments

None to date.

## 9.4 Public participation

### 9.4.1 I&AP list

#### Authorities and I&AP's

	Erf no	Surname	Initials	Representing	Tel	Fax	email	Post Box	Town	Code	Reg
1				Khai Ma Municipality				PO Box 108	Pofadder	8890	L
2				Pella Mission				P. O. Box 323	Keimoes	8870	L
3				Local Authority				P. O. Box 174	Kakamas	8870	L
4		October	L	Department of Agriculture and Land Reform				P. O. Box 18	Springbok	8240	L
5		Steenkamp	A	Department of Water Affairs				Private Bag X5912	Upington	8800	L
6		Ndzumo	O	DENC: NC	027 718 8800	027 718 8814		Private Bag X	Springbok	8240	L
7		Geldenhuis	C	Nature Conservation Unit	027 718 9906	027 718 9907		Private Bag X1	Springbok	8240	L

## 9.4.2 Advertisement

### 9.4.2.1 Advertisement text

No advertisement, as per Plan of Study for EIA

**9.4.2.2 Proof of advertisement**

No advertisement, as per Plan of Study for EIA

### **9.4.3 Notice to I&APs – EIR**

#### **9.4.3.1 Notices**

Will be included in the FEIR for submission.

#### 9.4.3.2 Proof of notices

Will be included in the FEIR for submission.



## **9.4.4 Notice to Authorities -EIR**

### **9.4.4.1 Notices**

Will be included in the FEIR for submission.

#### 9.4.4.2 Proof of notices

Will be included in the FEIR for submission.

## **9.4.5 Advertisement and Notice board**

### **9.4.5.1 Notice Board**

No site notice, as per Plan of Study for EIA

### **9.4.5.2 Advertisement**

No site notice, as per Plan of Study for EIA

## 9.4.6 Comments on draft EIR

### 9.4.6.1 Comments received after submission of the Final Scoping Report



## water & sanitation

Department:  
Water and Sanitation  
REPUBLIC OF SOUTH AFRICA

Northern Cape Region  
Lower Orange Water Management Area  
Private Bag X5912, Upington, 8800  
Tel: (054) 338-5800, Fax: (054) 334-0205, [www.dwa.gov.za](http://www.dwa.gov.za)

F 054 334 0205  
E [thebee@dws.gov.za](mailto:thebee@dws.gov.za)

L.E Thebe  
054 338 5800  
By Registered Mail

Date: 27 January 2016

**PIETER BADENHORST PROFESSIONAL SERVICES CC**  
PO Box 1058  
Wellington  
7654

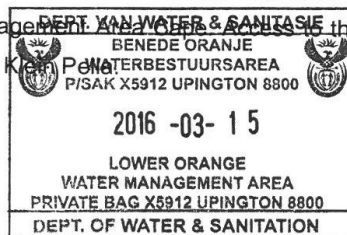
Attention Elanie Kühn

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Page 1 of 3



## **2. Distance from a water course**

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mechanisms must be employed to ensure the sustainability of all structures and activities and to prevent in-stream sedimentation.

### 9. Water use entitlement

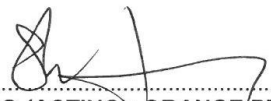
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Yours sincerely

  
.....  
CEO (ACTING), ORANGE/PROTO-CMA  
DATE: 04/03/2016

#### 9.4.6.2 Comments on EIR

Will be included in the FEIR for submission.

## 9.4.7 Comments and Response Table

### Comments after submission of Scoping Report.

Date	Comments from	Comment received	Response by	Response
04-03-2015	Department of Water and Sanitation	<p><b>Distance from a water course:</b> Please note that our Department rates all perennial and non-perennial rivers together with all dry river beds and natural drainage and associated riparian areas extremely sensitive to development. An option of developing furthest away from the all water course would be the preferred option. Please note that no development should be done within 100 m or 1: 1 00 year flood line of the Orange River/or any water course and 32m of their drainage line without authorization from Department of Water and Sanitation. The water course should be delineated in order to provide appropriate buffer to maintain such water course. The delineation should be done according to the appropriate Department of Water and Sanitation delineation document.</p> <p><b>Storm Water management:</b> Increased runoff due to vegetation clearance and/or soil compaction must be managed, and steps must be taken to ensure that storm water does not lead to bank instability and excessive levels of silt entering the watercourse. Storm water leaving the applicant's premises must in no way be contaminated by any substance, whether such substance is a solid, liquid, vapour or gas or a combination thereof which is produced, used, stored, dumped or spilled on the premises.</p> <p><b>Invasive alien vegetation</b> Alien vegetation must not be allowed to further colonise the area, and all new alien vegetation recruitment must be eradicated or controlled, using standard methods approved by the Department.</p>	PBPS	<p>Refer to section 2.6 in the EIR for further detail on the tributaries and drainage areas.</p> <p>Recommendations included in the EMP in section 9.8.</p> <p>Noted and accepted.</p>



		<p><b>Waste Management:</b> All sewage, grey and wash water, as well as any waste generated during the development phase of the land should be collected, contained and disposed of at the permitted and / or licensed facilities of the Local Authority and this must please be confirmed in writing by the local authority.</p> <p><b>Rehabilitation:</b> Soils that have become compacted through the activities of the development must be loosened to an appropriate depth to allow seed germination. The necessary erosion prevention mechanisms must be employed to ensure the sustainability of all structures and activities and to prevent in-stream sedimentation.</p> <p><b>Water use entitlement:</b> The Department takes note of your water use entitlement listed on the table below:</p> <table border="1"> <thead> <tr> <th>Property details</th> <th>Warms information</th> <th>Water use</th> <th>Resisted ha for irrigation</th> </tr> </thead> <tbody> <tr> <td>Kambreek 38 Portion 1</td> <td>25010416</td> <td>Section 21 a</td> <td>198</td> </tr> <tr> <td>Kambreek 38 Portion 2</td> <td>25146262</td> <td>Section 21 a</td> <td>50</td> </tr> <tr> <td>Kambreek 38 Portion 3</td> <td>25146280</td> <td>Section 21 a</td> <td>90</td> </tr> <tr> <td>KleinPella 40 Portion 0</td> <td>25156483</td> <td>Section 21 c and i</td> <td>0</td> </tr> </tbody> </table> <p>Please note that according to the Department of Water and Sanitation Water Authorisation Registration Management System (Warms) data there is no 67.5 ha of water use entitlement allocated to Klien Pella 40 Portion 0 as indicated in page 50 of the draft scoping report. Find copy of all mentioned water use entitlement certificates for your reference.</p>	Property details	Warms information	Water use	Resisted ha for irrigation	Kambreek 38 Portion 1	25010416	Section 21 a	198	Kambreek 38 Portion 2	25146262	Section 21 a	50	Kambreek 38 Portion 3	25146280	Section 21 a	90	KleinPella 40 Portion 0	25156483	Section 21 c and i	0	<p>Recommendations included in the EMP in section 9.8.</p> <p>No instream works will take place.</p> <p>Find attached in section 9.6.1 the water use license application submitted to your offices.</p>
Property details	Warms information	Water use	Resisted ha for irrigation																				
Kambreek 38 Portion 1	25010416	Section 21 a	198																				
Kambreek 38 Portion 2	25146262	Section 21 a	50																				
Kambreek 38 Portion 3	25146280	Section 21 a	90																				
KleinPella 40 Portion 0	25156483	Section 21 c and i	0																				

**Comments on Environmental Impact Report:**

Date	Comments from	Comment received	Response by	Response

## 9.5 Specialist Report

### 9.5.1 Botanical Assessment

#### 9.5.1.1 Botanical Statement (dated April 2015)



Bergwind Botanical Surveys & Tours CC.

14A Thomson Road

Claremont

Cape Town

7708

16 April 2015

Mr Pieter Badenhorst  
Pieter Badenhorst Professional Services  
PO Box 1058  
Wellington  
7654

Dear Mr Badenhorst,

#### **Botanical sensitivity of proposed agricultural areas at Klein Pella, Northern Cape Province**

Your telephonic enquiries regarding the botanical sensitivity of the proposed agricultural areas (blocks) at Klein Pella immediately south of the Orange River in the Northern Cape Province refer.

I have read the report on the vegetation of Klein Pella compiled by Dr Noel van Rooyen in 2007. He described the vegetation accurately and the report also provides a clear definition of the topographical and geological conditions at Klein Pella. Coupled with an examination of aerial imagery (Google Earth™), the use of overlays of the map of the *Vegetation of South Africa, Lesotho and Swaziland* and recent photographs it has been possible to determine the botanical sensitivity of the area with a moderate to high level of confidence.

The vegetation type found in the entire area envisaged for the agricultural development is Eastern Gariep Plains Desert. The plains sharply contrast with the rocky hills where Eastern Gariep Rocky Desert is found. The latter would not be affected by the proposed agriculture.

The plains desert habitat is found on sheet wash plains that lead down to the Orange River. The vegetation is sparse to very sparse with a low diversity of plant species. No endemic plant species are known to occur in this habitat and it has low botanical sensitivity despite the fact that according to Jürgens *et al.* (2006) few intact examples of this vegetation type still remain.



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web www.bergwind.co.za

CK2005\138289\23

From the information at my disposal, both as a written report and aerial and ground photographs, I have formed the opinion that the sites (blocks) chosen for agriculture at Klein Pella would not result in High negative impact but on the contrary would result in Low negative impact as far as the vegetation is concerned.

Yours sincerely,



**Dr D.J. McDonald Pr. Sci. Nat.**  
**Botanical Specialist**

## 9.5.2 Heritage Impact Assessment

# HERITAGE IMPACT ASSESSMENT FOR THE PROPOSED CULTIVATION OF NEW LANDS AT KLEIN PELLA, NAMAKWALAND MAGISTERIAL DISTRICT, WESTERN CAPE

Required under Section 38 (8) of the National Heritage Resources Act (No. 25 of 1999).

*Report for:*

**Pieter Badenhorst Professional Services**

P.O. Box 1058, Wellington, 7654

Tel: 076 584 0822

Email: elaniem@iafrica.com

*On behalf of:*

**The Karsten Group**



**Dr Jayson Orton**

**ASHA Consulting (Pty) Ltd**

6A Scarborough Road, Muizenberg, 7945

Tel: (021) 788 8425 | 083 272 3225

Email: jayson@asha-consulting.co.za

20 June 2015

## EXECUTIVE SUMMARY

ASHA Consulting (Pty) Ltd was appointed by Pieter Badenhorst Professional Services to conduct an assessment of the potential impacts to heritage resources that might occur through the proposed development of new agricultural lands close to Pella in the Northern Cape. The lands would be situated on the farms Klein Pella 40 and Kambreek and Zandfontein 38.

The study area was generally composed of relatively flat sandy areas with an abundance of fine gravel clasts from the surrounding granitic environment. The bedrock geology tends to be poor quality metamorphosed granite which does not seem to have been conducive to the formation of rock shelters. Vegetation was minimal and surface visibility was excellent. Some of the areas proposed for cultivation had been cultivated in the past but have lain fallow for many years.

The only heritage indicators present are occasional archaeological stone artefacts and the cultural landscape. The former is insignificant and the latter tends to be largely modern. No significant impacts to heritage resources are expected.

Because no significant impacts are expected, it is recommended that the proposed new lands be authorised with no further heritage studies required. However, if any archaeological material or human burials are uncovered during the course of development then work in the immediate area should be halted. The find would need to be reported to the heritage authorities and may require inspection by an archaeologist. Such heritage is the property of the state and may require excavation and curation in an approved institution.

## Glossary

**Background scatter:** Artefacts whose spatial position is conditioned more by natural forces than by human agency

**Early Stone Age:** Period of the Stone Age extending approximately between 2 million and 20 000 years ago.

**Later Stone Age:** Period of the Stone Age extending over the last approximately 20 000 years.

**Middle Stone Age:** Period of the Stone Age extending approximately between 200 000 and 20 000 years ago.

## Abbreviations

**ASAPA:** Association of Southern African Professional Archaeologists

**BAR:** Basic Assessment Report

**CRM:** Cultural Resources Management

**ESA:** Early Stone Age

**GPS:** global positioning system

**HIA:** Heritage Impact Assessment

**LSA:** Later Stone Age

**MSA:** Middle Stone Age

**NEMA:** National Environmental Management Act (No. 107 of 1998)

**NHRA:** National Heritage Resources Act (No. 25) of 1999

**SAHRA:** South African Heritage Resources Agency

**SAHRIS:** South African Heritage Resources Information System

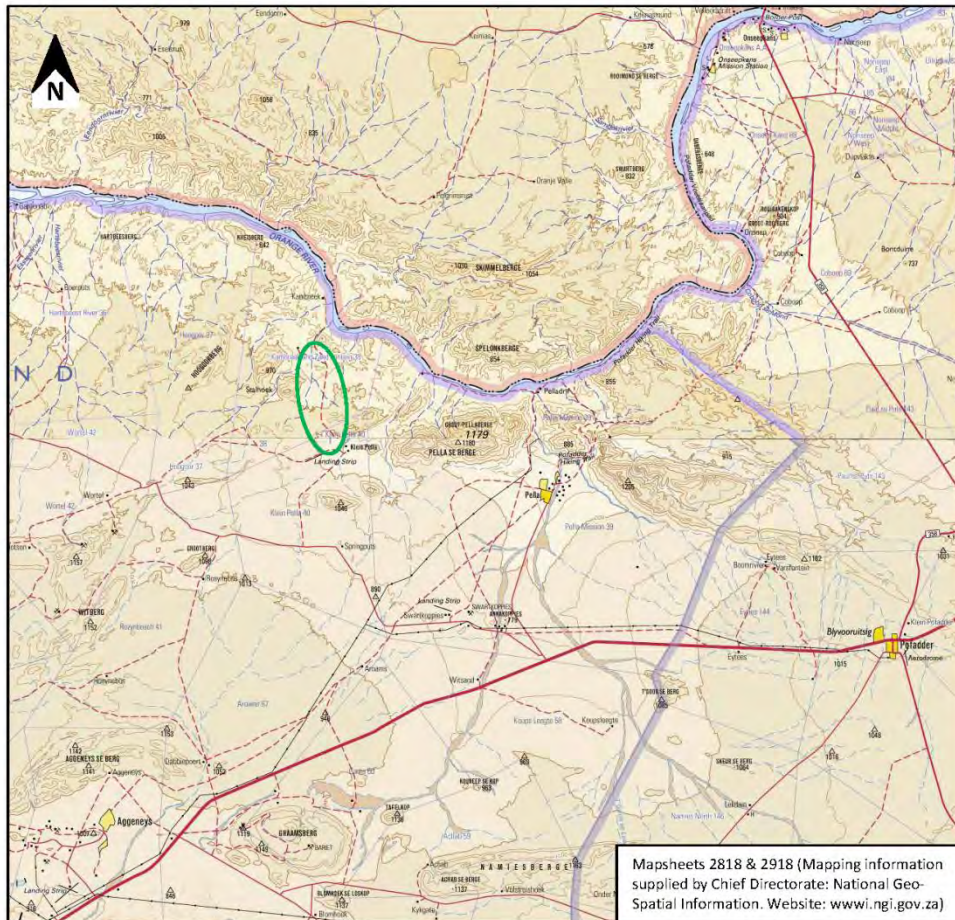
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# 1. INTRODUCTION

ASHA Consulting (Pty) Ltd was appointed by Pieter Badenhorst Professional Services to conduct an assessment of the potential impacts to heritage resources that might occur through the proposed development of new agricultural lands close to Pella in the Northern Cape (Figure 1). The lands would be situated on the farms Klein Pella 40 and Kambreek and Zandfontein 38.



**Figure 1:** Map showing the location of the site (green oval). The towns of Aggeneyns (lower left), Pofadder (right) and Pella (centre) are visible (yellow colouring on the map), while the Orange River winds across the upper half of the map separating South Africa and Namibia.

## 1.1. Project description

It is intended to develop new agricultural lands for the cultivation of vineyards and dates. These lands will serve as an expansion to the existing cultivated lands on the farm. Some of the proposed

blocks are new lands, while others have been cultivated in the past, but having been fallow for more than ten years they require assessment. The new areas under assessment have the following extents: 31.73 ha, 25.97 ha, 2.62 ha, 10.71 ha, 12.69 ha, 14.38 ha, 18.52 ha, 6.81 ha, 60.2 ha, 4.82 ha and 7.68 ha.



**Figure 2:** Aerial view of the Pella area showing the position of the study area (red polygons) relative to Pella and the Orange River.

### 1.2. Terms of reference

ASHA Consulting was asked to conduct a heritage impact assessment (HIA) that would meet the requirements of the relevant heritage authorities.

### 1.3. Scope and purpose of the report

A heritage impact assessment (HIA) is a means of identifying any significant heritage resources before development begins so that these can be managed in such a way as to allow the development to proceed (if appropriate) without undue impacts to the fragile heritage of South Africa. This HIA report aims to fulfil the requirements of the heritage authorities such that a

comment can be issued for consideration by the Northern Cape Department of Environment and Nature Conservation who will review the Scoping/EIA Report and grant or withhold authorisation. The HIA report will outline any mitigation requirements that will need to be complied with from a heritage point of view and that should be included in the conditions of authorisation should this be granted.

#### 1.4. The author

Dr Jayson Orton has an MA (UCT, 2004) and a D.Phil (Oxford, UK, 2013), both in archaeology, and has been conducting Heritage Impact Assessments and archaeological specialist studies in the Western Cape and Northern Cape provinces of South Africa since 2004. He has also conducted research on aspects of the Later Stone Age in these provinces and published widely on the topic. He is accredited with the Association of Southern African Professional Archaeologists (ASAPA) CRM section (Member #233) as follows:

- Principal Investigator: Stone Age, Shell Middens & Grave Relocation; and
- Field Director: Colonial Period & Rock Art.

#### 1.5. Declaration of independence

ASHA Consulting (Pty) Ltd and its consultants have no financial or other interest in the proposed development and will derive no benefits other than fair remuneration for consulting services provided.

## 2. HERITAGE LEGISLATION

The National Heritage Resources Act (NHRA) No. 25 of 1999 protects a variety of heritage resources as follows:

- Section 34: structures older than 60 years;
- Section 35: palaeontological, prehistoric and historical material (including ruins) more than 100 years old;
- Section 36: graves and human remains older than 60 years and located outside of a formal cemetery administered by a local authority; and
- Section 37: public monuments and memorials.

Following Section 2, the definitions applicable to the above protections are as follows:

- Structures: “any building, works, device or other facility made by people and which is fixed to land, and includes any fixtures, fittings and equipment associated therewith”;
- Palaeontological material: “any fossilised remains or fossil trace of animals or plants which lived in the geological past, other than fossil fuels or fossiliferous rock intended for industrial use, and any site which contains such fossilised remains or trace”;
- Archaeological material: a) “material remains resulting from human activity which are in a state of disuse and are in or on land and which are older than 100 years, including artefacts, human and hominid remains and artificial features and structures”; b) “rock art, being any form of painting, engraving or other graphic representation on a fixed rock surface or loose rock or stone, which was executed by human agency and which is older than 100 years, including any area within 10m of such representation”; c) “wrecks, being any vessel or aircraft, or any part thereof, which was wrecked in South Africa, whether on

land, in the internal waters, the territorial waters or in the maritime culture zone of the Republic, as defined respectively in sections 3, 4 and 6 of the Maritime Zones Act, 1994 (Act No. 15 of 1994), and any cargo, debris or artefacts found or associated therewith, which is older than 60 years or which SAHRA considers to be worthy of conservation”; and d) “features, structures and artefacts associated with military history which are older than 75 years and the sites on which they are found”;

- Grave: “means a place of interment and includes the contents, headstone or other marker of such a place and any other structure on or associated with such place”; and
- Public monuments and memorials: “all monuments and memorials a) “erected on land belonging to any branch of central, provincial or local government, or on land belonging to any organisation funded by or established in terms of the legislation of such a branch of government”; or b) “which were paid for by public subscription, government funds, or a public-spirited or military organisation, and are on land belonging to any private individual.”

While landscapes with cultural significance do not have a dedicated Section in the NHRA, they are protected under the definition of the National Estate (Section 3). Section 3(2)(c) and (d) list “historical settlements and townscapes” and “landscapes and natural features of cultural significance” as part of the National Estate. Furthermore, Section 3(3) describes the reasons a place or object may have cultural heritage value.

Section 38 (2a) states that if there is reason to believe that heritage resources will be affected then an impact assessment report must be submitted. This report fulfils that requirement.

Under the National Environmental Management Act (No. 107 of 1998; NEMA), as amended, the project is subject to an EIA. Ngwao-Boswa Ya Kapa Bokoni (Heritage Northern Cape; for built environment and cultural landscapes) and the South African Heritage Resources Agency (SAHRA for archaeology and palaeontology) are required to provide comment on the proposed project in order to facilitate final decision making by the Northern Cape Department of Environment and Nature Conservation.

### **3. METHODS**

#### **3.1. Literature survey**

A survey of available literature was carried out to assess the general heritage context into which the development would be set. This literature included published material, unpublished commercial reports and online material, including reports sourced from the South African Heritage Resources Information System (SAHRIS).

#### **3.2. Field survey**

The proposed areas for the new vineyards and date plantations were provided by the environmental consultant. Most of the site was subjected to a detailed foot survey on 5<sup>th</sup> and 6<sup>th</sup> June 2015 by two archaeologists (Dr Jayson Orton & Chester Kaplan). Two areas, however, were only traversed by vehicle because it turned out that they had been relatively recently cultivated and it was clear that they were heavily disturbed. During the survey the positions of finds were

recorded on a hand-held GPS receiver set to the WGS84 datum. Photographs were taken at times in order to capture representative samples of both the affected heritage and the landscape setting of the proposed agricultural development.

### **3.3. Grading**

Section 7 of the NHRA provides for the grading of heritage resources into those of National (Grade 1), Provincial (Grade 2) and Local (Grade 3) significance. Grading is intended to allow for the identification of the appropriate level of management for any given heritage resource. Grade 1 and 2 resources are intended to be managed by the national and provincial heritage resources authorities, while Grade 3 resources would be managed by the relevant local planning authority. These bodies are responsible for grading, but anyone may make recommendations for grading – something that is, at times, required in HIAs.

It is intended that the various provincial authorities formulate a system for the further detailed grading of heritage resources of local significance but this is generally yet to happen. Heritage Western Cape (2012), however, uses a system in which resources of local significance are divided into Grade 3A, 3B and 3C. These approximately equate to high, medium and medium-low local significance, while sites of low or very low significance (and generally not requiring mitigation or other interventions) are referred to as ungradeable.

### **3.4. Assumptions and limitations**

The study is carried out at the surface only and hence any completely buried archaeological sites will not be readily located. Similarly, it is not always possible to determine the depth of archaeological material visible at the surface.

## **4. PHYSICAL ENVIRONMENTAL CONTEXT**

### **4.1. Site context**

The study area is very remote and located among mountains and hills close to the Orange River. There are several other vineyards and date plantations already present on the farm.

### **4.2. Site description**

The study area was divided into five areas from north to south (Figure 3) and these are described separately here.



**Figure 3:** Aerial view of the broader study area showing the five smaller areas into which it was divided.

#### Area 1

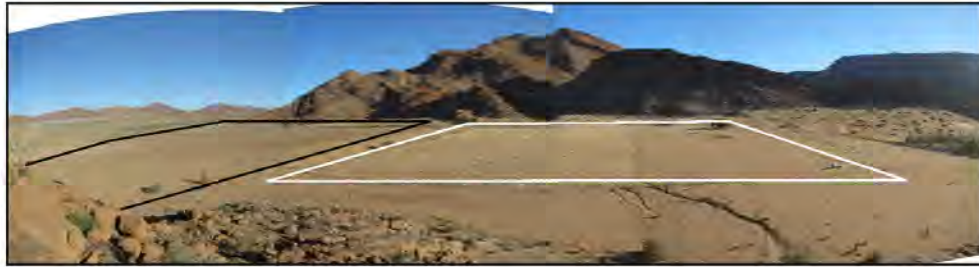
This area consisted of two agricultural blocks. The south-western half of this area had been cultivated in the recent past (Figure 4). There were still plough lines visible and irrigation pipes protruded from the ground in many places. The north-eastern section was uncultivated and had small bushes lightly scattered across the surface. Both blocks sloped gently downhill towards the northwest. Along the north-eastern side of this area was a long pile of rocks that had been removed from the agricultural lands.



**Figure 4:** View towards the northeast across Area 1 with the recently cultivated lands being in mid-picture.

#### Area 2

This area consisted of two agricultural blocks (Figure 5). Both had been cultivated, the smaller block more recently than the larger one. The ground surface in this area was flat with almost no vegetation cover at all and sloped gently downhill towards the northeast.



**Figure 5:** View over Area 2 from the hill immediately to its north. The smaller block is in mid-picture (white polygon), while the larger block is to the left (black polygon).

### Area 3

This area consisted of two large blocks. They have never been cultivated before and small plants are commonly encountered (Figure 6) along with occasional trees, particularly in the southern part. The surface is flat but gently sloping downhill towards a non-perennial stream bed just to the east of the study area.



**Figure 6:** View towards the south across the northern part of Area 3. The mountain rises to the right of the picture.

### Area 4

This large area consists of one very long block to the east of a gravel farm road and two smaller ones to its west. Although the northern section is virgin ground (Figure 7), the southern section has been cultivated in the past (Figure 8). This area slopes gently downhill towards the south and a non-perennial stream runs along its southern margin. Plant cover is generally very light, although some larger bushes occur in the north and the south-eastern corner has experienced a fair bit of vegetation regrowth. This area is also quite disturbed by many small excavations and a number of young date palms have been planted in some of the excavations – this must have been some time ago and they have not been maintained.



**Figure 7:** View towards the north across the northern half of Area 4.



**Figure 8:** View to the southeast across the southern part of Area 4.

### Area 5

This area consisted of two proposed plantation blocks lying alongside existing date palm plantations. Both are fenced and appear to have been cultivated in the past. Vegetation regrowth has resulted in small bushes scattered over the surface of both blocks (Figure 9).



**Figure 9:** View towards the north showing the surface of the larger of the two blocks in Area 5 as well as the existing date plantations to the northeast and northwest of this block.

## **5. CULTURAL HERITAGE CONTEXT**

This section of the report establishes what is already known about heritage resources in the vicinity of the study area. What is found during the field survey may then be compared with what is already known in order to gain an improved understanding of the significance of the newly reported resources.

### **5.1. Archaeological aspects**

Little archaeological work has been conducted in the area. However, Beaumont (2008) conducted a very brief study of a 200 ha area of Kambreek and reported no archaeological resources whatsoever. The SAHRIS system does not contain any reports produced for developments close to the present study area. However, other work in the broader region suggests that archaeological material is commonly encountered but sites are usually very ephemeral. It appears from the



present author's experience that archaeological resources are focused more in areas with unaltered granite where the rock is more conducive to the formation of habitable shelters and for the production of bedrock grinding grooves which are regularly encountered close to pans (e.g. Morris 2013; Orton & Webley 2012b, 2013). Some sites in the northern Bushmanland area where the rock surfaces are compact and solid also have painted rock art (e.g. Morris 2011; Orton 2014; Orton & Webley 2012a). Stone artefacts tend to be found more frequently in gravel areas than in sandy area, although sand dunes were sometimes occupied in the past and one may find archaeological material associated with them. These finds are all related to the LSA, although earlier material pertaining to the Middle (MSA) and Early Stone Ages (ESA) can also be found in association with gravel areas.

## 5.2. Historical aspects

Pella, a mission station lying just east of Klein Pella, was founded by the London Missionary Society (LMS) in 1814 after the first LMS mission (at Warmbad in Namibia) was sacked by Jager Afrikaner. Pella was named after the eponymous town east of the River Jordan to which the Christians withdrew in 70 AD when Jerusalem was destroyed by the Romans. After the LMS minister and his family were murdered while trying to escape a Bushman attack, Pella found itself abandoned within a decade of its founding. It was subsequently taken over by the Rhenish Mission, who in turn abandoned it in 1869. In 1874 the Roman Catholics took over Pella but only formally obtained occupation from the government on 9 June 1881 (Eksteen 2014; Frescura, n.d.; Thünemann 1992).

