



# DRAFT SECTION 24G ASSESSMENT REPORT

**Rectification of the clearing of land and the construction of vineyards, a dam, pipelines and associated infrastructure on Erf 2435, 387, 1248 and 2106 Kakamas South Settlement, Northern Cape Province**

March 2020

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## QUALITY CONTROL

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01	March 2020	Elanie Kühn	Lee Labuschagne	Draft for comment.	Approved

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

**Application form for the regularisation of unlawful commencement or continuation of a listed activity or waste management activity in terms of section 24G of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended.**

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2016

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**Kindly note that:**

1. This application form must be completed for all applications in terms of S24G of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended.
2. It is the responsibility of the Applicant/Environmental Assessment Practitioner (EAP) to ascertain whether subsequent versions of the application form have been published or produced by the relevant competent authority.
3. This application form is structured as follows:

**PART 1**

- Section A: Application Information
- Section B: Activity Information
- Section C: Description of Receiving Environment
- Section D: Preliminary Impact Assessment
- Section E: Landfill Parameters
- Section F: Proposed Public Participation Process
- Section G: Alternatives
- Section H: Appendices

**PART 2**

- Section A: Directive
- Section B: Deferral
- Section C: Quantum of the fine

**PART 3**

- Section A: Declarations
  - Annexures

4. An independent EAP must be appointed to complete Part 1 as well as Part 2 Section C Part I of the application form on behalf of the applicant. The applicant must complete the remainder of Part 2 (i.e. excluding Section C part I. Both the EAP and Applicant must sign Part 3.
5. The declaration of independence must be completed by the independent EAP and submitted with the application.
6. The required information must be typed within the spaces provided. The sizes of the spaces provided are not necessarily indicative of the amount of information to be provided. The space provided extends as each space is filled with typing. A legible font type and size must be used when completing the form. The font size should not be smaller than 10pt (e.g. Arial 10).
7. The use of *"not applicable"* in the application form must be done with circumspection.
8. No faxed or e-mailed applications will be accepted. This application form must be submitted by hand or mailed to the relevant competent authority.

9. Unless protected by law, all information contained in and attached to this application form may become public information on receipt by the competent authority. Upon request, any interested and affected party must be provided with the information contained in and attached to this application form.

10. This application form constitutes the initiation of the S24G application process.

Kindly note further that:

11. Section 24G of the NEMA, without affecting any criminal liability of a person who has acted in contravention of the above, makes provision for that person to submit an application to the relevant MEC/Minister, which, if successful, will enable that person lawfully to continue with the listed activity and/or legalise an otherwise unlawful structure.

12. Before the Minister/MEC may take a decision in respect of the application, the applicant is required to pay an appropriate administrative fine, determined by the competent authority, which fine may not exceed five million Rand (R 5 000 000.00) per listed activity unlawfully commenced or per application where the activities are interrelated.

13. It is the responsibility of the applicant to familiarise himself/herself/itself with all the possible consequences associated with the submission of this application including, but not limited to, the following:

- This application (including a positive decision in respect hereof) in no way affects any criminal liability that the applicant may have incurred in respect of the activities which were commenced, undertaken and/or conducted unlawfully as listed in paragraph 1 above, and in respect of which this application relates.
- The processing of this application may be deferred pending the outcome of criminal proceedings, should criminal proceedings be instituted against the applicant in respect of the abovementioned activities; or where criminal proceedings are pending against the applicant in respect of a similar contravention of section 24F of NEMA or section 20(b) of NEM:WA.
- Before the competent authority may take a decision on the application, an administrative fine determined by the competent authority must be paid, in full, by the applicant.
- That neither the submission of this application, nor the payment of the administrative fine implies that authorisation will be issued for the continuation of an activity/activities that commenced, undertaken and/or conducted unlawfully. This decision will depend on the merits of the application itself.

14. Activities which result in detrimental impacts to the environment are considered in a serious light by the competent authority and accordingly applicants must understand that by lodging an application for the continuation of an activity/ activities that commenced/ was undertaken or conducted unlawfully does not necessarily imply that the activity will be authorised. In terms of the NEMA the Minister/MEC may either refuse to issue an environmental authorisation/waste management licence; conditionally authorise the activity or direct you, the applicant, to provide further information or take further steps prior to making a decision.

#### DEPARTMENTAL DETAILS

Department of Environment and Nature Conservation  
Compliance and Enforcement  
90 Long Street  
Private Bag X6102  
Kimberley  
8300

Tel. 053-807 7300  
Fax: 053-807 7328

## SECTION A: APPLICATION INFORMATION

## 1. APPLICANT PROFILE INDEX

Cross out the appropriate box "☒".

1.1	The applicant is an individual	<del>YES</del>	<del>NO</del>
1.2	The applicant is a company	YES	<del>NO</del>
1.3	The applicant is a state-owned enterprise or municipality	<del>YES</del>	<del>NO</del>
1.4	Other (specify)	<del>YES</del>	<del>NO</del>
1.5	There is more than one individual/company responsible for the unlawful commencement of listed activities/listed waste management activities.	<del>YES</del>	<del>NO</del>

Name of Project applicant:	Triple D Farms (Pty) Ltd										
RSA Identity number:											
Contact person:	Mr P Dykman										
Position in company	Director										
Registered Name of Company/Closed Corporation	Triple D Farms (Pty) Ltd										
Trading name (if any):											
Registration number	1999/110025/07										
Postal address:	PO Box 537										
	Kakamas					Postal code:	8870				
Telephone:						Cell:	+27 (0)82 781 7527				
E-mail:	piet@dddfarms.net					Fax:					
<p><b>Please Note:</b> In instances where there is more than one individual/company responsible for the unlawful commencement of listed activities/waste management activities, please attach a list of with all contact details to the back of this page.</p>											

Environmental Assessment Practitioner (EAP):	GroenbergEnviro (Pty) Ltd										
Contact person:	Elanie Kühn										
Postal address:	PO Box 1058										
	Wellington					Postal code:	8870				
Telephone:	(021) 873 7228					Cell:	(076) 584 0822				
E-mail:	elaniem@iafrica.com					Fax:	(086) 476 7139				
EAP Qualifications	Pieter Badenhorst – 44 years’ experience (16 at the CSIR) in environmental management, report writing, project management and facilitation Elanie Kühn – 13 years’ experience in environmental management, report writing and project management										
EAP Registrations/Associations	Pieter Badenhorst – IAIAA, Pr Eng, SAICE Elanie Kühn – IAIAA										

Name of Landowner(s):	Same as applicant for Kakamas South Settlement no. 2435. Kakamas South Settlement No. 387, 1248 and 2106 is owned by Die Heuvel Boerdery (Pty) Ltd		
Contact person(s):	Ms. El-marie Koen		
Postal address:	P. O. Box 37, Kakamas		
		Postal code:	8870
Telephone:		Cell:	(082)457 7387
E-mail:	elmarie@dieheuwel.co.za	Fax:	( )

**Please Note:** In instances where there is more than one landowner, please attach a list of landowners with their contact details to the back of this page. THE CONSENT USE IS INCLUDED IN APPENDIX C.

Municipality in whose area of jurisdiction the activity falls:	Kai! Garib Municipality		
Contact person:	Municipal Manager		
Postal address:	Private Bag X6		
	Kakamas	Postal code:	8870
Telephone	(054) 461 6700	Cell:	
E-mail:		Fax:	(054) 461 6300

**Please Note:** In instances where there is more than one Municipality involved, please attach a list of Municipalities with their contact details to the back of this page.

Project title:	Triple D Farms – S24G Rectification of agricultural developments and the further agricultural developments and infrastructure on Kakamas South Settlement No. 2435, 387, 1248 and 2106 Kakamas South Settlement.		
Property location:	Triple D Farms– Kakamas		
Farm/Erf name & number (incl. portion):	Agricultural development – Erf 2435 Pipelines and Pump station – Erf 387, 1248, 2106		
SG21 Digit code:	C036000700002435000000 C036000700001248000000 C036000700002106000000 C036000700000387000000		

Co-ordinates:	Latitude (S):			Longitude (E):		
Cultivation areas:	28°	44'	48.33"	20°	35'	07.51"
	28°	46'	40.36"	20°	35'	17.74"
	28°	46'	37.88"	20°	35'	27.16"
	28°	45'	58.15"	20°	35'	20.58"
Dam:	28°	46'	11.26"	20°	35'	4.71"
Pipeline start:	28°	45'	08.60"	20°	35'	16.11"
Pipeline finish:	28°	46'	10.96"	20°	35'	03.16"

**Please Note:**  
Where a large number of properties are involved (e.g. linear activities), attach a list of property descriptions to the back of this page.  
Indicate the position of the activity using the latitude and longitude of the centre point of the site for each alternative site. The co-ordinates must be in degrees, minutes and seconds. The minutes must be given to at least three

decimals to ensure adequate accuracy. The EAP is required to contact the relevant competent authority with regards to the projection that must be used.			
Street address:	Kai! Garib Municipality		
Magisterial District or Town:	Augrabies		
<b>Please Note:</b> In instances where there is more than one town or district involved, please attach a list of towns or districts as well as complete physical address information for the entire area to the back of this page.			
Closest City/Town:	Kakamas	Distance	± 4.5 km
Zoning of Property:	Agricultural Zone 1		
<b>Please Note:</b> In instances where there is more than one zoning, please attach a map clearly indicating the zoning of the different portions.			
Was a rezoning application required?	<del>YES</del>	NO	
Was a consent use application required?	YES	<del>NO</del>	
<b>Please Note:</b> Where planning approvals have been granted please attach the relevant approvals.			
Owners consent:	Letter of consent included in Appendix C.		

## 2. APPLICATION HISTORY

(Cross out the appropriate box "☒" and provide a description where required).

Has any national, provincial or local authority considered any development/waste management applications on the property previously?	<del>Yes</del>	<b>NO</b>
If so, please give a brief description of the type and/or nature of the application/s: (In instances where there was more than one application, please attach a list of these applications)		
Which authority considered the application(s):		
Has any one of the previous application/s on the property been approved or rejected? If so, provide a list of the successful and unsuccessful application/s and the reasons for decision/s.	<del>Yes</del>	<b>NO</b>
Provide detail on the period of validity of decision(s) and expiry dates of the above applications/licences etc.		

I hereby apply in terms of Section 24G of the National Environmental Management Act (Act no 107 of 1998 as amended) for the regularisation of the unlawful commencement or continuation of the listed activity(ies) in Section B of the application form:

Applicant (Full names) \_\_\_\_\_ Signature: \_\_\_\_\_

Place: \_\_\_\_\_ Date: \_\_\_\_\_

EAP (Full names) Pieter Badenhorst Signature: \_\_\_\_\_

Place: Wellington Date: \_\_\_\_\_

**SECTION B: ACTIVITY INFORMATION**

**1. ACTIVITIES APPLIED FOR:**

Separate applications are required for one site where more than one listed activity has commenced and where these unlawfully commenced activities constitute offences in terms of different EIA regulations and/or the listed waste management activities.

Applicants and EAPS are strongly advised to discuss the merits of a combined application (*if deemed applicable*) with the relevant competent authority prior to the completion of this application form and submission thereof.

The relevant competent authority will use its discretion in deciding to allow the submission of a single application for more than one NEMA section 24F (1) and/or NEM: WA section 20(b) contravention on one site.

All potential listed activities/waste management activities associated with the site must be indicated below. Only those activities for which the applicant applies will be considered. The onus is on the applicant to ensure that all the applicable listed activities are included in the application.

**PLEASE NOTE THIS APPLICATION IS FOR THE ILLEGAL DEVELOPMENT AND CLEARANCE OF LAND OF APPROXIMATELY 2.6HA AS PART OF THE FUTURE DEVELOPMENT OF 50HA.**

Listed activities applied for. Identify the relevant listed activities applied for below:

<b>NEMA EIA Contraventions: On or after 7 April 2017/Corrected 13 July 2018</b>	
Activities unlawfully commenced with in terms of the EIA Regulations promulgated in terms of the NEMA, Act No 107 of 1998, as amended on/or after 13 July 2018.	
Government Notice No. R327 Appendix 1 Activity No(s):	Details of Activity(ies) requiring Basic Assessment
Activity 12: The development of— (i) dams or weirs, where the dam or weir, including infrastructure and water surface area, exceeds 100 square metres; or <b>(ii) infrastructure or structures with a physical footprint of 100 square metres or more;</b>  where such development occurs— <b>(a) within a watercourse;</b> (b) in front of a development setback; or (c) if no development setback exists, <b>within 32 metres of a watercourse, measured from the edge of a watercourse;</b> —  excluding— (aa) the development of infrastructure or structures within existing ports or harbours that will not	<b>For the construction of agricultural related infrastructure within a watercourse and within 32 m of a watercourse.</b>  <b>For the construction a dam within 32 m of a watercourse.</b>



<p>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;</p> <p>(ee) where such development occurs within existing roads, road reserves or railway line reserves; or</p> <p>(ff) the development of temporary infrastructure or structures where such infrastructure or structures will be removed within 6 weeks of the commencement of development and where indigenous vegetation will not be cleared.</p>	
<p>Activity 19:  <b>The infilling or depositing of any material of more than 10 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 10 cubic metres from a watercourse;</b></p> <p>but excluding where such infilling, depositing, dredging, excavation, removal or moving—</p> <p>(a) will occur behind a development setback;</p> <p>(b) is for maintenance purposes undertaken in accordance with a maintenance management plan;</p> <p>(c) falls within the ambit of activity 21 in this Notice, in which case that activity applies;</p> <p>(d) occurs within existing ports or harbours that will not increase the development footprint of the port or harbour; or</p> <p>(e) where such development is related to the development of a port or harbour, in which case activity 26 in Listing Notice 2 of 2014 applies.</p>	<p><b>For the excavation of more than 10 cubic meters for the agricultural related infrastructure within a watercourse.</b></p>
<p>Activity 27:  <b>The clearance of an area of 1 hectare or more, but less than 20 hectares of indigenous vegetation, except where such clearance of indigenous vegetation is required for—</b></p> <p>(i) the undertaking of a linear activity;</p> <p>(ii) or maintenance purposes undertaken in accordance with a maintenance management plan.</p>	<p><b>For the clearance of more than 1 hectares of indigenous vegetation for the construction of agricultural related infrastructure.</b></p>
<p>Government Notice No. R325 Appendix 2 (Listing notice 2)  Activity No(s):</p>	<p>Details of Activity(ies) requiring a Scoping Report</p>
<p><b>The clearance of an area of 20 hectares or more of indigenous vegetation, excluding where such clearance of indigenous vegetation is required for—</b></p>	<p><b>For the clearance of more than 20 hectares of indigenous vegetation for</b></p>

<p>(i) the undertaking of a linear activity; or maintenance purposes undertaken in accordance with a maintenance management plan.</p>	<p><b>the construction of agricultural related infrastructure.</b></p>
<p>Government Notice No. R327 Appendix 3 (Listing notice 3) Activity No(s):</p>	<p>Details of Activity(ies) requiring Environmental Impact Assessment Report</p>
<p><b>Activity 12</b> <b>The clearance of an area of 300 square metres or more of indigenous vegetation</b> except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan</p> <p><b>g. Northern Cape</b></p> <p>i. Within any critically endangered or endangered ecosystem listed in terms of section 52 of the NEMBA or prior to the publication of such a list, within an area that has been identified as critically endangered in the National Spatial Biodiversity Assessment 2004;</p> <p><b>ii. Within critical biodiversity areas identified in bioregional plans;</b></p> <p>iii. Within the littoral active zone or 100 metres inland from high water mark of the sea or an estuary, whichever distance is the greater, excluding where such removal will occur behind the development setback line on erven in urban areas; or</p> <p>iv. On land, where, at the time of the coming into effect of this Notice or thereafter such land was zoned open space, conservation or had an equivalent zoning.</p>	<p><b>For the clearance of more than 300 square meters of indigenous vegetation for the construction of agricultural related infrastructure within a Critical biodiversity area.</b></p>
<p><b>Activity 14</b> The development of—</p> <p>[(i) canals exceeding 10 square metres in size ; (ii) channels exceeding 10 square metres in size; (iii) bridges exceeding 10 square metres in size; <b>(iv) dams, where the dam, including infrastructure and water surface area exceeds 10 square metres in size;</b> (v) weirs, where the weir, including infrastructure and water surface area exceeds 10 square metres in size; (vi) bulk storm water outlet structures exceeding 10 square metres in size; (vii) marinas exceeding 10 square metres in size; (viii) jetties exceeding 10 square metres in size; (ix) slipways exceeding 10 square metres in size; (x) buildings exceeding 10 square metres in size;</p>	<p><b>For the construction of agricultural related infrastructure and a dam within 32 m of a watercourse, within a critical biodiversity area.</b></p>

- (xi) boardwalks exceeding 10 square metres in size; or
- (xii) infrastructure or structures with a physical footprint of 10 square metres or more;]

- (i) dams or weirs, where the dam or weir, including infrastructure and water surface area exceeds 10 square metres; or
- (ii) infrastructure or structures with a physical footprint of 10 square metres or more;

where such development occurs—

- (a) within a watercourse;
  - (b) in front of a development setback; or
  - (c) if no development setback has been adopted, within 32 metres of a watercourse, measured from the edge of a watercourse;**
- excluding the development of infrastructure or structures within existing ports or harbours that will not increase the development footprint of the port or harbour.

#### g. Northern Cape

- i. In an estuary;
- ii. Outside urban areas:
  - (aa) A protected area identified in terms of NEMPAA, excluding conservancies;
  - (bb) National Protected Area Expansion Strategy Focus areas;
  - (cc) World Heritage Sites;
  - (dd) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority;
  - (ee) Sites or areas identified in terms of an international convention;
  - (ff) Critical biodiversity areas or ecosystem service areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;**
  - (gg) Core areas in biosphere reserves;
  - (hh) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core area of a biosphere reserve;
- (ii) Areas seawards of the development setback line or within 1 kilometre from the high-water mark of the sea if no such development setback line is determined; or
- iii. Inside urban areas:

<p>(aa) Areas zoned for use as public open space;          (bb) Areas designated for conservation use in Spatial Development Frameworks adopted by the competent authority, zoned for a conservation purpose; or          (cc) Areas seawards of the development setback line.</p>	
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<b>Waste Management Activities Contraventions: On or after 3 July 2007 up to end of day 28 November 2013</b>	
<del>Activities unlawfully commenced with in terms of GNR 718 of 3 July 2009 published under the National Environmental Management Waste Act 59 of 2008</del>	
Listed Activity(ies)	Details of Activity(ies)
Not Applicable	

<b>Waste Management Activities Contraventions: On or after 29 November 2013</b>	
<del>Activities unlawfully commenced with in terms of GNR 921 of 29 November 2013 published under the National Environmental Management Waste Act 59 of 2008</del>	
Listed Activity(ies)	Details of Activity(ies)
Not Applicable	

## 2. ACTIVITY DESCRIPTION

(Cross out the appropriate box “” and provide a description where required).

(a) Is/was the project a new development or an upgrade of an existing development?	<b>New – agricultural development</b>	Upgrade
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(b) Clearly describe the activity and associated infrastructure commenced with, indicating what has been completed, what still has to be completed and applicable commencement dates.

### Locality:

The proposed property on which the construction of the agricultural development (vineyards) has taken place and will take place is situated on the remainder of Kakamas South Settlement No. 2435. Please note, the property is a consolidation of KSS2261, KS2432 and Re/1178. The proposed pipeline, dam and pump station will be constructed/upgraded on Kakamas South Settlement No. 387, 1248 and 2106.

The farm is situated approximately 4.5 km north-east of the small town of Kakamas in the Northern Cape, along the N14 towards Kakamas (see Figure 1). The site lies south of the Orange River. Small ephemeral streams cross the entire site. The site is currently zoned Agriculture Zone I. The owner of the properties is Triple D Farms (Pty) Ltd, who has appointed GroenbergEnviro (Pty) Ltd as the independent environmental consultant to conduct the necessary environmental authorisation process.



**Figure 1: Locality map of Kakamas South Settlement No. 2435, 387, 2106, 1248.**

### Project Description:

The proposed development triggered the Section 24G process due to the unlawful clearing of vegetation and development within 32 m of a stream that took place without authorisation on Kakamas South Settlement No. 2435.

1. 2016-2017 development:

- Construction took place during 2016/2017 for the infrastructure development associated with the cultivation of the vineyards covering approximately 2.6 ha.
- 2.6 ha indigenous vegetation was cleared for the construction to take place.
- The construction took place without authorisation over small ephemeral streams.

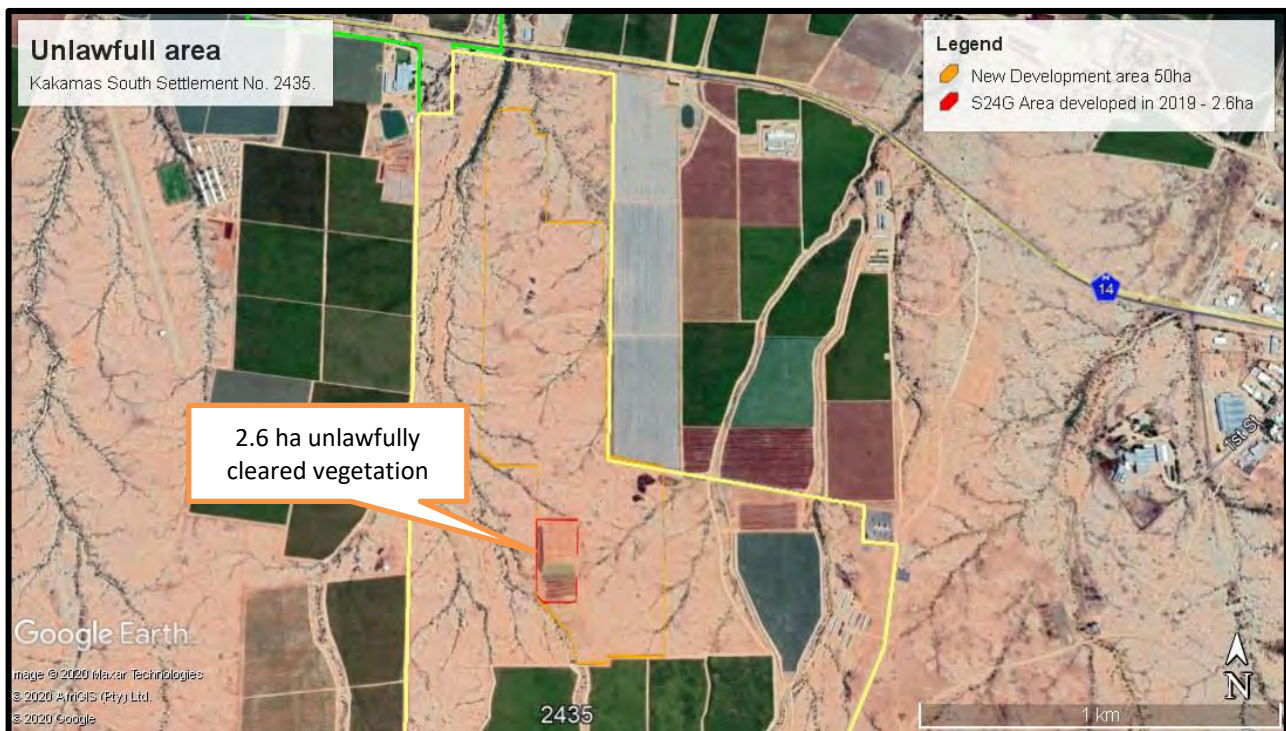


Figure 2: 2.6 ha unlawfully cleared vegetation indicated in orange

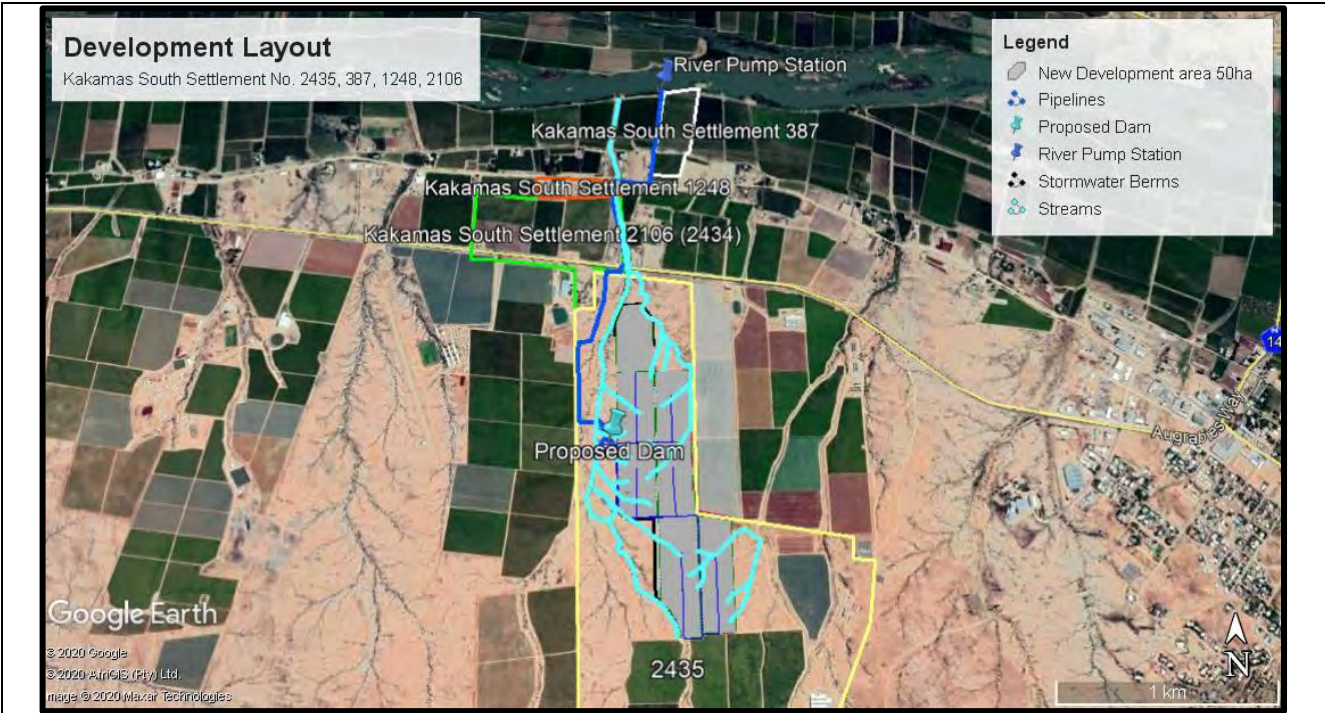
2. Proposed further developments:

The proposed development will include:

- the construction of a dam with a volume of 10 539m<sup>3</sup> and pump room.
- An extension of the pump station at the Orange River.
- The development of 50 ha of vineyards. This includes the 2.6 ha constructed illegally.
- A 315 mm uPVC pipeline of about 2.4 km in length from the river to the proposed dam.
- Internal irrigation pipelines.

As a result of this, about 50 ha of indigenous vegetation will be removed from the area. Please see Figure 3.





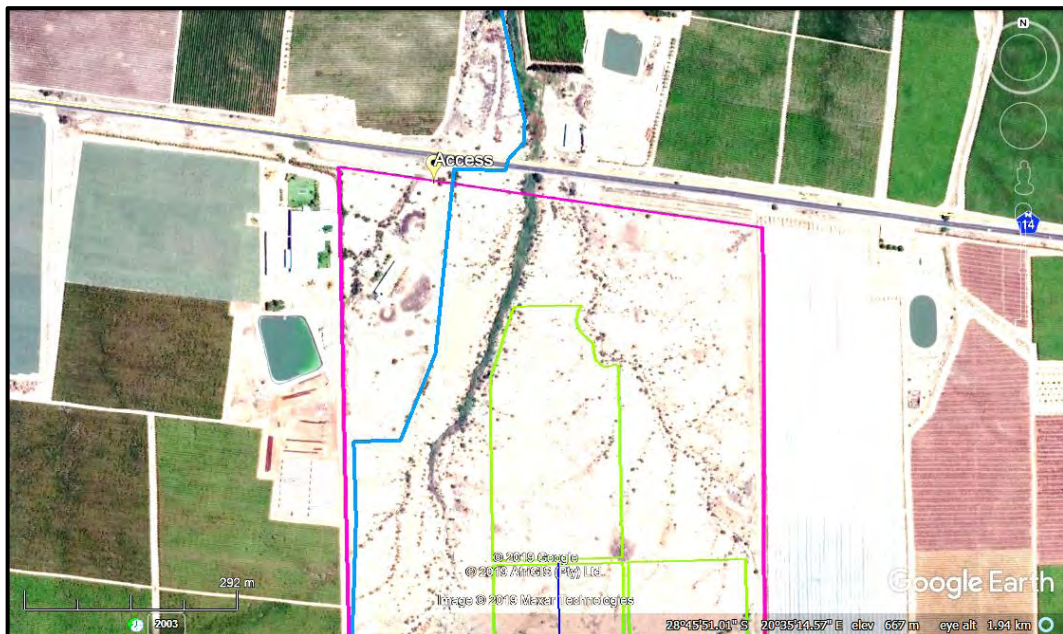
**Figure 3: Proposed development layout**

Provide details of all components of the activity and attach diagrams (e.g. architectural drawings or perspectives, engineering drawings, process flow charts etc.).

Buildings	YES	NO
Provide brief description:	A pumphouse will be upgraded. However, this will not trigger any new activities.	
Infrastructure (e.g. roads, power and water supply/storage)	YES	NO
Provide brief description:		

**Roads:**

Access is gained via a gravel road that gains access via the N14. The internal farm tracks are not surfaced and are composed of compacted earth with no formal stormwater management control structures in place. The low rainfall characteristic of the area negates the need to provide for formal stormwater control.



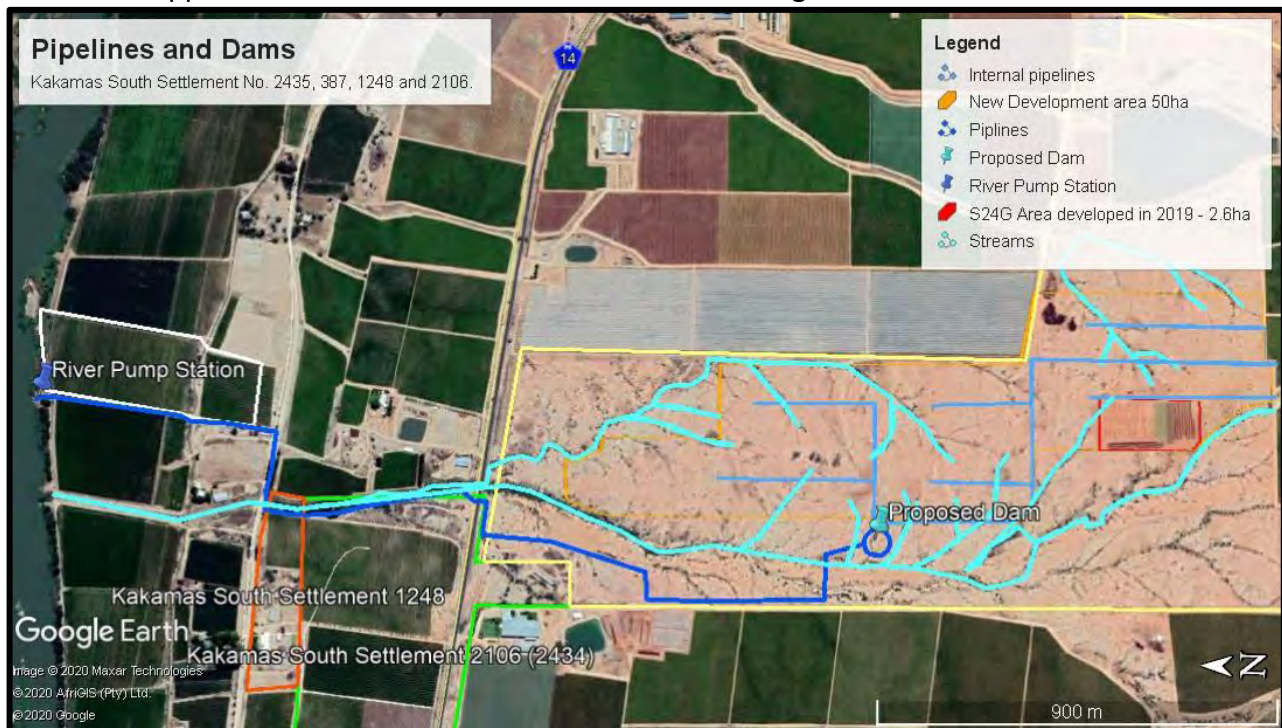
**Figure 4: Access to the property (yellow marker)**



### Pipelines:

Water will be required for the drip irrigation for the proposed vineyards. A pipeline will be used to pump water from the Orange River to the proposed dam. From there, other smaller pipelines will be used to distribute the water for irrigation purposes.

Approvals from SANRAL with regards to the crossing over the N14 are currently underway. Find this included in Appendix E3: SANRAL APPLICATION. Please see Figure 5 below:



**Figure 5: Pipelines**

### Water:

Currently there is an existing License WUL (Ref:14/D73F/A/2693) issued to the Triple D Farms (Pty) Ltd on 01 December 2014 for the taking of 1 702 500 m<sup>3</sup>/annum from the Orange River for the purpose of irrigation on Kakamas South Settlement No. 2261.

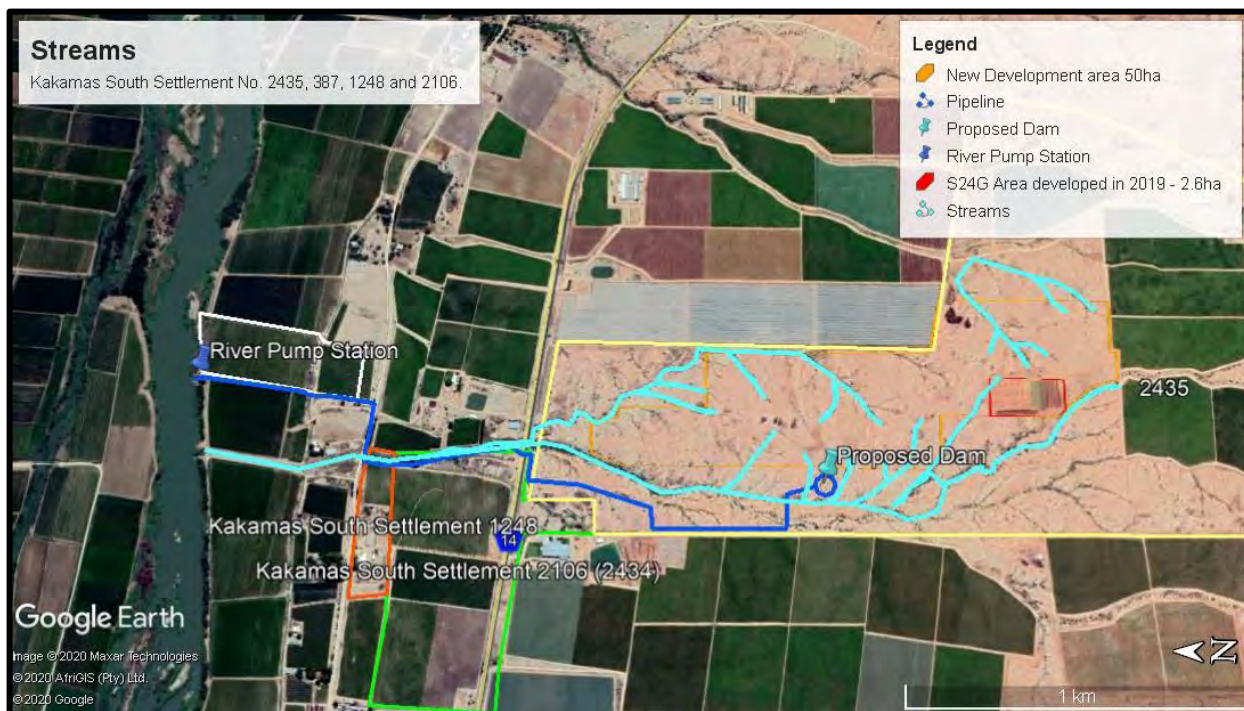
This licence replaced a previous licence with reference number 14/D73F/A/1879, dated 02 December 2013, for the taking of 978 000 m<sup>3</sup>/annum for the same purpose on the same property. The applicant also has an Existing Lawful Use (ELU) from the Kakamas Water Users Association and therefore the total volume of water rights allocated is 2 302 500m<sup>3</sup>/a (153.5ha).

Further details will be available in the WULA in Appendix E2: Water Use License from Department of water affairs.

As part of this application, there will be a Water Use License Application (WULA) for Section 21(c), and (i) of the National Water Act for the streams that were diverted and crossed as part of the illegal establishment of vineyards. The establishment of the vineyards on Kakamas South Settlement 2435 took place across small sections of the unnamed drainage system that is located on site. The site falls within the Quaternary Catchment Region D73F. The new proposed agricultural development will have an impact on drainage streams that can be regarded as non-perennial watercourses that will flow only if and when rain occurs in the catchment. The Section 21 (c) and (i) is for the construction of a pipeline that will cross over streams or on the banks of the streams on Kakamas South Settlement 387, 1248 and 2106 (see Figure 6).



The application will also include Section 21(b) for the proposed new dam and legalisation of an existing dam.



**Figure 6: Ephemeral streams/drainage areas**

The WULA activities is summarised in the table below for the following water usages:

(b) Storing water	for the storing of water in the new proposed dam.
(c) Impeding or diverting flow of water in a watercourse	for the construction of agricultural areas across ephemeral streams/natural drainage areas.
(i) Altering the bed, banks, course or characteristics of a watercourse	for the construction of agricultural areas across ephemeral streams/natural drainage areas.

As part of the WULA, an amendment of the existing Water Use License (WUL) will include the new changes and the change in property details.

**Electricity:**

There are existing electricity connections available for the development.

Processing activities (e.g. manufacturing, storage, distribution)	<b>YES</b>	<b>NO</b>
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Provide brief description:

**Dam:**

The new dam is proposed off-channel and will be located between the new existing vineyards. It is, however, located within 100 m of a small stream (see Figure 7).

The dam will be approximately 4 m deep and will have a surface area of approximately 4 500 m<sup>2</sup> with a capacity of 10 539 m<sup>3</sup>. It will have a gabion basket overflow channel and will be round in shape (a radius of 40.5 m). See Figure 8.



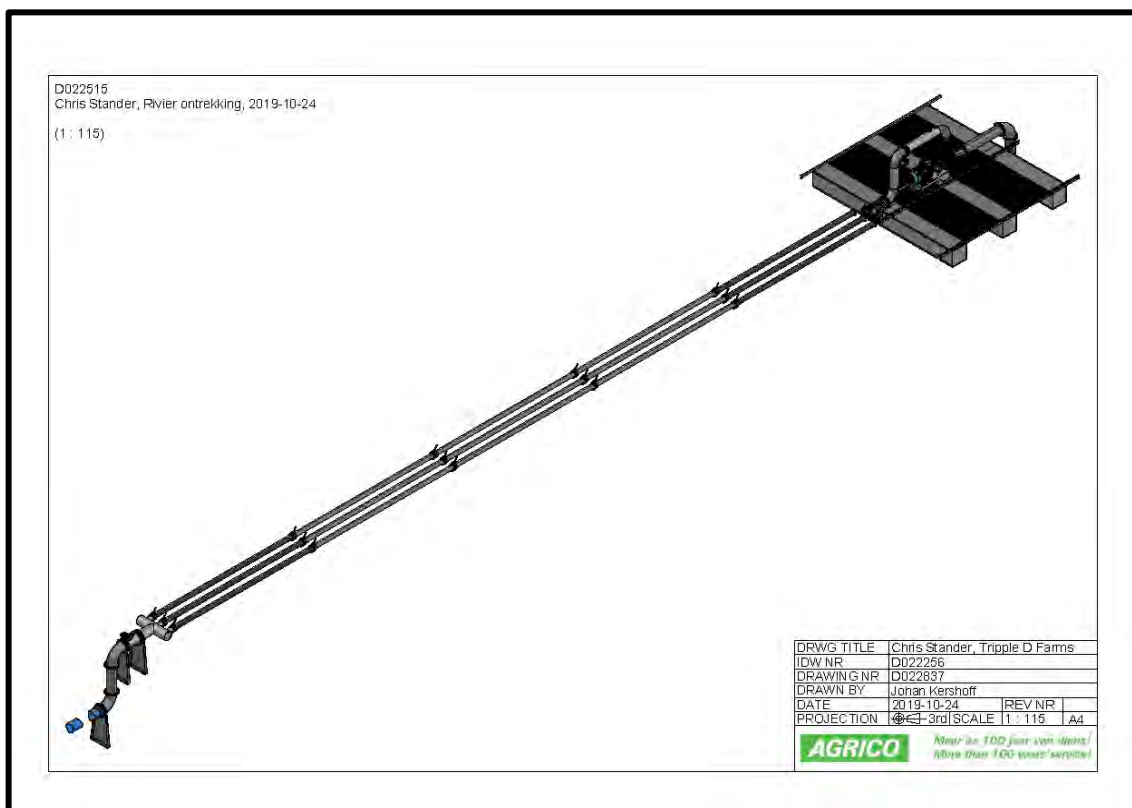
Storage and treatment facilities for solid waste and effluent generated by the project	YES	NO
Provide brief description	N/A	
Other activities (e.g. water abstraction activities, crop planting activities)	YES	NO
Provide brief description		

**Crop Planting:**

Table grapes will be cultivated as indicated in the project area. See Figure 3.

**Water abstraction:**

There is an existing pump station at the Orange River. As part of the expansion of agricultural activities that are taking place, the pump station will be upgraded (a pump would have to be added). See the design below in Figure 9.



**Figure 9: Pump design**

**3. ACTIVITY NEED AND DESIRABILITY**

Describe the need and desirability of the activity:

According to the report prepared by DAFF (2012), annual South African table grape exports totalled 2 708 767 metric tons. Europe is the most important market. Most table grapes were exported to the Netherlands (40%), followed by Great Britain (21%), Belgium (7,4%), Germany (5,5%), Hong Kong (3,1%) and other African countries (0,3%). During the summer season, India, Chile, South Africa and Israel are the major competing countries.

**Major production areas in South Africa**



The Hex River Valley is the country's main table grape production area. More than half of all grape exports come from this district, which has the longest harvesting period in the country. The Northern Cape is a very dry province, so most of the grapes in this province are cultivated in the Orange River region and they are harvested very early.

The project area is located within the Lower Orange River wine region (refer to Figure 10).

Kakamas South Settlement No. 2435 will contribute to the production of table grapes that are harvested early for the export market, and in time for overseas markets for the Christmas festive season. The particular characteristic of early harvesting of table grapes in this region gives the growers a highly competitive advantage in the global market.



**Figure 10: Winegrowing areas of South Africa (sourced from www.wosa.co.za)**

Indicate the benefits that the activity has/had for society in general and also indicate what benefits the activity has/had for the local communities where it is located:

The cultivation of table grapes will create short-term employment during the construction phase, and long-term employment during the operational phase. The grower, Triple D Farms (Pty) Ltd, has to employ a large number of workers to harvest the grapes by hand and to sort them during harvest time, and there is a team to ensure the maintenance of the vineyards in general.

Local employment has a positive economic spin-off for the local economy and results in community upliftment through providing for basic needs such as housing and the education of the children of the employed staff.

The export of grapes contributes to the national gross domestic product (GDP).

**4. PHYSICAL SIZE OF THE ACTIVITY**

<p>Indicate the physical spatial size of the activity as well as associated infrastructure (footprint):</p>	<p>2.6 ha for unlawful vineyards.                  50 ha for vineyards.                  Approximately 0.5 ha for the dam.                  762.3 m<sup>2</sup> for pipelines.</p>
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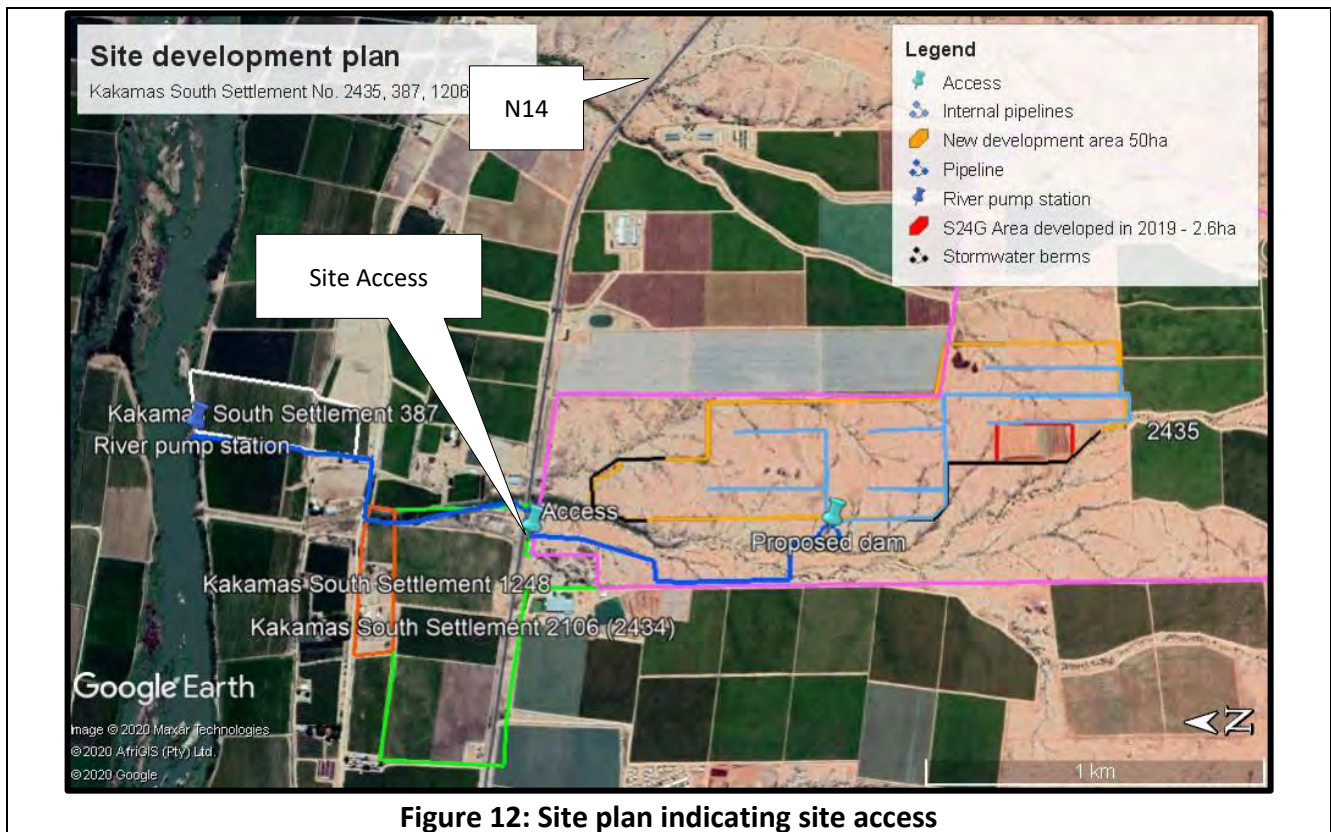
Indicate the area that has been transformed/cleared to allow for the activity as well as associated infrastructure:	2.6 ha for unlawful vineyards. 50 ha for vineyards. Approximately 0.5 ha for the dam. 762.3 m <sup>2</sup> for pipelines.
Total area (sum of the footprint area and transformed area):	2.6 ha for unlawful vineyards. 50 ha for vineyards. Approximately 0.5 ha for the dam 762.3 m <sup>2</sup> for pipelines.

