DRAFT S24G ASSESSMENT REPORT

OMDRAAI FARM – CONSTRUCTION OF A RETENTION WALL WITHIN A SMALL STREAM, ON KAKAMAS NORTH SETTLEMENT NO. 343, NORTHERN CAPE PROVINCE.

February 2020

DOCUMENT NAME:
Omdraai – Construction of a retention wall within a small stream, on Kakamas North Settlement No. 343, Northern Cape Province.

PROJECT NUMBER:
N/A

DATE:
10 February 2021

REPORT STATUS:
DRAFT ASSESSMENT REPORT

CARRIED OUT BY:
GroenbergEnviro (Pty) Ltd

COMMISSIONED BY:
Valam Boerdery (Pty) Ltd

CLIENT CONTACT DETAILS:
Bernie Denton
P. O. Box 21
Kakamas
8870
Tel: 054 431 0568

AUTHOR(S):
Elanie Kühn

SYNOPSIS:
See Below

PREPARED BY:
GroenbergEnviro (Pty) Ltd

QUALITY CONTROL

Revision	Date	Author	Technical Review	Report Review
00	Feb 2021	E. Kühn	E. Kühn	
01				
02				

CONTACT INFORMATION

Please contact the undermentioned should you require further information.

GroenbergEnviro (Pty) Ltd	
Address:	Wellington Klein Opperhorst Wellington 7654 PO Box 1058 Wellington, 7654 Fax: +27 86 476 7139
Website	www.groenbergenviro.co.za
Contact Person 	Elanie Kühn The consultant has 14 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. Focusing primarily on Environmental Impact Assessments and Water Use License Applications.
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Application form for the regularisation of unlawful commencement or continuation of a listed activity or waste management a
terms of section 24G of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended.

2016

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

Name of Project applicant:	Valam Boerdery (Pty) Ltd		
RSA Identity number:			
Contact person:	Mr Bernie Denton		
Position in company	CEO		
Registered Name of Company/ Closed Corporation	Valam Boerdery (Pty) Ltd		
Trading name (if any):	Capespan Farms (Pty) Ltd		
Registration number	1998/012817/07		
Postal address:	PO Box 21		
	Kakamas	Postal code:	8870
Telephone:	(054) 431 0568	Cell:	(071) 218 3758
E-mail:	philip@csfarms.co.za	Fax:	

Please Note: 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.

Environmental Assessment Practitioner (EAP):	GroenbergEnviro (Pty) Ltd		
Contact person:	Elanie Kuhn		
Postal address:	PO Box 1058		
	Wellington	Postal code:	7654
Telephone:		Cell:	(076) 584 0822
E-mail:	elaniem@iafrica.com	Fax:	(086) 4767139
EAP Qualifications	Pieter Badenhorst - 44 years' experience (16 at the CSIR) in environmental management; report writing, project management; facilitation. Elanie Kuhn – 14 years' experience, environmental management, report writing, project management.		
EAP Registrations/Associations	Pieter Badenhorst - IAIAsa, Pr. Eng, SAICE. Elanie Kühn – IAIAsa.		

Name of Landowner(s):	Same as applicant.		
Contact person(s):			
Postal address:			
		Postal code:	
Telephone:		Cell:	

E-mail:		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.

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:	Omdraai - S24G Rectification of the construction of a retention wall within a small stream on Kakamas North Settlement No. 343, Augrabies.
Property location:	Omdraai Farm
Farm/Erf name & number (incl. portion):	Kakamas North Settlement No. 343.
SG21 Digit code:	C03600010000034300000

Co-ordinates:	Latitude (S):			Longitude (E):		
Retention wall:	28˚	39‘	32.79 “	20˚	28‘	37.43“
Instream Dam:	28˚	35‘	14.91 “	20˚	28‘	33.12“

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

Please Note: 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:	Augrabies	Distance	30 Km
Zoning of Property:	Agricultural Zone 1		

Please Note: 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?	~~YES~~	NO
Was a consent use application required?	~~YES~~	NO

Please Note: Where planning approvals have been granted please attach the relevant approvals.

Owners consent:	NOT REQUIRED AS PROJECT IS ON APPLICANT’S PROPERTY

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?	~~YES~~	NO
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.	~~YES~~	NO
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) **Bernie James Denton** Signature: _____

Place: Belville Date: 26-01-2021

EAP (Full names) **Pieter Badenhorst** Signature: P. Badenhorst

Place: Wellington Date: 26-01-2021

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.

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

ECA EIA Contraventions: Between 08 September 1997 end of day 09 May 2002, Amended.		
Activities unlawfully commenced with on or after 08 September 1997 and before end 09 May 2002: EIA Regulations promulgated in terms of the ECA, Act No 73 of 1989, as amended.		
Listed Activity(ies)	Details of Activity(ies)	Details of Activity(ies) requiring Basic Assessment
	NOT APPLICABLE	
1 (j)	The construction, erection or upgrading of- (j) dams, levees and weirs affecting the flow of a river.	For the construction of an instream dam with a capacity of 20 106m³ and a wall height of 3m.

ECA EIA Contraventions: Between 10 May 2002 and before end of day 02 July 2006		
Activities unlawfully commenced with on or after 10 May 2002 and before end 02 July 2006: EIA Regulations promulgated in terms of the ECA, Act No 73 of 1989, as amended.		
Listed Activity(ies)	Details of Activity(ies)	Details of Activity(ies) requiring Basic Assessment
N/A	N/A	N/A

NEMA EIA Contraventions: Between 03 July 2006 and before end of day 01 August 2010	
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 03 July 2006 and before end of day 01 August 2010.	
Government Notice No. R386 Activity No(s):	Details of Activity(ies) requiring Basic Assessment
N/A	N/A

Government Notice No. R387 Activity No(s):	Details of Activity(ies) requiring a Scoping Report and EIA
N/A	N/A

NEMA EIA Contraventions: On or after 02 August 2010 until 7 December 2014	
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 02 August 2010 until 7 December 2014	
Government Notice No. R544 Activity No(s):	Details of Activity(ies) requiring Basic Assessment
N/A	N/A
Government Notice No. R545 Activity No(s):	Details of Activity(ies) requiring a Scoping Report and EIA
N/A	N/A
Government Notice No. R546 Activity No(s):	Details of Activity(ies) requiring S&EIR
N/A	N/A

NEMA EIA Contraventions: On or after 8 December 2014	
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 8 December 2014.	
Government Notice No. R983 Appendix 1 Activity No(s):	Details of Activity(ies) requiring Basic Assessment
N/A	N/A
Government Notice No. R985 Appendix 2 Activity No(s):	Details of Activity(ies) requiring a Scoping Report
N/A	N/A
Government Notice No. R984 Appendix 3 Activity No(s):	Details of Activity(ies) requiring Environmental Impact Assessment Report
N/A	N/A

NEMA EIA Contraventions: On or after 7 April 2017/Corrected 13 July 2018	
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 **(ii) infrastructure or structures with a physical footprint of 100 square metres or more.** where such development occurs—	**For the construction of retention structure and a dam within a watercourse and within 32 m of a watercourse.**

(a) within a watercourse. (b) in front of a development setback; or (c) if no development setback exists, **within 32 metres of a watercourse, measured from the edge of a watercourse:** — excluding— (aa) the development of infrastructure or structures within existing ports or harbours that will not increase the development footprint of the port or harbour. (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. (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. (dd) where such development occurs within an urban area. (ee) where such development occurs within existing roads, road reserves or railway line reserves; or (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.	
Activity 19: **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**. but excluding where such infilling, depositing, dredging, excavation, removal or moving— (a) will occur behind a development setback. (b) is for maintenance purposes undertaken in accordance with a maintenance management plan. (c) falls within the ambit of activity 21 in this Notice, in which case that activity applies. (d) occurs within existing ports or harbours that will not increase the development footprint of the port or harbour; or (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.	**For the excavation of more than 10 cubic meters for the construction of retention structure and a dam within a watercourse.**
Government Notice No. R325 Appendix 2 (Listing notice 2) Activity No(s):	Details of Activity(ies) requiring a Scoping Report

Government Notice No. R324 Appendix 3 (Listing notice 3) Activity No(s):	Details of Activity(ies) requiring Environmental Impact Assessment Report
Activity 12 **The clearance of an area of 300 square metres or more of indigenous vegetation** except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan. **g. Northern Cape** 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. **ii. Within critical biodiversity areas identified in bioregional plans.** 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 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.	**For the clearance of more than 300 square meters of indigenous vegetation for the construction of retention wall within a Critical biodiversity area.**
Activity 14 The development of— [(i) canals exceeding 10 square metres in size. (ii) channels exceeding 10 square metres in size. (iii) bridges exceeding 10 square metres in size. **(iv) dams, where the dam, including infrastructure and water surface area exceeds 10 square metres in size.** (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. (xi) boardwalks exceeding 10 square metres in size; or (xii) infrastructure or structures with a physical footprint of 10 square metres or more;]	**For the construction retention wall and dam within 32 m of a watercourse, within a watercourse, within a critical biodiversity area.**

(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. <u>g. Northern Cape</u> 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: (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.	

Waste Management Activities Contraventions: On or after 3 July 2007 up to end of day 28 November 2013	
Activities unlawfully commenced with in terms of GNR 718 of 3 July 2009 published under the National Environmental Management Waste Act 59 of 2008	
Listed Activity(ies)	Details of Activity(ies)
N/A	N/A

Waste Management Activities Contraventions: On or after 29 November 2013	
Activities unlawfully commenced with in terms of GNR 921 of 29 November 2013 published under the National Environmental Management Waste Act 59 of 2008	
Listed Activity(ies)	Details of Activity(ies)
N/A	N/A

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.	Existing – retention structure and dam.	Upgrade

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 development is situated approximately 30 kilometres outside of the small town of Augrabies in the Northern Cape, in the Kai! Garib Municipal area. Access to the site is via a gravel road linking with the N14.

The property's location is shown in Figure 1.

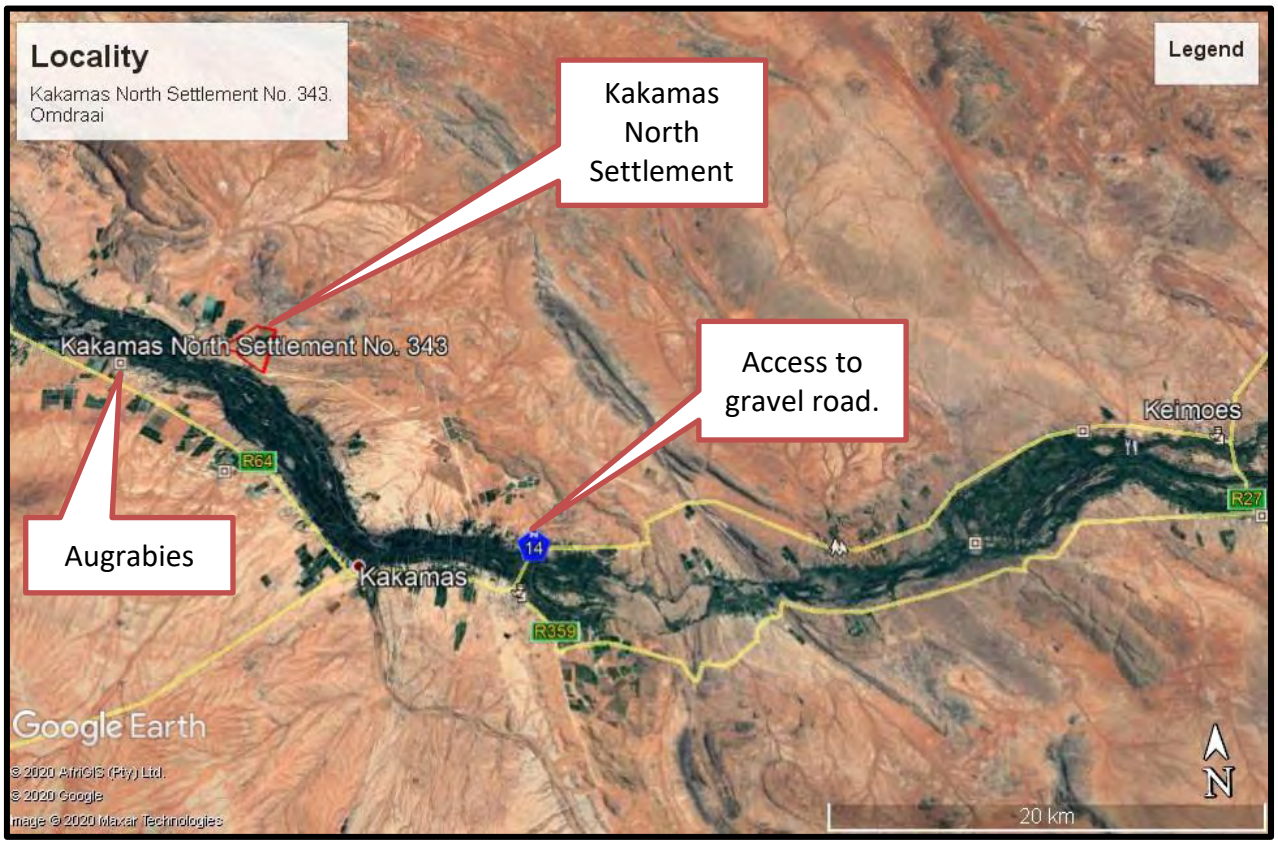


Figure 1: Omdraai locality and property boundaries

Project Description:

During the period from 1976 to 2016 various developments took place on the property, of which most are agricultural developments. A section of this development triggered a S24G Application that that was undertaking in 2017 and the Environmental Authorisation (S24G04/03/2017) issued on 22 October 2018.

In 2019 the applicant had complaints from the downstream neighbours with regards to downstream flooding of his vineyards due to increased downstream flow of water due to the agricultural developments upstream. The applicant decided to construct a small retention structure to counter the possible increased flow, which ultimately triggered an S24G process without his knowledge. This application is therefore, for the correction of this activity.

The development consists of the following:

1. **Retention dam/wall:**

   The applicant has constructed a small instream retention dam to minimize flow towards the downstream property. Details of the dam/wall is as below in Table 1, Figure 2 and Figure 3:

Table 1: Details of retention dam

NOCL	647.55
FSL	647.200
Surface area at FSL	1200m²
Gross capacity	1500m³
Length	95m
Width	18m
Max Wall Height	1.5m

Figure 2: Retention dam/wall

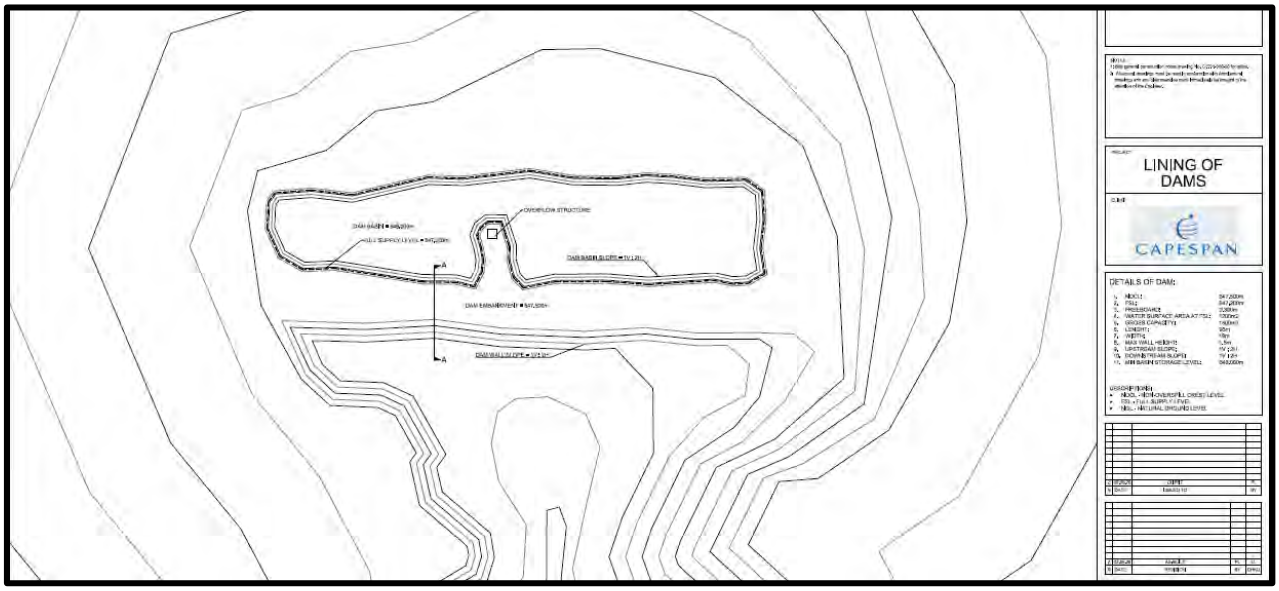


Figure 3: Engineering design of Retention wall/dam

2. Dam

During 1998/1999 a dam was constructed for temporary storage of water for distribution on the property. It should be noted that this dam was constructed without previous approvals, at that time no DWS approvals were deemed necessary, except for registration. The dam was, however, never registered. The dam has the following specifications as shown in Table 2, Figure 4 and Figure 5 :

Table 2: Dam specifications

NOCL	667
FSL	666.500
Surface area at FSL	7450m²
Gross capacity	20 106m³
Length	100m
Width	80m
Max Wall Height	3m

Figure 4: Dam

Figure 5: 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:		

No buildings were constructed as part of the instream dam and retention wall/dam triggered an environmental authorisation. Details of these structure is provided above.		
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 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.

Pipelines:

Water is required for the drip irrigation of the established vineyards and is supplied via pipelines from the booster pump station at the dam and then pumped to vineyards. The existing pipelines established come from the pump station at the Orange River (See Figure 6) towards the existing dam, and from there distributed to the irrigation areas.

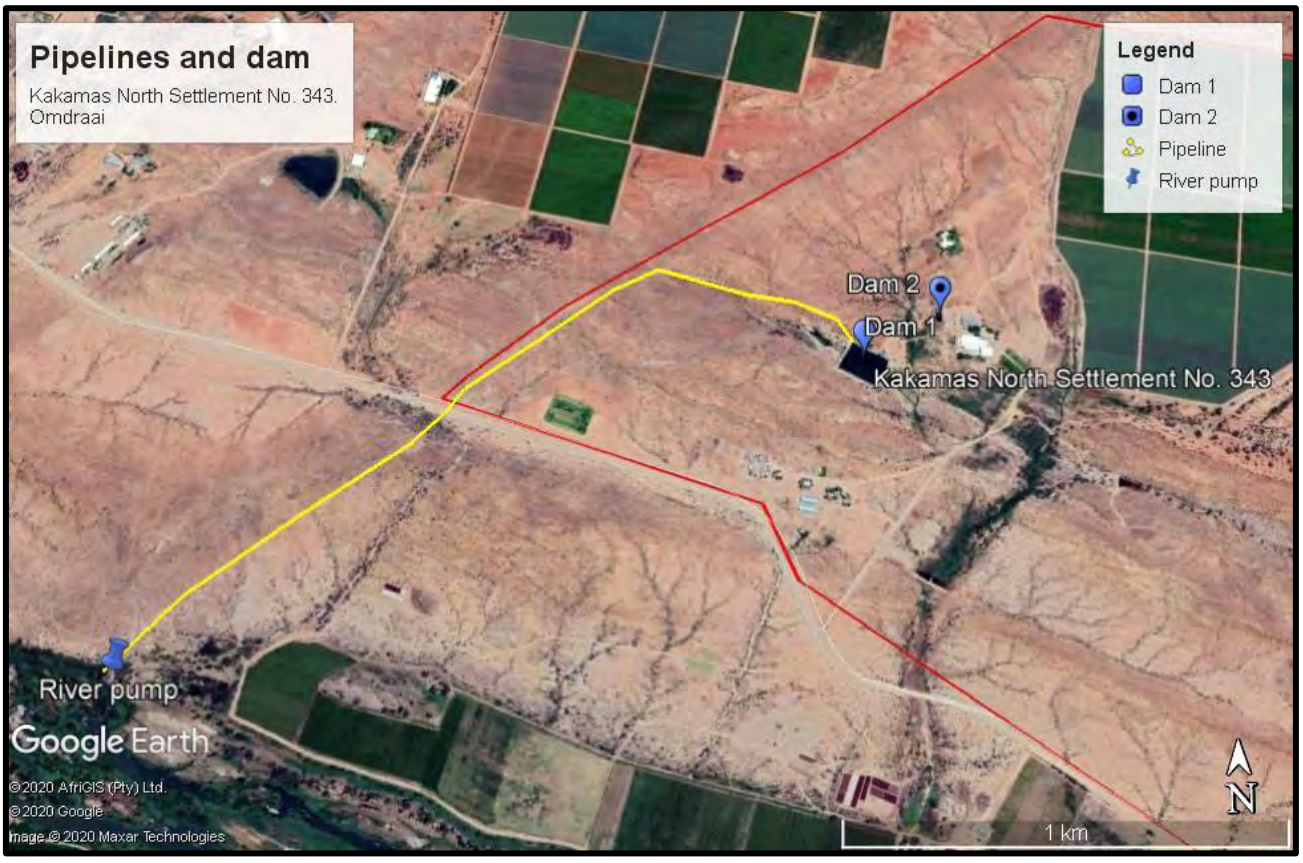


Figure 6: Pipelines

Water:

Omdraai has an existing lawful use of 60 ha for irrigation from the Orange River allocated to Kakamas North Settlement No. 343. The said property also recently received a Water Use License for additional 12ha of water rights from the Orange River.

In total Omdraai has existing rights for 72 ha (1 080 000 m^3/a) of water rights from the Orange River. The existing rights certificates and the new WUL is shown in Appendix E1: Water Use License.

The applicant, Valam Boerdery (Pty) Ltd, transferred 180 000 m^3/a (12ha) of water from another property to Kakamas North Settlement No. 343 to rectify the water shortage on the property. However, with new water practices etc, the intention is to transfer additional water from KNS No. 343 to KNS No. 341. The transfer to ensured that the property (KNS No. 341) and new developments

comply with the National Water Act (1998). The summary of the transfer that took place is shown in Table 3 below.

Table 3: Existing and proposed transfer and new water allocation.

Property	Current Water Allocation	Transfer	Irrigate tempo	Water Allocation ha	Water Allocation m^3/a
Portion 37 of Zeekoesteek No. 09 (Donor)	50.2	12ha	15 000m^3/ha	30ha	450 000m^3/a
Kakamas North Settlement No. 343. (Receiving)	60ha	12ha (- 1ha for Industrial and Schedule 1 use)	15 000m^3/ha	72ha	1 080 000m^3/a
Kakamas North Settlement No. 343. (Receiving)	0ha	1ha	15 000m^3/ha	1ha	15 000 m^3/a
Kakamas North Settlement No. 343. (Donor)	71	12.77ha	15 000m^3/ha	58.23ha	873 450m^3/a
Kakamas North Settlement No. 341. (Receiving)	61.59ha	12.77ha	15 000m^3/ha	74.36ha	1 115 400 m^3/a
TOTAL for Omdraai					873 450m^3/a

Omdraai Farm uses water from the irrigation allocation for drinking purposes and garden irrigation. A license application (WULA) will be required for 21(a) to transfer water from "irrigation" to the sector "Schedule 1". Water used in pack stores are used for commercial purposes and must, therefore, be licenced as "industrial".
It can, therefore, be concluded that licences will be required to "transfer" water from the lawful "irrigation" allocation to "industrial use" and Schedule 1.
As shown above in, the total volume of water used annually amounts to 15 000m^3/annum (1ha). Therefore, the application is to transfer approximately 1ha of water for Industrial and Schedule 1 use.

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

Table 4: Water use license activities

(a) transfer of water	Applying for a licence for the "transfer" of water from the lawful "irrigation" allocation to "industrial use" and Schedule 1.

(b) storing of water	For the legalisation of a small balancing dam with a capacity of 20 100 m³
(c) impeding or diverting flow of water in a watercourse	For the construction of an instream dam and retention wall across ephemeral streams/natural drainage areas.
(i) altering the bed, banks, course, or characteristics of a watercourse	For the construction instream dam and retention wall across ephemeral streams/natural drainage areas.

Electricity:
There is existing electricity available for the development.

Processing activities (e.g., manufacturing, storage, distribution)	~~YES~~	NO
Provide brief description:		
Storage facilities for raw materials and products (e.g., volume and substances to be stored)		
Provide brief description	~~YES~~	NO
Storage and treatment facilities for solid waste and effluent generated by the project	~~YES~~	NO
Provide brief description		
The site has an existing conservancy tank that is removed by the municipality on a regular basis. Proof of this included in Appendix E2: Proof of Services.		
Other activities (e.g., water abstraction activities, crop planting activities)	YES	~~NO~~
Provide brief description		
Crop Planting: Table grapes are being cultivated as indicated on the project property, however, this development is not for crop planting activities. Water abstraction: Water is abstracted via an existing pumpstation at the Orange River. This is an existing activity for the agricultural development on the property.		

3. ACTIVITY NEED AND DESIRABILITY

Describe the need and desirability of the activity:
According to the report prepared by DAFF (2012), 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 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 exceedingly early. The project area is located within the Lower Orange River wine region (refer to Figure 7 below.)

Kakamas North Settlement No. 343 contributes to the production of table grapes that are harvested early for the export market, and in time for the Christmas festive season overseas. This particular characteristic of growing table grapes in this region gives the growers a highly competitive advantage in the global market.

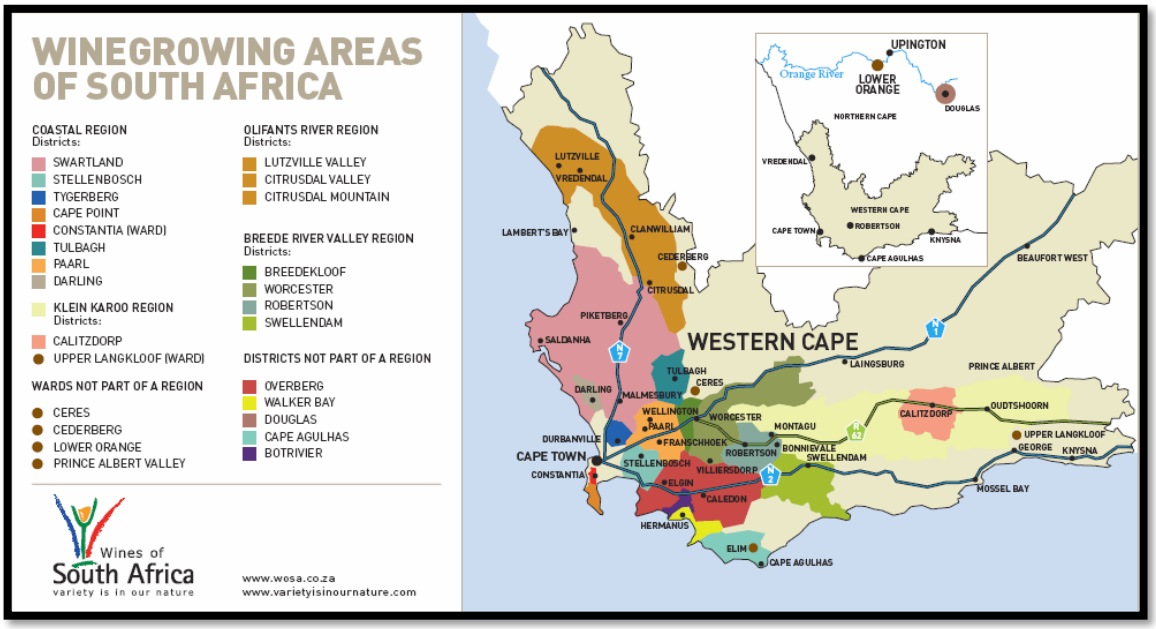


Figure 7: Winegrowing areas of South Africa (sourced from www.wosa.co.za)

As stated already this development of the retention wall/dam. In 2019 the applicant had complaints from the downstream neighbours with regards to downstream flooding of his vineyards due to increased downstream flow of water due to the agricultural developments upstream. The applicant decided to construct a small retention structure to counter the possible increased flow, which ultimately triggered an S24G process without his knowledge. This application is therefore, for the correction of this activity.

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 created short-term employment during the construction phase, and long-term employment during the operational phase. The grower (Valam Boerdery 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).

The implementation of the retention structure has the following positive impact:
"Considering the current modified state of the affected section of the Swartdraai-se-leegte River, together with the general positive impact the retention dam has had on the flow modification and water quality impacts on downstream features, the cumulative impact of the retention dam on the larger freshwater system (especially downstream of the site as well as the Orange River) with effective implementation of mitigation measures, would be deemed to be of Low Positive Impact."