In 1901, during the Anglo-Boer War, Pella was invaded and raided by about 60 Boers, but no fighting ever took place there (Thünemann 1992).

In 1907 the missionaries started a fruit and vegetable garden along the banks of the Orange River directly north of Pella on land that was referred to as "Rooi-Pad, a property that belongs to Pella" (Simon 1959:214). It is in fact on the same farm (Pella Mission 38). They successfully cultivated wheat, lentils, peas, string beans, sweet potatoes, corn and water melons. After the initial success, they also obtained fruit trees from the Cape. Rooi-Pad also served as a mission and was referred to as Pella-Orange by the missionaries.

No direct link between Pella and Klein Pella was found. According to Raper (n.d.), Klein Pella was initially known as Jabiesiefontein, a name derived from the Khoekhoe word '*tsawi*' which refers to the black ebony tree (*Euclea pseudobenus*) and the Afrikaans 'fontein' (a spring). After the establishment of Pella, the farm's name was changed to Klein Pella but the reason for this change could not be traced. The farm has a long history for this area. Prior to the regular occupation of northern Bushmanland by Europeans, very few whites were present. However the original Jabiesiefontein farm was given by the Dutch East India Company to Jacobus Bierman in 1776 (Van der Merwe 1945).

## 6. FINDINGS OF THE HERITAGE STUDY

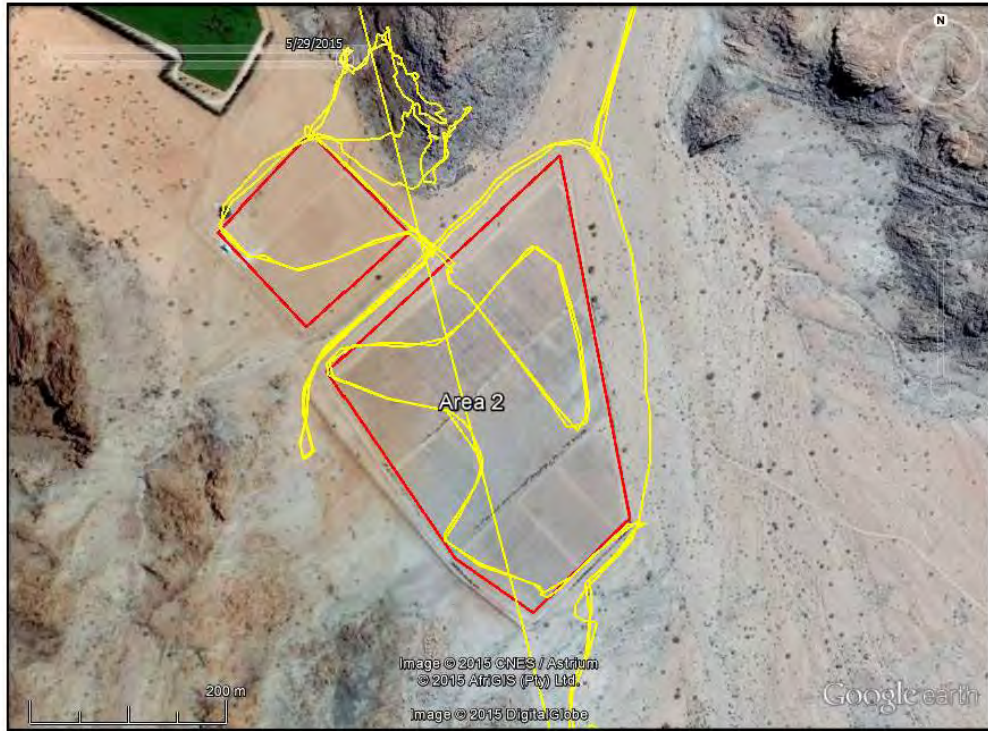
This section describes the heritage resources recorded in the study area during the course of the project. Table 1 lists the observations made during the survey and Figures 10 to 14 map them and show the walk and drive paths recorded during the survey.

**Table 1: List of archaeological observation made during the field survey.**

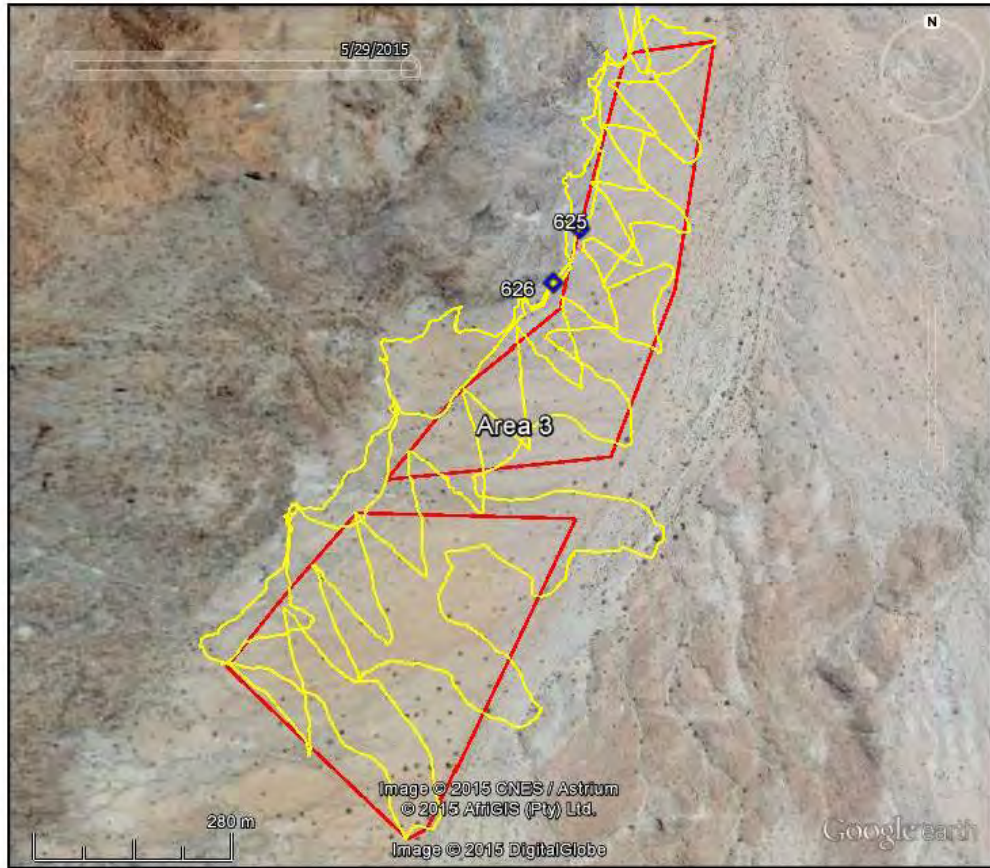
Waypoint (Area)	Co-ordinates	Description	Archaeological significance
625 (3)	S28 57 54.7 E18 59 03.2	Line of stones representing an old fence line. The line is substantially longer than the distance between these two points.	Low
626 (3)	S28 57 57.4 E18 59 01.6		
627 (4)	S28 59 44.2 E18 59 39.5	A small rocky outcrop that has been quarried historically, either for building stone or else for rocks to lay along fences.	Low
628 (4)	S28 59 42.4 E18 59 40.8	A small cleared track leads from the edge of the sandy plain to the rocky outcrop at 627.	Low
629 (4)	S28 59 53.4 E18 59 55.6	Line of stones representing an old fence line. The line is substantially longer than the distance between these two points.	Low
632 (4)	S28 59 49.2 E19 00 04.4		
630 (4)	S28 59 45.8 E18 59 56.4	Three fragments of blue bottle glass. Two of them appear to be part of a break that has been rounded off, presumably to allow continued use of the bottle.	Low
631 (4)	S28 59 43.9 E19 00 03.7	A light scatter of quartz was noted in this area.	Low
633 (4)	S29 00 10.8 E19 00 32.9	Half a small bored stone found in a disturbed context. No other associated artefacts. The bored stone had a maximum diameter of about 10 cm, a thickness of about 5 cm and an aperture diameter of about 3.5 cm.	Low
634	S28 58 27.0 E18 59 22.0	A small quartz outcrop that had been quarried as a source of flakes. (Note that this site does not fall into any of the proposed agricultural blocks - it was 700 m southeast of Area 3.)	Low



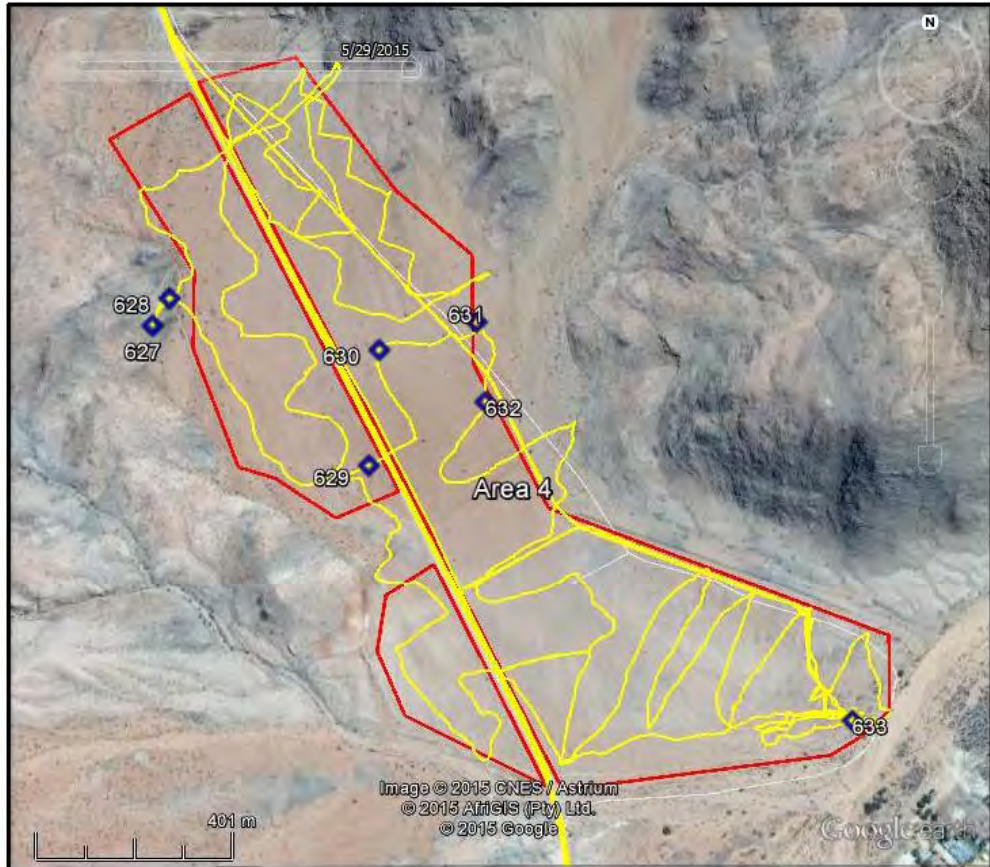
**Figure 10:** Aerial view of Area 1 showing the walk and drive paths (yellow lines).



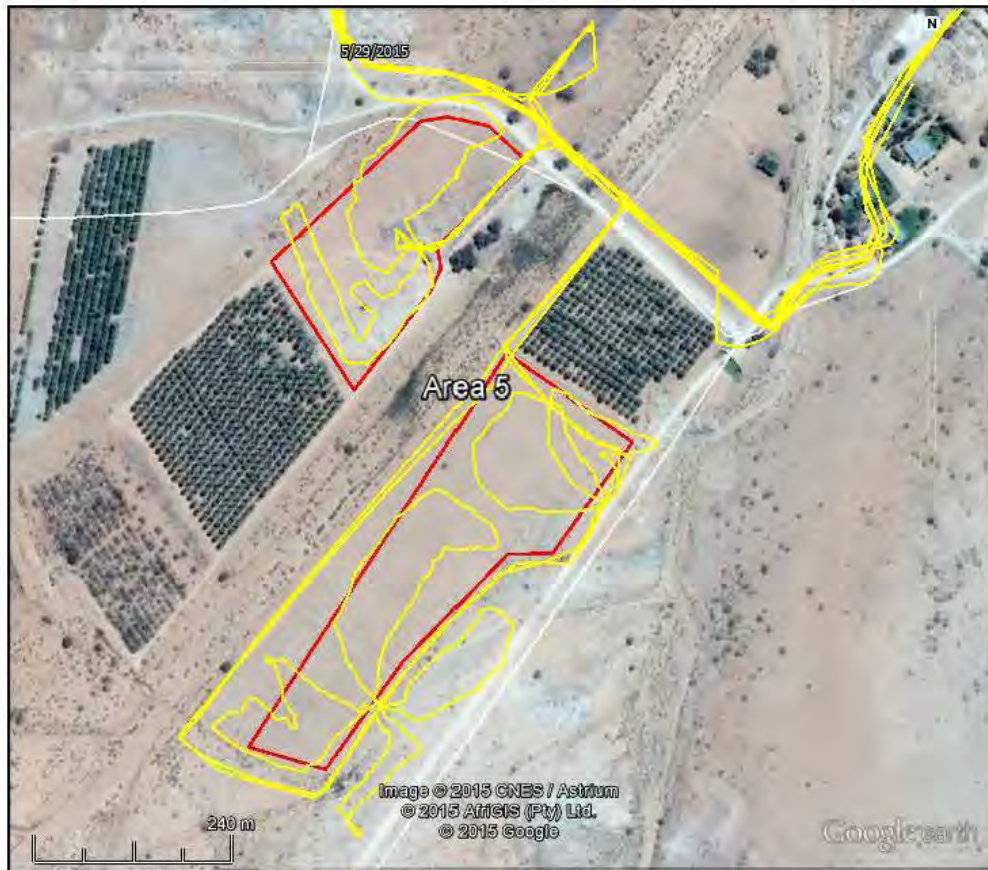
**Figure 11:** Aerial view of Area 2 showing the walk and drive paths (yellow lines).



**Figure 12:** Aerial view of Area 3 showing the walk and drive paths (yellow lines) and finds (blue numbered symbols).



**Figure 13:** Aerial view of Area 4 showing the walk and drive paths (yellow lines) and finds (blue numbered symbols).



**Figure 14:** Aerial view of Area 5 showing the walk and drive paths (yellow lines).

## 6.1. Archaeology

### 6.1.1. Area 1

An isolated igneous cobble was noted on the surface in the middle of the area. It looked as though it might have been used as an upper grindstone but this was by no means certain. Nevertheless, the cobble must have been brought from a river (presumably from the Orange River given its size) by people. Also in this area we noted a small slab of quartz that had been flaked as a single platform core. It was alongside a boulder at the foot of the hill. Both finds were in the south-eastern block of Area 1.

### 6.1.2. Area 2

No heritage resources were noted in either of the two blocks in Area 2.

### 6.1.3. Area 3

Along the western edge of this area there was an old fence line represented only by a long line of stones that had once been packed along the base of the fence (waypoints 625 and 626; Figure 15). The only archaeological artefact noted was a lump of quartz that appeared to have had a few flakes removed from it. It was in the far south of Area 3.

### 6.1.4. Area 4

One scatter of eight Stone Age artefacts was found in Area 4 (waypoint 631). Although there may have been more artefacts, the scatter was clearly not dense. All the artefacts were made from quartz (Figure 16). A few other isolated quartz flakes were also noted across Area 4. The most interesting find from the survey was half a bored stone found in the south-eastern corner of Area 4 (waypoint 633). Bored stones have been documented in use as digging stick weights (e.g. Burchell 1824; Cornell 1920), although the wide range in size and weight surely suggests that other uses for the smaller ones must also have existed (Wilson 1985). The present example was fairly small with a maximum external diameter of approximately 9 cm (Figure 17). It was about 4 cm thick at its thickest point.



**Figure 15:** Stones marking a fence line in Area 3.



**Figure 16:** Quartz stone artefacts from Area 4. The scale bar is in 10 mm intervals.





**Figure 17:** The bored stone fragment from Area 4. The scale is in 10 mm intervals.

In Area 4 we also located another old fence line marked only by the stones that were once packed along its base (waypoints 629 and 632). A small rocky outcrop that had been quarried, either for building stone or perhaps for slabs to lay along fence lines, was located just outside of Area 4, to its west (waypoint 627). A track had been cleared through the gravel leading to the base of the outcrop (waypoint 628; Figure 18). Although not noted on the ground, this track appears from aerial photography to go around the rocks and back onto the flat sandy plain (Figure 19). The earliest available aerial photography dates back to 1941 and is too grainy to allow any indication of whether this feature was present at that time. Other historical finds include a Royal Baking Powder tin and three fragments of blue bottle glass (Figure 20). Two of the glass fragments had breaks that had been chipped and ground smooth, presumably to facilitate the further use of the bottle after part of it had broken. One small fragment of sponge-printed historical ceramic was also noted (Figure 21).



**Figure 18:** View of the quarried rocky outcrop alongside Area 4 and the cleared track leading up to it. The land proposed for cultivation is the light-coloured area in the background.



**Figure 19:** Aerial view of the historical quarry showing the outcrop (waypoint 627) and the northern end of the track (waypoint 628).



**Figure 20:** The three fragments of blue bottle glass from Area 4. The upper edges of the left and central fragments have been smoothed. The scale bar is in 10 mm intervals.

**Figure 21:** The piece of historical ceramic from Area 4.

#### 6.1.5. Area 5

No heritage resources were noted in either of the two blocks in Area 5.

### 6.2. History and the cultural landscape

These two elements have been linked here because the cultural landscape is tied to the history of the area. From the initial establishment of the Pella Mission agriculture has been a key activity. Some sort of agricultural activity no doubt took place since the granting of the farm in 1776, but this may well have been largely related to small stock and does not appear to have left much trace. The field survey did not reveal any important historic aspects to the landscape and its early

development (which may well have been very minimal). Aerial photography shows none of the present agricultural areas on Klein Pella or Kambreek to have been present in 1941, although by 1962 the majority of the cultivated lands close to the farm werf (most of which are no longer under cultivation) had already been ploughed. On Kambreek there were no ploughed lands away from the river but the alluvial soils along the banks of the Orange River were already under cultivation.

The present farm werf is located largely to the south of the historic one, although because of the resolution of the 1941 aerial photography it was not possible to determine the positions of buildings at that time (Figure 22).



**Figure 22:** Comparative aerial views dating to 1941 (left) and 2013 (right) showing the historically cultivated area to lie north of the present Klein Pella farm werf.

### 6.3. Statement of significance

Section 38(3)(b) of the NHRA requires an assessment of the significance of all heritage resources. In terms of Section 2(vi), “cultural significance” means aesthetic, architectural, historical, scientific, social, spiritual, linguistic or technological value or significance.

The Stone Age and historical archaeological resources are deemed to have low cultural significance for their scientific value because they can be ascribed to low density background scatter and little could be gained from any further study of them. The cultural landscape (date plantations and vineyards) is generally modern (post-mid-20<sup>th</sup> century) and no other heritage values can be ascribed to the study areas.

### 6.4. Summary of heritage indicators and provisional grading

The only heritage indicators present were sparse archaeological resources which, because of their very low archaeological significance, can be considered ungradeable.

## 7. ASSESSMENT OF IMPACTS

### 7.1. Archaeology

Direct impacts to archaeological resources will occur when the earthworks for the new plantations and vineyards are carried out. However, these impacts are of very low significance and should not inhibit the development in any way (Table 1). There are no fatal flaws and no mitigation or further management measures are suggested. No further archaeological material of any significance is expected to be found in the study areas and, because of the generally sparse nature of the archaeology present, cumulative impacts are not expected to be of any concern.

**Table 1:** Assessment of archaeological impacts.

	Before mitigation	After mitigation
Extent	Site	n/a
Intensity	Negligible	n/a
Duration	Permanent	n/a
Probability	Probable	n/a
Significance	Very low	n/a
Status	Negative	n/a
Reversible	No	
Cumulative impacts	The archaeological material present in the immediate vicinity is of very low significance and the loss of larger areas containing such material is not significant.	

### 7.2. Cultural landscape

There are no significant cultural landscape elements of concern and impacts are deemed to be neutral in status and of low significance. The proposed development is consistent with the present landuse and is not incompatible with the landscape. No impacts are expected, there are no fatal flaws and no further mitigation or management are required. The cumulative impact of further plantations and vineyards is neutral and of no concern.

**Table 2:** Assessment of cultural landscape impacts.

	Before mitigation	After mitigation
Extent	Site	n/a
Intensity	Negligible Low Medium High	n/a
Duration	Transient Short term Long term Permanent	n/a
Probability	Probable Improbable	n/a
Significance	Very low	n/a
Status	Neutral	n/a
Reversible	Yes	
Cumulative impacts	The impacts are considered to be neutral in status and wider development of plantations and vineyards will maintain the status quo and are therefore not significant.	

## 8. CONCLUSIONS

The only heritage indicators present are archaeological stone artefacts and the cultural landscape. The former is insignificant and the latter tends to be largely modern. No significant impacts to heritage resources are expected.

## 9. RECOMMENDATIONS

Because no significant impacts are expected, it is recommended that the proposed new lands be authorised with no further heritage studies required. However, if any archaeological material or human burials are uncovered during the course of development then work in the immediate area should be halted. The find would need to be reported to the heritage authorities and may require inspection by an archaeologist. Such heritage is the property of the state and may require excavation and curation in an approved institution.

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## **9.6 Other reports**

### **9.6.1 Water Use License Application**

# INTEGRATED WATER USE LICENSE APPLICATION REPORT

for the

## TRANSFER OF WATER RIGHTS FOR THE PROPOSED CONSTRUCTION OF AGRICULTURAL AREAS ON FARM KLEIN PELLA NO. 40 AND PORTIONS 0 AND 2 OF THE FARM KAMBREEK NO. 38, NAMAKWA DISTRICT, NORTHERN CAPE



**Prepared by:**

**Nerine Coertzen**

**Pieter Badenhorst Professional Services**

**June 2016**



**APPLICATION FOR A LICENSE FOR THE USE OF WATER (CONTROLLED ACTIVITY) IN TERMS OF SECTIONS 21 (a) and 40 AND 41 OF THE NATIONAL WATER ACT, 1998 (ACT NO 36 OF 1998) BY KARSTEN BOERDERY ON FARM KLEIN PELLA NO 40 AND PORTIONS 0 AND 2 OF THE FARM KABREEK NO 38**

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## SYNOPSIS

The applicant, Karsten Boerdery (Pty) Ltd is applying to transfer water rights within various farms that are in their ownership in terms of Section 25 (2) of the National Water Act, (Act 36 of 1998). The transfer of water will be **from:**

1. The Farm Kambreek 38 (Portion 1) to Farms Kambreek 38 (Portion 0) for a total of **330 000m<sup>3</sup>/a** at 15 000m<sup>3</sup>/ha (22ha).
2. The Farm Kambreek 38 (Portion 1) to Farms Kambreek 38 (Portion 2) for a total of **1005 000m<sup>3</sup>/a** at 15 000m<sup>3</sup>/ha (67ha).
3. The Farm Kambreek 38 (Portion 3) to the farm Klein Pella 40 (Portion 0) for a total of **390 000m<sup>3</sup>/a** at 15 000m<sup>3</sup>/ha (26ha).

This transfer of water is applied for to correct a deficit that has originated in the water balance for the different properties and also in order to establish an additional 91.8 ha of cultivation areas within the different properties. All of the proposed developments and water transfers will be undertaken within the existing water rights for the owners Karsten Boerdery Pty Ltd.

Activities	Purpose	From Property	Total Water (ha)	To property
Section 21(a)	Transfer of water	Kambreek no 38 Portion 1	330 000m <sup>3</sup> /a (22ha)	Kambreek no 38 Portion 0
Section 21(a)	Transfer of water	Kambreek no 38 Portion 1	1005 000m <sup>3</sup> /a (67ha)	Kambreek no 38 Portion 2
Section 21(a)	Transfer of water	Kambreek no 38 Portion 3	390 000m <sup>3</sup> /a (26ha)	Pella no 40 Portion 0

The water use entitlements as allocated for the applicant's properties (see breakdown in the table below) which amounts to **405.5 ha (6082 500m<sup>3</sup>/a at 15 000m<sup>3</sup>/ha)** is for the irrigation of vineyard and dates. According to an analysis done only **247.8 ha (3717 000m<sup>3</sup>/a at 15 000m<sup>3</sup>/ha)** of this allotted water is currently used for irrigation and therefore leaving **157.6 ha (2364 000m<sup>3</sup>/a at 15 000m<sup>3</sup>/ha)** of the allocation for the new proposed development of **91.8ha** dates and vineyards.

Farm	Water Allocation	Ha Already planted	Water currently available per portion	Planned cultivation Ha	Total HA per portion after proposed expansion	Water available after planned expansion
Kambreek no. 38 (Portion 0)	67.5ha	89.4ha	-21.9ha	0 ha	89.4ha	-21.9ha
Kambreek no. 38 (Portion 1) Area 1	198ha	49.9ha	148.1ha	10ha dates	59.9ha	138.1ha
Kambreek no. 38 (Portion 2) Area 1	50ha	95.2ha	-45.2ha	21.4ha dates	116.6ha	-66.6ha
Kambreek no. 38 (Portion 3) Area 2 and 3	90ha	8.05ha	81.9ha	40.4ha vineyards	48.4ha	41.5ha
Klein Pella 40	0	5.3ha	-5.3ha	20 ha dates	25.3ha	-25.3ha

Portion 0						
<b>Area 4</b>						
<b>Total</b>	<b>405.5ha</b>	<b>247.8ha</b>	<b>157.6ha</b>	<b>91.8ha</b>	<b>339.6ha</b>	<b>65.8ha</b>

The proposed development will not result in any developments taking place within the small dry ephemeral streams/drainage areas that only receive water during heavy rainfall. Areas 1 to 3 is located more than 32m from the streams and only Area 4 is located closer to the streams. Area 4 is an existing cultivated area. The transfer of water rights will not have any effect on the quantity of available water from the water resources within the immediate vicinity as all the water use allotments will be transferred from existing allocations already registered to the applicant Karsten Boerdery Pty Ltd.

The intention is to market the produce locally and internationally. The project will improve the quality of life of all the individuals through agricultural investment and development, with specific reference to skills transfer, empowerment and poverty relief through wealth creation, as well as long term sustainability.

The farm Klein Pella is a highly commercial agricultural (farming) unit in the area and is surrounded by other farms which are not being farmed on a highly commercial basis.

The closest communities to the farm are that of Pella, Goodhouse and Pofadder. People working on the farms are provided with temporary housing on the farm itself.

The other farms of the Karsten Boerdery Pty Ltd is managed by a very competent and motivated workforce, it has many success stories, which contributes positively to the local economy and the provision of job opportunities in the region and the Northern Cape Province.

According to the applicant the employment opportunities which will be created during the construction phase as well as the operational phase will be between 60 permanent and 450 seasonal jobs. These workers will all be from the previous disadvantaged communities. This will have a positive impact on the overall social well-being of the communities in the area. The number of employment opportunities will rise in future.

In order to ensure that the proposed project will be sustainable and economically viable, the applicant will also employ people from the neighbouring towns.

The estimated expected capital outlay for approximately 100 ha development such as this will be at least in the order of R50 million.

All of these additional work opportunities, as well as the creation of buying power, will contribute positively to the economic environment of the area.

## 1. BACKGROUND TO THE APPLICATION

### 1.1 Background

The applicant, Karsten Boerdery (Pty) Ltd is applying to transfer water rights within various farms that are in their ownership in terms of Section 25 (2) of the National Water Act, (Act 36 of 1998). The transfer of water will be from:

1. The Farm Kambreek 38 (Portion 1) to Farms Kambreek 38 (Portion 0) for a total of **330 000m<sup>3</sup>/a** at 15 000m<sup>3</sup>/ha (22ha).
2. The Farm Kambreek 38 (Portion 1) to Farms Kambreek 38 (Portion 2) for a total of **1005 000m<sup>3</sup>/a** at 15 000m<sup>3</sup>/ha (67ha).
3. The Farm Kambreek 38 (Portion 3) to the farm Klein Pella 40 (Portion 0) for a total of **390 000m<sup>3</sup>/a** at 15 000m<sup>3</sup>/ha (26ha).