### 5. SITE ACCESS

Was there an existing access road?	<b>YES</b>	<b>NO</b>
If no, what was the distance over which the new access road was built?	<i>m</i>	
Describe the type of access road constructed: [indicate the position of the access road on the site plan.		
The access road is an existing road as shown below in the Google Earth photograph (refer to Figure 11) and is just under 4 metres wide.		



**Figure 11: Close-up of access road**



**Figure 12: Site plan indicating site access**

## 6. SITE PHOTOGRAPHS

Colour photographs of the site and its surroundings (taken of the site and from the site), both before (if available) and after the activity commenced, with a description of each photograph must be attached to this application. The vantage points from which the photographs were taken must be indicated on the site plan or locality plan as applicable. If available, please also provide past and recent aerial photographs. It should be supplemented with additional photographs of relevant features on the site. Date of photographs must be included. Photographs must be attached under Appendix D to this form.

Historical Aerial photographs included in Appendix D1, site photographs included in Appendix D2.

## 7. APPLICABLE LEGISLATION, POLICIES AND/OR GUIDELINES

Please list all legislation, policies and/or guidelines that were or are relevant to this activity.

LEGISLATION	ADMINISTERING AUTHORITY	TYPE Permit/ license/ authorization/comment	DATE (if already obtained):
National Environmental Management Act	Department Environment and Nature Conservation (DENC)	Authorisation	In progress
National Heritage Resources Act	SAHRA	Comment	In progress
National Water Act	Department of Water and Sanitation	Water Use Licence	In progress
Conservation of Agricultural Resources Act	Department of Agriculture	Plough Certificate for Water Use Licence; Comment on EIA.	In progress

National Forests Act (NFA) (Act 84 of 1998)	Department of Environment, Forestry and Fisheries	DEFF Permit	Will be finalised after the Environmental Authorisation.
National Veld and Forest Fires Act (Act 101 of 1998)	Department of Environment, Forestry and Fisheries	DEFF Permit	Will be finalised after the Environmental Authorisation.
Northern Cape Nature Conservation Act (NCNCA)	DENC	DENC Permit	Will be finalised after the Environmental Authorisation.

POLICY/ GUIDELINES	ADMINISTERING AUTHORITY
Guidelines published in terms of NEMA Regulations	Department of Environmental Affairs
Guidelines published in terms of the National Water Act	Department of Water and Sanitation

## 8. WASTE QUANTITIES (WHERE THE ACTIVITY IS A LISTED WASTE MANAGEMENT ACTIVITY)

THIS SECTION NOT APPLICABLE

Indicate or specify types of waste and list the estimated quantities (expected to be) managed daily (should you need more columns; you are advised to add more)

Hazardous waste	Non-hazardous waste	Total waste handled (tonnes per day)

Source of information supplied in the table above Mark with an "X"

Determined from volumes

Determined with weighbridge/scale

Estimated


### Recovery, Reuse, Recycling, treatment and disposal quantities:

Indicate the applicable waste types and quantities expected to be disposed of and salvaged annually:

TYPES OF WASTE	MAIN SOURCE (NAME OF COMPANY)	QUANTITIES		ON-SITE RECOVERY REUSE RECYCLING TREATMENT OR DISPOSAL	OFFSITE RECOVERY REUSE RECYCLING TREATMENT OR DISPOSAL	OFFSITE DISPOSAL
		TONS/MONTH	M <sup>3</sup> /MONTH	method & location	method location and contractor details	

**9. GENERAL (WHERE THE ACTIVITY IS A LISTED WASTE MANAGEMENT ACTIVITY)**

THIS SECTION NOT APPLICABLE

Prevailing wind direction (e.g. NWW)

November-April	
May-October	

The size of population to be served by the facility

	Mark with "X"	Comment
0-499		
500-9,999		
10,000-199,999		
200,000 upwards		



## SECTION C: DESCRIPTION OF RECEIVING ENVIRONMENT

### SITE/AREA DESCRIPTION

For linear activities (pipelines etc) as well as activities that cover very large sites, it may be necessary to complete copies of this Section for each part of the site that has a significantly different environment. In such cases please complete copies of Section C and indicate the area which is covered by each copy No. on the Site Plan.

Section C Copy No. (e.g. 1, 2, or 3):

### 1. GRADIENT OF THE SITE

Indicate the general gradient of the site(s) (cross out the appropriate box).

Flat	<b>Flatter than 1:10</b>	<b>1:10 – 1:5</b>	Steeper than 1:5
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### 2. LOCATION IN THE LANDSCAPE

Indicate the landform(s) that best describes the site (cross out (“”) the appropriate box (es)).

Ridgeline	Plateau	Side slope of hill/mountain	Closed valley	Open valley	<b>Plain</b>	<b>Undulating plain/low hills</b>	Dune	Sea-front	Other
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### 3. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE

Is the site(s) located on or near any of the following [cross out (“”) the appropriate boxes]?

Shallow water table (less than 1.5m deep)	YES	<b>NO</b>	UNSURE
Seasonally wet soils (often close to water bodies)	YES	<b>NO</b>	UNSURE
Unstable rocky slopes or steep slopes with loose soil	YES	<b>NO</b>	UNSURE
Dispersive soils (soils that dissolve in water)	YES	<b>NO</b>	UNSURE
Soils with high clay content	YES	<b>NO</b>	UNSURE
Any other unstable soil or geological feature	YES	<b>NO</b>	UNSURE
An area sensitive to erosion	YES	<b>NO</b>	UNSURE

**Specialist input may be requested by the Department. Information in respect of the above will often be available at the planning Sections of local authorities. Where it exists, the 1:50 000 scale Regional Geotechnical Maps prepared by Geological Survey may also be used.**

### 4. SURFACE WATER

Indicate the surface water present on and or adjacent to the site and alternative sites (cross out (“”) the appropriate boxes)?

Perennial River	YES	<b>NO</b>	UNSURE
Non-Perennial River (mainly drainage areas and a small stream)	<b>YES</b>	<b>NO</b>	UNSURE
Permanent Wetland	YES	<b>NO</b>	UNSURE
Seasonal Wetland	YES	<b>NO</b>	UNSURE
Artificial Wetland	YES	<b>NO</b>	UNSURE
Estuarine/Lagoonal wetland	YES	<b>NO</b>	UNSURE

The development is located within the D73F catchment management area, adjacent to the Orange River.

Names of watercourses:

The Orange River is located adjacent the site. No perennial rivers flow through the property, only small unnamed non-perennial tributaries. The sub-catchment covers 415 hectares. It is 10.4 km in circumference, 4.7km long and 114 m at its widest. The N14 trunk road cuts the sub-catchment off from its natural confluence with the Orange River. From the N14 trunk road the drainage line has been partially formalised and where it flows through the vineyards along the Orange River, it has been channelled into a straight furrow

The Lower Orange River is flanked by numerous drainage lines, which are mostly dry and only contain water during the occasional thunderstorm. These drainage lines are a part of the arid landscape. These are nevertheless drainage lines with water flows strong enough to maintain its morphological integrity. These sudden and intense storms occur only occasionally, perhaps once in several years. Refer to the Appendix H7: Fresh Water Assessment from Watsan Africa cc. The drainage lines are poorly demarcated by vegetation. The scrub and small trees are the same as those further afield away from the drainage lines. Only the stand of higher vegetation is denser around drainage lines.

One such drainage line runs through the Triple D property that is now earmarked for development into vineyards. It is this drainage line that triggered the legal requirement for a Water Use License Application. There will be NO planting of vineyards within the larger drainage channels as far as possible and a buffer of at least 15m of the larger drainage systems will always be kept. It is also the intension to keep the bigger stream areas open and not to develop so has to minimise impact on the larger streams.

The Orange River is the primary water resource for the area. This river is used extensively for irrigation and is heavily cultivated along its banks. Crop production is reliant on water availability and irrigation potential, and therefore the reliance on the available water supply is great. Abstraction from the river and water storage in reservoirs is common at many sites, where it is mainly used for irrigation purposes in the areas flanking the Orange River.

Surface water use:

No additional surface water will be used during the operation of this project. The application is for additional storage capacity and for storage.

Presence of wetlands:

No specific wetland areas have been identified.

**5. VEGETATION AND GROUNDWATER**

**5.1 VEGETATION / GROUNDCOVER (PRE-COMMENCEMENT)**

Cross out (“~~☒~~”) the block or describe (where required) the vegetation types / groundcover present on the site before commencement of the activity.

<del>Indigenous Vegetation – good condition</del>	<b>Indigenous Vegetation with scattered aliens</b>	<del>Indigenous Vegetation with heavy alien infestation</del>
Describe the vegetation type above: N/A	Describe the vegetation type above: Bushmanland Arid Grassland	Describe the vegetation type above: N/A
Provide ecosystem status for above: N/A	Provide ecosystem status for above: Bushmanland Arid Grassland is listed as vegetation types of least concern (Rouget et al., 2004).	Provide Ecosystem status for above: N/A

	According to the Northern Cape Critical Biodiversity Areas (2016), the proposed site will impact on a CBA area, but it is also located within an area that is characterised by intensive farming, with little connectivity remaining to the northern parts of the site.	
Indigenous Vegetation in an ecological corridor or along a soil boundary / interface	Veld dominated by alien species	Distinctive soil conditions (e.g. Sand over shale, quartz patches, limestone, alluvial deposits, termitaria etc.) – describe:
Bare soil	Building or other structure	Sport field
Other (describe below)	Cultivated land	Paved surface

Vegetation types as indicated in the botanical assessment (Appendix H4: Botanical Assessment):

The following summary from the Botanical Report:

“The Northern Cape contains about 3500 plant species in 135 families and 724 genera, with about 25% of this flora endemic to the region. It is also home to an exceptionally high level of insect and reptile endemism, with new species still being discovered. However, it must be noted that this remarkable diversity is not distributed evenly throughout the region but is concentrated in many local centres of endemism (NDBSP, 2008).

The Kakamas area would be classified as a desert region. In accordance with the Vegetation Map of South Africa, Lesotho and Swaziland (Mucina & Rutherford, 2006, as updated in the 2012 beta version) only one broad vegetation type is expected in the proposed area and its immediate vicinity, namely Bushmanland Arid Grassland. More than 99% of this vegetation still remains, but only 4% is formally conserved (Augrabies Falls National Park). According to the national list of ecosystems that are threatened and in need of protection (GN 1002, December 2011), Bushmanland Arid Grassland remains classified as ‘least threatened’.

According to Mucina and Rutherford (2006), Bushmanland Arid Grassland is found in the Northern Cape province, spanning about one degree of latitude from around Aggeneys in the west to Prieska in the east. The southern border of the unit is formed by edges of the Bushmanland Basin, while in the north-west this vegetation unit borders on desert vegetation (north-west of Aggeneys and Pofadder). The northern border (in the vicinity of Upington) and the eastern border (between Upington and Prieska) are formed with often intermingling units of Lower Gariep Broken Veld, Kalahari Karroid Shrubland and Gordonia Duneveld. Most of the western border is formed by the edge of the Namaqualand hills. Altitude varies from 600 to 1 200 m.

**VEGETATION ENCOUNTERED**

Approximately 120 ha of veld were evaluated, of which the landowner would like to develop 60 ha. The vegetation encountered conforms to Bushmanland Arid Grassland. Two definite communities were encountered, namely a sparse (semi-desert type) low shrubland with grasses sometimes present (expected to be more prominent after rain) on the open undulating plains, while a denser and higher riparian vegetation was encountered next to the watercourses. The more pronounced these water courses, the more established the riparian zone became. Because of the arid nature of the region (and the unpredictability of rainfall) the carrying capacity of the veld is very low and much of the natural veld is expected to have suffered from incorrect grazing or overgrazing practices since the early 19th century (after farms became fenced).

## THE OPEN PLAINS

The vegetation encountered on the open gravelly plains can be described as a sparse, low shrubland, and sometimes even a dwarf shrub layer (see Figure 13 and Figure 14), with surface rocks and sometimes even small/low rocky outcrops (Figure 15) – showing larger rocky outcrops were also encountered above ground, to the north of the site. The vegetation varied from a sparse low shrubland dominated by *Tetraena decumbens* (=Zygophyllum) – see Figure 13, to a very sparse open low shrubland (Figure 14) either dominated by either *Tetraena decumbens* or by *Justicia australis* (=Monechma), in the calcrete patches (Figure 14).



**Figure 13: Sparse shrubland dominated by *Tetraena decumbens*, with *Aloe claviflora* present in the foreground.**

The following plant species were observed scattered throughout the site (never dominating, but sometimes encountered in patches): the small *Acanthopsis disperma*, the common *Aloe claviflora*, two individuals of *Aloidendron dichotomum* (a third was observed outside of the proposed footprint), *Aptosimum spinescens*, *Asparagus cf. cooperi*, *Avonia cf. papyracea*, *Berkheya fruticosa*, *Blepharis mitrata*, two individuals of *Boscia albitrunca* (one in poor and one in fairly good condition), scattered individuals of *Boscia foetida*, patches of *Cynanchum viminale*, *Euphorbia gariepina*, and occasionally the smaller *Euphorbia cf. rhombifolia*, *Forsskaolea candida*, the common *Galenia africana*, *Geigeria filifolia*, *Justicia spartioides*, *Kleinia longiflora*, *Leucosphaera bainesii*, *Limeum aethiopicum*, *Lycium cinereum*, the succulent *Mesembryanthemum coriarium* (=Psilocaulon coriarium), *Monsonia cf. patersonii*, *Ptycholobium biflorum*, *Rhigozum trichotomum*, the common *Rogeria longiflora*, *Salsola aphylla*, *Sericocoma avolans*, *Senegalia mellifera* and *Tapinanthus oleifolius*.



**Figure 14: Very sparse open low shrubland with *Justicia australis* prominent.**

The vegetation encountered at the small rocky outcrops (Figure 15) did not differ in species from that of its surroundings (although vegetation cover was sometimes slightly denser, as a result of the shelter given by the outcrops). The only plant that was not observed elsewhere and that was only found near one of the rocky outcrops to the north was *Berkheya glabrata*. Other species commonly associated with these outcrops were *Aloe dichotoma*, *Boscia foetida*, *Forsskaolea candida*, *Galenia africana* and *Tetraena decumbens*.



**Figure 15: One of the small rocky outcrops towards the south of the site.**

#### THE RIPARIAN VEGETATION

The vegetation along the small ephemeral drainage lines and small seasonal water courses did not vary much. Apart from becoming denser and larger, the more pronounced the water course becomes (e.g. Figure 16). Agrimotion, 2017 did a very good job of mapping the most prominent of these water courses on their soil potential map for the Triple D farms (Figure 6 of the botanical assessment]). The following plants were commonly observed in association with these seasonal water courses: *Asparagus cf. cooperi*, *Boscia foetida*, the herb *Chascanum garipense*, *Hermannia stricta*, *Jamesbrittenia glutinosa*, *Justicia spartioides*, *Montinia caryophyllacea*, *Osteospermum scariosum*, *Ozoroa dispar*, *Parkinsonia africana*, *Rhigozum trichotomum* *Senegalia mellifera*, *Tapinanthus oleifolius*, *Tetragonia reduplicata* and *Ziziphus mucronata*.



**Figure 16: One of the larger seasonal water courses to the north of the site.**

#### THE PIPELINE ROUTE:

The proposed pipeline route includes the establishment of a new pump station at the banks of the Orange River. From there it will be placed in or next to existing farm roads through transformed agricultural area (as is the case along most of the banks of the Orange River in this area), with only the last section passing along an area with some very disturbed natural veld next to a seasonal water course. The proposed location for the placement of the extraction pump (Photos 5-7 Appendix H4: Botanical Assessment is located on a disturbed portion of the Orange River, already used as an access point/jetty



for small boats. As long as the pipeline is located within the existing disturbance footprint, the impact on vegetation will be minimal. Please note that a freshwater specialist report was commissioned. The specialist will address the impact on the river system. Next to the disturbance footprint, disturbance indicator plants, alien invasive species (*Prosopis* species) and some remaining natural vegetation was encountered – the most important of which was *Phragmites australis* stands stabilizing the river banks and the small indigenous trees, *Vachellia karroo* (= *Acacia karroo*) and *Tamarix usneoides*. Other species included disturbance indicators like *Mesembryanthemum guerichianum*, *Mesembryanthemum coriarium* and the herb *Jamesbrittenia glutinosa*.



**Figure 17: The proposed pump station location looking from the south towards the Orange River. Note the disturbance footprint.**



**Figure 18: The banks of the Orange River at the proposed pump station location (looking from the disturbed area eastwards).**



**Figure 19: The banks of the Orange River at the proposed pump station location (looking from the disturbed area westwards).**

From the banks of the Orange River the pipeline will follow existing roads for the next 1.7 km through areas under intensive cultivation (mostly vineyards). Refer to Photos 8-10 Appendix H4: Botanical Assessment. Throughout this section there should be no impact on any natural veld (transformed land), and as long as the pipeline stays next to or within the existing roads, impact on agriculture should be minimal.



**Figure 20: The proposed pipeline route will follow existing roads. This is the last section of agricultural land towards the banks of the Orange River, looking from south to north and towards the Orange River in the background.**

The final section of the pipeline will be located next to a badly disturbed area, but with some natural plants still remaining next to a seasonal stream. Unfortunately, this area is very disturbed and degraded, and the riparian vegetation is mostly replaced by the alien *Prosopis* trees, *Beefwood* (*Casuarina* species), with the occasional indigenous *Vachellia karroo*, patches of *Phragmites australis* and some disturbance indicator species remaining (e.g. *Mesembryanthemum guerichianum*, *Mesembryanthemum coriarium*, *Lycium* species, *Rhigozum trichotomum* and *Senegalia mellifera*).



**Figure 21: The section of the pipeline next to the water course from the N14.**



**Figure 22: The section of the proposed pipeline crossing underneath the N14 (through an existing culvert) and then running next to the seasonal stream towards the picture above (Figure 21).**

Since this area is very disturbed with very little natural veld remaining and running next to a seasonal stream, the exact location of the pipeline should be recommended by the Freshwater Specialist Report. Impact on any significant vegetation or species should be minimal, especially if the pipeline route is placed near or within the existing farm roads to the west of the stream.

**CRITICAL BIODIVERSITY AREA:**

The Northern Cape CBA Map (2016) identifies biodiversity priority areas, called Critical Biodiversity Areas (CBA's) and Ecological Support Areas (ESA's), which, together with protected areas, are important for the persistence of a viable representative sample of all ecosystem types and species as well as the long-term ecological functioning of the landscape as a whole (Holness & Oosthuysen, 2016). The 2016 Northern Cape Critical Biodiversity Area (CBA) Map updates, revises and replaces all older systematic biodiversity plans and associated products for the province (including the Namakwa District Biodiversity Sector Plan, 2008). Priorities from existing plans such as the Namakwa District Biodiversity Plan, the Succulent Karoo Ecosystem Plan, National Estuary Priorities, and the National Freshwater Ecosystem Priority Areas were incorporated. Targets for terrestrial ecosystems were based on established national targets, while targets used for other features were aligned with those used in other provincial planning processes.

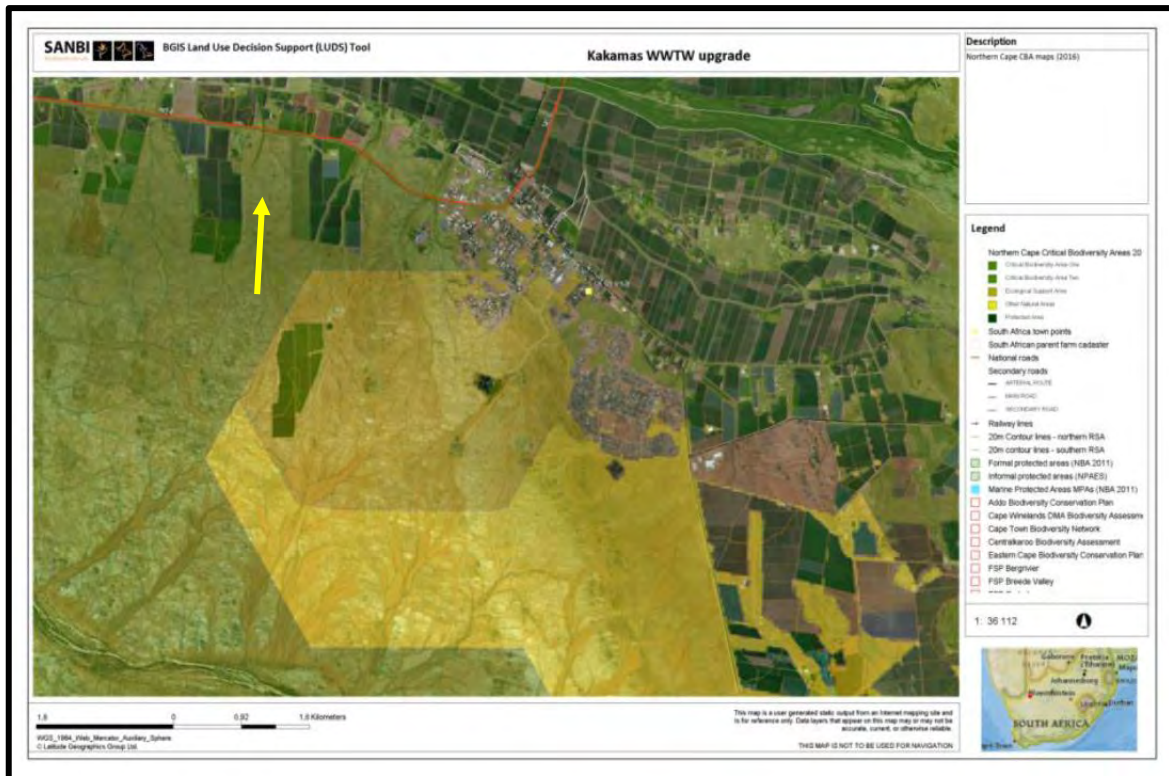
Critical biodiversity areas (CBA's) are terrestrial and aquatic features in the landscape that are critical for retaining biodiversity and supporting continued ecosystem functioning and services (SANBI 2007). The primary purpose of CBA's is to inform land-use planning in order to promote sustainable development and protection of important natural habitat and landscapes. CBAs can also be used to inform protected area expansion and development plans.

**Critical biodiversity areas (CBA's)** are areas of the landscape that need to be maintained in a natural or near-natural state in order to ensure the continued existence and functioning of species and ecosystems



and the delivery of ecosystem services. In other words, if these areas are not maintained in a natural or near-natural state then biodiversity conservation targets cannot be met. Maintaining an area in a natural state can include a variety of biodiversity-compatible land uses and resource uses.

**Ecological support areas (ESA's)** are areas that are not essential for meeting biodiversity representation targets/thresholds but which nevertheless play an important role in supporting the ecological functioning of critical biodiversity areas and/or in delivering ecosystem services that support socio-economic development, such as water provision, flood mitigation or carbon sequestration. The degree of restriction on land use and resource use in these areas may be lower than that recommended for critical biodiversity areas.



**Figure 23: The Northern Cape Critical Biodiversity Areas (2016) showing the location of the proposed development.**

From a land-use planning perspective it is useful to think of the difference between CBA's and ESA's in terms of where in the landscape the biodiversity impact of any land-use activity action is most significant:

- For CBA's the impact on biodiversity of a change in land-use that results in a change from the desired ecological state is most significant locally at the point of impact through the direct loss of a biodiversity feature (e.g. loss of a populations or habitat).
- For ESA's a change from the desired ecological state is most significant elsewhere in the landscape through the indirect loss of biodiversity due to a breakdown, interruption or loss of an ecological process pathway (e.g. removing a corridor results in a population going extinct elsewhere or a new plantation locally results in a reduction in stream flow at the exit to the catchment which affects downstream biodiversity).

The 2016 Northern Cape Critical Biodiversity Areas (NCCBA) gives both aquatic and terrestrial Critical Biodiversity Areas (CBA's) and ecological support areas for the Northern Cape.

According to the NCCBA (Refer to Figure 23), the proposed development will be located within a CBA."

## 5.2. VEGETATION / GROUNDCOVER (POST-COMMENCEMENT)

Cross out ("☒") the block or describe (where required) the vegetation types / groundcover present on the site after commencement of the activity.

Indigenous Vegetation - good condition		Indigenous Vegetation with scattered aliens	Indigenous Vegetation with heavy alien infestation	
--	--	---	--	--

Describe the vegetation type above:	Describe the vegetation type above:	Describe the vegetation type above:
<del>Provide ecosystem status for above:</del>	<del>Provide ecosystem status for above:</del>	<del>Provide Ecosystem status for above:</del>
<del>Indigenous Vegetation in an ecological corridor or along a soil boundary / interface</del>	<del>Veld dominated by alien species</del>	<del>Distinctive soil conditions (e.g. Sand over shale, quartz patches, limestone, alluvial deposits, termitaria etc.) — describe</del>
<del>Bare soil</del>	<b>Building or other structure (dam)</b>	<del>Sport field</del>
<b>Other (describe below) Pipelines towards cultivated areas.</b>	<b>Cultivated land</b>	<del>Paved surface</del>
<p><b>Please note:</b> The Department may request specialist input/studies depending on the nature of the vegetation type / groundcover and impact(s) of the activity/ies. To assist with the identification of the <u>vegetation type</u> and <u>ecosystem status</u> consult <a href="http://bgis.sanbi.org">http://bgis.sanbi.org</a> or <a href="mailto:BGIShelp@sanbi.org">BGIShelp@sanbi.org</a>. Information is also available on compact disc (CD) from the Biodiversity-GIS Unit, Ph (021) 799 8698. This information may be updated from time to time and it is the applicant/ EAP's responsibility to ensure that the latest version is used.</p>		

### 5.3 VEGETATION / GROUNDCOVER MANAGEMENT

Describe any mitigation/management measures that were adopted and the adequacy of these:

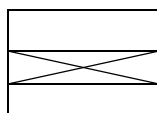
The following mitigation actions should be implemented to ensure that the proposed development does not pose a significant threat to the environment, refer to Appendix H4: Botanical Assessment:

- All construction must be done in accordance with an approved construction and operational phase Environmental Management Plan (EMP), which must include the recommendations made in this report.
- A suitably qualified Environmental Control Officer must be appointed to monitor the construction phase in terms of the EMP and any other conditions pertaining to specialist studies.
- The proposed 60 ha development must be located within the >100 ha area that was investigated in such a way that the impact on the more significant water courses (and its associated riparian vegetation), and the 4 protected trees (Sheppard- and Quiver trees) are minimised.
- It is recommended that a minimum buffer of at least 3 – 5 m is established next to these water courses measured from the edge of the water course (not the centre of the water course) in order to protect the existing riparian vegetation. Access road may not intrude into these buffer zones. In other words the access road may not form the buffer zone, but must be placed away from the water course and outside of this buffer zone.
- Ideally the development should be placed to minimise the impact on these water courses, while at the same time leaving a north-south migration corridor (for instance a 30m corridor associated with the main western water course).
- The two *Boscia albitrunca* trees should be protected, in location, if at all possible. Since these trees transplant poorly, search & rescue is not considered a viable option. If they have to be removed, permits must be obtained in terms of the National Forest Act (NFA) and the Northern Cape Nature Conservation Act (NCNCA).
- The two *Aloidendron dichotomum* trees should be protected, in location, if at all possible (First prize). However, these trees can be transplanted, and search and rescue may be an option. However, if they are moved, a permit for their re-location must be obtained in terms of the NCNCA and they must be transplanted back within the immediate surroundings. The transplantation must be overseen by a botanist or suitably qualified person and a watering program must be implemented to support these trees until they have re-established themselves.

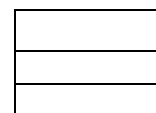
- The Search & Rescue recommendations given in Table 5 must be implemented with regards to other protected species encountered and a DENC flora permit must be obtained in terms of the NCNCA.
- Future farm roads must be approved by the ECO and may not impact on the buffer zones next to the streams as proposed.
- Before any work is done the 50 ha development footprint, future roads and access routes must be clearly demarcated (to ensure the above mitigation measures are correctly interpreted) and approved by the ECO. The demarcation must include the total footprint necessary to execute the work, but must aim at minimum disturbance.
- Lay-down areas or construction sites must be located within already disturbed areas or areas of low ecological value and must be pre-approved by the ECO.
- Indiscriminate clearing of any area outside of the construction footprint must be avoided.
- All areas impacted as a result of construction must be rehabilitated on completion of the project.
- This includes the removal of all excavated material, spoil and rocks, all construction related material and all waste material.
- It also included replacing the topsoil back on top of the excavation as well as shaping the area to represent the original shape of the environment.
- An integrated waste management approach must be implemented during construction.
- Construction related general and hazardous waste may only be disposed of at Municipal approved waste disposal sites.
- All rubble and rubbish should be collected and removed from the site to a suitable registered waste disposal site.
- The pipeline route must be adjusted to minimise the impact on any large indigenous tree that might be encountered along its route and the construction footprint must be minimised as much as possible.

## 6. THE GEOLOGICAL FORMATIONS UNDERLYING THE SITE

GRANITE  
SHALE  
SANDSTONE



QUARTZITE  
DOLOMITE  
DOLERITE



**OTHER:** MUDSTONE AND DWYKA TILLITES

Refer to the Appendix H6: Agricultural Report.

## 7. LAND USE CHARACTER OF SURROUNDING AREA (PRE-COMMENCEMENT)

Cross out ("☒") the block that reflects the past land uses and/or prominent features that occur/red within +/- 500m radius of the site and neighbouring properties if these are located beyond 500m of the site. Please note: The Department may request specialist input/studies depending on the nature of the land use character of the area and impact(s) of the activity/ies.

<b>Untransformed area</b>	<del>Low density residential</del>	<del>Medium density residential</del>	<del>High density residential</del>	<del>Informal residential</del>
<del>Retail</del>	<del>Commercial &amp; warehousing</del>	<del>Light industrial</del>	<del>Medium industrial</del>	<del>Heavy industrial</del>
<del>Power station</del>	<del>Office/consulting room</del>	<del>Military or police base/station/compound</del>	<del>Casino/entertainment complex</del>	<del>Tourism &amp; Hospitality facility</del>

Open cast mine	Underground mine	Spoil heap or slimes dam	Quarry, sand or borrow pit	Dam or reservoir
Hospital/medical centre	School	Tertiary education facility	Church	Old age home
Sewage treatment plant	Train station or shunting yard	Railway line	Major road (4 lanes or more)	Airport
Harbour	Sport facilities	Golf course	Polo fields	Filling station
Landfill or waste treatment site	Plantation	<b>Agriculture</b>	<b>River, stream or wetland</b>	Nature conservation area
Mountain, koppie or ridge	Museum	Historical building	Graveyard	Archaeological site
Other land uses (describe):				

## 8. REGIONAL PLANNING CONTEXT

Is/was the activity permitted in terms of the property's existing land use rights? Please explain

Yes, Kakamas South Settlement No. 2435 is zoned as 'Agriculture'.			
The other properties, Kakamas South Settlement No. 387, 2106 and 1248 is zoned 'Agriculture'.			
Is/was the activity in line with the following?			
Provincial Spatial Development Framework (PSDF)	<b>YES</b>	<b>NO</b>	Please explain
Kakamas South Settlement No. 2435 is zoned for agricultural use, and the agricultural activities are in line with the PSDF.			
Urban edge/Edge of Built environment for the area	<b>YES</b>	<b>NO</b>	Please explain
The agricultural activities have taken place outside the urban edge/urban area on land for agricultural use. The proposed development will also take place here.			
Integrated Development Plan (IDP) of the Local Municipality	<b>YES</b>	<b>NO</b>	Please explain
Kakamas South Settlement No. 2435 is zoned for agricultural use, and the agricultural activities are in line with the IDP.			
Spatial Development Framework of the Local Municipality	<b>YES</b>	<b>NO</b>	Please explain
Kakamas South Settlement No. 2435 is zoned for agricultural use, and the agricultural activities are in line with the SDF.			
Approved Structure Plan of the Municipality	<b>YES</b>	<b>NO</b>	Please explain
Kakamas South Settlement No. 2435 is zoned for agricultural use, and the agricultural activities are in line with the Structure Plan.			
Any other Plans	<b>YES</b>	<b>NO</b>	Please explain

## 9. SOCIO-ECONOMIC CONTEXT

### 9.1 SOCIO-ECONOMIC CONTEXT (PRE-COMMENCEMENT)

Describe the pre-commencement social and economic characteristics of the community in order to provide baseline information.

The following information was extracted from the Integrated Development Plan (IDP) of 2014 and summarises the agricultural sector at the time:

“The agricultural sector is still the main economic sector making the biggest contribution (51.8 %) to the economy of Kai! Garib in 2010. The agricultural sector is also a major employer in the municipal area, providing 66.5% of all formal employment, and the sector with the largest potential for economic growth. The commercial farmers farm mainly with grapes for export, raisins and wine, while citrus is also becoming more prevalent in the area.

There are three wine cellars in the area at Keimoes, Kakamas and Kanoneiland. High-quality table wine is produced at these wine cellars, as well as quality grape juice. A number of permanent jobs are created through these wine cellars. Two major raisin export companies (Frut da Sud & Red Sun Raisin) are also established in Kai! Garib Area.

Lucerne, cotton, corn, and nuts are cultivated under irrigation from the Orange River.

The emerging farmers focus more on small stock farming. The Kenhardt area is known for small stock farming, especially dorper sheep. Abattoirs are situated at Kenhardt and Kakamas.

Major constraints for agricultural development include poor quality of access roads to and from farms, limited farming skills among the youth, and finance for emerging farmers.

Opportunities in the agricultural sector include the expansion of the production of lucerne and citrus, as well as the possible establishment of ostrich farming. Another sector that shows potential within the sector is agritourism. This has not been investigated or explored as yet.

The municipality embarked on a process to become an active facilitator of local economic development when it established a local economic development (LED) strategy with assistance from the Department of Economic Development and Tourism. This strategy was adopted by the municipal council in December 2012.”

## 9.2 SOCIO-ECONOMIC CONTEXT (POST-COMMENCEMENT)

Describe the post-commencement social and economic characteristics of the community in order to determine any change.

The following information was extracted from the IDP of 2018/2019 and summarises the agricultural sector currently:

The agricultural sector is still the main economic sector making the biggest contribution to the economy of Kai! Garib in 2010.

The socio-economic context has remained the same as before commencement. According to the IDP 2018/2019 information (the same as stated under the point above under pre-commencement), the existence of the farms and the activities carried out remain of vital importance to the area.

The agricultural sector is a major employer in the municipal area in terms of all formal employment. According to Statistics South Africa (Census 2011), about 399 of the households work on crops only; 1382 on livestock only; 222 on mixed farming and 69 on other farming methods. It is also the sector with the largest potential for economic growth. The commercial farmers farm mainly with grapes for export, raisins and wine, while citrus is also becoming more prevalent in the area.

There are three wine cellars in the area at Keimoes, Kakamas and Kanoneiland. High-quality table grapes are produced at these cellars, as well as quality grape juice. Permanent jobs are created through these wine cellars. Two major raisin export companies (Fruit da Sud & Red Sun Raisin) are also established in Kai! Garib area.

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Major constraints for agricultural development include poor quality of access roads to and from farms, limited farming skills amongst the youth and finance for emerging farmers.

Opportunities in the agricultural sector include the expansion of the production of lucerne and citrus, as well as the possible establishment of ostrich farming. Another sector that shows potential within the sector is agritourism, which has not been investigated or explored as yet.

#### Triple D Farms (Pty) Ltd Empowerment within the company:

##### **Ownership of the enterprise**

Triple D Farms was established in 1995 and is wholly owned by the PTD Familie Trust. In 25 years, the company has grown to a substantial entity and provides employment to more than 1 000 people and once the development under review is completed it will provide a further 500 job opportunities.

##### **Management Control**

The company is led by its exco team assisted by 4 midlevel managers. The workforce is managed by 3 highly capable black managers assisted by 8 black foreman which in turn manages 26 black supervisors. The junior and midlevel management team is well trained and extremely capable in their respective fields of knowledge. The proposed new development will provide 100 skilled and 400 unskilled opportunities. All new opportunities will be for black people.

##### **Skills Development**

Triple D Farms strongly believes in the importance of training and during 2019 training was provided for machine operation, first aid and occupational health and safety as well as food safety and basic management training.

## **Socio-Economic Development**

Triple D Farms provides housing for its labour force at reasonable, below market prices. To support extracurricular activities a soccer field and netball court was established. Once a month workers have the option to be taken to town. Triple D realises the importance of good day care and established a creche managed by 3 trained employees to look after the children of the labour force at no cost to them.

### Healthcare

The company has set arrangements with local clinics to visit the farm at pre-arranged times. All workers can see a healthcare specialist on the set days. On other occasions workers can be taken to health-care providers if and when necessary. The company also provides extensive information on HIV/AIDS and alcoholism as part of its induction process.

### Funeral aid

For its permanent labour force, Triple D Farms negotiated favourable funeral aid at a respectable financial advisor providing funeral plans that cover up to 6 family members at competitive rates. The company has a similar plan in place for seasonal workers where the company is committed to cover 30% of their funeral plan.

### Provident fund

Triple D Farms administers a provident fund for those in its permanent labour force who wishes to contribute to such a fund.

## **Preferential Procurement**

The company is in the process of re-evaluating its BBBEE position and is considering a new procurement policy as part thereof. Under such a new policy bigger effort will be made to find, help develop and support upcoming black owned and black women owned enterprises.

### Employment:

The new water use licence will lead to the expansion of the farming operation and will create a demand for new staff and new skills, e.g.

- Skilled agricultural labourers
- Specific knowledge of vineyards and citrus fruit production will be needed
- Specific knowledge of fruit packing will be needed
- Support staff will be needed: Admin, forklift drivers, tractor operators and Code 14 drivers.

Preference will be given to black/coloured people for these positions, and more specific **black/coloured women** where possible.

Existing employees with experience on the farm, plus the potential to be leaders, will in the first place be identified for new supervisory positions. See Figure 24.

Occupational Levels	Male				Female				Foreign Nationals		Total
	A	C	I	W	A	C	I	W	Male	Female	
Top management	0	0	0	1	0	0	0	0	0	0	1
Senior management	0	0	0	2	0	0	0	0	0	0	2
Professionally qualified and experienced specialists and mid-management	0	0	0	4	0	0	0	5	0	0	9
Skilled technical and academically qualified workers, junior management, supervisors, foremen, and superintendents	41	0	0	0	4	0	0	0	0	0	45
Semi-skilled and discretionary decision making	30	0	0	0	0	0	0	0	0	0	30
Unskilled and defined decision making	4	0	0	0	3	0	0	0	0	0	7
<b>TOTAL PERMANENT</b>	<b>75</b>	<b>0</b>	<b>0</b>	<b>7</b>	<b>7</b>	<b>0</b>	<b>0</b>	<b>5</b>	<b>0</b>	<b>0</b>	<b>94</b>
Temporary employees	175	0	0	0	113	0	0	0	0	0	288
<b>GRAND TOTAL</b>	<b>250</b>	<b>0</b>	<b>0</b>	<b>7</b>	<b>120</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>377</b>

Figure 24: Employment summary

## 10. CULTURAL/HISTORICAL FEATURES

		YES	NO
Were there any signs or evidence (unearthed during construction) of culturally or historically significant elements including archaeological or palaeontological sites, on or in close proximity to the site?		UNCERTAIN	
If YES, explain:	<p>Sections of the site have entirely been transformed by agricultural activities and therefore the possibility of any further cultural/historical finds is scarce.</p> <p>A Heritage Impact Assessment (HIA), has been conducted by consulting palaeontologist Jan Engelbrecht &amp; Heidi Fivaz of Ubique Heritage Consultants.</p> <p>In terms of Section 38 (1) (c) (iii) of the National Heritage Resources Act 1999 (Act 25 of 1999), a Heritage Impact Assessment (HIA) of the proposed project is required if the footprint area of the development is more than 5000 m<sup>2</sup> in extent.</p> <p>The aim of the assessment is to identify and report any heritage resources that may fall within the development footprint; to determine the impact of the proposed development on any sites, features, or objects of cultural heritage significance; to assess the significance of any identified resources; and to assist the developer in managing the documented heritage resources in an accountable manner, within the framework provided by the National Heritage Resources Act (Act 25 of 1999) (NHRA).</p> <p>GroenbergEnviro submitted this application to the online system of SAHRA for further comments.</p>		
If uncertain, the Department may request that specialist input be provided to establish whether such possibilities occurred on or close to the site.			
Briefly explain the findings of the specialist if one	<p><u>Archaeological features:</u></p> <p>A total of eight incidences of Stone Age material were recorded across the surveyed area (Figure 8 [Appendix H5: Heritage Impact Assessment]). All eight locations are within the northern section of the surveyed area, with one isolated occurrence close</p>		



was already  
appointed:

to the northern boundary. The lithics are scattered *ex situ* in low densities along dry riverine and drainage lines and among quartzite surface gravel. The cultural material shows various degrees of weathering and may either be representative of the Early Later Stone Age, or a mere mixture of LSA and MSA artefacts (Lombard 2011). The identified archaeological materials are of low significance, as the archaeological sample is small and without context, and therefore of little scientific value.

These Stone Age heritage finds are given a 'General' Protection C (Field Rating IV C). This means these sites have been sufficiently recorded (in Phase 1). It requires no further action.

Historical features:

No significant historical features were identified within the study area.

Graves:

No formal or informal graves were identified in the study area.

Palaeontological resources

The proposed development is entirely underlain by the Riemvasmaak Gneiss of the Namaqua-Natal Province. The Riemvasmaak Gneiss is an igneous rock type and the potential for any fossil materials occurring within this rock unit is zero (Butler 2018; Almond & Pether 2008). Elize Butler from Banzai Environmental proposes exemption from doing a full paleontological study for this project (see Appendix 1) in Appendix H5: Heritage Impact Assessment.

Conclusion:

This HIA has identified and recorded various heritage resources on Plot 1178, Kakamas South Settlement, Kai!Garib Municipality, Mgcawu District Municipality, Northern Cape as set out in the report. In the development footprint are no archaeological, historical or cultural sites that will be impacted on negatively by the proposed development.

Recommendations:

Based on the assessment of the potential impact of the development on the identified heritage, the following recommendations are made, taking into consideration any existing or potential sustainable social and economic benefits:

- The lithic traces on the landscape of the study area are of low significance and the impact of the development on these resources are inconsequential. No further mitigation is required. Therefore, from a heritage point of view we recommend that the proposed development can continue.
- Due to the low palaeontological significance of the area, no further palaeontological heritage studies, ground truthing and/or specialist mitigation are required pending the discovery of newly discovered fossils. It is considered that the development of the proposed development is deemed appropriate and feasible and will not lead to detrimental impacts on the palaeontological resources of the area. If fossil remains are discovered during any phase of construction, either on the surface or unearthed by fresh excavations, the ECO in charge of these developments ought to be alerted immediately. These discoveries ought to be protected (preferably *in situ*) and the ECO must report to SAHRA so that appropriate mitigation (e.g. recording, collection) can be carried out by a professional palaeontologist (Butler 2018).

	<ul style="list-style-type: none"> <li>Although all possible care has been taken to identify sites of cultural importance during the investigation of study areas, it is always possible that hidden or sub-surface sites could be overlooked during the assessment. If during construction any discovery of items such as stone tool scatters, artefacts, human remains, or fossils are made, the operations must be stopped, and a qualified archaeologist must be contacted for an assessment of the find. UBIQUE Heritage Consultants and its personnel will not be held liable for such oversights or for costs incurred as a result of such oversights.</li> </ul>		
Were any buildings or structures older than 60 years affected in any way?	<table border="1"> <tr> <td>YES</td> <td>NO</td> </tr> </table>	YES	NO
YES	NO		
Was it necessary to apply for a permit in terms of the National Heritage Resources Act, 1999 (Act 25 of 1999)?	<table border="1"> <tr> <td>YES</td> <td>NO</td> </tr> </table>	YES	NO
YES	NO		
If yes, please submit or make sure that the applicant or a specialist submit the necessary application to SAHRA or the relevant provincial heritage agency and attach proof thereof to this application.			

## SECTION D: PRELIMINARY IMPACT ASSESSMENT

Please note, the impacts identified below refer to general impacts commonly associated with development activities. The list below is not exhaustive and may need to be supplemented. Where required, please append the information on any additional impacts to this application.

### 1. WASTE, EFFLUENT AND EMISSION MANAGEMENT

#### (a) Solid waste management

Did/does the activity produce any general waste (e.g. domestic-, commercial-, certain industrial waste, including building rubble also known as solid waste) during the construction phase and/or the operational phase?	YES	NO
If yes, briefly describe what type of waste was produced (i.e. green waste, building rubble, etc.) in which phase.		
For the unlawful clearing, a small amount of construction waste related to vineyards would have been generated. During operation waste is limited to that created by the farm workers. The proposed development's total waste will be as follows:		
<u>Construction phase:</u>		
A small amount of construction-related waste associated with vineyards, such as cement bags, paint tins, etc. will be generated.		
<u>Operational phase:</u>		
Operational waste will be limited to broken materials associated with farming activities, and with solid waste associated with food eaten by farm workers.		
What quantity was/is produced during the construction period?	±2 m <sup>3</sup>	
What was/is the estimated quantity that will be produced per month during the operational phase?	Negligible m <sup>3</sup>	

Did/does the activity produce any <u>hazardous</u> waste (e.g. chemical, medical waste, infectious, nuclear etc.) during the construction and/or the operational phase?	YES	NO
If yes, briefly describe what type of waste was produced (i.e. infectious waste, medical waste, etc.) in which phase.		
What quantity was/is produced during the construction period?	m <sup>3</sup>	
What was/is the estimated quantity that will be produced per month during the operational phase?	m <sup>3</sup>	

Where and how was/is waste treated / disposed of (describe each waste stream)?

Very little solid waste is produced by farm workers and general farming activities.  
 General solid waste collection and disposal by the municipality will be confirmed during the public consultation process.

Has the municipality or relevant authority confirmed that sufficient capacity exists for treating / disposing of the solid waste to be generated by this activity(ies)? If yes, provide written confirmation from municipality or relevant authority	YES	NO
Does/did the activity produce solid waste that was/will be treated and/or disposed of at another facility other than into a municipal waste stream?	YES	NO
If yes, did/has this facility confirmed that sufficient capacity exists for treating / disposing of the solid waste to be generated by this activity(ies)? Provide written confirmation from the facility and provide the following particulars of the facility:	YES	NO
Did/does the facility have an operating license? (If yes, please attach a copy of the license.)	YES	NO
Facility name:		
Contact person:		
Postal address:		
	Postal code:	
Telephone:	Cell:	
E-mail:	Fax:	

**(b) Effluent**

Did/does the activity produce sewage and or any other effluent?	YES	NO
What was/is the estimated quantity produced per month?		
Was/is the effluent treated and/or disposed of in a municipal system?	YES	NO
If Yes, did/has the Municipality or relevant authority confirmed that sufficient <b>unallocated</b> capacity exists for treating/disposing of the sewage or any other effluent generated by this activity(ies)? Provide written confirmation from the Municipality or relevant authority.		
N/A		
Was/is any effluent produced be treated and/or disposed of onsite?	YES	NO
If yes, briefly describe the nature of the effluent and how it was/will be disposed of:		
Did/does the activity produce effluent that was/will be treated and/or disposed of at another facility?	YES	NO
If yes, did/has this facility confirmed that sufficient capacity exists(ed) for treating / disposing of the liquid effluent generated by this activity(ies)? Provide written confirmation from the facility and provide the following particulars of the facility:	YES	NO
Does the facility have an operating license? (If yes, please attach a copy of the license.)	YES	NO
Facility name:		
Contact person:		
Postal address:		
	Postal code:	
Telephone:	Cell:	
E-mail:	Fax:	

Describe the measures that was/will be taken to ensure the optimal reuse or recycling of wastewater, if any:

**(c) Emissions into the atmosphere**

Did/does the activity produce emissions that will be disposed of into the atmosphere?	YES	NO
If yes, did/does it require approval in terms of relevant legislation? If yes, attach a copy to this application	YES	NO
Describe the emissions in terms of type and concentration and how it was/will be treated/mitigated:		

(d) Describe any mitigation/management measures that were adopted and the adequacy of these:

N/A

## 2. WATER USE

(a) Please indicate the source(s) of water for the activity by crossing out ("X") the appropriate box(es)

Municipal	<b>Water Board – Kakamas WUA</b>	Groundwater	<b>River, Stream, Dam or Lake</b>	Other	The activity did/does not use water
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If water was/is extracted from a groundwater source, river, stream, dam, lake or any other natural feature, please indicate the volume that was/is extracted per month:

1 702 500 m<sup>3</sup>/annum from the Orange River

Please provide proof of assurance of water supply, e.g. letter of confirmation from municipality/water user associations, yield of borehole etc.