4. PHYSICAL SIZE OF THE ACTIVITY

Indicate the physical spatial size of the activity as well as associated infrastructure (footprints):	0.2ha for retention structure. 0.7ha for dam.
Indicate the area that has been transformed / cleared to allow for the activity as well as associated infrastructure	0.2ha for retention structure. 0.7ha for dam.
Total area (sum of the footprint area and transformed area)	0.2ha for retention structure. 0.7ha for dam.

5. SITE ACCESS

Was there an existing access road?	YES	~~NO~~
If no, what was the distance over which the new access road was built?		*m*
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 below (refer to Figure 8) and is just under 4 metres wide.		

Figure 8: Access Roads

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.

Aerial photographs and photographs of the site are attached in Appendix D.
Site photographs taken are attached as Appendix D1: Historical Photographic Image.

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)	Authorization	In progress
National Heritage Resources Act	SAHRA	Comment.	In progress
National Water Act	Department of Water and Sanitation	Water Use License or General Authorization.	In progress
Conservation of Agricultural Resources Act	Department of Agriculture	Plough Certificate for Water Use License; Comment on EIA.	Completed
National Forests Act (NFA) (Act 84 of 1998)	Department of Environment, Forestry and Fisheries	DEFF Permit	Will be finalized after the Environmental Authorization.
National Veld and Forest Fires Act (Act 101 of 1998)	Department of Environment, Forestry and Fisheries	DEFF Permit	Will be finalized after the Environmental Authorization.
Northern Cape Nature Conservation Act (NCNCA)	DENC	DENC Permit	Will be finalized after the Environmental Authorization.

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^3/ MONTH	method & location	method location and contractor details	

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

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~~	Flatter than 1:10	1:10 – 1:5	~~Steeper than 1:5~~

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~~	Plain	Undulating plain/low hills	~~Dune~~	~~Sea front~~	~~Other~~

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~~	NO	~~UNSURE~~
Seasonally wet soils (often close to water bodies)	~~YES~~	NO	~~UNSURE~~
Unstable rocky slopes or steep slopes with loose soil	~~YES~~	NO	~~UNSURE~~
Dispersive soils (soils that dissolve in water)	~~YES~~	NO	~~UNSURE~~
Soils with high clay content	~~YES~~	NO	~~UNSURE~~
Any other unstable soil or geological feature	~~YES~~	NO	~~UNSURE~~
An area sensitive to erosion	~~YES~~	NO	~~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~~	NO	UNSURE
Non-Perennial River (mainly drainage areas and a small stream)	YES	~~NO~~	UNSURE
Permanent Wetland	~~YES~~	NO	UNSURE
Seasonal Wetland	~~YES~~	NO	UNSURE
Artificial Wetland	~~YES~~	NO	UNSURE
Estuarine/Lagoonal wetland	~~YES~~	NO	UNSURE

The following summary is taken from the Freshwater Assessment Report, included in Appendix H4: Fresh Water Assessment Report.

"Several small seasonal tributaries dissect the top section of the property to where in meets to form the Swartdraai-se-leegte river, see Figure 9. *The area is located within Quaternary catchment D81A, which is falls within the Orange river WMA. Swartdraai-se-leegte River, in its natural unmodified state, can be classified as an ephemeral river, which at the impacted site, has been modified into a more perennial system due to the artificial release of irrigation water. The river at the impact site was found to be in a Largely Modified (D) state upstream of the new retention dam improving slightly to a Moderately modified state downstream of the retention dam (C/D). The river was also found to have a Low EIS, largely due to its ephemeral nature, as well as the existing impacts on site. Impacts caused by the construction of the new retention dam, would have been limited to the following:*

Loss of biodiversity:

Due to the existing modified state of the river at this section, where loss of aquatic instream and riparian vegetation has occurred, in a river reach that would not under natural circumstances sustained this, the impact of loss of biodiversity due to the construction and operation of the retention dam would be deemed to be of long-term Low negative nature. From the photographs taken on site, it looks as if large stands of vegetation have already established around the dammed area, even further lowering this impact to a Negligible one. Mitigation measures relating to the loss of biodiversity would include the following:

- *It would be proposed that any disturbed areas remaining unvegetated should be rehabilitated.*
- *A buffer zone of 20m should be kept from the Swartdraai-se-leegte River for all future developments.*

Flow modification:

Both the construction and operational phase of the new retention dam would cause some reduction in flow towards downstream features. Considering that most of the flow within the river can be attributed to the artificial release of irrigation drainage, which had a greater impact, modifying this section of the river from an ephemeral to a more perennial feature, the construction and operation of this dam has in fact had a Low to Medium Positive impact on the downstream section of the river, stopping most of the irrigation flow to pass towards downstream features, and so re-instating its more ephemeral nature. The following mitigation measure would be proposed to limit any other possible impacts due to flow modification.

- *The only other concern would be that the dam impedes the very necessary flood flows when these do occur. The size of the dam should thus be of such nature that it does not impede flood flows, after heavy rainfall.*

Water quality:

As with the flow modification, water quality in this section of the river (prior to construction of the dam) has had immense impact on the vegetation and biodiversity, through nutrification and salination of this area and downstream features with the flow of enriched irrigation drainage water. Since the construction of the dam, with reduced flow towards downstream features (including the Orange River), this impact has been lowered, with the dam thus having a Low Positive impact on downstream freshwater features. What would be of concern is the concentration of salts and minerals within the retention dam, which could be flushed downstream with the event of future flood flows. This could have a short-term Medium Negative impact on both the downstream section as well as the Orange River. The following mitigation measure would be proposed to limit such water quality impacts:

- *Regular monitoring and reporting on water quality within the small dam should be included in the EMPR and care should be taken that all salt levels are within specifications by DEA and DWS.*

- *Should the salt concentration within the dam exceed these specifications, specific procedures for the rectification of this should be provided (and included in the EMPR). Specialist opinion should be sought as input on such rectification actions.*

Conclusion:

Considering the current modified state of the affected section of the Swartdraai-se-leegte River, together with the general positive impact the retention dam has had on the flow modification and water quality impacts on downstream features, the cumulative impact of the retention dam on the larger freshwater system (especially downstream of the site as well as the Orange River) with effective implementation of mitigation measures, would be deemed to be of Low Positive Impact."

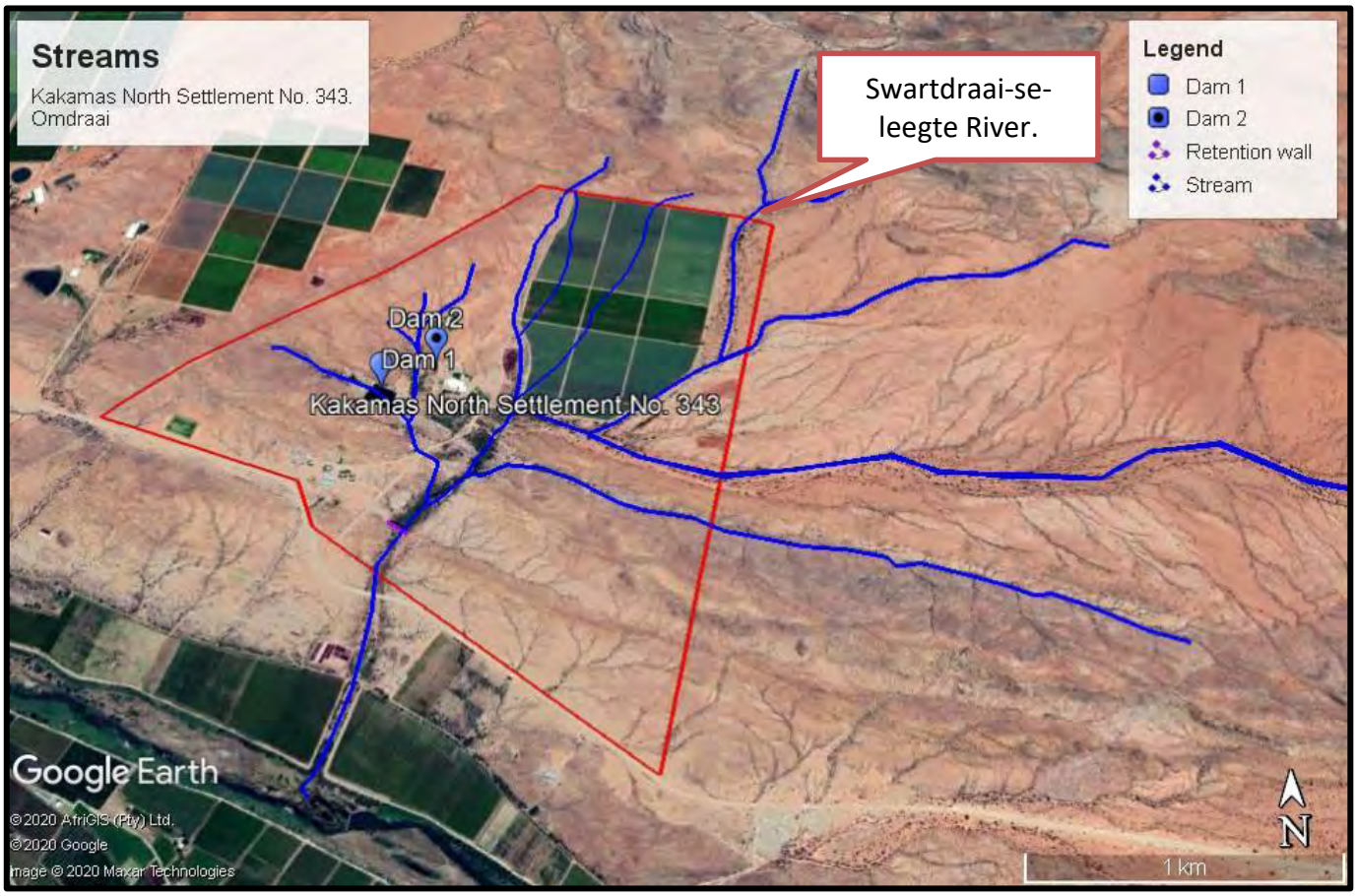


Figure 9: Streams

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.

~~Indigenous Vegetation - good condition~~		Indigenous Vegetation with scattered aliens	X	~~Indigenous Vegetation with heavy alien infestation~~	
Describe the vegetation type above: N/A		Describe the vegetation type above: The mapped natural vegetation type for the area affected by the activity can broadly be classified as the Least threatened Bushmanland Arid Grassland		Describe the vegetation type above: N/A	

	(NKb3- Light maroon area in Figure 10).	
Provide ecosystem status for above: N/A	Provide ecosystem status for above: The study site also lies in a Critical Biodiversity Area with the bulk of the site in a Critical Biodiversity Area 2 (moderate priority).	Provide Ecosystem status for above: N/A
~~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~~

The following was taken from the Freshwater Assessment, included in Appendix H4: Fresh Water Assessment Report:

Vegetation types:

"The mapped natural vegetation type for the area affected by the activity can broadly be classified as the Least threatened Bushmanland Arid Grassland (NKb3- Light maroon area in Figure 10*). This vegetation type spans 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 northwest this vegetation unit borders on desert vegetation (northwest 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 mostly from 600–1 200 m. Landscape features associated with this vegetation includes extensive to irregular plains on a slightly sloping plateau sparsely vegetated by grassland dominated by white grasses (Stipagrostis species) giving this vegetation type the character of semidesert 'steppe'. In places low shrubs of Salsola change the vegetation structure. In years of abundant rainfall rich displays of annual herbs can be expected. The conservation target for this vegetation type is 21%. Only small patches are statutorily conserved in Augrabies Falls National Park and Goegab Nature Reserve. Very little of the area has been transformed. Erosion is very low (60%) and low (33%) (Mucina & Rutherford 2006).*

The vegetation description was done from photo's provided by the client and would have to be confirmed on site if the need arises. There are however no threatened plant species listed within this vegetation type, and thus, the risk of loss of such species in this area is very low. From photographic images taken on site, it appears as if the general riparian vegetation directly surrounding the freshwater features, consist of a mix of shrubs and graminoid species, varying from a Largely to moderately modified state. A species list of vegetation found on site would be done purely on speculation and would for that reason be left out."

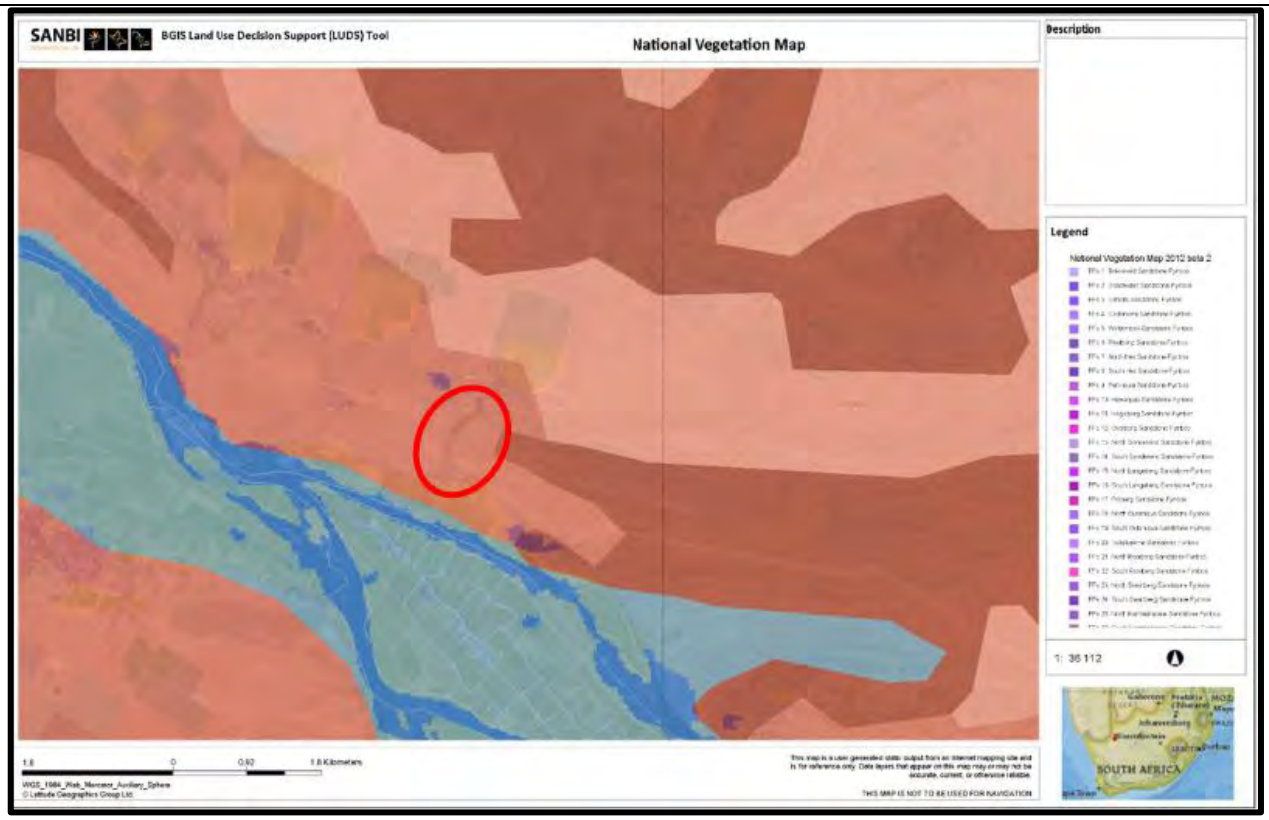


Figure 10. Vegetation Map

Critical Biodiversity Area:

"Most of the farm including the area affected by the activity is classified as Critical Biodiversity Area 2 (moderate priority), see Figure 11*, where areas in a natural condition are required to meet biodiversity targets, for species, ecosystems or ecological processes and infrastructure. These areas should be maintained in a natural or near-natural state, with no further loss of natural habitat. Degraded areas should be rehabilitated and only low-impact, biodiversity-sensitive land uses are appropriate."*

Figure 11: Critical Biodiversity Area.

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:	
~~Provide ecosystem status for above:~~		~~Provide ecosystem status for above:~~		~~Provide Ecosystem status for above:~~	
~~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) Pipelines towards cultivated areas.		Cultivated land		~~Paved surface~~	

Please note: 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 vegetation type and ecosystem status consult http://bgis.sanbi.org or BGIShelp@sanbi.org. 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.

5.3 VEGETATION / GROUNDCOVER MANAGEMENT

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

There is no scope available for mitigation measures to compensate for the loss of natural habitat in the study area. Wherever there is future cultivation, the vegetation and habitat would be lost.

Mitigation measures relating to the loss of biodiversity would include the following:

1. It would be proposed that any disturbed areas still remaining unvegetated should be rehabilitated.
2. A buffer zone of 20m should be kept from the Swartdraai-se-leegte River for all future developments.

6. THE GEOLOGICAL FORMATIONS UNDERLYING THE SITE

GRANITE	X	QUARTZITE	
SHALE		DOLOMITE	
SANDSTONE		DOLERITE	

OTHER_____

The terrain studied is on the northeast side of the Orange River on the open sandy plain below the more elevated rocky koppies. The sandy plain slopes towards the river with a shallow gradient. The elevation of the highest point is approximately 500 m above mean seal level. The landscape is generally flat but is dissected by drainage lines over part of the site. Soils generally consist of red sandy topsoil of the Cenozoic Kalahari Group with the basement geology consists of metamorphic gneisses and pegmatites of the Riemvasmaak rocks of the Kakamas Terrane, Namaqualand-Natal Province (Cornell et al. 2006).

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.

Untransformed area	~~Low density residential~~	~~Medium density residential~~	~~High density residential~~	~~Informal residential~~
~~Retail~~	~~Commercial & warehousing~~	~~Light industrial~~	~~Medium industrial~~	~~Heavy industrial~~
~~Power station~~	~~Office/consulting room~~	~~Military or police base/station/compound~~	~~Casino/entertainment complex~~	~~Tourism & Hospitality facility~~
~~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~~	Agriculture	River, stream or wetland	~~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 North Settlement No. 343 is zoned as Agriculture.			
Is/was the activity in line with the following?			
Provincial Spatial Development Framework (PSDF)	YES	~~NO~~	Please explain
Kakamas North Settlement No. 343 is zoned for Agricultural use, and the agricultural activities are in line with the PSDF.			
Urban edge/Edge of Built environment for the area	YES	~~NO~~	Please explain
The agricultural activities have taken place outside the urban edge/urban area on land for agricultural use.			
Integrated Development Plan (IDP) of the Local Municipality	YES	~~NO~~	Please explain
Kakamas North Settlement No. 343 is zoned for Agricultural use, and the agricultural activities are in line with the IDP.			
Spatial Development Framework of the Local Municipality	YES	~~NO~~	Please explain
Kakamas North Settlement No. 343 is zoned for Agricultural use, and the agricultural activities are in line with the SDF.			
Approved Structure Plan of the Municipality	YES	~~NO~~	Please explain
Kakamas North Settlement No. 343 is zoned for Agricultural use, and the agricultural activities are in line with the Structure Plan.			
Any other Plans	~~YES~~	~~NO~~	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. Several 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 available at Kenhardt and Kakamas.

Major constraints for agricultural development include poor quality of access roads to and from farms, 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.

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 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 agricultural sector is also 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. Several 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.

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 more known for small stock farming, especially the dorper sheep. Abattoirs are available in Kenhardt and Kakamas.

Major constraints for agricultural development include poor quality of access roads to and from farms, 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."

<u>CapeSpan Group Empowerment within the company:</u>
The primary goal of Capespan Farms is to provide synergies within Capespan's global fruit procurement and marketing footprint. All the farms are strategically positioned to enhance Capespan Group's service and product offering to all our third-party growers and our retail customers across the globe. At group level, Capespan enhances and adds to its significant third-party grower product basket through its own production in order to ensure a sustainable twelve-month supply of quality fresh produce.
Capespan Farms owns and controls 14 production units (including Novo Packhouse) throughout Southern Africa, producing respectively grapes, citrus, pome and stone fruit. All the farms have industry accredited certifications including Global GAP, HACCP, Nurture (where necessary), Leaf and Field to Fork.

Our employees' wellbeing is imperative for Capespan's continued sustainability and the employment relationship is regulated through comprehensive employment service agreements. Therefore, it's imperative that continuous engagement with our employees is fostered on a range of issues that affect them and we recognize that our employees can have the following expectations: an inspiring climate and safe, healthy and congenial working conditions, a clear understanding of their jobs and related performance standards required, to be rewarded at market-related remuneration, job satisfaction, recognition and opportunities for skills acquisition, career development and empowerment.

Capespan manages these expectations through the Capespan Group's Code of Business Conduct and Ethics, the board-approved Employment Equity Policy and broad-based black economic empowerment (B-BBEE) targets. We conduct regular organizational culture surveys and compliance with relevant employment legislation and B-BBEE codes in the regions in which we operate.

Employee engagement also takes place through electronic newsletters, employee publications, intranet, employee feedback forums, performance management systems and climate surveys.

The Capespan Foundation is funded by the Capespan group to drive its corporate social investment (CSI) mandate - to add value to the lives of communities in which Capespan operates - by implementing various Blue Hand social, health and educational development programmes. The Foundation raises additional funding for projects, where possible, through joint ventures, staff volunteering and strategic leveraging of funding and projects.

The Blue Hand project goals include, but are not limited to:

- developing/empowering communities in which the company operates for sustainable growth of company business.
- making a positive, sustainable impact on communities through improving quality of life
- building and improving relationships with existing/potential stakeholders by forming mutually beneficial partnerships.
- maintaining the company's image and CSI reputation - strategic positioning as a leading contributor to social development in the industry.
- enhancing loyalty and pride and attracting quality socially responsible staff.
- improving the company's brand identity in the communities.
- increasing visibility of customer goodwill towards communities.

10. CULTURAL/HISTORICAL FEATURES

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?	~~YES~~	NO
	~~UNCERTAIN~~	
If YES, explain:	A specialist was appointed to conduct an AIA with Paleontological Assessments for the adjacent property. These studies found very low impacts on larger areas for agricultural developments. This development area is almost negligible and therefore will have an even lower impact with regards to Archaeology and palaeontology.	
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 was already appointed:	The following summary from the Archaeological Assessment for KNS No. 341: *"<u>Conclusion:</u>* *The impact significance of the proposed new vineyard development on archaeological heritage is assessed as LOW and therefore, there are no objections to the authorization of the project.* *<u>Recommendations:</u>* *Regarding a proposed new vineyard development on the Farm Oorkant, Kakamas North Settlement 341 near Augrabies, the following recommendations are made:* *1. No mitigation of archaeological resources is required prior to proposed new development activities commencing.* *2. No archaeological monitoring is required.* *3. Regarding the illegal raisin drying development established in 2018, (subject of the Section 24G Process), no further archaeological mitigation is required."* The following summary from the Palaeontological Assessment for KNS No. 341: *"In view of the negligible palaeontological sensitivity of the ancient Precambrian bedrocks as well as the low sensitivity of the geologically recent superficial sediments along the Orange River in the Augrabies – Kakamas North region, the proposed agricultural development – including new vineyards and raisin drying racks - is not considered to pose a significant threat to palaeontological heritage. Substantial, potentially fossiliferous older alluvial deposits of the Orange River are not mapped here.*	

	Pending any significant new fossil discoveries in the area, no further specialist studies or mitigation are considered necessary for this agricultural project. *All South African fossil heritage is protected by the National Heritage Resources Act, 1999. 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 in situ. 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. Email: 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 this report.* *These mitigation recommendations should be incorporated into the Environmental Management Programme (EMPr) for this agricultural project. Please note that:* • *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.* • *The palaeontologist concerned with potential mitigation work will need a valid fossil collection permit from SAHRA and any material collected would have to be curated in an approved depository (e.g., museum or university collection).* • *All palaeontological specialist work should conform to international best practice for palaeontological fieldwork and the study (e.g., data recording fossil collection and curation, final report) should adhere as far as possible to the minimum standards for Phase 2 palaeontological studies developed by SAHRA (2013)."*

Were any buildings or structures older than 60 years affected in any way?	~~YES~~	NO
Was it necessary to apply for a permit in terms of the National Heritage Resources Act, 1999 (Act 25 of 1999)?	~~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.		
Construction phase: A small amount of construction related waste associated with the construction of the dam and retention facility would have been generated, such as cement bags, paint tins, etc.		

Operational phase:
Operational waste is limited to broken materials associated with the farming activities, and with solid waste associated with food eaten by the farm workers.

What quantity was/is produced during the construction period?	App. 2	m³
What was/is the estimated quantity that will be produced per month during the operational phase?	Negligible	m³

Did/does the activity produce any hazardous 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?		m³
What was/is the estimated quantity that will be produced per month during the operational phase?		m³

Where and how was/is waste treated / disposed of (describe each waste stream)?		
Extraordinarily little solid waste is produced by farm workers and general farming activities. General solid waste collection and disposal by the municipality.		
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~~

The summary of all the water usage and sewerage outflow as outlined above will be collected and taken to the Kai! Garib Municipality for treatment.
Omdraai Farm uses water from the irrigation allocation for drinking purposes, the packaging shed and garden irrigation.

A Water Use Licence Application (WULA) will be required for 21(a) to transfer water from “Irrigation” to the sector “Schedule 1”. Water used in pack stores are used for commercial purposes and must, therefore, be licenced as “Industrial” use.

To summarise a licence will be required to “transfer” water from the lawful “irrigation” allocation to “Industrial use” and Schedule 1.

Table 5: Water use summary

Valam/Omdraai		Actual								Forecast				Total (m³)
		2020								2020				
Location	Category	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Packhouse		120	0	0	0	0	0	0	0	0	0	290	301	
Outside		11	0	0	0	0	0	0	0	0	0	184	171	
Permanent staff		1	123	92	56	0	96	149	176	433	383	0	0	
		132	123	92	56	58	96	149	176	433	383	474	472	
Water use(m³)		613,8	571,95	427,8	260,4	269,7	446,4	692,85	818,4	2013,5	1781	2133	2194,8	12223,5
Sewerage(m³)	Note (70% of water use)	429,66	400,37	299,46	182,28	188,79	312,48	485	572,88	1409,4	1246,7	1493,1	1536,4	8556,45
Pack house(m³)	Pre-cooler	89	0	0	0	0	0	0	0	0	0	20	152	261
Gardens and Landscaping(m³)														2415,5
Total (m³)														14900 (1ha)

As shown above in **Table 5**, the total volume of water used annually amounts to approximately 1 ha of water. Therefore, the application is to transfer approximately 1 ha of water for Industrial and Schedule 1 use. From this approximately 12 400 m³ should be allocated for Schedule 1 use and approximately 2 500 m³ will be allocated for Industrial use. From the **Table 5** above it shows that 8556.45m³ of sewerage is collected and taken to the local Municipal site for treatment.

What was/is the estimated quantity produced per month?	100 m³/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 unallocated 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.		
There is an existing conservancy tanks at the hostels, and at the pack house. These are removed on a regular basis by an external company on a regular basis by the Kai! Garib Municipality for treatment and disposal.		
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:		
All sewerage is collected via a conservancy tank.		
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: There is an existing conservancy tanks at the hostels, and at the pack house. These are removed on a regular basis by an external company on a regular basis by the Kai! Garib Municipality for treatment and disposal.	~~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:		
The activity did not result in any emissions into the atmosphere.		

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

2. WATER USE

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

~~Municipal~~	Water Board – Kakamas WUA	~~Groundwater~~	~~River, Stream, Dam or Lake~~	~~Other~~	~~The activity did/does not use water~~

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:	m^3

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

Omdraai has an existing lawful use of 60 ha for irrigation from the Orange River allocated to Kakamas North Settlement No. 343. The said property also recently received a Water Use License for additional 12ha of water rights from the Orange River.
In total Omdraai has existing rights for 72 ha (1 080 000 m^3/a) of water rights from the Orange River.
The existing rights certificates and the new WUL is shown in Appendix E1: Water Use License.

The applicant, Valam Boerdery (Pty) Ltd, transferred 180 000 m^3/a (12ha) of water from another property to Kakamas North Settlement No. 343 to rectify the water shortage on the property. However, with new water practices etc, the intention is to transfer additional water from KNS No. 343 to KNS No. 341. The transfer to ensured that the property and new developments comply with the National Water Act (1998). The summary of the transfer that took place is shown in Table 3 below.

Table 6: Existing and proposed transfer and new water allocation.