This transfer of water is applied for to correct a deficit that has originated in the water balance for the different properties and also in order to establish an **additional 91.8 ha** of cultivation areas within the different properties (see Table 1). All of the proposed developments and water transfers will be undertaken within the existing water rights for the owners Karsten Boerdery Pty Ltd.

The water use entitlements as allocated for the applicant's properties (see breakdown in the table below) which amounts to **405.5 ha (6082 500m<sup>3</sup>/a at 15 000m<sup>3</sup>/ha)** is for the irrigation of vineyard and dates. According to an analysis done only **247.8 ha (3717 000m<sup>3</sup>/a at 15 000m<sup>3</sup>/ha)** of this allotted water is currently used for irrigation and therefore leaving **157.6 ha (2364 000m<sup>3</sup>/a at 15 000m<sup>3</sup>/ha)** of the allocation for the new proposed development of **91.8ha** dates and vineyards.

The applicant has the following water use rights as registered with the Water right as registered at Department of Water Affairs and Forestry is as follow on the various properties (see Appendix B for Proof of Water Use):

**Table 1: Water allocation details for the project area**

	Farm	Water Allocation	Ia Already planted	Water currently available per portion	Planned cultivation Ha	Total Ia per portion after proposed expansion	Water available after planned expansion
1	Kambreek no. 38 (Portion 0)	67.5ha	89.4ha	-21.9ha	0 ha	89.4ha	-21.9ha
2	Kambreek no. 38 (Portion 1)	198ha	49.9ha	148.1ha	10ha	59.9ha	138.1ha
3	Kambreek no. 38 (Portion 2)	50ha	95.2ha	-45.2ha	21.4ha	116.6ha	-66.6ha
4	Kambreek no. 38 (Portion 3)	90ha	8.05ha	81.9ha	40.4ha	48.4ha	41.5ha
5	Klein Pella 40 Portion 0	0	5.3ha	-5.3ha	20 ha	25.3ha	-25.3ha
	<b>Total</b>	<b>405.5ha</b>	<b>247.8ha</b>	<b>157.6ha</b>	<b>91.8ha</b>	<b>339.6ha</b>	<b>65.8ha</b>

### 1.2 Location of the project

Karsten Boerdery Pty Ltd is the registered owner of Farms Kambreek no. 38 (Portion 0, 1,2 and 3) as well as Klein Pella 40 (Portion 0). The proposed transfer of water for the expansion of agricultural activities will take place on various properties, outlined in Table 1, within the Namaqualand District in the Northern Cape. Access to these farms are via a gravel road that links with the R358 towards Klein Pella, see Figure 1. All properties is zoned Agriculture. The owner of these properties is Karsten Boerdery (PTY) Ltd.

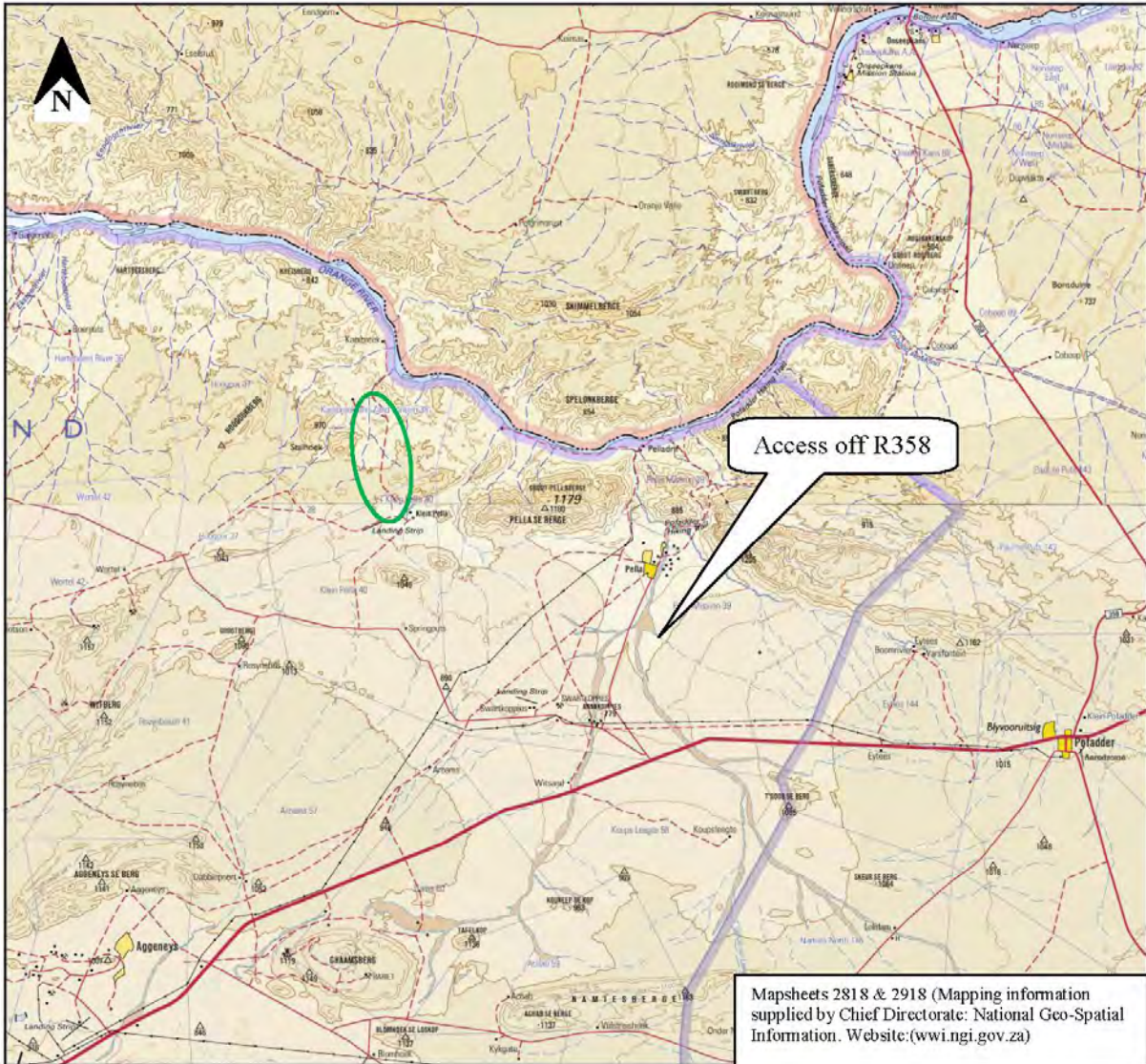


Figure 1: Project Locality

## 2. SUMMARY OF THE TECHNICAL INFORMATION

### 2.1 Reports and Technical Information Assessed

- EIA
- Botanical Desktop Study by Dr Dave Mc Donald (part of this report was written by Dr Noel van Rooyen dated Feb 2008)
- HIA by Dr Jayson Orton.

### 2.2 Project Description

Karsten Boerdery Pty Ltd currently has a water allocation of **405.5ha** on the farms (Kambreek Portion 0, 1, 2 and 3) that they own (breakdown shown in table below). Adjacent to this operation, Karsten Boerdery Pty Ltd owns an additional property Klein Pella 40 (Portion 0) which does not have any allocation of water on it. Currently the applicant has 5.3 ha of dates planted on this property and intends to plant an additional 20ha within the next 4 years which will be irrigated from the Orange River. Additionally the applicant proposes to establish various agricultural areas (with a total of **91.8ha**) for the cultivation of dates and vineyards on 4 of these 5 properties, see Table 2 and Figure 2, for the areas of development.

**Table 1: Water allocation details for the project area**

	Farm	Water Allocation	Ha Already planted	Water currently available per portion	Planned cultivation Ha	Total HA per portion after proposed expansion	Water available after planned expansion
1	Kambreek no. 38 (Portion 0)	67.5ha	89.4ha	-21.9ha	0 ha	89.4ha	-21.9ha
2	Kambreek no. 38 (Portion 1) <b>Area 1</b>	198ha	49.9ha	148.1ha	10ha dates	59.9ha	138.1ha
3	Kambreek no. 38 (Portion 2) <b>Area 1</b>	50ha	95.2ha	-45.2ha	21.4ha dates	116.6ha	-66.6ha
4	Kambreek no. 38 (Portion 3) <b>Area 2 and 3</b>	90ha	8.05ha	81.9ha	40.4ha vineyards	48.4ha	41.5ha
5	Klein Pella 40 Portion 0 <b>Area 4</b>	0	5.3ha	-5.3ha	20 ha dates	25.3ha	-25.3ha
	<b>Total</b>	<b>405.5ha</b>	<b>247.8ha</b>	<b>157.6ha</b>	<b>91.8ha</b>	<b>339.6ha</b>	<b>65.8ha</b>



**Figure 2: Proposed Agricultural areas.**

The water use entitlements as allocated for the applicant's properties (see breakdown in the table below) which amounts to **405.5 ha (6082 500m<sup>3</sup>/a at 15 000m<sup>3</sup>/ha)** is for the irrigation of vineyard and dates. According to an analysis done only **247.8 ha (3717 000m<sup>3</sup>/a at 15 000m<sup>3</sup>/ha)** of this allotted water is currently used for irrigation and therefore leaving **157.6 ha (2364 000m<sup>3</sup>/a at 15 000m<sup>3</sup>/ha)** of the allocation for the new proposed development of **91.8ha** dates and vineyards.

The applicant, Karsten Boerdery (Pty) Ltd is applying to transfer water rights within various farms that are in their ownership in terms of Section 25 (2) of the National Water Act, (Act 36 of 1998). The transfer of water will be from:

1. The Farm Kambreek 38 (Portion 1) to Farms Kambreek 38 (Portion 0) for a total of **330 000m<sup>3</sup>/a at 15 000m<sup>3</sup>/ha (22ha)**.
2. The Farm Kambreek 38 (Portion 1) to Farms Kambreek 38 (Portion 2) for a total of **1005 000m<sup>3</sup>/a at 15 000m<sup>3</sup>/ha (67ha)**.
3. The Farm Kambreek 38 (Portion 3) to the farm Klein Pella 40 (Portion 0) for a total of **390 000m<sup>3</sup>/a at 15 000m<sup>3</sup>/ha (26ha)**.

This transfer of water is applied for to correct a deficit that has originated in the water balance for the different properties and also in order to establish an **additional 91.8 ha** of cultivation areas within the different properties. All of the proposed developments and water transfers will be undertaken within the existing water rights for the owners Karsten Boerdery Pty Ltd.



**Table 2: Water allocation water balance showing deficit and surplus**

	Farm	Water Allocation	Water available (Surplus)	Water available (Deficit)	Water transfer
1	Kambreek no. 38 (Portion 1)	198ha	138.1ha		Surplus
2	Kambreek no. 38 (Portion 0)	67.5ha		-21.9ha	Deficit transferred from Kambreek no 38 Portion 1
3	Kambreek no. 38 (Portion 2)	50ha		-66.6ha	Deficit transferred from Kambreek no 38 Portion 1
4	Kambreek no. 38 (Portion 3)	90ha	41.5ha		Surplus
5	Klein Pella 40 Portion 0	0		-25.3ha	Deficit transferred from Kambreek no 38 Portion 3

See the table below for the final consolidation of water use allocations available to all properties after the proposed transfer.

**Table 3: Proposed water transfer**

	Farm	Water Allocation	Water available after expansion	Water transferred to property	Water transferred from property	Water allocation per property after planned transfer
1	Kambreek no. 38 (Portion 0)	67.5ha	-21.9ha	22ha		89.5ha
2	Kambreek no. 38 (Portion 1)	198ha	138.1ha		22ha + 67ha	109ha
3	Kambreek no. 38 (Portion 2)	50ha	-66.6ha	67ha		117ha
4	Kambreek no. 38 (Portion 3)	90ha	41.5ha		26ha	64ha
5	Klein Pella 40 Portion 0	0	25.3ha	26ha		26ha
	<b>Total</b>	<b>405.5ha</b>				<b>405.5 ha</b>

*Please note, that the allowed water allocation for all properties owned by the applicant is abstracted from the Orange River.*

The intention is to market the produce locally and internationally. The project will improve the quality of life of all the individuals through agricultural investment and development, with specific reference to skills transfer, empowerment and poverty relief through wealth creation, as well as long term sustainability.

The farm Klein Pella is a highly commercial agricultural (farming) unit in the area and is surrounded by other farms which are not being farmed on a highly commercial basis.

The closest communities to the farm are that of Pella, Goodhouse and Pofadder. People working on the farms are provided with temporary housing on the farm itself.

The other farms of the Karsten Boerdery Pty Ltd is managed by a very competent and motivated workforce, it has many success stories, which contributes positively to the local economy and the provision of job opportunities in the region and the Northern Cape Province.

According to the applicant the employment opportunities which will be created during the construction phase as well as the operational phase will be between 60 permanent and 450 seasonal jobs. These workers will all be from the previous disadvantaged communities. This will have a positive impact on the overall social well-being of the communities in the area. The number of employment opportunities will rise in future.

In order to ensure that the proposed project will be sustainable and economically viable, the applicant will also employ people from the neighbouring towns.

The estimated expected capital outlay for approximately 100 ha development such as this will be at least in the order of R50 million.

All of these additional work opportunities, as well as the creation of buying power, will contribute positively to the economic environment of the area.

### 2.2.1 Water uses applied for

Activities	Purpose	From Property	Total Water (ha)	To property
Section 21(a)	Transfer of water	Kambreek no 38 Portion 1	330 000m <sup>3</sup> /a (22ha)	Kambreek no 38 Portion 0
Section 21(a)	Transfer of water	Kambreek no 38 Portion 1	1005 000m <sup>3</sup> /a (67ha)	Kambreek no 38 Portion 2
Section 21(a)	Transfer of water	Kambreek no 38 Portion 3	390 000m <sup>3</sup> /a (26ha)	Pella no 40 Portion 0

*Please note, that the allowed water allocation for all properties owned by the applicant is abstracted from the Orange River .*

### 2.2.2 Impacts of Activities on Water Resources

#### 2.2.2.1 Surface Water

The proposed development will not result in any developments taking place within the small dry ephemeral streams/drainage areas that only receive water during heavy rainfall. Areas 1 to 3 is located more than 32m from the streams and only Area 4 is located closer to the streams. Area 4 is an existing cultivated area.

#### 2.2.2.2 Proposed Mitigation Measures

As part of the construction of the development it is proposed to construct a storm water berm/canal to prevent any contamination downstream into any of these ephemeral streams/drainage areas.

For Area 4 it is proposed to create a 15m buffer area from the stream, which should be a strict “No-Go” area as part of the EMP.

### 3. MOTIVATION IN TERMS OF SECTION 27 (1) OF THE NATIONAL WATER ACT, 1998

#### 3.1 Existing lawful water use

The applicant, Karsten Boerdery (Pty) Ltd, has the following existing lawful water uses for the taking of water.

	Farm	Water Allocation	Ha Already planted	Water currently available per portion	Planned cultivation Ha	Total HA per portion after proposed expansion	Water available after planned expansion
1	Kambreek no. 38 (Portion 0)	67.5ha	89.4ha	-21.9ha	0 ha	89.4ha	-21.9ha
2	Kambreek no. 38 (Portion 1) Area 1	198ha	49.9ha	148.1ha	10ha dates	59.9ha	138.1ha
3	Kambreek no. 38 (Portion 2) Area 1	50ha	95.2ha	-45.2ha	21.4ha dates	116.6ha	-66.6ha
4	Kambreek no. 38 (Portion 3) Area 2 and 3	90ha	8.05ha	81.9ha	40.4ha vineyards	48.4ha	41.5ha
5	Klein Pella 40 Portion 0 Area 4	0	5.3ha	-5.3ha	20 ha dates	25.3ha	-25.3ha
	<b>Total</b>	<b>405.5ha</b>	<b>247.8ha</b>	<b>157.6ha</b>	<b>91.8ha</b>	<b>339.6ha</b>	<b>65.8ha</b>

#### 3.2 The existing lawful water use in the catchment under consideration

The transfer of water rights will not have any effect on the quantity of available water from the water resources within the immediate vicinity as all the water use allotments will be transferred from existing allocations already registered to the applicant Karsten Boerdery Pty Ltd.

#### 3.3 The need to redress the results of the past racial and gender discrimination

Karsten Boerdery is a level six (6) BBBEE contributor.

The Karsten Boerdery group has the following projects as part of their social responsibility program that is implemented on all properties owned by them (See Social Responsibility Document in Appendix J:

##### 1. Training programs

The general training program consists of the following:

- Fruit preparation, harvesting, packing and cooling
- Irrigation
- Tractor maintenance
- Hygiene and Accreditation
- Pruning and cultivation of fruit
- Quality Improvement
- Financial training

- Supervisory courses
- Management programs
- Life Skills
- Leadership
- Health and Safety

## 2. Apprenticeships, Internships And Bursaries

### 3. Karsten Community Development Projects

#### 3.1 Social Programs On Farms

##### 3.1.1 Karsten / Albert Heijn Project

The budget for the project for 2016 is R 4 489 569.00.

ITEM	AMOUNT
Revamping Of Schools	209 000.00
Training : Teachers	14 000.00
Child Social Development	239 000.00
Training: Staff	119 500.00
Leadership TRAINING	30 000.00
Recources	81 000.00
Computers & Software	78 990.00
Computers Instalation And Maintenance Plan	20 000.00
Salaries	1 865 644.00
Transport	119 560.00
Accomodation	50 000.00
Office Expenses	11 000.00
Furniture For Schools And Centres	15 000.00
Library Books And Cupboards	23 000.00
Sport Equipment And Development	154 875.00
Community Development Projects	1 109 000.00
Containers Conversions	150 000.00
Contingencies	200 000.00
Contingencies	200 000.00

#### Programs conducted in the centres for lifelong learning

- **ABED Classes**
  - ii) Life skills training e.g.
    - Health
    - Financial and Business Skills
    - Community Involvement programs
    - Spiritual and self-enriching programs.
  - iii) Computer classes

- **School improvement program**

This includes the following:

- Skills for headmasters to manage their schools effectively.

- Administrative and self-management skills and specific lecture skills for teachers as requested by teachers.
- The improvement of the role of School Governing Body's (SGB'S).
- Involvement and assistance of parents in schools.
- Computer classes for learners.
- Assistance for teachers that handles double classes
- Leadership and attitude programs for learners.
- Sport Development
- Databanks (libraries).
- Revamping of buildings
- **School feeding program**
- **After-care centres**

#### **4. Karsten / Waitrose Projects**

Projects planned for the 2016 financial year will amount to R 851 123.

PROJECT TITLE	PROJECT BUDGET
Early childhood services (salary for student that had a Waitrose bursary at Raap en Skraap)	R 37 050
Early childhood resources ( educational equipment for crèches)	R 60 000
Project Facilitator	R 63 224
Computer Literacy Pella School	R 51 300
Community Hall NewGro	R 306 418
Community Hall Mosplaas	R 333 131
<b>TOTAL</b>	<b>R 851 123</b>

#### **5. Agricultural empowerment projects**

The services rendered to these farms are the following:

- A full time farm manager to give 24 hour assistance with farming activities for the Northern Cape farms and full time assistance from a farm manager for Imdawo Ekhule. For Uitvlugt a farm manger was dedicated to assist on a weekly basis.
- Technical services in the Group that include the following:
  - Establishment of new vineyards
  - Fertilization programs and products
  - Pest and weed control
  - Irrigation scheduling and optimization
  - Plant health and fruit production
  - Value adding to fruit (preparation of raisons for marketing)
  - Financial services which include budgeting and monthly realizations
  - Payroll assistance and services
  - Health and Safety inspections and recommendations
  - Marketing
  - Cash crop cultivation

#### **6. Strategic partnerships**

#### **7. Empowerment Trusts and Companies in the Karsten Group**

According to the applicant the employment opportunities which will be created during the construction phase as well as the operational phase will be between 60 permanent and 450 seasonal jobs. These workers will all be from the previous disadvantaged communities. This will

have a positive impact on the overall social well-being of the communities in the area. The number of employment opportunities will rise in future. In order to ensure that the proposed project will be sustainable and economically viable, the applicant will also employ people from the neighbouring towns.

The estimated expected capital outlay for approximately 100 ha development such as this will be at least in the order of R50 million. All of these additional work opportunities, as well as the creation of buying power, will contribute positively to the economic environment of the area.

### **3.4 Efficient and beneficial use of the water in public interest**

The estimated expected capital outlay for approximately 100 ha development such as this will be at least in the order of R50 million. All of these additional work opportunities, as well as the creation of buying power, will contribute positively to the economic environment of the area.

According to the applicant the employment opportunities which will be created during the construction phase as well as the operational phase will be between 60 permanent and 450 seasonal jobs. These workers will all be from the previous disadvantaged communities. This will have a positive impact on the overall social well-being of the communities in the area. The number of employment opportunities will rise in future. In order to ensure that the proposed project will be sustainable and economically viable, the applicant will also employ people from the neighbouring towns.

### **3.5 Socio economic impact of water use to be authorized**

#### **(i) Of authorizing the water use or uses,**

The farm Klein Pella is a highly commercial agricultural (farming) unit in the area and is surrounded by other farms which are not being farmed on a highly commercial basis.

The closest communities to the farm are that of Pella, Goodhouse and Pofadder. People working on the farms are provided with temporary housing on the farm itself.

The other farms of the Karsten Boerdery Pty Ltd is managed by a very competent and motivated workforce, it has many success stories, which contributes positively to the local economy and the provision of job opportunities in the region and the Northern Cape Province.

According to the applicant the employment opportunities which will be created during the construction phase as well as the operational phase will be between 60 permanent and 450 seasonal jobs. These workers will all be from the previous disadvantaged communities. This will have a positive impact on the overall social well-being of the communities in the area. The number of employment opportunities will rise in future.

In order to ensure that the proposed project will be sustainable and economically viable, the applicant will also employ people from the neighbouring towns.

The estimated expected capital outlay for approximately 100 ha development such as this will be at least in the order of R50 million. All of these additional work opportunities, as well as the creation of buying power, will contribute positively to the economic environment of the area.

#### **(ii) Of Failure to authorize the water use or uses,**

The Government's responsibility to finance social projects spirals upwards due to population growth with no accompanying economic growth.

### **3.6 Catchment management strategy**

There is currently no catchment management strategy in place since a Catchment Management Agency has not been established in the Lower Orange WMA as yet. Internal strategic perspective developed by DWA for Lower Orange WMA and National Water Resource Strategy were used as guiding documents.

According to the ISP (Year 2000) the Lower Orange Water Management Area has a total of yield of 1122 million m<sup>3</sup> /annum. Out of the total yield 86 % is from natural yield while 14 % is a transfer to the catchment, which is more than the total catchment yield therefore there is a deficit or shortage of 55 million m<sup>3</sup> /annum in that catchment. However ISP considers the overall availability in the whole water management area, without looking at the availability of water in the quaternary.

### **3.7 The likely effect of the water use to be authorized on the water resource and on other water users in the catchment**

The transfer of water rights will not have any effect on the quantity of available water from the water resources within the immediate vicinity as all the water use allotments will be transferred from existing allocations already registered to the applicant Karsten Boerdery Pty Ltd.

### **3.8 The class and resource quality objectives of the water resource**

These aspects could only be addressed and commented on by the Department of Water Affairs.

### **3.9 Investment already made and to be made by the water user in respect of the water use in question**

The water allocations will be transferred to a property also owned by the owner.

### **3.10 The strategic importance of the water to be authorized**

The farm Klein Pella is a highly commercial agricultural (farming) unit in the area and is surrounded by other farms which are not being farmed on a highly commercial basis.

The closest communities to the farm are that of Pella, Goodhouse and Pofadder. People working on the farms are provided with temporary housing on the farm itself.

The other farms of the Karsten Boerdery Pty Ltd is managed by a very competent and motivated workforce, it has many success stories, which contributes positively to the local economy and the provision of job opportunities in the region and the Northern Cape Province.

According to the applicant the employment opportunities which will be created during the construction phase as well as the operational phase will be between 60 permanent and 450 seasonal jobs. These workers will all be from the previous disadvantaged communities. This will have a positive impact on the overall social well-being of the communities in the area. The number of employment opportunities will rise in future.

In order to ensure that the proposed project will be sustainable and economically viable, the applicant will also employ people from the neighbouring towns.

The estimated expected capital outlay for approximately 100 ha development such as this will be at least in the order of R50 million. All of these additional work opportunities, as well as the creation of buying power, will contribute positively to the economic environment of the area.

**3.11 The period for which the license is to be issued**

The license should be issued for the maximum possible period, as the water use will be of a permanent nature.

**3.12 The quality of water in the water resource which may be required for the Reserve and for meeting internal obligations.**

The water resource is affected by international obligations, but the impact are localised and the proposed water use is unlikely to have negative impact on the resource water quality.

**3.13 The impact on the environment**

The proposed development will not result in any developments taking place within the small dry ephemeral streams/drainage areas that only receive water during heavy rainfall. Areas 1 to 3 is located more than 32m from the streams and only Area 4 is located closer to the streams. Area 4 is an existing cultivated area.

**Proposed Mitigation**

As part of the construction of the development it is proposed to construct a storm water berm/canal to prevent any contamination downstream into any of these ephemeral streams/drainage areas.

For Area 4 it is proposed to create a 15m buffer area from the stream, which should be a strict “No-Go” area as part of the EMP.



#### 4. CONCLUSION

The applicant, Karsten Boerdery (Pty) Ltd is applying to transfer water rights within various farms that are in their ownership in terms of Section 25 (2) of the National Water Act, (Act 36 of 1998). The transfer of water will be **from:**

1. The Farm Kambreek 38 (Portion 1) to Farms Kambreek 38 (Portion 0) for a total of **330 000m<sup>3</sup>/a** at 15 000m<sup>3</sup>/ha (22ha).
2. The Farm Kambreek 38 (Portion 1) to Farms Kambreek 38 (Portion 2) for a total of **1005 000m<sup>3</sup>/a** at 15 000m<sup>3</sup>/ha (67ha).
3. The Farm Kambreek 38 (Portion 3) to the farm Klein Pella 40 (Portion 0) for a total of **390 000m<sup>3</sup>/a** at 15 000m<sup>3</sup>/ha (26ha).

This transfer of water is applied for to correct a deficit that has originated in the water balance for the different properties and also in order to establish an **additional 91.8 ha** of cultivation areas within the different properties. All of the proposed developments and water transfers will be undertaken within the existing water rights for the owners Karsten Boerdery Pty Ltd.

Activities	Purpose	From Property	Total Water (ha)	To property
Section 21(a)	Transfer of water	Kambreek no 38 Portion 1	330 000m <sup>3</sup> /a (22ha)	Kambreek no 38 Portion 0
Section 21(a)	Transfer of water	Kambreek no 38 Portion 1	1005 000m <sup>3</sup> /a (67ha)	Kambreek no 38 Portion 2
Section 21(a)	Transfer of water	Kambreek no 38 Portion 3	390 000m <sup>3</sup> /a (26ha)	Pella no 40 Portion 0

The water use entitlements as allocated for the applicant's properties (see breakdown in the table below) which amounts to **405.5 ha (6082 500m<sup>3</sup>/a at 15 000m<sup>3</sup>/ha)** is for the irrigation of vineyard and dates. According to an analysis done only **247.8 ha (3717 000m<sup>3</sup>/a at 15 000m<sup>3</sup>/ha)** of this allotted water is currently used for irrigation and therefore leaving **157.6 ha (2364 000m<sup>3</sup>/a at 15 000m<sup>3</sup>/ha)** of the allocation for the new proposed development of **91.8ha** dates and vineyards.