### Water:

Currently there is an existing WUL License (Ref:14/D73F/A/2693) that was issued to the Triple D Farms (Pty) Ltd on 01 December 2014 for the taking of 1 702 500 m<sup>3</sup>/annum from the Orange River for the purpose of irrigation on Kakamas South Settlement No. 2261.

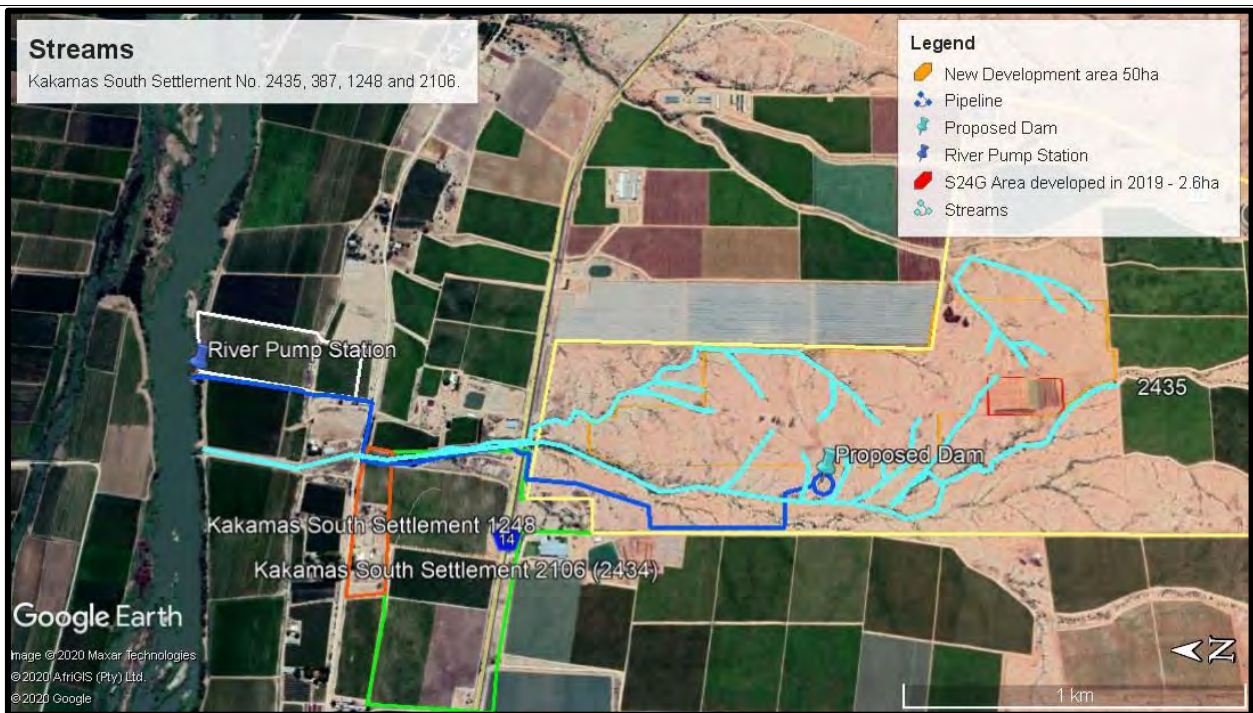
This licence replaced a previous licence with reference number 14/D73F/A/1879, dated 02 December 2013 for the taking of 978 000 m<sup>3</sup>/annum for the same purpose on the same property details.

The applicant also has an Existing Lawful Use (ELU) from the Kakamas Water Users Association and therefore the total volume of water rights allocated is 2 302 500m<sup>3</sup>/a (153.5ha).

Further detail will be available in the WULA in Appendix E2: Water Use License from Department of water affairs.

As part of this application, there will be a Water Use License Application (WULA) for Section 21(c), and (i) of the National Water Act for the streams that were diverted and crossed as part of the illegal establishment of vineyards. The establishment of the vineyards on Kakamas South Settlement 2435 took place across small sections of the unnamed drainage system that is located on-site. The site falls within the Quaternary Catchment Region D73F. The new proposed agricultural development will have an impact on drainage streams that can be regarded as non-perennial watercourses that will flow only if and when rain occurs in the catchment. The Section 21 (c) and (i) for the construction of a pipeline that will cross over streams or on the banks of the streams on Kakamas South Settlement 387, 1248 and 2106, see Figure 25.

The application will also include Section 21(b) for the proposed new dam and legalisation of an existing dam.



**Figure 25: Ephemeral streams/drainage areas**

The WULA activities is summarised in the table below for the following water usages:

(b) Storing water;	for the storing of water in the new proposed dam.
(c) Impeding or diverting flow of water in a watercourse	for the construction of agricultural areas across ephemeral streams/natural drainage areas.
(i) Altering the bed, banks, course or characteristics of a watercourse	for the construction of agricultural areas across ephemeral streams/natural drainage areas.

As part of the WULA, an Amendment of the existing WUL will take place, that will include the new changes and the change in property details.

Did/does the activity require a water use permit/license from DWAF? If yes, attach a copy to this application	<b>YES</b>	<b>NO</b>
If yes, please submit the necessary application to Department of Water Affairs and Forestry and attach proof thereof to this application.		

**(b) Describe any mitigation/management measures that were adopted and the adequacy of these:**

The pumps are selected to provide optimum delivery at minimum demand where water use is managed by applying drip irrigation. This is good agricultural practice.

### 3. POWER SUPPLY

**(a) Please indicate the source of power supply e.g. municipality/Eskom/renewable energy source.**

There is an existing Eskom power supply on Kakamas South Settlement No. 2435 and 387.

Has the Municipality or relevant service provider confirmed that sufficient electricity capacity (i.e. generation, supply and transmission) exist for activity(ies)?	<b>YES</b>	<b>NO</b>
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<p>An assessment was loaded on the ESKOM system with the following specifications:  Point 1: River 98kVA needed – Existing capacity for 100kVA can be provided.  Point 2: Pumpstation 108kVA needed - Existing capacity for 150kVA can be provided.</p> <p>If yes, provide written confirmation from Municipality or relevant service provider.  Confirmation will be provided once received.</p>		
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<p>If power supply was/is not available, where was/is it sourced from?</p>
<p>Generators will be used in the case of power outages.</p>

**(b) Describe any mitigation/management measures that were adopted and the adequacy of these:**

<p>The pumps utilised are selected based on their optimum delivery at minimum demand, and there are no other types of pumps available for this type of irrigation.</p>
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**4. ENERGY EFFICIENCY**

**(a) Describe the design measures, if any, that have been taken to ensure that the activity is energy efficient:**

<p>The pumps utilised are selected based on their optimum delivery at minimum demand, and there are no other types of pumps available for this type of irrigation.</p>
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**(b) Describe how alternative energy sources have been taken into account or been built into the design of the activity, if any:**

<p>Drip irrigation utilises less energy (and water) than spray irrigation.</p>
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**5. NOISE IMPACTS**

<b>(a) Did/does the activity result in any noise impacts?</b>	YES	NO
<p>If yes, please describe and indicate the measures implemented to mitigate and manage these impacts?</p>		

**Please note:** The Department may request specialist input/studies depending on the nature of the land use character of the area and potential noise impact(s) of the activity/ies.

**6. VISUAL IMPACTS**

<b>(a) Did/does the activity result in any visual impacts?</b>	YES	NO
<p>If yes, please describe and indicate the measures implemented to mitigate and manage these impacts?  The proposed site is situated close to a road. It is also in line with surrounding developments. As such, visual impacts are anticipated to be low.</p>		
<b>(b) Did/does the activity result in potential lighting impacts at night?</b>	YES	NO
<p>If yes, please describe and indicate the measures implemented to mitigate and manage these impacts?  No, this is an agricultural development.</p>		
<b>(c) Were/are there any alternatives available to address this impact?</b>	YES	NO
<p>If yes, please describe these alternatives?  N/A</p>		

**Please note:** The Department may request specialist input/studies depending on the nature of the land use character of the area and potential visual impact(s) of the activity/ies.

## 7. SOCIO-ECONOMIC IMPLICATIONS OF THE ACTIVITY

(a) What was/is the expected capital value of the activity on completion?	R22 764 425 million
(b) What was/is the expected yearly income or contribution to the economy that will be generated by or as a result of the activity?	R32 400 000 million
(c) Did/does the activity contribute to service infrastructure?	YES NO
(d) How many permanent new employment opportunities were created?	180 skilled and 540 unskilled.
(e) What was/is the expected current value of the employment opportunities to date?	R6 844 500
(f) What percentage of this accrued to previously disadvantaged individuals?	100%

How was(is) this (to be) ensured and monitored (please explain):
As far as possible, selecting contractors using local labour.

## 8. PRELIMINARY IMPACT ASSESSMENT

Briefly describe the impacts (as appropriate), significance rating of impacts and significance rating of impacts after mitigation. This must include an assessment of the significance of all impacts. Please note: This is a preliminary impact statement. The Department may request specialist input/studies depending on the type and nature of the impact(s) of the activity/ies.

Possible Impacts	Significance rating of impacts after mitigation (Low, Medium, Medium-High, High, Very High):
Loss of indigenous vegetation	Medium to low negative
Loss of non-perennial drainage lines	Medium negative
Visual	Low negative
Noise	Low negative
Cultural	Low negative
Employment creation	High positive
Production of table grapes for export market	High positive

Refer to the preliminary impact rating tables below.

Preliminary impacts that resulted from the construction phase:

Impacts on geographical and physical aspects:	
Nature of impact:	Removal of disturbed indigenous vegetation on KSS 2435, 387, 1248 and 2106 located within a CBA2 area ESA area.
Extent and duration of impact:	Local extent and long-term duration
Probability of occurrence:	High
Degree to which the impact can be reversed:	Low
Degree to which the impact may cause irreplaceable loss of resources:	Low
Cumulative impact prior to mitigation:	The proposed development will result in the transformation of approximately 50 ha of natural vegetation (Least Threatened) within a proposed CBA area. It will also potentially impact on a number of significant watercourses and its associated riparian vegetation, as well as 2 <i>Boscia albitrunca</i> (protected in terms of the NFA) and 2 <i>Aloidendron dichotomum</i> trees (a red listed plant and protected in terms of the NNCNA).

	In addition, it is also likely to impact on a number of other NCNCA plant species.
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	Medium to high
Degree to which the impact can be mitigated:	Medium
Proposed mitigation:	<p>No mitigation is available for the activity that has already taken place.</p> <p>Mitigation for proposed development:  <u>Mitigation as indicated in botanical assessment (Appendix H4: Botanical Assessment)</u></p> <p>The following mitigation actions should be implemented to ensure that the proposed development does not pose a significant threat to the environment:</p> <ul style="list-style-type: none"> <li>• <i>“All construction must be done in accordance with an approved construction and operational phase Environmental Management Plan (EMP), which must include the recommendations made in this report.</i></li> <li>• <i>A suitably qualified Environmental Control Officer must be appointed to monitor the construction phase in terms of the EMP and any other conditions pertaining to specialist studies.</i></li> <li>• <i>The proposed 50 ha development must be located within the &gt;100 ha area that was investigated in such a way that the impact on the more significant watercourses (and its associated riparian vegetation) and the four protected trees (Sheppard and Quiver trees) are minimised.</i></li> <li>• <i>It is recommended that a minimum buffer of at least 3 to 5 metres is established next to these watercourses, measured from the edge of the watercourse (not the centre of the watercourse) in order to protect the existing riparian vegetation. The access road may not intrude into these buffer zones. In other words, the access road may not form the buffer zone, but must be placed away from the watercourse and outside of this buffer zone.</i></li> <li>• <i>Ideally, the development should be placed to minimise the impact on these watercourses, while at the same time leaving a north-south migration corridor (for instance a 30 m corridor associated with the main western watercourse).</i></li> <li>• <i>The two Boscia albitrunca trees should be protected, in location, if at all possible. Since these trees transplant poorly, search &amp; rescue is not considered a viable option. If they have to be removed, permits must be obtained in terms of the National Forest Act (NFA) and the Northern Cape Nature Conservation Act (NCNCA).</i></li> <li>• <i>The two Aloidendron dichotomum trees should be protected, in location, if at all possible (first prize).</i></li> </ul>

	<p><i>However, these trees can be transplanted, and search and rescue may be an option. However, if they are moved, a permit for their relocation must be obtained in terms of the NCNCA and they must be transplanted back within the immediate surroundings. The transplantation must be overseen by a botanist or suitably qualified person and a watering program must be implemented to support these trees until they have re-established themselves.</i></p> <ul style="list-style-type: none"> <li>• <i>The search &amp; rescue recommendations must be implemented with regards to other protected species encountered and a DENC flora permit must be obtained in terms of the NCNCA.</i></li> <li>• <i>Future farm roads must be approved by the ECO and may not impact on the buffer zones next to the streams as proposed.</i></li> <li>• <i>Before any work is done, the 50ha development footprint, future roads and access routes must be clearly demarcated (to ensure the above mitigation measures are correctly interpreted) and approved by the ECO. The demarcation must include the total footprint necessary to execute the work, but must aim at minimum disturbance.</i></li> <li>• <i>Lay-down areas or construction sites must be located within already disturbed areas or areas of low ecological value and must be pre-approved by the ECO.</i></li> <li>• <i>Indiscriminate clearing of any area outside of the construction footprint must be avoided.</i></li> <li>• <i>All areas impacted as a result of construction must be rehabilitated on completion of the project.</i> <ul style="list-style-type: none"> <li>○ <i>This includes the removal of all excavated material, spoil and rocks, all construction-related material and all waste material.</i></li> <li>○ <i>It also includes replacing the topsoil back on top of the excavation, as well as shaping the area to represent the original shape of the environment.</i></li> </ul> </li> <li>• <i>An integrated waste management approach must be implemented during construction.</i> <ul style="list-style-type: none"> <li>○ <i>Construction-related general and hazardous waste may only be disposed of at municipal-approved waste disposal sites.</i></li> <li>○ <i>All rubble and rubbish should be collected and removed from the site to a suitable, registered waste disposal site.</i></li> </ul> </li> </ul> <p><i>The pipeline route must be adjusted to minimise the impact on any large indigenous tree that might be encountered along its route and the construction footprint must be minimised as much as possible.”</i></p>
Cumulative impact post mitigation:	Low

Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	Medium to low
Impacts on geographical and physical aspects:	
Nature of impact:	Loss of non-perennial drainage lines: impeding the flow of water in a watercourse and altering the beds, banks, course and characteristics of the watercourses within the project area through cultivation of vineyards.
Extent and duration of impact:	Local extent and long-term duration
Probability of occurrence:	High
Degree to which the impact can be reversed:	Impact cannot be reversed
Degree to which the impact may cause irreplaceable loss of resources:	Medium
Cumulative impact prior to mitigation:	Medium
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	Medium negative
Degree to which the impact can be mitigated:	None
Proposed mitigation:	<ul style="list-style-type: none"> <li>• No activities should be allowed outside of the demarcated agricultural development area. Machinery, waste and rubble should not be allowed to accumulate anywhere in the natural vegetation.</li> <li>• The main threat because of the establishment of the agricultural development is the movement of sediments down the drainage line and into the Orange River. The land would be entirely transformed by heavy earth moving machinery, as is required for the establishment of vineyards in virgin land. This transformation should be affected during the dry season, when the likelihood of sudden thunderstorms is at its least.</li> <li>• Any signs of erosion in the altered drainage line should be addressed immediately after downpours. Eroded areas should be filled in and the compacted. It should be planted with suitable vegetation. Irrigation may be required to establish this vegetation. If necessary, berm and contours should be constructed to direct storm water away to less susceptible areas.</li> <li>• The flow path of the drainage line should remain the same as far as possible, despite of the agricultural development.</li> <li>• Agricultural waste and other waste and litter should not be allowed to pass down the channel.</li> <li>• Vehicles and other disturbances should be kept out of the altered drainage lines as to prevent any disturbance that could result in erosion.</li> <li>• An application will be lodged with DWS for Sections 21 (c) and (i) for the new areas.</li> </ul>
Cumulative impact post mitigation:	Medium
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	Low negative



Impacts on geographical and physical aspects:	
Nature of impact:	Loss of non-perennial drainage lines: impeding the flow of water in a watercourse and altering the beds, banks, course and characteristics of the watercourses within the project area for the development of pipelines.
Extent and duration of impact:	Local extent and long-term duration
Probability of occurrence:	High
Degree to which the impact can be reversed:	Impact cannot be reversed
Degree to which the impact may cause irreplaceable loss of resources:	Medium
Cumulative impact prior to mitigation:	Medium
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	Medium negative
Degree to which the impact can be mitigated:	None
Proposed mitigation:	<ul style="list-style-type: none"> <li>• The mitigation is the construction of pipelines through the streams via manual labour.</li> <li>• Construction during dry periods.</li> </ul>
Cumulative impact post mitigation:	Low
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	Low negative

Impacts on socio-economic aspects:	
Nature of impact:	Job creation
Extent and duration of impact:	Local extent and short-term duration are dependent on the lifespan of the agricultural activities (some will be long term and others will be seasonally linked).
Probability of occurrence:	High
Degree to which the impact can be reversed:	The impact is positive
Degree to which the impact may cause irreplaceable loss of resources:	None
Cumulative impact prior to mitigation:	Job creation to local communities
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	Medium negative prior to job creation
Degree to which the impact can be mitigated:	The activity is mitigation
Proposed mitigation:	The activity is mitigation
Cumulative impact post mitigation:	Job creation to local communities
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	Medium positive with job creation

Impacts on cultural-historical aspects:	
Nature of impact:	As stated in the Heritage Impact Assessment (HIA): “... from a heritage point of view we recommend that the proposed development can continue.”
Extent and duration of impact:	Permanent site-specific impact.
Probability of occurrence:	Probable
Degree to which the impact can be reversed:	High
Degree to which the impact may cause irreplaceable loss of resources:	Low

Cumulative impact prior to mitigation:	As stated in the HIA: <i>“The lithic traces on the landscape of the study area are of low significance and the impact of the development on these resources are inconsequential.”</i>
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	Low negative
Degree to which the impact can be mitigated:	High
Proposed mitigation:	As stated in the HIA: <i>“The lithic traces on the landscape of the study area are of low significance and the impact of the development on these resources are inconsequential. No further mitigation is required. Therefore, from a heritage point of view we recommend that the proposed development can continue.”</i>
Cumulative impact post mitigation:	Low negative
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	Low

Impacts on cultural-historical aspects:	
Nature of impact:	As stated in the HIA: <i>“Due to the low palaeontological significance of the area, no further palaeontological heritage studies, ground-truthing and/or specialist mitigation are required pending the discovery of newly-discovered fossils. It is considered that the development of the proposed development is deemed appropriate and feasible and will not lead to detrimental impacts on the palaeontological resources of the area.”</i>
Extent and duration of impact:	Permanent site-specific impact
Probability of occurrence:	Probable
Degree to which the impact can be reversed:	High
Degree to which the impact may cause irreplaceable loss of resources:	Low
Cumulative impact prior to mitigation:	None
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	Low
Degree to which the impact can be mitigated:	High
Proposed mitigation:	<ul style="list-style-type: none"> <li>• All South African fossil heritage is protected by law (South African Heritage Resources Act, 1999) and fossils cannot be collected, damaged or disturbed without a permit from SAHRA or the relevant Provincial Heritage Resources Agency.</li> <li>• <i>“Due to the low palaeontological significance of the area, no further palaeontological heritage studies, ground truthing and/or specialist mitigation are required pending the discovery of newly discovered fossils. It is considered that the development of the proposed development is deemed appropriate and feasible and will not lead to detrimental impacts on the palaeontological resources of the area.</i></li> <li>• <i>“If fossil remains are discovered during any phase of construction, either on the surface or unearthed by fresh excavations, the ECO in charge of these developments ought to be alerted immediately. These discoveries ought to be protected (preferably</i></li> </ul>

	<i>in situ) and the ECO must report to SAHRA so that appropriate mitigation (e.g. recording, collection) can be carry out by a professional palaeontologist (Butler 2018)."</i>
Cumulative impact post mitigation:	Low negative
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	Low

<b>Noise impacts:</b>	
Nature of impact:	General noise associated with clearing of land
Extent and duration of impact:	Local extent, long-term duration
Probability of occurrence:	High
Degree to which the impact can be reversed:	Low
Degree to which the impact may cause irreplaceable loss of resources:	None
Cumulative impact prior to mitigation:	Noise pollution of low impact, as area is agricultural with no adjacent neighbours in close proximity. The area falls within an active agricultural area, and the impact will not be very big.
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	Medium negative
Degree to which the impact can be mitigated:	Low
Proposed mitigation:	Restrict working hours from 06:00 to 20:00. The area falls within an active agricultural area and the impact will be low due to lack of receptors (people).
Cumulative impact post mitigation:	Noise of short-term duration during construction phase, with negligible cumulative impact.
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	Low negative

<b>Visual impacts/Sense of Place:</b>	
Nature of impact:	The removal of vegetation for the establishing of the vineyards.
Extent and duration of impact:	Local extent, long-term duration.
Probability of occurrence:	High
Degree to which the impact can be reversed:	Low
Degree to which the impact may cause irreplaceable loss of resources:	Medium
Cumulative impact prior to mitigation:	None. The cleared areas, although visible to passing traffic from the main road, would be temporary during construction phase.
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	Low negative
Degree to which the impact can be mitigated:	Low
Proposed mitigation:	None
Cumulative impact post mitigation:	None. The cleared areas, although visible to passing traffic from the main road, would be temporary during construction phase.
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	Low negative

**Preliminary Impacts that result from the Operational Phase:**

Impacts on the geographical and physical aspects:	
Nature of impact:	Vegetation has been cleared for the vineyards, and drainage lines cultivated. Therefore, this impact is not rated further.
Extent and duration of impact:	
Probability of occurrence:	
Degree to which the impact can be reversed:	
Degree to which the impact may cause irreplaceable loss of resources:	
Cumulative impact prior to mitigation:	
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	
Degree to which the impact can be mitigated:	
Proposed mitigation:	
Cumulative impact post mitigation:	
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	

Impacts on the socio-economic aspects:	
Nature of impact:	Job creation
Extent and duration of impact:	Local extent and duration are dependent on the lifespan of the agricultural activities (some will be long term and others will be seasonally linked).
Probability of occurrence:	High
Degree to which the impact can be reversed:	The activity is positive
Degree to which the impact may cause irreplaceable loss of resources:	None
Cumulative impact prior to mitigation:	Additional job opportunities created for new agricultural activity.
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	High positive
Degree to which the impact can be mitigated:	None
Proposed mitigation:	None: the activity is positive
Cumulative impact post mitigation:	None
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	High positive

Impacts on socio-economic aspects:	
Nature of impact:	Financial income to Triple D Farms (Pty) Ltd and region.
Extent and duration of impact:	Region
Probability of occurrence:	High
Degree to which the impact can be reversed:	None, the impact is positive.
Degree to which the impact may cause irreplaceable loss of resources:	None, the impact is positive.
Cumulative impact prior to mitigation:	Financial income for the company and the country by selling of produce nationally and internationally.
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	High positive
Degree to which the impact can be mitigated:	None, the impact is positive.
Proposed mitigation:	None
Cumulative impact post mitigation:	Financial income for the company and the country by selling of produce nationally and internationally.

Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	High positive
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Impacts on cultural-historical aspects:	
Nature of impact:	Heritage-related impacts
Extent and duration of impact:	Permanent, site-specific impact
Probability of occurrence:	Low
Degree to which the impact can be reversed:	High
Degree to which the impact may cause irreplaceable loss of resources:	Low
Cumulative impact prior to mitigation:	None
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	Low negative
Degree to which the impact can be mitigated:	High
Proposed mitigation:	As stated in HIA: <i>“The lithic traces on the landscape of the study area are of low significance and the impact of the development on these resources are inconsequential. No further mitigation is required. Therefore, from a heritage point of view, we recommend that the proposed development can continue.”</i>
Cumulative impact post mitigation:	Low negative
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	Low

Impacts on cultural-historical aspects:	
Nature of impact:	As stated in HIA: <i>“Due to the low palaeontological significance of the area, no further palaeontological heritage studies, ground truthing and/or specialist mitigation are required pending the discovery of newly-discovered fossils. It is considered that the development of the proposed development is deemed appropriate and feasible and will not lead to detrimental impacts on the palaeontological resources of the area.”</i>
Extent and duration of impact:	Permanent site-specific impact
Probability of occurrence:	Probable
Degree to which the impact can be reversed:	High
Degree to which the impact may cause irreplaceable loss of resources:	Low
Cumulative impact prior to mitigation:	None
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	Low
Degree to which the impact can be mitigated:	High
Proposed mitigation:	Should substantial fossil remains – such as vertebrate bones and teeth, or petrified logs of fossil wood – be encountered at surface or exposed during construction, the ECO should safeguard these, preferably <i>in situ</i> . They should then alert the relevant provincial heritage management authority as soon as possible - i.e. SAHRA. (Contact details: Dr Ragna Redelstorff, SAHRA, P.O. Box 4637, Cape Town 8000. Tel: 021 202 8651; e-mail: rredelstorff@sahra.org.za). This is to ensure that appropriate action (i.e. recording, sampling or collection of fossils, recording of relevant geological data) can be



	taken by a professional palaeontologist at the developer's expense. A tabulated Chance Fossil Finds Procedure is appended to the Appendix H5: Heritage Impact Assessment
Cumulative impact post mitigation:	Low
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	Low

<b>Noise impacts:</b>	
Nature of impact:	General noise associated with agricultural activities
Extent and duration of impact:	Local extent, long-term duration
Probability of occurrence:	High
Degree to which the impact can be reversed:	Low
Degree to which the impact may cause irreplaceable loss of resources:	None
Cumulative impact prior to mitigation:	Localised noise pollution. The area falls within an agriculturally active area, and noise generation is generally seasonal when the entire area is busy with harvesting.
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	Medium negative
Degree to which the impact can be mitigated:	Low
Proposed mitigation:	The area falls within an agriculturally active area and noise generation is generally seasonal when the entire area is busy with harvesting. No mitigation necessary.
Cumulative impact post mitigation:	The area falls within an agriculturally active area and any noise generation is generally seasonal when the entire area is busy with harvesting.
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	Low negative

<b>Visual impacts / Sense of Place:</b>	
Nature of impact:	The new unlawful vineyards have changed the sense of place, but the nature of the impact is limited within the existing established agricultural landscape of the region. Similarly, the proposed vineyards will change the sense of place. However, this will also be limited within the existing landscape.
Extent and duration of impact:	Local extent, long-term duration
Probability of occurrence:	High
Degree to which the impact can be reversed:	Low
Degree to which the impact may cause irreplaceable loss of resources:	Medium
Cumulative impact prior to mitigation:	The new unlawful vineyards have changed the sense of place, but the nature of impact is limited within the existing established agricultural landscape of the region. Similarly, the proposed vineyards will change the sense of place. However, this will also be limited within the existing landscape.
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	Low negative
Degree to which the impact can be mitigated:	Low

Proposed mitigation:	None, the developments are in line with the surroundings.
Cumulative impact post mitigation:	The new unlawful vineyards have changed the sense of place, but the nature of impact is limited within the existing established agricultural landscape of the region. Similarly, the proposed vineyards will change the sense of place. However, this will also be limited within the existing landscape.
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	Low negative

**Impacts that may result from the decommissioning and closure phase:**

The agricultural activities will not be decommissioned in the near future and impacts associated with this phase have not been assessed.

**ASSESSMENT CRITERIA:**

The criteria for the description and assessment of environmental impacts were drawn from the National Environmental Management Act, 1998 (Act No.107 of 1998).

The level of detail was somewhat fine-tuned by assigning specific values to each impact. In order to establish a coherent framework within which all impacts could be objectively assessed it is necessary to establish a rating system, which is consistent throughout all criteria. For such purposes each aspect was assigned a value, ranging from 1-5, depending on its definition.

H-2.1 Potential Impact

This is an appraisal of the type of effect the proposed activity would have on the affected environmental component. Its description should include what is being affected and how it is being affected.

H-2.2 Extent

The physical and spatial scale of the impact is classified as:

Local

The impacted area extends only as far as the activity, e.g. a footprint.

Site

The impact could affect the whole, or a measurable portion of the site.

Regional

The impact could affect the area including the neighbouring erven, the transport routes and the adjoining towns.

H-2.3 Duration

The lifetime of the impact, which is measured in relation to the lifetime of the proposed base?

Short term

The impact will either disappear with mitigation or will be mitigated through a natural process in a period shorter than any of the phases.

Medium term

The impact will last up to the end of the phases, where after it will be entirely negated.

Long term

The impact will continue or last for the entire operational lifetime of the Development but will be mitigated by direct human action or by natural processes thereafter.

Permanent

This is the only class of impact, which will be non-transitory. Mitigation either by man or natural process will not occur in such a way or in such a time span that the impact can be considered transient.

H-2.4 Intensity

The intensity of the impact is considered here by examining whether the impact is destructive or benign, whether it destroys the impacted environment, alters its functioning, or slightly alters the environment itself. These are rated as:

Low

The impact alters the affected environment in such a way that the natural processes or functions are not affected.

Medium

The affected environment is altered, but functions and processes continue, albeit in a modified way.

High  
Function or process of the affected environment is disturbed to the extent where it temporarily or permanently ceases. This will be a relative evaluation within the context of all the activities and the other impacts within the framework of the project.

#### H-2.5 Probability

This describes the likelihood of the impacts actually occurring. The impact may occur for any length of time during the life cycle of the activity, and not at any given time. The classes are rated as follows:

##### Improbable

The possibility of the impact occurring is none, due either to the circumstances, design or experience.

##### Possible

The possibility of the impact occurring is very low, due either to the circumstances, design or experience.

##### Likely

There is a possibility that the impact will occur to the extent that provisions must therefore be made.

##### Highly Likely

It is most likely that the impacts will occur at some stage of the Development. Plans must be drawn up before carrying out the activity.

##### Definite

The impact will take place regardless of any prevention plans, and only mitigation actions or contingency plans to contain the effect can be relied on.

#### H-2.7 Determination of Significance – With Mitigation

Significance is determined through a synthesis of impact characteristics. It is an indication of the importance of the impact in terms of both physical extent and time scale, and therefore indicates the level of mitigation required. In this case the prediction refers to the foreseeable significance of the impact after the successful implementation of the suggested mitigation measures. Significance with mitigation is rated on the following scale:

##### No significance

The impact will be mitigated to the point where it is regarded to be insubstantial.

##### Low

The impact will be mitigated to the point where it is of limited importance.

##### Low to medium

The impact is of importance, however, through the implementation of the correct mitigation measures such potential impacts can be reduced to acceptable levels.

##### Medium

Notwithstanding the successful implementation of the mitigation measures, to reduce the negative impacts to acceptable levels, the negative impact will remain of significance. However, taken within the overall context of the project, the persistent impact does not constitute a fatal flaw.

##### Medium to high

The impact is of great importance. Through implementing the correct mitigation measures the negative impacts will be reduced to acceptable levels.

##### High

The impact is of great importance. Mitigation of the impact is not possible on a cost-effective basis. The impact continues to be of great importance, and, taken within the overall context of the project, is considered to be a fatal flaw in the project proposal. This could render the entire development option or entire project proposal unacceptable.

**SECTION E: LANDFILL PARAMETERS (WHERE APPLICATION RELATES TO A WASTE MANAGEMENT ACTIVITY)**

THIS SECTION IS NOT APPLICABLE TO THIS APPLICATION

**1. THE METHOD OF DISPOSAL OF WASTE:**

Land-building  Landfilling  Both

**2. THE DIMENSIONS OF THE DISPOSAL SITE IN METRES**

	At commencement	After rehabilitation
Height/Depth		
Length		
Breadth		

**3. THE TOTAL VOLUME AVAILABLE FOR THE DISPOSAL OF WASTE ON THE SITE:**

Volume Available	Mark with "X"	Source of information (Determined by surveyor/ Estimated)
Up to 99		
100-34 999		
35 000- 3,5 million		
>3,5 million		

**4. THE TOTAL VOLUME ALREADY USED FOR WASTE DISPOSAL:**

- (a) Will the waste body be covered daily
- (b) Is sufficient cover material available
- (c) Will waste be compacted daily

YES	NO
YES	NO
YES	NO

If the answers (a) and/or (b) are No, what measures will be employed to prevent the problems of burning or smouldering of waste and the generation of nuisance?

**5. THE SALVAGE METHOD**

Mark with an "X" the method to be used.

- At source
- Recycling installation
- Formal salvaging
- Contractor
- No salvaging planned


**6. FATAL FLAWS FOR THE SITE:**

Indicate which of the following apply to the facility for a waste management activity:

<b>Within a 3000m radius of the end of an airport landing strip</b>	<b>YES</b>	<b>NO</b>
<b>Within the 1 in 50-year flood line of any watercourse</b>	<b>YES</b>	<b>NO</b>
<b>Within an unstable area (fault zone, seismic zone, dolomitic area, sinkholes)</b>	<b>YES</b>	<b>NO</b>
<b>Within the drainage area or within 5 km of water source</b>	<b>YES</b>	<b>NO</b>
<b>Within an area with shallow and/or visible water table</b>	<b>YES</b>	<b>NO</b>
<b>Within an area adjacent to or above an aquifer</b>	<b>YES</b>	<b>NO</b>
<b>Within an area with shallow bedrock and limited available cover material</b>	<b>YES</b>	<b>NO</b>
<b>Within 100 m of the source of surface water</b>	<b>YES</b>	<b>NO</b>
<b>Within 1 km from the wetland</b>	<b>YES</b>	<b>NO</b>
<b>Indicate the distance to the boundary of the nearest residential area</b>	_____metres	
<b>Indicate the distance to the boundary of the industrial area</b>	_____metres	

**Wettest six months of the year**

November–April	
May–October	

For the wettest six-month period indicated above, indicate the following for the preceding 30 years

	<b>Total rainfall for 6 months</b>	<b>Total A-pan evaporation for 6 months</b>	<b>Climatic water balance</b>
For the 1 <sup>st</sup> wettest year			
For the 2 <sup>nd</sup> wettest year			
For the 3 <sup>rd</sup> wettest year			
For the 4 <sup>th</sup> wettest year			
For the 5 <sup>th</sup> wettest year			
For the 6 <sup>th</sup> wettest year			
For the 7 <sup>th</sup> wettest year			



For the 8<sup>th</sup> wettest year

For the 9<sup>th</sup> wettest year

For the 10<sup>th</sup> wettest year


**7. LOCATION AND DEPTH OF GROUND WATER MONITORING BOREHOLES:**

Codes of boreholes	Borehole locality	Depth (m)	Latitude			Longitude		
			°	'	''	°	'	''
.....	.....		°	'	''	°	'	''
.....	.....		°	'	''	°	'	''
.....	.....		°	'	''	°	'	''
.....	.....		°	'	''	°	'	''
.....	.....		°	'	''	°	'	''
.....	.....		°	'	''	°	'	''
.....	.....		°	'	''	°	'	''
.....	.....		°	'	''	°	'	''
.....	.....		°	'	''	°	'	''
.....	.....		°	'	''	°	'	''
.....	.....		°	'	''	°	'	''
.....	.....		°	'	''	°	'	''
.....	.....		°	'	''	°	'	''
.....	.....		°	'	''	°	'	''
.....	.....		°	'	''	°	'	''

**8. LOCATION AND DEPTH OF LANDFILL GAS MONITORING TEST PIT:**

Codes of boreholes	Borehole locality	Latitude			Longitude		
		°	'	''	°	'	''
.....	.....	°	'	''	°	'	''
.....	.....	°	'	''	°	'	''
.....	.....	°	'	''	°	'	''
.....	.....	°	'	''	°	'	''
.....	.....	°	'	''	°	'	''
.....	.....	°	'	''	°	'	''
.....	.....	°	'	''	°	'	''
.....	.....	°	'	''	°	'	''

## SECTION F: PROPOSED PUBLIC PARTICIPATION

### 7.1. PUBLIC PARTICIPATION PROCESS

The person conducting the public participation process must fulfil the requirements outlined in Chapter 6 of the 2014 NEMA EIA Regulations and must take into account any applicable guidelines published in terms of Section 24J of NEMA, as well as any other guidance provided by the Department.

Please highlight the appropriate box below to indicate the public participation process that has been or is proposed to be undertaken, including exemptions that have been/will be applied for:

<b>1. In terms of regulation 41 of the EIA Regulations, 2014 -</b>			
<b>(a) fixing a notice board at a place conspicuous to and accessible by the public at the boundary, on the fence or along the corridor of -</b>			
<b>(i) the site where the activity to which the application relates is or is to be undertaken; and</b>	<b>YES</b>	<b>EXEMPTION</b>	
<b>(ii) any alternative site</b>	<b>YES</b>	<b>EXEMPTION</b>	
<b>(b) giving written notice, in any manner provided for in section 47D of the NEMA, to –</b>			
<b>(i) the occupiers of the site and, if the applicant is not the owner or person in control of the site on which the activity is to be undertaken, the owner or person in control of the site where the activity is or is to be undertaken or to any alternative site where the activity is to be undertaken;</b>	<b>YES</b>	<b>EXEMPTION</b>	<b>N/A</b>
<b>(ii) owners, persons in control of, and occupiers of land adjacent to the site where the activity is or is to be undertaken or to any alternative site where the activity is to be undertaken;</b>	<b>YES</b>	<b>EXEMPTION</b>	
<b>(iii) the municipal councillor of the ward in which the site or alternative site is situated and any organisation of ratepayers that represent the community in the area;</b>	<b>YES</b>	<b>EXEMPTION</b>	
<b>(iv) the municipality (Local and District Municipality) which has jurisdiction in the area;</b>	<b>YES</b>	<b>EXEMPTION</b>	
<b>(v) any organ of state having jurisdiction in respect of any aspect of the activity; and</b>	<b>YES</b>	<b>EXEMPTION</b>	
<b>(vi) any other party as required by the Department;</b>	<b>YES</b>	<b>EXEMPTION</b>	<b>N/A</b>
<b>(c) placing an advertisement in -</b>			
<b>(i) one local newspaper; or</b>	<b>YES</b>	<b>EXEMPTION</b>	
<b>(ii) any official <i>Gazette</i> that is published specifically for the purpose of providing public notice of applications or other submissions made in terms of these Regulations;</b>	<b>YES</b>	<b>EXEMPTION</b>	<b>N/A</b>
<b>(d) placing an advertisement in at least one provincial newspaper or national newspaper, if the activity has or may have an impact that extends beyond the boundaries of the metropolitan or district municipality in which it is or will be undertaken</b>	<b>YES</b>	<b>EXEMPTION</b>	<b>N/A</b>

(e) using reasonable alternative methods, as agreed to by the Department, in those instances where a person is desirous of but unable to participate in the process due to—  (i) illiteracy; (ii) disability; or (iii) any other disadvantage.	YES	EXEMPTION	N/A
If you have indicated that “EXEMPTION” applies to any of the above, then a separate Application for Exemption must be submitted.			
2. The NEM: AQA and NEM:WA requires that a notice must be placed in at least two newspapers. NOT APPLICABLE			
If applicable, have/will an advertisement be placed in at least two newspapers?	YES	NO	
If “NO”, then an application for exemption from the requirement must be applied for.			

Note: It is no longer possible to obtain permission to deviate from the requirements to give notice to potential interested and affected parties. Unless exemption has been granted from a particular requirement, the requirement must be met. If an application for exemption is refused, the requirement in question must be met.

## 7.2. PUBLIC PARTICIPATION UNDERTAKEN PRIOR TO THE SUBMISSION OF THE NOTICE OF INTENT

Where public participation in terms of Regulations 40(3) and 41 was undertaken prior to submission of this Notice of Intent, please provide a summary of the steps followed to date.
An advertisement was placed in the local newspaper, the <i>Gemsbok</i> , and was advertised for at least 20 days as per the prescribed legislation. Proof to be included in Appendix F of draft S24G.

### 7.3. LIST OF STATE DEPARTMENTS CONSULTED/TO BE CONSULTED

Provide a list of all the State departments that will be/have been consulted, including the name and contact details of the relevant official.

	Surname	Initials	Representing	Tel	Fax	E-mail	Post Box	Town	Code
1	Lategan	J.G.	Kai Garib Municipality: Municipal Manager	054 431 6328	054 461 6401	mm@kaigarib.gov.za	Private Bag X6	Kakamas	8870
2	Bock	B.M.	Kai Garib Municipality: Ward Councillor Ward 3	054 431 6328	054 461 6401	mm@kaigarib.gov.za	Private Bag X6	Kakamas	8870
3	October	L	Department of Agriculture and Land Reform	054 461 6700	054 461 6401		P. O. Box 18	Springbok	8240
4	White	C	Department of Water Affairs	082 887 8866/ 054 338 5819		<a href="mailto:SchwartzC@dws.gov.za">SchwartzC@dws.gov.za</a> ThebeE@dws.gov.za	Private Bag X5912	Upington	8800
5	De la Fontaine	S	Nature Conservation	054 338 4800		sdelafontaine@gmail.com	Evelina De Bruin (former Provincial) Building, Corner of Rivier & Nelson Mandela Road	Upington	8800
6	Abrahams	N	Department of Transport: Environmental Coordinator	021 957 4602	021 910 1699	Abrahamsn@nra.co.za	Private Bag X19, Sanlamhof	Belville	7535
7	CEO		Kakamas Water Users Association	054 431 0725/6		marinakwgv@isat.co.za			
8	Schwartz	C	Department Water and Sanitation	054 338 5000		schwartzC@dws.gov.za	Private Bag X 5912, Louisvale Road	Upington	8800
9	Mans	J	Department of Agriculture Forestry and Fisheries	054 338 5909		jacolinema@daff.gov.za	P. O. Box 2782	Upington	8800
10	Tshimakwane	T	DENC: S24G Section	0798744244		LekweneT@ncpg.gov.za	90 Long Street Sasko Building	Kimberley	8301
11	Abrahams	N	SANRAL			abrahamsn@nra.co.za	Private Bag X19	Belville	7535

**Above list to be confirmed in draft S24G**

**Note: A State department consulted in terms of Section 240 (2) of NEMA and Regulations 3(4) and 43(2) must within 30 days from the date of the Department's request for comment, submit such comment in writing to the Department. The applicant/EAP is therefore required to inform this Department in writing when the Basic Assessment Report/Scoping Report/Environmental Impact Assessment Report is submitted to the relevant State departments. Upon receipt of this confirmation, this Department will in accordance with Section 240 (2) & (3) of the NEMA (as amended), inform the relevant State departments of the commencement date of the 30-day commenting period.**

## SECTION G: ALTERNATIVES

As part of this report, consideration must be given to alternatives that are/may have been possible had an environmental impact assessment been undertaken prior to the commencement of the activity. Please provide a detailed description of the alternatives (whether location, technology or environmental) that were/are possible in terms of this application.

### Alternative 1 (Preferred): Authorisation of 2.6 ha unlawful vineyards and further 50ha development

The alternative entails authorising the 2.6 ha new vineyards and proposes developing a further 50 ha on the same property. Please note this is a preliminary layout.