Property	**Current Water Allocation**	**Transfer**	**Irrigate tempo**	**Water Allocation ha**	**Water Allocation m^3/a**
Portion 37 of Zeekoesteek No. 09 (Donor)	50.2	12ha	15 000m^3/ha	30ha	450 000m^3/a
Kakamas North Settlement No. 343. (Receiving)	60ha	12ha (- 1ha for Industrial and Schedule 1 use)	15 000m^3/ha	72ha	1 080 000m^3/a
Kakamas North Settlement No. 343. (Receiving)	0ha	1ha	15 000m^3/ha	1ha	15 000 m^3/a
Kakamas North Settlement No. 343. (Donor)	71	12.77ha	15 000m^3/ha	58.23ha	873 450m^3/a
Kakamas North Settlement No. 341. (Receiving)	61.59ha	12.77ha	15 000m^3/ha	74.36ha	1 115 400 m^3/a

TOTAL for Omdraai					873 450m³/a

Omdraai Farm uses water from the irrigation allocation for drinking purposes and garden irrigation.
A license application (WULA) will be required for 21(a) to transfer water from "irrigation" to the sector "Schedule 1". Water used in pack stores are used for commercial purposes and must, therefore, be licenced as "industrial".
It can, therefore, be concluded that licences will be required to "transfer" water from the lawful "irrigation" allocation to "industrial use" and Schedule 1.
As shown above in, the total volume of water used annually amounts to 15 000m³/annum (1ha).
Therefore, the application is to transfer approximately 1ha of water for Industrial and Schedule 1 use.

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

Table 7: Water use license activities

(a) transfer of water	Applying for a licence for the "transfer" of water from the lawful "irrigation" allocation to "industrial use" and Schedule 1.
(b) storing of water	For the legalisation of a small balancing dam with a capacity of 20 100m³
(c) impeding or diverting flow of water in a watercourse	For the construction of an instream dam and retention wall across ephemeral streams/natural drainage areas.
(i) altering the bed, banks, course or characteristics of a watercourse	For the construction instream dam and retention wall across ephemeral streams/natural drainage areas.

Did/does the activity require a water use permit/license from DWAF? If yes, attach a copy to this application	YES	~~NO~~
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 North Settlement No. 343.

Has the Municipality or relevant service provider confirmed that sufficient electricity capacity (i.e., generation, supply and transmission) exist for activity(ies)? No confirmation necessary, existing rights currently in use. If yes, provide written confirmation from Municipality or relevant service provider.	YES	~~NO~~

If power supply was/is not available, where was/is it sourced from?
Electricity is supplied by powerline to the cultivated areas from the existing grid.

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

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.

4. ENERGY EFFICIENCY

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

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.

(b) Describe how alternative energy sources have been taken into account or been built into the design of the activity, if any:

Drip irrigation utilises less energy (and water) than spray irrigation.

5. NOISE IMPACTS

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

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

(a) Did/does the activity result in any visual impacts?	~~YES~~	NO
If yes, please describe and indicate the measures implemented to mitigate and manage these impacts?		
The site is not situated close to a road or adjacent homesteads.		
(b) Did/does the activity result in potential lighting impacts at night?	~~YES~~	NO
If yes, please describe and indicate the measures implemented to mitigate and manage these impacts?		
No, this is an agricultural development.		
(c) Were/are there any alternatives available to address this impact?	~~YES~~	NO
If yes, please describe these alternatives?		
N/A		

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

THIS SECTION IS NOT APPLICABLE

(a) What was/is the expected capital value of the activity on completion?		
(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?		
(c) Did/does the activity contribute to service infrastructure?	~~YES~~	NO
(d) How many permanent new employment opportunities were created?		
(e) What was/is the expected current value of the employment opportunities to date?		
(f) What percentage of this accrued to previously disadvantaged individuals?		

How was(is) this (to be) ensured and monitored (please explain):

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	Low negative
Loss of non-perennial drainage lines	Medium negative
Water required for irrigation	Medium negative
Visual	Low negative
Noise	Low negative
Cultural	None
Employment creation	Medium to high positive
Production of table grapes for export market	Medium to 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:	The mapped natural vegetation type for the area affected by the activity can broadly be classified as the Least threatened Bushmanland Arid Grassland. The development of dam and retention pond would have Very Low Negative impact despite the area falling within a CBA1. No mitigation would be possible or necessary.
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 impact of the proposed agricultural development on the sparse vegetation would be Very Low Negative. No mitigation would be possible or required. No plant species of conservation concern or protected species were recorded within the development footprint; hence no permits would be necessary to remove such species. No constraints were identified from a botanical perspective that would prevent the development from proceeding. The proposed agricultural development is therefore acceptable and supported from a botanical viewpoint.
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	Very Low negative
Degree to which the impact can be mitigated:	None
Proposed mitigation:	No mitigation is available for the activity that has already taken place.
Cumulative impact post mitigation:	Low
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	Very Low negative

Impacts on geographical and physical aspects:	
Nature of impact:	Loss of biodiversity: Due to the existing modified state of the river at this section, where loss of aquatic instream and riparian vegetation has occurred, in a river reach that would not under natural circumstances sustained this, the impact of loss of biodiversity due to the construction and operation of the retention dam would be deemed to be of long-term Low negative nature. From the photographs taken on site, it looks as if large stands of vegetation have already established around the dammed area, even further lowering this impact to a Negligible one.
Extent and duration of impact:	Local extent and long-term duration
Probability of occurrence:	High/Negligible
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:	Mitigation measures relating to the loss of biodiversity would include the following: • It would be proposed that any disturbed areas still remaining unvegetated should be rehabilitated. • A buffer zone of 20m should be kept from the Swartdraai-se-leegte River for all future developments. An application will be lodged with DWS for Sections 21 (c) and (i) for the new areas.
Cumulative impact post mitigation:	Low
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:	Flow modification: Both the construction and operational phase of the new retention dam would cause some reduction in flow towards downstream features. Considering that most of the flow within the river can be attributed to the artificial release of irrigation drainage, which had a greater impact, modifying this section of the river from an ephemeral to a more perennial feature, the construction and operation of this dam has in fact had a Low to Medium Positive impact on the downstream section of the river, stopping most of the irrigation flow to pass towards downstream features, and so re-instating its more ephemeral nature.
Extent and duration of impact:	Local extent and long-term duration

Probability of occurrence:	High/Negligible
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:	The following mitigation measure would be proposed to limit any other possible impacts due to flow modification. • The only other concern would be that the dam impedes the very necessary flood flows when these do occur. The size of the dam should thus be of such nature that it does not impede flood flows, after heavy rainfall. An application will be lodged with DWS for Sections 21 (c) and (i) for the new areas.
Cumulative impact post mitigation:	Low
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:	Water quality: As with the flow modification, water quality in this section of the river (prior to construction of the dam) has had immense impact on the vegetation and biodiversity, through nutrification and salination of this area and downstream features with the flow of enriched irrigation drainage water. It is clear that since the construction of the dam, with reduced flow towards downstream features (including the Orange River), this impact has been lowered, with the dam thus having a Low Positive impact on downstream freshwater features. What would be of concern is the concentration of salts and minerals within the retention dam, which could be flushed downstream with the event of future flood flows. This could have a short-term Medium Negative impact on both the downstream section as well as the Orange River.
Extent and duration of impact:	Local extent and long-term duration
Probability of occurrence:	High/Negligible
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:	The following mitigation measure would be proposed to limit such water quality impacts:

	• Regular monitoring and reporting on water quality within the small dam should be included in the EMPR and care should be taken that all salt levels are within specifications by DEA and DWS. • Should the salt concentration within the dam exceed these specifications, specific procedures for the rectification of this should be provided (and included in the EMPR). Specialist opinion should be sought as input on such rectification actions. An application will be lodged with DWS for Sections 21 (c) and (i) for the new areas.
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:	Financial income to Valam Boerdery 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 to 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)	None
Degree to which the impact can be mitigated:	None, the impact is positive.
Proposed mitigation:	None
Cumulative impact post mitigation:	Financial income to 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)	None

Impacts on cultural-historical aspects:	
Nature of impact:	As stated in the Heritage Impact Assessment (HIA): *"…The impact significance of the proposed new vineyard development on archaeological heritage is assessed as LOW and therefore, there are no objections to the authorization of the project."*
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: *"No archaeological remains were found during an assessment of the illegal raisin drying development situated in the north eastern portion of the site. Given the results of the larger study it is unlikely that important*

	archaeological resources would have been impacted by the project."
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: *"1. No mitigation of archaeological resources is required prior to proposed new development activities commencing.* *2. No archaeological monitoring is required.*
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 Palaeontological Assessment: *"In view of the negligible palaeontological sensitivity of the ancient Precambrian bedrocks as well as the low sensitivity of the geologically recent superficial sediments along the Orange River in the Augrabies – Kakamas North region, the proposed agricultural development – including new vineyards and raisin drying racks - is not considered to pose a significant threat to palaeontological heritage. Substantial, potentially-fossiliferous older alluvial deposits of the Orange River are not mapped here."*
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:	As stated in the Palaeontological Assessment: *These mitigation recommendations should be incorporated into the Environmental Management Programme (EMPr) for this agricultural project. Please note that:* *• 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.* *• The palaeontologist concerned with potential mitigation work will need a valid fossil collection permit from SAHRA and any material collected would have to be curated in an approved depository (e.g., museum or university collection).* *• All palaeontological specialist work should conform to international best practice for palaeontological fieldwork and the study (e.g., data recording fossil collection and*

	curation, final report) should adhere as far as possible to the minimum standards for Phase 2 palaeontological studies developed by SAHRA (2013).
Cumulative impact post mitigation:	Low negative
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	Low

Noise impacts:	
Nature of impact:	General noise associated with agricultural activities – note this development is for the dam and retention dam. No noise impacts for these 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 agricultural active area and any 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 agricultural active area and any 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 agricultural 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

Visual impacts / Sense of Place:	
Nature of impact:	The removal of vegetation for the establishing of the dam and retention dam.
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: the activity already took place.
Proposed mitigation:	None: the activity already took place.
Cumulative impact post mitigation:	None. The cleared areas, although visible to passing traffic from the main road, would have been 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 further rated.
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 other 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)	None
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)	None

Impacts on socio-economic aspects:	
Nature of impact:	Financial income to Valam Boerdery 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 to 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)	None
Degree to which the impact can be mitigated:	None, the impact is positive.
Proposed mitigation:	None
Cumulative impact post mitigation:	Financial income to 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)	None

Impacts on cultural-historical aspects:	
Nature of impact:	The impact was rated exceptionally low. With no further mitigation. 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)	

Noise impacts:	
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 agricultural active area and any 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 agricultural active area and any 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 agricultural 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

Visual impacts / Sense of Place:	
Nature of impact:	The new vineyards have changed the sense of place, but the nature of impact is limited within the existing established agricultural landscape of the region.
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 vineyards have changed the sense of place, but the nature of impact is limited within the existing established agricultural landscape of the region.
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: the activity already took place.
Proposed mitigation:	None: the activity already took place.
Cumulative impact post mitigation:	The new vineyards have changed the sense of place, but the nature of impact is limited within the existing established agricultural landscape of the region.
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 retention structure 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	YES	NO
(b) Is sufficient cover material available	YES	NO
(c) Will waste be compacted daily	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:

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

	Total rainfall for 6 months	Total A-pan evaporation for 6 months	Climatic water balance
For the 1st wettest year			
For the 2nd wettest year			
For the 3rd wettest year			
For the 4th wettest year			
For the 5th wettest year			
For the 6th wettest year			
For the 7th wettest year			
For the 8th wettest year			
For the 9th wettest year			
For the 10th 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:

1. In terms of regulation 41 of the EIA Regulations, 2014 -			
(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 -			
(i) the site where the activity to which the application relates is or is to be undertaken; and	YES	~~EXEMPTION~~	
(ii) any alternative site	~~YES~~	EXEMPTION	
(b) giving written notice, in any manner provided for in section 47D of the NEMA, to –			
(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;	YES	~~EXEMPTION~~	~~N/A~~
(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;	YES	~~EXEMPTION~~	
(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;	YES	~~EXEMPTION~~	
(iv) the municipality (Local and District Municipality) which has jurisdiction in the area;	YES	~~EXEMPTION~~	
(v) any organ of state having jurisdiction in respect of any aspect of the activity; and	YES	~~EXEMPTION~~	
(vi) any other party as required by the Department;	YES	~~EXEMPTION~~	~~N/A~~
(c) placing an advertisement in -			
(i) one local newspaper; or	YES	~~EXEMPTION~~	
(ii) any official *Gazette* that is published specifically for the purpose of providing public notice of applications or other submissions made in terms of these Regulations;	~~YES~~	~~EXEMPTION~~	N/A
(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	~~YES~~	~~EXEMPTION~~	N/A
(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 Gemsbok, and was advertised for at least 20 days as per the prescribed legislation, from 22 January 2021 until 12 February 2021. See proof included in Appendix F. The following steps will be followed: 1. The S24G Report will go out for a 30-day commenting period. As far as possible all I&AP's will be notified of the commenting period and where to access the information electronically. 2. As part of this 30-day commenting period an advertisement will be placed in the Gemsbok, as part of the notifications for the 60-day water use license prescribe timeframes. 3. The final S24G report will be submitted for final approval and consideration. Further details will be provided within the public participation process and agreed with the case officer.

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	email	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	Snyers	A.C.	Kai Garib Municipality: Ward Councillor Ward 2	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		SchwartzC@dws.gov.za 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	CEO		Kakamas Water Users Association	054 431 0725/6	054 431 0348	kakamaswgv@isat.co.za	Private Bag X4	Kakamas	8870
7	Mans	J	Department of Agriculture Forestry and Fisheries	054 338 5909		jacolinema@daff.gov.za	P. O. Box 2782	Upington	8800
8	Lekwene	T	DENC: S24G Section	0798744244		LekweneT@ncpg.gov.za	90 Long Street Sasko Building	Kimberley	8301

Note: A State department consulted in terms of Section 24O (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 therefor**e 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 24O (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: The alternative entails authorising of the dam and the retention dam/wall.

The applicant indigenous vegetation within a stream to construct a storage dam and a retention dam/wall, as shown in Appendix B and below as Figure 12:

Figure 12: Development Layout Plan – Alternative 1

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

- From a freshwater perspective the following is summarise:

  "Considering the current modified state of the affected section of the Swartdraai-se-leegte River, together with the general positive impact the retention dam has had on the flow modification and water quality impacts on downstream features, the cumulative impact of the retention dam on the larger freshwater system (especially downstream of the site as well as the Orange River) with effective implementation of mitigation measures, would be deemed to be of Low Positive Impact."

- No further development will take place within these streams and mitigation measures will be implemented.

Alternative 2: Removal of vegetation for the cultivation of table grapes after obtaining environmental authorisation.

Alternative 2 would have been for development at an alternative site, with lower environmental impact. No other sites are available, and the impact for the storage dam is low as it was higher upstream within a small stream, with a small catchment area. The retention wall is located downstream of all developments and upstream from possible further effects. Therefore, this alternative is not deemed preferred.

No-Go Option

The No-Go Option would have meant that no developments took place. The following summary of impacts are as follows:

- From a freshwater perspective this is not preferred. The general positive impact the retention dam has had on the flow modification and water quality impacts on downstream features, would have not taken place and the positive impact not implemented.

- This would have resulted in no job security for local communities and no income to the business and country's economy. Rehabilitation of the site would include the removal of all structures. This would result in a major financial loss for the applicant, as well as the loss of employment opportunities for employees currently working for the applicant.

Therefore, this alternative is not deemed preferred.

SECTION H: APPENDICES

The following appendices must be attached where appropriate:

Appendix	**Cross out ("☒") the box if** Appendix is attached
Appendix A: Location map	**X**
Appendix B: Site plan(s)	**X**
Appendix C: Owner(s) consent(s)	**N/A**
Appendix D: Photographs • **Appendix D1: Historic aerial photographs (Figures 1 to 5)** • **Appendix D2: Site photographs.** • **Appendix D3: CBA 2 and CBA 2 located on Kakamas North Settlement No. 343.**	**X**
Appendix E: Permit(s) / license(s) from any other organ of state including service letters from the municipality. • **Appendix E1: Irrigation rights from the Department of Water Affairs** • **Appendix E2: Proof of sewerage collection and taken to Municipal site.**	**X**
Appendix F: Additional Impact Assessment Information • **Appendix F: Public Participation**	**Not yet completed/ Included in the Assessment Report**
Appendix G: Report on alternatives	**N/A**
Appendix H: Any Other (describe) • **Appendix H1: Attendance register of meeting held with DENC and DWS.**	**Not yet completed/ Included in the Assessment Report**

• **Appendix H2: EMP** • **Appendix H3: WULA** • **Appendix H4: Freshwater Assessment**	

PART 2

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 is not subject to this application and in any province in the Republic?	~~YES~~	NO	~~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 not subject to this application and in any province in the Republic?	~~YES~~	NO	~~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 in terms of which this application directly relates?	~~YES~~	NO	~~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 Description of variable	**Place an "x" in the** appropriate box
	The activity is not giving, has not given and will not give rise to any negative socio-economic impacts	X
	The activity is giving, has given, or could give rise to negative socio-economic impacts, but highly localised	
	The activity is giving, has given, or could give rise to significant negative socio-economic and regionalized impacts	
	The activity is resulting, has resulted or could result in wide-scale socio-economic impacts.	
	Motivation:	

Index	Biodiversity Impact Description of variable	**Place an "x" in the** appropriate box
	The activity is not giving, has not given and will not give rise to any impacts on biodiversity	X

The activity is not giving, has not given and could give rise to localised biodiversity impacts	
The activity is not giving, has not given and could give rise to significant biodiversity impacts	
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.	
Motivation:	

Index	Sense of Place Impact and / or Heritage Impact Description of variable	**Place an "x" in the** appropriate box
	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	X
	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	
	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	
	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	
	Motivation:	

Index	Pollution Impact Description of variable	**Place an "x" in the** appropriate box
	The activity is not giving, has not given and will not give rise to any pollution	X
	The activity is giving, has given or could give rise to pollution with low impacts.	
	The activity is giving, has given or could give rise to pollution with moderate impacts.	
	The activity is giving, has given or could give rise to pollution with high impacts.	
	The activity is giving, has given or could give rise to pollution with major impacts.	
	Motivation:	

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 Description of variable	**Place an "x" in the** appropriate box
	Administrative action was previously taken against the applicant in respect of the abovementioned provisions.	X
	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.	
	Administrative action was <u>not</u> previously taken against the applicant in respect of the abovementioned provisions.	

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 Description of variable	**Place an "x" in the** appropriate box
	The applicant was previously convicted in terms of either or both of the abovementioned provisions.	X
	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. Description of variable	**Place an "x" in the** appropriate box
	Previous applications in terms of section 24G of NEMA were submitted by the applicant.	X
	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:

During the period from 1976 to 2016 various developments took place on the property, of which most are agricultural developments. This in triggered a S24G Application that that was undertaking in 2017 and the Environmental Authorisation (S24G04/03/2017) issued on 22 October 2018. These actions were however, not committed by the applicant, as the applicant obtained the property after the development took place.

In 2019 the applicant had complaints for the downstream neighbour with regards to downstream flooding of his vineyards due to increased downstream flow of water. The applicant decided to construct a small retention structure which ultimately triggered an S24G process without his knowledge. This application is therefore, for the correction of this activity.

PART 3: APPLICANT'S PERSONAL CIRCUMSTANCES

Index	**Applicant's legal persona** Description of variable	**Place an "x" in the** appropriate box
	The applicant is a natural person.	
	The applicant is a firm.	X

Describe the firm:

Valam Boerdery (PTY) Ltd falls under CapeSpan Group.

<u>History of company:</u>

With headquarters in Antwerp, Belgium, Capespan Continent delivers fresh products and service solutions to continental European customers.
We are a subsidiary of the global Capespan Group, with its headquarters in Cape Town, South Africa. With about 100 employees, our other offices are in Hamburg, Paris, Vienna, and Zurich. Operating with our service providers from state-of-the-art warehousing and logistical facilities at maritime and hinterland terminals across Europe, every step of the operating process is computer controlled. Special refrigerated cold stores have a 50 000-pallet capacity for direct deliveries throughout Europe. Our logistics partners take care of forwarding and customs clearing, plus processing requirements such as netting and bagging of fruit.

<u>Product development:</u>

To exceed expectations from the increasingly diversified European consumers, we continue strengthening our position by developing new commercial varieties and devise innovative ideas on packaging and fresh fruit distribution. Therefore, comprehensive product development programmes involve both producer and international business partners. These programmes are already improving the range of sought-after varieties and exciting new cultivars.

Global Procurement:

New origins are continuously being integrated into Capespan's portfolio. Confident about these important supply sources, we allow our brand names to be used on products that fulfill our quality specifications. The year-round offering includes deciduous, citrus and exotic fruit from production areas throughout the world.

Capespan Continent is particularly active in a number of developing economies where substantial export growth is predicted in coming years - countries such as China, Peru and India. Meanwhile, we also have an established network of high-quality, like-minded producer partners in traditional supply origins such as Brazil, Chile, New Zealand, South Africa, and Egypt.

During production, Capespan's technical teams work extensively with producer partners. We also work with the technical staff of our major business partners to guarantee consistently top standards at retail level.

Information Technology:

Our advanced systems allow us to access logistical, quality and traceability information of all fruit at any given time. And to service our customers, we've developed applications to support a variety of services: a data warehouse for information on product flow; a logistical traceability system to certify logistical efficiencies, food safety coverage, cost control and efficient selling; and a personalised extranet portal for our suppliers and customers.

CapeSpan Group Empowerment within the company:
The primary goal of Capespan Farms is to provide synergies within Capespan's global fruit procurement and marketing footprint. All the farms are strategically positioned to enhance Capespan Group's service and product offering to all our third-party growers and our retail customers across the globe. At group level, Capespan enhances and adds to its significant third-party grower product basket through its own production in order to ensure a sustainable twelve-month supply of quality fresh produce.
Capespan Farms owns and controls 14 production units (including Novo Packhouse) throughout Southern Africa, producing respectively grapes, citrus, pome and stone fruit. All the farms have industry accredited certifications including Global GAP, HACCP, Nurture (where necessary), Leaf and Field to Fork.

Our employees' wellbeing is imperative for Capespan's continued sustainability and the employment relationship is regulated through comprehensive employment service agreements. Therefore, it's imperative that continuous engagement with our employees is fostered on a range of issues that affect them and we recognize that our employees can have the following expectations: an inspiring climate and safe, healthy and congenial working conditions, a clear understanding of their jobs and related performance standards required, to be rewarded at market-related remuneration, job satisfaction, recognition and opportunities for skills acquisition, career development and empowerment.

Capespan manages these expectations through the Capespan Group's Code of Business Conduct and Ethics, the board-approved Employment Equity Policy and broad-based black economic empowerment (B-BBEE) targets. We conduct regular organizational culture surveys and compliance with relevant employment legislation and B-BBEE codes in the regions in which we operate.

Employee engagement also takes place through electronic newsletters, employee publications, intranet, employee feedback forums, performance management systems and climate surveys.

The Capespan Foundation is funded by the Capespan group to drive its corporate social investment (CSI) mandate - to add value to the lives of communities in which Capespan operates - by implementing various Blue Hand social, health and educational development programmes. The Foundation raises additional funding for projects, where possible, through joint ventures, staff volunteering and strategic leveraging of funding and projects.

The Blue Hand project goals include, but are not limited to:

- developing/empowering communities in which the company operates for sustainable growth of company business.
- making a positive, sustainable impact on communities through improving quality of life
- building and improving relationships with existing/potential stakeholders by forming mutually beneficial partnerships.
- maintaining the company's image and CSI reputation - strategic positioning as a leading contributor to social development in the industry.
- enhancing loyalty and pride and attracting quality socially responsible staff.
- improving the company's brand identity in the communities.
- increasing visibility of customer goodwill towards communities.

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

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: ADVERTISMENT – 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).

PART 3

SECTION I: DECLARATIONS

I1: DECLARATIONS OF THE EAP

1. The Independent Environmental Assessment Practitioner

I, _____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:

Name of company:

Date:

Signature of the Commissioner of Oaths:

Date:

Designation:

Official stamp (below)

A2: DECLARATIONS OF THE APPLICANT

1. The Applicant

I, **Bernie James Denton** 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:

Valam Boerdery Pty Ltd

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@dedea.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 Dept. 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 Dept 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 PROVINVIAL 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.gxilishe@dedea.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