	Farm	Water Allocation	Ha Already planted	Water currently available per portion	Planned cultivation Ha	Total HA per portion after proposed expansion	Water available after planned expansion
1	Kambreek no. 38 (Portion 0)	67.5ha	89.4ha	-21.9ha	0 ha	89.4ha	-21.9ha
2	Kambreek no. 38 (Portion 1) Area 1	198ha	49.9ha	148.1ha	10ha dates	59.9ha	138.1ha
3	Kambreek no. 38 (Portion 2) Area 1	50ha	95.2ha	-45.2ha	21.4ha dates	116.6ha	-66.6ha
4	Kambreek no. 38 (Portion 3) Area 2 and 3	90ha	8.05ha	81.9ha	40.4ha vineyards	48.4ha	41.5ha
5	Klein Pella 40	0	5.3ha	-5.3ha	20 ha dates	25.3ha	-25.3ha

Portion 0						
Area 4						
<b>Total</b>	<b>405.5ha</b>	<b>247.8ha</b>	<b>157.6ha</b>	<b>91.8ha</b>	<b>339.6ha</b>	<b>65.8ha</b>

*Please note, that the allowed water allocation for all properties owned by the applicant is abstracted from the Orange.*

The proposed development will not result in any developments taking place within the small dry ephemeral streams/drainage areas that only receive water during heavy rainfall. Areas 1 to 3 is located more than 32m from the streams and only Area 4 is located closer to the streams. Area 4 is an existing cultivated area. The transfer of water rights will not have any effect on the quantity of available water from the water resources within the immediate vicinity as all the water use allotments will be transferred from existing allocations already registered to the applicant Karsten Boerdery Pty Ltd.

The intention is to market the produce locally and internationally. The project will improve the quality of life of all the individuals through agricultural investment and development, with specific reference to skills transfer, empowerment and poverty relief through wealth creation, as well as long term sustainability.

The farm Klein Pella is a highly commercial agricultural (farming) unit in the area and is surrounded by other farms which are not being farmed on a highly commercial basis.

The closest communities to the farm are that of Pella, Goodhouse and Pofadder. People working on the farms are provided with temporary housing on the farm itself.

The other farms of the Karsten Boerdery Pty Ltd is managed by a very competent and motivated workforce, it has many success stories, which contributes positively to the local economy and the provision of job opportunities in the region and the Northern Cape Province.

According to the applicant the employment opportunities which will be created during the construction phase as well as the operational phase will be between 60 permanent and 450 seasonal jobs. These workers will all be from the previous disadvantaged communities. This will have a positive impact on the overall social well-being of the communities in the area. The number of employment opportunities will rise in future.

In order to ensure that the proposed project will be sustainable and economically viable, the applicant will also employ people from the neighbouring towns.

The estimated expected capital outlay for approximately 100 ha development such as this will be at least in the order of R50 million.

All of these additional work opportunities, as well as the creation of buying power, will contribute positively to the economic environment of the area.

## **5. CONDITIONS**

When instructed to do so by the Responsible Authority the user must fit a self-registering meter at the user's expense to measure water use and the user at his expense must maintain the meter in satisfactory working condition.

Officers from the Department of Water Affairs will at all times have free access to the property and the water works for supervision and control purposes.

The Department's or Responsible Authority's local representative will issue the necessary instructions to the user with regard to the keeping of proper registers of water use and quality, and the owner must at all times comply with such instructions.

The Department accepts no liability for any damage, loss or inconvenience, of whatever nature, suffered as a result of: shortage of water; inundation or flood; siltation of the river or dam basin; and/or the shifting of water work in the event of a rise or drop in the water level of river or dam.

The quality or suitability of the water for any purpose is not guaranteed.

The water abstracted/used in terms of this license may only be used for the authorized purposes.

This license is not a permanent, lawful right and is not transferable from one user to another or from one property to another.

The user must take every possible precaution to the satisfaction of the Department, to prevent pollution of water resources.

The Department of Water Affairs reserves the right to withdraw this license in the event of failure to comply with any of the said conditions or provisions.

The applicant has a period of 2 (two) years within which to commence/implement this water use, failing which, the license will lapse.

## 6. RECOMMENDATION

It is recommended that Karsten Boerdery Pty Ltd be allowed to transfer the water between their different properties as shown below:

1. The Farm Kambreek 38 (Portion 1) to Farms Kambreek 38 (Portion 0) for a total of **330 000m<sup>3</sup>/a** at 15 000m<sup>3</sup>/ha (22ha).
2. The Farm Kambreek 38 (Portion 1) to Farms Kambreek 38 (Portion 2) for a total of **1005 000m<sup>3</sup>/a** at 15 000m<sup>3</sup>/ha (67ha).
3. The Farm Kambreek 38 (Portion 3) to the farm Klein Pella 40 (Portion 0) for a total of **390 000m<sup>3</sup>/a** at 15 000m<sup>3</sup>/ha (26ha).

Activities	Purpose	From Property	Total Water (ha)	To property
Section 21(a)	Transfer of water	Kambreek no 38 Portion 1	330 000m <sup>3</sup> /a (22ha)	Kambreek no 38 Portion 0
Section 21(a)	Transfer of water	Kambreek no 38 Portion 1	1005 000m <sup>3</sup> /a (67ha)	Kambreek no 38 Portion 2
Section 21(a)	Transfer of water	Kambreek no 38 Portion 3	390 000m <sup>3</sup> /a (26ha)	Pella no 40 Portion 0

This will be in order to correct a deficit that has originated in the water balance for the different properties and also to establish an additional 91.8 ha of cultivation areas on the different properties.

**7. APPENDICES**  
**APPENDIX A: Completed License Application Forms**

APPENDIX B.1: Water Use Confirmation Kambreek No 38 Portion 0

	
<p><b>water affairs</b>          Department:          Water Affairs          REPUBLIC OF SOUTH AFRICA</p>	
<p><b>National Register of Water Use Certificate 25146217</b></p>	
<p>National Register of Water Use Certificate 25146217, 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:</p>	
<p><b>Applicant</b></p>	
Applicant Type:	COMPANY
Name:	KARSTEN BOERDERY
Enterprise Type:	PRIVATE COMPANY
Business Registration Number:	2005/033870/07
Postal Address:	PO BOX 53 KANONELAND 8806
VAT Registration Number:	4880131442
<p><b>Water Management Area</b></p>	
Name:	LOWER ORANGE
<p><b>Register Status</b></p>	
Status:	ACTIVE
<p><b>Water Uses</b></p>	
Section 21(a) Taking water from a water resource:	See attached Annexure(s)
	
	
<p>Office Lower Orange - Northern Cape          Upington          Regional Office Northern Cape Region</p>	
<p><b>DISCLAIMER:</b>          This certificate is:</p> <ol style="list-style-type: none"> <li>not an acknowledgement of an entitlement to the registered water use;</li> <li>issued without alterations or erasures and is invalid if it contains alterations not in conformity with the Department's official copy; and</li> <li>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.</li> </ol>	
Register No. 25146217	2012/04/18 11:22:03 AM
Print Seq. No. 1	Page 1 of 4

National Register of Water Use Certificate 25146217						
Taking water from a water resource in terms of Section 21(a) of the National Water Act						
<b>Water Use Identification</b>						
Register Number:	25146217					
Water Use Number:	1					
Water Use Start Date:	2012/02/01					
Water Use Status Date:	2012/04/18					
Water Use Status:	REGISTERED					
<b>Lawfulness Authentication</b>						
Finding:	LAWFULNESS STILL TO BE DETERMINED					
Finding Date:	2012/03/22					
Finding Reason:						
Finding Confirmed:	YES					
<b>Succession/Transfer Details</b>						
Succession/Transfer Type:	SUCCESSION IN TITLE					
Source Part2 Details:	Register No.	WUN				
	25010611	2				
<b>Water Use Details</b>						
Water Use Sector(s)(i.e. Purpose(s) of Water Use):	AGRICULTURE: IRRIGATION					
Source Type:	SCHEME					
Point of Abstraction:	Latitude	Longitude				
	28° 34' 104" south	21° 11.6394" east				
Datum Type:	CAPE (MODIFIED CLARKE 1880)					
Quaternary Drainage Region:	D73F					
Scheduled Use	YES					
Scheduled Area	87.5 HECTARES					
<b>Scheme Details</b>						
Scheme Name:	LOWER ORANGE/NAMAQUALAND					
Scheme Management Parameter Name:	SECTION OF LOWER ORANGE BETWEEN BOEGOEBERG AND THE SEA.					
Servitude Volume:	15000 CUBIC METRES PER HECTARE PER ANNUM					
Scheduled Quota						
<b>Registered Volumes</b>						
Start Date	Registered Volume (m <sup>3</sup> )	Time Interval				
2012/02/01	1012500	PER YEAR				
<b>Irrigated Field and Crop information</b>						
Field Number	Crop	Area (hectares)	Planting Date (mm/dd)	Growing season (days)	Rotation factor %	Irrigation system
A	GRAPES-WINE	87.5	12/30		100	MICRO-SPRAY
Register No: 25146217 WUN 1				2012/04/18 11:22:03 AM	Print Seq. No. 1	Page 2 of 4

**National Register of Water Use Certificate 25146217**

Taking water from a water resource in terms of Section 21(a) of the National Water Act

**Water Use Identification**  
 Register Number: 25146217  
 Water Use Number: 1  
 Water Use Start Date: 2012/02/01  
 Water Use Status Date: 2012/04/18  
 Water Use Status: REGISTERED

**Property Where Water Use Occurs**

Property Name: KAMBREEK 38 PORTION 0 REMAINING EXTENT  
 Property Number: 38  
 Portion of Property: 0  
 Title Deed Number: T60481/2006  
 SG Cadastral Code: C0530000000003800000  
 Deeds Office: CAPE TOWN  
 Registration Division: NAMAQUALAND  
 Province: NORTHERN CAPE  
 Surveyor General Office: CAPE TOWN

**WUN/Property Relationship Details**

Relationship Start Date	Relationship End Date
2012/02/01	

**Comment**

SUCCESSION IN TITLE - PREVIOUS OWNER WAS KAMBREEK EN SANDFOSTEIN PTY LTD WITH REG NR 25010611  
 THE CUSTOMERS ACCOUNT WAS PAID UP TO THE 31/01/2012, BUT THIS IS THE SAME OWNER JUST A NAMECHANGING HAPPENED.

**National Register of Water Use Certificate 25146217**

Taking water from a water resource in terms of Section 21(a) of the National Water Act

**Water Use Identification**

Register Number:	25146217
Water Use Number:	1
Water Use Start Date:	2012/02/01
Water Use Status Date:	2012/04/18
Water Use Status:	REGISTERED



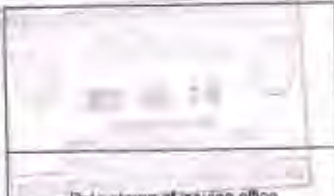
**DISCLAIMER:**

This certificate is :

1. not an acknowledgement of an entitlement to the registered water use;
2. issued without alterations or erasures and is invalid if it contains alterations not in conformity with the Department's official copy; and
3. 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.



APPENDIX B.2: Water Use Confirmation Kambreek No 38 Portion 1

 <b>water affairs</b> Department: Water Affairs REPUBLIC OF SOUTH AFRICA			
<b>National Register of Water Use Certificate 25010416</b>			
National Register of Water Use Certificate 25010416, 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:			
<b>Applicant</b>			
Applicant Type:	COMPANY		
Name:	KARSTEN BOERDERY		
Enterprise Type:	PRIVATE COMPANY		
Business Registration Number:	2005/033870/07		
Postal Address:	PO BOX 53 KANONEILAND 8806		
VAT Registration Number:	4860131442		
<b>Water Management Area</b>			
Name:	LOWER ORANGE		
<b>Register Status</b>			
Status:	ACTIVE		
<b>Water Uses</b> Section 21(a) Taking water from a water resource.			
See attached Annexure(s)			
 Office Lower Orange - Northern Cape Uptington Regional Office Northern Cape Region	 Date stamp of issuing office		
<b>DISCLAIMER:</b> This certificate is :			
1. not an acknowledgement of an entitlement to the registered water use; 2. issued without alterations or erasures and is invalid if it contains alterations not in conformity with the Department's official copy; and 3. 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.			
Register No. 25010416	2012/03/09 11:27:25 AM	Print Seq. No. 7	Page 1 of 4

National Register of Water Use Certificate 25010416							
Taking water from a water resource in terms of Section 21(a) of the National Water Act							
<b>Water Use Identification</b>							
Register Number:	25010416						
Water Use Number:	2						
Water Use Start Date:	1998/08/01						
Water Use Status Date:	2002/08/21						
Water Use Status:	REGISTERED						
<b>Lawfulness Authentication</b>							
Finding:	LAWFULNESS STILL TO BE DETERMINED						
Finding Date:	2006/04/01						
Finding Reason:							
Finding Confirmed:	YES						
<b>Water Use Details</b>							
Water Use Sector(s)(i.e. Purpose(s) of Water Use):	AGRICULTURE: IRRIGATION						
Source Type:	SCHEME						
Point of Abstraction:	Latitude	Longitude					
	28° 56.807' south	19° 56.902' east					
Datum Type:	CAPE (MODIFIED CLARKE 1880)						
Quaternary Drainage Region:	D82A						
Scheduled Use	YES						
Scheduled Area	198 HECTARES						
<b>Scheme Details</b>							
Scheme Name:	LOWER ORANGE/NAMAQUALAND						
Scheme Management Parameter Name:	SECTION OF LOWER ORANGE BETWEEN BOEGOEBOEG AND THE SEA.						
Servitude Volume:	15000 CUBIC METRES PER HECTARE PER ANNUM						
Scheduled Quota							
<b>Registered Volumes</b>							
Start Date	Registered Volume (m <sup>3</sup> )	Time Interval					
1998/08/01	2970000	PER YEAR					
<b>Irrigated Field and Crop Information</b>							
Field Number	Crop	Area (hectares)	Planting Date (mm/dd)	Growing season (days)	Rotation factor %	Irrigation system	
A	GRAPES-WINE	198	12/30		100	MICRO SPRAY	
Register No: 25010416 WJN 2							
2012/03/09 11:27:25 AM							
Print Set: No: 7							
Page: 2 of 4							

**National Register of Water Use Certificate 25010416**

Taking water from a water resource in terms of Section 21(e) of the National Water Act

**Water Use Identification**  
 Register Number: 25010416  
 Water Use Number: 2  
 Water Use Start Date: 1998/08/01  
 Water Use Status Date: 2002/06/21  
 Water Use Status: REGISTERED

**Property Where Water Use Occurs**  
 Property Name: KAMBREEK 38 PORTION 1  
 Property Number: 38  
 Portion of Property: 1  
 Title Deed Number: T60483/2008  
 SG Cadastral Code: C05300000000003800001  
 Deeds Office: CAPE TOWN  
 Registration Division: NAMAQUALAND  
 Province: NORTHERN CAPE  
 Surveyor General Office: CAPE TOWN

**WUN/Property Relationship Details**

Relationship Start Date	Relationship End Date
1998/08/01	

**Comment**

**National Register of Water Use Certificate 25010416**

Taking water from a water resource in terms of Section 21(a) of the National Water Act

**Water Use Identification**



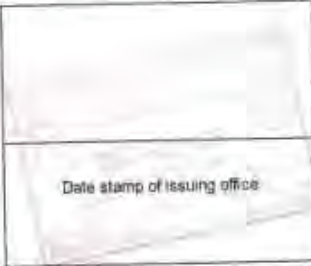
Register Number:	25010416
Water Use Number:	2
Water Use Start Date:	1998/08/01
Water Use Status Date:	2002/06/21
Water Use Status:	REGISTERED

**DISCLAIMER:**

This certificate is -

1. not an acknowledgement of an entitlement to the registered water use;
2. issued without alterations or erasures and is invalid if it contains alterations not in conformity with the Department's official copy; and
3. 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.

APPENDIX B 3: Water Use Confirmation Kambreek No 38 Portion 2

 <b>water affairs</b> Department Water Affairs REPUBLIC OF SOUTH AFRICA	
<b>National Register of Water Use Certificate 25146262</b>	
National Register of Water Use Certificate 25146262, 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:	
<b>Applicant</b> Applicant Type: Name: Enterprise Type: Business Registration Number: Postal Address:  VAT Registration Number:	COMPANY KARSTEN BOERDERY PRIVATE COMPANY 2005/033870/07 PO BOX 53 KANONELAND 8606  486013144Z
<b>Water Management Area</b> Name:	LOWER ORANGE
<b>Register Status</b> Status:	ACTIVE
<b>Water Uses</b> Section 21(a) Taking water from a water resource.	See attached Annexure(s)
 Office Lower Orange - Northern Cape Upington Regional Office Northern Cape Region	 Date stamp of issuing office
<b>DISCLAIMER:</b> This certificate is : 1. not an acknowledgement of an entitlement to the registered water use; 2. issued without alterations, or erasures and is invalid if it contains alterations not in conformity with the Department's official copy; and 3. 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.	
Register No. 25146262	2012/04/18 11:22:47 AM
Page 1 of 4	Print Size: 1

National Register of Water Use Certificate 25146262							
Taking water from a water resource in terms of Section 21(a) of the National Water Act							
<b>Water Use Identification</b>							
Register Number:	25146262						
Water Use Number:	1						
Water Use Start Date:	2012/02/01						
Water Use Status Date:	2012/04/18						
Water Use Status:	REGISTERED						
<b>Lawfulness Authentication</b>							
Finding:	LAWFULNESS STILL TO BE DETERMINED						
Finding Date:	2012/04/11						
Finding Reason:							
Finding Confirmed:	YES						
<b>Succession/Transfer Details</b>							
Succession/Transfer Type:	SUCCESSION IN TITLE						
Source Part2 Details:	Register No.	WUN					
	25010502	1					
<b>Water Use Details</b>							
Water Use Sector(s)(i.e. Purpose(s) of Water Use):	AGRICULTURE: IRRIGATION						
Source Type:	SCHEME						
Point of Abstraction:	Latitude	Longitude					
	28.95433' south	18.99812' east					
Datum Type:	CAPE (MODIFIED CLARKE 1880)						
Quaternary Drainage Region:	D62A						
Scheduled Use	YES						
Scheduled Area	50 HECTARES						
<b>Scheme Details</b>							
Scheme Name:	LOWER ORANGE/NAMAQUALAND						
Scheme Management Parameter Name:	SECTION OF LOWER ORANGE BETWEEN BOEGOEBERG AND THE SEA.						
Servitude Volume:	15000 CUBIC METRES PER HECTARE PER ANNUM						
Scheduled Quota							
<b>Registered Volumes</b>							
Start Date	Registered Volume (m <sup>3</sup> )	Time Interval					
2012/02/01	750000	PER YEAR					
<b>Irrigated Field and Crop Information</b>							
Field Number	Crop	Area (hectares)	Planting Date (mm/dd)	Growing season (days)	Rotation factor %	Irrigation system	
A	GRAPES-WINE	50	12/30		100	MICRO SPRAY	
Register No.: 25146262 WUN 1		2012/04/18 11:22:47 AM		Print Seq. No.: 1		Page 2 of 4	

**National Register of Water Use Certificate 25146262**

Taking water from a water resource in terms of Section 21(a) of the National Water Act

**Water Use Identification**  
 Register Number: 25146262  
 Water Use Number: 1  
 Water Use Start Date: 2012/02/01  
 Water Use Status Date: 2012/04/18  
 Water Use Status: REGISTERED

**Property Where Water Use Occurs**

Property Name: KAMBREEK 38 PORTION 3  
 Property Number: 38  
 Portion of Property: 2  
 Title Deed Number: T80480/2005  
 SG Cadastral Code: C0530000000003800002  
 Deeds Office: CAPE TOWN  
 Registration Division: NAMAQUALAND  
 Province: NORTHERN CAPE  
 Surveyor General Office: CAPE TOWN

**WUN/Property Relationship Details**

Relationship Start Date	Relationship End Date
2012/02/01	

**Comment**

SUCCESSION IN TITLE - PREVIOUS OWNER WAS KLEIN PELLA PTY LTD WITH REG NR 25010602 THE CUSTOMERS WAS BILLED UNTIL THE 31/01/2012, BUT THEY ARE THE SAME OWNER JUST A NAMECHANGE HAPPEN

**National Register of Water Use Certificate 25146262**

Taking water from a water resource in terms of Section 21(a) of the National Water Act

**Water Use Identification**

Register Number:	25146262
Water Use Number:	1
Water Use Start Date:	2012/02/01
Water Use Status Date:	2012/04/18
Water Use Status:	REGISTERED




**DISCLAIMER:**

This certificate is :

1. not an acknowledgement of an entitlement to the registered water use;
2. issued without alterations or erasures and is invalid if it contains alterations not in conformity with the Department's official copy; and
3. 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 license certificate. The license conditions that are applicable to the water use are not currently incorporated in this National Register of Water Use certificate.



APPENDIX B.4: Water Use Confirmation Kambreek No 38 Portion 3

	<b>water affairs</b> Department Water Affairs REPUBLIC OF SOUTH AFRICA
	<b>National Register of Water Use Certificate 25146280</b>
National Register of Water Use Certificate 25146280, 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:	
<b>Applicant</b> Applicant Type: Name: Enterprise Type: Business Registration Number: Postal Address:  VAT Registration Number:	COMPANY KARSTEN BOERDERY PRIVATE COMPANY 2005/033870/07 PO BOX 53 KANONEILAND 6806  4880131442
<b>Water Management Area</b> Name:	LOWER ORANGE
<b>Register Status</b> Status:	ACTIVE
<b>Water Uses</b> Section 21(a) Taking water from a water resource.	See attached Annexure(s)
 Office Lower Orange - Northern Cape Upington Regional Office Northern Cape Region	 Date stamp of issuing office
<b>DISCLAIMER:</b> This certificate is: 1. not an acknowledgement of an entitlement to the registered water use; 2. issued without alterations or erasures and is invalid if it contains alterations not in conformity with the Department's official copy; and 3. 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.	
Register No. 25146280	2012/04/19 07:42:01 AM
Print Seq. No. 1	Page 1 of 4

### National Register of Water Use Certificate 25146280

Taking water from a water resource in terms of Section 21(a) of the National Water Act

<b>Water Use Identification</b>						
Register Number:	25146280					
Water Use Number:	1					
Water Use Start Date:	2012/02/01					
Water Use Status Date:	2012/04/19					
Water Use Status:	REGISTERED					
<b>Lawfulness Authentication</b>						
Finding:	LAWFULNESS STILL TO BE DETERMINED					
Finding Date:	2012/04/18					
Finding Reason:						
Finding Confirmed:	YES					
<b>Succession/Transfer Details</b>						
Succession/Transfer Type:	SUCCESSION IN TITLE					
Source Part2 Details:	Register No. WUN 25010595 1					
<b>Water Use Details</b>						
Water Use Sector(s)(i.e. Purpose(s) of Water Use):	AGRICULTURE: IRRIGATION					
Source Type:	SCHEME					
Point of Abstraction:	Latitude Longitude 28.96911° south 18.9877° east					
Datum Type:	CAPE (MODIFIED CLARKE 1880)					
Quaternary Drainage Region:	D82A					
Scheduled Use	YES					
Scheduled Area	90 HECTARES					
<b>Scheme Details</b>						
Scheme Name:	LOWER ORANGE/NAMAQUALAND					
Scheme Management Parameter Name:	SECTION OF LOWER ORANGE BETWEEN BOEGOEBERG AND THE SEA.					
Servitude Volume:						
Scheduled Quota	15000 CUBIC METRES PER HECTARE PER ANNUM					
<b>Registered Volumes</b>						
Start Date	Registered Volume (m³) Time Interval					
2012/02/01	1350000 PER YEAR					
<b>Irrigated Field and Crop Information</b>						
Field Number	Crop	Area (hectares)	Planting Date (mm/dd)	Growing season (days)	Rotation factor %	Irrigation system
A	GRAPES-WINE	130	12/30		100	MICRO SPRAY
A	GRAPES-WINE	90			100	MICRO SPRAY

**National Register of Water Use Certificate 25146280**

Taking water from a water resource in terms of Section 21(a) of the National Water Act

**Water Use Identification**

Register Number: 25146280  
 Water Use Number: 1  
 Water Use Start Date: 2012/02/01  
 Water Use Status Date: 2012/04/10  
 Water Use Status: REGISTERED

**Property Where Water Use Occurs**

Property Name: KAMBREEK 38 PORTION 3  
 Property Number: 38  
 Portion of Property: 3  
 Title Deed Number: T80480/2005  
 SG Cadastral Code: C0530000000009800003  
 Deeds Office: CAPE TOWN  
 Registration Division: NAMAQUALAND  
 Province: NORTHERN CAPE  
 Surveyor General Office: CAPE TOWN

**WUN/Property Relationship Details**

Relationship Start Date	Relationship End Date
2012/02/01	

**Comment**

SUCCESSION IN TITLE - PREVIOUS OWNER WAS KLEIN PELLA PTY LTD WITH RBG NR 25010594. SAME OWNER, THE COMPANY JUST HAVING A NAMECHANGE NEW NUMBER 25146280

**National Register of Water Use Certificate 25146280**

Taking water from a water resource in terms of Section 21(a) of the National Water Act

**Water Use Identification**

Register Number:	25146280
Water Use Number:	1
Water Use Start Date:	2012/02/01
Water Use Status Date:	2012/04/10
Water Use Status:	REGISTERED

**DISCLAIMER:**

This certificate is:

1. not an acknowledgement of an entitlement to the registered water use;
2. issued without alterations or erasures and is invalid if it contains alterations not in conformity with the Department's official copy; and
3. 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.

APPENDIX C: Deed Search and Title Deeds



Opgestel deur my  
*M. P. B. de Villiers*  
 TRANSPORTBESORGER  
 DE VILLIERS P J D & B

**FEE**  
 R.....(.....),00

418 ET 506

para. 22 → 26.  
**VERBIND MORTGAGED**  
 VIR FOR R 13 500 000,00  
 19 B000080464/2006  
 07 AUG 2006  
 REGISTRATEUR/REGISTRAR

MALAN & VENNOTE  
 Schroderstraat 25  
 Uppington  
 8800  
 Docex 9, Uppington

B00060483/2006

**AKTE VAN TRANSPORT 22 AUG 2006**

**DATA / CAPTURE**  
**COMBRINK A**

HIERMEE WORD BEKEND GEMAAK

DAT CHARL ANDRÉ THERON

voor my die REGISTRATEUR VAN AKTES verskyn het te KAAPSTAD, die genoemde Komparant synde behoorlik daartoe gemagtig deur 'n Volmag aan hom/haar verleen deur

**KARSTEN GROUP HOLDINGS (EIENDOMS) BEPERK**  
 Registrasienommer 1992/002390/07

Gedateer 14 Maart 2006  
 en geteken te KANONEILAND

EN genoemde Komparant het verklaar dat **KARSTEN GROUP HOLDINGS (EIENDOMS) BEPERK** die ondergemeide eiendom op 1 Maart 2006 waarlik en wettiglik per **Privaat Ooreenkoms** verkoop het en dat hy/sy in sy/haar voornoemde hoedanigheid hierby sedeer en transporteer aan en ten gunste van:

**KARSTEN BOERDERY (EIENDOMS) BEPERK**  
 Registrasienommer 2005/033670/07

die ampsovolgers in titel of regsverkrygendes in volkome en vrye eiendom:

1. **ERF**                    **7 FRITZRAND**
- GELEE**                **in die KallGarib Munisipaliteit, Afdeling Kenhardt, Provinsie Noord-Kaap**
- GROOT:**            **3351 (DRIE DUISEND DRIE HONDERD EEN EN VYFTIG) vierkante meter**

**AANVANKLIK OORGEDRA** kragtens Grondbrief Nr T259/1953 met Kaart Nr 4984/1937 wat daarop betrekking het

**EN GEHOU** kragtens Akte van Transport T60099/1995

- A. **ONDERHEWIG** aan die volgende voorwaardes vervat in Grondbrief Nr T259/1953, en wat soos volg lees:-
- (a) Die Goewerneur-generaal het te eniger tyd reg om die hiermee toegekende grond geheel of gedeeltelik weer in besit te neem as dit vir publieke doeleindes vereis word, teen betaling, as vergoeding, aan die eienaar van 'n sodanige som geld soos deur die betrokke partye onderling ooreengekom of by gebreke van sodanige ooreenkoms soos deur skeidsregterlike uitspraak vasgestel mag word.
- (b) Die Goewerneur-generaal het te eniger tyd die reg om sulke besproeiingswerke as wat hy mag nodig vind op die hiermee toegekende grond aan te lê of die aanlê daarvan te magtig vir die doel om water uit die Oranjerivier te neem om enige Kroongrond of private grond langs of grensende aan die Oranjerivier te besproei.
- (c) Daardie gedeelte van die hiermee toegekende grond binne 'n afstand van 50 voet vanaf die naaste wal van enige van die hoofstrome van die Oranjerivier teen normale somer-hoogwatermerk; en 25 voet vanaf die naaste wal van enige hoof- of subsidiêre of takkanaal of spruit of sloep of sugslot, word as 'n vloedbeskerrende strook gereserveer en geen deel daarvan mag verbou of bewerk word nie, en geen bome of kreupelhout daarop mag afgekap of verwyder word sonder dat die skriftelike toestemming van die Minister van Lande vooraf verkry is nie.

bepalings van Wet Nr 40/1895 op die 2de Desember 1914 (Kenhardt Erfpagte Boekdeel 7 Nr 13), Nr VI, waarvan soos volg luit:

"That all rights to gold, silver and precious stones found or discovered at any time on or in the said land shall be reserved to the State, together with a right of ingress to and egress from any mines or works undertaken for mining or prospecting purposes by any person or persons authorised by the Minister, but subject always to the provisions of any law for the time being regulating the prospecting and mining for precious stones and minerals."