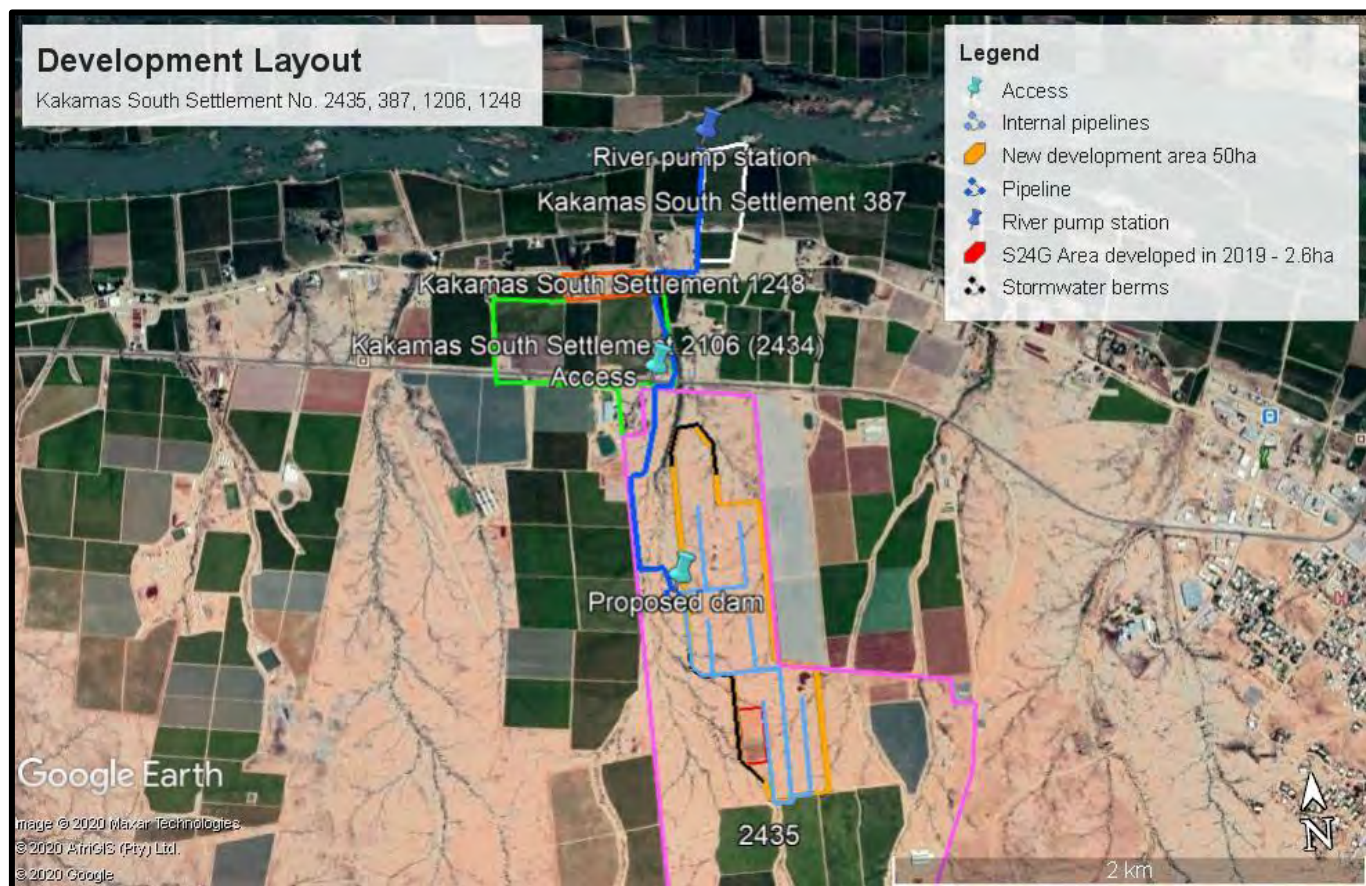


Figure 26: Preferred alternative layout

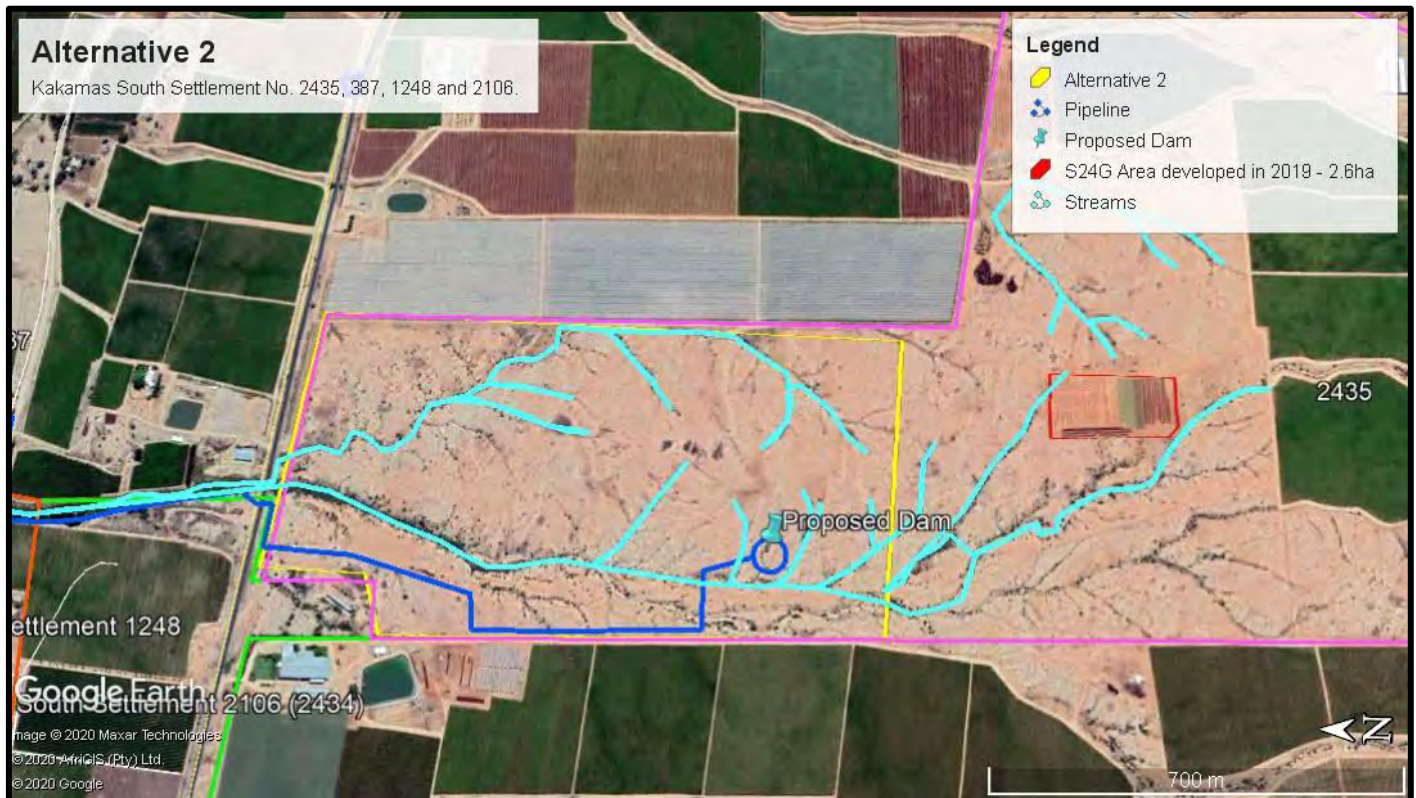
This alternative takes into consideration the following aspects and is therefore considered preferred:

- Rehabilitation for the development that has already taken place will not positively result in further financial gain through further development of the site. The area will not be rehabilitated, as it will form part of the further development of the site and will serve no purpose. This option of continuation of the development is the only feasible and preferred alternative.
- As stated in the Botanical Assessment “According to the Northern Cape Critical Biodiversity Areas (2016), the proposed site will impact on a CBA area, but it is also located within an area that is characterised by intensive farming, with little connectivity remaining to the northern parts of the site. The site will not impact on any recognised centre of endemism.” As such, both the proposed development and existing development did not and will not impact greatly on botanical aspects. Where removal of protect species will take place, an application will be lodged with the various departments. However, this is not seen as a high impact.
- The small ephemeral streams crossing the site have a low significance after mitigation and the surrounding bigger streams were excluded from the development. If mitigation measures are adhered to the development will have a low impact on the Fresh water features.



## Alternative 2: The development of 50 ha across the streams

The alternative entails rehabilitation of the 2.6 ha new vineyards and proposes developing a further 50 ha on the same property. Please note this is a preliminary layout.



**Figure 27: Alternative 2**

This alternative is no considered preferred:

- Rehabilitation for the development that has already taken place will not positively result in further financial gain through further development of the site. The area will not be rehabilitated, as it will form part of the further development of the site and will serve no purpose. This option of continuation of the development is the only feasible and preferred alternative.
- As stated in the Botanical Assessment “*Ideally, the development should be placed to minimise the impact on these watercourses, while at the same time leaving a north-south migration corridor (for instance a 30m corridor associated with the main western watercourse).* This alternative did not take into consideration the north-south migration corridor and did not minimise the impacts on the watercourses.

## **No-Go Option**

The No-Go option would result in the rehabilitation of clearing of the 2.6 ha of unlawful vineyards as well as not allowing the development of the newly proposed 50 ha of vineyard. Less cultivation of land would lead to lower production in grapes for export. This, in turn, would lead to less income for the company and the country, which in turn could lead to job losses and eventually an increase in poverty. There will be no additional job opportunities (both temporary and permanent), no improvement of the local economy and no food or job security.

In addition, the rehabilitation of the site would include the removal of the vineyards which would eventually lead to major financial loss for the applicant. This too would have negative spinoffs for employee job security, as well as the longevity of the company.

It is for these reasons that the No-Go option is not considered the preferred alternative.



**SECTION H: APPENDICES**

The following appendices must be attached where appropriate:

Appendix	Cross out ("X") the box if Appendix is attached
Appendix A: Location map	<del> </del>
Appendix B: Site plan(s)	<del> </del>
Appendix C: Owner(s) consent(s)	N/A
Appendix D: Photographs <ul style="list-style-type: none"> <li>• <b>Appendix D1: Historic aerial photographs (Figures 1 to 5)</b></li> <li>• <b>Appendix D2: Site photographs</b></li> <li>• <b>Appendix D3: CBA 2 and CBA 2 located on Remainder of Kakamas North Settlement No. 355</b></li> </ul>	<del> </del>
Appendix E: Permit(s)/license(s) from any other organ of state including service letters from the municipality <ul style="list-style-type: none"> <li>• <b>Appendix E1: Irrigation rights from the Department of Water Affairs</b></li> </ul>	To be included in draft
Appendix F: Additional Impact Assessment Information <ul style="list-style-type: none"> <li>• <b>Appendix F: Public Participation</b></li> </ul>	Not yet completed/will be included in the Assessment Report
Appendix G: Report on alternatives	N/A
Appendix H: Any Other (describe) <ul style="list-style-type: none"> <li>• <b>Appendix H1: Attendance register of meeting held with DENC and DWS.</b></li> <li>• <b>Appendix H2: EMP</b></li> <li>• <b>Appendix H3: WULA</b></li> <li>• <b>Appendix H4: Botanical Assessment</b></li> <li>• <b>Appendix H4: Heritage Impact Assessment</b></li> </ul>	Not yet completed/will be included in the Assessment Report.

**ANNEXURE A TO THE SECTION 24G APPLICATION FORM**

**SECTION A: DIRECTIVE**

Section 24G(1) of the National Environmental Management Act, 1998 (Act 107 of 1998) (“NEMA”) provides that on application by a person who has commenced with a listed or specified activity without an environmental authorisation in contravention of section 24F(1); or a person who has commenced, undertaken or conducted a waste management activity without a waste management licence in terms of section 20(b) of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) (“NEM:WA”) the Minister, Minister responsible for mineral resources or MEC concerned (or the official to which this power has been delegated), as the case may be, may direct the applicant to -

i	immediately cease the activity pending a decision on the application submitted in terms of this subsection	
ii	investigate, evaluate and assess the impact of the activity on the environment	
iii	remedy any adverse effects of the activity on the environment	
iv	cease, modify or control any act, activity, process or omission causing pollution or environmental degradation	
v	contain or prevent the movement of pollution or degradation of the environment	
vi	eliminate any source of pollution or degradation	
vii	compile a report containing-	
	aa	a description of the need and desirability of the activity
	bb	an assessment of the nature, extent, duration and significance of the consequences for or impacts on the environment of the activity, including the cumulative effects and the manner in which the geographical, physical, biological, social, economic and cultural aspects of the environment may be affected by the proposed activity
	cc	a description of mitigation measures undertaken or to be undertaken in respect of the consequences for or impacts on the environment of the activity
	dd	a description of the public participation process followed during the course of compiling the report, including all comments received from interested and affected parties and an indication of how the issues raised have been addressed
	ee	an environmental management programme
viii	provide such other information or undertake such further studies as the Minister, Minister responsible for mineral resources or MEC, as the case may be, may deem necessary.	

You are hereby provided with an opportunity to make representations on any or all of the abovementioned instructions, including where you are of the opinion that any of these instructions are not relevant for the purposes of your application, setting out the reasons for your assertion. Kindly note further that, after taking your representations into account, a final directive may be issued.

## SECTION B: DEFERRAL

Section 24G(7) of the NEMA provides that if at any stage after the submission of an application it comes to the attention of the Minister, the Minister responsible for mineral resources or the MEC, that the applicant is under criminal investigation for the contravention of, or failure to comply with, section 24F(1) of the NEMA or section 20(b) of the NEM:WA, the Minister, Minister responsible for mineral resources or MEC may defer a decision to issue an environmental authorisation until such time as the investigation is concluded and-

- (a) the National Prosecuting Authority has decided not to institute prosecution in respect of such contravention or failure;
- (b) the applicant concerned is acquitted or found not guilty after prosecution in respect of which such contravention or failure has been instituted; or
- (c) the applicant concerned has been convicted by a court of law of an offence in respect of such contravention or failure and the applicant has in respect of the conviction exhausted all the recognised legal proceedings pertaining to appeal or review.

Kindly answer the following questions:

Are you, the applicant, being investigated for the contravention of section 24F(1) of the NEMA in respect of a matter that <u>is not subject to this application</u> and in any province in the Republic?	YES	<b>NO</b>	UNCERTAIN
If yes provide details of the offence being investigated and authority conducting the investigation. If uncertain provide details of the activity or activities in relation to which you suspect you may be under investigation.			
Are you, the applicant, being investigated for the contravention of section 20(b) of the NEMWA in respect of a matter that is <u>not subject to this application</u> and in any province in the Republic?	YES	<b>NO</b>	UNCERTAIN
If yes provide details of the offence being investigated and authority conducting the investigation. If uncertain provide details of the activity or activities in relation to which you suspect you may be under investigation.			
Are you, the applicant, being investigated for an offence in terms of section 24F(1) of the NEMA or section 20(b) of the NEMWA <u>in terms of which this application directly relates?</u>	YES	<b>NO</b>	UNCERTAIN
If yes provide details of the offence being investigated and authority conducting the investigation. If uncertain provide details of the activity or activities in relation to which you suspect you may be under investigation.			

If you have answered yes to any of the above questions, you are hereby provided with an opportunity to make representations as to why the Minister, Minister responsible for mineral resources or MEC, as the case may be, should not defer the application as he or she is entitled to do under section 24G(7).

## SECTION C: QUANTUM OF THE SECTION 24G FINE

Section 24G(4) of the NEMA makes it mandatory for an applicant to pay an administrative fine as determined by the competent authority before the Minister, Minister responsible for mineral resource or MEC may take a decision on whether or not to grant *ex post facto* environmental authorisation or a waste management licence as the case may be. The quantum of this fine may not exceed R5 million.

Having regard to the factors listed below, you are hereby afforded with an opportunity to make representations in respect of the quantum of the fine and as to why the competent authority should not issue a maximum fine of R5 million.

Please note that Part 1 of this section must be completed by an independent environmental assessment practitioner after conducting the necessary specialist studies.

Please also include in your representations whether or not the activities applied for in this application (if more than 1) are in your view interrelated and provide reasons therefor.

### PART 1: THE IMPACTS OR POTENTIAL IMPACTS OF THE ACTIVITY/ACTIVITIES

Index	Socio Economic Impact	Place an "x" in the appropriate box
Description of variable		
	The activity is not giving, has not given and will not give rise to any negative socio-economic impacts	<input checked="" type="checkbox"/>
	The activity is giving, has given, or could give rise to negative socio-economic impacts, but highly localised	<input type="checkbox"/>
	The activity is giving, has given, or could give rise to significant negative socio-economic and regionalized impacts	<input type="checkbox"/>
	The activity is resulting, has resulted or could result in wide-scale socio-economic impacts.	<input type="checkbox"/>
Motivation: The activity increased job opportunities, production and foreign income into the country thereby indirectly improving the socio-economic state of the local community.		

Index	Biodiversity Impact	Place an "x" in the appropriate box
Description of variable		
	The activity is not giving, has not given and will not give rise to any impacts on biodiversity	<input type="checkbox"/>
	The activity is not giving, has not given and could give rise to localised biodiversity impacts	<input checked="" type="checkbox"/>
	The activity is not giving, has not given and could give rise to significant biodiversity impacts	<input type="checkbox"/>
	The activity is, has or is likely to permanently/irreversibly transform/destroy a recognised biodiversity 'hot-spot' or threaten the existence of a species or sub-species.	<input type="checkbox"/>
Motivation: The unlawful development occurred on area indicated as indigenous vegetation as well as occurring over some small ephemeral streams. Though the impact is considered to be minimal, some localised impacts may have occurred.		

Index	Sense of Place Impact and / or Heritage Impact	Place an "x" in the appropriate box
Description of variable		
	The activity is in keeping with the surrounding environment and/or does not negatively impact on the affected area's sense of place and /or heritage	<input checked="" type="checkbox"/>
	The activity is not in keeping with the surrounding environment and will have a localised impact on the affected area's sense of place and/or heritage	<input type="checkbox"/>
	The activity is not in keeping with the surrounding environment and will have a significant impact on the affected area's sense of place and/ or heritage	<input type="checkbox"/>
	The activity is completely out of keeping with the surrounding environment and will have a significant impact on the affected area's sense of place and/ or heritage	<input type="checkbox"/>
Motivation: The activity was an agricultural development on agricultural land in an area surrounded by agricultural developments. As such no negative impact on sense of place or heritage.		

Index	Pollution Impact	Place an "x" in the appropriate box
Description of variable		
	The activity is not giving, has not given and will not give rise to any pollution	<input type="checkbox"/>
	The activity is giving, has given or could give rise to pollution with low impacts.	<input type="checkbox"/>
	The activity is giving, has given or could give rise to pollution with moderate impacts.	<input type="checkbox"/>
	The activity is giving, has given or could give rise to pollution with high impacts.	<input type="checkbox"/>
	The activity is giving, has given or could give rise to pollution with major impacts.	<input type="checkbox"/>
Motivation: The activity was an agricultural development on agricultural land in an area surrounded by agricultural developments. No pollution has taken place		

**PART 2: COMPLIANCE HISTORY AND KNOWLEDGE OF THE APPLICANT**

Index	Previous administrative action (i.e. administrative enforcement notices) issued to the applicant in respect of a contravention of section 24F (1) of the National Environmental Management Act and/or section 20(b) of the National Environmental Management Waste Act	Place an "x" in the appropriate box
Description of variable		
	Administrative action was previously taken against the applicant in respect of the abovementioned provisions.	<input type="checkbox"/>
	No previous administrative action was taken against the applicant, but previous administrative action was taken against a firm(s) on whose board one or more of the applicant's directors sit or sat at the relevant time when the administrative action was taken.	<input type="checkbox"/>
	Administrative action was <u>not</u> previously taken against the applicant in respect of the abovementioned provisions.	<input type="checkbox"/>

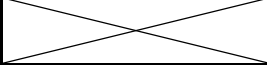
**A previous Environmental Impact Assessment process was undertaken by EnviroAfrica (contact: Mr. Clinton Geyser). During the final site visit prior to the issue of the Environmental Authorisation the DENC case officer, Mr Ordain Riba, indicated that 2.6 ha of land was cleared without the necessary approvals. This resulted in the suspension of the Environmental (EIA) process. Mr Ordain Riba indicated that the applicant, Triple D Farms (Pty) Ltd should apply for a Section 24G process to rectify the illegal activity that took place.**


**Please note that studies used as part of the S24G process formed part of the application conducted by EnviroAfrica.**

**NOTE: The applicant was under the impression that the clearing of such a small area would be allowed and immediately needed space for the drying of raisins.**

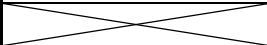
**As a result, the EIA process was terminated and a Section 24G process will be initiated with this application.**

Index	Previous Convictions in terms of section 24F(1) of the National Environmental Management Act and/or section 20(b) of the National Environmental Management Waste Act	Place an "x" in the appropriate box
Description of variable		
	The applicant was previously convicted in terms of either or both of the abovementioned provisions.	<input type="checkbox"/>

No previous convictions have been secured against the applicant but a conviction has been secured against a firm(s) on whose board one or more of the applicant's directors sit or sat; or a conviction was secured against a director of the applicant in his or her personal capacity.	
The applicant has not previously been convicted in terms of either or both of the abovementioned provisions.	
Explanation of all previous convictions in respect of the above:	

Index	Number of Section 24G applications previously submitted by the applicant	Place an "x" in the appropriate box
Description of variable		
	Previous applications in terms of section 24G of NEMA were submitted by the applicant.	
	No previous applications have been submitted by the applicant, but a previous application(s) have been submitted by a firm(s) on whose board one or more of the applicant's directors sit or sat at the relevant time.	
	No previous applications have been submitted by the applicant, but the applicant sat on the board of a firm that previously submitted an application.	
Explanation in respect of all previous applications submitted in terms of section 24G:		

**PART 3: APPLICANT'S PERSONAL CIRCUMSTANCES**

Index	Applicant's legal persona	Place an "x" in the appropriate box
Description of variable		
	The applicant is a natural person.	
	The applicant is a firm.	
<p>Describe the firm:</p> <p>Triple D Farms was established in 1995 and has grown into a substantial table grape-growing operation marketing its own produce.</p> <p>The operation is situated near Kakamas along the Orange River in the Northern Cape, South Africa. Harvesting starts mid-November and continues until the end of January. Global G.A.P, TESCO Nurture and HACCP food safety standards are strictly implemented to ensure a safe product with outstanding quality.</p> <p>The company produces and exports only the highest quality raisins and pecan nuts. Raisins and grapes are produced in Kakamas and pecan nuts are produced in Groblershoop.</p> <p>The company values a safe working environment and continuous improvement of systems and people, as these, in turn, generate creative new ideas. It is for this reason that the company is also a preferred employer in the area.</p>		

Index	Any other relevant information that the applicant would like to be considered.
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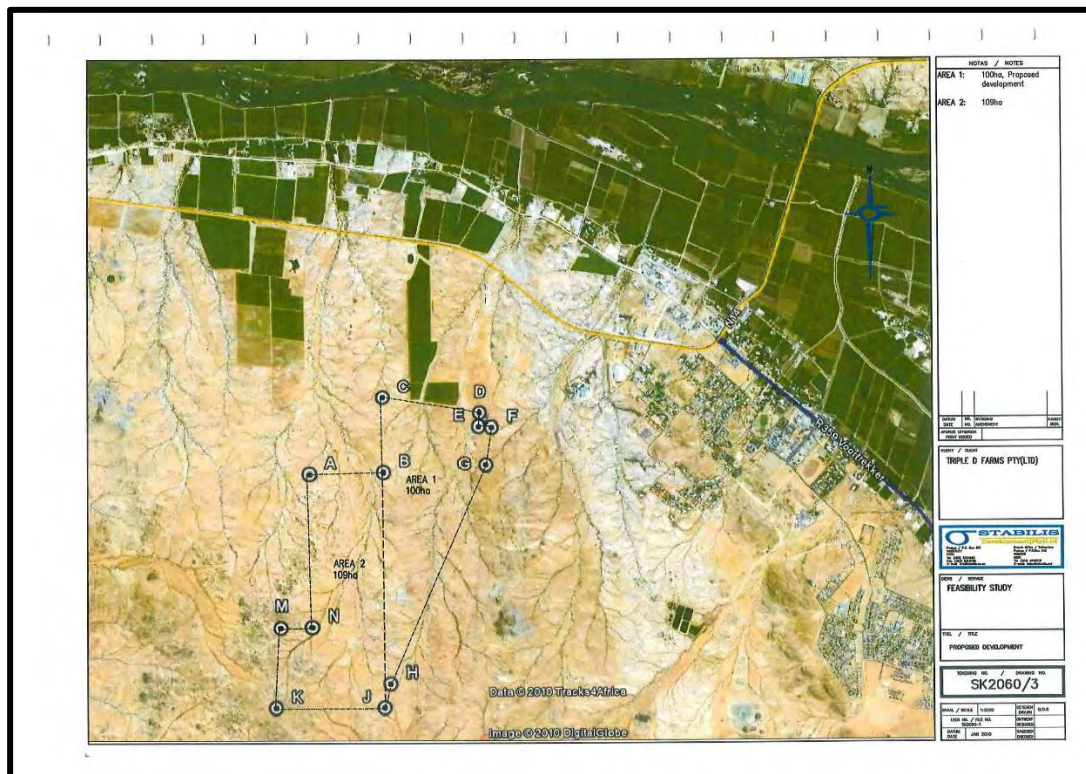
Motivate and explain fully:

Motivation as to why the applicant undertook the application without authorisation:

The applicant submitted an Environmental Application in January 2019 via EnviroAfrica. During the final stages of approval, the DENC case officer went to the site and discovered that the applicant had already started clearing without the Environmental Authorisation. The applicant was under the impression that the clearing of such a small area would be allowed and immediately needed space for the drying of raisins.

As a result, the EIA process was terminated and a Section 24G process will be initiated with this application.

**PLEASE NOTE THERE IS AN EXISTING ENVIRONMENTAL AUTHORISATION ON THE SITE, CONDUCTED UNDER AN EXISTING EIA, Ref: NC/BA/SIY/KAI!/KAK1/2010 ISSUED 20 APRIL 2011. The existing EA was for 210 ha. See layout included in Figure 28 below.**



**Figure 28: Environmental Authorisation layout**

NOTE: An explanation as to why the applicant did not obtain an environmental authorisation and/or waste management licence must be attached to this application.

**SECTION D: ADVERTISEMENT – SEE APPENDIX F**

When submitting this application form, the applicant must submit proof that the application has been advertised in at least one local newspaper in circulation in the area in which the activity was commenced, in the relevant provincial gazette and on the applicant’s website, if any.

The advertisement must state that the applicant commenced a listed or specified activity or activities or waste management activity or activities without the necessary environmental authorisation and/or waste management licence and is now applying for *ex post facto* approval. It must include the following:



- the date;
- the location;
- the applicable legislative provision contravened; and
- the activity or activities commenced with without the required authorisation.

Interested and affected parties must be provided with the details of where they can submit their comment and/or register as an interested and affected party.

NOTE: Unless protected by law, all information contained in and attached to this application form may become public information on receipt by the competent authority. This application must be attached to any documentation or information submitted by an applicant further to section 24G(1).

**SECTION I: DECLARATIONS**

**I1: DECLARATIONS OF THE EAP**

1. The Independent Environmental Assessment Practitioner

I, PIETER BADENHORST \_\_\_\_\_ do hereby make oath and say that I –

- a. act as the independent environmental assessment practitioner in this application;
- b. do not have and will not have any financial interest in the undertaking of the activity, other than remuneration for work performed in terms of the S24G of the National Environmental Management Act, read together with the relevant Environmental Impact Assessment Regulations;
- c. do not have, and will not have, a vested interest in the proposed activity proceeding;
- d. have no, and will not engage in, conflicting interests in the undertaking of the activity;
- e. undertake to disclose to the competent authority any material information that has, or may have, the potential to influence the decision of the competent authority or the objectivity of any report, plan or document required in terms of the S24G of the National Environmental Management Act, read together with the Environmental Impact Assessment Regulations, 2006;
- f. will ensure that all documents contain all relevant facts in respect of the application and that all documentation is timeously distributed or made available to interested and affected parties. I will ensure that participation by interested and affected parties is facilitated in such a manner that all interested and affected parties will be provided with a reasonable opportunity to participate and to provide comments on documents that are produced for this application;
- g. will ensure that the comments of all interested and affected parties are considered and recorded in reports that are submitted to the competent authority in respect of the application, provided that comments that are made by interested and affected parties in respect of a final report that will be submitted to the competent authority may be attached to the report without further amendment to the report;
- h. will keep a register of all interested and affected parties that participated in a public participation process; and
- i. will provide the competent authority with access to all information at my disposal regarding the application, whether or not such information is favourable to the applicant.

\_\_\_\_\_  
Signature of the environmental assessment practitioner:

GROENBERG ENVIRO (PTY) LTD

\_\_\_\_\_  
Name of company:

10-03-2020

\_\_\_\_\_  
Date:

\_\_\_\_\_  
Signature of the Commissioner of Oaths:

\_\_\_\_\_  
Date:

\_\_\_\_\_  
Designation:

Official stamp (below)

## 12: DECLARATIONS OF THE APPLICANT

2. The Applicant

I, \_\_\_\_\_ declares to hereby make oath and say that:

- a. I am the applicant in this application/duly authorised by the applicant to complete and submit this application.
- b. The information contained in Part 1 and Part 2 of this application form (including annexures thereto) is within my own personal knowledge and is true.
- c. I appointed the environmental assessment practitioner as indicated under **A1** above to act as the independent environmental assessment practitioner for this application.
- d. Undertake to provide the environmental assessment practitioner and the competent authority with access to all information at my disposal that is relevant to the application.
- e. Am responsible for complying with the directive or conditions of any environmental authorisation issued by the competent authority.
- f. Understand that I will be required to pay an administration fine in terms of S24G(4) of the Act and that a decision in this regard will only be forthcoming after payment of such a fine and deferral (where applicable); and
- g. Hereby indemnify the government of the Republic, the competent authority and all its officers, agents and employees, from any liability arising out of the content of any report, any procedure or any action for which the applicant or environmental assessment practitioner is responsible in terms of the Act.

---

Signature of the applicant:

---

Name of company:

---

Date:

---

Signature of the Commissioner of Oaths:

---

Date:

---

Designation:

Official stamp (below):

NOTE: Unless protected by law, all information contained in and attached to this application form may become public information on receipt by the competent authority. Upon request, any interested and affected party must be provided with the information contained in and attached to this application form.

## CONTACT DETAILS (NATIONAL AND PROVINCIAL S24G REGULATING DIRECTORATES)

Department	Telephone	Fax	Postal address & e-mail
National Department Environmental Affairs and Tourism	(012) 310 3230	(012) 320-7539	Private Bag X447 Pretoria South Africa 0001
Free State Department of Economic Development, Tourism and Environmental Affairs	(051) 400 9535 0827894468	(051) 400 9538	Private Bag X20801 BLOEMFONTEIN 9300 boing@dteea.fs.gov.za
Eastern Cape Department of Economic Development and Environmental Affairs	0836572465		CNR of Hargeaves & Hockley Close Beacon Hill King Williams Town South Africa bongani.gxilishe@dedia.gov.za
Gauteng Department of Agriculture and Rural Development	(011) 355 1885 (011) 355 1644	(011) 355 1850 (011) 355 1000	P.O. Box 8769 JOHANNESBURG 2000 Green.scorpions@gauteng.gov.za
Kwazulu-Natal Department of Agriculture and Environmental Affairs	(033) 3559427	(033) 355 9614	Private Bag X9059 PIETERMARITZBURG 3200 Christian.Tham@kzndae.gov.za
Limpopo Department of Economic Development, Environment and Tourism	(015) 290 7000 (015) 295 4013	(015) 295 5015	P O Box 55464 POLOKWANE 0700
Mpumalanga Department of Economic Development, Environment and Tourism	(013) 766 6059 082 054 349	(013) 766 8243	Private Bag X 11219 NELSPRUIT 1200
Northern Cape Department of Environment and Nature Conservation	(053) 807 7430	053 831 3530	Private Bag X6102 KIMBERLEY 8300
North West Department of Agriculture, Conservation, Environment and Rural Development	(018) 389 5995 (082) 901 8362	(018) 389 5006	Private Bag X2039 MMABATHO 2735 mnkosi@nwpg.gov.za
Western Cape Department of Environmental Affairs and Development Planning	(021) 483 4093 (021) 483 3722  (044) 805 8781	(021) 483 4372 (021) 483 3633  (044) 874 2423	Private Bag X 9086 CAPE TOWN 8000

## CONTACT DETAILS (NATIONAL AND PROVINCIAL ENVIRONMENTAL MANAGEMENT INSPECTORATE)

Department	Telephone	Fax	Postal address
National Department Environmental Affairs and Tourism	0800 205 005	(031) 560 7995	Private Bag X447 Pretoria South Africa 0001 pi@toanon.co.za
Eastern Cape Department of Economic Development and Environmental Affairs	0836572465		CNR of Hargeaves & Hockley Close Beacon Hill King Williams Town South Africa bongani.gxilisce@dedia.gov.za
Free State Department of Tourism, Environmental and Economic Affairs	082 789 4468	(051) 400 4772	Private Bag X20801 BLOEMFONTEIN 9300
Gauteng Department of Agriculture and Rural Development	(011) 355 1440	(011) 355 1850	P.O. Box 8769 JOHANNESBURG 2000 Green.scorpions@gauteng.gov.za
Kwazulu-Natal Department of Agriculture and Environmental Affairs	(033) 355 9427	(033) 355 9614	Private Bag X9059 PIETERMARITZBURG 3200 Christian.Tham@kzndae.gov.za
Limpopo Department of Economic Development, Environment and Tourism	015 295 3980	015 295 4869	P O Box 55464 POLOKWANE 0700
Mpumalanga Department of Economic Development, Environment and Tourism	013 766 6077 084 520 3680	(013) 766 8243	Private Bag X 11219 NELSPRUIT 1200
Northern Cape Department of Environment and Nature Conservation	(053) 807 7430 (053) 807 7300		Private Bag 6102 KIMBERLEY 8300
North West Dept. of Agriculture, Conservation, Environment and Rural Development	(018) 389 5995 (018) 389 5698	018 389 5006	Private Bag X2039 MMABATHO 2735 mnkosi@nwpg.gov.za cwessels@nwpg.gov.za
Western Cape Dept of Environmental Affairs and Development Planning	(021) 483 3197 (021) 483 4363	(021) 483 4440	Private Bag X 9086 CAPE TOWN 8000

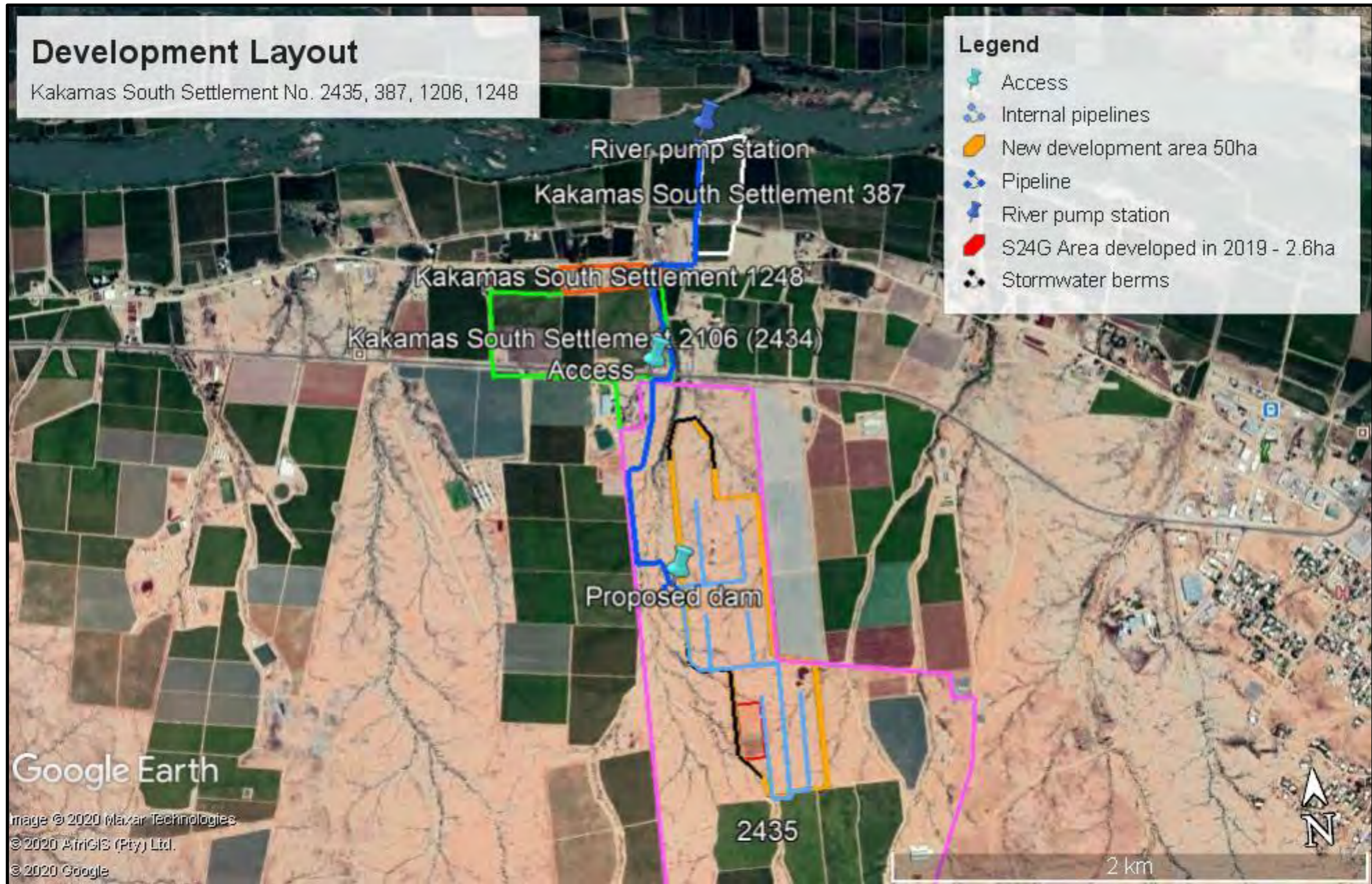




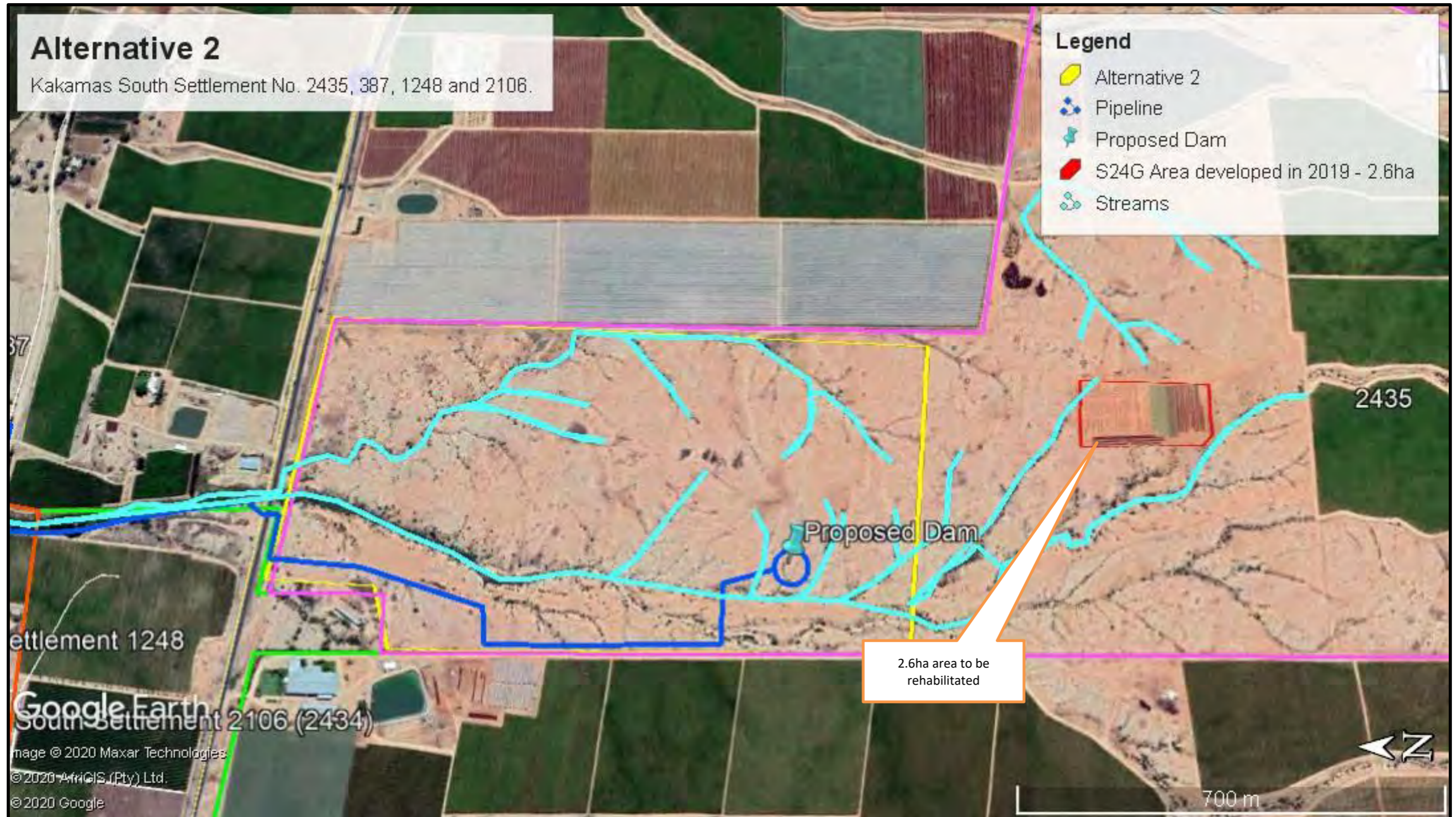


APPENDIX B1: SITE PLANS

ALTERNATIVE 1: PREFERRED ALTERNATIVE



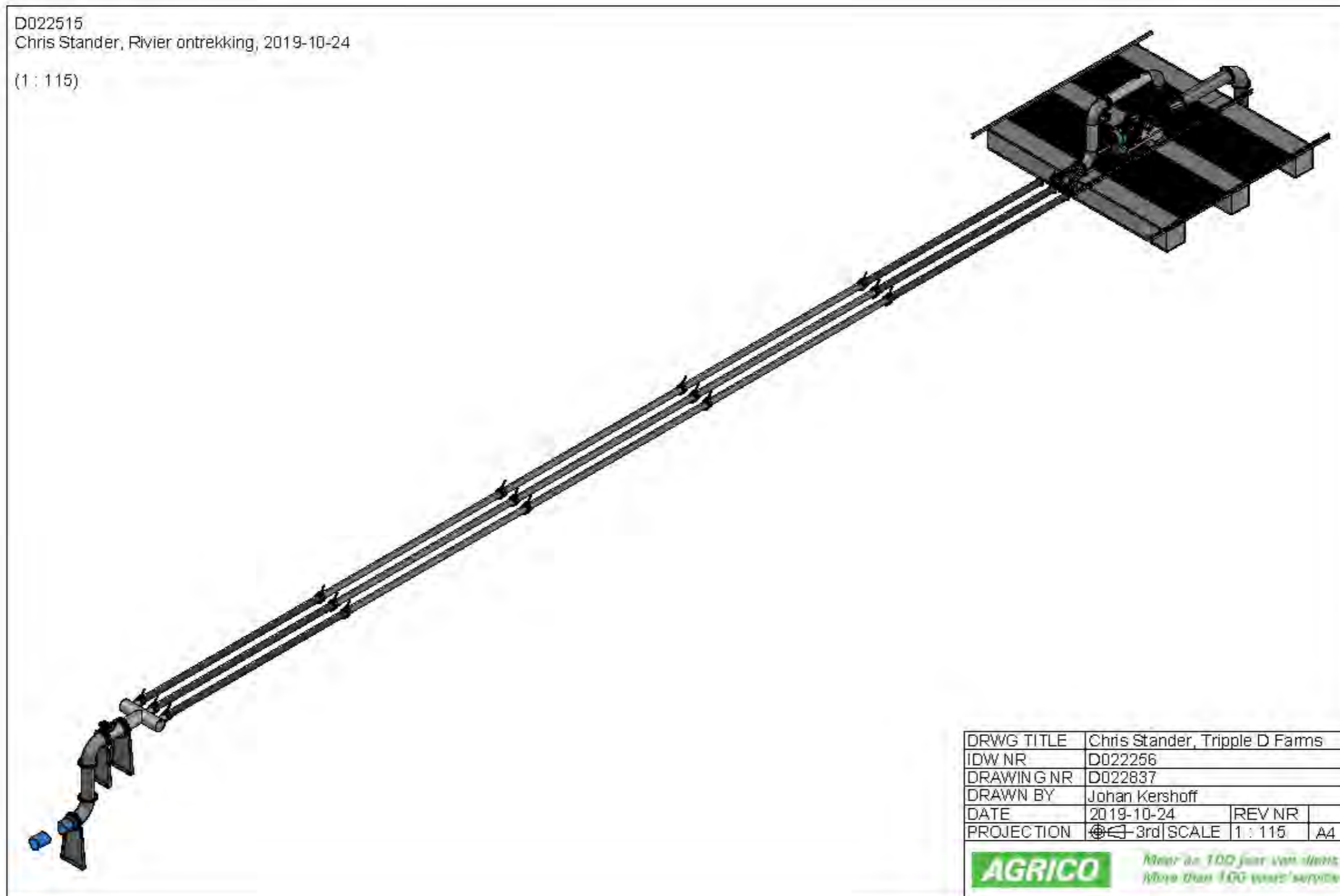




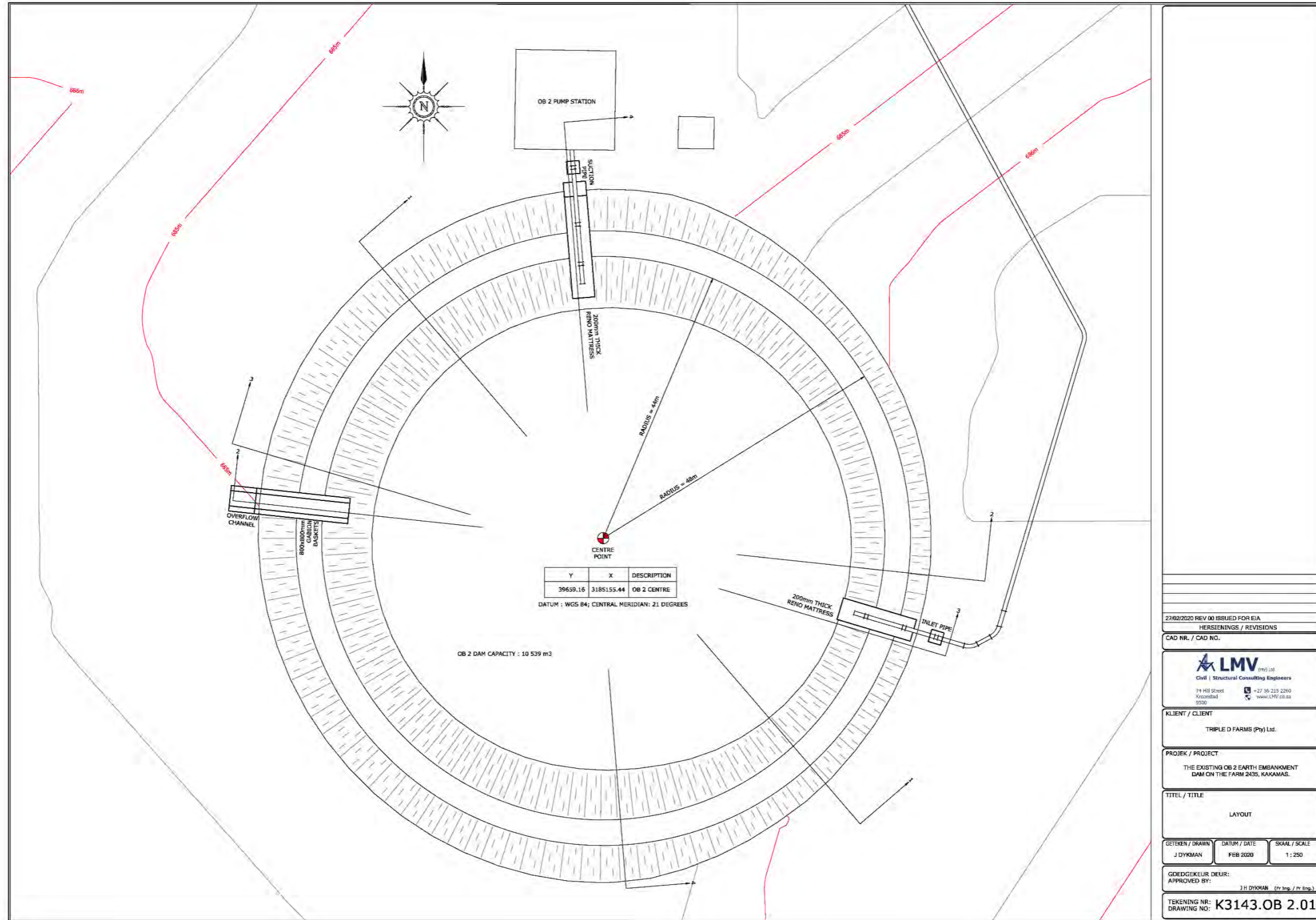


APPENDIX B2: DESIGN LAYOUTS

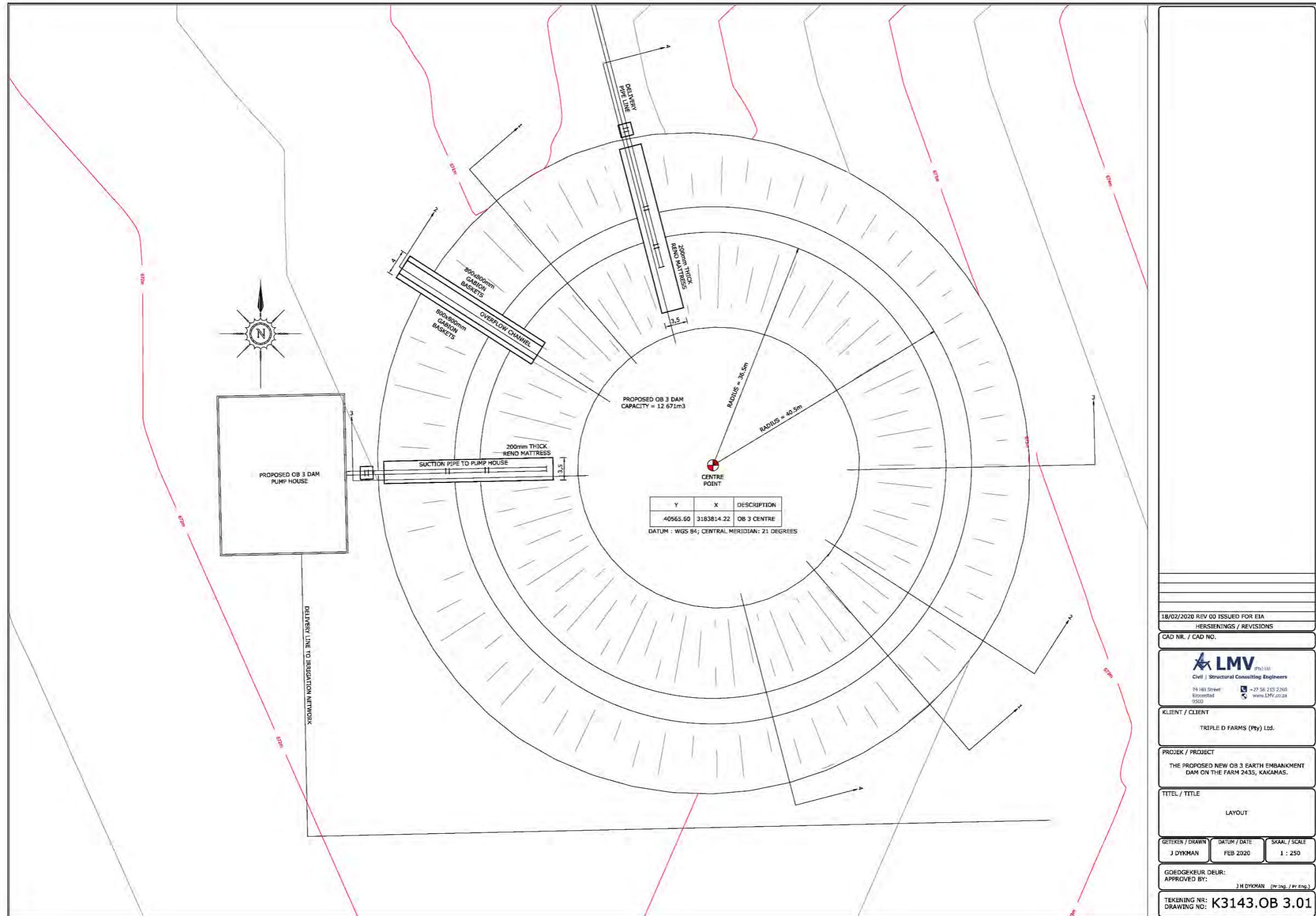
RIVER PUMP



EXISTING DAM LAYOUT



PROPOSED NEW DAM LAYOUT



## APPENDIX C: CONSENT USE



**APPENDIX D1: HISTORICAL PHOTOGRAPHIC IMAGE**

Google Earth 2003

PLEASE NOTE THE EXISTING DEVELOPMENT ON THE SITE WAS CONDUCTED UNDER AN EXISTING EIA, Ref: NC/BA/SIY/KAI!/KAK1/2010 ISSUED 20 APRIL 2011.