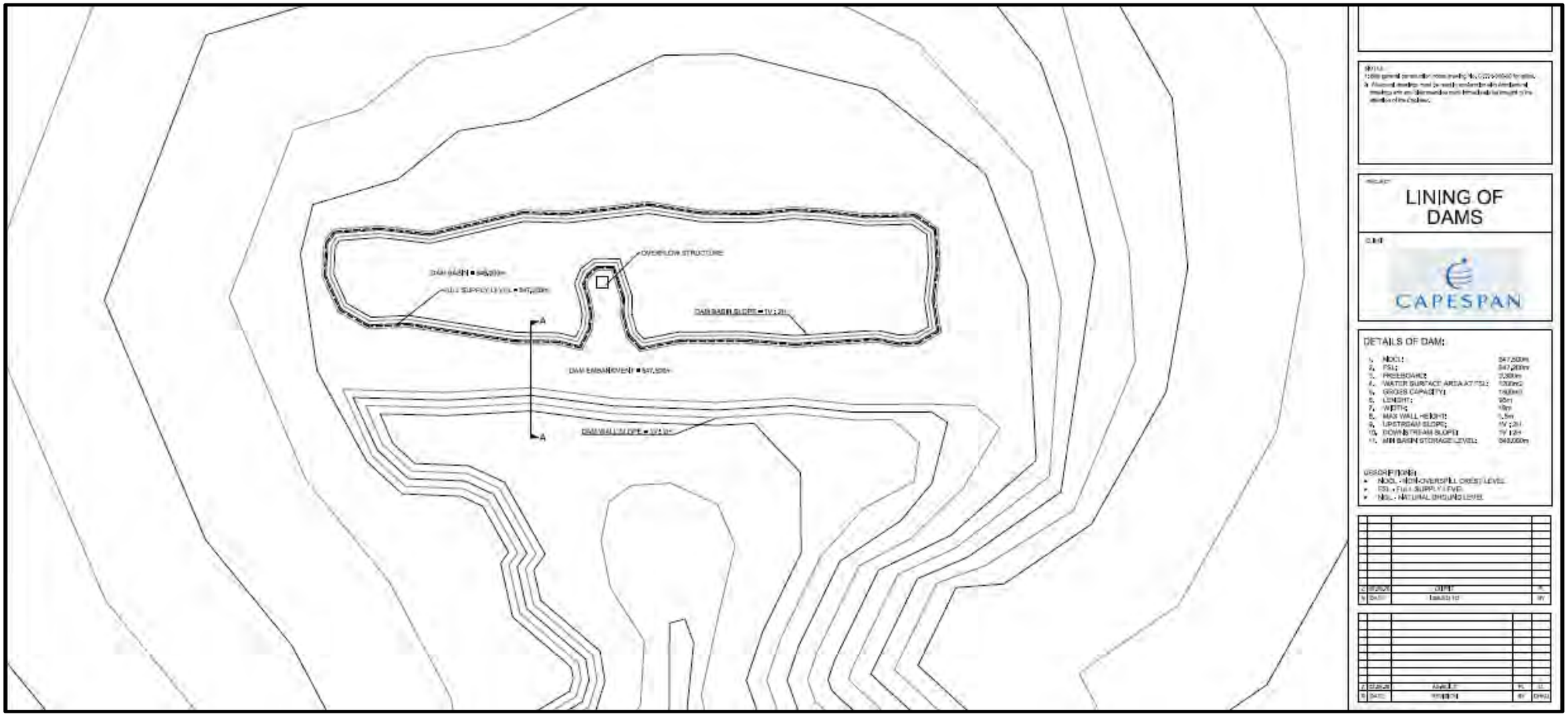
APPENDIX A: LOCALITY MAP

APPENDIX B: SITE PLANS

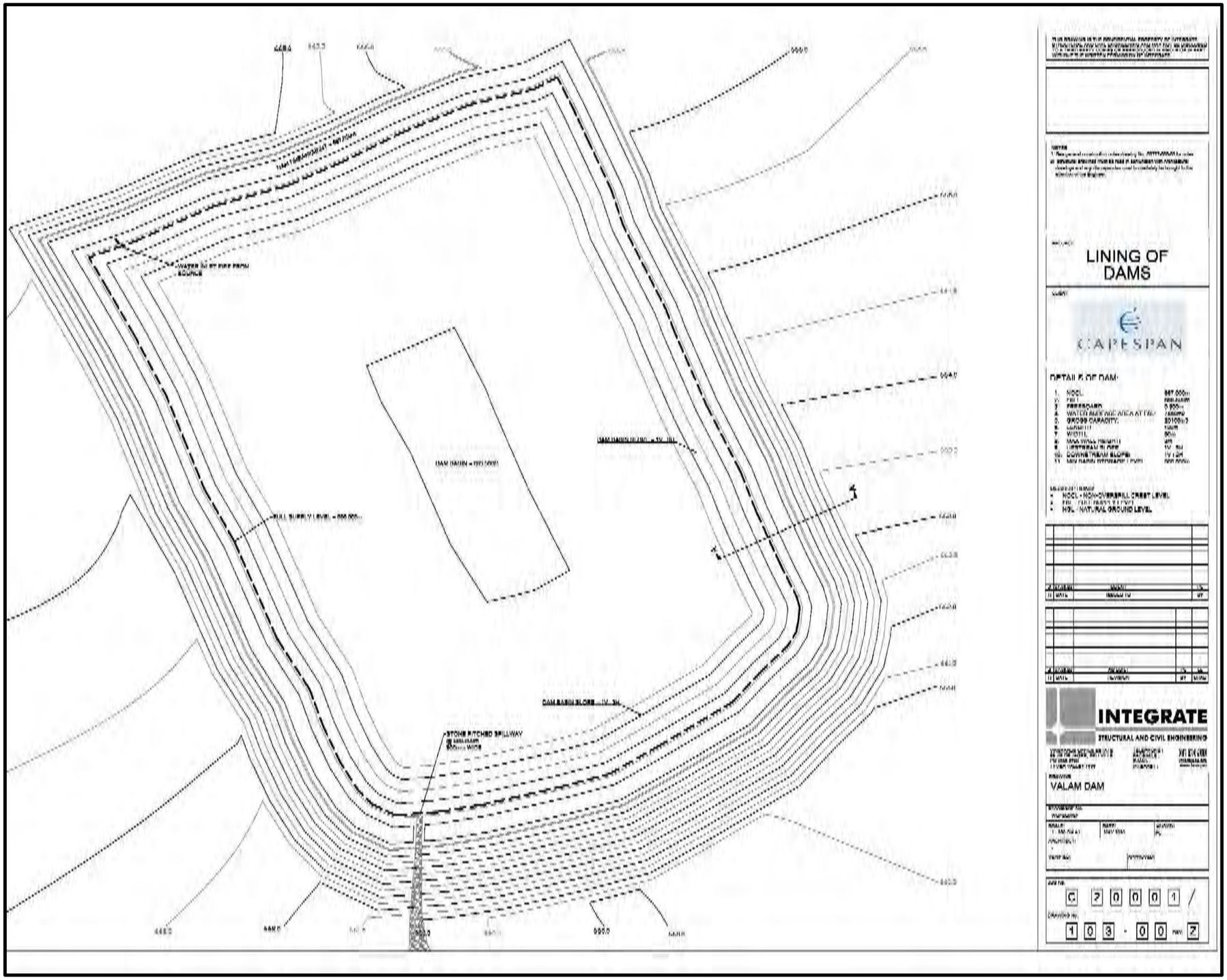
ALTERNATIVE 1: PREFERRED ALTERNATIVE

ALTERNATIVE 1: ENGINEERING DRAWINGS

Retention wall/dam



Storage dam

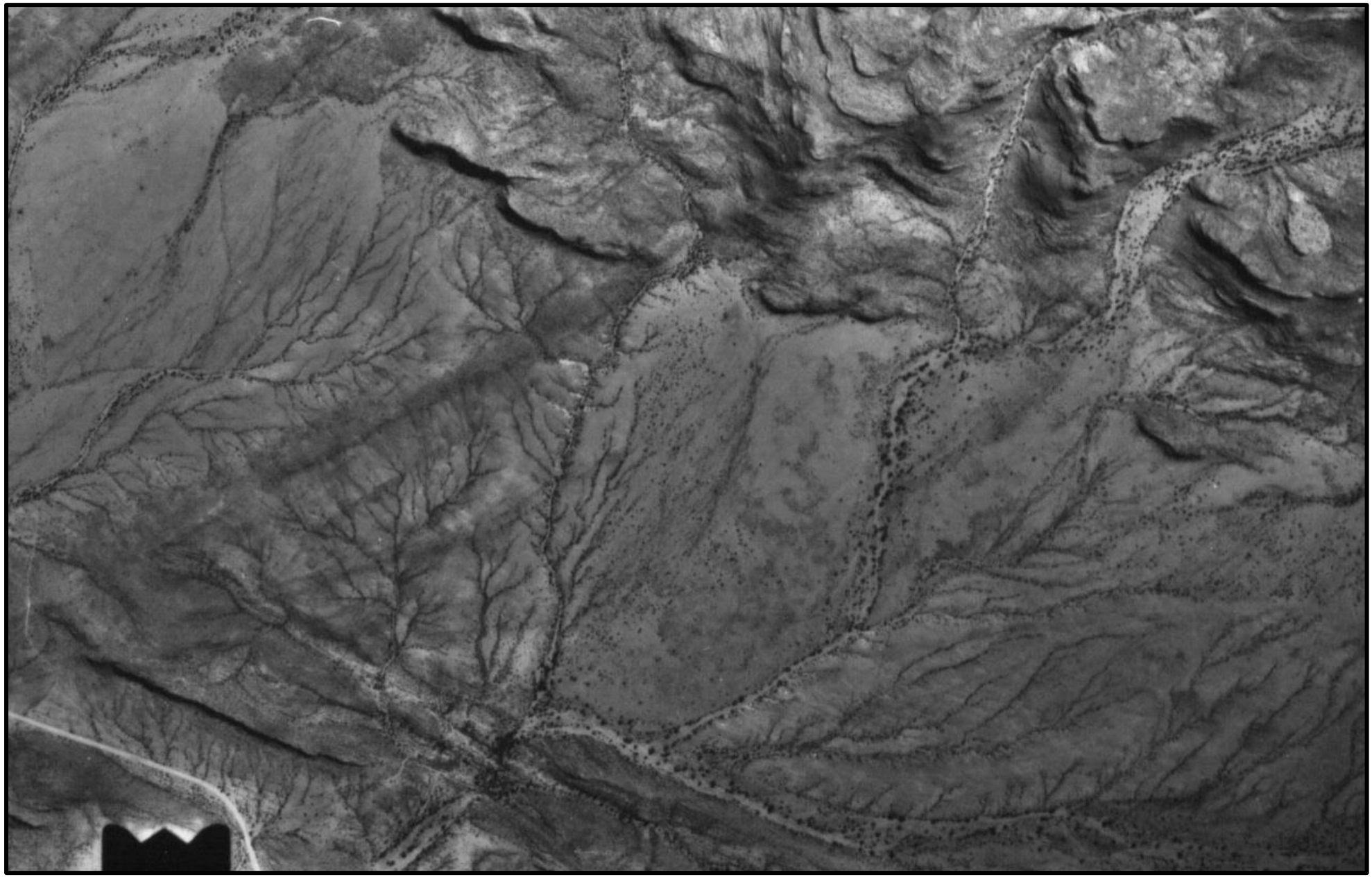

LINING OF DAMS
CAPESPAN
INTEGRATE
STRUCTURAL AND CIVIL ENGINEERING
VALAM DAM
C 2 0 0 0 1 /
1 0 3 - 0 0 REV 2

APPENDIX C: CONSENT USE

Not Applicable

APPENDIX D1: HISTORICAL PHOTOGRAPHIC IMAGE

Google Image 2018



Landsat Imagery 1998

APPENDIX D2: SITE PHOTOGRAPHS

River pump station

Existing dam

Electrical connection

Upstream of Retention dam/wall

Downstream of Retention dam/wall

APPENDIX D3: CBA 2 LOCATED ON KAKAMAS NORTH SETTLEMENT NO. 343

APPENDIX E1: WATER USE LICENSE

water & sanitation

Department:
Water and Sanitation
REPUBLIC OF SOUTH AFRICA

National Register of Water Use Registration Record 25165696

Water Use Registration Record 25165696 is issued in terms of the regulations requiring that a Water Use be registered, promulgated under Section 26(1)(c) of the National Water Act(Act 36 of 1998) to:

Applicant

Applicant Type:	COMPANY
Name:	AGGRIGATE INV (PTY) LTD
Enterprise Type	PRIVATE COMPANY
Business Registration Number:	1990/002891/07
Postal Address:	PO BOX 21 KAKAMAS 8870
VAT Registration Number:	4920271535

Water Management Area

Name:	ORANGE

Register Status

Status:	ACTIVE

Water Uses

See attached Annexure(s)

Water Use No.	Water Use	Volume	Volume Start Date	Volume End Date
1	21(a)	315 000 CUBIC METRES PER YEAR	2015/10/01	2019/06/30
1	21(a)	135 000 CUBIC METRES PER YEAR	2019/07/01	

Office: Lower Orange - Northern Cape
Upington Office
Regional Office: Free State Region

LOWER ORANGE
WATER MANAGEMENT AREA
P/BAG X5912, UPINGTON 8800
DEPARTMENT: WATER AND SANITATION

Date stamp of issuing office

DISCLAIMER :

This Registration Record:

1 Is not an acknowledgement of an entitlement to the registered water use;
2 may NOT be used to create the impression that it is proof of a water use entitlement. By virtue of section 22(1) of the National Water Act, the only documents that may be used as proof of a water use entitlement, are:
- 2.1 a licence;
- 2.2 an official document stating the extent of existing lawful water use pursuant to sections 33 or 35 of the National Water Act;
- 2.3 a general authorisation as published in the Gazette; or
- 2.4 Schedule 1 of the National Water Act.

Notes:
- If an entitlement for the specific water use referred to in this Registration Record has been confirmed by the Department, it may be indicated as such in this Registration Record.
- If the responsible authority has dispensed with the requirement for a licence for a specific water use, no water use entitlement is needed for that use under the National Water Act.

3 Is issued without alterations or erasures and is invalid if it contains alterations not in conformity with the Department's official copy; and in substitution of any Registration Record the Department may have previously issued and the information is valid as at the date of issue.

National Register of Water Use Registration Record 25165696

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

Water Use Identification

Register Number:	25165696
Water Use Number:	1
Water Use Start Date:	2015/10/01
Water Use Status Date:	2016/05/09
Water Use Status:	REGISTERED

Lawfulness Authentication

Finding:	LAWFULNESS STILL TO BE DETERMINED
Finding Date:	2016/05/04
Finding Reason:	
Finding Confirmed:	YES

Succession/Transfer Details

Succession/Transfer Type:	SUCCESSION IN TITLE	
Source Part2 Details:	**Register No.**	**WUN**
	25020334	1

Water Use Details

Water Use Sector(s)(i.e. Purpose(s) of Water Use):	AGRICULTURE: IRRIGATION	
Source Type:	SCHEME	
Point of Abstraction:	**Latitude**	**Longitude**
	28.55046° south	20.07479° east
Datum Type:	CAPE (MODIFIED CLARKE 1880)	
Quaternary Drainage Region:	D81B	
Scheduled Use	YES	
Irrigation Area:	9 HECTARES	

Scheme Details

Scheme Name:	LOWER ORANGE/NAMAQUALAND
Scheme Management Parameter Name:	SECTION OF LOWER ORANGE BETWEEN BOEGOEBERG AND THE SEA.
Servitude Volume:	
Scheduled Quota	15000 CUBIC METRES PER HECTARE PER ANNUM

Registered Volumes

Start Date	End Date	Registered Volume (m³)	Time Interval
2015/10/01	2019/06/30	315000	PER YEAR
2019/07/01		135000	PER YEAR

National Register of Water Use Registration Record 25165696

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

Water Use Identification

Register Number:	25165696
Water Use Number:	1
Water Use Start Date:	2015/10/01
Water Use Status Date:	2016/05/09
Water Use Status:	REGISTERED

Property Where Water Use Occurs

Property Name:	ZEEKOE STEEK 9 PORTION 37
Property Number:	9
Portion of Property:	37
SG Cadastral Code:	C03600000000000900037
Deeds Office:	CAPE TOWN
Registration Division:	KENHARDT
Registration Division Province:	NORTHERN CAPE
Surveyor General Office:	CAPE TOWN

WUN/Property Relationship Details

Relationship Start Date	Relationship End Date
2015/10/01	

National Register of Water Use Registration Record 25165696

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

Water Use Identification

Register Number:	25165696
Water Use Number:	1
Water Use Start Date:	2015/10/01
Water Use Status Date:	2016/05/09
Water Use Status:	REGISTERED

APPENDIX E2: PROOF OF SERVICES

INVOICE

NUMBER:	**INV0000149**
REFERENCE:	
DATE:	**15/04/2019**
DUE DATE:	30/04/2019
SALES REP:	
OVERALL DISCOUNT %:	0.00%
PAGE:	1/1

FROM

J VERREYNNE RIOOL DIENS

VAT NO:

POSTAL ADDRESS:
POSBUS 238

KAKAMAS

8870

PHYSICAL ADDRESS:
TEL: 083 683 0513

TO

VALAM BOERDERY (PTY) LTD T/A OORKANT

CUSTOMER VAT NO: 4140268238

POSTAL ADDRESS:
POSBUS 21
KAKAMAS

8870

PHYSICAL ADDRESS:
EERSTE LAAN 18
KAKAMAS

8870

Description	*Quantity*	*Unit Price*	*Disc %*	*VAT %*	*Excl. Total*	*Incl. Total*
ST80/100 15-20 - RIOOL VERWYDERING /1000L 15-20KM 02/01/2019	**21.00**	R 80.00	0.00%	0.00%	R 1,680.00	**R 1,680.00**
ST60/1000 5-10 - RIOOL VERWYDERING /1000L 5-10KM 08/01/2019	**21.00**	R 60.00	0.00%	0.00%	R 1,260.00	**R 1,260.00**
ST60/1000 5-10 - RIOOL VERWYDERING /1000L 5-10KM 13/02/2019	**35.00**	R 60.00	0.00%	0.00%	R 2,100.00	**R 2,100.00**
ST60/1000 5-10 - RIOOL VERWYDERING /1000L 5-10KM 09/04/2019	**21.00**	R 60.00	0.00%	0.00%	R 1,260.00	**R 1,260.00**

J Verreynne
FNB tjek rekening no 6277 3526 193

Total Discount:	**R 0.00**
Total Exclusive:	**R 6,300.00**
Total VAT:	**R 0.00**
Sub Total:	**R 6,300.00**
Grand Total:	**R 6,300.00**

BALANCE DUE

R 6,300.00

APPENDIX F: PUBLIC PARTICIPATION PROCESS

APPENDIX F2.1: I&AP DATABASE

AUTHORITIES

	Erf no	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		Snyers	A.C.	Kai Garib Municipality: Ward Councillor Ward 2	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		TowellJ@dws.gov.za	Private Bag X5912	Upington	8800	L
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	L
6		CEO		Kakamas Water Users Association	054 431 0725/6	054 431 0348	kakamaswgv@isat.co.za	Private Bag X4	Kakamas	8870	L
7		Mans	J	Department of Agriculture Forestry and Fisheries	054 338 5909		jacolinema@daff.gov.za	P. O. Box 2782	Upington	8800	L
8		Lekwene	T	DENC: S24G Section	0798744224		LekweneT@ncpg.gov.za	90 Long Street ,Sasko Building	Kimberley	8301	L

I&AP's

	Erf no	Surname	Initials	Representing	Tel	Fax	email	Post Box	Town	Code	Reg
1	Remainder of Farm 299	Engels	Dr LG	Trollope Familie Trust			lgengels@mweb.co.za				L
2	Erf 363	Koortzen	Rossouw	Lebad Trust	072 820 6350		koortzen@lantic.net				L
3	Erf 347	Koortzen	Eric	Zwaardraai Landgoed CC	082 689 5224		zwaardraai@gmail.com				L
4	Erf 346	Koortzen	Rossouw	Lebad Trust	072 820 6350		koortzen@lantic.net				L
5	Erf 355	Nel	Hannes	Rooipad Boerdery (Pty) Ltd	082 494 9658		admin@rooipad.co.za				L

APPENDIX F2.2: ADVERTISEMENT

Appendix F2.2.1: Pre-application advert

Gedenksteen onthulling by Melkbosrand

GEMSBOK-MELKBOSAND: Tydens 'n geskiedkundige gebeurtenis by die Melkbosrand begraafplaas, is een van drie gedenknaalde onthul.

Op die gedenknaalde is die vanne van die families aangebring wat daar begrawe is en dit het groot betekenis ingehou vir die oorlewende familielede.

In 2004 is die Melkbosrand gebied, binne die Augrabies Waterval Nasionale Park gedeproklameer as deel van die Riemvasmaak grondeis.

Binne die gebied is daar drie begraafplase, naamlik, Melkbosrand, Blou suiwer en Wa-brand. Die meeste van die grafte binne die begraafplase is ongemerk en daarom het die Augrabies Waterval Nasionale Park se bestuur besluit om gedenknaalde te borg om sodoende te keer dat die kennis verlore gaan van wie daar begrawe is en om eer te bring aan die afgestorwenes se families.

Die Riemvasmaak Gemeenskap Ontwikkelings Trust, onder voorsitterskap van mnr James Mapanka, het die onthullingseremonie gereël en die Park Bestuur het dit ondersteun. Families van die afgestorwenes, asook ander gemeenskapslede vanaf verskeie plaaslike gemeenskappe het die onthulling bygewoon.

Na afloop van die onthulling is daar lekker in die koelte gesit en stories van lank gelede se bedrywighede op Melkbosrand is oor en weer gedeel en die herinnerings het groot vreugde verskaf. Die geskiedkundige gebeurtenis is afgesluit met 'n ligte middagete wat deur die RGO Trust voorsien is.

Gemeenskapslede en SANParke by onthulling van Gedenknaald by Melkbosrand begraafplaas.

Twee van die naasbestaandes staan by die Gedenknaald met hul families se vanne daarop.

PRELIMINARY PUBLIC PARTICIPATION PROCESS AS PART OF A SECTION 24G APPLICATION PROCESS

Construction of a Detention wall within a small stream,on Kakamas North Settlement No 343, Augrabies, Northern Cape Province

Notice is hereby given of a public participation process in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), and the Regulations relating to the procedure to be followed in terms of a Section 24G Application (July 2017)

The project consists of the unlawful clearing of instream vegetation for the construction of a detention wall, as well as the legalisation of a dam.

The development commenced unlawfully and therefore a S24G Process is being undertaken. The following Environmental Impact Assessment (EIA) listed activities is applicable for the application for rectification:
ECA, 1997: Activity 1(i);
NEMA, Amended 2018, GN R 327 Activity 12 and 19
NEMA, Amended 2018, GN R 324 Activity 12 and 14.
Additional to the Environmental process will also be a Water Use License Application (WULA), under Section 21 (a), (b), (c) and (i).

More information on the S24G Application and the WULA and work undertaken will be available in the Draft Assessment Report (S24G) which will be made available for comment on our website or the EAP in due course. This notification is for the opportunity to register as an Interested and Affected Party.

Date of this notice: 22 January 2021.

In order to ensure that you are identified as an interested and/or affected party (I&AP) please submit your name, contact information and interest in the matter as well as any comment to the EAP before 17:00 on 12 February 2021.

Details of EAP	Department of Water and Sanitation (DWS/Waterwese)
Elanie Kühn	Lower Orange River Proto CMA
GroenbergEnviro (Pty) Ltd	Mnr. Abe Abrahams
P.O Box 1058, Wellington, 7654	Private Bag X6101
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E-mail: elanie@iafrica.com	Tel: 053 830 8600
Website: www.groenbergenviro.co.za	

RED-Ox word aanbeveel op restaurant Guru

Red-Ox het in 2020 'n aanbevelingskenteken op Restaurant Guru verwerf. Red Ox is die nuutste restaurant in die NC Famous Lodges groep en is geleë op die oewers van die Oranjerivier op Upington.

Restaurant Guru help reisigers om die beste restaurante, kafee's en kroeë rondom hulle te vind. As u op soek is na 'n smaaklike ete, kan u volgens restaurant Guru beslis by RED OX gaan aanklop. Ontdek klante se kommentaar, resensies en graderings van toonaangewende agentskappe en al die nodige inligting op een plek. Kies die kombuis, die tipe restaurante, filter die gemiddelde tjek en soek die plek op 'n geïntegreerde kaart. Dui die gereg aan wat u wil probeer en vind die restaurant wat dit bedien. Restaurant Guru is u gids in die wêreld van goeie kos.'

Restaurant-Guru se blog help reisigers en fynproewers om die beste plekke om plaaslike kos te eet. Vind inligting oor die gewildste restaurante en kafees regoor die wêreld, verken die plaaslike disse en kies die beste vir jouself. Maak u eie wenslys met kulinêre voorkeure terwyl u die reis beplan.

Gemsbok DIARY DAGBOEK

12 Februarie 2021. Bilo Valentynsaand met Ray Dylan as gaskunstenaar! Lucky draw. Ete ingesluit by kaartjie. (Basket - chic strips/calamari/ribs en chips) R250 ppersoon Navrae- Francolien 0824722377

Appendix F2.2.2: Advertisement

APPENDIX F2.3: NOTICE BOARDS

Will be included in the final Assessment Report.

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 ENVIRONMENTAL MANAGEMENT PROGRAMME

OMDRAAI FARM – CONSTRUCTION OF A RETENTION WALL WITHIN A SMALL STREAM, ON KAKAMAS NORTH SETTLEMENT NO. 343, NORTHERN CAPE PROVINCE.

February 2020

DOCUMENT NAME:

Omdraai – Construction of a retention wall within a small stream, on Kakamas North Settlement No. 343, Northern Cape Province.

PROJECT NUMBER:	**DATE:**	**REPORT STATUS:**
N/A	10 February 2021	DRAFT EMPr

CARRIED OUT BY:

GroenbergEnviro (Pty) Ltd

COMMISSIONED BY:

Valam Boerdery (Pty) Ltd

CLIENT CONTACT DETAILS:

Bernie Denton

P. O. Box 21

Kakamas

8870

Tel: 054 431 0568

AUTHOR(S):

Elanie Kühn

SYNOPSIS:

See Below

PREPARED BY:

GroenbergEnviro (Pty) Ltd

QUALITY CONTROL

Revision	Date	Author	Technical Review	Report Review
00	Feb 2021	E. Kühn	E. Kühn	
01				
02				

CONTACT INFORMATION

Please contact the undermentioned should you require further information.

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Website	www.groenbergenviro.co.za
Contact Person	Elanie Kühn  The consultant has 14 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. Focusing primarily on Environmental Impact Assessments and Water Use License Applications.
Contact number	+27 76 584 0822
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DOCUMENT NAME:

Omdraai – Construction of a retention wall within a small stream, on Kakamas North Settlement No. 343, Northern Cape Province.

PROJECT NUMBER:	**DATE:**	**REPORT STATUS:**
N/A	10 February 2021	DRAFT REPORT

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Bernie Denton
P. O. Box 21
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Tel: 054 431 0568

AUTHOR(S):

Elanie Kühn

SYNOPSIS:

See Below

PREPARED BY:

GroenbergEnviro (Pty) Ltd

CONTENTS

List of Figures

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 9 Appendix G: EAP Curriculum Vitae, page 82
(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 23
(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 80
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 14 Mitigation measures and management actions included in page 25.
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 29.
(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 29. Further detail with regards to the Compliance with Applicable Laws on page 15.

(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;	
(g) the method of monitoring the implementation of the impact management actions contemplated in paragraph (f);	Mitigation measures and management actions included in page 29. Monitoring & Auditing on page 20.
(h) the frequency of monitoring the implementation of the impact management actions contemplated in paragraph (f);	Monitoring & Auditing on page 20. Frequency etc included in table in Proposed Impact Management Actions on page 29.
(i)an indication of the persons who will be responsible for the implementation of the impact management actions;	Aim and Objectives of the EMPr, page 14 Compliance with Applicable Laws, page 15. Roles and Responsibilities on page 15.
(j) the time periods within which the impact management actions contemplated in paragraph (f) must be implemented;	Proposed Impact Management Actions includes the expected time management on page 29.
(k) the mechanism for monitoring compliance with the impact management actions contemplated in paragraph (f);	Proposed Impact Management Actions includes the mechanism for monitoring and compliance on page 29. The Monitoring & Auditing on page 20.
(l)a program for reporting on compliance, taking into account the requirements as prescribed by the Regulations;	Monitoring & Auditing refers to reporting on compliance on page 20 This is also outlined in section Management Programme – Operational on page 25.
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	This is included under page 23.
(n) any specific information that may be required by the competent authority	Appendix G.

Details of EAP

Company of Environmental Assessment Practitioner (EAP):	GroenbergEnviro (Pty) Ltd	
EAP name:	Elanie Kühn	
Postal address:	P. O. Box 1058	
	Wellington	Postal code: 7655
Telephone:	021 873 7228	Cell: 076 584 0822
E-mail:	elaniem@iafrica.com elanie@groenbergenviro.co.za	Fax: 086 672 1946
EAP Qualifications:	Pieter Badenhorst - 46 years' experience (16 @ CSIR) in environmental management; report writing, project management; facilitation also including preparing of EMPr's. Elanie Kühn – BSc Hons. in Environmental Management, 14 years' experience in environmental management and water use license applications etc.	
EAP Registrations/Associations:	Pieter -IAIAsa, Pr Eng, SAICE Elanie - IAIAsa	

Introduction

Locality:

The proposed development is situated approximately 30 kilometres outside of the small town of Augrabies in the Northern Cape, in the Kai! Garib Municipal area. Access to the site is via a gravel road linking with the N14.

The property's location is shown in Figure 1.

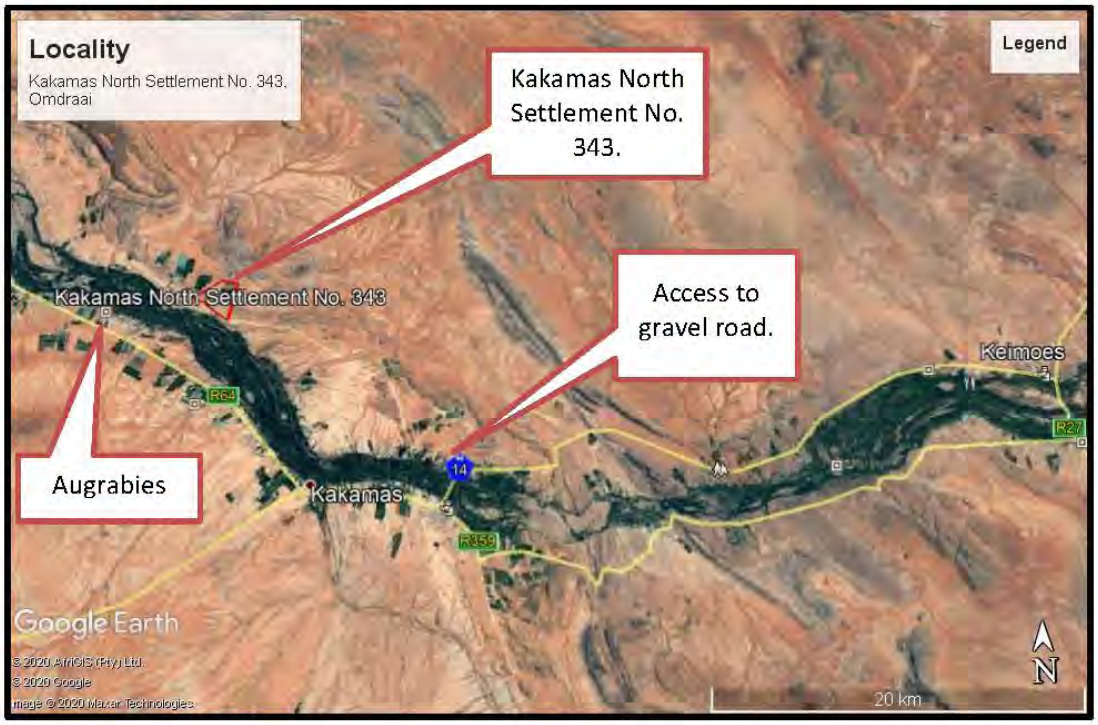

Figure 1: Omdraai locality and property boundaries

Project Description:

During the period from 1976 to 2016 various developments took place on the property, of which most are agricultural developments. A section of this development triggered a S24G Application that that was undertaking in 2017 and the Environmental Authorisation (S24G04/03/2017) issued on 22 October 2018.

In 2019 the applicant had complaints from the downstream neighbours with regards to downstream flooding of his vineyards due to increased downstream flow of water due to the agricultural developments upstream. The applicant decided to construct a small retention structure to counter the possible increased flow, which ultimately triggered an S24G process without his knowledge. This application is therefore, for the correction of this activity.