**27. DIE RESTANT VAN DIE PLAAS KLEIN PELLA NR 40**

**GELEE** In die Khâ-Ma Munisipaliteit, Afdeling Namakwaland, Provinsie Noord-Kaap

**GROOT** 6105,2088 (SES DUISEND EEN HONDERD EN VYF KOMMA TWEE NUL AGT AGT) HEKTAAR

AANVANKLIK OORGEDRA kragtens Akte van Toekenning gedateer 17 Oktober 1911 (Namakwaland Erfpagte volume 7 nr 39) met Kaart wat daarop betrekking het;

EN GEHOU kragtens Akte van Transport Nr T79826/1998

A. **ONDERHEWIG AAN** die voorwaardes in die voormelde Akte van Toekenning gedateer 7 Oktober 1911 (Namakwaland Erfpagte Volume 7 nr 39) vermeld, no VI waarvan as volg luit:-

VI. That all rights to gold, silver and precious stones found or discovered at any time on or in the said land shall be reserved to the Crown, together with a right of ingress to and egress from any mines or works undertaken for mining or prospecting purposes by any person or persons authorised by the Minister, but subject always to the provisions of any law for the time being regulating the prospecting and mining for precious stones and minerals.

B. 'n Sessie van Mineraleregte ingevolge K848/98 ten opsigte van alle regte tot Epidoot, Granaat, Hoomblande en Arvedsonlet uitgesonderd goud, silwer en edelgesteentes wat reeds voorbehou is deur die Staat ten gunste van GANNA MINERALE (EIENDOMS) BEPERK Nr 1973/014325/07.

**28. GEDEELTE 1 VAN DIE PLAAS KAMBREEK NR 38**

**GELEE** In die Khâ-Ma Munisipaliteit, Afdeling Namakwaland, Provinsie Noord-Kaap

**GROOT:** 495,4432 (MIER HONDERD VYF EN NEGENTIG KOMMA MIER VIER DRIE TWEE) HEKTAAR

AANVANKLIK OORGEDRA kragtens Akte van Transport Nr T60701/1989 met Kaart Nr. 2295/89 wat daarop betrekking het;

EN GEHOU kragtens Transportakte Nr T79826/1998.

111

Klein Pella

**56 WALKERS INC.**  
Telephone (021) 464 1400

Opgestel deur my,  
*M. de Villiers*  
TRANSPORTBESORGER  
DE VILLIERS P J de B

**FEE**  
R. *269.00*

**VERBIND MORTGAGED.** *Waf*  
VIR  
FOR R *40 000 000,00*  
**B000080465/2006**  
*20* 07 AUG 2006  
*Johnnie*  
REGISTRATEUR/REGIS. GRAR

MALAN & VENNOTE  
Schroderstraat 25  
Uppington  
8800  
DoceX 9, Uppington

**000060480/2006**

**DATA / CAPTURE**  
22 AUG 2006  
**COMBRINK A**

**AKTE VAN TRANSPORT**

HIERMEE WORD BEKEND GEMAAK  
DAT **CHARL ANDRÉ THERON**  
voor my die REGISTRATEUR VAN AKTES verskyn het te KAAPSTAD, die genoemde  
Komparant synde behoorlik daartoe gemagtig deur 'n Volmag aan hom/haar verleen deur  
**KLEIN PELLA (EIENDOMS) BEPERK**  
NR: 1969/015073/07

Gedateer 1 Maart 2006  
en geteken te UPINGTON

(DeedOfTransferConventional\_A.rtf) Vorm E

LegalSuite / MALAN & VENNOTE



EN genoemde Komparant het verklaar dat KLEIN PELLA (EDMS) BPK die ondergemelde eiendom op 1 Maart 2006 waarlik en wettiglik per Privaat Ooreenkoms verkoop het en dat hy/sy in sy/haar voornoemde hoedanigheid hierby sedeer en transporteer aan en ten gunste van:

**KARSTEN BOERDERY (EIENDOMS) BEPERK  
NR 2005/033870/07**

die ampsopvolgers in titel of regsverkrygendes in volkome en vrye eiendom:

- |    |                 |  |
|----|-----------------|--|
| 1. | <b>GEDEELTE</b> | <b>2 VAN DIE PLAAS KAMBREEK NR 38</b>  |
|    | <b>GELEë</b>    | <b>In die Khâi-Ma Munisipaliteit, Afdeling Namakwaland, Provinsie Noord-Kaap</b> |
|    | <b>GROOT</b>    | <b>267,9085 (TWEË HONDERD SEWE EN SESTIG KOMMA NEGE NUL AGT VYF) Hektaar</b>     |

AANVANKLIK OORGEDRA kragtens Transportakte Nr T60702/1989 met Kaart Nr 2296/89 wat daarop betrekking het

EN GEHOU kragtens Transportakte T33850/1996

ONDERHEWIG aan die voorwaardes in die voormelde Grondbrief gedateer 28 Augustus 1912 (Namakwaland Erfpagte Boekdeel B Nr. 7) vermeld, nos VI en VII waarvan as volg lui:

- VI. That all rights to gold, silver and precious stones found or discovered at any time on or in the said land shall be reserved to the Crown, together with a right of ingress to and egress from any mines or works undertaken for mining or prospecting purposes by any person or persons authorised by the Minister, but subject always to the provisions of any law for the time being regulating the prospecting and mining for precious stones and minerals.
- VII. That the proprietor shall allow to the public travelling along any of the roads over the land hereby granted the right to pass over and graze their loose cattle, horses, sheep and goats, to an extent not exceeding 377,83 meters on either side of any such road.

*av*

2. **GEDEELTE** 3 VAN DIE PLAAS KAMBREEK NO 38
- GELEë** in die Khâi-Ma Munisipaliteit, Afdeling Namakwaland, Provinsie Noord-Kaap
- GROOT** 778,0390 (SEWE HONDERD AGT EN SEWENTIG KOMMA NUL DRIE NEGE NUL) Hektaar

AANVANKLIK OORGEDRA EN GEHOU kragtens Transportakte T60703/1989 met Kaart Nr 2297/89 wat daarop betrekking het;

ONDERHEWIG aan die voorwaardes in die voormelde Grondbrief gedateer 28 Augustus 1912 (Namakwaland Erfpagte Boekdeel 8 Nr. 7) vermeld, nos VI en VII waarvan as volg lûi-

- VI. That all rights to gold, silver and precious stones found or discovered at any time on or in the said land shall be reserved to the Crown, together with a right of ingress to and egress from any mines or works undertaken for mining or prospecting purposes by any person or persons authorised by the Minister, but subject always to the provisions of any law for the time being regulating the prospecting and mining for precious stones and minerals.
- VII. That the proprietor shall allow to the public travelling along any of the roads over the land hereby granted the right to pass over and graze their loose cattle, horses, sheep and goats, to an extent not exceeding 377.83 meters on either side of any such road.

WESHALWE die Komparant afstand doen van al die regte en titel wat die gesegde KLEIN PELLA (EDMS) BPK voorheen op genoemde eiendom gehad het en gevolglik ook erken dat sy geheel en al van die besit daarvan onthef en nie meer daartoe geregtig is nie, en dat, kragtens hierdie akte, bogenoemde

#### KARSTEN BOERDERY (EIENDOMS) BEPERK

die ampsopvolgers in titel of regsverkrygendes tans en voortaan daartoe geregtig is, ooreenkomstig plaaslike gebruik, behoudens die regte van die Staat en erken sy ten slotte dat die koopprijs van die eiendom wat hiermee getranspoteer word die bedrag van R287 931,00 (TWEË HONDERD SEWE EN TAGTIG DUISEND NEGE HONDERD EEN EN DERTIG RAND) is.

(DeedOfTransferConventional\_A.rtf) Vorm E

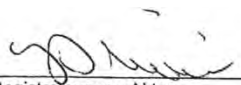
LegalSuite / MALAN & VENNOTE

TEN BEWYSE WAARVAN EK, die genoemde Registrateur van Aktes, tesame met die Komparant hierdie Akte onderteken en dit met die Ampseël bekragtig het.

ALDUS GEDOEN EN VERLY op die kantoor van die REGISTRATEUR VAN AKTES te KAAPSTAD op 7 Augustus 2006.

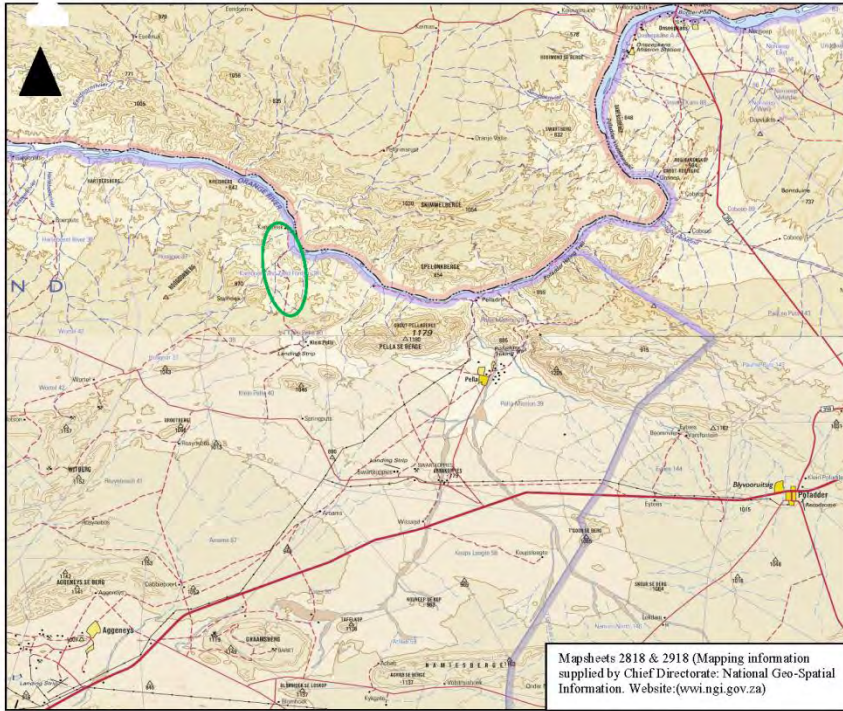
  
Handtekening van komparant

In my teenwoordigheid

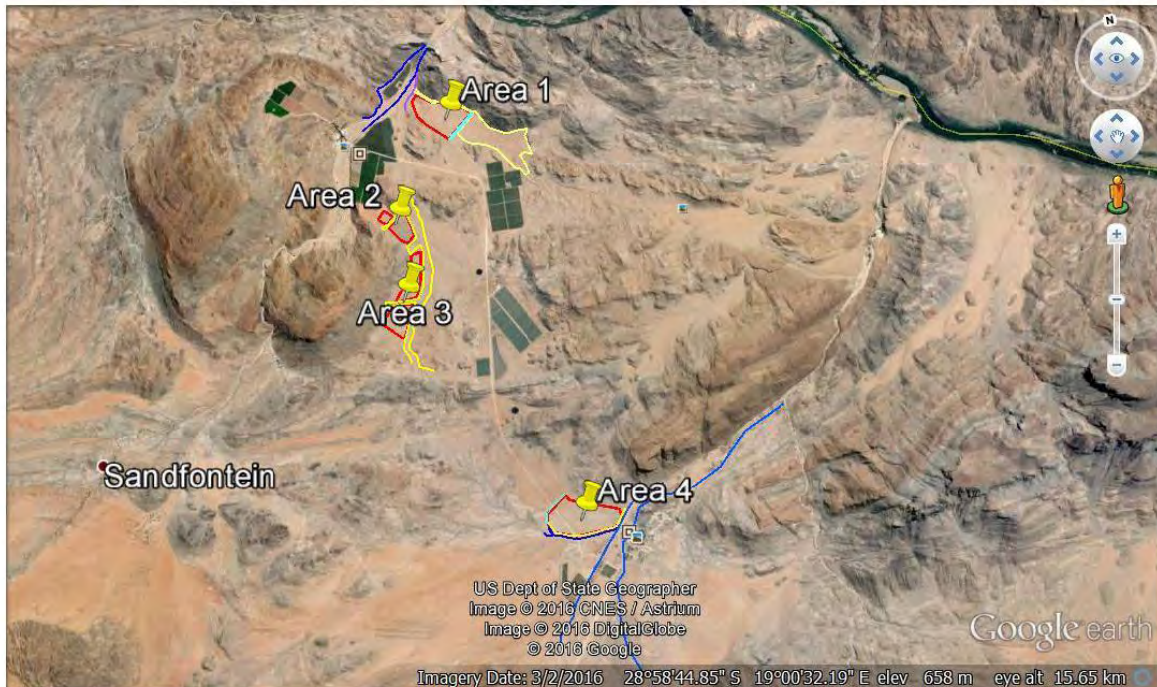
  
Registrateur van Aktes

**APPENDIX D: Ploughing Certificate Application**

APPENDIX E: Locality Map



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**APPENDIX F: Technical Documents**

**Appendix F.1: Environmental Impact Report**

EIA is in process. A final copy of this report will be submitted to this Department on request

**APPENDIXG: Proof of Public Participation**

EIA is in process. A final copy of this report will be submitted to this Department on request

**APPENDIX H: BEE Certificate**

**Broad-Based Black Economic Empowerment  
Generic  
AgriBEE Sector Code Certificate**

Enterprise Name: **Karsten Group Holdings (Pty) Ltd**  
 Enterprise Registration No: **1992/002390/07**  
 Enterprise VAT No: **4860131442**

**Including Subsidiaries Listed in Annexure "A" of Certificate**

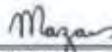
Physical Address:	<b>3 Queen Street Durbanville 7550</b>	Tel:	<b>021 979 5241</b>
Contact Person:	<b>Madelé van Heerden</b>	Fax:	<b>021 979 5247</b>
		Email:	<b>madelév@karsten.co.za</b>
		Ref No:	<b>KARS010-01</b>

Date of assessment: **30 April 2015**  
 Expiry date: **29 April 2016**  
 B-BBEE scorecard type: **Generic Scorecard under the AgriRFF Sector Code**

B-BBEE Contribution Summary	B-BBEE Score
<b>Direct Empowerment</b>	
Ownership	<b>0,00</b>
Management Control	<b>3,40</b>
<b>Human Resource Development</b>	
Employment Equity	<b>1,46</b>
Skills Development	<b>14,19</b>
<b>Indirect Empowerment</b>	
Preferential Procurement	<b>5,87</b>
Enterprise Development	<b>10,00</b>
Socio-Economic Development	<b>11,00</b>

B-BBEE Score: **45,93**  
 B-BBEE Status Level: **LEVEL SIX**  
 B-BBEE Recognition Level: **60%**  
 More than 50% Black Owned: **NO**  
 More than 30% Black Women Owned: **NO**  
 Value-Adding Supplier: **YES**

Signature

  
 Mazars  
 Technical Signatory: **H Wessels**  
**30 April 2015**

This Broad-Based Black Economic Empowerment verification is based on the provisions of the AgriBEE Sector Code, gazetted on 29 December 2012, by the Department of Trade and Industry.

**Mazars East London  
contact details**

T: 043 06 4848  
 F: 043 756 4976  
 E: [info@mazars.co.za](mailto:info@mazars.co.za)  
 W: [www.mazars.co.za](http://www.mazars.co.za)

Physical Address:  
 28 Vincent Road  
 Graham  
 East London  
 6051

Postal Address:  
 PO Box 314  
 East London  
 6050





APPENDIX I.1: Certified Certificate of Company

SEKR 01  
Republic of South Africa  
Companies Act, 1973, Section 44(1)(b)

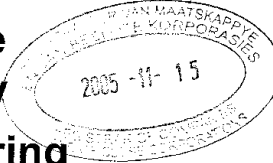
Republic of South Africa  
Companies Act, 1973, Section 44(1)(b)

Form/Vorm CMS

Registration No. of company/Registrasienuommer van maatskappy

2005/033870/07

**Certificate of change  
of name of company**  
**Sertifikaat van verandering  
van naam van maatskappy**



This is certify that/Hierby word gesertifiseer dat

**KARSTEN GROUP HOLDINGS (PTY) LTD**

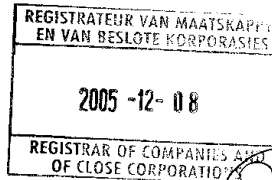
has changed its name by SPECIAL RESOLUTION and is now called  
sy naam verander het by SPESIALE BESLUIT en nou genoem word

**KARSTEN BOERDERY (PTY) LTD**

and that the new name has this day been entered in the Register of Companies.  
en dat die nuwe naam op hierdie dag in die Register van Maatskappye aangeteken is.

Signed and sealed at Pretoria, this/Geteken en geseel te Pretoria op hede die  
day of/dag van *December*  
TWEË DUISEND EN VYF  
TWO THOUSAND AND FIVE

*8th*



*[Signature]*

Registrar of Companies/Registrateur van Maatskappye

Seal of Companies Registration Office  
Seel van Registrateur van Maatskappy

May 1999 - ProfSoft Solutions (Edms) Bpk - Gereproduseer onder die Staatsdrukker se Outeursregvergunning Nr. 10687 van 12 Mei 1999  
May 1999 - ProfSoft Solutions (Pty) Ltd - Reproduced under Government Printer's Copyright Authority No. 10687 of 12 May 1999

Registrasienuommer van Maatsk

KARSTEN GROUP HOLDINGS

2005/033870/07

**Sertifikaat van Inlywing**  
van 'n Maatskappy met 'n aandelekapitaal  
**Certificate of Incorporation**  
of a Company having a share capital

Hierby word gesertifiseer/This is to certify that

***KARSTEN GROUP HOLDINGS (PTY) LTD***

vandag ingelyf is kragtens die Maatskappywet, 1973 (Wet 61 van 1973), en dat die  
Maatskappy 'n maatskappy is met 'n aandelekapitaal

was this day incorporated under the Companies Act, 1973 (Act 61 of 1973), and that  
the Company is a company having a share capital.

Geteken en geseël te Pretoria op hede die/Signed and sealed at Pretoria this

19 dag van / day of September

TWEE DUISEND EN VYF

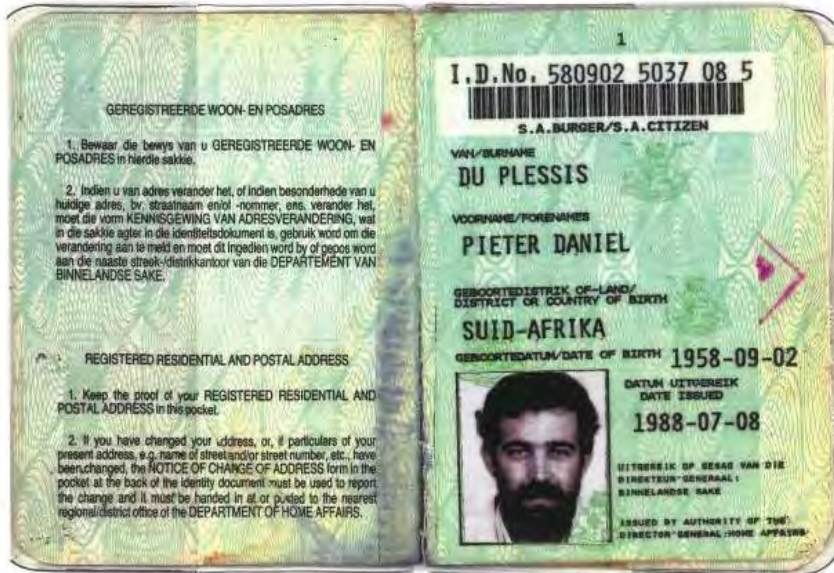
TWO THOUSAND AND FIVE

  
Registrateur van Maatskappye / Registrar of Companies

*Seël van die Registrasiekantoor vir Maatskappye.*  
*Seal of Companies Registration Office*

Hierdie sertifikaat is nie geldig nie, tensy geseël deur die seël van die Registrasiekantoor vir Maatskappye.  
This certificate is not valid unless sealed by the seal of the Companies Registration Office.

**APPENDIX I.2: Certified ID of designated signatory**



## APPENDIX J: Social Responsibility Document

### 1. KARSTEN TRAINING AND SOCIAL RESPONSIBILITY PROGRAM.

#### 1.1 Introduction

The Karsten Group strives to be the best in the fruit producing sector, through the production and distribution of top quality fruit at the best price to our clients, worldwide.

Since the inception of the company in the early eighties, the founders (the Karsten family) recognises the important role that everybody involved in the company would play whether it be managers, supervisors or general workers. This motivated them to create a management structure and philosophy to care for workers and their families in all aspects of their working – as well as their social lives. This structure and philosophy is upheld and applied till today; nearly forty years later.

Permanent workers are trained and developed in technical - as well as social – and life skills. More than 60% of seasonal workers return year after year and their inputs and well-being are just as important to the company as those of the permanent workers. All programs and projects are directed towards all workers and their families, irrespective of their worker status, on the farms and in the communities where they stay. This include technical – and on-job training as well as life-skills training.

The company believes that empowerment transpires by means of monetary means and responsibility created through career acceleration as well as a sense of ownership for what you do in any position you might occupy. Adding to that are skills that enables people to be productive citizens, involved in all aspects of their personal life.

This process and activities are applied on all farms which include Klein Pella.

#### 1.2 Training Programs

Each permanent worker has a Training plan to ensure that workers know where they head and can plan their own future in the company. Vacancies are advertised internally and continuous training and development takes place to ensure that workers are equipped with basic skills for the next level for which they might qualify.

External training is done where needed (i.e. forklift training) but practical, hands-on training is done by the training department, production managers and supervisors continuously.

The general training program consists of the following:

1. Fruit preparation, harvesting, packing and cooling
2. Irrigation
3. Tractor maintenance
4. Hygiene and Accreditation
5. Pruning and cultivation of fruit
6. Quality Improvement
7. Financial training

8. Supervisory courses
9. Management programs
10. Life Skills
11. Leadership
12. Health and Safety

Life skills training includes leadership training, personal development, personal goal setting and skills to ensure family ties and the raising of children in a safe environment. Emotional and spiritual development has a high priority in the company.

The training department ensures that a full scale training program takes place throughout the year and gives assistance to the crèche assistants, the lay health workers and the HIV peer group leaders with assistance from external service providers and NGO's.

Learnerships are an important part of the program to help people to get a formal national qualification combined with their practical skills. This is an intensive training program for 6 – 9 months conducted by different skills providers.

### 1.3 Apprenticeships, Internships And Bursaries

In 2016 the Group provides training to the following persons in this program:

Internships	-	6
Electrical Apprentices	-	7
Diesel Mechanical Apprentices	-	7
Plumber Apprentices	-	1
Millwright Apprentices	-	1
B Agric Student Bursaries	-	4
Agricultural Diploma Students Bursaries	-	5

### 1.4 Karsten Community Development Projects

#### 1.4.1 Social Programs On Farms

- Crèches on farms where the company provides a pre-school facilitator with an assistant for every 15 children. A building, running water, electricity, educational toys and meals.
- Literacy training through “face-to-face” – and computer programs to teach workers to read and write and to get formal qualifications. Study material, trained literacy facilitators and literacy classes on five farms are in progress.
- Study loans at a low interest rate to workers children.
- Healthcare with a comprehensive medical care plan with clinics on specific farms and trained lay health workers on all farms.
- The HIV/AIDS program has been running for nearly fifteen years and the main focus is to educate people about the dangers of this disease and how to prevent it. Peer group

leaders are trained regularly and are supported by a full time coordinator, health workers and production managers. Counseling, vitamins, and medication are given to workers to improve their quality of life.

- Recreational facilities and programs to curb liquor misuse, boredom and social problems and ensures a balanced life-style is maintained and supported by other benefits such as subsidized transport that provides in the worker's sport, work and social needs and grass soccer-fields on all farm is maintained by the company.
- Subsidized soccer outfits and sports days are held regularly.
- A full-time minister that works inter-denominational manages a full time religious program for those workers and their families that want to enroll.
- Life skill courses for children, youth and married couples.
- Holiday programs are presented during school holidays to stimulate children and teach them different skills.

#### 1.4.2 Karsten / Albert Heijn Project

##### Objectives:

1. **The improvement of education and training for workers in order to:**  
 Improve their level of basic education.  
 Help them to gain life – and social skills that can directly be implemented in their jobs.  
 Enhance life skills to build stable families, communities and a stable workforce.
  
2. **The improvement of education for children in order to:**  
 Make it academically possible for children to pass each level in one year and eventually get Matric (Grade 12).  
 To get the standard of education where they will be able to complete their studies on a secondary level, get a tertiary qualification of their choice or qualify themselves as an Artisan or will be on a level where tertiary skills can be obtained.  
 Develop the children physically (sport), culturally (life skills) and spiritually.

**The budget for the project for 2016 is R 4 489 569.00.**

ITEM	AMOUNT
Revamping Of Schools	209 000.00
Training : Teachers	14 000.00
Child Social Development	239 000.00
Training: Staff	119 500.00
Leadership TRAINING	30 000.00

Recources	81 000.00
Computers & Software	78 990.00
Computers Instalation And Maintenance Plan	20 000.00
Salaries	1 865 644.00
Transport	119 560.00
Accomodation	50 000.00
Office Expenses	11 000.00
Furniture For Schools And Centres	15 000.00
Library Books And Cupboards	23 000.00
Sport Equipment And Development	154 875.00
Community Development Projects	1 109 000.00
Containers Conversions	150 000.00
Contingencies	200 000.00
Contingencies	200 000.00

#### **Projects running at present**

Centres in Operation:

NORTH WEST - Centres in 3 schools.

Three facilitators are appointed at the centres.

NORTHERN CAPE - Centres in 3 schools where an intensive program is conducted.

Five schools - Kitchens

Six schools - Computer centres

Two After-care centres

Four computer facilitators and four teacher assistants employed by the project.

Three after care teachers on two farms employed by the project.

#### **Programs conducted in the centres for lifelong learning**

In different centres the following programs are conducted:

- i) ABED Classes
- ii) Life skills training e.g.
  - Health
  - Financial and Business Skills
  - Community Involvement programs
  - Spiritual and self-enriching programs.
- iii) - Computer classes

### **School improvement program**

This includes the following:

- Skills for headmasters to manage their schools effectively.
- Administrative and self-management skills and specific lecture skills for teachers as requested by teachers.
- The improvement of the role of School Governing Body's (SGB'S).
- Involvement and assistance of parents in schools.
- Computer classes for learners.
- Assistance for teachers that handles double classes
- Leadership and attitude programs for learners.
- Sport Development
- Databanks (libraries).
- Revamping of buildings

### **School feeding program**

The School Food Garden Competition started in 2005/06 and was joined by the Karsten Group in 2006.

Karsten Farms yearly donates prize money of a R 100 000 for the Siyanda District and R 50 000 for the Namaqualand district competition, assist schools in the vicinity of Karsten Farms with technical support and aid in extending the school garden and assist with monitoring. The company also helps with leveling areas where schools wanted to start gardens, help to install and maintain water systems, help with welders to secure gardens, assist with provision of seedlings and share expertise of farming with schools.

Karsten also receive containers from Safmarine which they convert into kitchens because most of the schools don't have the necessary kitchen facilities to prepare the food.

Our Aim is to have sustainable gardens in 89 schools and the communities that are not yet involved to be targeted, and to adopt gardens at schools.