Google Earth 2006





Google Earth 2010





**APPENDIX D2: SITE PHOTOGRAPHS**



Shrubland on site



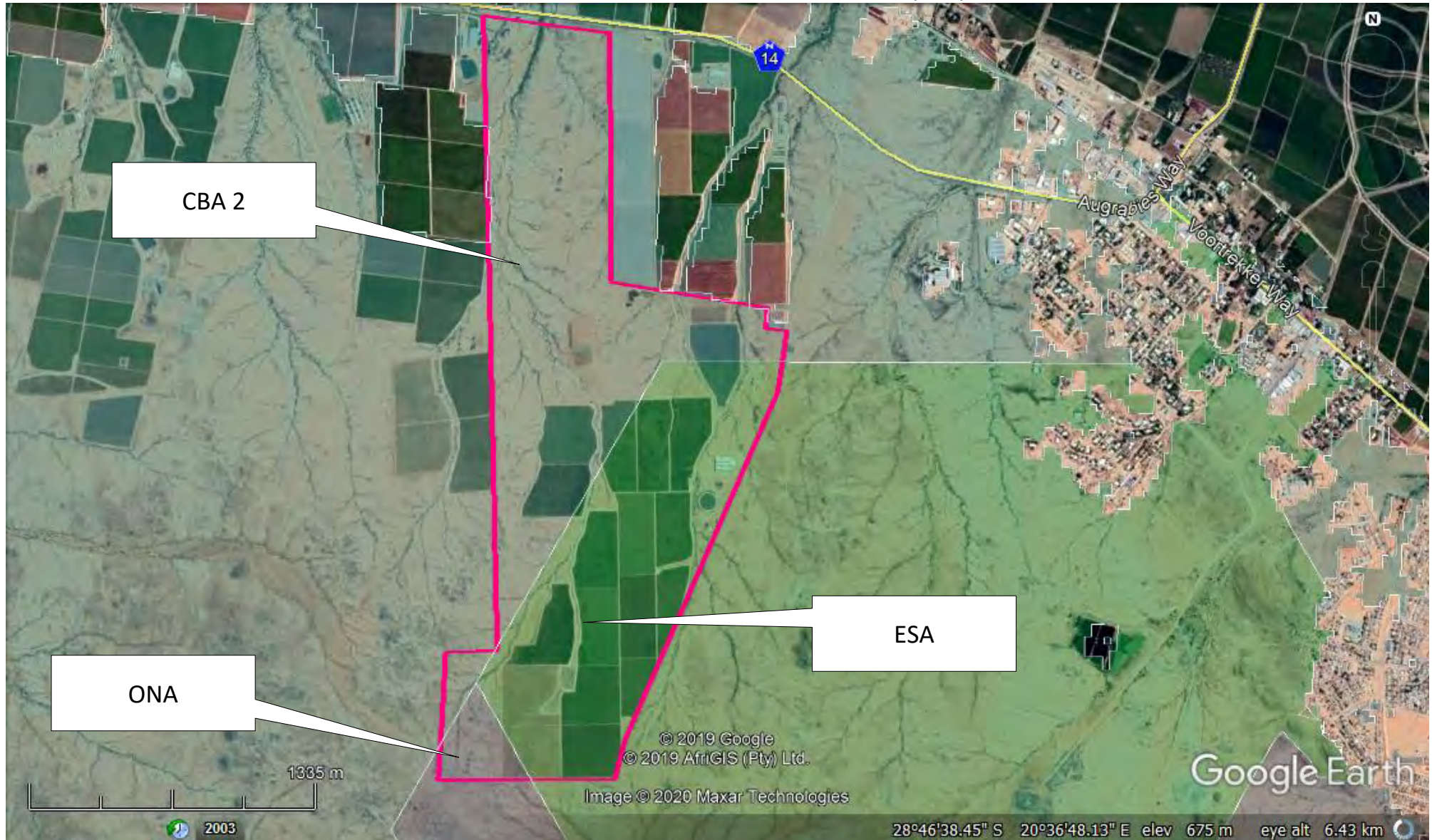
Very sparse shrubland



One of the small rocky outcrops towards the south of the site.



APPENDIX D3: CBA 2 AND ESA LOCATED ON REMAINDER OF KAKAMAS SOUTH SETTLEMENT 2435, 387, 1248 AND 2106



# APPENDIX E1: IRRIGATION RIGHTS FROM KAKAMAS WATER USERS ASSOCIATION



Watergebruikersvereniging  
Water User's Association

Oosthuizenstraat Oosthuizen Street  
Privaatsak x4 Private Bag x4  
Kakamas 8870 Kakamas 8870

Tel (054) 431 0725/6  
Faks/Fax (054) 431 0348  
E-Pos/e e Mail ceokwgv@lsat.co.za



Mnr. G. van Niekerk

08 Januarie 2020



473/D2/1/2261; 473/D2/1/2432; 473/D2/1/1178  
473/D2/1/2435;

**TRIPLE D FARMS (PTY) LTD**  
**Posbus 537**  
**Kakamas**  
**8870**

## **KAKAMAS WATERGEBRUIKERSVERENIGING. NAVRAAG MET BETREKKING TOT WATERGEBRUIKSREGTE OP PERSELE 2261,2432 , 1178 EN 2435. KAKAMAS - SUID NEDERSETTING.**

U e-pos gedateer 08 Januarie 2020 het betrekking.

Onderstaande tabel toon gegewens soos deur u versoek. Die gegewens was ten tye van u navraag korrek maar sou u in die onlangse verlede aansoek gedoen het vir wysigings , kan dit wees dat die wysigings nog nie afgehandel is nie en sal dit ook nie as sodanig weergegee wees nie.

Perseelnommer	Maksimum moontlike hektare	Kanaal hektaar	Rivier hektaar
Kakamas – Suid 2261	0.00	0.00	0.00
Kakamas – Suid 2432	0.00	0.00	0.00
Kakamas – Suid 1178	0.00	0.00	0.00
Kakamas – Suid 2435	153.50		153.50
<b>TOTAAL</b>	<b>153.50</b>	<b>0.00</b>	<b>153.50</b>

(\* ) Geliewe kennis te neem dat die gebruiksreg van elke individuele eiendom as 'n volume (kubieke meter) teen elke eiendom , soos aangedui in bostaande tabelle geregistreer is. Die geregistreerde volume van elke eiendom word dus bereken deur die aantal hectare te vermenigvuldig met die kwota van 15 000 m<sup>3</sup> water per jaar.

Registrasie van bogemelde gebruiksregte uit die kanaal sowel as uit die rivier , soos in die tabel hierbo aangedui, is gedurende Oktober 2000 namens u geregistreer in terme van die Nasionale Waterwet ( Wet 36 van 1998) soos gewysig. Geen verpligte lisensiëring is op hierdie stadium van toepassing nie , en slegs in die geval van permanente oordrag van gebruiksregte van een gedeelte grond na 'n ander gedeelte word die ontvanger eiendom gelisensiëer.

Ek vertrou dat u die inligting in orde sal vind en sal graag meer besonderhede verskaf indien dit nodig word.

**HOOF UITVOERENDE BEAMPTE**

APPENDIX E2: WATER USE LICENSE FROM DEPARTMENT OF WATER AFFAIRS

F

E




**water & sanitation**

Department:  
Water and Sanitation  
REPUBLIC OF SOUTH AFRICA

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

**LICENCE IN TERMS OF CHAPTER 4 OF THE  
NATIONAL WATER ACT, 1998 (ACT NO. 36 OF 1998) (THE ACT)**

I, **Margaret- Ann Diedricks**, in my capacity as Director-General in the Department of Water and Sanitation under authority of the powers delegated to me by the Minister of Water and Sanitation, hereby authorise the following water use in respect of this licence.

SIGNED: 

DATE: 11/2/14

LICENCE NO: 14/D73F/A/2693  
FILE NO: 16/2/7/D673/C14

- 1. **Licensee:** Triple D Farms (Pty) Ltd  
**Postal Address:** P.O. Box 537  
Kakamas  
8870
- 2. **Water Use**
  - 2.1 Section 21(a) of the Act: Taking of water from a water resource, subject to the conditions set out in Appendices I and II.
- 3. **Property in respect of which the licence is issued**
  - 3.1 Plot 2261 Kakamas South Settlement
- 4. **Registered owner of the Property**
  - 4.1 Triple D Farms (Pty) Ltd
- 5. **Licence and Review Period**
  - 5.1 This licence is valid for a period of twenty (20) years from the date of issuance and it may be reviewed every five (5) years.

B 04680





51

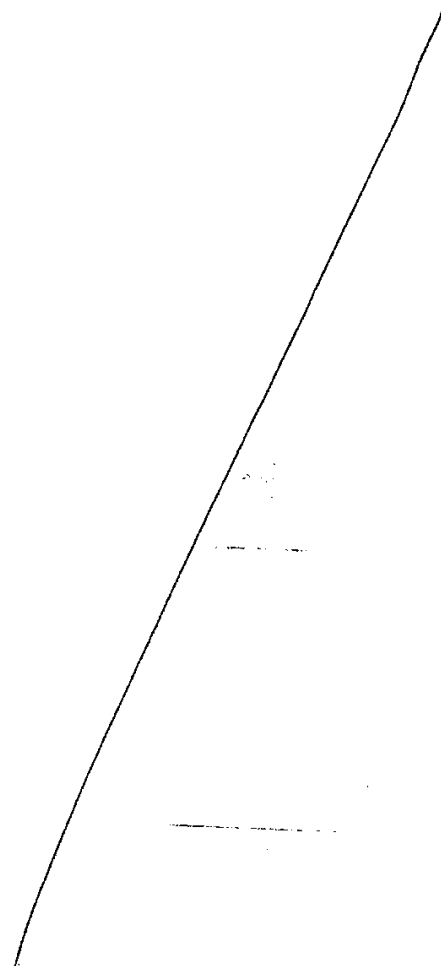
6 **Definitions**

Any terms, words and expressions as defined in the National Water Act, 1998 (Act 36 of 1998) shall bear the same meaning when used in this licence.

"The Provincial Head" means the Head of Provincial Operations: Northern Cape, Department of Water and Sanitation, Private Bag X 6101, Kimberley, 8300.

7. **Description of the activity**

This licence authorize Triple D Farms Pty Ltd to abstract a total volume of 1 702 500 m<sup>3</sup>/a of water from the Orange River, for the purpose of irrigating 113.5 ha of agricultural crops. This water use will be exercised on Plot 2261 Kakamas South Settlement. The geographical location of the abstraction point is S 28° 45' 09" and E 20° ~~38~~ 35 32.9" located in the quaternary catchment D73F. This licence supersedes licence No. 14/D73F/A/1879 issued to Triple D Farms on 02 December 2013, for the abstraction of 978 000 m<sup>3</sup>/a of water for the irrigation of 62.5 ha of agricultural crops, on Plot 2261, Kakamas South Settlement.



VGB



## APPENDIX I

### General conditions for the licence

1. This licence is subject to all applicable provisions of the National Water Act, 1998 (Act 36 of 1998).
2. The responsibility for complying with the provisions of the licence is vested in the Licensee and not any other person or body.
3. The Licensee must immediately inform the Provincial Head of any change of name, address, premises and/or legal status.
4. If the property in respect of which this Licence is issued is subdivided or consolidated, the Licensee must provide full details of all changes in respect of the properties to the Provincial Head of the Department within 60 days of the said change taking place.
5. If a water user association is established in the area to manage the resource, membership of the Licensee to this association is compulsory.
6. The licensee shall be responsible for any water use charges or levies imposed by a responsible authority.
7. While effect must be given to the Reserve as determined in terms of the Act, where a desktop determination of the Reserve has been used in issuance of a licence, when a comprehensive determination of the Reserve has finally been made; it shall be given effect to.
8. When compulsory licensing is implemented for the water resource in respect of which this licence was issued, the water use authorised in this licence could be subject to appropriate reduction.
9. The licence shall not be construed as exempting the licensee from compliance with the provisions of any other applicable Act, Ordinance, Regulation or By-law.
10. The licence and amendment of this licence are also subject to all the applicable procedural requirements and other applicable provisions of the Act, as amended from time to time.
11. The Licensee shall conduct an annual internal audit on compliance with the conditions of licence. A report on the audit must be submitted to the Provincial Head within one month of the finalisation of the audit.
12. The licensee shall appoint an independent external auditor to conduct an annual audit on compliance with the conditions of this licence. The first audit must be conducted within 3 (three) months of the date this licence and a report on the audit must be submitted to the Provincial Head within one month of finalisation of the report.
13. Flow metering, recording and integrating devices shall be maintained in a sound state of repair and calibrated by a competent person at intervals of not more than two years.

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Licence No: 14/D73F/A/2693  
File No: 16/27/D673/C14

Calibration certificates shall be available for inspection by the Provincial Head or his representative upon request.

14. Any incident that causes or may cause water pollution must be reported to the Provincial Head or his/her designated representative within 24 hours.

*[A large diagonal line is drawn across the page, crossing out the content of the clause.]*

*VGB*

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Licence No: 14/D73F/A/2693  
File No: 16/2/7/D673/C14

## APPENDIX II

### Section 21(a): Taking water from a water resource

1. This Licence authorises the abstraction of a maximum quantity of 1 702 500 m<sup>3</sup>/a (One million seven hundred and two thousand five hundred cubic metres per annum) of surface water from the Orange River on Plot 2261 Kakamas South Settlement. The abstraction point shall be located at the position S 28° 45' 09" and E 20° 35' 32.9" quaternary catchment D73.
2. The quantity of water authorised to be taken in terms of this licence may not be exceeded.
3. This licence does not imply any guarantee that the said quantities and qualities of water will be available at present or at any time in the future.
4. The above mentioned volume may be reduced when the licence is reviewed.
5. The Licensee shall continually investigate new and emerging technologies and put into practice water efficient devices or apply technique for the re-use of water containing waste, in an endeavour to conserve water at all times.
6. The Licensee shall install and monitor appropriate water measuring devices to measure the amount of water abstracted, received and/or consumed, as applicable to the infrastructure. The Licensee shall ensure that all measuring devices are properly maintained and in good working order and must be easily accessible. This shall include a programme of checking, calibration, and/ or renewal of measuring devices. All water taken from the resource shall be measured, recorded and reported as follows:
  - 6.1 The daily quantity of water taken must be metered or gauged and the total recorded at the last day of each month; and
  - 6.2 The Licensee shall keep record of all water taken and a copy of the records shall be forwarded to the Provincial Head on or before 25 January and 25 July of each year.
7. No water taken may be used for any purposes other than intended in this licence, without written approval by the Minister or his/her delegated nominee.
8. Notices prohibiting unauthorised persons from entering the certain areas, as well as internationally acceptable signs indicating the risks involved in case of an unauthorised entry must be displayed along the boundary fence of these areas.
9. The Department accepts no liability for any damage, loss or inconvenience, of whatever nature, suffered as a result of:
  - 9.1 shortage of water;
  - 9.2 inundations or flood;
  - 9.3 siltation of the resource; and

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5.4

9.4 required reserve releases.

10. The Licensee must establish a programme of formal Information Management System, which maintains a database on water supply, distribution and delivery infrastructure.
  11. The Licensee shall establish and implement a continual process of raising awareness amongst itself, its workers and stakeholders with respect to Water Conservation and Water Demand Management initiatives.
  12. The Licensee shall report on an annual basis in a format approved by the Provincial Head:-
    - 12.1 Details of crops
    - 12.2 Irrigation system types
- The record mentioned in Clause 12 shall be submitted to the Provincial Head annually.
13. The Licensee shall appoint and make use of suitable qualified irrigation system designers for the design and installation of irrigation systems which shall be registered with South African Irrigation Institute.
  14. If the water use authorised in this licence is not fully exercised within 3 (three) years of issuance, the licence may be terminated or amended accordingly. Upon commencement of the water use, the Licensee must inform the Provincial Head in writing.
  15. The Licensee must submit an audited financial statement to the Provincial Head once per year, for the full duration of this licence. Based on the annual turnover of the activity in respect of which this licence is issued, the Delegated Authority may direct the Licensee to contribute to the need to redress the results of the past racial and gender discrimination.

[END OF LICENCE]

NGB

## APPENDIX E3: SANRAL APPLICATION

Reference: W11/1/3-14/2-2      Fax Number: +27 (0) 21 910 1699  
Date: 16 March 2018      Direct Line: +27 (0) 21 957 4600  
Email: [runkelc@nra.co.za](mailto:runkelc@nra.co.za)      Website: [www.nra.co.za](http://www.nra.co.za)



Mr PT Dykman  
Triple D Farms  
PO Box 357  
**KAKAMAS**  
8870

e-mail: [piet@ddd farms.net](mailto:piet@ddd farms.net)

Dear Mr Dykman

### **NATIONAL ROUTE 14 SECTION 2: PROPOSED PIPELINE CROSSING AT KM 127,95E KAKAMAS, BY WAY OF HALF WIDTH EXCAVATION: SERVICE OWNER – TRIPLE D FARMS**

Thank you for your application dated 8 February 2018 with accompanying detail design.

The South African National Roads Agency SOC Limited (SANRAL) approved your application on 8 March 2018 in terms of Section 48 of The South African National Roads Agency Limited and National Roads Act, 1998 (Act 7 of 1998), subject to the following conditions:

#### **1. Installation and Maintenance of Services**

- 1.1 The 2 X 600mm Ø concrete pipes as conduit (sleeves) to allow a 450mm Ø galvanized steel pipe at km 127,95E shall be installed as indicated on drawing no 33357-114-03 A, IC 33357-119-01 V1 and 33357-114-02 C
- 1.2 The concrete pipes must extend the full width of the road reserve and all manholes must be situated outside the road reserve on private land. The top covers of all the manholes shall be level with the natural ground level.
- 1.3 The pipes may be installed in open trench on condition that no excavation is left open after working hours and during the night as well as over weekends. The Consultant must submit a work programme to SANRAL before the start of the work.
- 1.4 No work within the national road shall be executed prior to consultation with the Route Manager concerned, Ms Claudia Jannetjies (Cell no 078 675 8971). Full time site supervision at all times during installation must be provided by the Consultant. Details of the civil engineer registered with ECSA who shall supervise the execution of all work within the national road reserve, must be provided and approved by SANRAL.
- 1.5 Traffic Accommodation shall be as indicated on the attached drawing no and IC 33357-119-01 V1 and arranged under supervision of the Route Manager.
- 1.6 The installation of the pipes culvert shall be undertaken by a reputable contractor with a CIDB grading. The CIDB certificate must be provided to SANRAL. The appointment of the contractor shall be made in liaison with SANRAL.

Western Region 1 Havenga Street, Oakdale, Bellville, 7530 | Private Bag X19, Bellville, South Africa, 7535 | Tel +27 (0) 21 957 4600 Fax +27 (0) 21 910 1699  
Email [info@sanral.co.za](mailto:info@sanral.co.za) | Visit us at [www.sanral.co.za](http://www.sanral.co.za)

Directors: Mr R Morar (Chairperson), Mr S Macozoma (CEO), Ms A Halstead, Mr C Hlabisa, Ms Z Kganyago, Dr A Lawless, Ms D Mashile-Nkosi, Mr M Matete | Company Secretary: Ms AA Mathew

Reg. No. 1998/009584/30

Page 1 of 3

- 1.7 The applicant must provide all the necessary road signs during the execution of the work and he must ensure the safety of all the workers as well as the road users.
- 1.8 The applicant must supply SANRAL with the As-Built test results at the completion of the works.
- 1.9 The applicant must re-instate the road reserve to the satisfaction of the Regional Manager.
- 1.10 Any road reserve fence damaged during construction must be replaced to the satisfaction of the Regional Manager.
- 1.11 The applicant shall undertake to maintain the water pipe at all times at his own cost and shall take all necessary precautions to ensure the safety of road users.
- 1.12 All work shall be carried out to the satisfaction of and subject to the requirements of the Regional Manager.

## **2. Cost and Indemnity**

- 2.1 SANRAL shall not be liable for any expenditure in connection with the water pipe and shall not be responsible or liable for any financial expenditure or loss in the event of SANRAL ordering the removal or the shifting or the relocation of anything related to this permission.
- 2.2 The applicant shall indemnify SANRAL against, and hold it harmless from, any claim or damage which may be instituted or suffered by any person, including legal costs incurred, as a result of:
  - the establishment of the water pipeline or any other works established by the applicant
  - any failure by the applicant to comply with any of the conditions herein or to maintain properly and render safe anything whatsoever to which this permission relates, or other works
  - or as a result of any damage to such thing or works, by whomsoever caused.
- 2.3 SANRAL shall not be liable for any loss or damage suffered by the applicant as a result of anything which may be done in connection with road construction or road maintenance or by any action whatsoever.

## **3. Notification of Commencement and Completion**

The applicant shall advise the Regional Manager of SANRAL in writing at least fourteen (14) days prior to the commencement of the work or by other agreed notice period. The Regional Manager shall also be advised in writing of the completion date as soon as possible, but not later than 14 days after completion of the work.

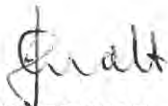
**4. Acceptance of Conditions**

Any action taken by the applicant in terms of this approval shall be regarded as an acceptance of and compliance with the aforementioned conditions including the indemnity.

**5. Additional Legal Requirements**

- 5.1 This approval shall bind any successor-in-title to the land to which this approval relates and he shall agree in writing to these wayleave conditions.
- 5.2 This approval shall not exempt the applicant from the provisions of any other Act.

Yours Sincerely



**JC VAN DER WALT**  
**REGIONAL MANAGER**

cc. Messrs S Wessel & C Jannetjies, Bvi – [sydneyw@bviwc.co.za](mailto:sydneyw@bviwc.co.za) & [claudiaj@bvi.co.za](mailto:claudiaj@bvi.co.za)  
Mr G Meiring, Bvi – [gertm@bvinc.co.za](mailto:gertm@bvinc.co.za)

C:/N14-2 PROP WATERPIPE CROSS AT KM 126,95 TRIPLE D FARMS



**SANRAL  
METHOD STATEMENT No.1**

**PROPOSED IRRIGATION PIPE CROSSING OF NATIONAL ROUTE N14 SECTION 2  
KM126.95**

<b>PROJECT REFERENCE</b>	SANRAL Wayleave Application for Triple D Farms : N14-2 km 126.95	PROJECT NO. 33357
<b>Project Description</b>	Triple D Farms wish to cross the N14 national road with a 450mm dia irrigation water pipe from the Orange River to their property located on the northern side of the N14.	
<b>Client</b>	Triple D Farms (Mr Piet Dykman)	
<b>Consulting Engineers</b>	BVI Consulting Engineers Upington Northern Cape Province	
<b>Authorizing Authority</b>	South African National Roads Agency Ltd : Western Region	
<b>Method Statement Submitted By</b>	GH Meiring Pr.TECH Eng	
<b>Date submitted for approval</b>	2018/03/20	

**PROPOSED ACTIVITY:**

Preparation and construction of an irrigation pipeline under the N14 national road

**WHERE ARE THE WORKS TO BE UNDERTAKEN:**

The works will be undertaken at the following position referenced from the nearest SANRAL road marker:

- N14-2 km126.95

**WHAT WORK TO BE UNDERTAKEN:**

- Notify SANRAL regional office of intention to commence with works.
- Notify SANRAL Route Manager of intention to commence with works.
- Setting up of Traffic Accommodation signage and STOP/GO arrangement
- Setting up of Flagmen and STOP/GO Control personnel
- Ensure that Soil Laboratory Technician and testing equipment is on site to conduct compaction control of layer works as reinstatement takes place. Tests to be conducted for each layer placed.
- Preparation Works: Marking out of proposed excavation and cutting of pavement layer.
- Excavation through half width of existing road layerworks to a depth of 1 800mm below road surface level.
- Placing, levelling and compaction of sand bedding 200mm thc for concrete pipes.
- Installation of two parallel 600mm diameter precast concrete pipe sleeves on sand bedding.
- Placing, levelling and compaction of sand blanket to a depth of 200mm above concrete pipe crown.
- Preparation of a 5% Soil-Cement mixture for main backfill in a concrete mixer
- Placing of 5% Soil-Cement main backfill 500mm thc above pipe blanket compacted to 93% MOD AASHTO.
- Reinstatement of C3 Cement Stabilized Subbase 150mm thc compacted to 95% MOD AASHTO
- Reinstatement of Base Layer comprising G2 material compacted to 88% Bulk Relative Density
- Repeat the above process on remaing width of roadway.
- Reinstatement of road pavement with 19mm Cape Seal (2 layers of slurry)
- Immediate site clean-up after construction has been completed.
- Excavation of new pipe trench from road reserve fence up to road shoulder 800m wide x 2.50m deep.
- Placing of sand bedding layer in trench bottom 200mm thc.
- Laying of 450mm dia uPVC pipes to within 1m of road formation.
- Excavate an access pit at road shoulder on either side of road to expose pre-layed 600mm concrete conduit.
- Assembly of 450mm diameter flanged galvanized steel pipe and insert steel pipe through concrete sleeve pipe.
- Assemble flanged Galvanized steel S-bends and attach to pipe inserted through the sleeve on either side.

- Installation of isolating valve onto flanged S-Bend on either side of the road.
- Lengthen pre-layed 450mm uPVC pipeline from farm into road reserve on either side of the road.
- Ensure that uPVC pipe lines up with pre-inserted galvanized steel pipe ends.
- Jointing of uPVC Pipe with galvanized S-Bend on either side of the road using uPVC flange adaptors.
- Place a 160mm uPVC pipe vertically over each valve to serve as spindle extension guide.
- Top of valve spindle extension to terminate inside a Bell Toby to allow access after backfilling.
- Placement of sand blanket over uPVC pipe as well as exposed galvanized steel S-Bends on either side of the road..
- Backfilling of the pipe trench on either side of the road with excavated material. Backfilling to be placed in 300mm thc layers and compacted to 90% MOD AASHTO density in area within the road reserve.
- Bell Toby to be cast into concrete base 400mm x 400mm x 200mm thc on either side of road.
- On completion, road reserve to be graded to original slope and level and all debris removed.
- Removal of Traffic Accommodation signage and STOP/GO arrangement from road reserve.
- Request inspection of Works by SANRAL Route Manager on completion of work.
- Notify SANRAL Regional Office of completion of works.
- Engineer to keep a photographic record of works progress as well as compaction test results for each road layer placed for record purposes.

**ENVIRONMENTAL ASPECTS:**

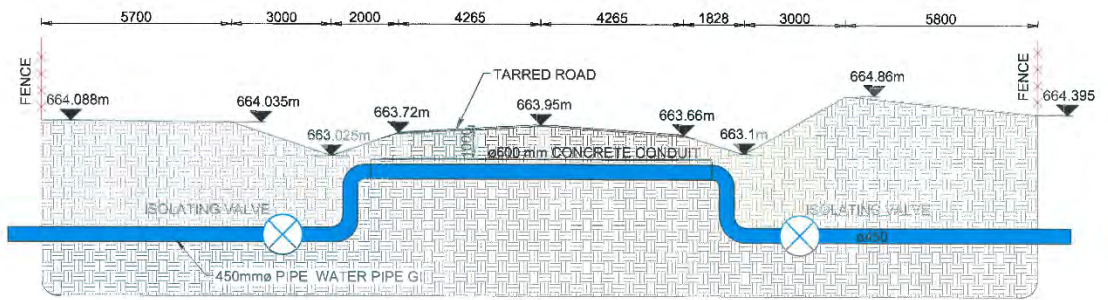
- Firefighting equipment will be available – one fire extinguisher and fire beaters will be on site while work is being done.
- No open fires will be permitted on site or anywhere within the immediate and surrounding environment.
- No smoking will be permitted on site or anywhere within the immediate and surrounding environment.
- No flammable fuels will be transported to site and/or allowed to be placed within road reserve.
- All concrete spills from concrete works will immediately be gathered and removed off site.
- A refuse bin will be available on site.
- Toilet facilities will be on site while work is being completed.
- Drip trays will be available in case of any oil/fuel leaks.
- Final rehabilitation will be planned to be done when all works are completed within the road reserve.

**START AND END DATE OF THE WORKS FOR WHICH THE METHOD STATEMENT IS REQUIRED:**

**Start Date: Within 2 weeks of receipt of Wayleave**

**End Date: Within 2 days after commencement**

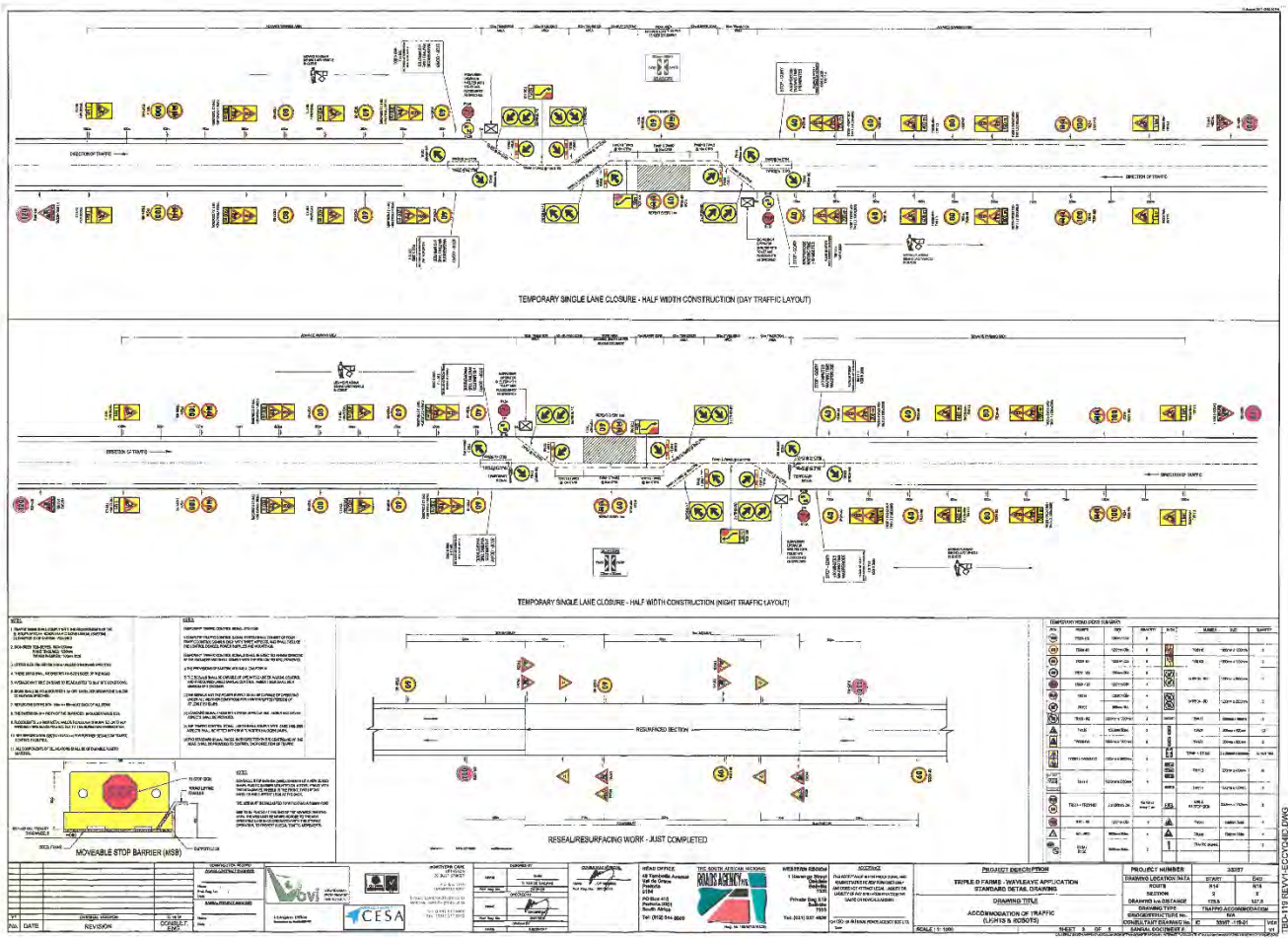




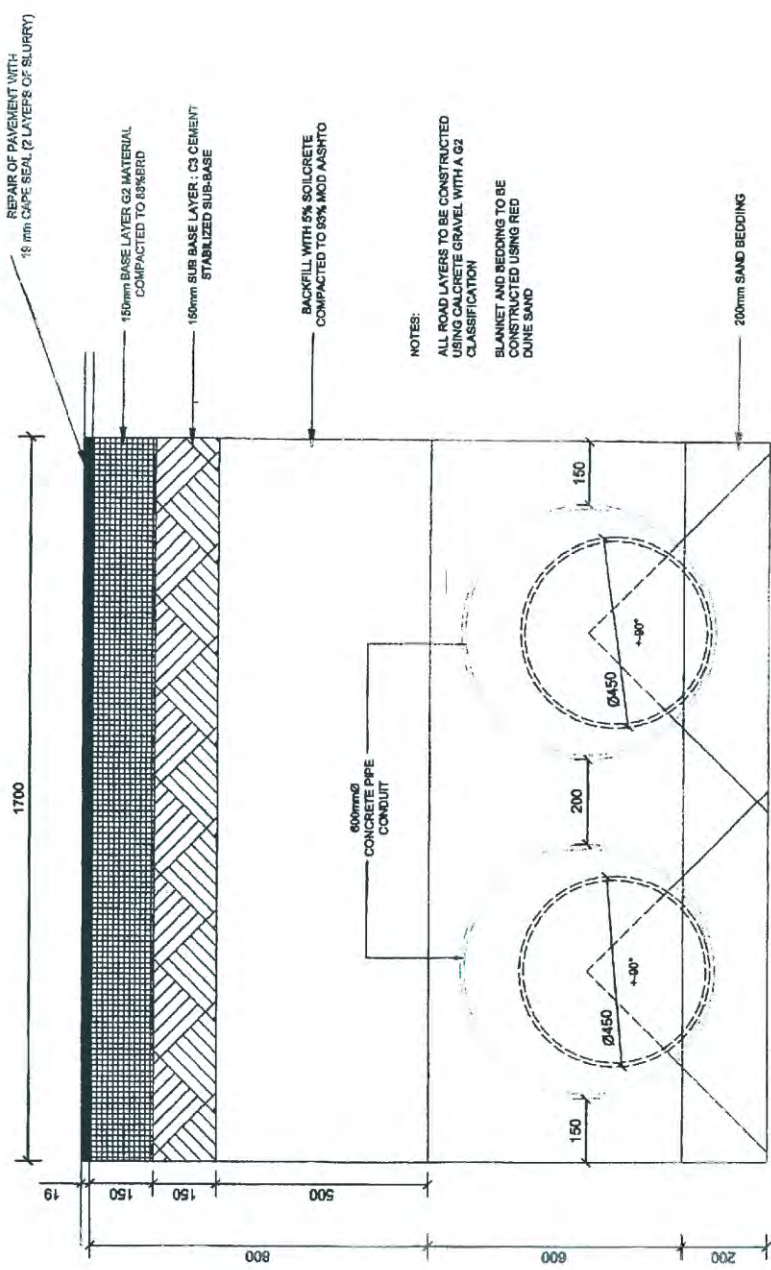
TYPICAL SECTION

PRELIMINARY

ISSUE NO: 03 MAR 2018 X PRELIMINARY INFO ONLY FOR TENDER FOR CONSTRUCTION AS-BUILT	DRAWING NO: A3 PROJECT NO: A	DATE: 03 MAR 2018 BY: [Signature] CHECKED: [Signature]	REVISION DESCRIPTION: 1. [Blank] 2. [Blank] 3. [Blank]	CLIENT: TRIPLE D FARMS MR P. DYKMAN	 bvi CONSULTING ENGINEERS Civil, Structural & Electrical Engineers, Environmental & Project Management	PROJECT: TRIPLE D FARMS	APPROVED BY: [Signature] 2077012 sb/ve REG. NO. 12345
TYPICAL ROAD CROSS SECTION						PLAN NUMBER: 93357-144-03	DATE ISSUED: 05 Mar 2016



10314 001



NOTES:  
 ALL ROAD LAYERS TO BE CONSTRUCTED USING CALCRETE GRAVEL WITH A G2 CLASSIFICATION  
 BLANKET AND BEDDING TO BE CONSTRUCTED USING RED DUNE SAND

SECTION THROUGH PROPOSED EXCAVATION  
 AT N14-2 126.955E  
 SCALE 1:10

PROJECT: TRIPLE D FARMS CLIENT: MR. P. DYKMAN		APPROVED BY: <i>[Signature]</i> ENGINEER/REGULATORY: <i>[Signature]</i> SCALE: E:10 DRAWN: <i>[Signature]</i> CHECKED: <i>[Signature]</i> DATE: 13 MAR 2018	
DRAWING TITLE: SECTION THROUGH PROPOSED EXCAVATION AT N14-2 126.955E		PROJECT NO: 33357-114-02 SHEET NO: C DATE: 13 MAR 2018	
TRIPLE D FARMS MR. P. DYKMAN		CESA COUNCIL OF ENGINEERS AND SURVEYORS SOUTH AFRICA	
DATE: 13 MAR 2018 DRAWING NO: A3 REV: A		THE DRAWING IS FOR INFORMATION ONLY AND IS NOT TO BE USED FOR CONSTRUCTION WITHOUT THE WRITTEN PERMISSION OF THE ENGINEERING FIRM.	
X PRELIMINARY INFO ONLY FOR TENDER FOR CONSTRUCTION AS-BUILT		SECTION:	





Reference: 11/3/3-14/2-6  
Date: 23 November 2018  
Email: dekokckr@nra.co.za

Fax Number: +27 (0) 21 910 1699  
Direct Line: +27 (0) 21 957 4600  
Website: [www.nra.co.za](http://www.nra.co.za)

Mr Libo van Aswegen  
Phatshoonehenney Attorneys  
PO Box 153  
BLOEMFONTEIN  
9301

Email: [libo@phinc.co.za](mailto:libo@phinc.co.za)

Dear Mr van Aswegen

**NATIONAL ROUTE 14 SECTION 2: PROPOSED SUBDIVISION OF LOT 2106 AND LOT 1178, KAKAMAS**

Thank you for your email dated 21 November 2018.

The South African National Roads Agency SOC Limited (SANRAL) herewith confirm that the Notarial Deed of Servitude K672/2005S serves as proof that the request for a servitude road over Remainder 2106 in favour of Lot 2143 has been complied with and no further servitude road is required to be registered.

Yours sincerely

Mrs R de Kock  
**STATUTORY CONTROL**

ID4580388

Head Office 48 Tambotie Avenue, Val de Grace, Pretoria, 0184 | PO Box 415, Pretoria, South Africa, 0001 | Telephone +27 (0) 12 844 8000 Fax +27 (0) 12 844 8200  
Email [info@sanral.co.za](mailto:info@sanral.co.za) | Visit us at [www.sanral.co.za](http://www.sanral.co.za)

Directors: Mr T Mhambli (Chairperson), Mr S Mcozima (CEO), Mr R Haswell, Ms L Madlala, Mr T Matosa, Mr C Hlabisa, Ms A Halstead | Company Secretary: Ms A Mathew

Reg. No. 379034210942L. An agency of the Department of Transport.



## APPENDIX F: PUBLIC PARTICIPATION PROCESS

### APPENDIX F2.1: I&AP DATABASE

#### AUTHORITIES

	Erf	Surname	Initials	Representing	Tel	Fax	email	Post Box	Town	Code	Reg
1		Lategan	J.G.	Kai Garib Municipality: Municipal Manager	054 431 6328	054 461 6401	mm@kaigarib.gov.za	Private Bag X6	Kakamas	8870	L
2		Bock	B.M.	Kai Garib Municipality: Ward Councillor Ward 3	054 431 6328	054 461 6401	mm@kaigarib.gov.za	Private Bag X6	Kakamas	8870	L
3		October	L	Department of Agriculture and Land Reform	054 461 6700	054 461 6401		P. O. Box 18	Springbok	8240	L
4		White	C	Department of Water Affairs	082 887 8866/ 054 338 5819		<a href="mailto:SchwartzC@dws.gov.za">SchwartzC@dws.gov.za</a> <a href="mailto:ThebeE@dws.gov.za">ThebeE@dws.gov.za</a>	Private Bag X5912	Upington	8800	L
5		De la Fontaine	S	Nature Conservation	054 338 4800		<a href="mailto:sdelafontaine@gmail.com">sdelafontaine@gmail.com</a>	Evelina De Bruin (former Provincial) Building, Corner of Rivier & Nelson Mandela Road	Upington	8800	L
6		Abrahams	N	Department of Transport: Environmental Coordinator	021 957 4602	021 910 1699	<a href="mailto:Abrahamsn@nra.co.za">Abrahamsn@nra.co.za</a>	Private Bag X19, Sanlamhof	Belville	7535	L
7		CEO		Kakamas Water Users Association	054 431 0725/6		<a href="mailto:marinakwgv@isat.co.za">marinakwgv@isat.co.za</a>				L
8		Abrahams	A	Department Water and Sanitation				28 Central Road, Beaconsfield,	Kimberley	8310	L
9		Mans	J	Forestry and Fisheries	054 338 5909		<a href="mailto:jacolinema@daff.gov.za">jacolinema@daff.gov.za</a>	P. O. Box 2782	Upington	8800	L
10		Tshimakwane	T	DENC: S24G Section	0798744244		<a href="mailto:LekweneT@ncpg.gov.za">LekweneT@ncpg.gov.za</a>	90 Long Street Sasko Building	Kimberley	8301	L
11	2329, 2330, 2328	Abrahams	N	SANRAL			<a href="mailto:abrahamsn@nra.co.za">abrahamsn@nra.co.za</a>	Private Bag X19	Belville	7535	L

I&AP's

	Erf	Surname	Initials	Representing	Tel	Fax	email	Post Box	Town	Code	Reg
1		Van der Heever	T	Chargo Trust	054 441 0291		admin@chargo.net	P. O. Box 624	Kakamas	8870	L
2	388, 1053, 2235, 1247	Van Zyl	K	Loveren Van Zyl Boerdery	0827827918		loveren@lantic.net	P. O. Box 369	Kakamas	8870	L
3	387, 386, 1248, 2106	Koen	E	Die Heuwel Boerdery (SERVITUDE APPLICANT)	0824577387		elmarie@dieheuwel.co.za	P. O. Box 137	Kakamas	8870	L
4	2432	Dykman	P	Triple D Farms (APPLICANT)			stephan@DDDFarms.net				L
5	1661, 1785	Saayman		Ebeneaser Boerdery Trust	054 431 0520						L
6		Geyser	C	EnviroAfrica	083 600 8882		clinton@enviroafrica.co.za	P.O. Box 5367	Helderberg	7135	R



## **Appendix F2.2.2: Advertisement**

To be included in final S24G.

## **APPENDIX F2.3: NOTICE BOARDS**

To be included in final S24G.



## **APPENDIX F2.4: PROOF OF NOTICES SENT**

Will be included in the final Assessment Report.

## **APPENDIX F2.5: NOTICES SENT**

### **Appendix F2.5.1: Notices**

Will be included in the final Assessment Report.

**APPENDIX F2.6: COMMENTS RECEIVED**  
**Appendix F2.6.1 Comments from DENC**

Will be included in the final Assessment Report.

## **Appendix F2.6.2 Comments received**

Will be included in the final Assessment Report.

**APPENDIX F2.7: COMMENTS AND RESPONSES SHEET**

COMMENTS ON DRAFT ASSESSMENT REPORT				
Date	Comments from	Comments received	Response from	Response received



## **APPENDIX H1: ATTENDANCE REGISTER OF MEETING HELD**

Will be included in the final Assessment Report.

## APPENDIX H2: ENVIRONMENTAL MANAGEMENT PROGRAMME



## **DRAFT CONSTRUCTION, OPERATIONAL & MAINTENANCE MANAGEMENT PROGRAMME**

**Rectification of the clearing of land and the construction of vineyards, a dam, pipelines and associated infrastructure on Erf 2435, 387, 1248 and 2106 Kakamas South Settlement, Northern Cape Province.**

**Applicant details:**

Triple D Farms (Pty) Ltd  
Mr P. Dykman  
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**List of abbreviations**

BAR	Basic Assessment Report
CBA	Critical Biodiversity Area
DEA	National Department of Environmental Affairs
DENC	Northern Cape: Department of Environment and Nature Conservation
DWS	National Department of Water and Sanitation
EA	Environmental Authorisation
EAP	Environmental Assessment Practitioner
ECO	Environmental Control Officer



EIA	Environmental Impact Assessment
EIS	Ecological Importance and Sensitivity
ELU	Existing Lawful Use
EMPr	Environmental Management Programme
ESA	Ecological Support Area
ERW	Ecological Release Water
EWR	Existing Water Rights
FEPA	Fresh Water Ecosystem Priority Areas
HWC	Heritage Western Cape
&AP's	Interested and Affected Parties
MAR	Mean Annual Run-off
MMP	Maintenance Management Plan
NFEPA	National Freshwater Ecology Priority Areas
NEMA	National Environmental Management Act, 1998 (Act No. 107 of 1998)
NEM: AQA	National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004)
NEM: ICMA	National Environmental Management: Integrated Coastal Management Act, 2008 (Act No. 24 of 2008)
NEM: WA	National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008)
NHRA	National Heritage Resources Act, 1999 (Act No. 25 of 1999)
PA	Protected Area
PES	Present Ecological Status
PPP	Public Participation Process
RE	Resident Engineer
RP	Responsible Person
SANBI	South African National Biodiversity Institute
V&V	Validation and Verification
WCBSP	Western Cape Biodiversity Spatial Plan
WMA	Water Management Area
WULA	Water Use Licence Application
WUL	Water Use License

## Definitions

*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 shall 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.