The development consists of the following:

1. **Retention dam/wall:**

   The applicant has constructed a small instream retention dam to minimize flow towards the downstream property. Details of the dam/wall is as below in Table 1, Figure 2 and Figure 3:

Table 1: Details of retention dam

NOCL	647.55
FSL	647.200
Surface area at FSL	1200m^2
Gross capacity	1500m^3
Length	95m
Width	18m
Max Wall Height	1.5m

Figure 2: Retention dam/wall

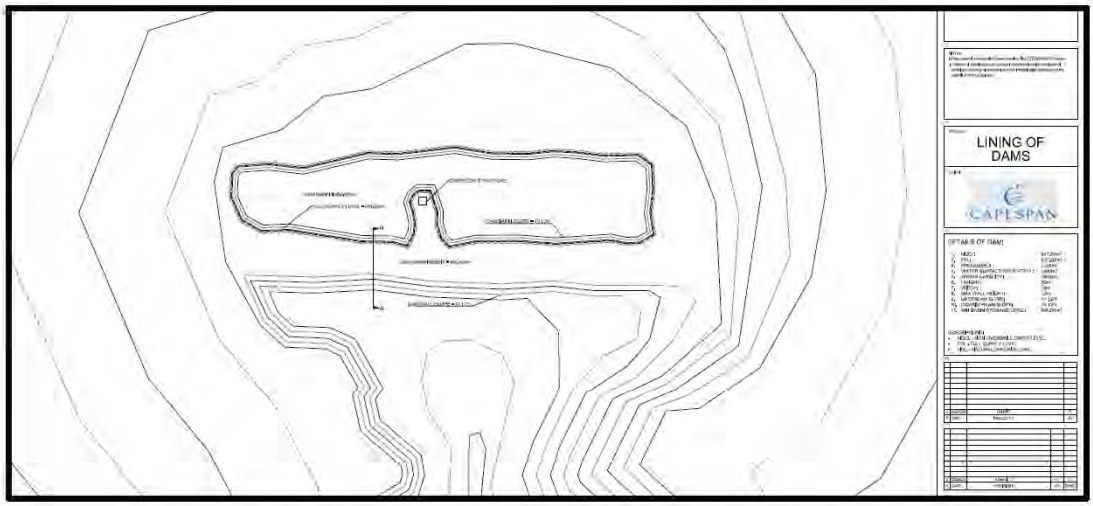

Figure 3: Engineering design of Retention wall/dam

2. Dam

During 1998/1999 a dam was constructed for temporary storage of water for distribution on the property. It should be noted that this dam was constructed without previous approvals, at that time no DWS approvals were deemed necessary, except for registration. The dam was, however, never registered. The dam has the following specifications as shown in Table 2, Figure 4 and **Error! Reference source not found.** :

Table 2: Dam specifications

NOCL	667
FSL	666.500
Surface area at FSL	7450m²
Gross capacity	20 106m³
Length	100m
Width	80m
Max Wall Height	3m

Figure 4: Dam

Figure 5: 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 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.

Pipelines:

Water is required for the drip irrigation of the established vineyards and is supplied via pipelines from the booster pump station at the dam and then pumped to vineyards. The existing pipelines established come from the pump station at the Orange River (See Figure 6) towards the existing dam, and from there distributed to the irrigation areas.

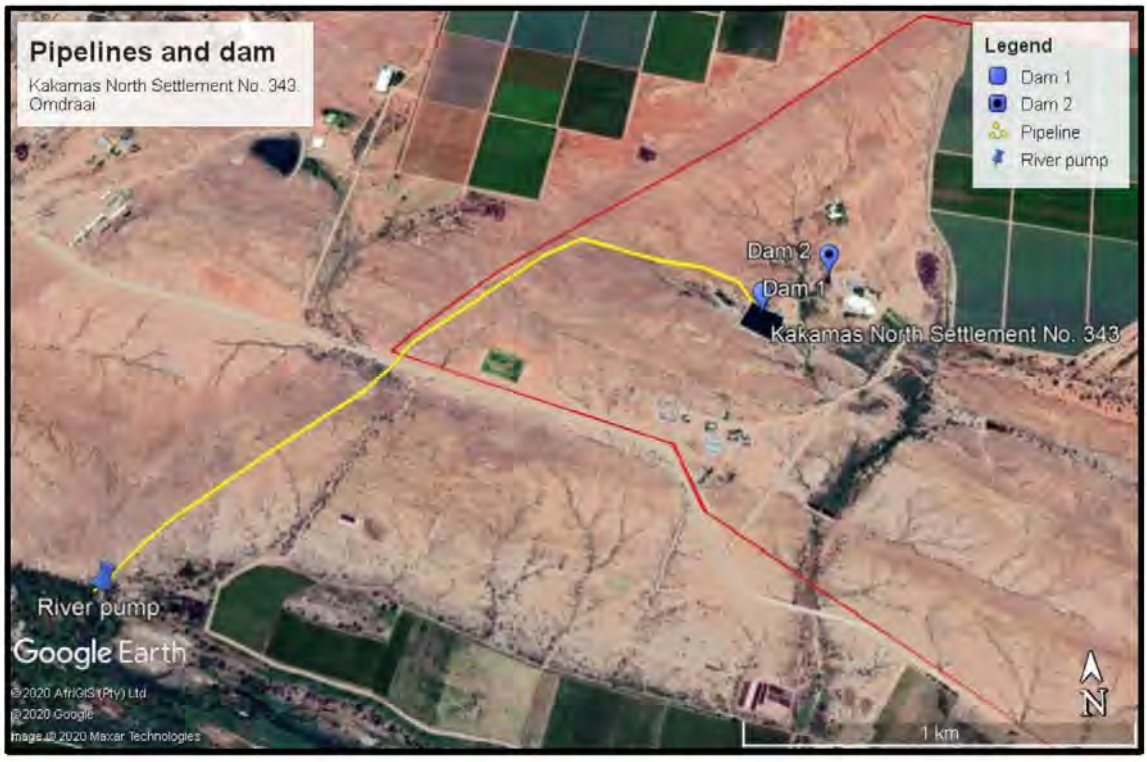

Figure 6: Pipelines

Water:

Omdraai has an existing lawful use of 60 ha for irrigation from the Orange River allocated to Kakamas North Settlement No. 343. The said property also recently received a Water Use License for additional 12ha of water rights from the Orange River.

In total Omdraai has existing rights for 72 ha (1 080 000 m^3/a) of water rights from the Orange River.

The existing rights certificates and the new WUL is shown in **Error! Reference source not found.**.

The applicant, Valam Boerdery (Pty) Ltd, transferred 180 000 m³/a (12ha) of water from another property to Kakamas North Settlement No. 343 to rectify the water shortage on the property. However, with new water practices etc, the intention is to transfer additional water from KNS No. 343 to KNS No. 341. The transfer to ensured that the property (KNS No. 341) and new developments comply with the National Water Act (1998). The summary of the transfer that took place is shown in Table 3 below.

Table 3: Existing and proposed transfer and new water allocation.

Property	Current Water Allocation	Transfer	Irrigate tempo	Water Allocation ha	Water Allocation m³/a
Portion 37 of Zeekoesteek No. 09 (Donor)	50.2	12ha	15 000m³/ha	30ha	450 000m³/a
Kakamas North Settlement No. 343. (Receiving)	60ha	12ha (- 1ha for Industrial and Schedule 1 use)	15 000m³/ha	72ha	1 080 000m³/a
Kakamas North Settlement No. 343. (Receiving)	0ha	1ha	15 000m³/ha	1ha	15 000 m³/a
Kakamas North Settlement No. 343. (Donor)	71	12.77ha	15 000m³/ha	58.23ha	873 450m³/a
Kakamas North Settlement No. 341. (Receiving)	61.59ha	12.77ha	15 000m³/ha	74.36ha	1 115 400 m³/a
TOTAL for Omdraai					873 450m³/a

Omdraai Farm uses water from the irrigation allocation for drinking purposes and garden irrigation.

A license application (WULA) will be required for 21(a) to transfer water from "irrigation" to the sector "Schedule 1". Water used in pack stores are used for commercial purposes and must, therefore, be licenced as "industrial".

It can, therefore, be concluded that licences will be required to "transfer" water from the lawful "irrigation" allocation to "industrial use" and Schedule 1.

As shown above in, the total volume of water used annually amounts to 15 000m³/annum (1ha). Therefore, the application is to transfer approximately 1ha of water for Industrial and Schedule 1 use.

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

Table 4: Water use license activities

(a) transfer of water	Applying for a licence for the "transfer" of water from the lawful "irrigation" allocation to "industrial use" and Schedule 1.
(b) storing of water	For the legalisation of a small balancing dam with a capacity of 20 100 m³
(c) impeding or diverting flow of water in a watercourse	For the construction of an instream dam and retention wall across ephemeral streams/natural drainage areas.
(i) altering the bed, banks, course, or characteristics of a watercourse	For the construction instream dam and retention wall across ephemeral streams/natural drainage areas.

Electricity:

There is existing electricity 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.

Environmental issues

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

1.1 Vegetation

VEGETATION AND FAUNA (AS PER THE FRESHWATER ASSESSMENT REPORT, INCLUDED IN BAR)

Vegetation types:

"The mapped natural vegetation type for the area affected by the activity can broadly be classified as the Least threatened Bushmanland Arid Grassland (NKb3- Light maroon area in Figure 7*). This vegetation type spans 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 northwest this vegetation unit borders on desert vegetation (northwest 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 mostly from 600–1 200 m. Landscape features associated with this vegetation includes extensive to irregular plains on a slightly sloping plateau sparsely vegetated by grassland dominated by white grasses (Stipagrostis species) giving this vegetation type the character of semidesert 'steppe'. In places low shrubs of Salsola change the vegetation structure. In years of abundant rainfall rich displays of annual herbs can be expected. The conservation target for this vegetation type is 21%. Only small patches are statutorily conserved in Augrabies Falls National Park and Goegab Nature Reserve. Very little of the area has been transformed. Erosion is very low (60%) and low (33%) (Mucina & Rutherford 2006).*

The vegetation description was done from photo's provided by the client and would have to be confirmed on site if the need arises. There are however no threatened plant species listed within this vegetation type, and thus, the risk of loss of such species in this area is very low. From photographic images taken on site, it appears as if the general riparian vegetation directly surrounding the freshwater features, consist of a mix of shrubs and graminoid species, varying from a Largely to moderately modified state. A species list of vegetation found on site would be done purely on speculation and would for that reason be left out."

Figure 7. Vegetation Map

Critical Biodiversity Area:

"Most of the farm including the area affected by the activity is classified as Critical Biodiversity Area 2 (moderate priority), see Figure 8*, where areas in a natural condition are required to meet biodiversity targets, for species, ecosystems or ecological processes and infrastructure. These areas should be maintained in a natural or near-natural state, with no further loss of natural habitat. Degraded areas should be rehabilitated and only low-impact, biodiversity-sensitive land uses are appropriate."*

Figure 8: Critical Biodiversity Area.

1.2 Aquatic habitat

AQUATIC FEATURES (AS PER FRESH WATER ECOLOGY REPORT)

"Several small seasonal tributaries dissect the top section of the property to where in meets to form the Swartdraai-se-leegte river, see Figure 9. *The area is located within Quaternary catchment D81A, which is falls within the Orange river WMA. Swartdraai-se-leegte River, in its natural unmodified state, can be classified as an ephemeral river, which at the impacted site, has been modified into a more perennial system due to the artificial release of irrigation water. The river at the impact site was found to be in a Largely Modified (D) state upstream of the new retention dam improving slightly to a Moderately modified state downstream of the retention dam (C/D). The river was also found to have a Low EIS, largely due to its ephemeral nature, as well as the existing impacts on site. Impacts caused by the construction of the new retention dam, would have been limited to the following:*

Loss of biodiversity:

Due to the existing modified state of the river at this section, where loss of aquatic instream and riparian vegetation has occurred, in a river reach that would not under natural circumstances sustained this, the impact of loss of biodiversity due to the construction and operation of the retention dam would be deemed to be of long-term Low negative nature. From the photographs taken on site, it looks as if large stands of vegetation have already established around the dammed

area, even further lowering this impact to a Negligible one. Mitigation measures relating to the loss of biodiversity would include the following:

- *It would be proposed that any disturbed areas remaining unvegetated should be rehabilitated.*
- *A buffer zone of 20m should be kept from the Swartdraai-se-leegte River for all future developments.*

Flow modification:

Both the construction and operational phase of the new retention dam would cause some reduction in flow towards downstream features. Considering that most of the flow within the river can be attributed to the artificial release of irrigation drainage, which had a greater impact, modifying this section of the river from an ephemeral to a more perennial feature, the construction and operation of this dam has in fact had a Low to Medium Positive impact on the downstream section of the river, stopping most of the irrigation flow to pass towards downstream features, and so re-instating its more ephemeral nature. The following mitigation measure would be proposed to limit any other possible impacts due to flow modification.

- *The only other concern would be that the dam impedes the very necessary flood flows when these do occur. The size of the dam should thus be of such nature that it does not impede flood flows, after heavy rainfall.*

Water quality:

As with the flow modification, water quality in this section of the river (prior to construction of the dam) has had immense impact on the vegetation and biodiversity, through nutrification and salination of this area and downstream features with the flow of enriched irrigation drainage water. Since the construction of the dam, with reduced flow towards downstream features (including the Orange River), this impact has been lowered, with the dam thus having a Low Positive impact on downstream freshwater features. What would be of concern is the concentration of salts and minerals within the retention dam, which could be flushed downstream with the event of future flood flows. This could have a short-term Medium Negative impact on both the downstream section as well as the Orange River. The following mitigation measure would be proposed to limit such water quality impacts:

- *Regular monitoring and reporting on water quality within the small dam should be included in the EMPR and care should be taken that all salt levels are within specifications by DEA and DWS.*
- *Should the salt concentration within the dam exceed these specifications, specific procedures for the rectification of this should be provided (and included in the EMPR). Specialist opinion should be sought as input on such rectification actions.*

Conclusion:

Considering the current modified state of the affected section of the Swartdraai-se-leegte River, together with the general positive impact the retention dam has had on the flow modification and water quality impacts on downstream features, the cumulative impact of the retention dam on

the larger freshwater system (especially downstream of the site as well as the Orange River) with effective implementation of mitigation measures, would be deemed to be of Low Positive Impact."

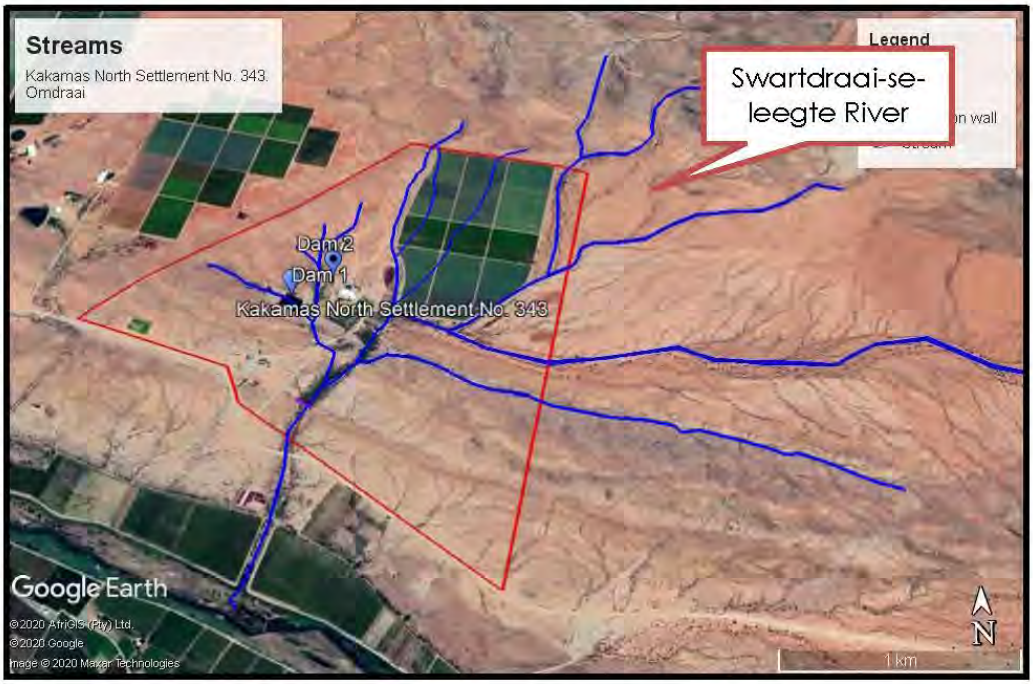

Figure 9: Streams

ARCHAEOLOGY AND PALAEONTOLOGY (AS PER THE ARCHAEOLOGY AND PALAEONTOLOGY ASSESSMENTS, INCLUDED IN BAR)

The following summary from the Archaeological Assessment for KNS No. 341 an adjacent property:

"Conclusion:

The impact significance of the proposed new vineyard development on archaeological heritage is assessed as LOW and therefore, there are no objections to the authorization of the project.

Recommendations:

Regarding a proposed new vineyard development on the Farm Oorkant, Kakamas North Settlement 341 near Augrabies, the following recommendations are made:

1. No mitigation of archaeological resources is required prior to proposed new development activities commencing.

2. No archaeological monitoring is required.

3. Regarding the illegal raisin drying development established in 2018, (subject of the Section 24G Process), no further archaeological mitigation is required."

The following summary from the Palaeontological Assessment for KNS No. 341:

"In view of the negligible palaeontological sensitivity of the ancient Precambrian bedrocks as well as the low sensitivity of the geologically recent superficial sediments along the Orange River in the Augrabies – Kakamas North region, the proposed agricultural development – including new vineyards and raisin drying racks - is not considered to pose a significant threat to palaeontological heritage. Substantial, potentially fossiliferous older alluvial deposits of the Orange River are not mapped here.

Pending any significant new fossil discoveries in the area, no further specialist studies or mitigation are considered necessary for this agricultural project.

All South African fossil heritage is protected by the National Heritage Resources Act, 1999. 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 in situ. 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. Email: 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 this report.

These mitigation recommendations should be incorporated into the Environmental Management Programme (EMPr) for this agricultural project. Please note that:

- *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.*
- *The palaeontologist concerned with potential mitigation work will need a valid fossil collection permit from SAHRA and any material collected would have to be curated in an approved depository (e.g., museum or university collection).*
- *All palaeontological specialist work should conform to international best practice for palaeontological fieldwork and the study (e.g., data recording fossil collection and curation, final report) should adhere as far as possible to the minimum standards for Phase 2 palaeontological studies developed by SAHRA (2013)."*

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.

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 Forests Act (NFA) (Act 84 of 1998)
- 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.

Roles and Responsibilities

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

- Applicant (Holder of the EA) – Valam Boerdery (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 10 below and shows the proposed lines of communication for maintenance activities. The applicant retains overall responsibility for maintenance and the implementation of the EMPr.

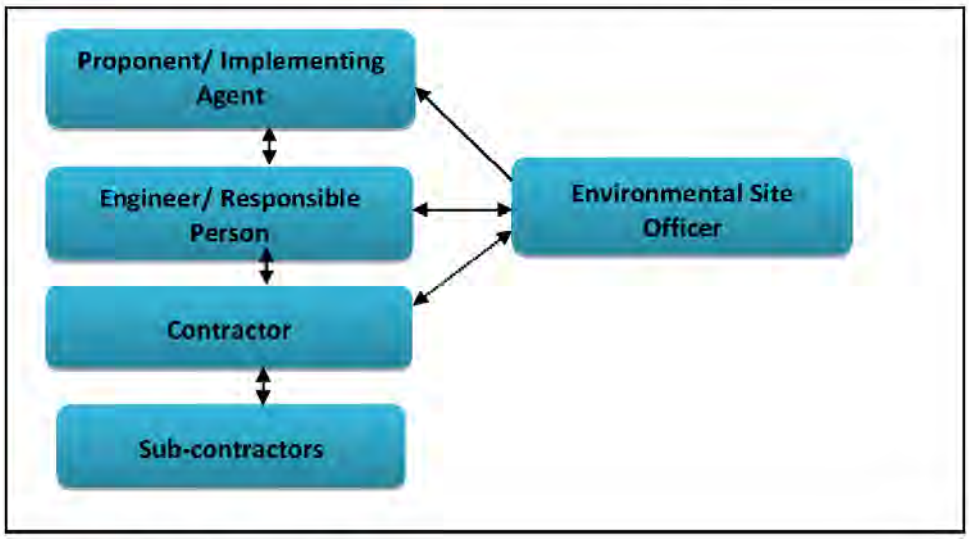

Figure 10: Reporting structure

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

Applicant – Valam Boerdery (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
- Notify the authorities should problems not be remedied timeously.

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
- Ensure that non-compliance is remedied timeously and to the satisfaction of the relevant authorities.

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.

Monitoring & Auditing

1.3 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/maintenance 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.**

- **Please note this EMPr is just for the maintenance, or operational activities as the development has already taken place fully.**

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) – ONLY FOR MAINTENANCE ACTIVITIES
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).

1.4 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 any maintenance construction activities.
- 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).

Environmental auditing and monitoring schedule.

Environmental auditing and monitoring schedule			
Non-operational phases			
	Frequency	**Record & duties to be fulfilled**	**Report**
ECO site visits	Once Monthly	• Ensure compliance with the EMPR and the conditions contained herein. • Keep record of all activities on site; problems identified; transgressions noted, and a 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.	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.
Operational phases			
Environmental audit(s)	The frequency of the auditing of compliance with the Conditions of the environmental	• The holder must ensure that environmental audit(s) are performed regularly. • The Report must comply with the conditions of the Environmental Authorisation.	• Submit these Environmental Audit Report(s) to the Competent Authority,

	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.

Management Programme – 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.

1.5 Specific conditions as stated in EA.

1) To be included after issue of EA

1.6 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 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.
5. Working hours will be from 7:00pm to 18:00pm Monday to Saturday. No work will be allowed on Sundays or public holidays.
6. Deliveries will only be allowed between 8:00am and 5pm.
7. Preference must be given to local labour.
8. Workers (except security guards) shall not be housed on site.

1.7 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.

1.8 Methodology statement

Method Statements must be compiled by the contractor(s) before any maintenance construction 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 maintenance activities for the existing developed agricultural areas will be required (underlined).

PLEASE NOTE THIS ACTIVITY HAS ALREADY TAKEN PLACE AND ALL FUTURE METHOD STATEMENTS ARE FOR MAINTENANCE OF THE STORAGE DAM AND THE RETENTION DAM.

Access routes

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

1.9 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 1.3 above.

PLEASE NOTE THIS ACTIVITY HAS ALREADY TAKEN PLACE AND ALL FUTURE IMPACTS ARE FOR MAINTENANCE OF THE STORAGE DAM AND THE RETENTION DAM.

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	1. All the Contractors employees and Sub-Contractors employees and any suppliers' employees that spend more than 1 day a week or four days in a month on site, must attend an Environmental Awareness Training course presented by the Contractor the first of which shall be held within one week of the Commencement Date. Subsequent courses shall be held as and when required. 2. The Engineer/ECO will provide the Contractor with the course content for the environmental awareness training course, and the Contractor shall communicate this information to his employees on the site, to any new	Contractor	Within one week of the Commencement Date/or of new appointments. Subsequent courses shall be held as and when required.	• Understanding of the EMPr. • Compliance of Contractor with the EMPr.

Action	Proposed impact management action and Procedures / Mitigation measures to achieve it	Responsible person for implementation	Implementation timeframe and frequency	Outcome
	employees coming onto site, to his subcontractors and to his suppliers. 3. The Contractor shall supply the Engineer/ECO with a monthly report indicating the number of employees that will be present on site during the following month and any changes in this number that may occur during the month. 4. The Contractor shall submit a Method Statement detailing the logistics of the environmental awareness training course.			
2. Buffer area	1. A buffer zone of 32m from all streams, accept those affected by the development and outlined as part of Water Affairs applications. 2. It would be proposed that any disturbed areas remaining unvegetated should be rehabilitated. 3. A buffer zone of 20m should be kept from the Swartdraai-se-leegte River for all future developments.	Holder of EA or representative	Before construction commences and maintained throughout development.	• Ensure no illegal entries. • Ensuring no further degradation of the natural environment. • Ensure no vegetation cleared or disturbed. • Ensuring no degradation to freshwater ecology/environment downstream of the activity.
3. Stream &Wetland Sensitive - Environments	1. It would be proposed that any disturbed areas remaining unvegetated should be rehabilitated.	Holder of EA or representative/ contractor/	Before construction commences and maintained throughout	• Ensure no illegal entries.

Action	Proposed impact management action and Procedures / Mitigation measures to achieve it	Responsible person for implementation	Implementation timeframe and frequency	Outcome
	2. A buffer zone of 20m should be kept from the Swartdraai-se-leegte River for all future developments. 3. The only other concern would be that the dam impedes the very necessary flood flows when these do occur. The size of the dam should thus be of such nature that it does not impede flood flows, after heavy rainfall. 4. Regular monitoring and reporting on water quality within the small dam should be included in the EMPR and care should be taken that all salt levels are within specifications by DEA and DWS. 5. Should the salt concentration within the dam exceed these specifications, specific procedures for the rectification of this should be provided (and included in the EMPR). Specialist opinion should be sought as input on such rectification actions. 6. If any trees of significance are found a permit should be applied for the removal of trees of significance under	freshwater ecologist		• Ensuring no further degradation of the natural environment. • Ensure no vegetation cleared or disturbed. • Ensuring no degradation to freshwater ecology/environment downstream of the activity. • Regular monitoring and reporting on water quality within the small dam • Enhancing the downstream wetlands and water quality. • Only enlisted water will be used. • Monitoring as outlined is adhered to.

Action	Proposed impact management action and Procedures / Mitigation measures to achieve it	Responsible person for implementation	Implementation timeframe and frequency	Outcome
	the National Forests Act (NFA) (Act 84 of 1998).			
4. Camp	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. 2. The camp must be fenced as agreed with the RE/ECO. 3. Water from the kitchens, showers, sinks etc., shall be discharged in a manner approved by the RE/ECO. 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. 5. No littering by the contractor's employees shall be tolerated under any circumstances, anywhere in the demarcated area for construction. **Site of construction camp** 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	Holder of EA or representative/ Contractor	Before construction commences and maintained throughout	• All construction infrastructure etc. is located within a demarcated camp, within which possible impacts on the environment can be mitigated. • The site is not located close to any environmentally sensitive areas.

Action	Proposed impact management action and Procedures / Mitigation measures to achieve it	Responsible person for implementation	Implementation timeframe and frequency	Outcome
	areas, including flood zones and slip / unstable zones. A site plan must be submitted to the ECO and project manager for approval. 2. The construction camp must not be situated within the 1:100-year flood line or on slopes greater that 1:3. 3. The size of the construction camp must be minimized (especially where natural vegetation or grassland has had to be cleared for its construction). 4. The contractor must attend to drainage of the camp site to avoid standing water and / or sheet erosion. 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. 6. No development, or activity of any sort associated with camp, is allowed below the 1:50 year flood line of any water system. 7. Storage of materials (including hazardous materials) at site camp.			

Action	Proposed impact management action and Procedures / Mitigation measures to achieve it	Responsible person for implementation	Implementation timeframe and frequency	Outcome
	8. Choice of location for storage areas must consider prevailing winds, distances to water bodies, general on-site topography, and water erosion potential of the soil. 9. Storage areas must be designated, demarcated, and fenced. 10. Storage areas must be secure to minimize the risk of crime. They must also be safe from access by unauthorised persons. 11. Fire prevention facilities must be present at all storage facilities. 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. 13. These storage facilities (including any tanks) must be on an impermeable surface that is protected from the ingress			

Action	Proposed impact management action and Procedures / Mitigation measures to achieve it	Responsible person for implementation	Implementation timeframe and frequency	Outcome
	of storm water from surrounding areas to ensure that accidental spillage does not pollute local soil or water resources. 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. 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. 16. All excess cement and concrete mixes are to be contained on the construction site prior to disposal off site. 17. Any spillage, which may occur, shall be investigated and immediate action must be taken. This must also be reported to the ECO and DEA&DP, as well as local authorities if so required. 18. Drainage of construction camp			

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	19. Run-off from the camp site must not discharge into neighbours' properties. **End of construction** 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 severely damaged, reseeding shall be done. 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.			
5. Tree protection	1. Given that the environment is arid, artificial restoration of the vegetation would be almost impossible. The best that can be suggested is that the environment be cleaned of foreign materials and that no further unauthorised activities should take place i.e., movement of large quantities of soil and creation of further embankments. 2. It should be noted that there are a few protected Vachellia erioloba (camelthorn) trees in the watercourse but none of these was affected in any way by the	Holder of EA or representative	If and when required. Before construction commences and maintained throughout. Note possible application to DAFF.	• Protect the various protected trees, note possible application to DAFF.