### **After-care centres**

Children in government schools struggle with learning material due to large numbers of pupils in classes and double classes where one teacher must teach two grades. To help children to perform, two afterschool centres were started on two farms.

Three teachers assist children with their schoolwork and assignments from two to five in the afternoons.

### **1.5 Karsten / Waitrose Projects**

Due to the volume and quality off fruit supplied to the Waitrose supermarket in the UK the Waitrose foundation allocate money to the producer for projects that can benefit the



community (farm workers) that prepare and pack the fruit. Projects planned for the 2016 financial year will amount to R 851 123.

<b>PROJECT TITLE</b>	<b>PROJECT BUDGET</b>
Early childhood services (salary for student that had a Waitrose bursary at Raap en Skraap)	R 37 050
Early childhood resources ( educational equipment for crèches)	R 60 000
Project Facilitator	R 63 224
Computer Literacy Pella School	R 51 300
Community Hall NewGro	R 306 418
Community Hall Mosplaas	R 333 131
<b>TOTAL</b>	<b>R 851 123</b>

#### **1.6 Agricultural empowerment projects**

The Karsten Group find it important to help government to make a success of farms allocated to upcoming farmers. For this reason the Group are involved with farms in the Northern Cape as well as in the Western Cape provinces to assist the new farmers to create viable businesses for themselves.

In the Northern Cape are three farms namely Realeboga, Phariri and Farida near Kanoneiland. Both Realeboga and Phariri has more than one beneficiary while Farida has only one.

In the Western Cape are two empowerment entities namely Imdawo Ekhule which is a table grape producing farm near Robertson and Uitvlugt trust which is a apple producing farm near Villiersdorp. Both these projects has a number of beneficiaries.

The services rendered to these farms are the following:

1. A full time farm manager to give 24 hour assistance with farming activities for the Northern Cape farms and full time assistance from a farm manager for Imdawo Ekhule. For Uitvlugt a farm manger was dedicated to assist on a weekly basis.
2. Technical services in the Group that include the following:
  - Establishment of new vineyards
  - Fertilization programs and products
  - Pest and weed control

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2. Technical services in the Group that include the following:
  - Establishment of new vineyards
  - Fertilization programs and products
  - Pest and weed control

- Irrigation scheduling and optimization
- Plant health and fruit production
- Value adding to fruit (preparation of raisons for marketing)
- Financial services which include budgeting and monthly realizations
- Payroll assistance and services
- Health and Safety inspections and recommendations
- Marketing
- Cash crop cultivation

#### **1.7 Strategic partnerships**

For the same reason as mentioned above the Karsten Group are also involved, as a strategic partner, in seven livestock farms in the Upington district. Land was allocated to eight beneficiaries about three and a half years ago and Karsten was approached by government to assist the upcoming farmers in their quest to become independent farmers. Both the Karsten Group and government bought livestock and Karsten also contributed to the initial production costs.

The management of the project is done by a full time manager who assists the farmers to establish a production process in order to become independent in five years and continue farming without assistance from Government or from Karsten.

Technical assistance is also given by livestock managers from the Karsten Group. Training conducted by different role players includes financial and economic systems, general agricultural practices and life skills for those beneficiaries that express a need for it.

#### **1.8 Empowerment Trusts and Companies in the Karsten Group**

Through the years, the management of the Karsten Group empowered its workers by means of different share schemes. This is done in order to create a dispensation where workers are rewarded for their services to the company apart from their ordinary remuneration and fringe benefits.

Karsten has a history of a low personnel turnover and many employees who give loyal service to the company for many years. Simultaneously, being a beneficiary of a trust in a company that you work for, create a sense of ownership and ensures that you can benefit in future from the contributions you made to make the company grow and prosper.

Two trusts, the Mosplaas Workers Trust and the Keboes Workers Trust, exists in the Group at present.

An empowerment company, NEWGRO FARMING (PTY) LTD was started in 2010.

It was decided to implement an empowerment scheme to get workers involved as beneficiaries in a Worker Trusts in Newgro but with the distinction that it will only apply to women. The Trust Deed states the following:

'The Founder and the initial trustees are desirous to establish the Karsten Vroue Werkers Trust ("Trust") in order to serve as a vehicle through which the qualifying employees of the group can obtain direct or indirect interest in agricultural property and other commercial opportunities.'

The Karsten Vroue Werkers Trust applied to Government for water rights in order to develop the land further. The government granted 400 hectares of water rights as well as a cash grant for water infrastructure. The money obtained by the grant as well as the water rights were invested in the company by the Trust and resulted in the Trust subscribing for new shares in Newgro, to become a 40% shareholder in Newgro, while Karsten holds the other 60% shares.

At present there are 150 ha's of table grapes in Newgro as well as 120 ha's pivots for crop rotation, a goat stud and 40 ha's of vineyards for raisin and wine production.

The beneficiaries don't have a direct role in management but each of them is in their own jobs on the different farms within several subsidiaries of Karsten Group. The Karsten Vroue Werkers Trust is the vehicle through which they have an indirect interest in Newgro, a farming operation. Newgro is managed by a management team that needs to report to the Board of Directors of Newgro. The Board of Directors consist of representatives of the two Shareholders.

**APPENDIX K: Copy of Receipt**

**APPENDIX L: Confirmation no land claims**



**OFFICE OF THE REGIONAL LAND CLAIMS COMMISSIONER: NORTHERN CAPE**  
4-8 OLD MAIN ROAD HYSKO BUILDING / P.O BOX 2458 KIMBERLEY 8300;  
TEL: 053 807 5700; FAX: 053 831 6500

---

Reference: Nqabisa Mkalipi

Date: 25/05/2016

**APPLICANT: KARSTEN**

TEL: 054 491-9331

Email: nicolenec@karsten.co.za

**RE: LAND CLAIMS ENQUIRIES**

**PROPERTY DESCRIPTION**

1. ERF 40 PORTION NO. 0 FARM KLEIN PELLA, KAMBREEK, NAMAQUALAND RD
2. ERF 38 PORTION NO 1 FARM KLEIN PELLA, KAMBREEK, NAMAQUALAND RD


Dear Sir/Madam

This communiqué serves to advise your company that according to our database there is no restitution lodged against the above mention properties description.

We envisaged that there will be new claims lodged from that area since claims have been re-opened on the 1 July 2014- 30 June 2019. Currently the Mobile lodgement bus is visiting all districts in the province to accept new claims.

It should however be borne in mind that our database is continuously being updated, therefore this information may be subject to change and you will be informed accordingly.

Yours in service delivery



.....  
NQABISA MKALIPI

SENIOR COMMUNICATION OFFICER

THE OFFICE OF THE REGIONAL LAND CLAIMS COMMISSION: NORTHERN CAPE

DATE: 25/05/2016

## 9.7 Plan of Study for EIA

<p style="text-align: center;"><b>PLAN OF STUDY FOR EIA</b></p> <p style="text-align: center;"><b>PROPOSED CONSTRUCTION OF AGRICULTURAL AREAS ON FARMS KLEIN PELLA NO 40, PORTION 1, 2 AND 3 OF FARM KAMBREEK NO. 38, NAMAQUALAND</b></p>
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1	Alternatives.....	3
2	Specialist studies & reports .....	3
3	Response to comments from Scoping.....	3
4	Report requirements.....	3
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6	Description of the activity to be undertaken.....	4
7	Tasks to be performed during EIA .....	4
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#### Note:

The regulations state that a plan of study for environmental impact assessment which sets out the proposed approach to the environmental impact assessment of the application, which must include –

*“a plan of study for undertaking the environmental impact assessment process to be undertaken, including-*

- (i) a description of the alternatives to be considered and assessed within the preferred site, including the option of not proceeding with the activity;*
- (ii) a description of the aspects to be assessed as part of the environmental impact assessment process;*
- (iii) aspects to be assessed by specialists;*
- (iv) a description of the proposed method of assessing the environmental aspects, including a description of the proposed method of assessing the environmental aspects including aspects to be assessed by specialists;*
- (v) a description of the proposed method of assessing duration and significance;*
- (vi) an indication of the stages at which the competent authority will be consulted;*



- (vii) *particulars of the public participation process that will be conducted during the environmental impact assessment process; and*
- (viii) *a description of the tasks that will be undertaken as part of the environmental impact assessment process;*
- (ix) *identify suitable measures to avoid, reverse, mitigate or manage identified impacts and to determine the extent of the residual risks that need to be managed and monitored.”*

## 1 ALTERNATIVES

Four alternatives were developed during scoping. The conclusion as reported in the Scoping Report is that the following will be investigated:

Preferred option: Alternative 1

No-Go Option: Alternative 4

As outlined in the comments and response report in the draft Scoping Report:

*“2.3The draft Scoping Report has identified various alternatives. Available information from especially the vegetation assessment and heritage indicators indicated that only Alternative 1 is a viable option and could therefore be investigated in the EIA phase. As required by the Regulations the No Go Option is compulsory for investigation in the EIA phase.”*

We understood Scoping to be the process in which you identify viable alternatives; this was done as indicated above. It is therefore unclear which other alternatives could be assessed.

## 2 SPECIALIST STUDIES & REPORTS

The following EIA specialist reports are required (see Appendix A in section 9 for Terms of Reference):

- Heritage/Archaeology Assessment

Apart from the EIA impact studies listed above the following information studies will also be undertaken (see Appendix B in section 10 for TOR):

- EMP

## 3 RESPONSE TO COMMENTS FROM SCOPING

The final comment tables from scoping (include comments on Executive Summary and draft and final Scoping Report) will be included in Appendix C in section 11. All consultants will provide responses on applicable comments in their reports.

Any comments or requirements from DENC when accepting the Scoping Report will be included in Appendix D in section 12.

## 4 REPORT REQUIREMENTS

The guidelines for EIA (Appendix 6 of NEMA 2014) reports state *inter alia* with reference to impact studies that the following must be included:

*“Specialist reports*

*(1) A specialist report prepared in terms of these Regulations must contain-*

*(a) details of-*

*(i) the specialist who prepared the report; and*

*(ii) the expertise of that specialist to compile a specialist report including a curriculum vitae;*

*(b) a declaration that the specialist is independent in a form as may be specified by the competent authority;*

*(c) an indication of the scope of, and the purpose for which, the report was prepared;*

*(d) the date and season of the site investigation and the relevance of the season to the outcome of the assessment;*

*(e) a description of the methodology adopted in preparing the report or carrying out the specialised process; the specific identified sensitivity of the site related to the activity and its associated structures and infrastructure;*

*(g) an identification of any areas to be avoided, including buffers;*

*(h) a map superimposing the activity including the associated structures and infrastructure on the environmental sensitivities of the site including areas to be avoided, including buffers;*

*(i) a description of any assumptions made and any uncertainties or gaps in knowledge; a description of the findings and potential implications of such findings on the impact of the proposed activity, including identified alternatives on the environment;*

*(k) any mitigation measures for inclusion in the EMPr;*

*(l) any conditions for inclusion in the environmental authorisation;*

*(m) any monitoring requirements for inclusion in the EMPr or environmental authorisation;*

*(n) a reasoned opinion-*

*(i) as to whether the proposed activity or portions thereof should be authorised; and*

*(ii) if the opinion is that the proposed activity or portions thereof should be authorised, any avoidance, management and mitigation measures that should be included in the EMPr, and where applicable, the closure plan;*

*(o) a description of any consultation process that was undertaken during the course of preparing the specialist report;*

*(p) a summary and copies of any comments received during any consultation process and where applicable all responses thereto; and any other information requested by the competent authority.”*

## 5 A DESCRIPTION OF THE PROPOSED METHOD OF IDENTIFYING AND ASSESSING IMPACTS

The requirements of each impact report are shown in the TOR in Appendix A in section 9. Apart from those requirements each impact report (fresh water ecology report) must include a section that covers the above (A) i to vii, (B) and (C). Examples of comparative assessment of impacts are shown below. Consultants must use similar methods in their reports.

### **IMPACTS**

Apart from a summary in words the impacts and ratings must also be summarised in table form.

### **MITIGATION MEASURES**

Apart from a summary in words the impacts and ratings must also be summarised in table form.

**COMPARISON OF IMPACTS** – Use actual numbers wherever possible

## 6 DESCRIPTION OF THE ACTIVITY TO BE UNDERTAKEN

A development diagram will be developed for each alternative together with a description of the activity. The specialist consultants will use these diagrams and descriptions to compile their impact assessment reports.

## 7 TASKS TO BE PERFORMED DURING EIA

### **7.1 Advertise and meetings**

On completion of the draft EIR all I&APs on the database will be informed about the availability thereof. The various authorities will be approached directly to finalise their comments. The authorities will include DENC, DWAF, Dept of Agriculture, and Khai Ma Municipality, and Local Authority Pella.

DENC will be consulted regularly and informed about progress during the EIA phase.

## 8 STAGES AT WHICH DEA&DP WILL BE CONSULTED

- (a) On submission of this Plan of Study for EIA.
- (b) On presentation of the draft and final EIR.
- (c) Draft EIR for comment to Authorities

Additional formal or informal consultation will be requested at other times in order to satisfy all environmental requirements and regulations.

## 9 APPENDIX A - TOR FOR SPECIALIST REPORTS

### 9.1 Heritage/Archaeology

#### INTRODUCTION

Details of the alternatives to be investigated will be made available through a layout diagram and description of each.

#### BASELINE STUDIES

No baseline study will be done.

#### LEGISLATION

Legislation would include:

The National Heritage Resources Act (NHRA) No. 25 of 1999 protects a variety of heritage resources as follows:

- Section 34: structures older than 60 years;
- Section 35: palaeontological, prehistoric and historical material (including ruins) more than 100 years old;
- Section 36: graves and human remains older than 60 years and located outside of a formal cemetery administered by a local authority; and
- Section 37: public monuments and memorials.

Following Section 2, the definitions applicable to the above protections are as follows:

- Structures: “any building, works, device or other facility made by people and which is fixed to land, and includes any fixtures, fittings and equipment associated therewith”;
- Palaeontological material: “any fossilised remains or fossil trace of animals or plants which lived in the geological past, other than fossil fuels or fossiliferous rock intended for industrial use, and any site which contains such fossilised remains or trace”;
- Archaeological material: a) “material remains resulting from human activity which are in a state of disuse and are in or on land and which are older than 100 years, including artefacts, human and hominid remains and artificial features and structures”; b) “rock art, being any form of painting, engraving or other graphic representation on a fixed rock surface or loose rock or stone, which was executed by human agency and which is older than 100 years, including any area within 10m of such representation”; c) “wrecks, being any vessel or aircraft, or any part thereof, which was wrecked in South Africa, whether on land, in the internal waters, the territorial waters or in the maritime culture zone of the Republic, as defined respectively in sections 3, 4 and 6 of the Maritime Zones Act, 1994 (Act No. 15 of 1994), and any cargo, debris or artefacts found or associated therewith, which is older than 60 years or which SAHRA considers to be worthy of conservation”; and d) “features, structures and artefacts associated with military history which are older than 75 years and the sites on which they are found”;
- Grave: “means a place of interment and includes the contents, headstone or other marker of such a place and any other structure on or associated with such place”; and
- Public monuments and memorials: “all monuments and memorials a) “erected on land belonging to any branch of central, provincial or local government, or on land belonging to any organisation funded by or established in terms of the legislation of such a branch of government”; or b) “which were paid for by public subscription, government funds, or a public-spirited or military organisation, and are on land belonging to any private individual.”

While landscapes with cultural significance do not have a dedicated Section in the NHRA, they are protected under the definition of the National Estate (Section 3). Section 3(2)(c) and (d) list “historical settlements and townscapes” and “landscapes and natural features of cultural significance” as part of the National Estate. Furthermore, Section 3(3) describes the reasons a place or object may have cultural heritage value.

Section 38 (2a) states that if there is reason to believe that heritage resources will be affected then an impact assessment report must be submitted. This report fulfils that requirement.

Under the National Environmental Management Act (No. 107 of 1998; NEMA), as amended 2014, the project is subject to an EIA. Ngwao-Boswa Ya Kapa Bokoni (Heritage Northern Cape; for built environment and cultural landscapes) and the South African Heritage Resources Agency (SAHRA for archaeology and palaeontology) are required to provide comment on the proposed project in order to facilitate final decision making by the Northern Cape Department of Environment and Nature Conservation.

## **IMPACT ASSESSMENT**

### **METHODS:**

#### Literature survey

A survey of available literature should be carried out to assess the general heritage context into which the development would be set. This literature included published material, unpublished commercial reports and online material, including reports sourced from the South African Heritage Resources Information System (SAHRIS).

#### Field survey

A field survey should be done. During the survey the positions of finds should be recorded on a hand-held GPS receiver set to the WGS84 datum. Photographs should be taken at times in order to capture representative samples of both the affected heritage and the landscape setting of the proposed agricultural development.

#### Grading

Section 7 of the NHRA provides for the grading of heritage resources into those of National (Grade 1), Provincial (Grade 2) and Local (Grade 3) significance. Grading is intended to allow for the identification of the appropriate level of management for any given heritage resource. Grade 1 and 2 resources are intended to be managed by the national and provincial heritage resources authorities, while Grade 3 resources would be managed by the relevant local planning authority. These bodies are responsible for grading, but anyone may make recommendations for grading – something that is, at times, required in HIAs.

It is intended that the various provincial authorities formulate a system for the further detailed grading of heritage resources of local significance but this is generally yet to happen. Heritage Western Cape (2012), however, uses a system in which resources of local significance are divided into Grade 3A, 3B and 3C. These approximately equate to high, medium and medium-low local significance, while sites of low or very low significance (and generally not requiring mitigation or other interventions) are referred to as ungradeable.

## TABLE OF CONTENTS

The report must be submitted in both digital and printed format and should *at least* include the following sections:

1. EXECUTIVE SUMMARY (must include at least a full summary of section 6 for transfer to the EIR)
2. INTRODUCTION AND DESCRIPTION OF STUDY
3. TERMS OF REFERENCE
4. METHODOLOGY
5. RESULTS/FINDINGS
6. ASSESSMENT OF IMPACTS
  - 6.1 Comparative analysis (use criteria for assessment as described above)
    - (i) cumulative impacts;
    - (ii) the nature of the impact;
    - (iii) the extent and duration of the impact;
    - (iv) the probability of the impact occurring;
    - (v) the degree to which the impact can be reversed;
    - (vi) the degree to which the impact may cause irreplaceable loss of resources; and
    - (vii) the degree to which the impact can be mitigated;
  - 6.2 a description of any assumptions, uncertainties and gaps in knowledge;
  - 6.3 an environmental impact statement which contains –
    - o a summary of the key findings of the environmental impact assessment; and
    - o a comparative assessment of the positive and negative implications of the proposed activity and identified alternatives;
7. DISCUSSION (including management recommendations for construction and operation phases; response to I&AP comments)
8. MANAGEMENT PLANS
9. CONCLUSIONS (must include summary tables as described in section 5 of PoSfEIA)
10. RECOMMENDATIONS
11. APPENDICES (including impact assessment tables)

<b>IMPACT</b> Please refer to details in Box 16		
Nature of impact		
<b>STAGE</b>	<b>CONSTRUCTION PHASE</b>	<b>OPERATION PHASE</b>
Extent		
Duration		
Intensity or magnitude		
Probability		
Significance		
Confidence		
Accumulative Impact		
Legal aspects		
Mitigation measures		
Level of significance after mitigation		
EMP requirements		
Discussion		



## 10 TOR FOR REPORTS

Reports, other than impact studies, that will complete the suite of reports required for the EIR are:

Note: Each report must include a section with response(s) to relevant comments (see Appendix 11).

The following EIA specialist reports are required (see Appendix A in section 9 for Terms of Reference):

Specialist reports

- Heritage/archaeology assessment

Other reports

- EMP

## 11 APPENDIX C – COMMENTS FROM SCOPING

As per the Final Scoping Report, see section 12.3.

12 APPENDIX D – COMMENTS FROM NORTHERN CAPE DEPARTMENT  
OF ENVIRONMENT AND NATURE CONSERVATION

Will be inserted when available

## 9.8 EMP

Application for authorisation in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended and the Environmental Impact Assessment Regulations, 2006, re-amended in Environmental Impact Assessment Regulations, 2014.

## CONSTRUCTION & OPERATIONAL MANAGEMENT PLAN FOR

DENC Reference: NC/EIA/05/NAM/KHA/PEL1/2015

**PROPOSED CONSTRUCTION OF AGRICULTURAL AREAS ON FARM  
KLEIN PELLA NO. 40 AND PORTIONS 1, 2 AND 3 OF FARM KAMBREEK  
No. 38, NAMAKWA DISTRICT, NORTHERN CAPE**



**Prepared by:**

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**Date:** June 2016

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**List of abbreviations**

<b>DEA&amp;DP</b>	Department of Environmental Affairs and Development Planning
<b>EA</b>	Environmental authorisation
<b>ECO</b>	Environmental Control Officer as per the environmental authorisation
<b>ELU</b>	Existing Lawful Use
<b>EMP</b>	Environmental Management Programme
<b>EO</b>	Environmental officer as appointed by the client or contractor
<b>RE/Engineer</b>	Resident Engineer overseeing the construction activity

## Definitions

For the purposes of this Specification the following definitions shall apply (please note some definitions may not apply to this EMPr):

*Alien species* - Plants and animals which do not arrive naturally in an area - they are brought in by humans. Alien plants often force indigenous species out of the area. Rooikrans is a good example of alien species in the Cape.

*Alternative* - A possible course of action, in place of another, that would meet the same purpose and need defined by the development proposal. Alternatives considered in the EIA process can include location and/or routing alternatives, layout alternatives, process and/or design alternatives, scheduling alternatives or input alternatives.

*Aspect* – Element of an organisation’s activities, products or services that can interact with the environment.

*Auditing* - A systematic, documented, periodic and objective evaluation of how well the environmental management programme is performing with the aim of helping to safeguard the environment by: facilitating management control which would include meeting regulatory requirements. Results of the audit help the organisation to improve its environmental policies and management systems.

*Biodiversity* - The rich variety of plants and animals that live in their own environment. Fynbos is a good example of rich biodiversity in the Cape.

*Built environment* - Physical surroundings created by human activity, e.g. buildings, houses, roads, bridges and harbours.

*Conservation* - Protecting, using and saving resources wisely, especially the biodiversity found in an area.

*Construction site, working area or Site* - means any area within the boundaries of the property(ies) where construction is taking place.

*Contamination* - Polluting or making something impure.

*Corrective (or remedial) action* - Response required to address an environmental problem that is in conflict with the requirements of the EMPr. The need for corrective action may be determined through monitoring, audits or management review.

*Degradation* - The lowering of the quality of the environment through human activities, e.g. river degradation, soil degradation.

*Ecology* - The scientific study of the relationship between living things (animals, plants and humans) and their environment.

*Ecosystem* - The relationship and interaction between plants, animals and the non-living environment.

*Environment* - Our surroundings, including living and non-living elements, e.g. land, soil, plants, animals, air, water and humans. The environment also refers to our social and economic surroundings, and our effect on our surroundings.

*Environmental Impact Assessment (EIA)* - An Environmental Impact Assessment (EIA) refers to the process of identifying, predicting and assessing the potential positive and negative social, economic and biophysical impacts of a proposed development. The EIA includes an evaluation of alternatives; recommendations for appropriate management actions for minimising or



avoiding negative impacts and for enhancing positive impacts; as well as proposed monitoring measures.

*Environmental Management System (EMS)* - Environmental Management Systems (EMS) provide guidance on how to manage the environmental impacts of activities, products and services. They detail the organisational structure, responsibilities, practices, procedures, processes and resources for environmental management. The ISO14001 EMS standard has been developed by the International Standards Organisation.

*Environmental policy* - Statement of intent and principles in relation to overall environmental performance, providing a framework for the setting of objectives and targets.

*Fynbos* - Low-growing and evergreen vegetation found only in the south Western Cape. Fynbos is known for its rich biodiversity.

*Habitat* - The physical environment that is home to plants and animals in an area, and where they live, feed and reproduce.

*Hazardous waste* – Waste, even in small amounts, that can cause damage to plants, animals, their habitat and the well-being of human beings, e.g. waste from factories, detergents, pesticides, hydrocarbons, etc.

*Impact* - A description of the potential effect or consequence of an aspect of the development on a specified component of the biophysical, social or economic environment within a defined time and space.

*Indigenous species* - Plants and animals that are naturally found in an area.

*Infrastructure* - The network of facilities and services that are needed for economic activities, e.g. roads, electricity, water, sewerage.

*Integrated* - Mixing or combining all useful information and factors into a joint or unified whole.

See Integrated Environmental Management.

*Integrated Environmental Management (IEM)* - A way of managing the environment by including environmental factors in all stages of development. This includes thinking about physical, social, cultural and economic factors and consulting with all the people affected by the proposed developments. Also called "IEM".

*Land use* - The use of land for human activities, e.g. residential, commercial, industrial use.

*Mitigation* - Measures designed to avoid, reduce or remedy adverse impacts

*Natural environment* - Our physical surroundings, including plants and animals, when they are unspoiled by human activities.

*No-Go area*- means any area where no access is allowed.

*Over-utilisation* - Over-using resources - this affects their future use and the environment.

*Policy* - A set of aims, guidelines and procedures to help you make decisions and manage an organisation or structure. Policies are based on people's values and goals. See Integrated Metropolitan Environmental Policy.

*Process* - Development usually happens through a process - a number of planned steps or stages.

*Proponent* – Developer or Entity which applies for environmental approval and is ultimately accountable for compliance to conditions stipulated in the Environmental authorisation (EA) and requirements of the EMPr.

*Recycling* - Collecting, cleaning and re-using materials.

*Refuse*- refers to all solid waste, including construction debris (cement bags, wrapping materials), waste and surplus food, food packaging, organic waste etc.

*Resources* - Parts of our natural environment that we use and protect, e.g. land, forests, water, wildlife, and minerals.

*Scoping Report* - A report presenting the findings of the scoping phase of the EIA. This report is primarily aimed at reaching closure on the issues and alternatives to be addressed in the EIA (in the case of a full EIA process).

*Stakeholders* - A subgroup of the public whose interests may be positively or negatively affected by a proposal or activity and/or who are concerned with a proposal or activity and its consequences. The term includes the proponent, authorities and all interested and affected parties.

*Storm water management* – Strategies implemented to control the surface flow of storm water such that erosion, sedimentation and pollution of surface and ground water resources in the immediate and surrounding environments are mitigated. This is specifically important during the construction and decommissioning phases of a project.

*Sustainable development* - Development that is planned to meet the needs of present and future generations, e.g. the need for basic environmental, social and economic services. Sustainable development includes using and maintaining resources responsibly.

*Sustainability* - Being able to meet the needs of present and future resources.

*Waste Management* – Classifying, recycling, treatment and disposal of waste generated during construction and decommissioning activities.

*Wetlands* - An area of land with water mostly at or near the surface, resulting in a waterlogged habitat containing characteristic vegetation species and soil types e.g. vlei's, swamps.

*Zoning* - The control of land use by only allowing specific type development in fixed areas or zones.

### **Expertise of the EAP**

Pieter Badenhorst

The name and details of the EAP are provided in the front of the report. He has more than 42 years experience in project management and report writing. He worked at the CSIR in environmental, coastal and estuarine management for 16 years. During that time he was part of the team that developed coastal management guidelines, the first process for EIAs and undertook numerous environmental studies for DEAT in collaboration with a team of ecologists. The last 15 years he has worked mainly in environmental control and environmental impact assessments and has completed EIAs for many projects. He has also undertaken an EIA peer review on a major development for DEAT.

He has a B.Sc. Civil Engineering Degree as well as B.Honours Degree (Irrigation), M. Engineering (Civil) and an MBA from Stellenbosch University.

The consultant is a member of the Engineering Council of South Africa and the South African Institute of Civil Engineers, as well as a member of the International Association for Impact Assessment (South Africa).

The consultant has organized many meetings/workshops/open days to identify issues for similar projects at the CSIR; Blue Flag for DEAT as well as other DEAT projects. The Blue Flag and other projects required interaction with large groups of stakeholders.

Elanie Kühn

The consultant has 10 years experience in project management and report writing. She has worked for two other environmental assessment companies prior to this. She completed her BSc degree and after this gained an Honours Degree in Environmental Management from the North West University in Potchefstroom. She has been working with Pieter Badenhorst for the last six years working on environmental impact assessments.