For the purposes of this Specification the following definitions shall apply (please note some definitions may not apply to this EMP):

*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.

*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. 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).

See Integrated Environmental Management.

*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.

*Sustainability* - Being able to meet the needs of present and future resources.

*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.

*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.

**Requirements as stated in GN 982 Environmental Impact Assessment Regulations, 2014, Appendix 4 and corresponding section**

Requirement	Section
1. (1) An EMPr must comply with section 24N of the Act and include-	
(a) details of (i) the EAP who prepared the EMPr; and (ii) the expertise of that EAP to prepare an EMPr, including a curriculum vitae;	Details of EAP, page 10 Appendix G: EAP Curriculum Vitae, page 91
(b) a detailed description of the aspects of the activity that are covered by the EMPr as identified by the project description;	Environmental auditing and monitoring schedule included on page 26
(c) a map at an appropriate scale which superimposes the proposed activity, its associated structures, and infrastructure on the environmental sensitivities of the preferred site, indicating any areas that any areas that should be avoided, including buffers;	Appendix F: Project map, page 90
d) a description of the impact management objectives, including management statements, identifying the impacts and risks that need to be avoided, managed and mitigated as identified through the environmental impact assessment process for all phases of the development including- (i) planning and design; (ii) pre-construction activities; (iii) construction activities; (iv) rehabilitation of the environment after construction and where applicable post closure; and (v) where relevant, operation activities;	Aim and Objectives of the EMPr, page 17 Mitigation measures and management actions included in page 28.
e) a description and identification of impact management outcomes required for the aspects contemplated in paragraph (d);	Proposed Impact Management Actions refers to the outcomes in the table on page 32.
(f) a description of proposed impact management actions, identifying the manner in which the impact management objectives and outcomes contemplated in paragraphs (d) and (e) will be achieved, and must, where applicable, include actions to – (i) avoid, modify, remedy, control or stop any action, activity or process which causes pollution or environmental degradation;	Mitigation measures and management actions included in page 32.  Further detail with regards to the Compliance with Applicable Laws on page 18.



<p>(ii) comply with any prescribed environmental management standards or practices;          (iii) comply with any applicable provisions of the Act regarding closure, where applicable; and          (iv) comply with any provisions of the Act regarding financial provisions for rehabilitation, where applicable;</p>	
<p>(g) the method of monitoring the implementation of the impact management actions contemplated in paragraph (f);</p>	<p>Mitigation measures and management actions included in page 32. Monitoring &amp; Auditing on page 23.</p>
<p>(h) the frequency of monitoring the implementation of the impact management actions contemplated in paragraph (f);</p>	<p>Monitoring &amp; Auditing on page 23. Frequency etc included in table in Proposed Impact Management Actions on page 32.</p>
<p>(i) an indication of the persons who will be responsible for the implementation of the impact management actions;</p>	<p>Aim and Objectives of the EMPr, page 17          Compliance with Applicable Laws, page 18.          Roles and Responsibilities on page 18.</p>
<p>(j) the time periods within which the impact management actions contemplated in paragraph (f) must be implemented;</p>	<p>Proposed Impact Management Actions includes the expected time management on page 32.</p>
<p>(k) the mechanism for monitoring compliance with the impact management actions contemplated in paragraph (f);</p>	<p>Proposed Impact Management Actions includes the mechanism for monitoring and compliance on page 32. The Monitoring &amp; Auditing on page 23.</p>
<p>(l) a program for reporting on compliance, taking into account the requirements as prescribed by the Regulations;</p>	<p>Monitoring &amp; Auditing refers to reporting on compliance on page 23 This is also outlined in section Management Programme – Pre-construction &amp; Construction &amp; Operational on page 28.</p>
<p>m) an environmental awareness plan describing the manner in which-          (i) the applicant intends to inform his or her employees of any environmental risk which may result from their work; and          (ii) risks must be dealt with in order to avoid pollution or the degradation of the environment; and</p>	<p>This is included under page 26.</p>
<p>(n) any specific information that may be required by the competent authority</p>	<p>Appendix G.</p>

**Details of EAP**

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EAP Registrations/Associations:	<p>Pieter -IAIAsa, Pr Eng, SAICE</p> <p>Elanie - IAIAsa</p>	

## 1 Introduction

### Locality:

The proposed property on which the construction of the agricultural development (vineyards) has taken place and will take place is situated on the remainder of Kakamas South Settlement No. 2435. Please note, the property is a consolidation of KSS2261, KS2432 and Re/1178. The proposed pipeline, dam and pump station will be constructed/upgraded on Kakamas South Settlement No. 387, 1248 and 2106.

The farm is situated approximately 4.5 km north-east of the small town of Kakamas in the Northern Cape, along the N14 towards Kakamas (see Figure 1). The site lies south of the Orange River. Small ephemeral streams cross the entire site. The site is currently zoned Agriculture Zone I. The owner of the properties is Triple D Farms (Pty) Ltd, who has appointed GroenbergEnviro (Pty) Ltd as the independent environmental consultant to conduct the necessary environmental authorisation process.



**Figure 1: Locality map of Kakamas South Settlement No. 2435, 387, 2106, 1248.**

### Project Description:

The proposed development triggered the Section 24G process due to the unlawful clearing of vegetation and development within 32 m of a stream that took place without authorisation on Kakamas South Settlement No. 2435.

1. 2016-2017 development:

- Construction took place during 2016/2017 for the infrastructure development associated

- with the cultivation of the vineyards covering approximately 2.6 ha.
- 2.6 ha indigenous vegetation was cleared for the construction to take place.
- The construction took place without authorisation over small ephemeral streams.



**Figure 2: 2.6 ha unlawfully cleared vegetation indicated in orange**

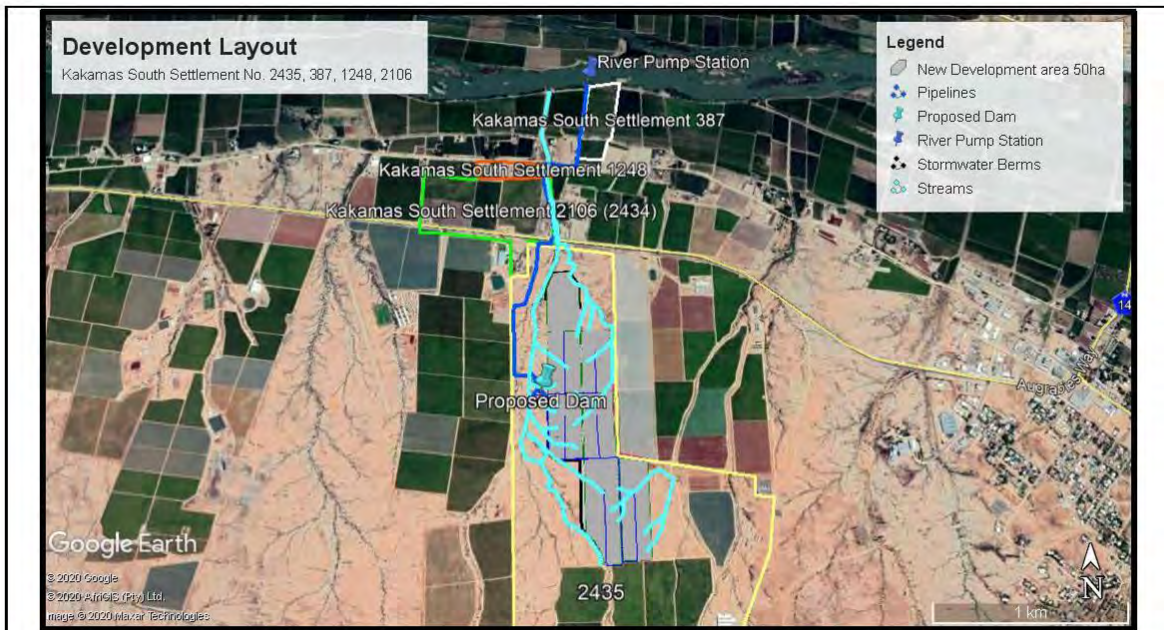
**2. Proposed further developments:**

The proposed development will include:

- the construction of a dam with a volume of 10 539m<sup>3</sup> and pump room.
- An extension of the pump station at the Orange River.
- The development of 50 ha of vineyards. This includes the 2.6 ha constructed illegally.
- A 315 mm uPVC pipeline of about 2.4 km in length from the river to the proposed dam.
- Internal irrigation pipelines.

As a result of this, about 50 ha of indigenous vegetation will be removed from the area. Please see Figure 3.

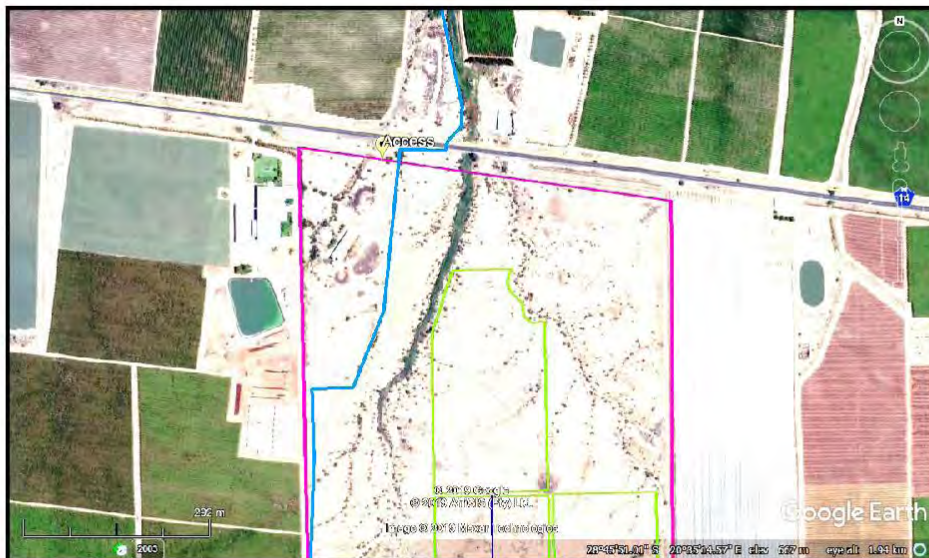




**Figure 3: Proposed development layout**

**Roads:**

Access is gained via a gravel road that gains access via the N14. The internal farm tracks are not surfaced and are composed of compacted earth with no formal stormwater management control structures in place. The low rainfall characteristic of the area negates the need to provide for formal stormwater control.

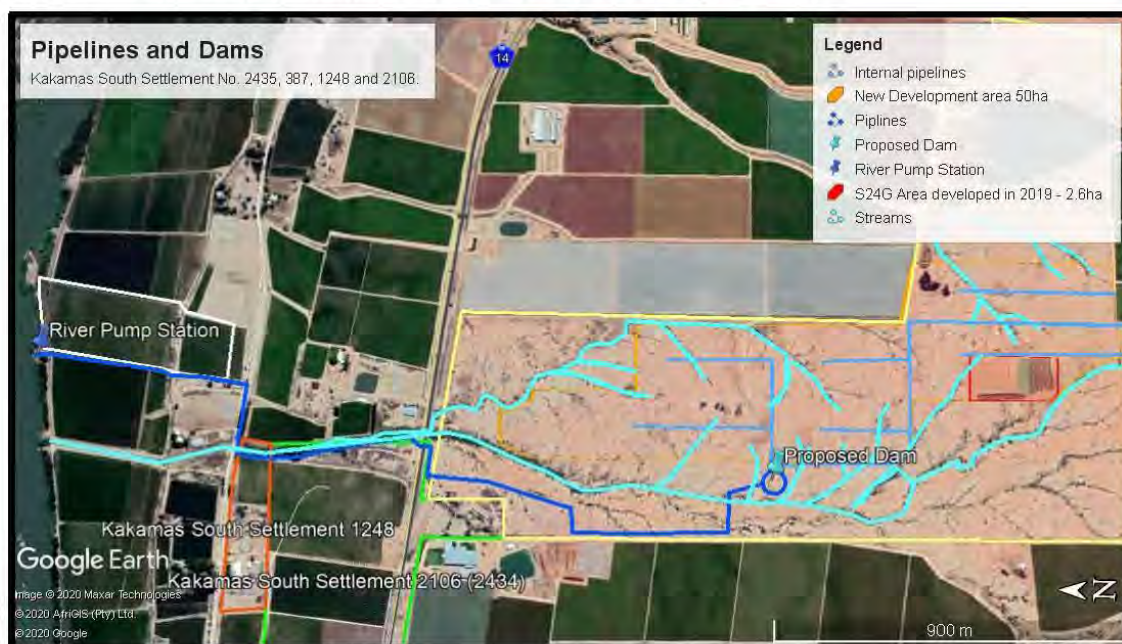




**Figure 4: Access to the property (yellow marker)****Pipelines:**

Water will be required for the drip irrigation for the proposed vineyards. A pipeline will be used to pump water from the Orange River to the proposed dam. From there, other smaller pipelines will be used to distribute the water for irrigation purposes.

Approvals from SANRAL with regards to the crossing over the N14 are currently underway. Find this included in **Error! Reference source not found..** Please see Figure 5 below:

**Figure 5: Pipelines****Water:**

Currently there is an existing License WUL (Ref:14/D73F/A/2693) issued to the Triple D Farms (Pty) Ltd on 01 December 2014 for the taking of 1 702 500 m<sup>3</sup>/annum from the Orange River for the purpose of irrigation on Kakamas South Settlement No. 2261.

This licence replaced a previous licence with reference number 14/D73F/A/1879, dated 02 December 2013, for the taking of 978 000 m<sup>3</sup>/annum for the same purpose on the same property.

The applicant also has an Existing Lawful Use (ELU) from the Kakamas Water Users Association and therefore the total volume of water rights allocated is 2 302 500m<sup>3</sup>/a (153.5ha).

Further details will be available in the WULA in **Error! Reference source not found..**

As part of this application, there will be a Water Use License Application (WULA) for Section 21(c),

and (i) of the National Water Act for the streams that were diverted and crossed as part of the illegal establishment of vineyards. The establishment of the vineyards on Kakamas South Settlement 2435 took place across small sections of the unnamed drainage system that is located on site. The site falls within the Quaternary Catchment Region D73F. The new proposed agricultural development will have an impact on drainage streams that can be regarded as non-perennial watercourses that will flow only if and when rain occurs in the catchment. The Section 21 (c) and (i) is for the construction of a pipeline that will cross over streams or on the banks of the streams on Kakamas South Settlement 387, 1248 and 2106 (see Figure 6).

The application will also include Section 21(b) for the proposed new dam and legalisation of an existing dam.

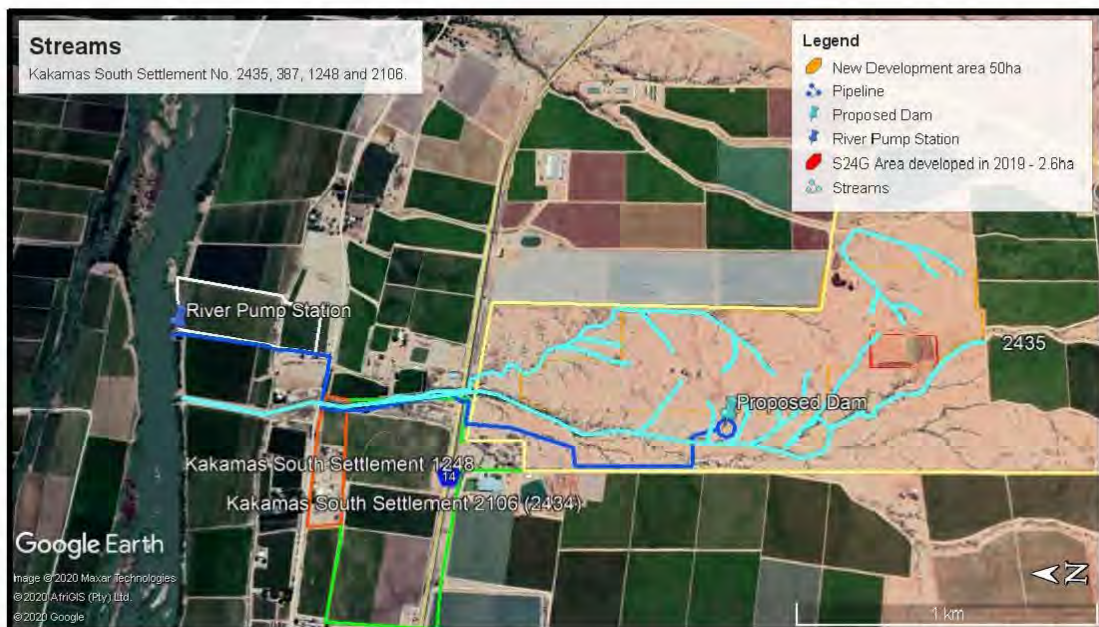


Figure 6: Ephemeral streams/drainage areas

The WULA activities is summarised in the table below for the following water usages:

(b) Storing water	for the storing of water in the new proposed dam.
(c) Impeding or diverting flow of water in a watercourse	for the construction of agricultural areas across ephemeral streams/natural drainage areas.

(i) Altering the bed, banks, course or characteristics of a watercourse	for the construction of agricultural areas across ephemeral streams/natural drainage areas.
---	---

As part of the WULA, an amendment of the existing Water Use License (WUL) will include the new changes and the change in property details.

Electricity:

There are existing electricity connections available for the development.

This document is a requirement for environmental authorization (EA) to be attached at 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 EMPr will aim to:

- Control the construction and operational 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 EMPr is the financial responsibility of the developer.

The project environmental issues are shown in section 2 with the construction EMPr in section 3 and the operational EMPr in section 4.



## 2 Environmental issues

No significant biophysical impacts are anticipated as the environment has been degraded due to agricultural activities in the surrounding area.

### 2.1 Vegetation

#### VEGETATION AND FAUNA (AS PER THE BOTANICAL ASSESSMENT, INCLUDED IN ASSESSEMENT REPORT)

The following summary from the Botanical Report:

‘The Northern Cape contains about 3500 plant species in 135 families and 724 genera, with about 25% of this flora endemic to the region. It is also home to an exceptionally high level of insect and reptile endemism, with new species still being discovered. However, it must be noted that this remarkable diversity is not distributed evenly throughout the region but is concentrated in many local centres of endemism (NDBSP, 2008).

The Kakamas area would be classified as a desert region. In accordance with the Vegetation Map of South Africa, Lesotho and Swaziland (Mucina & Rutherford, 2006, as updated in the 2012 beta version) only one broad vegetation type is expected in the proposed area and its immediate vicinity, namely Bushmanland Arid Grassland. More than 99% of this vegetation still remains, but only 4% is formally conserved (Augrabies Falls National Park). According to the national list of ecosystems that are threatened and in need of protection (GN 1002, December 2011), Bushmanland Arid Grassland remains classified as ‘least threatened’.

According to Mucina and Rutherford (20016), Bushmanland Arid Grassland is found in the Northern Cape province, spanning about one degree of latitude from around Aggeneys in the west to Prieska in the east. The southern border of the unit is formed by edges of the Bushmanland Basin, while in the north-west this vegetation unit borders on desert vegetation (north-west of Aggeneys and Pofadder). The northern border (in the vicinity of Upington) and the eastern border (between Upington and Prieska) are formed with often intermingling units of Lower Gariep Broken Veld, Kalahari Karroid Shrubland and Gordonias Duneveld. Most of the western border is formed by the edge of the Namaqualand hills. Altitude varies from 600 to 1 200 m.

#### VEGETATION ENCOUNTERED

Approximately 120 ha of veld were evaluated, of which the landowner would like to develop 60 ha. The vegetation encountered conforms to Bushmanland Arid Grassland. Two definite communities were encountered, namely a sparse (semi-desert type) low shrubland with grasses sometimes present (expected to be more prominent after rain) on the open undulating plains, while a denser and higher riparian vegetation was encountered next to the watercourses. The more pronounced these water courses, the more established the riparian zone became. Because of the arid nature of the region (and the unpredictability of rainfall) the carrying capacity of the veld is very low and much of the natural veld is expected to have suffered from incorrect grazing or overgrazing practices since the early 19th century (after farms became fenced).

### THE OPEN PLAINS

The vegetation encountered on the open gravelly plains can be described as a sparse, low shrubland, and sometimes even a dwarf shrub layer (see Figure 7 and Figure 8), with surface rocks and sometimes even small/low rocky outcrops (Figure 9) – showing larger rocky outcrops were also encountered above ground, to the north of the site. The vegetation varied from a sparse low shrubland dominated by *Tetraena decumbens* (=Zygophyllum) – see Figure 7, to a very sparse open low shrubland (Figure 8) either dominated by either *Tetraena decumbens* or by *Justicia australis* (=Monechma), in the calcrete patches (Figure 8).



**Figure 7: Sparse shrubland dominated by *Tetraena decumbens*, with *Aloe claviflora* present in the foreground.**

The following plant species were observed scattered throughout the site (never dominating, but sometimes encountered in patches): the small *Acanthopsis disperma*, the common *Aloe claviflora*, two individuals of *Aloidendron dichotomum* (a third was observed outside of the proposed footprint), *Aptosimum spinescens*, *Asparagus cf. cooperi*, *Avonia cf. papyracea*, *Berkheya fruticosa*, *Blepharis mitrata*, two individuals of *Boscia albitrunca* (one in poor and one in fairly good condition), scattered individuals of *Boscia foetida*, patches of *Cynanchum viminale*, *Euphorbia gariiepina*, and occasionally the smaller *Euphorbia cf. rhombifolia*, *Forsskaolea candida*, the common *Galenia africana*, *Geigeria filifolia*, *Justicia spartioides*, *Kleinia longiflora*, *Leucosphaera bainesii*, *Limeum aethiopicum*, *Lycium cinereum*, the succulent *Mesembryanthemum coriarium* (=Psilocaulon coriarium), *Monsonia cf. patersonii*, *Ptychobium biflorum*, *Rhigozum trichotomum*, the common *Rogeria longiflora*, *Salsola aphylla*, *Sericocoma avolans*, *Senegalia mellifera* and *Tapinanthus oleifolius*.





**Figure 8: Very sparse open low shrubland with *Justicia australis* prominent.**

The vegetation encountered at the small rocky outcrops (Figure 15) did not differ in species from that of its surroundings (although vegetation cover was sometimes slightly denser, as a result of the shelter given by the outcrops). The only plant that was not observed elsewhere and that was only found near one of the rocky outcrops to the north was *Berkheya glabrata*. Other species commonly associated with these outcrops were *Aloe dichotoma*, *Boscia foetida*, *Forsskaolea candida*, *Galenia africana* and *Tetraena decumbens*.



**Figure 9: One of the small rocky outcrops towards the south of the site.**

#### THE RIPARIAN VEGETATION

The vegetation along the small ephemeral drainage lines and small seasonal water courses did not vary much. Apart from becoming denser and larger, the more pronounced the water course becomes (e.g. Figure 10). Agrimotion, 2017 did a very good job of mapping the most prominent of these water courses on their soil potential map for the Triple D farms (Figure 6 of the botanical assessment]). The following plants were commonly observed in association with these

seasonal water courses: *Asparagus cf. cooperi*, *Boscia foetida*, the herb *Chascanum garipense*, *Hermannia stricta*, *Jamesbrittenia glutinosa*, *Justicia spartioides*, *Montinia caryophyllacea*, *Osteospermum scariosum*, *Ozoroa dispar*, *Parkinsonia africana*, *Rhigozum trichotomum*, *Senegalia mellifera*, *Tapinanthus oleifolius*, *Tetragonia reduplicata* and *Ziziphus mucronata*.



Figure 10: One of the larger seasonal water courses to the north of the site.

#### THE PIPELINE ROUTE:

The proposed pipeline route includes the establishment of a new pump station at the banks of the Orange River. From there it will be placed in or next to existing farm roads through transformed agricultural area (as is the case along most of the banks of the Orange River in this area), with only the last section passing along an area with some very disturbed natural veld next to a seasonal water course.

The proposed location for the placement of the extraction pump (Photos 5-7 **Error! Reference source not found.** is located on a disturbed portion of the Orange River, already used as an access point/jetty for small boats. As long as the pipeline is located within the existing disturbance footprint, the impact on vegetation will be minimal. Please note that a freshwater specialist report was commissioned. The specialist will address the impact on the river system. Next to the disturbance footprint, disturbance indicator plants, alien invasive species (*Prosopis* species) and some remaining natural vegetation was encountered – the most important of which was *Phragmites australis* stands stabilizing the river banks and the small indigenous trees, *Vachellia karroo* (= *Acacia karroo*) and *Tamarix usneoides*. Other species included disturbance indicators like *Mesembryanthemum guerichianum*, *Mesembryanthemum coriarium* and the herb *Jamesbrittenia glutinosa*.





**Figure 11: The proposed pump station location looking from the south towards the Orange River. Note the disturbance footprint.**



**Figure 12: The banks of the Orange River at the proposed pump station location (looking from the disturbed area eastwards).**



**Figure 13: The banks of the Orange River at the proposed pump station location (looking from the disturbed area westwards).**

From the banks of the Orange River the pipeline will follow existing roads for the next 1.7 km through areas under intensive cultivation (mostly vineyards). Refer to Photos 8-10 **Error! Reference source not found.** Throughout this section there should be no impact on any natural veld (transformed land), and as long as the pipeline stays next to or within the existing roads, impact on agriculture should be minimal.



**Figure 14: The proposed pipeline route will follow existing roads. This is the last section of agricultural land towards the banks of the Orange River, looking from south to north and towards the Orange River in the background.**

The final section of the pipeline will be located next to a badly disturbed area, but with some natural plants still remaining next to a seasonal stream. Unfortunately, this area is very disturbed and degraded, and the riparian vegetation is mostly replaced by the alien *Prosopis* trees, *Beefwood* (*Casuarina* species), with the occasional indigenous *Vachellia karroo*, patches of *Phragmites australis* and some disturbance indicator species remaining (e.g. *Mesembryanthemum guerichianum*, *Mesembryanthemum coriarium*, *Lycium* species, *Rhigozum trichotomum* and *Senegalia mellifera*).





**Figure 15: The section of the pipeline next to the water course from the N14.**



**Figure 16: The section of the proposed pipeline crossing underneath the N14 (through an existing culvert) and then running next to the seasonal stream towards the picture above (Figure 21).**

Since this area is very disturbed with very little natural veld remaining and running next to a seasonal stream, the exact location of the pipeline should be recommended by the Freshwater Specialist Report. Impact on any significant vegetation or species should be minimal, especially if the pipeline route is placed near or within the existing farm roads to the west of the stream.

#### CRITICAL BIODIVERSITY AREA:

The Northern Cape CBA Map (2016) identifies biodiversity priority areas, called Critical Biodiversity Areas (CBA's) and Ecological Support Areas (ESA's), which, together with protected areas, are important for the persistence of a viable representative sample of all ecosystem types and species as well as the long-term ecological functioning of the landscape as a whole (Holness & Oosthuysen, 2016). The 2016 Northern Cape Critical Biodiversity Area (CBA) Map updates, revises and replaces all older systematic biodiversity plans and associated products for the province (including the Namakwa District Biodiversity Sector Plan, 2008). Priorities from existing plans such as the Namakwa District Biodiversity Plan, the Succulent Karoo Ecosystem Plan, National Estuary Priorities, and the National Freshwater Ecosystem Priority Areas were incorporated. Targets for terrestrial ecosystems were based on established national targets, while targets used for other features were aligned with those used in other provincial planning processes.

Critical biodiversity areas (CBA's) are terrestrial and aquatic features in the landscape that are critical for retaining biodiversity and supporting continued ecosystem functioning and services (SANBI 2007). The primary purpose of CBA's is to inform land-use planning in order to promote sustainable development and protection of important natural habitat and landscapes. CBAs can also be used to inform protected area expansion and development plans.

**Critical biodiversity areas (CBA's)** are areas of the landscape that need to be maintained in a



natural or near-natural state in order to ensure the continued existence and functioning of species and ecosystems and the delivery of ecosystem services. In other words, if these areas are not maintained in a natural or near-natural state then biodiversity conservation targets cannot be met. Maintaining an area in a natural state can include a variety of biodiversity-compatible land uses and resource uses.

**Ecological support areas (ESA's)** are areas that are not essential for meeting biodiversity representation targets/thresholds but which nevertheless play an important role in supporting the ecological functioning of critical biodiversity areas and/or in delivering ecosystem services that support socio-economic development, such as water provision, flood mitigation or carbon sequestration. The degree of restriction on land use and resource use in these areas may be lower than that recommended for critical biodiversity areas.



**Figure 17: The Northern Cape Critical Biodiversity Areas (2016) showing the location of the proposed development.**

From a land-use planning perspective it is useful to think of the difference between CBA's and ESA's in terms of where in the landscape the biodiversity impact of any land-use activity action is most significant:

- For CBA's the impact on biodiversity of a change in land-use that results in a change from the desired ecological state is most significant locally at the point of impact through the direct loss of a biodiversity feature (e.g. loss of a populations or habitat).
- For ESA's a change from the desired ecological state is most significant elsewhere in the landscape through the indirect loss of biodiversity due to a breakdown, interruption or loss of an ecological process pathway (e.g. removing a corridor results in a population going extinct elsewhere or a new plantation locally results in a reduction in stream flow at

the exit to the catchment which affects downstream biodiversity).

The 2016 Northern Cape Critical Biodiversity Areas (NCCBA) gives both aquatic and terrestrial Critical Biodiversity Areas (CBA's) and ecological support areas for the Northern Cape.

**According to the NCCBA (Refer to Figure 17), the proposed development will be located within a CBA."**

## 2.2 Aquatic habitat

### AQUATIC FEATURES

The development is located within the D73F catchment management area, adjacent to the Orange River.

#### Names of watercourses:

The Orange River is located adjacent the site. No perennial rivers flow through the property, only small unnamed non-perennial tributaries. The sub-catchment covers 415 hectares. It is 10.4 km in circumference, 4.7km long and 114 m at its widest. The N14 trunk road cuts the sub-catchment off from its natural confluence with the Orange River. From the N14 trunk road the drainage line has been partially formalised and where it flows through the vineyards along the Orange River, it has been channelled into a straight furrow

The Lower Orange River is flanked by numerous drainage lines, which are mostly dry and only contain water during the occasional thunderstorm. These drainage lines are a part of the arid landscape. These are nevertheless drainage lines with water flows strong enough to maintain its morphological integrity. These sudden and intense storms occur only occasionally, perhaps once in several years. Refer to the Fresh Water Assessment Report from Watsan Africa cc, included in Appendix F of the Water Use License Application. The drainage lines are poorly demarcated by vegetation. The scrub and small trees are the same as those further afield away from the drainage lines. Only the stand of higher vegetation is denser around drainage lines.

One such drainage line runs through the Triple D property that is now earmarked for development into vineyards. It is this drainage line that triggered the legal requirement for a Water Use License Application.

There will be NO planting of vineyards within the **larger drainage channels** as far as possible and a buffer of at least 15m of the larger drainage systems will always be kept. It is also the intension to keep the bigger stream areas open and not to develop so has to minimise impact on the larger streams.

The Orange River is the primary water resource for the area. This river is used extensively for irrigation and is heavily cultivated along its banks. Crop production is reliant on water availability and irrigation potential, and therefore the reliance on the available water supply is great. Abstraction from the river and water storage in reservoirs is common at many sites, where it is mainly used for irrigation purposes in the areas flanking the Orange River.

Surface water use:

No additional surface water will be used during the operation of this project. The application is for additional storage capacity and for storage. The existing

Presence of wetlands:

No specific wetland areas have been identified.

ARCHAEOLOGY AND PALAEOLOGYArchaeological features:

A total of eight incidences of Stone Age material were recorded across the surveyed area. All eight locations are within the northern section of the surveyed area, with one isolated occurrence close to the northern boundary. The lithics are scattered *ex situ* in low densities along dry riverine and drainage lines and among quartzite surface gravel. The cultural material shows various degrees of weathering and may either be representative of the Early Later Stone Age, or a mere mixture of LSA and MSA artefacts (Lombard 2011). The identified archaeological materials are of low significance, as the archaeological sample is small and without context, and therefore of little scientific value.

These Stone Age heritage finds are given a 'General' Protection C (Field Rating IV C). This means these sites have been sufficiently recorded (in Phase 1). It requires no further action.

Historical features:

No significant historical features were identified within the study area.

Graves:

No formal or informal graves were identified in the study area.

Palaeontological resources

The proposed development is entirely underlaid by the Riemvasmaak Gneiss of the Namaqua-Natal Province. The Riemvasmaak Gneiss is an igneous rock type and the potential for any fossil materials occurring within this rock unit is zero (Butler 2018; Almond & Pether 2008). Elize Butler from Banzai Environmental proposes exemption from doing a full paleontological study for this projec.

Conclusion:

This HIA has identified and recorded various heritage resources on Plot 1178, Kakamas South Settlement, Kai!Garib Municipality, Mgcawu District Municipality, Northern Cape as set out in the report. In the development footprint are no archaeological, historical or cultural sites that will be impacted on negatively by the proposed development.

Recommendations:

Based on the assessment of the potential impact of the development on the identified heritage, the following recommendations are made, taking into consideration any existing or potential sustainable social and economic benefits:

- The lithic traces on the landscape of the study area are of low significance and the impact of the development on these resources are inconsequential. No further mitigation is required. Therefore, from a heritage point of view we recommend that the proposed development can continue.
- Due to the low palaeontological significance of the area, no further palaeontological heritage studies, ground truthing and/or specialist mitigation are required pending the discovery of newly discovered fossils. It is considered that the development of the proposed development is deemed appropriate and feasible and will not lead to detrimental impacts on the palaeontological resources of the area. If fossil remains are discovered during any phase of construction, either on the surface or unearthed by fresh excavations, the ECO in charge of these developments ought to be alerted immediately. These discoveries ought to be protected (preferably *in situ*) and the ECO must report to SAHRA so that appropriate mitigation (e.g. recording, collection) can be carried out by a professional palaeontologist (Butler 2018).
- Although all possible care has been taken to identify sites of cultural importance during the investigation of study areas, it is always possible that hidden or sub-surface sites could be overlooked during the assessment. If during construction any discovery of items such as stone tool scatters, artefacts, human remains, or fossils are made, the operations must be stopped, and a qualified archaeologist must be contacted for an assessment of the find. UBIQUE Heritage Consultants and its personnel will not be held liable for such oversights or for costs incurred as a result of such oversights.

### 3 Aim and Objectives of the EMPr

The aim of the EMPr is to:

- Identify those construction activities identified for the proposed project that may have a negative impact on the environment;
- Outline the mitigation measures that will need to be taken and the steps necessary for their implementation; and,
- Describe the reporting system to be undertaken during construction.

The objectives of the EMPr are to:

- Identify a range of mitigation measures which shall reduce and mitigate the potential adverse impacts to minimal or insignificant levels;
- Provide a pro-active and practical working mechanism to enable the measurement and monitoring of environmental performance on site; and,
- Ensure that the environmental specifications are identified, effective and contractually binding to enable compliance on site.

## 4 Compliance with Applicable Laws

The supreme law of the land is “The Constitution of the Republic of South Africa”, which states: *“Every person shall have the right to an environment which is not detrimental to his or her health or well-being”*.

Laws applicable to protection of the environment in terms of Environmental Management (and relating to construction activities) include but are not restricted to:

- National Environmental Management Act, No. 107 of 1998
- National Environmental Management: Air Quality Act (AQA), No. 39 of 2004
- National Environmental Management: Biodiversity Act, No. 10 of 2004
- National Environmental Management: Waste Act, No. 59 of 2008
- National Heritage Resources Act, No. 25 of 1999
- National Water Act, No 36 of 1998 and amendments
- National Veld and Forest Fire Act, No 101 of 1998
- Occupational Health and Safety Act, No 85 of 1993
- Soil Conservation Act, Act No 76 of 1969
- Sub-division of Agricultural Land Act Repeal Act 64 of 1998 (re: soil conservation) and all regulations framed there under and amendments there to.

Of particular importance is Section 28 (1) of the National Environmental Management Act (NEMA – Act 107 of 1998) which places an obligation on all individuals to take due care of the environment and to ensure remedial action is instituted to minimise and mitigate environmental impact.

The EMPr forms part of the Contract Documentation and is thus a legally binding document. In terms of this Act an individual responsible for environmental damage must pay costs both to environment and human health and the preventative measures to reduce or prevent additional pollution and/or environmental damage from occurring. This is referred to as the Polluter Pays Principle.

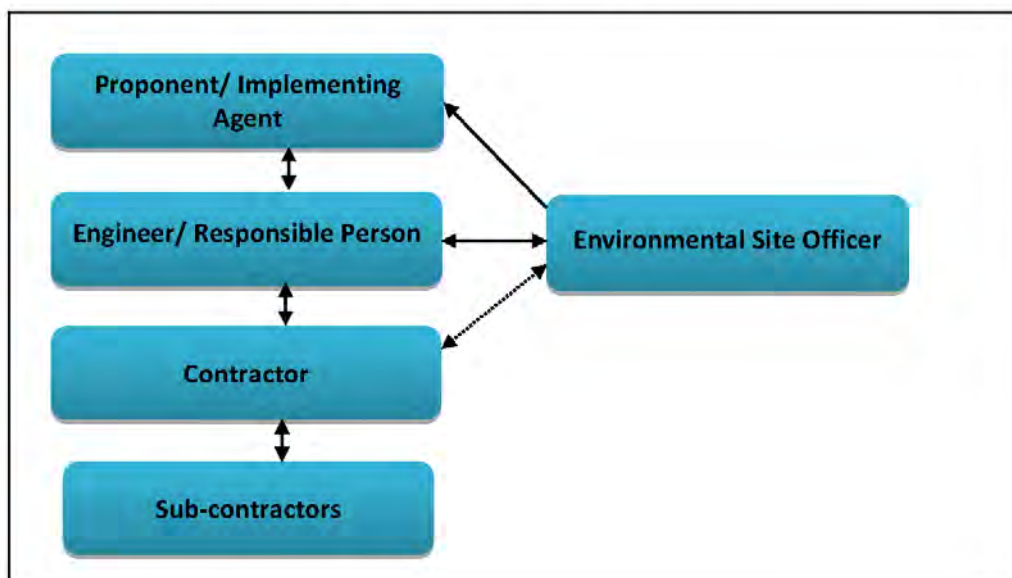
## 5 Roles and Responsibilities

The key role players during maintenance work are anticipated to be as follows:

- Applicant (Holder of the EA) – Triple D Farms (PTY) Ltd
- Engineer / Responsible Person (RP), who will oversee the activities of the contractors on site;
- Environmental Control Officer (ECO);
- Contractors responsible for the maintenance and repair activities; and
- Any sub-contractors hired by the contractor.

The anticipated management structure (organogram) is presented in Figure 18 below and shows the proposed lines of communication for maintenance activities. The applicant retains overall responsibility for maintenance and the implementation of the EMPr.





**Figure 18: Reporting structure**

Key roles and responsibilities with respect to the implementation of the EMPr is outlined below.

**Applicant – Triple D Farms (PTY) Ltd:**

The applicant (through their Implementing Agent if applicable) has overall responsibility for management of maintenance activities. In terms of environmental management, the proponent will:

- Appoint suitably experienced Engineers, if required, who will be responsible for the overall management of activities on site;
- Identify any activities not covered by the scope of this EMPr, and determine the need for, and where required, obtain relevant authorisations;
- Ensure that the Engineers are aware of the requirements of the EMPr, implement the EMPr and monitor the Contractor's activities on site;
- Ensure that the Contractor is aware of and contractually bound to the provisions of this EMPr by including the relevant environmental management requirements in tender and contract documents, as appropriate;
- Appoint a suitably qualified and experienced ECO to oversee environmental management of the required works;
- Ensure that the Contractor remedies environmental problems timeously and to the satisfaction of the Engineer and authorities (when necessary); and

**Responsible Person:**

The applicant will appoint suitably qualified Engineers (if necessary), who in turn will designate a responsible person (RP) to oversee activities of the Contractor. This role will be fulfilled either by the Resident Engineer or a suitably qualified representative of the applicant, if applicable. The RP shall:

- Ensure that the Contractor is duly informed of the EMPr and associated responsibilities and implications of this EMPr prior to commencement of construction and maintenance activities;
- Identify the need for, and request/provide Method Statements for future maintenance and repair works;
- Monitor the Contractor's activities regarding the requirements outlined in the EMPr;
- Report any environmental emergencies/concerns to the applicant immediately; and

**Environmental Control Officer:**

The ECO shall be a suitably qualified/experienced environmental professional or professional firm, appointed by the proponent, for the duration of repair or maintenance works. The ECO shall:

- Request Method Statements from the Contractor prior to the start of relevant activities, where required, and approve these (as appropriate) without causing undue delay;
- Monitor, review and verify compliance with the EMPr by the main Contractor, as well as any sub-contractors and specialist contractors;
- Undertake site inspections at least twice a month to determine compliance with the EMPr;
- Identify areas of non-compliance and recommend corrective actions (measures) to rectify them in consultation with the applicant, the RP and the Contractor, as required;
- Compile a checklist highlighting areas of non-compliance following each ECO inspection;
- Ensure follow-up and resolution of all non-compliances;
- Provide feedback for continual improvement in environmental performance;
- Respond to changes in project implementation or unanticipated activities which are not addressed in the EMP, and which could potentially have environmental impacts, and advise the applicant, the RP and Contractor as required; and
- Act as a point of contact for local residents and community members.

**Contractor:**

The Contractor will be required to appoint or designate a Contractor's Environmental Representative (CER) who will assume responsibility for the Contractor's environmental management requirements on site and be the point of contact between the Contractor, the ECO and the RP. The CER shall:

- Ensure that all activities on site are undertaken in accordance with the EMPr and /or an approved Method Statement which applicable;
- Monitor the Contractor's activities with regard to the requirements outlined in the EMPr;
- Ensure that all employees and Sub-contractors comply with the EMPr;
- Immediately notify the RP and ECO of any non-compliance with the EMPr, or any other issues of environmental concern; and
- Ensure that non-compliance is remedied timeously and to the satisfaction of the RP and ECO.

The Contractor has a duty to demonstrate respect and care for the environment. The Contractor will be responsible for the cost of rehabilitation of any environmental damage that may result from non-compliance with the EMPr, environmental regulations and relevant legislation.



**Sub-contractors:**

All Sub-contractors will be required to:

- Ensure that all employees are duly informed of the EMPr and associated responsibilities and implications of this EMPr prior to maintenance activities;
- Ensure that all activities on site are undertaken in accordance with the EMPr;
- Monitor employees' activities with regard to the requirements outlined in the EMPr;
- Immediately notify the RP and ECO of any non-compliance with the EMPr, or any other issues of environmental concern; and
- Ensure that non-compliance is remedied timeously and to the satisfaction of the RP and ECO.

The Sub-contractor has a duty to demonstrate respect and care for the environment. The Sub-contractor will be responsible for the cost of rehabilitation of any environmental damage that may result from non-compliance with the EMPr, environmental regulations and relevant legislation, resulting from their presence on site.

## 6 Monitoring & Auditing

### 6.1 ECO Monitoring

The holder of the E.A. must appoint a suitably experienced environmental control officer ("ECO"), for the duration of the construction and rehabilitation phases of implementation.

The ECO must-

- be appointed prior to commencement of any vegetation clearing or construction activities commencing;
- ensure compliance with the EMPr and the conditions contained herein;
- keep record of all activities on site; problems identified; transgressions noted, and task schedule of tasks undertaken by the ECO;
- Remain employed until all rehabilitation measures, as required for implementation due to construction damage, are completed and the site is ready for operation.

An Environmental Control Officer (ECO) will implement and monitor environmental control of the development. The ECO duties will be as follows:

- Ensure implementation and monitoring of the EMPr.
- Make changes to the EMPr as required.



- 
- Visit the site prior to the commencement of activities, to ensure that the correct method statements are prepared. The site must be visited within 10 days after the commencement of activities, and once a month thereafter.
  - Prepare ECO site visit reports as required by mitigation measures or by the EA.
  - Maintain a photographic record of the work and environmental issues.
  - The ECO visits must take place: 1) prior to construction and site clearing, 2) monthly after construction has commenced and 3) 6 months after completion of construction.
  - Site visit reports must be compiled which includes photographic evidence and recommendations. The report must be made available to the contractor, applicant and applicable authorities.
  - An Audit report must be compiled within 6 months after completion of construction.

A copy of the Environmental Authorisation, EMPr, any independent assessments of financial provision for rehabilitation and environmental liability, closure plans, audit reports and compliance monitoring reports must be kept at the site of the authorised activities.

Access to the site referred to in Section C must be granted, and the environmental reports mentioned above must be produced, to any authorised official representing the Competent Authority who requests to see it for the purposes of assessing and/or monitoring compliance with the conditions contained herein.

The ECO will maintain a file containing the following:

- 1) Copy of the EMPr
- 2) Methodology statement(s) by the contractor(s)
- 3) Site establishment plan
- 4) Letter from contractor(s) indicating that he has familiarised himself with the contents of the EMPr.
- 5) Letter from contractor(s) on environmental awareness training
- 6) The applicant must ensure that complaints received by the farm are documented.
- 7) The contractor shall maintain a copy of the following documents on-site:
  - Operational Plan;
  - Emergency response and remedial action plan;
  - Environmental Management Programme (EMPr) and other documents related to the operation on file.
- 8) Tracking table (see Appendix B).
- 9) Method Statements (See Appendix E and F).

## 6.2 Auditing

The holder must, for the period during which the environmental authorisation and EMPr remain valid-

- ensure the compliance with the conditions of the environmental authorisation and the EMPr, is audited;
- An Audit report must be compiled within 6 months after completion of construction.
- During the operational phase, the holder must ensure that environmental audit(s) are performed and submitted as outlined in the Environmental Authorisation. During the operational phase the frequency of the auditing of compliance with the conditions of the environmental authorisation and of compliance with the EMPr shall not exceed intervals of 5 years;
- the environmental audit report must be prepared and submitted to the Competent Authority, by an independent person with the relevant environmental auditing expertise;
- The Environmental Audit Report, must-
  - a. provide verifiable findings, in a structured and systematic manner, on-
    - i. the level of compliance with the conditions of the environmental authorisation and the EMPr and whether this is sufficient or not; and
    - ii. The ability of the measures contained in the EMPr to sufficiently provide for the avoidance, management and mitigation of environmental impacts associated with the undertaking of the activity.
  - b. identify and assess any new impacts and risks as a result of undertaking the activity;
  - c. evaluate the effectiveness of the EMPr;
  - d. identify shortcomings in the EMPr;
  - e. identify the need for any changes to the avoidance, management and mitigation measures provided for in the EMPr;
  - f. indicate the date on which the construction work was commenced with and completed or in the case where the development is incomplete, the progress of the development and rehabilitation;
  - g. indicate the date on which the operational phase was commenced with and the progress of the rehabilitation;
  - h. include a photographic record of the site applicable to the audit; and
  - i. Be informed by the ECO reports (where applicable to the construction phase).
- The holder must, within 7 days of the submission of the environmental audit report to the Competent Authority, notify all registered I&AP's of the submission and make the report available to anyone on request and where the holder has such a facility, be placed on a publicly accessible website.