Action	Proposed impact management action and Procedures / Mitigation measures to achieve it	Responsible person for implementation	Implementation timeframe and frequency	Outcome
	agricultural development This location is at the upper end (south end) of the cultivated area. Note the netting for dust and the large Vachellia erioloba (camelthorn) tree that has not been disturbed. The main watercourse runs to the left of the tree. 3. If any trees of significance are found a permit should be applied for the removal of trees of significance under the National Forests Act (NFA) (Act 84 of 1998).			
6. Sensitive environments.	**Additional** 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: 2. The use of chemical toilets which are supplied and maintained by the subcontractor. 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. 4. Effluent and wastewater – All effluent water from the camp/office must be	Holder of EA or representative/ Contractor	Before construction commences and maintained throughout. If and when required.	• No further impacts on the fauna and flora other than outlined and approved.

Action	Proposed impact management action and Procedures / Mitigation measures to achieve it	Responsible person for implementation	Implementation timeframe and frequency	Outcome
	disposed of in a properly designed and constructed system (ablution facilities), situated so as not to adversely affect the 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. 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,			

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	specialist hydrological or ecological advice will be sought for appropriate treatment and remedial procedures to be followed. 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. 7. Spillage of any fuels directly onto bare soil or into a watercourse must be prevented at all times. 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. **Animals** 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			

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	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 problems must be reported to the ECO.			
7. Cement mixing/batching plant.	1. The cement mixing or batching plant area(s) must be indicated on the Site Establishment Plan. 2. All wastewater resulting from batching of concrete shall be disposed of via the wastewater management system where available. 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. 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	Holder of EA or representative/ Contractor	Continuously Throughout the construction phase. If and when required.	•Mixing of cement will be done in an environmentally sensitive manner. • No cement spillage takes place.

Action	Proposed impact management action and Procedures / Mitigation measures to achieve it	Responsible person for implementation	Implementation timeframe and frequency	Outcome
	disposed at a waste disposal site approved by the Engineer/ECO/EO. 5. Contaminated water storage facilities shall not be allowed to overflow and appropriate protection from rain and flooding shall be implemented. 6. Contaminated water treatment on Site shall require a method statement approved by Engineer/ECO/EO. 7. Unused cement bags are to be stored so as not to be affected by rain or runoff events. 8. Used bags shall be stored in weatherproof containers to prevent wind-blown cement dust and water contamination. Used bags shall be disposed of on a regular basis via the solid waste management system and shall not be used for any other purpose. 9. Concrete transportation shall not result in spillage. 10. Cleaning of equipment and flushing of mixers shall not result in pollution of the surrounding environment: Care shall be taken to collect contaminated wash water from cleaning activities and dispose of it in a manner approved by the			

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	Engineer/ECO/EO. To prevent spillage onto roads, ready mix trucks shall rinse off the delivery shoot into a suitable sump prior to leaving Site. 11. Suitable screening and containment shall be in place to prevent wind-blown contamination associated with bulk cement silos, loading and batching. 12. With respect to exposed aggregate finishes, the Contractor shall collect all contaminated water & fines and store it in sumps for disposal at an approved waste site. 13. All visible remains of excess concrete shall be physically removed on completion of the plaster or concrete pour section and disposed. Washing the remains into the ground is not acceptable. All excess aggregate shall also be removed. Any mixed cement (for building or plastering) at the work area must be placed on boards or container to prevent spillage or contamination of the soil. 14. During cement delivery boards or other protection material must be used to prevent spilling on the ground.			

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	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.			
8. Surface and groundwater pollution.	1. The Contractor shall take all reasonable steps to prevent pollution of surface and groundwater as a result of his activities. Such pollution could result from release (accidental or otherwise) of chemicals, oils, fuels, paint, and sewage, water from excavations, construction water, water carrying soil particles or waste products. 2. Cement or concrete mixing must take place in such a way as to prevent any cement water runoff. All pieces of cement or related material are to be stored and dumped at the approved Municipal site. 3. Bulk cement silos and storage areas must be properly lined/screened/contained to prevent windblown cement dust or pollution of water during rain events. 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.	Holder of EA or representative/ Contractor	Continuously Throughout the construction phase. If and when required.	•No further degradation or deterioration of ground and surface water due to construction activities.

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	5. Ready-mix trucks are not permitted to clean chutes at the work site. 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 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. 7. The Contractor shall provide water and/or washing facilities at the construction camp for personnel. 8. In the event of any pollution entering any water body, the Contractor shall inform the RE/ECO/EO immediately. 9. The contractor will be responsible for any clean-up costs involved should pollution, erosion or sedimentation have taken place.			
9. Air pollution.	**Air Pollution** 1. During the construction/re-development phase, and due to the nature of the	Holder of EA or representative/ Contractor	Continuously Throughout the	Ensuring dust etc associated with construction activities are

Action	Proposed impact management action and Procedures / Mitigation measures to achieve it	Responsible person for implementation	Implementation timeframe and frequency	Outcome
	project, a small amount of dust could be generated. Dust pollution may have an impact on the operational workers. 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 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.		construction phase. If and when required.	mitigated and managed to prevent any degradation to the natural environment.
10. Noise control.	1. Working hours will be restricted to daily normal working hours. 2. Limit the use of heavy vehicle machinery and construction activities associated with high level noise to 07h00 to 18h00 from Mondays to Saturdays, particularly to where residential areas or sensitive institutions are situated close to the site.	Holder of EA or representative	Continuously Throughout the construction phase. If and when required.	• Ensuring no noise levels above Standard and mitigating possible noise in the receiving environment.

Action	Proposed impact management action and Procedures / Mitigation measures to achieve it	Responsible person for implementation	Implementation timeframe and frequency	Outcome
	3. All noise and sounds generated by plant or machinery must adhere to SABS 0103 specifications for the maximum permissible noise levels for residential areas. 4. All plant and machinery are to be fitted with adequate silencers. 5. No sound amplification equipment such as sirens, loud hailers or hooters shall be used on site, after normal working hours, except in emergencies. 6. If work is to be undertaken outside of normal work hours, permission must be obtained from the Local Authority. Prior to commencing any such activity, the Contractor is also to advise the potentially affected neighbouring residents. Dates, times and the nature of the work to be undertaken are to be provided. Notification may include letter-drops. 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.			

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	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 impacts in this regard.			
11. Pipe testing and cleaning.	1. Cleaning/flushing of pipelines shall not impair (down grade) downstream baseline water quality. 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. 3. Litter traps shall be installed and maintained at the outflow of all pipelines.	Holder of EA or representative/ Contractor	Continuously Throughout the construction phase. If and when required.	• No blockages and damage to pipes.
12. Erosion control.	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	Holder of EA or representative/ Contractor	Continuously Throughout the construction phase. If and when required.	• Ensuring no further degradation of the natural environment.

Action	Proposed impact management action and Procedures / Mitigation measures to achieve it	Responsible person for implementation	Implementation timeframe and frequency	Outcome
	operations and activities, to the satisfaction of the RE/ECO/EO. Possible measures that can be considered include the following: 1. Brush cut packing. 2. Mulch or chip cover 3. Straw stabilising (at the rate of one bale/m² and rotated into the top 100mm of the Completed earthworks) 4. Watering 5. Planting / sodding 6. Hand seeding sowing 7. Hydroseeding 8. Soil binders and anti-erosion compounds 9. Mechanical cover or packing structures. 10. Gabions & mattresses 11. Geofabric 12. Hessian cover 13. Armourflex 14. Log / pole fencing 15. Retaining walls 16. The Contractor shall take reasonable measures to control the erosive effects of storm water runoff. 17. The Contractor shall use silt screens to prevent overland flowing water from causing erosion.			• Ensure no more vegetation cleared or Disturbed due to erosion. •No erosion downstream of the newly constructed dams.

Action	Proposed impact management action and Procedures / Mitigation measures to achieve it	Responsible person for implementation	Implementation timeframe and frequency	Outcome
	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. 19. The ploughing-in of straw offers limited protection against storm water runoff induced erosion and shall be used as an erosion protection measure. 20. The Contractor shall be liable for any damage to downstream property caused by the diversion of overland storm water flows.			
13. Dust control.	**DUST - generated by works.** 1. Sand stockpiles are to be covered with hessian, shade cloth or DPC plastic. 2. Stockpiles are to be located in sheltered areas and the usable/cut face orientated away from the direction of the prevailing wind for that season. 3. Excavating, handling or transporting erodible materials in high wind or when dust plumes visible shall be avoided. 4. If high winds prevail the Engineer shall decide whether water dampening measures or cessation of activities is required, and if necessary, they shall have	Contractor	Continuously Throughout the construction phase. If and when required.	•Ensuring proper dust suppression. • Minimizing the potential dust impacts during construction.

Action	Proposed impact management action and Procedures / Mitigation measures to achieve it	Responsible person for implementation	Implementation timeframe and frequency	Outcome
	the authority to temporarily stop certain of the works until wind conditions become more favourable. **Dust – generated by roads and vehicle movement.** 1) Vehicle speeds shall not exceed 40km/h along gravel roads or 20km/h on unconsolidated or non-vegetated areas. Dust plumes created by vehicle movement are to be monitored. 2) If access roads are generating dust beyond acceptable levels dust suppression measures must be initiated. These include, but are not limited to the following: 2.1 Reduction of travelling speeds along the road. 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			

Action	Proposed impact management action and Procedures / Mitigation measures to achieve it	Responsible person for implementation	Implementation timeframe and frequency	Outcome
	morning and late afternoon/ evening. Water restrictions are to be observed if in place.			
14. Fire management.	1) No open fires or naked flames for heating or cooking shall be allowed on Site. Stoves and other electrical equipment shall only be permitted in the Contractor's camp and never be left unattended. 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 fire-fighting equipment is on site. 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. 1.4. Fire and "hot work" shall be restricted to a site approved by the Engineer/ECO/EO 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	Contractor	Continuously Throughout the construction phase. If and when required.	• Prevent any open fires from taking place. • Prevention measures in place if any accidental fires do take place.

Action	Proposed impact management action and Procedures / Mitigation measures to achieve it	Responsible person for implementation	Implementation timeframe and frequency	Outcome
	supervision and a fire extinguisher shall be immediately available. "Low smoke" fuels shall be used. Smoke free zoning regulations shall be considered. 1.6. Fires within National Parks, Nature Reserves and natural areas are prohibited. 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 considered when assessing the risk of fires. 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. 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			

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	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. 1.10. Should a contractor be found responsible for the outbreak of a fire, he shall be liable for any associated costs.			
15. Water management.	1. The Contractor shall provide water for drinking and construction purposes until such time as it is available from the local system. Water from the local system must be used carefully and sparingly with the view of not wasting water. 2. Taps are to be attached to secure supports and leaking taps and hosepipes are to be repaired immediately. 3. Watering as dust suppression must be undertaken as a last resort. It is preferable that sand stockpiles be covered rather than watered.	Holder of EA or representative	Continuously Throughout the construction phase. If and when required.	•Management of water for drinking, construction activities and dust suppression.

Action	Proposed impact management action and Procedures / Mitigation measures to achieve it	Responsible person for implementation	Implementation timeframe and frequency	Outcome
	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. 5. An adequate supply of potable water that complies with bacteriological and chemical quality must be available at all times. 6. Water samples of the potable water must be taken at regular intervals and the results kept on record. 7. The aforementioned records must be made available to a competent authority upon request.			
16. Waste management.	1. A waste minimisation approach must be followed. This requires recycling wherever possible. All waste therefore to be suitably contained and removed regularly from site in accordance with the municipal waste management procedures. Other examples shall include the use of rubble as fill, minimisation of waste concrete and the use of brush cuttings for mulching on rehabilitated areas.	Holder of EA or representative/ Contractor.	Continuously Throughout the construction phase. If and when required.	•Ensure the site is kept free of litter. •Ensuring proper waste management and removal takes place. •Ensuring legal waste removal takes place.

Action	Proposed impact management action and Procedures / Mitigation measures to achieve it	Responsible person for implementation	Implementation timeframe and frequency	Outcome
	2. The Contractor shall be responsible for the establishment of a refuse control and removal system that prevents the spread of refuse within and beyond the construction sites. 3. The Contractor shall ensure that all refuse is deposited in refuse bins, which he shall supply and arrange to be emptied on a weekly basis. Refuse bins shall be of such a design that the refuse cannot be blown out and that animals or birds are not attracted to the waste and spread it around. Refuse bins shall be watertight, wind-proof and scavenger-proof and shall be appropriately placed throughout the site. Refuse must also be protected from rain, which may cause pollutants to leach out. Refuse bins shall be appropriately placed throughout the Site and shall be conspicuous (e.g., painted bright yellow). 4. Refuse shall be disposed of at an approved waste site (site and method to be agreed with Local Authority). Refuse shall not be burnt or buried on or near the Site.			

Action	Proposed impact management action and Procedures / Mitigation measures to achieve it	Responsible person for implementation	Implementation timeframe and frequency	Outcome
	5. The Contractor shall provide labourers to clean up the Contractor's camp and Site on a weekly basis. 6. The Contractor shall also clean the Contractor's camp and Site of all structures, equipment, residual litter and building materials at the end of the contract. 7. No waste, specifically rubble and "building rubble" shall be utilised for fill material, except where such actions are approved or licenced			
17. Toilets.	1. The Contractor shall be responsible for providing all sanitary arrangements for construction and supervisory staff on the site. A minimum of one chemical toilet shall be provided per 15 persons. Toilets provided by the Contractor must be easily accessible and within a practical distance from the workers. Toilets shall be located within areas of low environmental importance. The toilets shall be of a neat construction and shall be provided with doors and locks and shall be secured to prevent them blowing over. Toilets shall	Holder of EA or representative	Continuously Throughout the construction phase. If and when required.	•Appropriate sewerage management will take place. •Sufficient ablution facilities provided.

Action	Proposed impact management action and Procedures / Mitigation measures to achieve it	Responsible person for implementation	Implementation timeframe and frequency	Outcome
	be placed outside areas susceptible to flooding. 2. The Contractor shall keep the toilets in a clean, neat and hygienic condition. The Contractor shall supply toilet paper at all toilets. 3. The Contractor shall be responsible for the cleaning, maintenance, servicing and emptying of the toilets on a regular basis (by chemical contractor). No waste to be dumped in the bush or wetland. 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. 5. The Contractor shall ensure that no spillage occurs when chemical toilets are cleaned and emptied. 6. The Contractor shall supply a contingency plan for spills from toilets. 7. Performing ablutions in any other area is strictly prohibited. 8. The location for construction camps and toilets must be approved by the ECO.			

Action	Proposed impact management action and Procedures / Mitigation measures to achieve it	Responsible person for implementation	Implementation timeframe and frequency	Outcome
18. Fuel and chemical management.	1. Fuel may be stored on site providing the following is strictly adhered to: 2. All necessary approvals with respect to fuel storage and dispensing shall be obtained from the appropriate authorities. 3. The Municipal Fire Chief (or as applicable) must be informed and consulted i.t.o. Fire Regulations. 4. The Contractor shall ensure that all liquid fuels and oils are stored in tanks with lids, which are kept firmly shut and under lock and key at all times. 5. The Contractor shall stand any equipment that may leak, and does not have to be transported regularly, on watertight drip trays to catch any pollutants. The drip trays shall be of a size that the equipment can be placed inside it. Drip trays shall be cleaned regularly and shall not be allowed to overflow. 6. All hazardous material (e.g., oils. Petrol or diesel) used on site must be disposed of at an approved hazardous waste facility or with the services of a licensed waste transportation company. All certificates of	Holder of EA or representative	Continuously Throughout the construction phase. If and when required.	•Ensuring proper use/ storage/ handling and management of fuel on site. •Ensuring minimal to no impact on the natural environment.

Action	Proposed impact management action and Procedures / Mitigation measures to achieve it	Responsible person for implementation	Implementation timeframe and frequency	Outcome
	disposal and weigh bridge slips need to be signed by all relevant officials and kept as records on the premises. 7. The contractor will be responsible for the cleaning up of any spill and associated costs. 8. Areas for storage of fuels and other flammable materials shall comply with standard fire safety regulations and shall require the approval of the Municipal Fire Chief (in urban areas) or RE/ECO/EO. 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: 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 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. ***Location***			

Action	Proposed impact management action and Procedures / Mitigation measures to achieve it	Responsible person for implementation	Implementation timeframe and frequency	Outcome
	11. The fuel storage area shall be located at one of the following locations: {provide a list of acceptable locations for the fuel storage area}. 12. The Engineer/ECO shall be advised of the area that the Contractor intends using for the storage of fuel. 13. 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. 14. The tank shall be erected at least 3.5 meters from buildings, boundaries and any other combustible or flammable materials. ***Signs/good practice/safety precautions*** 15. 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. 16. No smoking shall be allowed in the vicinity of the stores.			

Action	Proposed impact management action and Procedures / Mitigation measures to achieve it	Responsible person for implementation	Implementation timeframe and frequency	Outcome
	17. The capacity of the tank shall be clearly displayed, and the product contained within the tank clearly identified using the emergency information system detailed in SABS 0232 part 1. 18. There shall be adequate fire-fighting equipment at the fuel storage and dispensing area or areas. 19. Fuel shall be kept under lock and key at all times. ***Tanks*** 20. The storage tank shall be removed on completion of the works. 21. The storage tank shall be on the premises only for as long as the contract last. 22. All such tanks to be designed and constructed in accordance with a recognised code. 23. The rated capacity of tanks shall provide sufficient capacity to permit expansion of the product contained therein by the rise in temperature during storage. ***Bunds/storage areas*** 24. Tanks shall be situated in a bunded area the volume of which shall be at least 150% of the volume of the largest tank.			

Action	Proposed impact management action and Procedures / Mitigation measures to achieve it	Responsible person for implementation	Implementation timeframe and frequency	Outcome
	The floor of bund shall be smooth and impermeable constructed of concrete or plastic sheeting with impermeable joints with a layer of sand over to prevent perishing. The bund walls shall be of concrete or formed of well-packed earth with the impermeable lining extending to the crest. The floor of the bund shall be sloped towards an oil trap or sump to enable any spilled fuel and/or fuel-soaked water to be removed. 25. A bacterial hydrocarbon digestion agent that is effective in water approved by the Engineer/ECO/EO shall be installed in the sump. 26. The tanks and bunded areas shall be covered by a roofed structure to prevent the bunded area from filling with rainwater. 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. 27. 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			

Action	Proposed impact management action and Procedures / Mitigation measures to achieve it	Responsible person for implementation	Implementation timeframe and frequency	Outcome
	Engineer/ECO/EO, and the bacterial hydrocarbon digestion agent shall be replenished. ***Empty containers*** 28. Only empty and externally clean tanks 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. ***Filling/dispensing methods*** 29. Any electrical or petrol-driven pump shall be equipped and positioned so as not to cause any danger of ignition of the product. 30. 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. 31. Adequate precautions shall be provided to prevent spillage during the filling of any tank and during the dispensing of the contents. ***Method statements***			

Action	Proposed impact management action and Procedures / Mitigation measures to achieve it	Responsible person for implementation	Implementation timeframe and frequency	Outcome
	32. A method statement is required for the filling of and dispensing from storage tanks.			
19. Vehicles and access roads.	1. The movement of any vehicles and/ or personnel outside of the designated working areas shall not be permitted without the written authorisation of the Engineer/ECO. 2. Should the Contractor not exercise sufficient control to restrict all work to the area within the marker boundaries, then these on instruction of the Engineer/ECO/EO shall be replaced by fencing the additional cost of which shall be borne by the Contractor. 3. Dust control measures such as dampening with water shall be implemented where necessary, as indicated by the Engineer/ECO. 4. Access and haul roads shall be maintained by the Contractor. 5. Maintenance includes adequate drainage and side drains, dust control and restriction of edge use.	Holder of EA or representative	Continuously Throughout the construction phase. If and when required.	•Proper vehicle movement on site and surrounding areas. •Management of potential damage to existing roads during construction. •Traffic management to ensure safety on roads.

Action	Proposed impact management action and Procedures / Mitigation measures to achieve it	Responsible person for implementation	Implementation timeframe and frequency	Outcome
	6. All temporary access routes shall be rehabilitated at the end of the contract to the satisfaction of the Engineer/ECO. 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. 8. Any materials used for layer works shall be approved by the Engineer/ECO prior to the activity commencing. 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. 10. Traffic safety measures, to the satisfaction of the Engineer/ECO, shall be considered in determining entry / exit onto public roads. 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} 12. Appropriate traffic warning signs shall be erected and maintained.			

Action	Proposed impact management action and Procedures / Mitigation measures to achieve it	Responsible person for implementation	Implementation timeframe and frequency	Outcome
	13. Trained and equipped flagmen shall be used where the access road intersects with any public roads. 14. Attention shall be paid to minimising disruption of the flow of traffic and reducing the danger to other road users and pedestrians. 15. Method statements are required for the following: - • Traffic safety measures with regard to entry and exit on public roads and the control of construction traffic. • 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.			
20. 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.	•Appropriate stockpiling, to ensure topsoil can be utilised properly. •Re-establish vegetation

Action	Proposed impact management action and Procedures / Mitigation measures to achieve it	Responsible person for implementation	Implementation timeframe and frequency	Outcome
21. 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 archaeologist (Jonathan Kaplan 082 321 0172), or the South African Heritage Resources Agency (Ms Natasha Higgitt' 021 462 4502). Burials, etc. must not be removed or disturbed until inspected by the archaeologist. 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 Remainder of Kakamas North Settlement no 355 near Augrabies, Northern Cape. 3. A qualified archaeologist and/or palaeontologist must be contracted where necessary (at the expense of the holder) to remove any heritage remains. 4. If any evidence of archaeological sites or remains (e.g., remnants of stone-made	Holder of EA or representative/Contractor If discovered qualified archaeologist and/or palaeontologist.	Continuously Throughout the construction phase. If and when required.	•To ensure the proper management of heritage remains are undertaken in the event of a discovery during construction and excavations.

Action	Proposed impact management action and Procedures / Mitigation measures to achieve it	Responsible person for implementation	Implementation timeframe and frequency	Outcome
	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 offense in terms of section 51(1)e of the NHRA. 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. 6. The following conditions apply with regards to the appointment of specialists: i) If heritage resources are uncovered during the course of the development, a professional archaeologist or			

Action	Proposed impact management action and Procedures / Mitigation measures to achieve it	Responsible person for implementation	Implementation timeframe and frequency	Outcome
	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.			
22. 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 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.	Holder of EA or representative	Continuously Throughout the construction phase. If and when required.	•Management tools and emergency contacts available in the event of a spillage or incident.

Action	Proposed impact management action and Procedures / Mitigation measures to achieve it	Responsible person for implementation	Implementation timeframe and frequency	Outcome
	2. Containment, clean-up, and remediation must commence immediately.			
23. Energy Efficiency & Waste Minimization Measures.	The following design measures will be considered for energy and water saving measures: • Household waste to be separated and re-cycled (glass, paper, green/garden waste). • The use of energy saving bulbs in all structures, alternatively use low voltage or compact fluorescent lights are to be used in this project.	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

TITLE:
DESCRIPTION:
SUBMITTED BY:

Date requested by: _____ Date submitted: _____

Date response required by: _____ Date work start: _____

REVIEW SCHEDULE		
Date	**Authority**	**Comments**

DISTRIBUTION AND AUTHORISATION			
	APPLICANT	EO	CONTRACTOR
Name			
Signature			
Date			

Appendix F: Project map


Instream Dam
Kakamas North Settlement No. 343.
Omdraai
Legend
Dam 1
Dam 2
Retention wall
Stream
Dam 2
Dam 1
Google Earth
© 2020 AfriGIS (Pty) Ltd.
© 2020 Google
Image © 2020 Maxar Technologies
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100 m

Appendix G: EAP Curriculum Vitae

PB Professional Services CC
PO Box 1058
Wellington 7654

Phone: 021 873 7228
Cell: 0827763422
Fax: 0866721916
E-mail: pbps@iafrica.com

Pieter Badenhorst

Nationality	South African		
Date of birth	25 March 1951		
Qualifications	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
Special courses	• Project Management (5/1990), GROMAN, Stellenbosch; • Project Management Diploma (2-7/91), Damelin Management School, Cape Town; • Time Management (7/91), FSA-Contact group, Cape Town; • Advanced Project Management, GROMAN (9/91), Stellenbosch; • Environmental Auditing (11/93), Inst. of Environmental Assessment, Lincoln, England; • SPIN Complex Selling (2/94), Sales Productivity Associates, Johannesburg; • Presentation (3/94), Whitehead Morris, Johannesburg; • Public participation - Participlan (10/94), CSIR/Univ. Cape Town		
Professional membership	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)		
Career	**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	
Current position	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.		
Professional experience	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. 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. Presented a third year course in Coastal Management at Cape Technikon.		
Publications/ Contracts (A full list is available on request)	• Scoping and Environmental Impact reports. • Environmental Management Plans –construction and operation. • Basic Assessment Reports • S24G Applications • Waste License Applications • Water Use License Applications • Quarry applications/EMPRs • 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. • Contract reports in business management include market research and technology requirements (environment, food and textile/clothing industries). • Publications include CZM Technical Guide, CZM Guidelines and Coastal Processes. Research publications on sedimentation in estuaries and low-level environmental monitoring techniques. • Formed part of the Estuarine and Coastal Unit (ECRU) team that compiled the "Estuaries of the Cape" series. • Formed part of the team that compiled the Policy and Principles& Objectives for Coastal Zone Management in the RSA – for Council of the Environment. • Formed part of the team that developed Norms and Standards for inclusion into NEMA. • Feasibility studies for Department of Environment Affairs & Tourism and Department of Water Affairs. • EIA Review for DEAT on proposed Cape Town Harbour expansion • Member of team – SA Wetland audit for SANBI		

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Elanie Kühn

Nationality	South African		
Date of birth	20 February 1983		
Qualifications	B.Sc. Degree (Zoology & Physiology) B Sc. Hons. (Environmental Management)	North West University – Potchefstroom North West University – Potchefstroom	2004 2005
Special courses	None additional to the above.		
Professional membership	IAIA South Africa		
Career	**2010 - current** **2006 - 2009** **2005**	Pieter Badenhorst Professional Services - Wellington Doug Jeffrey Environmental Consultants - Paarl DERA Environmental Consultancy – Klerksdorp (Part time while completing Hons.)	
Current position	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.		
Professional experience	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.		
Publications/ Contracts (A full list is available on request)	Projects and work experience range from: ● Project Management ● Basic Assessment Reports ● Scoping and Environmental Impact Assessment reports. ● Environmental Management Programmes –construction/operational/decommissioning. ● S24G Applications ● Waste License Applications ● Water Use License Applications ● Mining EMP's ● Mining Rights and Prospecting Rights applications ● Environmental Control Officer (ECO) ● Auditing Reports		

APPENDIX H3: WATER USE LICENSE APPLICATION

WATER USE LICENSE APPLICATION

OMDRAAI FARM – CONSTRUCTION OF A RETENTION WALL WITHIN A SMALL STREAM, ON KAKAMAS NORTH SETTLEMENT NO. 343, NORTHERN CAPE PROVINCE.

February 2021

DOCUMENT NAME:
Omdraai - Construction of a retention wall within a small stream, on Kakamas North Settlement No. 343, Northern Cape Province.

PROJECT NUMBER:
N/A

DATE:
10 February 2021

REPORT STATUS:
DRAFT

CARRIED OUT BY:
GroenbergEnviro (Pty) Ltd

COMMISSIONED BY:
Valam Boerdery (Pty) Ltd

CLIENT CONTACT DETAILS:
Bernie Denton
P. O. Box 21
Kakamas
8870
Tel: 054 431 0568

AUTHOR(S):
Elanie Kühn

SYNOPSIS:
See Below

PREPARED BY:
GroenbergEnviro (Pty) Ltd

QUALITY CONTROL

Revision	Date	Author	Technical Review	Report Review
00	Feb 2021	E. Kühn	E. Kühn	
01				
02				

1. Contact Information

Please contact the undermentioned should you require further information.