-----

# 1 Introduction

## 1.1 Locality:

The proposed expansion of agricultural activities will take place on various properties, outlined in Table 1, within the Namaqualand District in the Northern Cape. Access to these farms are via a gravel road that links with the R358 towards Klein Pella, see Figure 1.

All properties mentioned in Table 1 below is zoned Agriculture. The owner of these properties is Karstens Boerdery (PTY) Ltd and has appointed PBPS as the independent consultant to undertake the EIA process.

Table 1: Property details

Property details	Property size	SG 21 digit codes	Ha of proposed new cultivation area.
The Farm Klein Pella no.40, Namaqualand	10389.2009ha	C05300140000004000000	25.97ha dates
Portion 1 of Farm Kambreek no. 38, Namaqualand	495.4432ha	C05300140000003800001	10ha dates
Portion 2 of Farm Kambreek no. 38, Namaqualand	267.9085ha	C05300140000003800002	21.73ha dates
Portion 3 of Farm Kambreek no. 38, Namaqualand	778.0390	C05300140000003800003	27.07 ha + 2.62ha +10.71ha vineyards

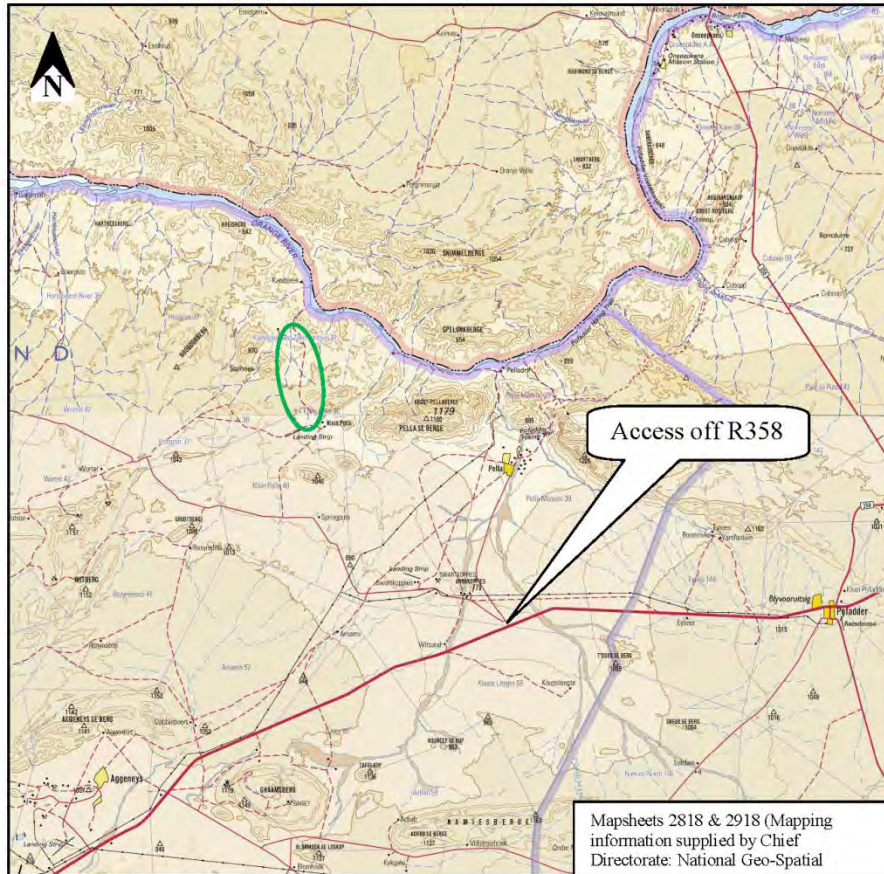


Figure 1: Locality

**Proposed development:**

The proposed development is to establish additional agricultural areas for the cultivation of dates and vineyards, see Table 2 and Figure 2, within the subject properties. All proposed cultivation areas have existing access.

Table 2: Proposed agricultural areas.

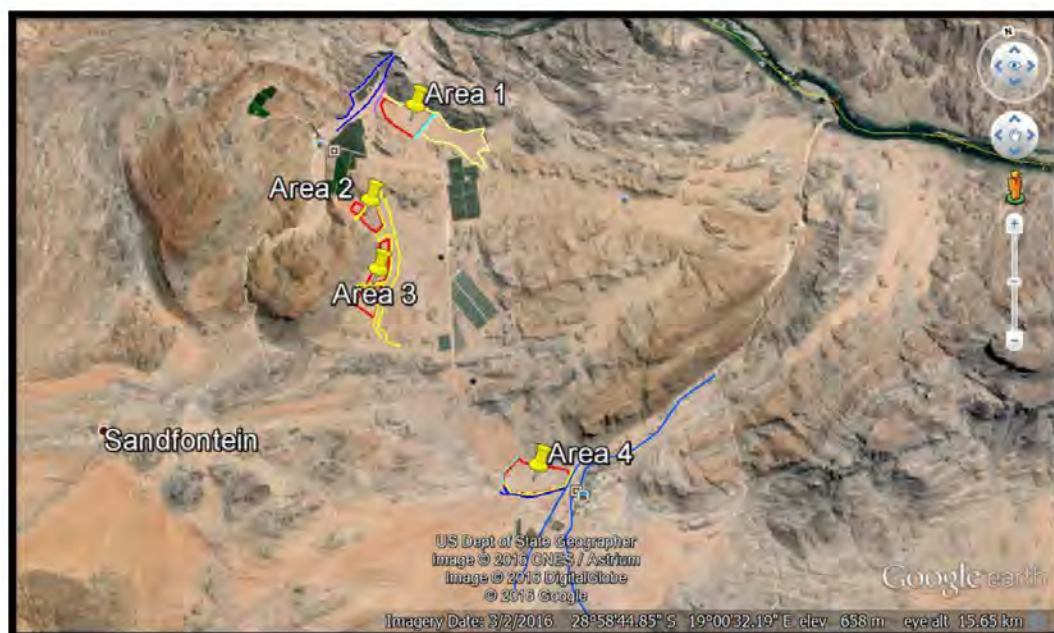
Areas	Proposed area in ha	Proposed cultivation activity	Centre point coordinates	Vegetation/ Previously cultivated area
Area 1	31.73ha	Dates	28°56' 39.55"S 18°59' 37.36"E	Previously cultivated
Area 2	2.62ha	Vineyards	28°57' 24.89"S	Previously

Proposed construction of agricultural areas on areas on Farm Klein Pella no 40 and Ptn 1, 2 and 3 of Farm Kambreek no 38, Namakwa District.

Environmental Management Programme – Construction & Operational

			18°58' 55.26"E	cultivated
	10.71ha	Vineyards	28°57' 32.51"S 18°59' 03.52"E	Previously cultivated
Area 3	12.69ha	Vineyards	28°58' 00.16"S 18°59' 03.89"E	Undisturbed vegetation
	14.38ha	Vineyards	28°58' 15.34"S 18°58' 52.14"E	Undisturbed vegetation
Area 4	25.97 ha	Dates	29°00' 07.04"S 19°00' 13.69"E	Previously cultivated areas

The proposed agricultural areas are shown in the Figure 2. As per the above table it will provide transformation of approximately 27.07ha of undisturbed vegetation and establishment of new cultivation areas on 71.03ha of previously cultivated areas, which gives a total area of development of approximately 98.1ha.



**Figure 2: Proposed Agricultural areas.**

This document is a requirement for environmental authorization (EA) which is shown in Appendix A. All mitigation measures included in the EA will be inserted into Appendix C. On approval by DEA&DP the developer must ensure that its conditions are implemented by making the document available to the contractor and also ensure that an ECO or the Resident Engineer

are appointed and systems are in place to evaluate compliance. The contractor(s) is expected to familiarise himself with the contents of this document and to implement its conditions.

Overall the EMP will aim to:

- Control the construction activities in such a way that negative impacts on the physical environment, sensitive areas and surrounding residential areas are prevented or minimised.
- Ensure that mitigation and rehabilitation measures are implemented where required.

Please note that this document does not replace any other regulations, laws and bylaws that the contractor must adhere to. It specifically does not replace the regulations of the Occupational Health and Safety act of 1993 (Act No. 85 of 1993).

Funding for the implementation of the Construction EMP is the financial responsibility of the developer.

The project environmental issues are shown in section 2 with the construction EMP in section 3 and the operational EMP in section 4.

## 2 Environmental issues

### 2.1 Vegetation:

A Botanist, Dr Dave McDonald, was appointed to conduct a desktop study. As part of this a report written by Dr Noel Van Rooyen dated February 2008 was provided for background information. The following summary was provided by the specialist appointed:

*“The vegetation type found in the entire area envisaged for the agricultural development is Eastern Gariep Plains Desert. The plains sharply contrast with the rocky hills where Eastern Gariep Rocky Desert is found. The latter would not be affected by the proposed agriculture.*

*The plains desert habitat is found on sheet wash plains that lead down to the Orange River. The vegetation is sparse to very sparse with a low diversity of plant species. No endemic plant species are known to occur in this habitat and it has low botanical sensitivity despite the fact that according to Jürgens et al. (2006) few intact examples of this vegetation type still remain.*

*From the information at my disposal, both as a written report and aerial and ground photographs, I have formed the opinion that the sites (blocks) chosen for agriculture at Klein Pella would not result in High negative impact but on the contrary would result in Low negative impact as far as the vegetation is concerned. “*

Therefore no further mitigation or recommendations necessary.

### 2.2 Heritage, Archaeology and Palaeontology

The Heritage specialist appointed was Mr. Jayson Orton from ASHA Consultancy, the following is summarised in the HIA compiled and submitted to SAHRA:

*“The only heritage indicators present are archaeological stone artefacts and the cultural landscape. The former is insignificant and the latter tends to be largely modern. No significant impacts to heritage resources are expected.*

*Because no significant impacts are expected, it is recommended that the proposed new lands be authorised with no further heritage studies required. However, if any archaeological material or human burials are uncovered during the course of development then work in the immediate area should be halted. The find would need to be reported to the heritage authorities and may require inspection by an archaeologist. Such heritage is the property of the state and may require excavation and curation in an approved institution.”*

The report will be submitted to SAHRA, for comment. Any conditions outlined in this comment will be included in the EMP.



## 2.3 Socio-Economic Environment.

### Socio:

The farm Klein Pella is a highly commercial agricultural (farming) unit in the area and is surrounded by other farms which are not being farmed on a highly commercial basis.

The closest communities to the farm are that of Pella, Goodhouse and Pofadder. People working on the farms are provided with temporary housing on the farm itself.

The other farms of the Karsten Boerdery Pty Ltd is managed by a very competent and motivated workforce, it has many success stories, which contributes positively to the local economy and the provision of job opportunities in the region and the Northern Cape Province.

According to the applicant the employment opportunities which will be created during the construction phase as well as the operational phase will be between 60 permanent and 450 seasonal jobs. These workers will all be from the previous disadvantaged communities. This will have a positive impact on the overall social well-being of the communities in the area. The number of employment opportunities will rise in future.

### Economic:

In order to ensure that the proposed project will be sustainable and economically viable, the applicant will also employ people from the neighbouring towns.

The estimated expected capital outlay for approximately 100 ha development such as this will be at least in the order of R50 million.

All of these additional work opportunities, as well as the creation of buying power, will contribute positively to the economic environment of the area.

## 2.4 Access

Existing roads to the site will be used.

## 2.5 Electricity

The development falls within the capacity of Eskom. Note that no additional electrical capacity is necessary for the development of the agricultural areas as existing usage is sufficient.

## 2.6 Land uses

The planned development is situated within a purely agricultural area with no other land uses in close proximity. The proposed development will therefore have no impact on any surrounding land uses in the area.

## 2.7 Plough certificate

A plough certificate is currently being applied for as part of the Water Use License Application and this EIA Process.

## 2.8 Water use

The applicant, Karsten Boerdery (Pty) Ltd is applying to transfer water rights within various farms that are in their ownership in terms of Section 25 (2) of the National Water Act, (Act 36 of 1998). The transfer of water will be from:

1. The Farm Kambreek 38 (Portion 1) to Farms Kambreek 38 (Portion 0) for a total of **330 000m<sup>3</sup>/a** at 15 000m<sup>3</sup>/ha (22ha).
2. The Farm Kambreek 38 (Portion 1) to Farms Kambreek 38 (Portion 2) for a total of **1005 000m<sup>3</sup>/a** at 15 000m<sup>3</sup>/ha (67ha).
3. The Farm Kambreek 38 (Portion 3) to the farm Klein Pella 40 (Portion 0) for a total of **390 000m<sup>3</sup>/a** at 15 000m<sup>3</sup>/ha (26ha).

This transfer of water is applied for to correct a deficit that has originated in the water balance for the different properties and also in order to establish an additional 91.8 ha of cultivation areas within the different properties. All of the proposed developments and water transfers will be undertaken within the existing water rights for the owners Karsten Boerdery Pty Ltd.

Activities	Purpose	From Property	Total Water (ha)	To property
Section 21(a)	Transfer of water	Kambreek no 38 Portion 1	330 000m <sup>3</sup> /a (22ha)	Kambreek no 38 Portion 0
Section 21(a)	Transfer of water	Kambreek no 38 Portion 1	1005 000m <sup>3</sup> /a (67ha)	Kambreek no 38 Portion 2
Section 21(a)	Transfer of water	Kambreek no 38 Portion 3	390 000m <sup>3</sup> /a (26ha)	Pella no 40 Portion 0

The water use entitlements as allocated for the applicant's properties (see breakdown in the table below) which amounts to **405.5 ha (6082 500m<sup>3</sup>/a at 15 000m<sup>3</sup>/ha)** is for the irrigation of vineyard and dates. According to an analysis done only **247.8 ha (3717 000m<sup>3</sup>/a at 15 000m<sup>3</sup>/ha)** of this allotted water is currently used for irrigation and therefore leaving **157.6 ha (2364 000m<sup>3</sup>/a at 15 000m<sup>3</sup>/ha)** of the allocation for the new proposed development of **98.1ha** dates and vineyards.

Farm	Water Allocation	Ha Already planted	Water currently available per portion	Planned cultivation Ha	Total HA per portion after proposed expansion	Water available after planned expansion

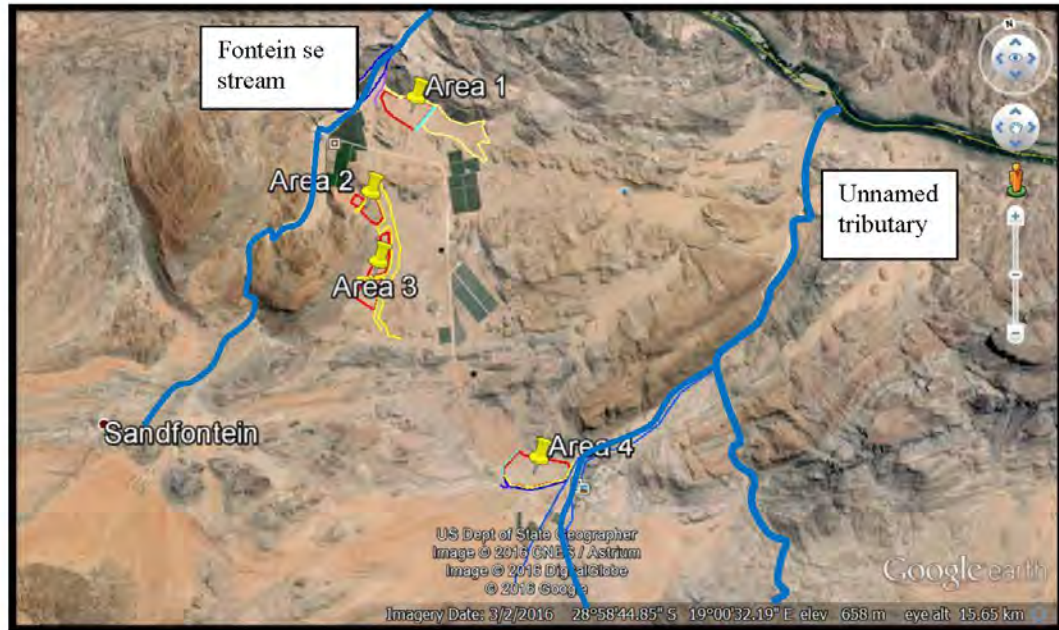
1	Kambreck no. 38 (Portion 0)	67.5ha	89.4ha	-21.9ha	0 ha	89.4ha	-21.9ha
2	Kambreck no. 38 (Portion 1) Area 1	198ha	49.9ha	148.1ha	10ha dates	59.9ha	138.1ha
3	Kambreck no. 38 (Portion 2) Area 1	50ha	95.2ha	-45.2ha	21.4ha dates	116.6ha	-66.6ha
4	Kambreck no. 38 (Portion 3) Area 2 and 3	90ha	8.05ha	81.9ha	40.4ha vineyards	48.4ha	41.5ha
5	Klein Pella 40 Portion 0 Area 4	0	5.3ha	-5.3ha	20 ha dates	25.3ha	-25.3ha
	Total	405.5ha	247.8ha	157.6ha	98.1ha	339.6ha	65.8ha

The proposed development will not result in any developments taking place within the small dry ephemeral streams/drainage areas that only receive water during heavy rainfall. Areas 1 to 3 is located more than 32m from the streams and only Area 4 is located closer to the streams. Area 4 is an existing cultivated area. The transfer of water rights will not have any effect on the quantity of available water from the water resources within the immediate vicinity as all the water use allotments will be transferred from existing allocations already registered to the applicant Karsten Boerdery Pty Ltd.

## 2.9 Ephemeral stream and drainage areas:

The proposed development areas fall within the Lower Orange River water management area and within two sub quaternary catchment areas. The two streams run across the farming properties one is the Fontein se stream and the other an unnamed tributary of the Orange River.

As Shown in Figure 3 are the location of an ephemeral streams (Light blue) and formally created drainage areas (turquoise) and natural drainage areas (yellow) located around the proposed development areas. These streams spring from mountainous outcrops surrounding the new proposed agricultural areas and then flows downwards towards the Orange River. The proposed agricultural developments will not impact on the flow towards the Orange River.



*Figure 3: Ephemeral streams/drainage areas*

This document is a requirement for environmental authorization which will be shown in Appendix A. On approval by DENC the developer must ensure that its conditions are implemented by making the document available to the contractor and also ensure that an ECO or Resident Engineer are appointed and systems are in place to evaluate compliance. The contractor(s) is expected to familiarize himself with the contents of this document and to implement its conditions.

### 3 Management Programme – Construction

Please note that the EMP must be included in any tender documentation and all sub-contractors on the site must be made aware of this EMP and they must at all times adhere to the procedures specified.

Only those sections applicable to the specific construction activity are relevant and to be implemented.

#### 3.1 Contractual obligations

- 1) The Contractor shall acknowledge receipt of copies of the EMP and confirm in writing that he has familiarised himself with the contents thereof;
- 2) The Contractor shall comply with all environmental obligations imposed by the RE/ECO/EO.
- 3) The Contractor shall co-operate fully with the RE/ECO/EO and use his best endeavours to ensure that the objectives of the EMP are fulfilled in the course of the Contractor's execution of the works or the relevant part thereof.
- 4) The Contractor shall erect an information board containing background information for the construction activity and listing the relevant contact details for complaint.
- 5) The Contractor must ensure that all workers are given environmental awareness training on the requirements of the EMP. This must form part of the Contractor's contract agreement. The RE/ECO/EO must be informed in writing of implementation.
- 6) Working hours will be from 7:00pm to 18:00pm Monday to Saturday. No work will be allowed on Sundays or public holidays.
- 7) Deliveries will only be allowed between 8:00am and 5pm.
- 8) Preference must be given to local labour.
- 9) Workers (except security guards) may not be housed on site.

#### 3.2 Penalties

Penalties will be instituted for non-compliance. The penalty is over and above the cost of rectifying the problem and/or damage. Penalties will vary on a sliding scale from R 1 000 to R 20 000 for non-serious to serious issues as determined by the RE/ECO/EO/EO.

These penalties must be paid into a separate account to be administered by the developer. The RE/ECO/EO/EO will decide how the penalties, if any, are to be spent.

#### 3.3 Methodology statement

A methodology statement must be compiled by the contractor(s) before any construction or activity may commence. The statement must include a site establishment plan indicating all relevant areas. The RE/ECO/EO must approve the methodology statement.

The activity indicated highlighted in yellow in the following list will as a minimum require a statement. The contractor must identify any other statements that will be required as part of the project implementation. The method statement must contain the following:

***Blasting***

- Details of all methods and logistics associated with blasting.

***Bunding***

- Method of bunding for static plant.

***Camp establishment***

- Layout and preparation of the construction camp.
- Method of installing fences required for “no go” areas, working areas and construction camp areas.
- Preparation of the working area.

***Cement /concrete batching***

- Location, layout and preparation of cement/ concrete batching facilities including the methods employed for the mixing of concrete including the management of runoff water from such areas.

***Contaminated water***

- Contaminated water management plan, including the containment of runoff and polluted water.

***Drilling and jack hammering***

- Method of drill coring with water or coolant lubricants.
- Methods to prevent pollution during drilling operations.

***Dust***

- Dust control.

***Earthworks***

- Method for the control of erosion during bulk earthwork operations.
- Method of undertaking earthworks, including hand excavation and spoil management.

***Emergency***

- Emergency construction method statements.

***Environmental awareness course***

- Logistics for the environmental awareness course for all the Contractors employees.
- Logistics for the environmental awareness course for the Contractors management staff.

***Erosion control***

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PBPS

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Proposed construction of agricultural areas on areas on Farm Klein Pella no 40 and Ptn 1, 2 and 3 of Farm Kambreek no 38, Namakwa District.

Environmental Management Programme – Construction & Operational

- Method of erosion control, including erosion of spoil material

#### ***Exposed aggregate finishes***

- The method of control, treatment and disposal with respect to exposed aggregate finishes.

#### ***Fire, hazardous and poisonous substances***

- Handling and storage of hazardous wastes.
- Emergency spillage procedures and compounds to be used.
- Emergency procedures for fire.
- Use of herbicides, pesticides and other poisonous substances.
- Methods for the disposal of hazardous building materials including asbestos, fibre claddings, refrigerants and coolants.

#### ***Fuels and fuel spills***

- Methods of refuelling vehicles.
- Details of methods for fuel spills and clean up operations.
- Refuelling of construction vehicles in high flow areas [or in the 1 in 50 year floodplain].
- Method of refuelling dredger during dredging operations.

#### ***Rock breaking***

- Details of chemical applications to be used for rock breaking.

#### ***Settlement ponds and sumps***

- Layout and preparation of settlement ponds and sumps.

#### ***Solid waste management***

- Solid waste control and removal of waste from Site.
- Methods for the disposal of vegetation cuttings, tree trunks, building materials or rubble generated by construction.

#### ***Sources of materials***

- Details of materials imported to the site (where applicable).

#### ***Sensitive environments***

- Proposed construction methods within any sensitive environments. These can include but are not limited to wetlands, intertidal zones and estuaries.

#### ***Traffic***

- Traffic safety measure for entry/ exit onto/ off public roads.
- Traffic control when crossing roads or pedestrian routes with construction activities.

#### ***Vegetation clearing***

- Method of vegetation clearing during site establishment.

#### **Wash areas**

- Location, layout, preparation and operation of all wash areas, including vehicle wash, workshop washing and paint washing and clearing.

### **3.4 Environmental awareness training**

- 1) All the Contractors employees and Sub-Contractors employees and any suppliers employees that spend more than 1 day a week or four days in a month on site, must attend an Environmental Awareness Training course presented by the Contractor the first of which shall be held within one week of the Commencement Date. Subsequent courses shall be held as and when required.
- 2) The Engineer/ECO will provide the Contractor with the course content for the environmental awareness training course, and the Contractor shall communicate this information to his employees on the site, to any new employees coming onto site, to his subcontractors and to his suppliers.
- 3) The Contractor shall supply the Engineer/ECO with a monthly report indicating the number of employees that will be present on site during the following month and any changes in this number that may occur during the month.
- 4) The Contractor shall submit a Method Statement detailing the logistics of the environmental awareness training course.

### **3.5 Demarcation and protection**

- 1) The property must be fenced prior to start of construction to determine the construction/work area. Proper access control must be implemented to ensure that only authorised people obtain access to the site.
- 2) No-Go which include sensitive areas must be clearly demarcated prior to commencing of demolition and/or earthworks/building operations.
- 3) The contractor must ensure that fencing and/or demarcations are maintained for the duration of the project.
- 4) Although not limited to, No-Go areas.
- 5) No work outside of the property boundary will be allowed.
- 6) Special features shall be marked on a site layout plan prior to any works commencing on site. These areas may be designated “No go” areas.
- 7) Outcrops, rock faces, trees and natural vegetation or any other natural or special features inside and outside the Site, shall not be defaced, painted for benchmarks for survey or any other purposes or otherwise damaged in any way without the prior approval of the Engineer/ECO. These features shall be demarcated as “no go” areas and shall be fenced or similarly protected, as determined by the Engineer/ECO.



### 3.6 Site clearing

- 1) Prior to earthworks (including site clearance) starting on site, a search and rescue operation for bulbs and other indigenous plants of value, as detailed in the environmental approval shall be undertaken.
- 2) The stripping and separation of topsoil shall occur as stipulated by the Engineer/ECO/EO. As a guide the upper 250 mm of soil (topsoil, which includes roots and leaf litter) shall be placed separately. This soil shall be used for re-shaping and filling as required.

### 3.7 Contractor's camp

- 1) The Contractor's camp, offices, and storage facilities shall not be located within an environmentally sensitive area. The camp's position must be approved by RE/ECO/EO, if a site camp is applicable.
- 2) The camp must be fenced as agreed with the RE/ECO/EO.
- 3) Water from the kitchens, showers, sinks etc., shall be discharged in a manner approved by the RE/ECO/EO.
- 4) The contractor must ensure that all temporary structures, equipment, materials, and facilities used or created on-site during the construction phase are removed and appropriately disposed of.

### 3.8 Sensitive environments

#### 3.8.1 Vegetation

The following measures from the Botanical Survey (Appendix C) should be implemented:

- *The vegetation across the entire site of the proposed agricultural development is Eastern Gariep Plains Desert, no endemic plant species within this area.*
- *Special attention should be given to not disturbing or unnecessarily influencing the drainage lines. These watercourses should be buffered by 32 m to ensure that the drainage lines are secure and to accommodate flooding.*

#### 3.8.2 Heritage, Archaeology and Palaeontology

The following measures outlined in the comment from SAHRA and referring to the Heritage Impact Assessment Report (Appendix D) should be implemented:

- *There are no significant cultural landscape elements of concern and impacts are deemed to be neutral in status and of low significance. The proposed development is consistent with the present land use and is not incompatible with the landscape.*
- *There are no significant cultural landscape elements of concern and impacts are deemed to be neutral in status and of low significance. The proposed development is consistent with the present land use and is not incompatible with the landscape. No impacts are expected, there are no fatal flaws and no further mitigation or management are required. The cumulative impact of further plantations and vineyards is neutral and of no concern.*

- *No mitigation deemed necessary it is recommended that the proposed new lands be authorised with no further heritage studies required. However, if any archaeological material or human burials are uncovered during the course of development then work in the immediate area should be halted. The find would need to be reported to the heritage authorities and may require inspection by an archaeologist. Such heritage is the property of the state and may require excavation and curation in an approved institution.*

### 3.8.3 Ephemeral streams/drainage areas

The proposed development will not result in any developments taking place within the small dry ephemeral streams/drainage areas that only receive water during heavy rainfall. Areas 1 to 3 is located more than 32m from the streams and only Area 4 is located closer to the streams. Area 4 is an existing cultivated area.

#### Mitigation

As part of the construction of the development it is proposed to construct a storm water berm/canal to prevent any contamination downstream into any of these ephemeral streams/drainage areas.

For Area 4 it is proposed to create a 32m buffer area from the stream, which should be a strict “No-Go” area as part of the EMP.

### 3.8.4 Fauna:

Although not observed during the site visit, it is expected that small game such as klipspringer, steenbok, porcupines, baboons and dassies will be found in the area. However, it is not anticipated that the proposed development will have a significant negative impact on these species.