## 7 Environmental auditing and monitoring schedule

<b>Environmental auditing and monitoring schedule</b>			
<b>Non-operational phases</b>			
	<b>Frequency</b>	<b>Record &amp; duties to be fulfilled</b>	<b>Report</b>
ECO site visits	Once Monthly	<ul style="list-style-type: none"> <li>• Ensure compliance with the EMPR and the conditions contained herein;</li> <li>• Keep record of all activities on site; problems identified; transgressions noted, and a task schedule of tasks undertaken by the ECO;</li> <li>• Remain employed until all rehabilitation measures, as required for implementation due to construction damage, are completed and the site is ready for operation.</li> </ul>	Site visit report to holder of EA.
Auditing	Completion of project	Ensure the compliance with the conditions of the environmental authorisation and The EMPR	Submit the Environmental Audit Report(s) to the Competent Authority.
Final construction phase Environmental Audit Report	Within six (6) months of completion of construction.	Ensure the compliance with the conditions of the environmental authorisation and The EMPR	Submit these Environmental Audit Report(s) to the Competent Authority.
<b>Operational phases</b>			
Environmental audit(s)	The frequency of the auditing of compliance with the Conditions of the environmental	<ul style="list-style-type: none"> <li>• The holder must ensure that environmental audit(s) are performed regularly.</li> <li>• The Report must comply with the conditions of the Environmental Authorisation.</li> </ul>	<ul style="list-style-type: none"> <li>• Submit these Environmental Audit Report(s) to the Competent Authority,</li> <li>• The environmental audit</li> </ul>

	<p>authorisation and of compliance with the EMPR shall not exceed intervals of 5 years.</p>		<p>report must be prepared and submitted to the Competent Authority, by an independent person with the relevant environmental auditing expertise.</p>
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## **8 Management Programme – Pre-construction & Construction & Operational**

Please note that the EMPr must be included in any tender documentation and all sub-contractors on the site must be made aware of this EMPr 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.

### **8.1 Specific conditions as stated in EA**

- 1) To be included after issue of EA

### **8.2 Contractual obligations**

1. The Contractor shall acknowledge receipt of copies of the EMPr 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 EMPr 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 EMPr. 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) shall not be housed on site.

### **8.3 Penalties**

Penalties must be instituted for non-compliance. The penalty is over and above the cost of rectifying the problem and/or damage. Penalties vary on a sliding scale from R 1 000 to R 5 000 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.

Refer to Appendix D for the Schedule of Fines.



## 8.4 Methodology statement

Method Statements must be compiled by the contractor(s) before any construction or activity shall commence. The statement must include a site establishment plan indicating all relevant areas. The RE/ECO/EO must approve the Method Statement. Refer to Appendix E.

The ECO must identify Method Statements that will be required as part of the project implementation. The list provided below is generic, and only that which is applicable to the proposed development of the dams and associated infrastructure will be required (underlined).

### Access routes

- Upgrading and construction of access routes.
- Rehabilitation of temporary access routes.
- Location of proposed access routes.

### Alien plant clearing

- Method of control to be used for the eradication or control of alien vegetation.

### 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.

### Demolition

- Proposed method(s) of demolition.

### Dredging

- Proposed methods and compounds to treat spills.
- Methods of refuelling dredger.

### 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**

- 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.

**Piling, jacking and thrust boring**

- The method of piling operation (e.g. driven or bored) or in situ casting or pre-cast pile structures.

**Rehabilitation**

- Rehabilitation of disturbed areas and revegetation after construction is complete.
- Rehabilitation of street or hardened surfaces after construction is complete.
- Retaining walls and gabions.
- Method for construction and installation of retaining walls/ gabion baskets.

**Riverine corridors**

- Method for all construction activities within the 1 in 50-year floodplain.

**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, 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, dams and rivers.

**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.

**Wastewater treatment works**

- Emergency procedures for accidental leaks, spillage or overflow of raw wastewater, semi treated wastewater, sludge or final effluent. The Method Statement shall include the following:
  - a. a comprehensive list of available equipment (e.g. pipes and pumps) in the event of a spill
  - b. the location of all emergency equipment
  - c. the individual(s) responsible for the upkeep and maintenance of the emergency equipment
  - d. an indication of how regularly the emergency equipment will be checked to ensure that it is working properly
  - e. the location of any and all temporary emergency sumps, including old sludge ponds, clarifiers, low lying areas etc.
  - f. the size of spillage which the emergency procedures shall contain
  - g. where and how any spilled material will be returned to the wastewater works system
  - h. who shall be notified in the event of an emergency, including contact numbers for the relevant local authority
- Methods to isolate any section of the wastewater infrastructure for construction or maintenance purposes.
- Methods to connect new structures or reconnect old structures to the wastewater treatment infrastructure.

### 8.5 Proposed Impact Management Actions

The environmental management and mitigation measures that must be implemented during all construction and operational activities, as well as responsibilities and timelines for the implementation of these measures are presented in Table 4-2. Monitoring thereof, is discussed in section 6.1 above.

Action	Proposed impact management action and Procedures / Mitigation measures to achieve it	Responsible person for implementation	Implementation timeframe and frequency	Outcome
1. Environmental awareness training	<ol style="list-style-type: none"> <li>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.</li> <li>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.</li> <li>3. The Contractor shall supply the Engineer/ECO with a monthly report indicating the number of employees that</li> </ol>	Contractor	<p>Within one week of the Commencement Date/or of new appointments. Subsequent courses shall be held as and when required.</p>	<ul style="list-style-type: none"> <li>• Understanding of the EMPr.</li> <li>• Compliance of Contractor with the EMPr.</li> </ul>

Action	Proposed impact management action and Procedures / Mitigation measures to achieve it	Responsible person for implementation	Implementation timeframe and frequency	Outcome
	<p>will be present on site during the following month and any changes in this number that may occur during the month.</p> <p>4. The Contractor shall submit a Method Statement detailing the logistics of the environmental awareness training course.</p>			
2. Buffer area	<p>1. A buffer area of 32m of the streams should be kept during construction activities, and the stream area beyond that strictly treated as a No-Go area.</p> <p>2. A buffer zone of 32m from all streams, accept those affected by the development and approved to be impacted on.</p>	Holder of EA or representative	Before construction commences and maintained throughout development.	<ul style="list-style-type: none"> <li>• Ensure no illegal entries.</li> <li>• Ensuring no further degradation of the natural environment.</li> <li>• Ensure no vegetation cleared or disturbed.</li> <li>• Ensuring no degradation to freshwater ecology/environment downstream of the activity.</li> </ul>
3. Demarcation and protection	<p>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.</p> <p>2. The 32m building boundary must be marked and all construction must take</p>	Holder of EA or representative/contractor.	Before construction commences and maintained throughout.	<ul style="list-style-type: none"> <li>• Ensure no illegal entries.</li> <li>• Ensuring no further degradation of the natural environment.</li> <li>• Ensure no vegetation cleared or disturbed.</li> <li>• Ensuring no degradation</li> </ul>



Action	Proposed impact management action and Procedures / Mitigation measures to achieve it	Responsible person for implementation	Implementation timeframe and frequency	Outcome
	<p>place within this area.</p> <ol style="list-style-type: none"> <li>3. No-Go which include sensitive areas, such as the stream, wetland and dams, must be clearly demarcated prior to commencing of demolition and/or earthworks/building operations.</li> <li>4. The contractor must ensure that fencing and/or demarcations are maintained for the duration of the project.</li> <li>5. Although not limited to, No-Go areas include the residential areas, dams, stream/river and wetland.</li> <li>6. No work outside of the property boundary will be allowed.</li> <li>7. Special features shall be marked on a site layout plan prior to any works commencing on site. These areas shall be designated “No go” areas.</li> <li>8. 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</li> </ol>			<p>to fresh water ecology/environment downstream of the activity.</p>

Action	Proposed impact management action and Procedures / Mitigation measures to achieve it	Responsible person for implementation	Implementation timeframe and frequency	Outcome
	go" areas and shall be fenced or similarly protected, as determined by the Engineer/ECO.			
4. Stream &Wetland Sensitive - Environments	<p>Development of 50ha for agricultural use:</p> <ol style="list-style-type: none"> <li>1. A buffer zone of 32m from all streams, accept those affected by the development.</li> <li>2. Ideally, the development should be placed to minimise the impact on these watercourses, while at the same time leaving a north-south migration corridor (for instance a 30 m corridor associated with the main western watercourse).</li> <li>3. The two <i>Boscia albitrunca trees</i> should be protected, in location, if at all possible. Since these trees transplant poorly, search &amp; rescue is not considered a viable option. If they have to be removed, permits must be obtained in terms of the National Forest Act (NFA) and the Northern Cape Nature Conservation Act (NCNCA).</li> <li>4. The two <i>Aloidendron dichotomum trees</i> should be protected, in location, if at all possible (first prize). However, these trees can be transplanted, and search</li> </ol>	Holder of EA or representative/ contractor/ freshwater ecologist	Before construction commences and maintained throughout	<ul style="list-style-type: none"> <li>• Ensure no illegal entries.</li> <li>• Ensuring no further degradation of the natural environment.</li> <li>• Ensure no vegetation cleared or disturbed.</li> <li>• Ensuring no degradation to freshwater ecology/environment downstream of the activity.</li> <li>• Enhancing the downstream wetlands and water quality.</li> <li>• Only enlisted water will be used.</li> <li>• Monitoring as outlined is adhered to.</li> </ul>

Action	Proposed impact management action and Procedures / Mitigation measures to achieve it	Responsible person for implementation	Implementation timeframe and frequency	Outcome
	<p>and rescue may be an option. However, if they are moved, a permit for their relocation must be obtained in terms of the NCNCA and they must be transplanted back within the immediate surroundings. The transplantation must be overseen by a botanist or suitably qualified person and a watering program must be implemented to support these trees until they have re-established themselves.</p> <p>5. The search &amp; rescue recommendations must be implemented with regards to other protected species encountered and a DENC flora permit must be obtained in terms of the NCNCA.</p> <p>6. Future farm roads must be approved by the ECO and may not impact on the buffer zones next to the streams as proposed.</p> <p>7. No activities should be allowed outside of the demarcated agricultural development area. Machinery, waste and rubble should not be allowed to accumulate anywhere in the natural vegetation.</p>			

Action	Proposed impact management action and Procedures / Mitigation measures to achieve it	Responsible person for implementation	Implementation timeframe and frequency	Outcome
	<p>8. The main threat because of the establishment of the agricultural development is the movement of sediments down the drainage line and into the Orange River. The land would be entirely transformed by heavy earth moving machinery, as is required for the establishment of vineyards in virgin land. This transformation should be affected during the dry season, when the likelihood of sudden thunderstorms is at its least.</p> <p>9. Any signs of erosion in the altered drainage line should be addressed immediately after downpours. Eroded areas should be filled in and the compacted. It should be planted with suitable vegetation. Irrigation may be required to establish this vegetation. If necessary, berm and contours should be constructed to direct storm water away to less susceptible areas.</p> <p>10. The flow path of the drainage line should remain the same as far as possible, despite of the agricultural development.</p>			

Action	Proposed impact management action and Procedures / Mitigation measures to achieve it	Responsible person for implementation	Implementation timeframe and frequency	Outcome
	<p>11. Agricultural waste and other waste and litter should not be allowed to pass down the channel.</p> <p>12. Vehicles and other disturbances should be kept out of the altered drainage lines as to prevent any disturbance that could result in erosion.</p> <p>Pipeline, river pump, dam and pump station development:</p> <ul style="list-style-type: none"> <li>• Care will be taken to prevent any future impediment of flow related to these pipes, as the pipes will be constructed below the ground. Find included in Appendix H the pipeline method statement for construction of pipelines (PVC Pipes) below ground.</li> </ul> <p>The following mitigation measures should be implemented for work on the pipelines:</p> <ul style="list-style-type: none"> <li>• Care will be taken to only construct the pipelines during the dry seasons</li> <li>• As far as possible the section of the pipeline across/within the stream should be done manually, no machinery, resulting in the lowest possible impact.</li> </ul>			



Action	Proposed impact management action and Procedures / Mitigation measures to achieve it	Responsible person for implementation	Implementation timeframe and frequency	Outcome
	<ul style="list-style-type: none"> <li>Infilling with original soils (as per method statement)</li> <li>Flow meters must be equipped on the pipelines. -protective measurement on water losses. This must be monitored on a regular basis and records kept on site.</li> </ul>			
13. Aesthetics	<p>The aesthetics measures indicated below must be implemented as required by the specific site and situated and as agreed with the RE/ECO/EO/EO.</p> <ol style="list-style-type: none"> <li>The Contractor shall be required to visually screen the site.</li> <li>Visual screening shall be aesthetically pleasing and shall be erected by the Contractor prior to commencing any activities.</li> <li>Visual screening shall be maintained by the Contractor for the duration of the Contract.</li> <li>Visual screening must be of the following types: <ul style="list-style-type: none"> <li>Shade cloth</li> <li>Hessian</li> <li>Berm</li> </ul> </li> </ol>	Holder of EA or representative	Before construction commences and maintained throughout	<ul style="list-style-type: none"> <li>The construction site is aesthetically pleasing and to reduce the possible visual impact.</li> </ul>

Action	Proposed impact management action and Procedures / Mitigation measures to achieve it	Responsible person for implementation	Implementation timeframe and frequency	Outcome
14. Camp	<ol style="list-style-type: none"> <li>1. The Contractor’s camp, offices, and storage facilities shall not be located within an environmentally sensitive area or the No-Go areas. The camp’s position must be approved by RE/ECO.</li> <li>2. The camp must be fenced as agreed with the RE/ECO.</li> <li>3. Water from the kitchens, showers, sinks etc., shall be discharged in a manner approved by the RE/ECO.</li> <li>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.</li> <li>5. No littering by the contractor’s employees shall be tolerated under any circumstances, anywhere in the demarcated area for construction.</li> </ol> <p><b>Site of construction camp</b></p> <ol style="list-style-type: none"> <li>1. Choice of site for the contractor’s camp requires the ECO’s permission and must take into account location of local residents and / or ecologically sensitive areas, including flood zones and slip / unstable zones. A site plan must be</li> </ol>	Holder of EA or representative/ Contractor	Before construction commences and maintained throughout	<ul style="list-style-type: none"> <li>• All construction infrastructure etc. is located within a demarcated camp, within which possible impacts on the environment can be mitigated.</li> <li>• The site is not located close to any environmentally sensitive areas.</li> </ul>

Action	Proposed impact management action and Procedures / Mitigation measures to achieve it	Responsible person for implementation	Implementation timeframe and frequency	Outcome
	<p>submitted to the ECO and project manager for approval.</p> <ol style="list-style-type: none"> <li>2. The construction camp must not be situated within the 1:100-year flood line or on slopes greater than 1:3.</li> <li>3. The size of the construction camp must be minimized (especially where natural vegetation or grassland has had to be cleared for its construction).</li> <li>4. The contractor must attend to drainage of the camp site to avoid standing water and / or sheet erosion.</li> <li>5. Suitable control measures over the contractor’s yard, plant and material storage to mitigate any visual impact of the construction activity must be implemented.</li> <li>6. No development, or activity of any sort associated with camp, is allowed below the 1:50 year flood line of any water system.</li> <li>7. Storage of materials (including hazardous materials) at site camp</li> <li>8. Choice of location for storage areas must take into account prevailing winds, distances to water bodies, general on-site</li> </ol>			

Action	Proposed impact management action and Procedures / Mitigation measures to achieve it	Responsible person for implementation	Implementation timeframe and frequency	Outcome
	<p>topography and water erosion potential of the soil.</p> <p>9. Storage areas must be designated, demarcated and fenced.</p> <p>10. Storage areas must be secure to minimize the risk of crime. They must also be safe from access by unauthorised persons.</p> <p>11. Fire prevention facilities must be present at all storage facilities.</p> <p>12. Proper storage facilities for the storage of oils, paints, grease, fuels, chemicals and any hazardous materials to be used must be provided to prevent the migration of spillage into the ground and groundwater regime around the temporary storage area(s). These pollution prevention measures for storage must include a bund wall high enough to contain at least 110% of any stored volume, and this must be sited away from drainage lines in a site with the approval of the ECO.</p> <p>13. These storage facilities (including any tanks) must be on an impermeable surface that is protected from the ingress of storm water from surrounding areas in order to ensure that accidental spillage does not</p>			

Action	Proposed impact management action and Procedures / Mitigation measures to achieve it	Responsible person for implementation	Implementation timeframe and frequency	Outcome
	<p>pollute local soil or water resources.</p> <p>14. Clear signage must be placed at all storage areas containing hazardous substances / materials. Staff dealing with these materials / substances must be aware of their potential impacts and follow the appropriate safety measures.</p> <p>15. A Waste Disposal Contractor must be employed to remove waste oil. These wastes must only be disposed of at a licensed landfill sites designed to handle hazardous wastes. A disposal certificate must be obtained from the Waste Disposal Contractor.</p> <p>16. The contractor must ensure that its staff is made aware of the health risks associated with any hazardous substances used and has been provided with the appropriate protective clothing/equipment in case of spillages or accidents and have received the necessary training.</p> <p>17. All excess cement and concrete mixes are to be contained on the construction site prior to disposal off site.</p> <p>18. Any spillage, which may occur, shall be investigated and immediate action must</p>			



Action	Proposed impact management action and Procedures / Mitigation measures to achieve it	Responsible person for implementation	Implementation timeframe and frequency	Outcome
	<p>be taken. This must also be reported to the ECO and DEA&amp;DP, as well as local authorities if so required.</p> <p>19. Drainage of construction camp</p> <p>20. Run-off from the camp site must not discharge into neighbours' properties.</p> <p><b>End of construction</b></p> <p>1. Once construction has been completed on site and all excess material has been removed, the storage area shall be rehabilitated. If the area was badly damaged, reseeding shall be done.</p> <p>2. Such areas shall be rehabilitated to their natural state. Any spilled concrete shall be removed, and soil compacted during construction shall be ripped, levelled and re-vegetated.</p>			
15. Tree protection	<p>1. All trees, which are to be retained, are to be clearly indicated on a site plan and demarcated.</p> <p>2. Trees to be demarcated shall be clearly marked under the supervision of the Engineer/ECO. Marking techniques include danger tape, paint (be aware of long-term aesthetics), strapping and pegs. Tagging by exclusion shall be considered, i.e. where</p>	Holder of EA or representative	If and when required. Before construction commences and maintained throughout. Note possible application to DAFF.	<ul style="list-style-type: none"> <li>• Protect the various protected trees, note possible application to DAFF.</li> </ul>

Action	Proposed impact management action and Procedures / Mitigation measures to achieve it	Responsible person for implementation	Implementation timeframe and frequency	Outcome
	<p>the number of trees to be cleared is fewer than those to be retained then marked trees for felling and all other trees shall automatically be retained.</p> <p>3. Demarcation shall remain in place for the duration of works on site. If damaged, demarcation shall be repaired or replaced immediately.</p>			
16. Sensitive environments	<p><b>Additional</b></p> <ol style="list-style-type: none"> <li>1. Ablution facilities must be located as far away as possible from the river and wetland. Safe and effective sewage treatment will require one of the following sewage handling methods:</li> <li>2. The use of chemical toilets which are supplied and maintained by the subcontractor</li> <li>3. The establishment of ablution facilities for all staff and construction workers. A minimum of one toilet must be provided per 15 persons at each working area.</li> <li>4. Effluent and wastewater – All effluent water from the camp/office must be disposed of in a properly designed and constructed system (ablution facilities), situated so as not to adversely affect the</li> </ol>	Holder of EA or representative/ Contractor	Before construction commences and maintained throughout. If and when required.	<ul style="list-style-type: none"> <li>• No further impacts on the fauna and flora other than outlined and approved.</li> </ul>

Action	Proposed impact management action and Procedures / Mitigation measures to achieve it	Responsible person for implementation	Implementation timeframe and frequency	Outcome
	<p>river and wetland. No construction fluids must be allowed to enter the river and wetland. These must be disposed of via the solid waste stream. No wastewater must be disposed of onto soil. This does not include clean groundwater from excavations or rainwater.</p> <p>5. Hazardous waste and spillage – Petrochemicals, oils and identified hazardous substances must only be stored under controlled conditions. All hazardous materials must be stored in a secured, appointed area that is fenced and has restricted entry. The site must be protected from direct or indirect spillage of pollutants such as cement, concrete, sewage, chemicals, fuels, oils, aggregate, tailings, wash water, organic materials and bituminous or tar products. Responsibility for spill treatments lies with the contractor. Should water downstream of the spill be polluted, and fauna and flora show signs of deterioration or death, specialist hydrological or ecological advice will be sought for appropriate treatment and remedial procedures to be followed.</p>			

Action	Proposed impact management action and Procedures / Mitigation measures to achieve it	Responsible person for implementation	Implementation timeframe and frequency	Outcome
	<p>6. Construction vehicles and equipment must be kept in a good working condition. Storage and re-fuelling areas must be clearly demarcated, bunded and lined.</p> <p>7. Spillage of any fuels directly onto bare soil or into a watercourse must be prevented at all times.</p> <p>8. Litter and solid waste – No littering by construction workers must be allowed. Measures must be taken by the contractor to reduce the potential for litter and negligent behaviour with regard to the disposal of all refuse. The contractor must provide litter bins at all places of work. Solid waste must be stored in an appointed area in covered, tip proof metal drums for collection and disposal.</p> <p><b>Animals</b></p> <p>1. The site is within a rural area that has been extensively cultivated and it is therefore unlikely that any animal life would be present. However, should any animal life be encountered it must be carefully removed and none must be harmed or killed. Most animals will move away naturally except possibly snakes. Any</p>			

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	problems must be reported to the ECO.			
17. Cement mixing/batching plant	<ol style="list-style-type: none"> <li>1. The cement mixing or batching plant area(s) must be indicated on the Site Establishment Plan.</li> <li>2. All wastewater resulting from batching of concrete shall be disposed of via the wastewater management system where available.</li> <li>3. The cement/ concrete batching works shall be kept neat and clean at all times. No batching activities shall occur on unprotected substratum of any kind.</li> <li>4. All runoff from batching areas shall be strictly controlled, and cement-contaminated water shall be collected, stored and disposed of at a site approved by the Engineer/ECO/EO. Dagga 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.</li> <li>5. Contaminated water storage facilities shall not be allowed to overflow and appropriate protection from rain and flooding shall be implemented.</li> </ol>	Holder of EA or representative/ Contractor	Continuously Throughout the construction phase. If and when required.	<ul style="list-style-type: none"> <li>• Mixing of cement will be done in an environmentally sensitive manner.</li> <li>• No cement spillage takes place.</li> </ul>



Action	Proposed impact management action and Procedures / Mitigation measures to achieve it	Responsible person for implementation	Implementation timeframe and frequency	Outcome
	<p>6. Contaminated water treatment on Site shall require a method statement approved by Engineer/ECO/EO.</p> <p>7. Unused cement bags are to be stored so as not to be affected by rain or runoff events.</p> <p>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.</p> <p>9. Concrete transportation shall not result in spillage.</p> <p>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.</p> <p>11. Suitable screening and containment shall be in place to prevent wind-blown contamination associated with bulk</p>			

Action	Proposed impact management action and Procedures / Mitigation measures to achieve it	Responsible person for implementation	Implementation timeframe and frequency	Outcome
	<p>cement silos, loading and batching.</p> <p>12. With respect to exposed aggregate finishes, the Contractor shall collect all contaminated water &amp; fines and store it in sumps for disposal at an approved waste site.</p> <p>13. All visible remains of excess concrete shall be physically removed on completion of the plaster or concrete pour section and disposed. 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.</p> <p>14. During cement delivery boards or other protection material must be used to prevent spilling on the ground.</p> <p>15. No mixed concrete/dagga must be placed or stored on bare surfaces. Dagga boards must be use at all times to prevent contamination of surfaces.</p>			
18. 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.	Holder of EA or representative/ Contractor	Continuously Throughout the construction phase. If	•No further degradation or deterioration of ground and surface water due to

Action	Proposed impact management action and Procedures / Mitigation measures to achieve it	Responsible person for implementation	Implementation timeframe and frequency	Outcome
	<p>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.</p> <ol style="list-style-type: none"> <li>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.</li> <li>3. Bulk cement silos and storage areas must be properly lined/screened/contained to prevent windblown cement dust or pollution of water during rain events.</li> <li>4. On completion, storm water catch pits must be closed with geotextile (biddim) or similar material to prevent sand or other contaminants from entering the system.</li> <li>5. Ready-mix trucks are not permitted to clean chutes at the work site.</li> <li>6. 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 must be disposed</li> </ol>		and when required.	construction activities.

Action	Proposed impact management action and Procedures / Mitigation measures to achieve it	Responsible person for implementation	Implementation timeframe and frequency	Outcome
	<p>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.</p> <p>7. The Contractor shall provide water and/or washing facilities at the construction camp for personnel.</p> <p>8. In the event of any pollution entering any water body, the Contractor shall inform the RE/ECO/EO immediately.</p> <p>9. The contractor will be responsible for any clean-up costs involved should pollution, erosion or sedimentation have taken place.</p>			
19. Air pollution	<p><b>Air Pollution</b></p> <p>1. 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.</p> <p>2. In order to minimize the effect of dust pollution, the construction area must 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</p>	Holder of EA or representative/ Contractor	Continuously Throughout the construction phase. If and when required.	Ensuring dust etc associated with construction activities are mitigated and managed to prevent any degradation to the natural environment.

Action	Proposed impact management action and Procedures / Mitigation measures to achieve it	Responsible person for implementation	Implementation timeframe and frequency	Outcome
	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.			
20. Noise control	<ol style="list-style-type: none"> <li>1. Working hours will be restricted to daily normal working hours.</li> <li>2. Limit the use of heavy vehicle machinery and construction activities associated with high level noise to 07h00 to 18h00 from Mondays to Saturdays, particularly to where residential areas or sensitive institutions are situated close to the site.</li> <li>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.</li> <li>4. All plant and machinery are to be fitted with adequate silencers.</li> <li>5. No sound amplification equipment such as sirens, loud hailers or hooters shall be used on site, after normal working hours, except in emergencies.</li> </ol>	Holder of EA or representative	Continuously Throughout the construction phase. If and when required.	<ul style="list-style-type: none"> <li>• Ensuring no noise levels above Standard and mitigating possible noise in the receiving environment.</li> </ul>



Action	Proposed impact management action and Procedures / Mitigation measures to achieve it	Responsible person for implementation	Implementation timeframe and frequency	Outcome
	<p>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. Dates, times and the nature of the work to be undertaken are to be provided. Notification may include letter-drops.</p> <p>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.</p> <p>8. The Contractor shall 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 must be restricted between 06:00 and 18:00, or as otherwise agreed between the parties involved. Strict measures shall therefore be enforced, especially in terms of the contract specifications, to prevent any negative</p>			

Action	Proposed impact management action and Procedures / Mitigation measures to achieve it	Responsible person for implementation	Implementation timeframe and frequency	Outcome
	impacts in this regard.			
21. Pipe testing and cleaning	<ol style="list-style-type: none"> <li>1. Cleaning/flushing of pipelines shall not impair (down grade) downstream baseline water quality.</li> <li>2. Materials used in the sterilisation of pipelines, viz. chlorine solutions shall be treated as hazardous substances and disposed of at an approved landfill site.</li> <li>3. Litter traps shall be installed and maintained at the outflow of all pipelines.</li> </ol>	Holder of EA or representative/ Contractor	Continuously Throughout the construction phase. If and when required.	<ul style="list-style-type: none"> <li>• No blockages and damage to pipes.</li> </ul>
22. Erosion control	<p>The Contractor must 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:</p> <ol style="list-style-type: none"> <li>1. Brush cut packing</li> <li>2. Mulch or chip cover</li> <li>3. Straw stabilising (at the rate of one bale/m<sup>2</sup> and rotated into the top 100mm of the Completed earthworks)</li> <li>4. Watering</li> <li>5. Planting / sodding</li> <li>6. Hand seeding sowing</li> <li>7. Hydroseeding</li> </ol>	Holder of EA or representative/ Contractor	Continuously Throughout the construction phase. If and when required.	<ul style="list-style-type: none"> <li>• Ensuring no further degradation of the natural environment.</li> <li>• Ensure no more vegetation cleared or Disturbed due to erosion.</li> <li>• No erosion downstream of the newly constructed dams.</li> </ul>

Action	Proposed impact management action and Procedures / Mitigation measures to achieve it	Responsible person for implementation	Implementation timeframe and frequency	Outcome
	<ul style="list-style-type: none"> <li>8. Soil binders and anti-erosion compounds</li> <li>9. Mechanical cover or packing structures</li> <li>10. Gabions &amp; mattresses</li> <li>11. Geofabric</li> <li>12. Hessian cover</li> <li>13. Armourflex</li> <li>14. Log / pole fencing</li> <li>15. Retaining walls</li> <li>16. The Contractor shall take reasonable measures to control the erosive effects of storm water runoff.</li> <li>17. The Contractor shall use silt screens to prevent overland flowing water from causing erosion.</li> <li>18. 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.</li> <li>19. The ploughing-in of straw offers limited protection against storm water runoff induced erosion and shall be used as an erosion protection measure.</li> <li>20. The Contractor shall be liable for any damage to downstream property caused by the diversion of overland storm water flows.</li> </ul>			

Action	Proposed impact management action and Procedures / Mitigation measures to achieve it	Responsible person for implementation	Implementation timeframe and frequency	Outcome
23. Dust control	<p><b>DUST - generated by works</b></p> <ol style="list-style-type: none"> <li>1. Sand stockpiles are to be covered with hessian, shade cloth or DPC plastic.</li> <li>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.</li> <li>3. Excavating, handling or transporting erodible materials in high wind or when dust plumes visible shall be avoided.</li> <li>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.</li> </ol> <p><b>Dust – generated by roads and vehicle movement</b></p> <ol style="list-style-type: none"> <li>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.</li> <li>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:                     <ol style="list-style-type: none"> <li>2.1 Reduction of travelling speeds along the road.</li> </ol> </li> </ol>	Contractor	Continuously Throughout the construction phase. If and when required.	<ul style="list-style-type: none"> <li>• Ensuring proper dust suppression.</li> <li>• Minimizing the potential dust impacts during construction.</li> </ul>

Action	Proposed impact management action and Procedures / Mitigation measures to achieve it	Responsible person for implementation	Implementation timeframe and frequency	Outcome
	2.2 Restriction of vehicle or plant usage. 2.3 Application of chemical soil binders. 2.4 Application of a suitable sacrificial road surfacing. 2.5 If water is to be used for dust suppression, then only the critical areas shall 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.			
24. 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. 1.1. The Contractor shall take all reasonable and active steps to avoid increasing the risk of fire through their activities on Site. No fires shall be lit except at places approved by the Engineer/ECO/EO. 1.2. The Contractor shall ensure that the basic	Contractor	Continuously Throughout the construction phase. If and when required.	<ul style="list-style-type: none"> <li>• Prevent any open fires from taking place.</li> <li>• Prevention measures in place if any accidental fires do take place.</li> </ul>

Action	Proposed impact management action and Procedures / Mitigation measures to achieve it	Responsible person for implementation	Implementation timeframe and frequency	Outcome
	<p>fire-fighting equipment is to the satisfaction of the Municipal Fire Chief (where applicable).</p> <p>1.3. 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 firefighting equipment.</p> <p>1.4. Fire and “hot work” shall be restricted to a site approved by the Engineer/ECO/EO</p> <p>1.5. A braai facility shall 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.</p> <p>1.6. Fires within National Parks, Nature Reserves and natural areas are prohibited.</p> <p>1.7. 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</p>			



Action	Proposed impact management action and Procedures / Mitigation measures to achieve it	Responsible person for implementation	Implementation timeframe and frequency	Outcome
	<p>considered when assessing the risk of fires.</p> <p>1.8. 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.</p> <p>1.9. 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.</p> <p>1.10. Should a contractor be found responsible for the outbreak of a fire, he</p>			

Action	Proposed impact management action and Procedures / Mitigation measures to achieve it	Responsible person for implementation	Implementation timeframe and frequency	Outcome
	shall be liable for any associated costs.			
25. Water management	<ol style="list-style-type: none"> <li>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.</li> <li>2. Taps are to be attached to secure supports and leaking taps and hosepipes are to be repaired immediately.</li> <li>3. Watering as dust suppression must be undertaken as a last resort. It is preferable that sand stockpiles be covered rather than watered.</li> <li>4. Any abstraction from natural water sources such as a stream or groundwater will require a Method Statement for approval by the RE/ECO/EO.</li> <li>5. An adequate supply of potable water that complies with bacteriological and chemical quality must be available at all times.</li> <li>6. Water samples of the potable water must be taken at regular intervals and the results kept on record.</li> <li>7. The aforementioned records must be made available to a competent authority</li> </ol>	Holder of EA or representative	Continuously Throughout the construction phase. If and when required.	<ul style="list-style-type: none"> <li>•Management of water for drinking, construction activities and dust suppression.</li> </ul>

Action	Proposed impact management action and Procedures / Mitigation measures to achieve it	Responsible person for implementation	Implementation timeframe and frequency	Outcome
	upon request.			
26. Waste management	<ol style="list-style-type: none"> <li>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 shall include the use of rubble as fill, minimisation of waste concrete and the use of brush cuttings for mulching on rehabilitated areas.</li> <li>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.</li> <li>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</li> </ol>	Holder of EA or representative/ Contractor.	Continuously Throughout the construction phase. If and when required.	<ul style="list-style-type: none"> <li>•Ensure the site is kept free of litter.</li> <li>•Ensuring proper waste management and removal takes place.</li> <li>•Ensuring legal waste removal takes place.</li> </ul>

Action	Proposed impact management action and Procedures / Mitigation measures to achieve it	Responsible person for implementation	Implementation timeframe and frequency	Outcome
	<p>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).</p> <p>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.</p> <p>5. The Contractor shall provide labourers to clean up the Contractor's camp and Site on a weekly basis.</p> <p>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.</p> <p>7. No waste, specifically rubble and "building rubble" shall be utilised for fill material, except where such actions are approved or licenced</p>			
27. Toilets	<p>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</p>	Holder of EA or representative	Continuously Throughout the construction phase. If and when required.	<ul style="list-style-type: none"> <li>•Appropriate sewerage management will take place.</li> <li>•Sufficient ablution facilities provided.</li> </ul>

Action	Proposed impact management action and Procedures / Mitigation measures to achieve it	Responsible person for implementation	Implementation timeframe and frequency	Outcome
	<p>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.</p> <ol style="list-style-type: none"> <li>2. The Contractor shall keep the toilets in a clean, neat and hygienic condition. The Contractor shall supply toilet paper at all toilets.</li> <li>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 wetland.</li> <li>4. 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.</li> <li>5. The Contractor shall ensure that no spillage occurs when chemical toilets are</li> </ol>			

Action	Proposed impact management action and Procedures / Mitigation measures to achieve it	Responsible person for implementation	Implementation timeframe and frequency	Outcome
	<p>cleaned and emptied.</p> <p>6. The Contractor shall supply a contingency plan for spills from toilets.</p> <p>7. Performing ablutions in any other area is strictly prohibited.</p> <p>8. The location for construction camps and toilets must be approved by the ECO.</p>			
<p>28. Fuel and chemical management</p>	<ol style="list-style-type: none"> <li>1. Fuel may be stored on site providing the following is strictly adhered to:</li> <li>2. All necessary approvals with respect to fuel storage and dispensing shall be obtained from the appropriate authorities.</li> <li>3. The Municipal Fire Chief (or as applicable) must be informed and consulted to Fire Regulations.</li> <li>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.</li> <li>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</li> </ol>	<p>Holder of EA or representative</p>	<p>Continuously Throughout the construction phase. If and when required.</p>	<ul style="list-style-type: none"> <li>•Ensuring proper use/ storage/ handling and management of fuel on site.</li> <li>•Ensuring minimal to no impact on the natural environment.</li> </ul>



Action	Proposed impact management action and Procedures / Mitigation measures to achieve it	Responsible person for implementation	Implementation timeframe and frequency	Outcome
	<p>to overflow.</p> <p>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.</p> <p>7. The contractor will be responsible for the cleaning up of any spill and associated costs.</p> <p>8. Areas for storage of fuels and other flammable materials shall comply with standard fire safety regulations and shall require the approval of the Municipal Fire Chief (in urban areas) or RE/ECO/EO.</p> <p>9. Temporary above ground storage tanks may be permitted at the discretion of the Municipal Fire Chief based on the merit of the situation, provided that the following requirements are complied with:</p> <p>10. Written application together with a plan and authority from the Municipality shall be forwarded to the Municipal Fire Chief (in urban areas) or RE/ECO/EO at least</p>			

Action	Proposed impact management action and Procedures / Mitigation measures to achieve it	Responsible person for implementation	Implementation timeframe and frequency	Outcome
	<p>fourteen (14) days prior to the installation being erected on site. Written permission shall be obtained from the chief fire officer for the erection of the installation.</p> <p>11. The drawn plan shall be acceptable to the Municipal Fire Chief (in urban areas) or RE/ECO/EO and to contain the following information:</p> <p>1.11. the scale</p> <p>1.12. the name and address of the premises,</p> <p>1.13. the number and the quantity of the tanks,</p> <p>1.14. the position of the tanks in relation to the boundary, other flammable or combustible materials, etc,</p> <p>1.15. the size and construction materials used for the bund</p> <p>1.16. the product to be kept in the tank, and</p> <p>1.17. any other information relevant to the situation.</p> <p><b>Location</b></p> <p>12. The fuel storage area shall be located at one of the following locations: {provide a</p>			

Action	Proposed impact management action and Procedures / Mitigation measures to achieve it	Responsible person for implementation	Implementation timeframe and frequency	Outcome
	<p>list of acceptable locations for the fuel storage area).</p> <p>13. The Engineer/ECO shall be advised of the area that the Contractor intends using for the storage of fuel.</p> <p>14. The location of the fuel storage area will be determined by the Municipal Fire Chief (in urban areas) and be approved by the Engineer/ECO/EO.</p> <p>15. The tank shall be erected at least 3.5 meters from buildings, boundaries and any other combustible or flammable materials.</p> <p><b>Signs/good practice/safety precautions</b></p> <p>16. 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.</p> <p>17. No smoking shall be allowed in the vicinity of the stores.</p> <p>18. 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</p>			

Action	Proposed impact management action and Procedures / Mitigation measures to achieve it	Responsible person for implementation	Implementation timeframe and frequency	Outcome
	<p>SABS 0232 part 1.</p> <p>19. There shall be adequate fire-fighting equipment at the fuel storage and dispensing area or areas.</p> <p>20. Fuel shall be kept under lock and key at all times.</p> <p><b>Tanks</b></p> <p>21. The storage tank shall be removed on completion of the works.</p> <p>22. The storage tank shall be on the premises only for as long as the contract last.</p> <p>23. All such tanks to be designed and constructed in accordance with a recognised code.</p> <p>24. The rated capacity of tanks shall provide sufficient capacity to permit expansion of the product contained therein by the rise in temperature during storage.</p> <p><b>Bunds/storage areas</b></p> <p>25. 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</p>			

Action	Proposed impact management action and Procedures / Mitigation measures to achieve it	Responsible person for implementation	Implementation timeframe and frequency	Outcome
	<p>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.</p> <p>26. A bacterial hydrocarbon digestion agent that is effective in water approved by the Engineer/ECO/EO shall be installed in the sump.</p> <p>27. The tanks and banded areas shall be covered by a roofed structure to prevent the banded 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.</p> <p>28. 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.</p> <p><b>Empty containers</b></p> <p>29. Only empty and externally clean tanks</p>			

Action	Proposed impact management action and Procedures / Mitigation measures to achieve it	Responsible person for implementation	Implementation timeframe and frequency	Outcome
	<p>shall 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.</p> <p><b>Filling/dispensing methods</b></p> <p>30. Any electrical or petrol-driven pump shall be equipped and positioned so as not to cause any danger of ignition of the product.</p> <p>31. 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.</p> <p>32. Adequate precautions shall be provided to prevent spillage during the filling of any tank and during the dispensing of the contents.</p> <p><b>Method statements</b></p> <p>33. A method statement is required for the filling of and dispensing from storage tanks.</p>			
34. Litter and oil traps	2) Refuse screens and oil traps shall be installed at runoff concentration points	Holder of EA or representative	Continuously Throughout the	



Action	Proposed impact management action and Procedures / Mitigation measures to achieve it	Responsible person for implementation	Implementation timeframe and frequency	Outcome
	<p>from large parking facilities, wash bays, storm water outlets, inlets to detention ponds, workshop forecourt drainage points, ablution and eating areas. These facilities shall be serviced and monitored at the discretion of the Engineer/ECO</p>		<p>construction phase. If and when required.</p>	
<p>29. Contaminated water</p>	<p><b>General</b></p> <p>3) The Engineer/ECO/EO's approval will be required prior to the discharge of contaminated water to the Municipal sewer system.</p> <p>4) The Contractor shall prevent discharge of any pollutants, such as cements, concrete, lime, chemicals and fuels into any water sources.</p> <p>5) Water from kitchens, showers, laboratories, sinks etc. shall be discharged into a conservancy tank for removal from the site.</p> <p>6) Runoff from fuel depots/workshops/truck washing areas and concrete swills shall be directed into a conservancy tank and disposed of at a site approved by the Engineer/ECO and Local Authority.</p>	<p>Holder of EA or representative</p>	<p>Continuously Throughout the construction phase. If and when required.</p>	<ul style="list-style-type: none"> <li>•Contaminated water will be dealt with as part of the existing infrastructure on the property.</li> <li>•The workshops on the property will be utilised to manage runoff.</li> </ul>

Action	Proposed impact management action and Procedures / Mitigation measures to achieve it	Responsible person for implementation	Implementation timeframe and frequency	Outcome
	<p>7) 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.</p> <p><b>Washing areas</b></p> <p>8) 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.</p> <p>9) 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.</p> <p>10) Wash areas for domestic use shall ensure that the disposal of contaminated “grey” water is sanctioned by the Engineer/ECO.</p>			
30. Vehicles and access roads	1. The movement of any vehicles and/ or personnel outside of the designated	Holder of EA or representative	Continuously Throughout the	•Proper vehicle movement on site and

Action	Proposed impact management action and Procedures / Mitigation measures to achieve it	Responsible person for implementation	Implementation timeframe and frequency	Outcome
	<p>working areas shall not be permitted without the written authorisation of the Engineer/ECO.</p> <p>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.</p> <p>3. Dust control measures such as dampening with water shall be implemented where necessary, as indicated by the Engineer/ECO.</p> <p>4. Access and haul roads shall be maintained by the Contractor.</p> <p>5. Maintenance includes adequate drainage and side drains, dust control and restriction of edge use.</p> <p>6. All temporary access routes shall be rehabilitated at the end of the contract to the satisfaction of the Engineer/ECO.</p> <p>7. All public roads shall be kept clear of mud and sand. Mud and sand that has been deposited through construction activities shall be cleared regularly.</p>		construction phase. If and when required.	<p>surrounding areas.</p> <ul style="list-style-type: none"> <li>•Management of potential damage to existing roads during construction.</li> <li>•Traffic management to ensure safety on roads.</li> </ul>

Action	Proposed impact management action and Procedures / Mitigation measures to achieve it	Responsible person for implementation	Implementation timeframe and frequency	Outcome
	<p>8. Any materials used for layer works shall be approved by the Engineer/ECO prior to the activity commencing.</p> <p>9. Damage to the existing access roads as a result of construction activities shall be repaired to the satisfaction of the Engineer/ECO/EO, using material similar to that originally used. The cost of the repairs shall be borne by the Contractor</p> <p>10. Traffic safety measures, to the satisfaction of the Engineer/ECO, shall be considered in determining entry / exit onto public roads.</p> <p>11. All users of haul roads shall not exceed 45 km/h (cars)/ 15 km/h (trucks) {note that the standard spec places a site speed limit of 45 km/h for all vehicles}</p> <p>12. Appropriate traffic warning signs shall be erected and maintained.</p> <p>13. Trained and equipped flagmen shall be used where the access road intersects with any public roads.</p> <p>14. Attention shall be paid to minimising disruption of the flow of traffic and reducing the danger to other road users and pedestrians.</p> <p>15. Method statements are required for the</p>			

Action	Proposed impact management action and Procedures / Mitigation measures to achieve it	Responsible person for implementation	Implementation timeframe and frequency	Outcome
	<p>following: -</p> <ul style="list-style-type: none"> <li>• Traffic safety measures with regard to entry and exit on public roads and the control of construction traffic.</li> <li>• 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.</li> </ul>			
31. Stockpiling of materials	1. 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.	Holder of EA or representative/Contractor	Continuously Throughout the construction phase. If and when required.	<ul style="list-style-type: none"> <li>•Appropriate stockpiling, to ensure topsoil can be utilised properly.</li> <li>•Re-establish vegetation</li> </ul>
32. Heritage remains	1. Should any unmarked human burials/remains or ostrich eggshell water flask caches be uncovered, or exposed during preparation of the lands for cultivation, , these must immediately be reported to the appointed archaeologist, or the South African Heritage Resources Agency (Ms Natasha Higgitt' 021 462 4502). Burials, etc. must not be removed	Holder of EA or representative/Contractor If discovered qualified archaeologist and/or palaeontologist.	Continuously Throughout the construction phase. If and when required.	<ul style="list-style-type: none"> <li>•To ensure the proper management of heritage remains are undertaken in the event of a discovery during construction and excavations.</li> </ul>

Action	Proposed impact management action and Procedures / Mitigation measures to achieve it	Responsible person for implementation	Implementation timeframe and frequency	Outcome
	<p>or disturbed until inspected by the archaeologist.</p> <p>2. It is therefore recommended that, pending the discovery of significant new fossils remains before or during development, exemption from further specialist palaeontological studies and mitigation be granted for the proposed agricultural development on Kakamas South Settlement no 2435 near Augrabies, Northern Cape.</p> <p>3. A qualified archaeologist and/or palaeontologist must be contracted where necessary (at the expense of the holder) to remove any heritage remains.</p> <p>4. If any evidence of archaeological sites or remains (e.g. remnants of stone-made structures, indigenous ceramics, bones, stone artefacts, ostrich eggshell fragments, charcoal and ash concentrations), fossils or other categories of heritage resources are found during the proposed development, SAHRA APM Unit (Natasha Higgitt/Phillip Hine 021 462 5402) must be alerted as per section 35(3) of the NHRA. Non-compliance with section of the NHRA is an</p>			



Action	Proposed impact management action and Procedures / Mitigation measures to achieve it	Responsible person for implementation	Implementation timeframe and frequency	Outcome
	<p>offense in terms of section 51(1)e of the NHRA.</p> <p>5. If unmarked human burials are uncovered, the SAHRA Burial Grounds and Graves (BGG) Unit (Thingahangwi Tshivhase/Mimi Seetelo 012 320 8490), must be alerted immediately as per section 36(6) of the NHRA. Non-compliance with section of the NHRA is an offense in terms of section 51(1)e of the NHRA.</p> <p>6. The following conditions apply with regards to the appointment of specialists:</p> <p>i) If heritage resources are uncovered during the course of the development, a professional archaeologist or palaeontologist, depending on the nature of the finds, must be contracted as soon as possible to inspect the heritage resource. If the newly discovered heritage resources prove to be of archaeological or palaeontological significance, a Phase 2 rescue operation may be required subject to permits issued by SAHRA;</p>			
33. Contingency planning	1. 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	Holder of EA or representative	Continuously Throughout the construction phase. If	•Management tools and emergency contacts available in the event of a

Action	Proposed impact management action and Procedures / Mitigation measures to achieve it	Responsible person for implementation	Implementation timeframe and frequency	Outcome
	<p>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.</p> <p>2. Containment, clean-up, and remediation must commence immediately.</p>		and when required.	spillage or incident.
34. Energy Efficiency & Waste Minimization Measures	<p>The following design measures will be considered for energy and water saving measures:</p> <ul style="list-style-type: none"> <li>• Household waste to be separated and re-cycled (glass, paper, green/garden waste).</li> <li>• The use of energy saving bulbs in all structures, alternatively use low voltage or compact fluorescent lights are to be used in this project.</li> </ul>	Holder of EA or representative	Continuously Throughout the construction phase. If and when applicable and required.	•Energy and water saving mechanisms implemented.