GroenbergEnviro (Pty) Ltd	
Address:	Wellington Klein Opperhorst, Wellington, 7654 PO Box 1058, Wellington, 7654 Fax: +27 86 476 7139
Website	**www.groenbergenviro.co.za**
Contact Person 	Elanie Kühn The consultant has 14 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. Focusing primarily on Environmental Impact Assessments and Water Use License Applications.
Contact number	+27 76 584 0822
Cell number	+27 76 584 0822
Fax Number	+27 86 476 7139
Email	elanie@groenbergenviro.co.za

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&AP's	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	Stormwater Management Plan
S24G	Section 24G Process
V&V	Validation and Verification
WMA	Water Management Area
WQMR	Water Quality Management Report
WULA	Water Use Licence Application

SYNOPSIS

Application for a Licence in terms of the National Water Act, 1998 (NWA) is made by the developer, Valam Boerdery (Pty) Ltd, for the following, also outlined in Table i:

- Section 21(c) and (i) of the National Water Act for the construction of a retention wall across ephemeral streams/natural drainage areas.
- Section 21 (a) to transfer approximately 1 ha of water for Industrial and Schedule 1 use. From this volume, approximately 12 400 m^3 should be allocated for Schedule 1 use and approximately 2 500 m^3 will be allocated for Industrial use.
- Section 21 (b) for the legalisation of an existing dam with a capacity of 20106 m^3, with a water surface area of 7450 m^2.

The application is summarised for the following water usages:

Table i: Water use activities

(a) transfer of water	Applying for a licence for the "transfer" of water from the lawful "irrigation" allocation to "industrial use" and Schedule 1.
(b) storing of water	For the legalisation of a small balancing dam with a capacity of 20 100 m^3.
(c) impeding or diverting flow of water in a watercourse	For the construction of an instream dam and retention wall across ephemeral streams/natural drainage areas.
(i) altering the bed, banks, course, or characteristics of a watercourse	For the construction instream dam and retention wall across ephemeral streams/natural drainage areas.

Omdraai has an existing lawful use of 60 ha for irrigation from the Orange River allocated to Kakamas North Settlement No. 343. The said property also recently received a Water Use License for additional 12ha of water rights from the Orange River.

In total Omdraai has existing rights for 72 ha (1 080 000 m^3/a) of water rights from the Orange River.

The applicant, Valam Boerdery (Pty) Ltd, transferred 180 000 m^3/a (12ha) of water from another property to Kakamas North Settlement No. 343 to rectify the water shortage on the property. However, with new water practices etc, the intention is to transfer additional water from Kakamas North Settlement No. 343 to Kakamas North Settlement No. 341. The transfer to ensured that the property and new developments comply with the National Water Act (1998). The summary of the transfer that took place is shown in Table ii below.

Table ii: Existing and proposed transfer and new water allocation.

Property	Current Water Allocation	Transfer	Irrigate tempo	Water Allocation ha	Water Allocation m^3/a
Portion 37 of Zeekoesteek No. 09 (Donor)	50.2	12ha	15 000m^3/ha	30ha	450 000m^3/a
Kakamas North Settlement No. 343. (Receiving)	60ha	12ha (-1ha for Industrial and Schedule 1 use)	15 000m^3/ha	72ha	1 080 000m^3/a
Kakamas North Settlement No. 343. (Receiving)	0ha	1ha	15 000m^3/ha	1ha	15 000 m^3/a
Kakamas North Settlement No. 343. (Donor)	71	12.77ha	15 000m^3/ha	58.23ha	873 450m^3/a
Kakamas North Settlement No. 341. (Receiving)	61.59ha	12.77ha	15 000m^3/ha	74.36ha	1 115 400 m^3/a
TOTAL for Omdraai					873 450m^3/a

Omdraai Farm uses water from the irrigation allocation for drinking purposes and garden irrigation.
A license application (WULA) will be required for 21(a) to transfer water from "irrigation" to the sector "Schedule 1". Water used in pack stores are used for commercial purposes and must, therefore, be licenced as "industrial".

It can, therefore, be concluded that licences will be required to "transfer" water from the lawful "irrigation" allocation to "industrial use" and Schedule 1.
As shown above in, the total volume of water used annually amounts to 15 000m^3/annum (1ha). Therefore, the application is to transfer approximately 1ha of water for Industrial and Schedule 1 use.

During the period from 1976 to 2016 various developments took place on the property, of which most are agricultural developments. This in triggered a S24G Application that that was undertaking in 2017 and the Environmental Authorisation (S24G04/03/2017) issued on 22 October 2018.

In 2019 the applicant had complaints for the downstream neighbour with regards to downstream flooding of his vineyards due to increased downstream flow of water. The

applicant decided to construct a small retention structure which ultimately triggered an S24G process without his knowledge.
This application is therefore, for the correction of this activity. Several small seasonal tributaries dissect the top section of the property to where in meets to form the Swartdraai-se-leegte river. The area is located within Quaternary catchment D81A, which is falls within the Orange river WMA. Swartdraai-se-leegte River, in its natural unmodified state, can be classified as an ephemeral river, which at the impacted site, has been modified into a more perennial system due to the artificial release of irrigation water. The river at the impact site was found to be in a Largely Modified (D) state upstream of the new retention dam improving slightly to a Moderately modified state downstream of the retention dam (C/D). The river was also found to have a Low EIS, largely due to its ephemeral nature, as well as the existing impacts on site.

This application is therefore recommended for the approval of Sections 21 (a), (c), (i) and (b) as outlined in this study.

2. THE APPLICATION AND TECHNICAL DETAIL

2.1 The applicant

The applicant, Valam Boerdery (Pty) Ltd is applying for the following:

- Section 21(c) and (i) of the National Water Act for the construction of a retention wall across ephemeral streams/natural drainage areas.
- Section 21 (a) to transfer approximately 1 ha of water for Industrial and Schedule 1 use. From this volume, approximately 12 400 m^3 should be allocated for Schedule 1 use and approximately 2 500 m^3 will be allocated for Industrial use.
- Section 21 (b) for the legalisation of an existing dam with a capacity of 20 106 m^3, with a water surface area of 7450 m^2.

2.2 The property on which the water use is intended.

The proposed development is situated approximately 30 kilometres outside of the small town of Augrabies in the Northern Cape, in the Kai! Garib Municipal area. Access to the site is via a gravel road linking with the N14. The property's location is shown in **Figure 1** and the property boundaries shown in **Figure 2**.

The site lies north of the Orange River. Small ephemeral streams cross the site. The site is currently zoned Agriculture Zone I. The owner of the properties is Valam Boerdery (Pty) Ltd, who has appointed GroenbergEnviro (Pty) Ltd as the independent environmental consultant to determine if an environmental authorisation is necessary.

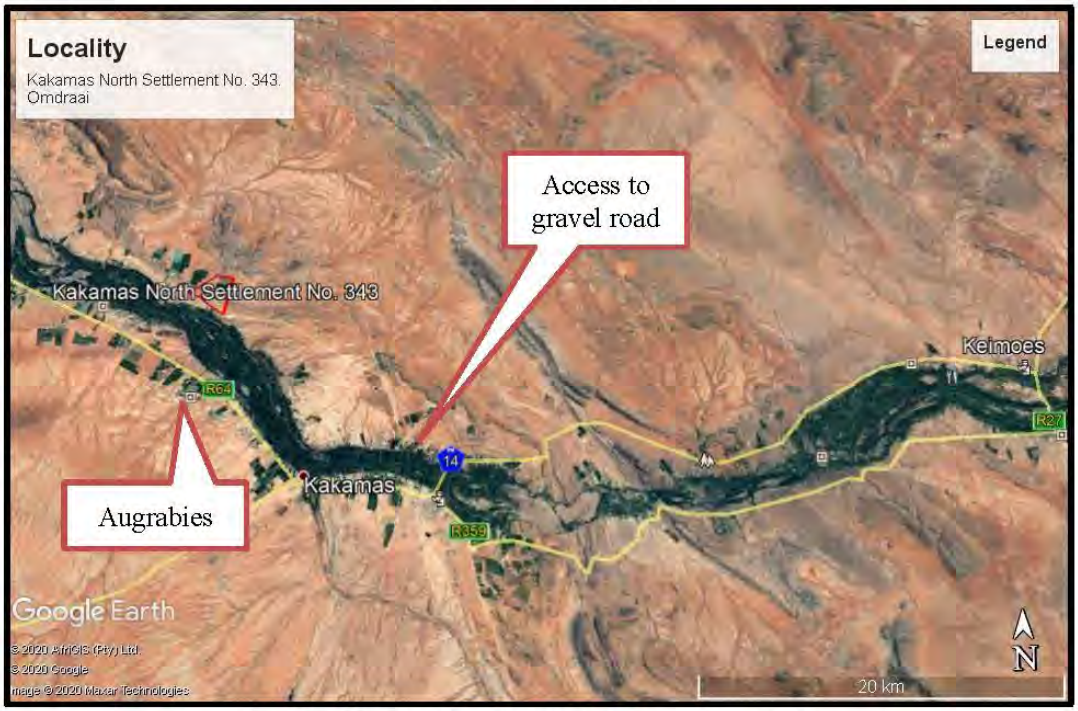


Figure 1: Omdraai locality and property boundaries

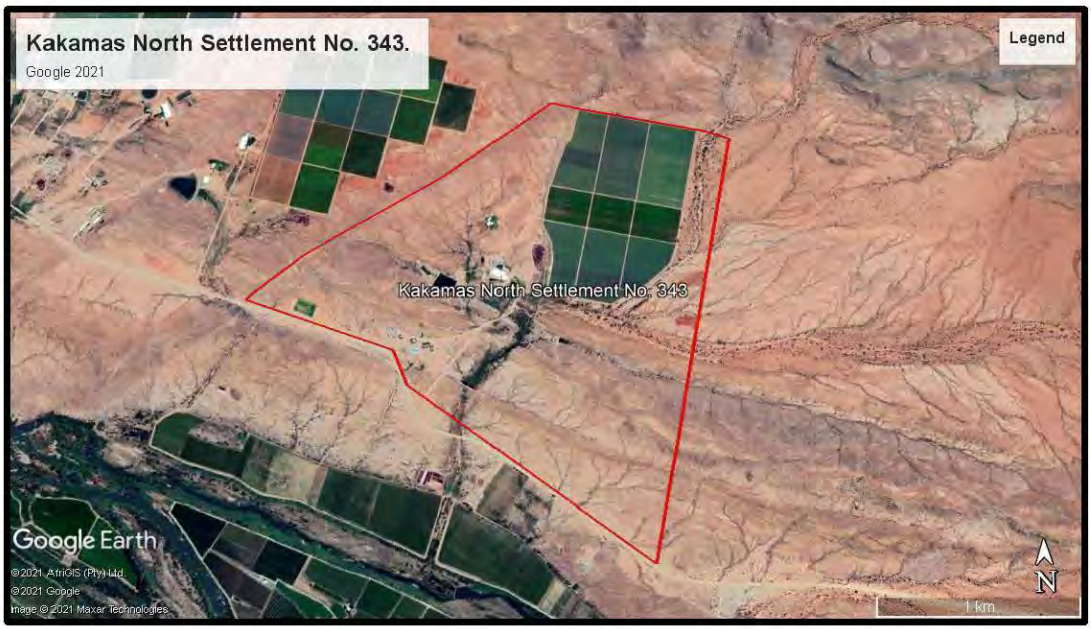


Figure 2: Omdraai locality and property boundaries

2.3 Water Use Licence Application

Application for a licence in terms of the National Water Act, 1998 is made by the developer, Valam Boerdery (Pty) Ltd, for the following water usages:

Table 1: Water Use Licence activities triggered.

(a) transfer of water	Applying for a licence for the "transfer" of water from the lawful "irrigation" allocation to "industrial use" and Schedule 1.
(b) storing of water	For the legalisation of a small balancing dam with a capacity of 20 100 m^3
(c) impeding or diverting flow of water in a watercourse	For the construction of an instream dam and retention wall across ephemeral streams/natural drainage areas.
(i) altering the bed, banks, course, or characteristics of a watercourse	For the construction instream dam and retention wall across ephemeral streams/natural drainage areas.

2.4 Existing lawful water use and development on the property.

Omdraai has an existing lawful use of 60 ha for irrigation from the Orange River allocated to Kakamas North Settlement No. 343. The said property also recently received a Water Use License for additional 12ha of water rights from the Orange River.
In total Omdraai has existing rights for 72 ha (1 080 000 m^3/a) of water rights from the Orange River.
The existing rights certificates and the new WUL is shown in Error! Reference source not found..

The applicant, Valam Boerdery (Pty) Ltd, transferred 180 000 m^3/a (12ha) of water from another property to Kakamas North Settlement No. 343 to rectify the water shortage on the property. However, with new water practices etc, the intention is to transfer additional water from KNS No. 343 to KNS No. 341. The transfer to ensured that the property (KNS No. 341) and new developments comply with the National Water Act (1998). The summary of the transfer that took place is shown in **Table 2** below.

Table 2: Existing and proposed transfer and new water allocation.

Property	Current Water Allocation	Transfer	Irrigate tempo	Water Allocation ha	Water Allocation m^3/a
Portion 37 of Zeekoesteek No. 09 (Donor)	50.2	12ha	15 000m^3/ha	30ha	450 000m^3/a
Kakamas North Settlement No. 343. (Receiving)	60ha	12ha (- 1ha for Industrial and Schedule 1 use)	15 000m^3/ha	72ha	1 080 000m^3/a
Kakamas North Settlement No. 343. (Receiving)	0ha	1ha	15 000m^3/ha	1ha	15 000 m^3/a
Kakamas North Settlement No. 343. (Donor)	71	12.77ha	15 000m^3/ha	58.23ha	873 450m^3/a
Kakamas North Settlement No. 341. (Receiving)	61.59ha	12.77ha	15 000m^3/ha	74.36ha	1 115 400 m^3/a
TOTAL for Omdraai					873 450m^3/a

2.5 Details of the water use intended.

2.5.1 21a – change of water use.

Omdraai Farm uses water from the irrigation allocation for drinking purposes, the packaging shed and garden irrigation.
A Water Use Licence Application (WULA) will be required for 21(a) to transfer water from "Irrigation" to the sector "Schedule 1". Water used in pack stores are used for commercial purposes and must, therefore, be licenced as "Industrial" use.
It can, therefore, be concluded that licences will be required to "transfer" water from the lawful "irrigation" allocation to "Industrial use" and Schedule 1.

Table 3: Water summary

Valam/Omdraai		Actual								Forecast				Total (m³)
		2020								2020				
Location	Category	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Packhouse		120	0	0	0	0	0	0	0	0	0	290	301	
Outside		11	0	0	0	0	0	0	0	0	0	184	171	
Permanent staff		1	123	92	56	0	96	149	176	433	383	0	0	
		132	123	92	56	58	96	149	176	433	383	474	472	
Water use(m³)		613,8	571,95	427,8	260,4	269,7	446,4	692,85	818,4	2013,5	1781	2133	2194,8	12223,5
Sewerage(m³)	Note (70% of water use)	429,66	400,37	299,46	182,28	188,79	312,48	485	572,88	1409,4	1246,7	1493,1	1536,4	8556,45
Pack house(m³)	Pre-cooler	89	0	0	0	0	0	0	0	0	0	20	152	261
Gardens and Landscaping(m³)														2415,5
Total (m³)														14900 (1ha)

As shown above in **Table 3**, the total volume of water used annually amounts to approximately 1 ha of water. Therefore, the application is to transfer approximately 1 ha of water for Industrial and Schedule 1 use. From this approximately 12 400 m³ should be allocated for Schedule 1 use and approximately 2 500 m³ will be allocated for Industrial use.

2.5.2 Section 21b – storage of water

This section is for the legalisation of the existing dam constructed during 1998 to 2000, after the coming into effect of the National Water Act of 1998. This dam was also never registered during the validity period. The dam was, however, never registered. The dam has the following specifications as shown in **Table 4**, **Figure 3** and **Figure 4**:

Table 4: Dam specifications

NOCL	667
FSL	666.500
Surface area at FSL	7450m²
Gross capacity	20 106m³
Length	100m
Width	80m
Max Wall Height	3m

Figure 3: Dam

Figure 4: Development Layout

As stated above the dams were built during 1998 to 2000, the dams were not HDPE lined.

2.5.3 Section 21c –impeding and diverting flow in a watercourse and Section 21i - altering the bed, banks, course, or characteristics of a watercourse.

2.5.3.1 Kakamas North Settlement No. 341, Augrabies.

The Nama Karoo Biome covers an extensive area from the north-west through the central part of South Africa to the south and southeast of the country. It is an arid zone and is subdivided into three bioregions, the Upper Karoo Bioregion, Lower Karoo Bioregion and Bushmanland Bioregion. The Omdraai study area on the opposite side of the Orange River to Augrabies is in the Bushmanland Bioregion at a north-central location within this bioregion (Rutherford & Westfall, 1994; Rutherford et al. 2006; Mucina et al. 2006 in Mucina & Rutherford, 2006). The Omdraai study area falls in a tongue of Kalahari Karroid Shrubland sandwiched between Lower Gariep Broken Veld and Bushmanland Arid Grassland. Kalahari Karroid Shrubland within the Bushmanland Bioregion is not at risk of being negatively impacted and has a Least Threatened conservation status (Government Gazette, 2011).

Shallow, often sandy, seasonal drainage lines that form a dendritic pattern in the landscape are found in the western part of the study site. The drainage lines are usually narrow, seldom exceeding 4 m in width. Owing to the seasonal concentration of moisture, the drainage lines support tall shrubs and low trees as well as a greater concentration of grasses than found on the open plains. The drainage channel system is in a sub-catchment that is unnamed: D81A-03245. The unnamed sub-catchment is not really a river, but more fits the description of a mostly dry drainage lines. The sub-catchment is about 28 km long. The ephemeral drainages systems spring would ultimately have flowed into the Orange River. This is no longer the case, as all these streams are cut off from the Orange River by agricultural developments. The drainage lines for most of the year are dry and sandy and flow for short periods after relatively heavy rains. They are mostly ephemeral streams, see **Figure 5** (dark blue lines).

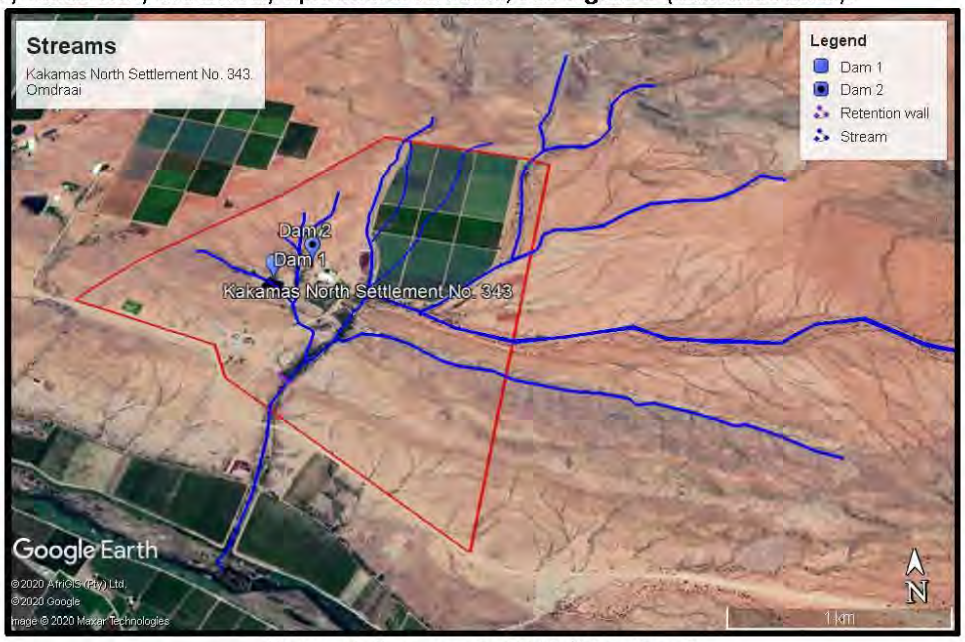


Figure 5: Streams in 1994 (blue lines)

The unnamed drainage system is therefore classified as an ephemeral course as it will only flow sporadically after rain. These watercourses are not considered to be seasonal rivers which will regularly contain water in a seasonal pattern. However, it does fall within an area outlined as CBA1.

Currently, the entire property is located within a Critical Biodiversity Area as shown in Figure 6 below. Note, however, that the existing development areas are outlined in white and already outlined as transformed. The dark green areas are protected areas where no development should take place.

Figure 6: Critical Biodiversity Area.

2.5.3.2 Present Ecological Status (PES) & Ecological Importance Sensitivity (EIS)

Reference is made to the Draft Department of Water and Sanitation (DWS) Report (dated August 2016): "Determination of Ecological Water Requirements for Surface Water (rivers, estuaries and wetlands) and groundwater in the Lower Orange WMA; Report No. RDM/WMA06/00/CON/COMP/2016)1".

This report provides the PES and EIS of the Orange River at EWR 02, located upstream of the confluence of the water courses that flow into the Orange River from the project sites, and at EWR 03, downstream of the Augrabies Falls and downstream of the confluence of the watercourses that flow into the Orange River from the project sites.

Refer to **Figure 7** below for the location of the Project Site (Kakamas North Settlement No. 343) in relation to EWR 02 and EWR 03.

EWR 02 and EWR 03 both have:

- A PES of C (Moderately Modified); and,
- An EIS denoted as high (the river in terms of biota and habitat may be sensitive to flow modifications but in some cases may have a substantial capacity for use.)

Figure 7: Extract of map that shows the locality of the EWR sites in context of the MRUs (referenced from Figure 3.1 in Report No. RDM/WMA06/00/CON/COMP/2016).

The drainage channel system is in a sub-catchment of an unnamed tributary that flows towards the Orange River. The small tributaries flow into the unnamed tributary, which is not really a river, but more accurately fits the description of an ephemeral stream. The overall analysis according to the DWS: PES & EIS desktop assessment is that the site was not assessed, and the ecological importance of the river is exceptionally low. Because it was not assessed, one must fall back to the overall assessment for the EWR:02, which refers to a moderately modified system.

2.5.3.3 Pump stations and Pipelines

Water is required for the drip irrigation of the established vineyards and is supplied via pipelines from the booster pump station at the Orange River via pump lines (pink) towards the existing dam. The other existing pipelines come from the dam (See **Figure 8**) towards the existing vineyards, and from there distributed to the new irrigation areas.

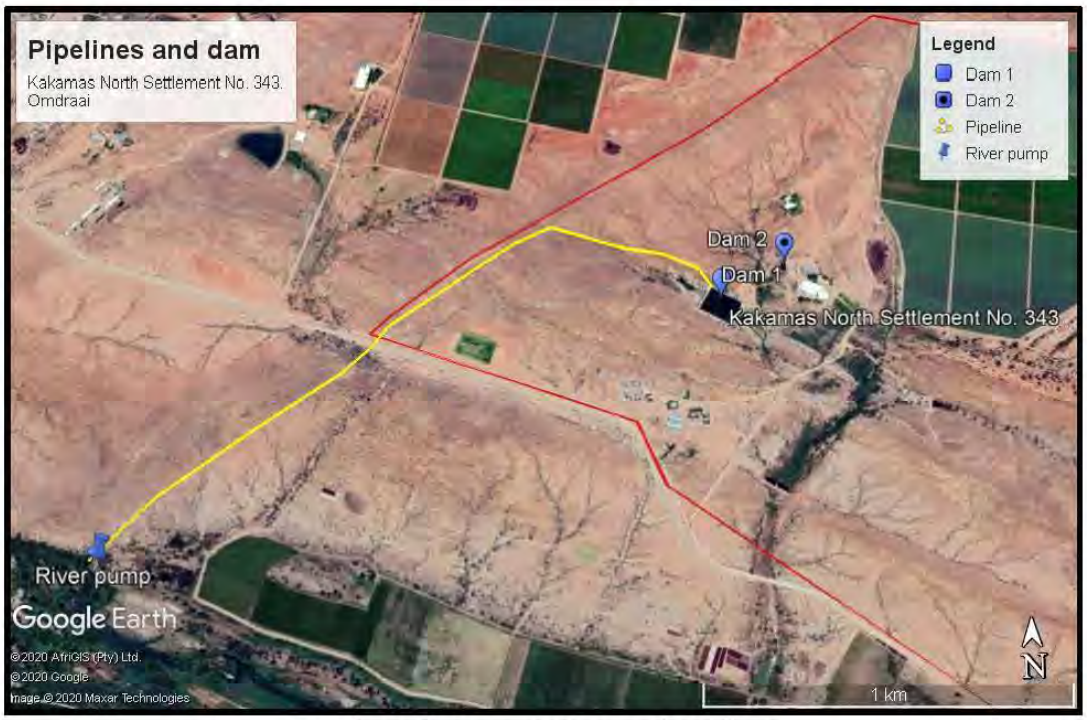


Figure 8: Pump stations and pipelines

2.6 Agricultural development

Omdraai has an existing lawful use of 60 ha for irrigation from the Orange River allocated to Kakamas North Settlement No. 343. The said property also recently received a Water Use License for additional 12ha of water rights from the Orange River.

In total Omdraai has existing rights for 72 ha (1 080 000 m^3/a) of water rights from the Orange River.

Currently the property is developed with vineyards, over an area of 66.82ha. The water allocation for DWS in the area is 15 000m^3/a, the company has reduced this use to 14200m^3/a with great water use practices. Therefore, there is a surplus of 12.77ha (**Table 5**) of water on the property. There is an existing application underway for section 21 (a) for transfer of approximately 12.77ha (191 550 m^3/a) from Kakamas North Settlement No. 343 to Kakamas North Settlement No. 343 to allow for the additional 25ha of vineyards.

Table 5: Water usage.

Current use	**Total**
<u>Omdraai (Valam):</u> ELU – 60 (900 000m^3/a) Transfer via WUL – 12ha (180 000m^3/a)	TOTAAL: 1 080 000
Planted: (63.82ha) Actual use minus Existing rights 14 100: 899 862 – (1 080 000) = 180 138m^3/a	Surplus:180 138/ 14 100 12.77ha

2.7 Plough certificate

Currently there is a plough certificates for Kakamas North Settlement No. 343, for the existing 68ha development area. A new application will be lodged for the additional area. Find included in Appendix M the plough certificate application.

2.8 Storm water Management

There is an existing Storm Water Management Plan in place for the property and the agricultural development that takes place, approved under the existing WUL (WU25176158).

Further mitigations with regards to flow and water quality is address within the Fresh Water Ecology Assessment, outlined in Section 2.3 and **Appendix F.3: Fresh Water Ecology** Assessment Report.

3. Description of the Environment

3.1 Climate

The climatic conditions of this region of the Northern Cape are typical of conditions characteristics of semi—desert / arid savannah areas. The area is characterised by fluctuating temperatures, low and unpredictable rainfall, and high evaporation rates. The low annual rainfall (average of 170 — 240 mm in Upington or even lower in some surrounding areas) is significantly lower than the evaporation rate. Rainfall usually occurs during the late spring and summer months.

The area experiences high temperatures, especially in the summer months, where daily maximums of >42°C are experienced. The annual evaporation in the area is approximately 2 281 mm. Winter temperatures can drop to below 4°C. Frost is rare, but occurs occasionally in most years, though usually not severely.

Weather data was received for the Upington area for the time period 2001 — 2005. **Figure 9**, gives an indication of the average monthly temperatures and humidity over the 5-year period.

Month	Average Temperature (°C)	Maximum Temperature (°C)	Minimum temperature (°C)	Humidity (%)
January	28.22	41.30	14.04	31.42
February	28.37	39.90	15.96	36.00
March	25.76	38.74	11.48	41.84
April	21.24	34.36	6.92	50.39
May	16.80	31.16	1.66	46.22
June	12.62	26.60	-2.78	47.97
July	12.42	27.26	-2.16	41.22
August	14.10	32.00	-2.10	38.96
September	18.64	36.38	2.42	32.95
October	22.95	38.32	6.00	30.07
November	25.45	39.14	10.72	32.27
December	27.41	40.16	14.04	26.65
Average	**21.16**	**35.44**	**6.35**	**38.00**

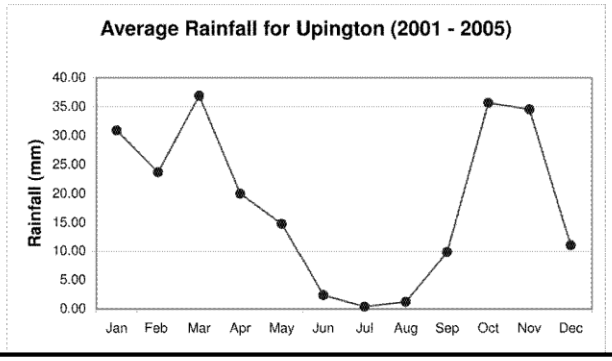


Figure 9: Average monthly rainfall and daily temperatures

3.2 Topography & Geology

The site slopes at a moderate gradient downwards from south to north and is located on a shallowly convex terrain.

The soils that are the weathered products of these rocks are gravelly and well-drained.