Habitat destruction and the possible genetic contamination of species are however all factors that can negatively impact on vertebrate species, but can be minimized through applying the following mitigation measures:

#### Mitigation

- Regular maintenance of the water network will minimize the damage done by porcupines.
- No hunting of small game with dogs will be allowed.
- To ensure environmentally friendly farming practices, the site manager will have to adhere to the requirements and prescriptions which will be included in the environmental management plan to be included as part of the EIA process. This plan will also deal with issues such as the prohibition of the hunting of small game etc.

### 3.8.5 Sewage disposal:

Chemical toilets will be provided for the workers in the vineyard/ agricultural land. These toilets will be emptied on a daily basis in the sewage tank system at the households and at the packing sheds.

**Mitigation**

With regard to the development work at the site it must be ensured that the applicant/ contractor provide sufficient sanitation facilities for the use of his employees during the actual construction period. The applicant/ contractor will be solely responsible for the proper use and maintenance thereof in conditions, which are to the satisfaction of both the contractor and the applicant. All facilities must be positioned within walking distance from wherever employees or labourers are at work.

Other specifications to be adhered to are, amongst others, the following;

- All facilities provided at the site must comply with the requirements of the Local Municipality.
- No sewerage facility may be erected within a radius of 100m from a water source.
- The applicant/ contractor must be held responsible for the cleaning of the sanitary facilities to prevent health hazards for the duration of the contract.
- Sanitary facilities must be provided at a ratio of one (1) facility for every fifteen (15) persons.
- All sanitation facilities must be sited, in terms of the specifications of the National Water Act no. 36 of 1998, in such a way that they do not cause water- or other pollution.

**3.8.6 Solid waste disposal**

The application area is located within the municipal area of Kai Ma Municipality. No household waste will be generated as part of this application.

All facilities in use during the construction phase must be utilized and maintained in a manner that prevents pollution of any groundwater sources. No waste of any kind may be disposed of in the surrounding environment.

**Mitigation**

A no-nonsense approach with regard to littering on the farm exists and the neatness of the workplace as well as the residential areas is all high priorities for the management.

Sufficient provision should be made for rubbish bins on the farm to prevent workers from littering. These rubbish bins should be clearly marked and be visible.

**3.8.7 Air and noise pollution****Air Pollution**

During the construction phase, and due to the nature of the project, a small amount of smoke (from machines) and dust could be generated. Dust pollution may have an impact on the operational workers.

**Mitigation**

In order to minimize the effect of dust pollution, the construction area should be kept wet as far as possible and the workers must wear the necessary safety clothing. The applicant is referred to section 19 of the National Water Act no. 36 of 1998 with regard to the prevention of, and remedies for, the effects of pollution. In terms of this section of the Act, the person who owns controls, occupies or uses the land in question is responsible for taking measures to prevent pollution of water resources and property.

**Noise Pollution**

During the construction phase there may be minimal and sporadic incidents of air and noise pollution due to the construction activities such as dust and noise as a result of earthworks. Due to the fact that the area is situated within an agricultural environment, the impact is not expected to be severe.

**Mitigation**

The contractor should make adequate provision to prevent or minimize the possible effects of air and noise pollution. Should the noise from the construction work be found to cause problems, (which is not anticipated to be the case) work hours in these areas may be restricted between 06:00 and 20:00, or as otherwise agreed between the parties involved. Strict measures should therefore be enforced, especially in terms of the contract specifications, to prevent any negative impacts in this regard.

**3.8.8 Conditions set out in the WULA**

All conditions to be outlined by DWS in the approved WULA should be implemented.

**3.9 Cement mixing**

- 1) The cement mixing area(s) must be indicated on the Site Establishment Plan.
- 2) All wastewater resulting from concrete shall be disposed of via the wastewater management system where available.
- 3) The cement/ concrete works shall be kept neat and clean at all times.
- 4) All runoff shall be strictly controlled, and cement-contaminated water shall be collected, stored and disposed of at a site approved by the Engineer/ECO/EO. Dagma boards, mixing trays and impermeable sumps shall be used at all mixing and supply points. Contaminated water shall be disposed at a waste disposal site approved by the Engineer/ECO/EO.
- 5) Contaminated water storage facilities shall not be allowed to overflow and appropriate protection from rain and flooding shall be implemented.
- 6) Contaminated water treatment on Site shall require a method statement approved by Engineer/ECO/EO.
- 7) Unused cement bags are to be stored so as not to be effected by rain or runoff events.
- 8) Used bags shall be stored in weatherproof containers to prevent wind-blown cement dust and water contamination. Used bags shall be disposed of on a regular basis via the solid waste management system, and shall not be used for any other purpose.
- 9) Concrete transportation shall not result in spillage.
- 10) Cleaning of equipment and flushing of mixers shall not result in pollution of the surrounding environment: Care shall be taken to collect contaminated wash water from cleaning activities and dispose of it in a manner approved by the Engineer/ECO/EO. To prevent spillage onto roads, ready mix trucks shall rinse off the delivery shoot into a suitable sump prior to leaving Site.

- 11) Suitable screening and containment shall be in place to prevent wind-blown contamination associated with bulk cement silos, loading and batching.
- 12) With respect to exposed aggregate finishes, the Contractor shall collect all contaminated water & fines and store it in sumps for disposal at an approved waste site.
- 13) All visible remains of excess concrete shall be physically removed on completion of the plaster or concrete pour section and disposed off. Washing the remains into the ground is not acceptable. All excess aggregate shall also be removed. Any mixed cement (for building or plastering) at the work area must be placed on boards or container to prevent spillage or contamination of the soil.
- 14) During cement delivery boards or other protection material must be used to prevent spilling on the ground.
- 15) No mixed concrete/dagga may be placed or stored on bare surfaces. Dagga boards must be used at all times to prevent contamination of surfaces.

### 3.10 Surface and groundwater pollution

- 1) The Contractor shall take all reasonable steps to prevent pollution of surface and groundwater as a result of his activities. Such pollution could result from release (accidental or otherwise) of chemicals, oils, fuels, paint, and sewage, water from excavations, construction water, water carrying soil particles or waste products.
- 2) Cement or concrete mixing must take place in such a way as to prevent any cement water runoff. All pieces of cement or related material are to be stored and dumped at the approved Municipal site.
- 3) Ready-mix trucks are not permitted to clean chutes at the work site.
- 4) Adequate plastic or concrete lined cleaning pits are to be installed to facilitate washing of all cement and painting equipment. A functional, non-leaking, water point must be installed at each pit. The top 75% of the water in the pit may be disposed down the sewerage system, with approval from the Engineer. The remaining water and sludge must be disposed of at a Municipal approved site or removed by a chemical contractor.
- 5) The Contractor shall provide water and/or washing facilities at the construction camp for personnel.
- 6) In the event of any pollution entering any water body, the Contractor shall inform the RE/ECO/EO immediately.
- 7) The contractor will be responsible for any cleanup costs involved should pollution, erosion or sedimentation have taken place.

### 3.11 Noise control

- 1) Working hours will be restricted to daily normal working hours.
- 2) Limit the use of heavy vehicle machinery and construction activities associated with high level noise to 06h00 to 20h00 from Mondays to Saturdays, particularly close to living quarters are situated close to the site.

- 3) All noise and sounds generated by plant or machinery must adhere to SABS 0103 specifications for the maximum permissible noise levels for residential areas.
- 4) All plant and machinery are to be fitted with adequate silencers.
- 5) No sound amplification equipment such as sirens, loud hailers or hooters may be used on site, after normal working hours, except in emergencies.
- 6) If work is to be undertaken outside of normal work hours, permission must be obtained from the Local Authority. Prior to commencing any such activity the Contractor is also to advise the potentially affected neighbouring residents.
- 7) The acceptable noise level according to SABS 10103 Code of Practice is 45dBA in rural district during the day and 35dBA at night. The applicant must comply/adhere to this requirement.

### 3.12 Erosion control

The Contractor shall take all reasonable precautions to prevent soil erosion resulting from a diversion, restriction or increase in the flow of storm water or water resulting from its operations and activities, to the satisfaction of the RE/ECO/EO. Possible measures that can be considered include the following:

- 1) Brushcut packing
- 2) Mulch or chip cover
- 3) Straw stabilising (at the rate of one bale/m<sup>2</sup> and rotated into the top 100mm of the completed earthworks)
- 4) Watering
- 5) Planting / sodding
- 6) Hand seeding sowing
- 7) Hydroseeding
- 8) Soil binders and anti erosion compounds
- 9) Mechanical cover or packing structures
  - a) Gabions & mattresses
  - b) Geofabric
  - c) Hessian cover
  - d) Armourflex
  - e) Log / pole fencing
  - f) Retaining walls
- 10) The Contractor shall take reasonable measures to control the erosive effects of storm water runoff.
- 11) The Contractor shall use silt screens to prevent overland flowing water from causing erosion.
- 12) The Contractor shall use silt screens to prevent overland flowing water from causing erosion.

- 13) The use of straw bales as filters, which are placed across the flow of overland storm water flows, shall be used as an erosion protection measure.
- 14) The ploughing-in of straw offers limited protection against storm water runoff induced erosion and shall be used as an erosion protection measure.
- 15) The Contractor shall be liable for any damage to downstream property caused by the diversion of overland storm water flows.

### 3.13 Dust control

#### DUST - generated by works

- 1) Sand stockpiles are to be covered with hessian, shade cloth or DPC plastic.
- 2) Stockpiles are to be located in sheltered areas and the usable/cut face orientated away from the direction of the prevailing wind for that season.
- 3) Excavating, handling or transporting erodable materials in high wind or when dust plumes visible shall be avoided.
- 4) If high winds prevail the Engineer shall decide whether water dampening measures or cessation of activities is required, and if necessary they shall have the authority to temporarily stop certain of the works until wind conditions become more favourable.

#### Dust – generated by roads and vehicle movement

- 1) Vehicle speeds shall not exceed 40km/h along gravel roads or 20km/h on unconsolidated or non-vegetated areas. Dust plumes created by vehicle movement are to be monitored.
- 2) If access roads are generating dust beyond acceptable levels dust suppression measures must be initiated. These include, but are not limited to the following:
  - 3) Reduction of travelling speeds along the road.
  - 4) Restriction of vehicle or plant usage.
  - 5) Application of chemical soil binders.
  - 6) Application of a suitable sacrificial road surfacing.
  - 7) If water is to be used for dust suppression, then only the critical areas should be watered. The use of water carts or hand watering is preferable. Overhead sprayers shall not be permitted in windy conditions, as the evaporation loss is too high. Watering is to be supervised to prevent unnecessary water wastage, and runoff into potentially sensitive areas. Preferable watering times are early morning and late afternoon/ evening. Water restrictions are to be observed if in place.

### 3.14 Fire management

- 1) No open fires or naked flames for heating or cooking shall be allowed on Site. Stoves and other electrical equipment shall only be permitted in the Contractor's camp and never be left unattended.
- 2) The Contractor shall take all reasonable and active steps to avoid increasing the risk of fire through their activities on Site. No fires may be lit except at places approved by the Engineer/ECO/EO.

- 3) The Contractor shall ensure that the basic fire-fighting equipment is to the satisfaction of the Municipal Fire Chief (where applicable).
- 4) The Contractor shall supply all living quarters, site offices, kitchen areas, workshop areas, materials, stores and any other areas identified by the Engineer/ECO/EO with tested and approved fire fighting equipment.
- 5) Fire and “hot work” shall be restricted to a site approved by the Engineer/ECO/EO
- 6) A braai facility may be considered at the discretion of the Engineer/ECO/EO. The area shall be away from flammable stores. All events shall be under management supervision and a fire extinguisher shall be immediately available. “Low smoke” fuels shall be used. Smoke free zoning regulations shall be considered.
- 7) Fires within National Parks, Nature Reserves and natural areas are prohibited.
- 8) Cooking shall be restricted to bottled gas facilities under strict control and supervision. The sensitivity of the surrounding land uses and occurrence of natural indigenous vegetation must be considered when assessing the risk of fires.
- 9) The Contractor shall take precautions when working with welding or grinding equipment near potential sources of combustion. Such precautions include having a suitable, tested and approved fire extinguisher immediately at hand and the use of welding curtains.
- 10) The Contractor shall identify the authorities responsible for fighting fires in the area and shall liaise with them regarding procedures should a fire start. The Contractor shall ensure that his staff are aware of the fire danger at all times and are aware of the procedure to be followed in the event of a fire. The Contractor shall also ensure that all the necessary telephone numbers etc. are posted at conspicuous and relevant locations in the event of an emergency. The Contractor shall advise the relevant authority of a fire as soon as one starts and shall not wait until he can no longer control it.
- 11) Should a contractor be found responsible for the outbreak of a fire, he shall be liable for any associated costs.

### 3.15 Water management

- 1) The Contractor shall provide water for drinking and construction purposes until such time as it is available from the local system. Water from the local system must be used carefully and sparingly with the view of not wasting water.
- 2) Taps are to be attached to secure supports and leaking taps and hosepipes are to be repaired immediately.
- 3) Watering as dust suppression must be undertaken as a last resort. It is preferable that sand stockpiles be covered rather than watered.

### 3.16 Waste management

- 1) A waste minimisation approach must be followed. This requires recycling wherever possible. All waste therefore to be suitably contained and removed regularly from site in accordance with the municipal waste management procedures. Other examples could include the use of rubble as fill, minimisation of waste concrete and the use of brush cuttings for mulching on rehabilitated areas.
- 2) The Contractor shall be responsible for the establishment of a refuse control and removal system that prevents the spread of refuse within and beyond the construction sites.



- 3) The Contractor shall ensure that all refuse is deposited in refuse bins, which he shall supply and arrange to be emptied on a weekly basis. Refuse bins shall be of such a design that the refuse cannot be blown out and that animals or birds are not attracted to the waste and spread it around. Refuse bins shall be water tight, wind-proof and scavenger-proof and shall be appropriately placed throughout the site. Refuse must also be protected from rain, which may cause pollutants to leach out. Refuse bins shall be appropriately placed throughout the Site and shall be conspicuous (e.g. painted bright yellow).
- 4) Refuse shall be disposed of at an approved waste site (site and method to be agreed with Local Authority). Refuse shall not be burnt or buried on or near the Site.
- 5) The Contractor shall provide labourers to clean up the Contractor's camp and Site on a weekly basis.
- 6) The Contractor shall also clean the Contractor's camp and Site of all structures, equipment, residual litter and building materials at the end of the contract.

### 3.17 Toilets

- 1) The Contractor shall be responsible for providing all sanitary arrangements for construction and supervisory staff on the site. A minimum of one chemical toilet shall be provided per 15 persons. Toilets provided by the Contractor must be easily accessible and within a practical distance from the workers. Toilets shall be located within areas of low environmental importance. The toilets shall be of a neat construction and shall be provided with doors and locks and shall be secured to prevent them blowing over. Toilets shall be placed outside areas susceptible to flooding.
- 2) The Contractor shall keep the toilets in a clean, neat and hygienic condition. The Contractor shall supply toilet paper at all toilets.
- 3) The Contractor shall be responsible for the cleaning, maintenance, servicing and emptying of the toilets on a regular basis (by chemical contractor). No waste to be dumped in the bush or stream. The Contractor shall ensure that the toilets are emptied before the builders' or other holidays and the waste be stored and disposed of at an appropriate place off site. The Contractor shall ensure that no spillage occurs when chemical toilets are cleaned and emptied. The Contractor shall supply a contingency plan for spills from toilets.
- 4) Performing ablutions in any other area is strictly prohibited.
- 5) The location for construction camps and toilets must be approved by the ECO.

### 3.18 Borrow pit, quarries and crushers

- 1) All borrow pit, quarry and crusher sites shall be clearly indicated on plan.
- 2) Prior to the onset of any quarrying or borrow pit activities the Contractor shall establish from the Engineer/ECO/EO whether authorisation has been obtained, both in terms of the most recent acts of Mineral and Petroleum Resources Development Act, (Act 28 of 2002), National Environmental Management Act (Act No. 107 of 1998) and the Environmental Impact Assessment Regulations, 2014 and Noise and Nuisance Regulations of the Environmental Conservation Act. No excavation or blasting activities shall commence before the necessary authorisations are in place.

- 3) Only single lane accesses for construction vehicles shall be provided at borrow pit and quarry sites. New access roads require approval by the Engineer/ECO/EO.
- 4) The site of the crusher shall be fenced and sign-posted, and access to all unauthorised persons and vehicles shall be strictly prohibited.
- 5) The positioning of the crusher plant shall take cognisance of noise nuisance.
- 6) Storm water and groundwater controls shall be implemented
- 7) Machinery, fuels and hazardous materials vulnerable to flooding shall be stored out of flood risk areas.
- 8) Vehicles leaving borrow pits shall not deposit/shed mud, sand and debris onto any public road.
- 9) All loads shall be covered with a tarpaulin or similar to prevent dangers and nuisance to other road users.
- 10) Trees and debris shall not be permitted to fall outside of the clearing limits. Trees shall be cleared or felled so as not to damage other trees or vegetation
- 11) Borrow pits shall be fenced to prevent unauthorised persons and vehicles from entering the area. Fences shall also be stock and game proof.
- 12) Rehabilitation and re-vegetation of borrow pits sites shall be as detailed in the relevant approvals.
- 13) The contractor shall ensure that blasted faces of the pit shall be shape-blasted to the approval of the Engineer/ECO/EO.
- 14) Where required, dust and fly-rock prevention methods shall be detailed in a Method Statement to be approved by the Engineer/ECO/EO.
- 15) Main crusher box and conveyor belt heads are to be fitted with fine jet sprinkler heads to minimise dust, and pre- and post- crush stockpiles shall be managed to minimise dust.
- 16) All crushing plant machinery shall have drip trays and all fuels and oils required for the crusher infrastructure shall be stored in the fuel store, if one is present on Site, or in an appropriately bunded and secured area.
- 17) Rehabilitation of borrow pits, quarries and crusher areas shall be as determined in the relevant approvals.

### **3.19 Fuel and chemical management**

- 1) Fuel may be stored on site providing the following is strictly adhered to:
- 2) All necessary approvals with respect to fuel storage and dispensing shall be obtained from the appropriate authorities.
- 3) The Municipal Fire Chief (or as applicable) must be informed and consulted into Fire Regulations.
- 4) The Contractor shall ensure that all liquid fuels and oils are stored in tanks with lids, which are kept firmly shut and under lock and key at all times.

- 5) The Contractor shall stand any equipment that may leak, and does not have to be transported regularly, on watertight drip trays to catch any pollutants. The drip trays shall be of a size that the equipment can be placed inside it. Drip trays shall be cleaned regularly and shall not be allowed to overflow.
- 6) All hazardous material (e.g., oils. Petrol or diesel) used on site must be disposed of at an approved hazardous waste facility or with the services of a licensed waste transportation company. All certificates of disposal and weigh bridge slips need to be signed by all relevant officials and kept as records on the premises.
- 7) The contractor will be responsible for the cleaning up of any spill and associated costs.
- 8) Areas for storage of fuels and other flammable materials shall comply with standard fire safety regulations and may require the approval of the Municipal Fire Chief (in urban areas) or RE/ECO/EO.

#### ***Location***

- The fuel storage area shall be located at one of the following locations: {provide a list of acceptable locations for the fuel storage area}.
- The Engineer/ECO shall be advised of the area that the Contractor intends using for the storage of fuel.
- The location of the fuel storage area will determined by the Engineer/ECO/EO.
- The tank shall be erected at least 3,5 meters from buildings, boundaries and any other combustible or flammable materials.

#### ***Signs/good practice/safety precautions***

- Symbolic safety signs depicting “No Smoking”, “No Naked Lights” and “Danger” conforming to the requirement of SABS 1186 are to be prominently displayed in and around the fuel storage area. The volume capacity of the tank shall be displayed.
- No smoking shall be allowed in the vicinity of the stores.
- The capacity of the tank shall be clearly displayed and the product contained within the tank clearly identified using the emergency information system detailed in SABS 0232 part 1.
- There shall be adequate fire-fighting equipment at the fuel storage and dispensing area or areas.
- Fuel shall be kept under lock and key at all times.

#### ***Tanks***

- The storage tank shall be removed on completion of the works.
- The storage tank shall be on the premises only for as long as the contract last.
- All such tanks to be designed and constructed in accordance with a recognised code.
- The rated capacity of tanks shall provide sufficient capacity to permit expansion of the product contained therein by the rise in temperature during storage.

***Bunds/storage areas***

- Tanks shall be situated in a bunded area the volume of which shall be at least 150% of the volume of the largest tank. The floor of bund shall be smooth and impermeable constructed of concrete or plastic sheeting with impermeable joints with a layer of sand over to prevent perishing. The bund walls shall be of concrete or formed of well-packed earth with the impermeable lining extending to the crest. The floor of the bund shall be sloped towards an oil trap or sump to enable any spilled fuel and/or fuel-soaked water to be removed.
- A bacterial hydrocarbon digestion agent that is effective in water approved by the Engineer/ECO/EO shall be installed in the sump.
- The tanks and bunded areas shall be covered by a roofed structure to prevent the bunded area from filling with rain water. This structure shall be constructed in such a way, and to the approval of the Engineer/ECO/EO, to ensure that it is wind resistant.
- Any water that collects in the bund shall not be allowed to stand and shall be removed within one day and taken off Site to a disposal site approved by the Engineer/ECO/EO, and the bacterial hydrocarbon digestion agent shall be replenished.

***Empty containers***

- Only empty and externally clean tanks may be stored on the bare ground. All empty and externally dirty tanks shall be sealed and stored on an area where the ground has been protected.

***Filling/dispensing methods***

- Any electrical or petrol-driven pump shall be equipped and positioned so as not to cause any danger of ignition of the product.
- If fuel is dispensed from 200 litre drums, the proper dispensing equipment shall be used. The drum shall not be tipped in order to dispense fuel. The dispensing mechanism of the fuel storage tank shall be stored in a waterproof container when not in use.
- Adequate precautions shall be provided to prevent spillage during the filling of any tank and during the dispensing of the contents.

***Method statements***

- A method statement is required for the filling of and dispensing from storage tanks.

## **3.20 Contaminated water**

***General***

1. The Engineer/ECO/EO's approval will be required prior to the discharge of contaminated water into the sewer system.
2. The Contractor shall prevent discharge of any pollutants, such as cements, concrete, lime, chemicals and fuels into any water sources.

3. Water from kitchens, showers, laboratories, sinks etc. shall be discharged into a conservancy tank for removal from the site.
4. Runoff from fuel depots/workshops/truck washing areas and concrete swills shall be directed into a conservancy tank and disposed off at a site approved by the Engineer/ECO and Local Authority.
5. The contaminated water, contaminated run-off, or effluent released into a water body requires analysis in terms of the National Water Act. Contaminated water must not be released into the environment without authorisation from the relevant authority.

#### ***Washing areas***

1. Wash areas shall be placed and constructed in such a manner so as to ensure that the surrounding areas, which include groundwater, are not polluted.
2. A Method Statement shall be required for all wash areas where hydrocarbon and hazardous materials, and pollutants are expected to be used. This includes, but is not limited to, vehicle washing, workshop wash bays, paint wash and cleaning.
3. Wash areas for domestic use shall ensure that the disposal of contaminated “grey” water is sanctioned by the Engineer/ECO.

### **3.21 Vehicles and access roads**

- 1) The movement of any vehicles and/ or personnel outside of the designated working areas shall not be permitted without the written authorisation of the Engineer/ECO.
- 2) Should the Contractor not exercise sufficient control to restrict all work to the area within the marker boundaries, then these on instruction of the Engineer/ECO/EO shall be replaced by fencing the additional cost of which shall be borne by the Contractor.
- 3) Dust control measures such as dampening with water shall be implemented where necessary, as indicated by the Engineer/ECO.
- 4) Access and haul roads shall be maintained by the Contractor.
- 5) Maintenance includes adequate drainage and side drains, dust control and restriction of edge use.
- 6) All temporary access routes shall be rehabilitated at the end of the contract to the satisfaction of the Engineer/ECO.
- 7) Any materials used for layer works shall be approved by the Engineer/ECO prior to the activity commencing.
- 8) Method statements are required for the following:-
  - a) Proposed route for new access roads, tracks, or haul roads; the proposed construction of new roads, and the method of upgrading existing roads; and the proposed methods of rehabilitation on completion.

### 3.22 Stockpiling of materials

The Contractor shall temporarily stockpile topsoil materials in such a way that the spread of materials is minimised, and thus the impact on the natural vegetation. The stockpiles must be placed within areas demarcated for this purpose. The RE/ECO/EO shall approve stockpile areas.

### 3.23 Heritage remains

Should any heritage remains be exposed during excavations, these must immediately be reported to the Provincial Heritage Resources Authority of the Northern Cape, SAHRA. Heritage remains uncovered or disturbed during earthworks must not be disturbed further until the necessary approval has been obtained from SAHRA.

### 3.24 Contingency planning

In the event of a spill or leak of product into the ground and/or water courses (e.g. that of hazardous substances used for the construction phase), such incidents must be reported (within 14 days) to all the relevant authorities including the Directorate: Pollution Management in accordance with Section 30(10) of the National Environmental Management Act No. 107 of 1998 (NEMA) and Section 20 (3) of the National Water Act No.36 of 1998 (NWA), that pertains to the control of emergency incidents and the remediation of the affected area. All necessary documentation must be completed and submitted within the prescribed timeframes.

Containment, clean-up, and remediation must commence immediately.

### 3.25 Environmental Control Officer or Resident Engineer

An Environmental Control Officer (ECO) will implement environmental control of the development. The ECO duties will be as follows:

- Ensure implementation and monitoring of the EMP.
- Make changes to the EMP as required.
- Visit the site regularly on at least a weekly basis.
- Prepare reports as required by mitigation measures or by the EA.
- Maintain a photographic record of the work and environmental issues.

### 3.26 Documentation control

The ECO will maintain a file containing the following:

- Copy of the EMP
- Methodology statement(s) by the contractor(s)
- Site establishment plan

- Letter from contractor(s) indicating that he has familiarised himself with the contents of the EMP.
- Letter from contractor(s) on environmental awareness training
- The applicant must ensure that complaints received by the farm are documented.
- The contractor should maintain a copy of the following documents on-site:
  - All methodology statements;
  - Emergency response and remedial action plan;
  - Environmental Management Plan (EMP) and other documents related to the operation on file.
- Tracking table (see Appendix B)

## 4 Management Programme – Operational

This section will only make reference to Operational Management measures, note no ECO will be responsible to manage this as most is with reference to Water Use License and will be managed by the appropriate Authority.

### 4.1 Water Use License

If any recommendations or measures are outlined in the WULA they should be included in this section.

### 4.2 Water Management Section

The proposed development of the agricultural areas will in effect result in the following measures to reduce energy and water usage:

- The irrigation system to be used minimises usage of water.
- Test pits and data collections from these pits are taken on a regular basis to determine the moisture content for soil etc.
- Soil coverage within the vineyards with chaff.
- Regular monitoring and checks from specialists in the field to introduce best possible irrigation practices.
- Preventative measures to reduce possible spillage or silt accumulation in lower streams from storm water accumulated during heavy rains. Placing of bales within streams in lower areas before entering streams.

### 4.3 Contingency planning

In the event of a spill or leak of product into the ground and/or water courses (e.g. that of hazardous substances used for the construction phase), such incidents must be reported (within 14 days) to all the relevant authorities including the Directorate: Pollution Management in accordance with Section 30(10) of the National Environmental Management Act No. 107 of 1998 (NEMA) and Section 20 (3) of the National Water Act No.36 of 1998 (NWA), that pertains to the control of emergency incidents and the remediation of the affected area. All necessary documentation must be completed and submitted within the prescribed timeframes.

Containment, clean-up, and remediation must commence immediately.



**Appendix A: Environmental authorisation**

Included once received.

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**Appendix B: Tracking Table**

Requirement	Received		Date	Comment
	Yes	No		
Methodology statement				
Site establishment plan				
Letter re contents of EMP				
Letter re awareness training				

**Appendix C: Botanical Survey Report**

Included in the EIR.

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**Appendix D: Heritage Impact Assessment Report**

Included in the EIR.

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