## **Appendix A: Additional Reports**

No additional reports

**Appendix B: Tracking Table**

Requirement	Received		Date	Comment
	Yes	No		
Methodology statement				
Site establishment plan				
Letter re contents of EMPr				
Letter re awareness training				

## Appendix C: Schedule of Fines

### SCHEDULE OF FINES FOR ENVIRONMENTAL DAMAGE OR EMPr TRANSGRESSIONS

(Based on City of Cape Town: Standard Environmental Specifications – Ver. 5 (03/2002))

Note: The maximum fine for any environmental damage will never be less than the cost of applicable environmental rehabilitation.

EMPr TRANSGRESSION OR RESULTANT ENVIRONMENTAL DAMAGE	MIN. FINE	MAX. FINE
Failure to comply with prescriptions regarding appointment of an ESO and monitoring of EMPr compliance.	R500	R2000
Failure to comply with prescriptions regarding environmental awareness training.	R500	R5000
Failure to comply with prescriptions regarding method statements.	R500	R5000
Failure to report environmental damage or EMPr transgressions to the ESO.	R500	R1000
Failure to carry out instructions of the ESO regarding the environment or the EMPr.	R500	R1000
Failure to comply with prescriptions posting of emergency numbers.	R500	R5000
Failure to comply with prescriptions regarding a complaint register.	R500	R1000
Failure to comply with prescriptions regarding information boards.	R500	R1000
Failure to comply with prescriptions regarding site demarcation and enforcement of 'no go' areas.	R500	R5000
Failure to comply with prescriptions regarding site clearing.	R500	R5000
Failure to comply with prescriptions for supervision for loading and off-loading of delivery vehicles.	R500	R1000
Failure to comply with prescriptions for securing of loads to ensure safe passage of delivery vehicles.	R500	R1000
Failure to comply with prescriptions for the storage of imported materials within a designated contractor's yard.	R500	R1000
Failure to comply with prescribed administration, storage or handling of hazardous substances.	R500	R1000
Failure to comply with prescriptions regarding equipment maintenance and storage.	R500	R1000
Failure to comply with fuel storage, refuelling, or clean-up prescriptions.	R500	R1000
Failure to comply with prescriptions regarding procedures for emergencies (spillages and fires).	R1000	R5000
Failure to comply with prescriptions regarding construction camp.	R500	R5000
Failure to comply with prescriptions for the use of ablution facilities.	R500	R1000
Failure to comply with prescriptions regarding water provision.	R500	R1000
Failure to comply with prescriptions for the use of designated eating areas, heating source for cooking or presence of fire extinguishers	R500	R1000
Failure to comply with prescriptions regarding fire control.	R500	R5000
Failure to comply with prescriptions for solid waste management.	R500	R5000
Failure to comply with prescriptions regarding road surfacing.	R500	R5000
Failure to comply with prescriptions to prevent water pollution and sedimentation	R500	R5000
Failure to comply with prescriptions to the protection of natural features, flora, fauna and archaeology.	R500	R5000
Failure to comply with prescriptions regarding speed limits.	R500	R1000
Failure to comply with prescriptions regarding noise levels of construction activities.	R500	R5000
Failure to comply with prescriptions regarding working hours.	R500	R5000



Failure to comply with prescriptions regarding aesthetics.	R500	R1000
Failure to comply with prescriptions regarding dust control.	R500	R1000
Failure to comply with prescriptions regarding security and access onto private property	R500	R1000
Failure to comply with prescriptions regarding cement and concrete batching	R500	R5000

For each subsequent similar offence committed by the same individual, the fine shall be doubled in value to a maximum value of R50,000.

## Appendix D: Method Statement Proforma

### METHOD STATEMENT PROFORMA

#### METHOD STATEMENT FOR THE:

This method statement is to be completed by the Contractor (in consultation with the Resident Engineer and EO) at least 5 working days prior to the proposed commencement date of the said work and represents a binding agreement to the method statement by all site contractors and sub-contractors involved in the work for which the method statement is submitted.

DATE OF SUBMISSION: \_\_\_\_\_

LEAD CONTRACTOR: \_\_\_\_\_

OTHER CONTRACTORS AND/OR SUB-CONTRACTORS: \_\_\_\_\_

Describe in detail what work is to be undertaken?

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Describe in detail where on the site the works are to be undertaken and the extent? Provide a sketch plan and grid block reference.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Lead supervisor/foreman name and contact details: \_\_\_\_\_

Number of personnel: \_\_\_\_\_

Construction activities: \_\_\_\_\_

Plant and machinery to be used: \_\_\_\_\_

Other: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

What environmental impacts are anticipated and what precautions are proposed to prevent these impacts? (Refer to the relevant sections of the EMPr for guidance and provide general site camp layout).

\_\_\_\_\_

Toilet facilities: \_\_\_\_\_

Litter: \_\_\_\_\_

Security: \_\_\_\_\_

Plant/machinery (operation, servicing, management, storage, refuelling, etc.).

\_\_\_\_\_

Emergencies and fire: \_\_\_\_\_

\_\_\_\_\_

Hazardous materials (handling, management, storage):

\_\_\_\_\_

Have all personnel involved been through an environmental induction course:

\_\_\_\_\_

Petrochemical spill remediation and containment measures:

\_\_\_\_\_

Other:

\_\_\_\_\_

---

**DECLARATION BY PARTIES**

**Contractor:**

I understand the contents of the method statement and the scope of the works required of me. I further understand that the method statement may be amended on application to the above signatories and that the Environmental Officer will audit my compliance with the contents of this method statement.

\_\_\_\_\_  
*Print Name*

\_\_\_\_\_  
*Date*

\_\_\_\_\_  
*Signed*

**Environmental Officer (EO):**

The work described in this method statement, if carried out according to the methodology described, is satisfactory mitigation to prevent avoidable environmental harm.

\_\_\_\_\_  
*Print Name*

\_\_\_\_\_  
*Date*

\_\_\_\_\_  
*Signed*

**Resident Engineer:**

The work described in this method statement, if carried out according to the methodology described, is satisfactory mitigation to prevent avoidable environmental harm.

\_\_\_\_\_  
*Print Name*

\_\_\_\_\_  
*Date*

\_\_\_\_\_  
*Signed*

**Appendix E: Method Statement Control Sheet**

**METHOD STATEMENT CONTROL SHEET**

CONTRACT NO: \_\_\_\_\_

**METHOD STATEMENT CONTROL SHEET**

(This control sheet is to be attached to all methods statements)

MS Number:

**THIS SECTION TO BE COMPLETED BY THE CONTRACTOR/METHOD STATEMENT AUTHOR ONLY**

<b>TITLE:</b>
<b>DESCRIPTION:</b>
<b>SUBMITTED BY:</b>

Date requested by: \_\_\_\_\_ Date submitted: \_\_\_\_\_

Date response required by: \_\_\_\_\_ Date work start: \_\_\_\_\_

REVIEW SCHEDULE		
Date	Authority	Comments

<b>DISTRIBUTION AND AUTHORISATION</b>			
	<b>APPLICANT</b>	<b>EO</b>	<b>CONTRACTOR</b>
<b>Name</b>			
<b>Signature</b>			
<b>Date</b>			



Appendix F: Project map



## Appendix G: EAP Curriculum Vitae

PB Professional Services CC Phone: 021 873 7228  
 PO Box 1058 Cell: 0827763422  
 Wellington 7654 Fax: 0868721916  
 E-mail: pbps@africa.com

**Pieter Badenhorst**

<b>Nationality</b>	South African		
<b>Date of birth</b>	25 March 1951		
<b>Qualifications</b>	B.Sc. B.Eng. (Civil) M Eng. (Irrigation) B Hons. (B&A) MBA	University of Stellenbosch University of Stellenbosch University of Stellenbosch University of Stellenbosch	1973 1977 1992 1993
<b>Special courses</b>	<ul style="list-style-type: none"> <li>● Project Management (5/1990), GROMAN, Stellenbosch;</li> <li>● Project Management Diploma (2-7/91), Damelin Management School, Cape Town;</li> <li>● Time Management (7/91), FSA-Contact group, Cape Town;</li> <li>● Advanced Project Management, GROMAN (9/91), Stellenbosch;</li> <li>● Environmental Auditing (11/93), Inst. of Environmental Assessment, Lincoln, England;</li> <li>● SPIN Complex Selling (2/94), Sales Productivity Associates, Johannesburg;</li> <li>● Presentation (3/94), Whitehead Morris, Johannesburg;</li> <li>● Public participation - Participlan (10/94), CSIR/Univ. Cape Town</li> </ul>		
<b>Professional membership</b>	Professional engineer, member of the Engineering Council of South Africa Member of the South African Institute of Civil Engineers Member of International Association for Impact Assessment (South Africa)		
<b>Career</b>	Since 1997 1997 1995 - 1996 1993 - 1994 1992 1982 - 1991 1981 1979 - 1980 1978 1974 - 1977	Own consultancy CSIR, Environmentek; Provincial Business Development Manager Gulf Petrochemical Services LLC, Business Development Engineer (Sultanate of Oman & UAE) and CSIR Marketing Manager Middle East (Sultanate of Oman, UAE & Qatar). CSIR, Ematek, Coastal Development Programme; Marketing Manager Study for MBA CSIR, Ematek, Coastal Development Programme; Project Manager Municipality of Somerset West; Deputy Town Engineer Municipality of Kuils River; Town Engineer Municipality of Klerksdorp; Senior Engineer (water) Department of Water Affairs; Assistant Engineer	
<b>Current position</b>	Owner of Pieter Badenhorst Professional Services CC. As a private consultant now provide consultancy services in Environmental/coastal Management, Environmental Engineering, Public Participation and Project Management.		
<b>Professional experience</b>	<p>39 years experience in civil, municipal and environmental engineering as well as business development. Civil experience in heavy construction with Department of Water Affairs. Municipal experience includes Senior Engineer, Klerksdorp, Town Engineer of Kuils River and Deputy Town Engineer of Somerset West. Nearly 16 years at CSIR in environmental management (estuarine and coastal), business management, coastal engineering and project management. Work and lived two years in Middle East working in business development, project management for CSIR contracts, tender preparation and environmental management advice. Have extensively traveled the coastlines of Australia and USA to study coastal management. Other overseas visits were undertaken to UK, Netherlands and Australia to investigate commercialisation of CSIR products and general business opportunities.</p> <p>Now mainly involved with environmental studies and management. Have produced various technology research reports for CSIR. The following projects were undertaken for DEAT: a Coastal Management Technical Guide; project managed the Adopt A Beach and Interpretive Signage projects as well as public participation components; initiated and implemented the Blue Flag campaign in South Africa. A number of impact studies were/are undertaken for various clients including major developments with/without golf courses and eco estates. Produced various Scoping and Environmental Impact Reports, Environmental Management Plans and an Environmental Management Framework. Act as Environmental Control Officer for many developments including Thesen Islands Canal development (Knysna), Pezula Private Estate development (Knysna), George Mall development, Leisure Isle Boat Club upgrade (Knysna), Breakwater Bay (George), St Helena Bay development and various building sites. Have undertaken a number of asset assessments for Municipalities.</p> <p>Presented a third year course in Coastal Management at Cape Technikon.</p>		
<b>Publications/Contracts</b> (A full list is available on request)	<ul style="list-style-type: none"> <li>● Scoping and Environmental Impact reports.</li> <li>● Environmental Management Plans –construction and operation.</li> <li>● Basic Assessment Reports</li> <li>● S24G Applications</li> <li>● Waste License Applications</li> <li>● Water Use License Applications</li> <li>● Quarry applications/EMPRs</li> <li>● Contract reports on coastal and estuarine environmental management, coastal engineering and monitoring (including a beach monitoring project along the KZN coastline) and various reports on implementation of the Blue Flag campaign.</li> <li>● Contract reports in business management include market research and technology requirements (environment, food and textile/clothing industries).</li> <li>● Publications include CZM Technical Guide, CZM Guidelines and Coastal Processes. Research publications on sedimentation in estuaries and low-level environmental monitoring techniques.</li> <li>● Formed part of the Estuarine and Coastal Unit (ECRU) team that compiled the "Estuaries of the Cape" series.</li> <li>● Formed part of the team that compiled the Policy and Principles &amp; Objectives for Coastal Zone Management in the RSA – for Council of the Environment.</li> <li>● Formed part of the team that developed Norms and Standards for inclusion into NEMA.</li> <li>● Feasibility studies for Department of Environment Affairs &amp; Tourism and Department of Water Affairs.</li> <li>● EIA Review for DEAT on proposed Cape Town Harbour expansion</li> <li>● Member of team – SA Wetland audit for SANBI</li> </ul>		

PB Professional Services CC Phone: 021 8737228  
 PO Box 1058 Cell: 076 584 0822  
 Wellington 7654 Fax: 0866721916  
 E-mail: elaniem@iafrica.com

## Elanie Kühn

<b>Nationality</b>	South African		
<b>Date of birth</b>	20 February 1983		
<b>Qualifications</b>	B.Sc. Degree (Zoology & Physiology) B Sc. Hons. (Environmental Management)	North West University – Potchefstroom North West University – Potchefstroom	2004 2005
<b>Special courses</b>	None additional to the above.		
<b>Professional membership</b>	IAIA South Africa		
<b>Career</b>	<b>2010 - current</b> <b>2006 - 2009</b> <b>2005</b>	Pieter Badenhorst Professional Services - Wellington Doug Jeffrey Environmental Consultants - Paarl DERA Environmental Consultancy – Klerksdorp (Part time while completing Hons.)	
<b>Current position</b>	Environmental Assessment Practitioner at Pieter Badenhorst Professional Services cc. As a private consultant now provide consultancy services in Environmental Management, Public Participation and Project Management.		
<b>Professional experience</b>	The consultant has 13 years' experience in project management and report writing. She has worked for two other environmental assessment companies prior to the present. She completed her BSc degree and gained an Honours Degree in Environmental Management from the North West University in Potchefstroom. She has been working with Pieter Badenhorst for the last nine years working on Environmental Impact Assessments and Water Use License Applications.		
<b>Publications/ Contracts</b> (A full list is available on request)	Projects and work experience range from: <ul style="list-style-type: none"> <li>● Project Management</li> <li>● Basic Assessment Reports</li> <li>● Scoping and Environmental Impact Assessment reports.</li> <li>● Environmental Management Programmes –construction/operational/decommissioning.</li> <li>● S24G Applications</li> <li>● Waste License Applications</li> <li>● Water Use License Applications</li> <li>● Mining EMP's</li> <li>● Mining Rights and Prospecting Rights applications</li> <li>● Environmental Control Officer (ECO)</li> <li>● Auditing Reports</li> </ul>		

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## Appendix H: Pipeline Method Statements



Document Title	PIPE LAYING
Document Number	SHRE(DDD)(MS)-01-00
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Revision Number	00

## PIPE LAYING

<b>PROJECT NAME</b>	OB3	<b>DATE:</b>	27 February 2020
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Strauss Plant Hire was approached by Triple D Farms regarding this project.

Accordingly, this method statement was compiled.

### 1. PURPOSE

To set a standard for pipe laying.

### 2. SCOPE

This procedure is applicable to all employees involved in pipe laying.

**Applicable to SPH Internal & External projects**

### 3. REFERENCE DOCUMENTS

Risk Assessment: Earthworks and Layer works  
 Induction Training  
 Planned Task Observations  
 COLTO 1998 Edition  
 SANS 1200  
 ISO 9001 SANS Standard  
 Daily diary, Pre-Trip Inspections & Worksheets

### 4. DEFINITIONS

Contract Manager	Person overseeing operations on site
Site Agent	Person responsible for operations on site
Supervisor	Person directly Responsible for work being conducted
Traffic Officer	Person appointed to be in charge of traffic
LDV	Light Delivery Vehicle
TLB	Tractor Loader Back actor
PPE	Personal Protective clothing
SANS	South African National Standards
MSD	Materials Safety Data Sheet
SARTSM	South African Road Traffic Safety Manual
RE	Resident Engineer
DDD	Triple D Farming
SPH	Strauss Plant Hire

### 5. PROCEDURES

#### 5.1 PERSONNEL, EQUIPMENT & MATERIAL

Personnel

Site Agent  
 Supervisor  
 Excavator- Operator  
 TLB Operator  
 Compactor Operator  
 6x Labour





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## PIPE LAYING

Equipment  
TLB  
Excavator  
LDV  
Hand Tools

Material

Approved bedding material - *sourced from excavation or commercial source.*  
Approved back fill material - *sourced from excavation or commercial source.*  
Approved uPVC pressure pipe 315mm Ø Class 6 in 6.1 m lengths

### 5.2 Requirements

#### 5.2.1 Legal

- The Occupational Health and Safety Act, No. 85 of 1993 and all Applicable Regulations must be complied with.
- Induction Training to be undergone by all personnel.
- Site Rules of Project to be adhered to.
- Task specific Training (Pipe Laying) to be given to all personnel.
- Risk Assessment to be discussed with all personnel and signed for.
- All personnel to be appointed for their specific task
- All machine operators and driver's competency certificates to be in place before allowed on site.

#### 5.2.2 Operational

According to SANS 1200 L

### 5.3 Method Statement and Responsibility

- Site Agent to:
  - study design details and drawings. (before construction starts and plan accordingly),
  - confirm the gradient and levels of the pipe,
  - confirm the manhole positions (If present) as well as the positions for the pipe fittings,
  - confirm the type of pipe,
  - confirm the diameter and class of the pipe,
  - ensure that bedding layers are tested and approved – before final closure.
- Pipe layers, under supervision of Supervisor to:
  - ensure that all the pipe joints are clean,
  - remove the rubbers in the joints and remove all dirt or debris and re-install,
  - ensure that the inside of the pipes are clean,
  - Install the pipes according to their specifications and ensure that the joints are tight, connected to the required markings.
- Labour to cover the pipe with at least 300mm of approved blanket material.
- Pipe layers install all the required fittings according to specifications.
- Supervisor to ensure all concrete thrust blocks are in place.
- Supervisor ensures that constructions of all manholes have been completed.
- Site agent to confirm backfill compaction by means of density testing of each layer in roadways.
- Site agent to pressure tests the pipeline before final connection closures.
- Machine operator to backfill the rest of the trench in 300mm layers.
- Backfilling with selected material free from stones > 50mm.
- Machine operators and labour to clean and finish off.





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### PIPE LAYING

#### 5.4 Health and Safety

- PPE
  - Dust masks
  - Hard Hats
  - Safety Shoes
  - Reflective Vests
  - Safety glasses
  - Gloves
  - Overalls
- Risk Assessment
  - Pipe Laying Risk Assessment
- Safety Measures

Method Statement for Accommodation of TRI46769 traffic MS-ROADS to be enforced before any work commences.

Transport of pipes to camp site

- Truck Driver to be competent, medically fit, appointed and licensed
- Load to be securely strapped

Off-Loading pipes

- Training: Correct posture for picking up heavy objects
- Employees to wear correct PPE
- Lifting Equipment to be load tested and correctly certified
- Only competent, medically fit and licensed operators of lifting equipment to be appointed
- Traffic control where necessary
- No workers to walk underneath suspended load
- Safe Work Load not to be exceeded

Covering pipe in trench with machinery and hand tools

- Only competent, medically fit and licensed operators of machinery to be appointed
- Operator to complete pre-trip inspection register
- Hand tools to be inspected regularly
- No homemade tools to be used
- Task specific training
- Employees to wear correct PPE

#### 5.5 Environmental

- See approved EMP, ROD and Clients Specifications

#### 6. RESPONSIBILITY

- The SPH Project Manager has overall responsibility for establishing and ensuring compliance with this Method Statement.
- The SPH staff is responsible for implementing and/or monitoring activities associated with this Method Statement.
- It is the responsibility of all SPH management personnel to enforce this Method Statement and of each employee to follow it.
- Site Agent: As per appointment
- Safety Officer: As per appointment



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### PIPE LAYING

#### 7. RECORDS

- Copies of competency certificates to be placed on file.
- Records of all risk assessment, compliance certificates, competencies and method statements must be kept on file on site
- Records of all training received by personnel to be kept on file on site.
- Inspection records of all Equipment and Machinery to be kept on file on site.
- Daily Diaries and Tally Sheets to be completed and handed to Site Manager.



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**EXCAVATION AND TRENCHING**

<b>PROJECT NAME</b>	OB3	<b>DATE:</b>	27 February 2020
---------------------	-----	--------------	------------------

Strauss Plant Hire was approached by Triple D Farms regarding this project.

Accordingly, this method statement was compiled.

**1. PURPOSE**

This standard establishes the project requirements for safe excavation and trenching work and maintaining the integrity of services installed during construction.

**2. SCOPE**

This standard applies to all project activities where excavations, trenches, structural penetrations and earthworks are undertaken.

**Applicable to: SPH for Internal & External Projects**

**3. REFERENCE DOCUMENTS**

Risk Assessment: Excavations  
 Induction Training  
 Planned Task Observations

**4. DEFINITIONS**

Contract Manager	Person overseeing operations on site
Site Agent	Person responsible for operations on site
Supervisor	Person directly Responsible for work being conducted
Traffic Officer	Person appointed to be in charge of traffic
LDV	Light delivery Vehicle
TLB	Tractor Loader Back actor
PPE	Personal Protective clothing
SANS	South African National Standards
MSDS	Materials Safety Data Sheet
DDD	Triple D Farming
SPH	Strauss Plant Hire

**5. PROCEDURES**

**5.1 PERSONNEL, EQUIPMENT AND MATERIAL**

Personnel

Site Agent  
 Supervisor  
 Machine Operators  
 Flag Personnel  
 Laborers

Equipment

TLB  
 Excavator



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## EXCAVATION AND TRENCHING

Tipper  
Hand tools (spades, picks etc.)  
Water pump  
Compaction Equipment

### 5.2 REQUIREMENTS

#### 5.2.1 Legal

- The Occupational Health and Safety Act, No. 85 of 1993 and all Applicable Regulations must be complied with.
- Induction Training to be undergone by all personnel.
- Site Rules of Project to be adhere to.
- Task specific Training (Excavations) to be given to all personnel.
- Risk Assessment to be discussed with all personnel and signed for.

#### 5.2.2 Operational Planning

- Be in a clear and audible form.
- Be practical.
- Work effectively.
- Have clearly defined roles, responsibilities and accountabilities.
- Include procedures for periodic review and revision.
- Schedule the works to be done during the dry season - April to August.

#### 5.2.3 Existing underground facilities

- Underground installations, such as sewer, water, fuel, electrical lines or telecommunication lines shall be identified and clearly shown on drawing or sketch and mark prior to any work commencing.
- The underground installations shall be located by hand digging to locate the exact position before any mechanical digging commences. Sonic or other detection techniques can be used to assist.
- No mechanical excavation shall take place within one meter of any parallel services without approval.

#### 5.2.4 Supervision

- Site Foreman / supervisor shall ensure daily that workers comply with all safety, health and environmental regulations whilst work is in progress.
- Daily safety toolbox talks will take place and be recorded.
- Will inspect the excavation/trench before work commences and at regular intervals during the day.
- A register must be kept of all actions on site.

### 5.3 Quality

Quality to be control according to SPH Construction Quality Control Management System.

### 5.4 Health and Safety

#### • PPE

All persons will wear the following PPE at all times while performing excavation work.

- Hard Hat – Mandatory
- Safety boots
- High visibility garment (vest) – Mandatory
- Leather Safety gloves
- Overall





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## EXCAVATION AND TRENCHING

- Risk Assessment
  - Earthwork and Trenching Risk Assessment
- Safety Measures

### Excavation Collapse

**Site 1 (Gravel road): 28 m long 1.3m wide & 1.5m deep.**  
**Site 2 (Dam): 33 m long 1.3 m wide & 1.5m deep.**

Prevent the sides and ends from collapsing by battering them to a safe angle to allow easy and free entrance and exit. Any excavation where there is a risk of collapse or is at least 1,5m deep shall be shored, unless the sides have been assessed by a suitably experienced and qualified person to be self-supporting.

### Loading Near Sides

Ensure that items of plant, excavated material or any other load is not placed near the excavated area in a position where there is a risk that the sides will collapse or materials may fall into the excavation

### People and Vehicles Falling into Excavations

Take steps to prevent people falling into excavations by providing substantial barriers to a minimum height of 900 mm, for example, rails and toe boards, between the person and the likely cause of danger. Timber or earth bumper stops shall be provided where there is a risk of vehicles or plant driving or backing into excavations. Transit of heavy equipment near the trench should be evaluated by a qualified civil engineer as it can be cause of vibration and soil collapse into the trench.

### People Being Struck by Plant

Keeping people separate from moving plant, such as excavators.

### Undermining Nearby Structures or Scaffolds

Decide if the structure needs temporary support before digging starts. Building foundations shall be inspected by a structural engineer.

### Underground Services

A systematic and excavation permit procedure shall be used.

### Access

Provide ladder access or other safe ways of getting in and out of the excavation at least every 6m.

### Excavated material & Spoil Pile

Re-usable Excavated material and soil to be placed +/- 2 m away from excavation edge. All material will be used for backfill in reverse order from excavation. The remainder will be moved to a local spoil site for natural material.

### Fumes

Do not place petrol or diesel engines in, or near the edge of an excavation unless fumes can be ducted away or the area can be ventilated.



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## EXCAVATION AND TRENCHING

### Protecting the Public

Fence off excavations in public places. Provide lighting or barricading at night.

### Supervision

A competent person shall supervise the installation, alteration or removal of excavation supports.

### Inspections

All excavations shall be inspected by a person experienced and competent in the stability of excavations. Inspections shall be: daily, after any event likely to have affected the strength or stability of the excavation; and after any accidental fall of rock, earth or other material. Regular surveillance shall be done. An inspection checklist is included in Safety File.

### Do Not Work in Isolation

Ensure that when a person works in an excavation that is at least 1.5 m deep, that at least one other person is present in the immediate vicinity.

### Training

There shall be a system for ensuring that employees are trained and equipped to carry out their work according to applicable work procedures that minimize exposure to hazards and that their understanding and capability of this has been evaluated. There shall be an induction process for new employees and contractors. Understanding of their awareness shall be evaluated. As part of training activities, all personnel working in trench and excavations shall know the emergency procedure as flooding, soil collapse and hazardous atmosphere may occur.

### Surface Crossing

All personnel, vehicle and mobile equipment crossing the trench should be discouraged. Only if necessary, it must be permitted through walkways or bridges designed under engineering and safety standards.

### Hazardous Atmospheres

When necessary an air monitor procedure should be followed if a hazardous atmosphere occurs or could be expected to occur. When applicable a confined space entry procedure should be applied. No excavation activities with internal combustion equipment shall be performed as may produce oxygen reduction or hazardous gases may concentrate in the space.

### Water Accumulation

Working in excavations should prevent water accumulation using diversion, pumping, evacuation or protection means. No activities will be performed in the trench when water accumulation occurs due to weather conditions or "boiling effect" from underground water deposits. **Accumulating drainage or ground water will be removed by pumping and diverted into the downstream.**

### House keeping

The work area should be kept clean and broken rubble removed from site as soon as possible to avoid congestion. All equipment should be safely stored overnight to avoid theft.

## 5.5 Environmental

- See approved EMP, ROD and Clients Specifications
- Environmental awareness will be an ongoing activity in the form of toolbox talks
- Audits will be conducted by the SHE Officer to ensure compliance to legislation.
- SPH is committed to creating a clean and healthy environment throughout all this projects.





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## EXCAVATION AND TRENCHING

### 5.6 Training

There shall be a system for ensuring that employees working in excavations and trenches are made aware of the hazards of collapse of the excavation or trench. A suitably trained and appointed person must be placed in charge of all excavation work.

## 6. RESPONSIBILITY

- The SPH Project Manager has overall responsibility for establishing and ensuring compliance with this Method Statement.
- The SPH staff is responsible for implementing and/or monitoring activities associated with this Method Statement.
- It is the responsibility of all SPH management personnel to enforce this Method Statement and of each employee to follow it.
- First aid: As per appointment
- Safety: As per appointment
- Environmental Site Officer: As per appointment

## 7. RECORDS

- Copies of competency certificates to be placed on file.
- Records of all risk assessment, compliance certificates, competencies and method statements must be kept on file on site.
- Records of all training received by personnel to be kept on file on site.
- Inspection records of all Equipment and Machinery to be kept on file on site.

## APPENDIX H3: WATER USE LICENSE APPLICATION



## INTEGRATED WATER USE LICENCE

**Rectification of the clearing of land and the construction of vineyards, a dam, pipelines and associated infrastructure on Erf 2435, 387, 1248 and 2106 Kakamas South Settlement, Northern Cape Province.**

March 2020

**Applicant details:**

Triple D Farms (Pty) Ltd  
Mr. P. Dykman  
P.O. Box 537, Kakamas, 8870  
Email: [piet@ddd farms.net](mailto:piet@ddd farms.net)  
Cell: 082 781 7527

**Consultant details:**

GroenbergEnviro (Pty) Ltd  
P.O. Box 1058,  
Wellington, 7654  
Cell: 086 672 1916  
Email: [elaniem@iafrica.com](mailto:elaniem@iafrica.com)



## QUALITY CONTROL

Revision	Date	Author	Checked	Status	Approved
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APPLICATION FOR A LICENCE FOR THE USE OF WATER (CONTROLLED ACTIVITY) IN TERMS OF  
THE NATIONAL WATER ACT, 1998 (ACT NO 36 OF 1998)

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**List of Abbreviations**

BAR	Basic Assessment Report
CBA	Critical Biodiversity Area
DEA	Department of Environmental Affairs
DENC	Department of Environment and Nature Conservation
DWS	Department of Water and Sanitation
EA	Environmental Authorisation
EAP	Environmental Assessment Practitioner
ECO	Environmental Control Officer
EIA	Environmental Impact Assessment
EIS	Ecological Importance and Sensitivity

ELU	Existing Lawful Use
EMPr	Environmental Management Programme
ESA	Ecological Support Areas
ERW	Ecological Release Water
EWR	Existing Water Rights
FEPA	Fresh Water Ecosystem Priority Areas
HWS	Heritage Western Cape
I&APs	Interested and Affected Parties
MAR	Mean Annual Runoff
MMP	Maintenance Management Plan
NFEPA	National Fresh Water Ecology Priority Areas
NEMA	National Environmental Management Act, 1998 (Act No. 107 of 1998)
NEM: AQA	National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004)
NEM: ICMA	National Environmental Management: Integrated Coastal Management Act, 2008 (Act No. 24 of 2008)
NEM: WA	National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008)
NHRA	National Heritage Resources Act, 1999 (Act No. 25 of 1999)
PA	Protected Areas
PES	Present Ecological Status
PPP	Public Participation Process
RE	Resident Engineer
SANBI	South African National Biodiversity Institute
SAHIRS	South African Heritage Information Resources System
SWMP	Storm Water Management Plan
S24G	Section 24G Process
V&V	Validation and Verification
WMA	Water Management Area
WQMR	Water Quality Management Report
WUA	Water User Association
WUL	Water Use Licence
WULA	Water Use Licence Application



## SYNOPSIS

Application for a license in terms of the National Water Act, 1998 (NWA) is made by the developer, Triple D Farms (Pty) Ltd, for the construction of vineyards across small streams and the stream crossings of pipelines on, as well as the construction of a dam and the legalisation of an existing dam on Kakamas South Settlement No. 2435.

The application is summarised for the following water usages:

(b) storing water;	For the storing of water in the new proposed dam and the legalisation of an existing dam.
(c) impeding or diverting flow of water in a watercourse	For the construction of agricultural areas and associated infrastructure across ephemeral streams/natural drainage areas.
(i) altering the bed, banks, course or characteristics of a watercourse	For the construction of agricultural areas and associated infrastructure across ephemeral streams/natural drainage areas.

Currently there is an existing License WUL (Ref:14/D73F/A/2693) that was issued to the Triple D Farms (Pty) Ltd on 01 December 2014 for the taking of 1 702 500m<sup>3</sup>/annum from the Orange River for the purpose of irrigation on Kakamas South Settlement No. 2261.

This licence replaced a previous licence with reference number 14/D73F/A/1879, dated 02 December 2013 for the taking of 978 000m<sup>3</sup>/annum for the same purpose on the same property details.

The Applicant also has an Existing Lawful use from the Kakamas Water Users Association and therefore the total volume of water rights allocated is 2 302 500m<sup>3</sup>/a (153.5ha).

The establishment of the vineyards on Kakamas South Settlement 2435 took place across small sections of the unnamed drainage system that is located on-site. The site falls within the Quaternary Catchment Region D73F. The new proposed agricultural development will have an impact on drainage streams that can be regarded as non-perennial watercourses that will flow only if and when rain occurs in the catchment. The Section 21 (c) and (i) for the construction of a pipeline that will cross over streams or on the banks of the streams on Kakamas South Settlement 387, 1248 and 2106.

The proposed agricultural development areas fall within the Lower Orange River catchment area. It however does not fall within any NEFPA catchment priority areas and is not considered as critically endangered and development of this area will not result in any detrimentally impact on the regional or local catchment area. The site is already cut off from the Orange River via roads and agricultural development.

## **1. THE APPLICATION AND TECHNICAL DETAIL**

### **1.1 The applicant**

The applicant, Triple D Farms (Pty) Ltd is applying for a section 21 (c) and (i) for the following:

- 1. Applying for Section 21 (c) and (i) for the construction of orchards/vineyards across small streams.**
- 2. Applying for Section 21 (b) for the legalisation of an existing dam and construction of an additional dam. The existing dam was constructed within during 2015.**

### **1.2 Background and Amendment Application**

Currently there is an existing License WUL (Ref:14/D73F/A/2693) that was issued to the Triple D Farms (Pty) Ltd on 01 December 2014 for the taking of 1 702 500m<sup>3</sup>/annum from the Orange River for the purpose of irrigation on Kakamas South Settlement No. 2261.

This licence replaced a previous licence with reference number 14/D73F/A/1879, dated 02 December 2013 for the taking of 978 000m<sup>3</sup>/annum for the same purpose on the same property details.

The Applicant also has an Existing Lawful use from the Kakamas Water Users Association and therefore the total volume of water rights allocated is 2 302 500m<sup>3</sup>/a (153.5ha).

As part of this new water use license application, the applicant will apply for the following rectifications on the existing License WUL (Ref:14/D73F/A/2693):

1. A consolidation of Kakamas South Settlement (KSS) 2432/0, KSS 1178/R/E and KSS 2261/0 took place to form Kakamas South Settlement No. 2435. This consolidation includes Kakamas South Settlement No. 2261 for which the above-mentioned Water Use Licence was issued.
2. Point 7 of the Water Use Licence 14/D73F/A/2693 authorised the geographical location of the abstraction point as S28<sup>o</sup>45'09" and E20<sup>o</sup>30'35 32.9" which can be regarded as an administrative mistake which must be rectified to read as follows:  
S28<sup>o</sup> 45' 09" and E20<sup>o</sup> 35' 32.9"
3. Appendix II Condition 1 specify the quaternary catchment as D73 and should be changed to D73F.

### **1.3 The property on which the water use is intended**

The proposed property on which the construction of the agricultural development (vineyards) has and will take place is situated on the remainder of Kakamas South Settlement No. 2435. Please note, the property is a consolidation of KSS2261, KS2432 and Re/1178. The proposed pipeline, dam and pump station will be constructed/upgraded on Kakamas South Settlement No. 387, 1248 and 2106.

The farm is situated approximately 4.5 km north-east of the small town of Kakamas in the Northern Cape, along the N14 towards Kakamas (see Figure 1). The site lies south of the Orange River. Small ephemeral streams cross the entire site. The site is currently zoned Agriculture Zone I. The owner of the properties is Triple D Farms (Pty) Ltd, who has appointed



GroenbergEnviro (Pty) Ltd as the independent environmental consultant to conduct the environmental authorisation process necessary.



Figure 1: Locality map op Kakamas South Settlement No 2435, 387, 2106, 1248.

#### 1.4 Water Use Licence Application

Application for a licence in terms of the National Water Act, 1998 is made by the developer, Triple D Farms (Pty) Ltd, for the following water usages:

Table 1: Water Use Licence activities triggered

(b) storing water;	For the storing of water in the new proposed dam and the legalisation of an existing dam.
(c) impeding or diverting flow of water in a watercourse	For the construction of agricultural areas and associated infrastructure across ephemeral streams/natural drainage areas.
(i) altering the bed, banks, course or characteristics of a watercourse	For the construction of agricultural areas and associated infrastructure across ephemeral streams/natural drainage areas.

**1.5 Existing lawful water use and development on the property**

Currently there is an existing License WUL (Ref:14/D73F/A/2693) that was issued to the Triple D Farms (Pty) Ltd on 01 December 2014 for the taking of 1 702 500m<sup>3</sup>/annum from the Orange River for the purpose of irrigation on Kakamas South Settlement No. 2261.

This licence replaced a previous licence with reference number 14/D73F/A/1879, dated 02 December 2013 for the taking of 978 000m<sup>3</sup>/annum for the same purpose on the same property details.

The Applicant also has an Existing Lawful use from the Kakamas Water Users Association and therefore the total volume of water rights allocated is 2 302 500m<sup>3</sup>/a (153.5ha).

Please see Appendix B for the Water Use Allocation (WUA) confirmations and Water Use License (WUL).

Property	Water rights (m <sup>3</sup> /a)
Kakamas South Settlement No. 2435 – ELU.	40 ha = 90 000 m <sup>3</sup> /a
Kakamas South Settlement No. 2435 – WUL (Ref:14/D73F/A/2693).	113.5ha = 1 702 500 m <sup>3</sup> /a
Total:	2 302 500m <sup>3</sup> /a

**Table 2: Existing Water Allocation**

**1.6 Water sources**

The water source for the proposed irrigation is surface water from the Orange River via the Kakamas Water Users Association.

**1.7 Details of the water use intended**

**1.7.1 Section 21 b – Storing of the water**

The new dam is proposed off-channel and will be located between the new existing vineyards, it is however located within a 100m of a small stream see Figure 2.

The dam will be approximately 4m deep and will have a surface area of approximately 4 500m<sup>2</sup> with a capacity of 10 539m<sup>3</sup>. It will have a gabion basket overflow channel and will be round in shape (a radius of 40.5m), see Figure 3.



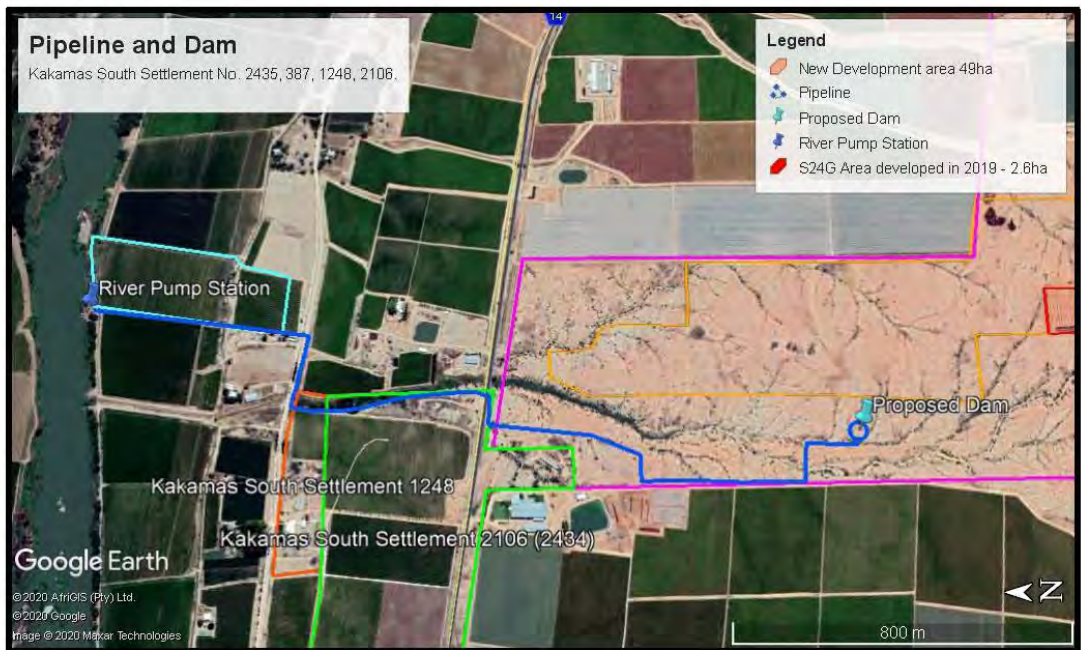


Figure 2: Dam position

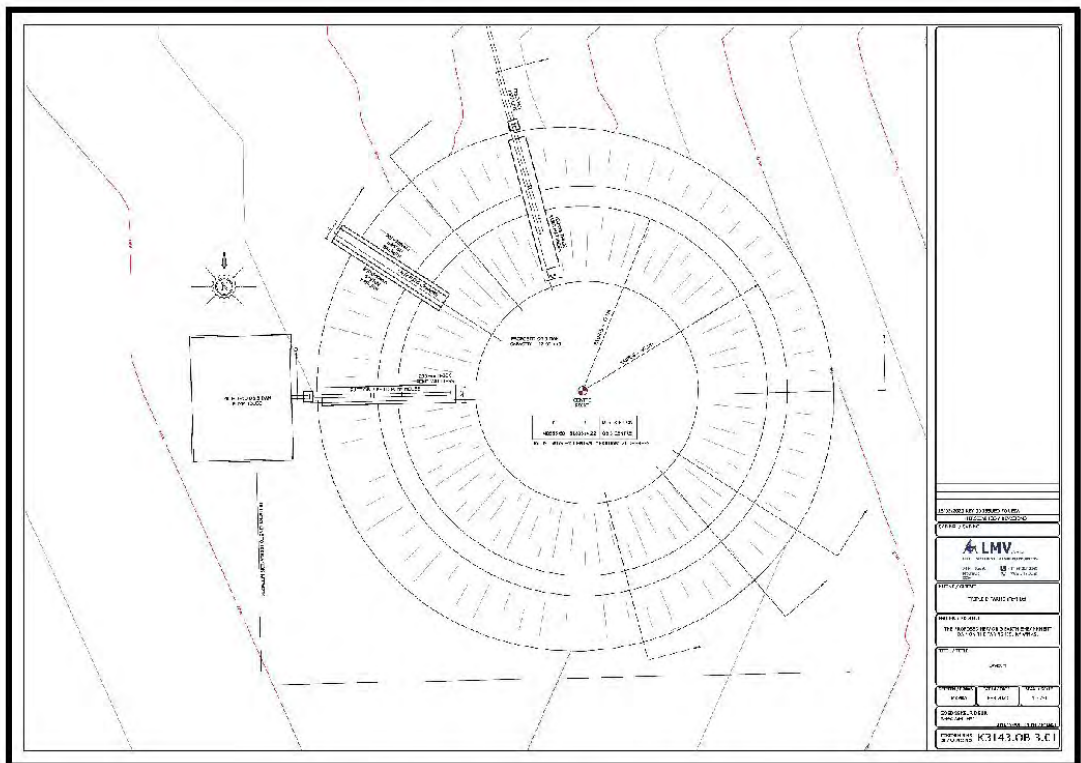
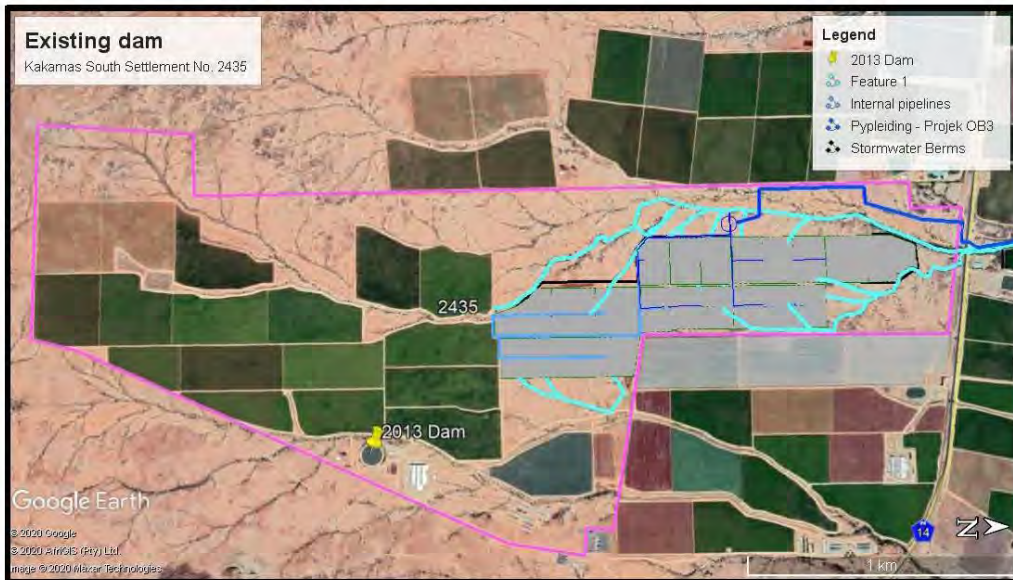


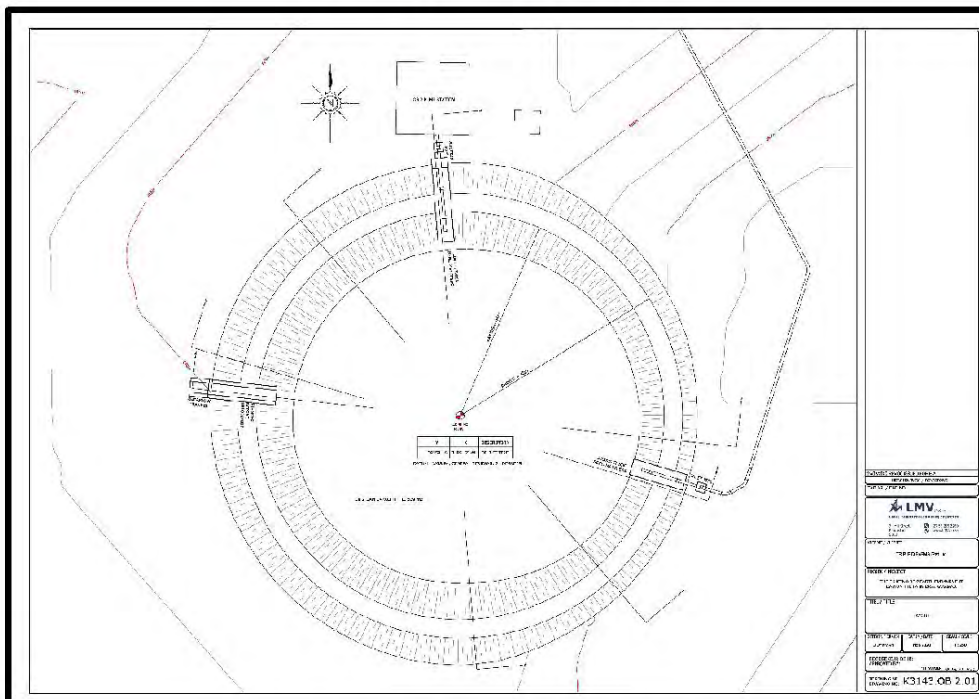
Figure 3: New Dam design layout

The existing dam that needs to be legalised is also an off-channel dam and will be located between the new existing vineyards, it is however located within a 100m of a small stream see Figure 4.

The dam will be approximately 4m deep and will have a surface area of approximately 4 500m<sup>2</sup> with a capacity of 12 671m<sup>3</sup>. It will have a gabion basket overflow channel and will be round in shape (a radius of 48m), see Figure 5.



**Figure 4: Position of existing dam**



**Figure 5: Existing Dam design layout**