3.3 Natural vegetation and plant life

3.3.1 Vegetation types:

The mapped natural vegetation type for the area affected by the activity can broadly be classified as the Least threatened Bushmanland Arid Grassland (NKb3- Light maroon area in **Figure 10**). This vegetation type spans 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 northwest this vegetation unit borders on desert vegetation (northwest 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 mostly from 600–1 200 m. Landscape features associated with this vegetation includes extensive to irregular plains on a slightly sloping plateau sparsely vegetated by grassland dominated by white grasses (Stipagrostis species) giving this vegetation type the character of semidesert 'steppe'. In places low shrubs of Salsola change the vegetation structure. In years of abundant rainfall rich displays of annual herbs can be expected. The conservation target for this vegetation type is 21%. Only small patches are statutorily conserved in Augrabies Falls National Park and Goegab Nature Reserve. Extraordinarily little of the area has been transformed. Erosion is exceptionally low (60%) and low (33%) (Mucina & Rutherford 2006).

The general riparian vegetation directly surrounding the freshwater features, consist of a mix of shrubs and graminoid species, varying from a Largely to moderately modified state.

Figure 10. Portion of the national vegetation map (SANBI, 2012) indicating that the study area.

3.3.2 Critical Biodiversity Area:

From the 2016 Northern Cape Biodiversity Spatial Plan (Figure 11) it is clear that most of the farm including the area affected by the activity is classified as Critical Biodiversity Area 2 (moderate priority), where areas in a natural condition are required to meet biodiversity targets, for species, ecosystems or ecological processes and infrastructure. These areas should be maintained in a natural or near-natural state, with no further loss of natural habitat. Degraded areas should be rehabilitated and only low-impact, biodiversity-sensitive land uses are appropriate.

Figure 11: Critical Biodiversity Area.

3.4 Land use

Most areas in the wider study area do not have a high agricultural potential, except few portions in the alluvial zones close to the Orange River, where irrigation may be practiced. In addition, there are also severe climatic restrictions to agricultural potential. Rainfall is exceptionally low, while evaporation is extremely high, due to the high temperatures. For this reason, even the best soils are unsuited for dryland agriculture under these conditions.

Land use of the surrounding uncultivated areas is predominantly livestock farming, with overgrazing evident in many areas. The grazing capacity of the natural grasslands of the plains can vary between 25 and 35 hectares per large stock unit (equal to 3.5 to 5 hectares per small livestock unit).

3.5 Surface water

3.5.1 Names of watercourses:

The following summary is taken from the Freshwater Assessment Report, included in **Appendix F.3: Fresh Water Ecology Assessment Report**.:

"Several small seasonal tributaries dissect the top section of the property to where in meets to form the Swartdraai-se-leegte river, see **Figure 12**. *The area is located within Quaternary catchment D81A, which is falls within the Orange river WMA. Swartdraai-se-leegte River, in its natural unmodified state, can be classified as an ephemeral river, which at the impacted site, has been modified into a more perennial system due to the artificial release of irrigation water. The river at the impact site was found to be in a Largely Modified (D) state upstream of the new retention dam improving slightly to a Moderately modified state downstream of the retention dam (C/D). The river was also found to have a Low EIS, largely due to its*

ephemeral nature, as well as the existing impacts on site. Impacts caused by the construction of the new retention dam, would have been limited to the following:

Loss of biodiversity:

Due to the existing modified state of the river at this section, where loss of aquatic instream and riparian vegetation has occurred, in a river reach that would not under natural circumstances sustained this, the impact of loss of biodiversity due to the construction and operation of the retention dam would be deemed to be of long-term Low negative nature. From the photographs taken on site, it looks as if large stands of vegetation have already established around the dammed area, even further lowering this impact to a Negligible one. Mitigation measures relating to the loss of biodiversity would include the following:

- *It would be proposed that any disturbed areas remaining unvegetated should be rehabilitated.*
- *A buffer zone of 20m should be kept from the Swartdraai-se-leegte River for all future developments.*

Flow modification:

Both the construction and operational phase of the new retention dam would cause some reduction in flow towards downstream features. Considering that most of the flow within the river can be attributed to the artificial release of irrigation drainage, which had a greater impact, modifying this section of the river from an ephemeral to a more perennial feature, the construction and operation of this dam has in fact had a Low to Medium Positive impact on the downstream section of the river, stopping most of the irrigation flow to pass towards downstream features, and so re-instating its more ephemeral nature. The following mitigation measure would be proposed to limit any other possible impacts due to flow modification.

- *The only other concern would be that the dam impedes the very necessary flood flows when these do occur. The size of the dam should thus be of such nature that it does not impede flood flows, after heavy rainfall.*

Water quality:

As with the flow modification, water quality in this section of the river (prior to construction of the dam) has had immense impact on the vegetation and biodiversity, through nutrification and salination of this area and downstream features with the flow of enriched irrigation drainage water. Since the construction of the dam, with reduced flow towards downstream features (including the Orange River), this impact has been lowered, with the dam thus having a Low Positive impact on downstream freshwater features. What would be of concern is the concentration of salts and minerals within the retention dam, which could be flushed downstream with the event of future flood flows. This could have a short-term Medium Negative impact on both the downstream section as well as the Orange River. The following mitigation measure would be proposed to limit such water quality impacts:

- *Regular monitoring and reporting on water quality within the small dam should be included in the EMPR and care should be taken that all salt levels are within specifications by DEA and DWS.*

- *Should the salt concentration within the dam exceed these specifications, specific procedures for the rectification of this should be provided (and included in the EMPR). Specialist opinion should be sought as input on such rectification actions.*

Conclusion:

Considering the current modified state of the affected section of the Swartdraai-se-leegte River, together with the general positive impact the retention dam has had on the flow modification and water quality impacts on downstream features, the cumulative impact of the retention dam on the larger freshwater system (especially downstream of the site as well as the Orange River) with effective implementation of mitigation measures, would be deemed to be of Low Positive Impact."

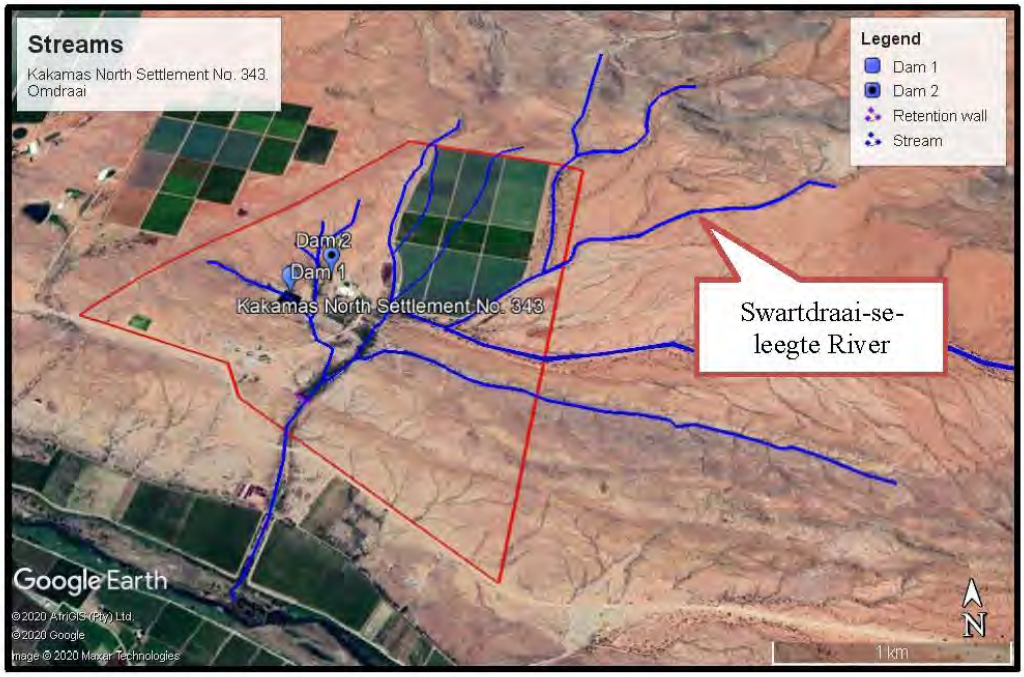


Figure 12: Streams

3.5.2 Surface water use:

No surface water will be used during the operation of this project.

3.5.3 Presence of wetlands:

No wetland areas have been identified.

3.6 Groundwater

No ground water will be used.

3.7 Air quality

No significant impact on the present conditions, which could be classed as good air quality.

3.8 Noise

There will be no significant contribution to noise from any planned activities.

3.9 Sites of archaeological interest

3.9.1 Archaeological Assessment:

The proposed activity will not have an impact of great significance on the archaeological heritage or palaeontology, as these are expected to be limited. Therefore, there are no objections to the authorization of the proposed development. The archaeological and palaeontological analysis for neighbouring properties were used to summarise the conditions at the subject property.

3.9.2 Recommendations:

The following recommendations are made:
1. No mitigation of archaeological resources is required prior to proposed new development activities commencing.
2. No archaeological monitoring is required.
3. Regarding the illegal retention wall established in 2019, (subject of the Section 24G Process), no further archaeological mitigation is required."

3.9.3 Paleontological Assessment:

In view of the negligible palaeontological sensitivity of the ancient Precambrian bedrocks as well as the low sensitivity of the geologically recent superficial sediments along the Orange River in the Augrabies – Kakamas North region, the retention dam- is not considered to pose a significant threat to palaeontological heritage. Substantial, potentially fossiliferous older alluvial deposits of the Orange River are not mapped here.
Pending any significant new fossil discoveries in the area, no further specialist studies or mitigation are considered necessary for this agricultural project.
All South African fossil heritage is protected by the National Heritage Resources Act, 1999. Should substantial fossil remain - 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 in situ. 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. Email: 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.
Please note that:

- 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;

- The paleontologist concerned with potential mitigation work will need a valid fossil collection permit from SAHRA and any material collected would have to be curated in an approved depository (e.g., museum or university collection);
- All paleontological specialist work should conform to international best practice for paleontological fieldwork and the study (e.g., data recording fossil collection and curation, final report) should adhere as far as possible to the minimum standards for Phase 2 paleontological studies developed by SAHRA (2013)."

3.10 Visual aspects

The site is already disturbed by the existing agricultural developments. The retention wall will not be visible from nearby properties and will not have a negative visual impact on the surrounding or have any visual constraints.

3.11 Regional socio-economic structure

CapeSpan Group Empowerment within the company:
The primary goal of Capespan Farms is to provide synergies within Capespan's global fruit procurement and marketing footprint. All the farms are strategically positioned to enhance Capespan Group's service and product offering to all our third-party growers and our retail customers across the globe. At group level, Capespan enhances and adds to its significant third-party grower product basket through its own production in order to ensure a sustainable twelve-month supply of quality fresh produce.
Capespan Farms owns and controls 14 production units (including Novo Packhouse) throughout Southern Africa, producing respectively grapes, citrus, pome and stone fruit. All the farms have industry accredited certifications including Global GAP, HACCP, Nurture (where necessary), Leaf and Field to Fork.

Our employees' wellbeing is imperative for Capespan's continued sustainability and the employment relationship is regulated through comprehensive employment service agreements. Therefore, it's imperative that continuous engagement with our employees is fostered on a range of issues that affect them and we recognise that our employees can have the following expectations: an inspiring climate and safe, healthy and congenial working conditions, a clear understanding of their jobs and related performance standards required, to be rewarded at market-related remuneration, job satisfaction, recognition and opportunities for skills acquisition, career development and empowerment.

3.12 Interested and Affected parties

The WULA was distributed to I&AP's together with the S24G NEMA process. An advertisement was placed in the Gemsbok on 22 January 2021.

4. CONSIDERATIONS AND ASSESSMENT CRITERIA

Management actions in the Development of an Integrated Water Quality Management Strategy for the Upper and Lower Orange Water Management Areas include the following:

4.1 Area 1: Boegoeberg to Kanon Islands

It is the vision of all interested and affected parties within Visioning Area 1:

To contribute towards the integrated management of the surface and groundwater resources in all LOWMA catchments between Douglas and Boegoeberg Dam, to secure sufficient water that is fit for all beneficial uses, specifically including domestic and variable agricultural use, and to support a healthy aquatic ecosystem, particularly for ecological sensitive areas such as the Douglas Conservancy.

4.2 *Area 2: Boegoeberg to Kanon Islands*

It is the vision of all interested and affected parties within Visioning Area 2 (Kakamas/Augrabies/Keimoes falls within this area) to contribute towards securing suitable water supplies of qualities for all LOWMA catchments between Boegoeberg and Kanon Islands, that will sustain:

- a thriving table grape export marked and wine production.
- local agricultural activities via an extensive irrigation canal system.
- a thriving stock farming industry.
- domestic and light industrial water use in all towns, specifically including Upington.
- supplying water to rural communities via both the Kalahari West and Karos- Geelkoppan water supply schemes.

4.3 Area 3: Kanon Islands to Pella

It is the vision of all interested and affected parties within Visioning Area 3 to promote the participatory and integrated management of all water resources pertaining to the LOWMA catchments situated between Kanon Islands and Pella to ensure that water supplies are of an acceptable quality to all water users, to sustain a prominent conservation and ecotourism industry, as well as livestock and private game farming, while allowing room for beneficial water use.

Other legislation and guidelines that have been considered includes the following:

- The Constitution of South Africa Act No.108 Of 1996.
- The National Environmental Management Act, 1998 (Act No. 107 Of 1998).
- The National Heritage Resources Act, 1999 (Act No. 25 Of 1999).
- Conservation of Agricultural Resources Act No 43 Of 1983.
- Subdivision of Agricultural Land Act, 1970 (Act No. 70 Of 1970).
- Urban Structure Plan for the Cape Metropolitan Area, Volume 4: Paarl/Wellington Region.
- National Environmental Management: Biodiversity Act (Act 10 Of 2004).
- Planning Legislation and Guideline.

4.4 The reserve

The Department of Water Affairs and Forestry have recently completed the reserve determination for the Berg River: Directorate of Scientific Services in Pretoria.

From the reserve determination it could now be ascertained by your department as to the availability of water for the allocation of the water usages requested as per the issue of a Licence to the applicant. This application is for the change of use of water within the same WUA jurisdiction, managed by DWS: Upington, will have little effect on the quantity of water available from within the catchment.

Both the construction and operational phase of the new retention dam would cause some reduction in flow towards downstream features. Considering that most of the flow within the river can be attributed to the artificial release of irrigation drainage, which had a greater impact, modifying this section of the river from an ephemeral to a more perennial feature, the construction and operation of this dam has in fact had a Low to Medium Positive impact on the downstream section of the river, stopping most of the irrigation flow to pass towards downstream features, and so re-instating its more ephemeral nature.

As with the flow modification, water quality in this section of the river (prior to construction of the dam) has had immense impact on the vegetation and biodiversity, through nutrification and salination of this area and downstream features with the flow of enriched irrigation drainage water. Since the construction of the dam, with reduced flow towards downstream features (including the Orange River), this impact has been lowered, with the dam thus having a Low Positive impact on downstream freshwater features. What would be of concern is the concentration of salts and minerals within the retention dam, which could be flushed downstream with the event of future flood flows. This could have a short-term Medium Negative impact on both the downstream section as well as the Orange River. The following mitigation measure would be proposed to limit such water quality impacts:

- Regular monitoring and reporting on water quality within the small dam should be included in the EMPR and care should be taken that all salt levels are within specifications by DEA and DWS.
- Should the salt concentration within the dam exceed these specifications, specific procedures for the rectification of this should be provided (and included in the EMPR). Specialist opinion should be sought as input on such rectification actions.

4.5 The class and resource quality objectives of the water resource.

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

4.6 The strategic importance of the water to be authorised.

This water use has no strategic importance.

4.7 The existing lawful water use in the catchment under consideration.

This authorisation will have no impact on any existing lawful water use within the investigation area.

4.8 The likely effect of the water uses to be authorized on the water resource and on other water users in the catchment.

The construction of vineyards across small streams will have little or no effect on the quantity of available water from the water resources within the immediate vicinity.

4.9 The impact on the environment

The development will not have a negative impact on the existing water use within the catchment region. The water can be accommodated, as confirmed in the water Use Licence. The impacts and mitigation measures are summarised in the table below:

Table 6: Impacts table

Water Uses	Potential Impact on	Proposed Mitigation Measures	Review of the adequacy of suggested mitigation measures
Section 21 (a)	Schedule 1 and Industrial Water use	• Measures should be put in place to monitor all water use into the packhouse and outflow of grey water.	Mitigation measures adequate to ensure positive impact takes place.
Section 21 (a)	Transfer of water	• No mitigation necessary as transfer is between the applicants own properties.	No mitigation necessary.
Section 21 (c & i)	<u>Loss of biodiversity:</u> Due to the existing modified state of the river at this section, where loss of aquatic instream and riparian vegetation has occurred, in a river reach that would not under natural circumstances sustained this, the impact of loss of biodiversity due to the construction and operation of the retention dam would be deemed to be of long-term Low negative nature. From	Low positive • It would be proposed that any disturbed areas remaining unvegetated should be rehabilitated. • A buffer zone of 20m should be kept from the Swartdraai-se-leegte River for all	Mitigation measures adequate to ensure positive impact.

	the photographs taken on site, it looks as if large stands of vegetation have already established around the dammed area, even further lowering this impact to a Negligible one. Mitigation measures relating to the loss of biodiversity would include the following:	future developments.	
Section 21 (c & i)	<u>Flow modification:</u> Both the construction and operational phase of the new retention dam would cause some reduction in flow towards downstream features. Considering that most of the flow within the river can be attributed to the artificial release of irrigation drainage, which had a greater impact, modifying this section of the river from an ephemeral to a more perennial feature, the construction and operation of this dam has in fact had a Low to Medium Positive impact on the downstream section of the river, stopping most of the irrigation flow to pass towards downstream features, and so re-instating its more ephemeral nature. The following mitigation measure would be proposed to limit any other possible impacts due to flow modification.	• The only other concern would be that the dam impedes the very necessary flood flows when these do occur. The size of the dam should thus be of such nature that it does not impede flood flows, after heavy rainfall.	Mitigation measures adequate to ensure positive impact.
Section 21 (c & i)	<u>Water quality:</u> As with the flow modification, water quality in this section of the river (prior to construction of the dam) has had immense impact on the	• Regular monitoring and reporting on water quality within the small dam should be included in the	Mitigation measures adequate to ensure positive impact.

	vegetation and biodiversity, through nutrification and salination of this area and downstream features with the flow of enriched irrigation drainage water. Since the construction of the dam, with reduced flow towards downstream features (including the Orange River), this impact has been lowered, with the dam thus having a Low Positive impact on downstream freshwater features. What would be of concern is the concentration of salts and minerals within the retention dam, which could be flushed downstream with the event of future flood flows. This could have a short-term Medium Negative impact on both the downstream section as well as the Orange River.	EMPR and care should be taken that all salt levels are within specifications by DEA and DWS. • Should the salt concentration within the dam exceed these specifications, specific procedures for the rectification of this should be provided (and included in the EMPR). Specialist opinion should be sought as input on such rectification actions.	
Section 21 (b)	Construction of a small dam.	• Regular check-ups on infrastructures to ensure structure is in good condition.	• Mitigation measures adequate to ensure impacts are fully mitigated.

4.10 Assessment of the impacts associated with the water use:

The impacts associated with the development already took place. From a fresh water assessment perspective the current modified state of the affected section of the Swartdraai-se-leegte River, together with the general positive impact the retention dam has had on the flow modification and water quality impacts on downstream features, the cumulative impact of the retention dam on the larger freshwater system (especially downstream of the site as well as the Orange River) with effective implementation of mitigation measures, would be deemed to be of Low Positive Impact. However, mitigation measure taken into account can prevent any further negative impacts, see Table 6 above.

4.11 The need to redress the results of the past racial and gender discrimination.

Valam Boerdery (Pty) Ltd falls under Capespan Group.

4.11.1 History of company:

With headquarters in Antwerp, Belgium, Capespan Continent delivers fresh products and service solutions to continental European customers.
We're a subsidiary of the global Capespan Group, with its headquarters in Cape Town, South Africa. With about 100 employees, our other offices are in Hamburg, Paris, Vienna, and Zurich. Operating with our service providers from state-of-the-art warehousing and logistical facilities at maritime and hinterland terminals across Europe, every step of the operating process is computer controlled. Special refrigerated cold stores have a 50 000-pallet capacity for direct deliveries throughout Europe. Our logistics partners take care of forwarding and customs clearing, plus processing requirements such as netting and bagging of fruit.

4.11.2 Product development:

To exceed expectations from the increasingly diversified European consumers, we continue strengthening our position by developing new commercial varieties and devise innovative ideas on packaging and fresh fruit distribution. Therefore, comprehensive product development programmes involve both producer and international business partners. These programmes are already improving the range of sought-after varieties and exciting new cultivars.

4.11.3 Global Procurement:

New origins are continuously being integrated into Capespan's portfolio. Confident about these important supply sources, we allow our brand names to be used on products that fulfill our quality specifications. The year-round offering includes deciduous, citrus, and exotic fruit from production areas throughout the world.

Capespan Continent is particularly active in a number of developing economies where substantial export growth is predicted in coming years - countries such as China, Peru and India. Meanwhile, we also have an established network of high-quality, like-minded producer partners in traditional supply origins such as Brazil, Chile, New Zealand, South Africa, and Egypt.

During production, Capespan's technical teams work extensively with producer partners. We also work with the technical staff of our major business partners to guarantee consistently top standards at retail level.

4.11.4 Information Technology:

Our advanced systems allow us to access logistical, quality and traceability information of all fruit at any given time. And to service our customers, we have developed applications to support a variety of services: a data warehouse for information on product flow; a logistical

traceability system to certify logistical efficiencies, food safety coverage, cost control and efficient selling; and a personalized extranet portal for our suppliers and customers.

4.11.5 CapeSpan Group Empowerment within the company:

The primary goal of Capespan Farms is to provide synergies within Capespan's global fruit procurement and marketing footprint. All the farms are strategically positioned to enhance Capespan Group's service and product offering to all our third-party growers and our retail customers across the globe. At group level, Capespan enhances and adds to its significant third-party grower product basket through its own production to ensure a sustainable twelve-month supply of quality fresh produce.
Capespan Farms owns and controls 14 production units (including Novo Packhouse) throughout Southern Africa, producing respectively grapes, citrus, pomelo and stone fruit. All the farms have industry accredited certifications including Global GAP, HACCP, Nurture (where necessary), Leaf and Field to Fork.

Our employees' wellbeing is imperative for Capespan's continued sustainability and the employment relationship is regulated through comprehensive employment service agreements. Therefore, it's imperative that continuous engagement with our employees is fostered on a range of issues that affect them and we recognise that our employees can have the following expectations: an inspiring climate and safe, healthy and congenial working conditions, a clear understanding of their jobs and related performance standards required, to be rewarded at market-related remuneration, job satisfaction, recognition and opportunities for skills acquisition, career development and empowerment.

Capespan manages these expectations through the Capespan Group's Code of Business Conduct and Ethics, the board-approved Employment Equity Policy and broad-based black economic empowerment (B-BBEE) targets. We conduct regular organisational culture surveys and compliance with relevant employment legislation and B-BBEE codes in the regions in which we operate.

Employee engagement also takes place through electronic newsletters, employee publications, intranet, employee feedback forums, performance management systems and climate surveys.

The Capespan Foundation is funded by the Capespan group to drive its corporate social investment (CSI) mandate - to add value to the lives of communities in which Capespan operates - by implementing various Blue Hand social, health and educational development programmes. The Foundation raises additional funding for projects, where possible, through joint ventures, staff volunteering and strategic leveraging of funding and projects.
The Blue Hand project goals include, but are not limited to:

- developing/empowering communities in which the company operates for sustainable growth of company business.
- making a positive, sustainable impact on communities through improving quality of life.

- building and improving relationships with existing/potential stakeholders by forming mutually beneficial partnerships.
- maintaining the company's image and CSI reputation - strategic positioning as a leading contributor to social development in the industry.
- enhancing loyalty and pride and attracting quality socially responsible staff.
- improving the company's brand identity in the communities.
- increasing visibility of customer goodwill towards communities.

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.

Table 7: New employment opportunities

No. of persons for employment	No. of persons for accredited training
Semi-skilled: 16 (Specialist workers) Unskilled: 200 (Seasonal workers)	Semi-skilled: 16 Unskilled: 200
Men: 120 (±55%) Women: 98 (±45%)	Men: 120 Women: 98
Youth: 109 (±50% under 30 years) Adult: 109 (±50% older than 30 years)	Youth: 109 Adult: 109

4.12 Efficient and beneficial use of the water in public interest.

The new water use will have the following benefits:
Enough water will directly secure existing and new job opportunities.

- The change in water use is to legalise the water use for Schedule 1 and Industrial use will ensure job security.
- The continuation in production of export produce will continue to bring in more foreign capital to South Africa which is much needed to strengthen our economy and as such fully supported by Government.

4.13 Socio economic impact of water use to be authorized.

In a rural area such as this with a high unemployment rate, any new employment positions have a huge impact on the immediate and extended families of such new workers. Add then also the impact of more people with proper housing, undergoing skills training and going to church, sport, etc. and children going to school, to understand the positive impact on this rural community. Even seasonal work opportunities have the advantage of extra income plus the opportunity to gain skills that can in future be used to gain permanent employment on the farm or elsewhere.
Not only are the new employment opportunities important, but this development will ensure that:

- Existing jobs can be secured: Enough water will directly secure existing and new job opportunities.

- The continuation in production of export produce will continue to bring in more foreign capital to South Africa which is much needed to strengthen our economy and as such fully supported by Government. See Appendix H for the Section 27 Report.

4.14 Investment already made and to be made by the water user in respect of the water use in question.

The following investments have been made:

- Currently Kakamas North Settlement No. 343, is owned by Valam Boerdery (Pty) Ltd.
- All investments made already for the construction of the existing development areas as this is part of an existing farming unit with existing infrastructure on Kakamas North Settlement No. 343.
- Investments related to the construction of the existing dam.

The future investments to be made:

- New investments to be made for the water use applications.

4.15 The period for which the Licence is to be issued.

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

4.16 Failure to authorise the water use.

Failure to authorise the water use will result in the following:

- Financial loss due to existing investments already made, for construction of dams, existing infrastructure for water distribution and existing water use rights lost,
- The design and processes implemented to obtain authorisation also has a high financial implication that will be lost.
- Loss in current and future employment opportunities and skills development and training opportunities.

5. CONCLUSION

The authorisation of the retention structure within the streams and the legalisation of the existing dam on the farm and the transfer of the additional water to this property, thereby complying with the necessary legislation will have numerous positive socio-economic impacts not only on the farm but also the region and result in job security, job creations, skills development, social upliftment and earning of foreign currency.

6. CONDITIONS

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

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

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

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

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

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

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

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

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

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

7. RECOMMENDATION

The following recommendations should be adhered to:

- Any further recommendations outlined in the Environmental Authorisation and the Water Use Licence issued.
- When instructed to do so by the Responsible Authority the user must fit a self- registering meter at the user's expense to measure water use and the user at his expense must maintain the meter in satisfactory working condition.
- Officers from the Department of Water Affairs will always have free access to the property and the water works for supervision and control purposes.
- The Department's or Responsible Authority's local representative will issue the necessary instructions to the user about the keeping of proper registers of water use and quality, and the owner must always comply with such instructions.
- The Department accepts no liability for any damage, loss, or inconvenience, of whatever nature, suffered as a result of shortage of water; inundation or flood; siltation of the river or dam basin; and/or the shifting of water work in the event of a rise or drop in the water level of river or dam.

- The quality or suitability of the water for any purpose is not guaranteed.
- The water abstracted/used in terms of this Licence may only be used for the authorized purposes.
- This Licence is not a permanent, lawful right and is not transferable from one user to another or from one property to another.
- The user must take every possible precaution to the satisfaction of the Department, to prevent pollution of water resources.
- The Department of Water Affairs reserves the right to withdraw this Licence in the event of failure to comply with any of the said conditions or provisions.
- The applicant has a period of 2 (two) years within which to commence/implement this water use, failing which, the Licence will lapse.

It is recommended that the retention dam across small ephemeral stream on Kakamas North Settlement No. 343 and the legalisation of the existing dam be approved. It also recommended that the allocation of water for Schedule 1 and Industrial use be authorised. It is also recommended for the transfer of 12.77ha from Kakamas North Settlement No. 343 to Kakamas North Settlement No. 341.

8. APPENDICES

APPENDIX A: Completed Licence Application Forms.

Appendix B: Existing Water Use Confirmation and Water Use Licence.

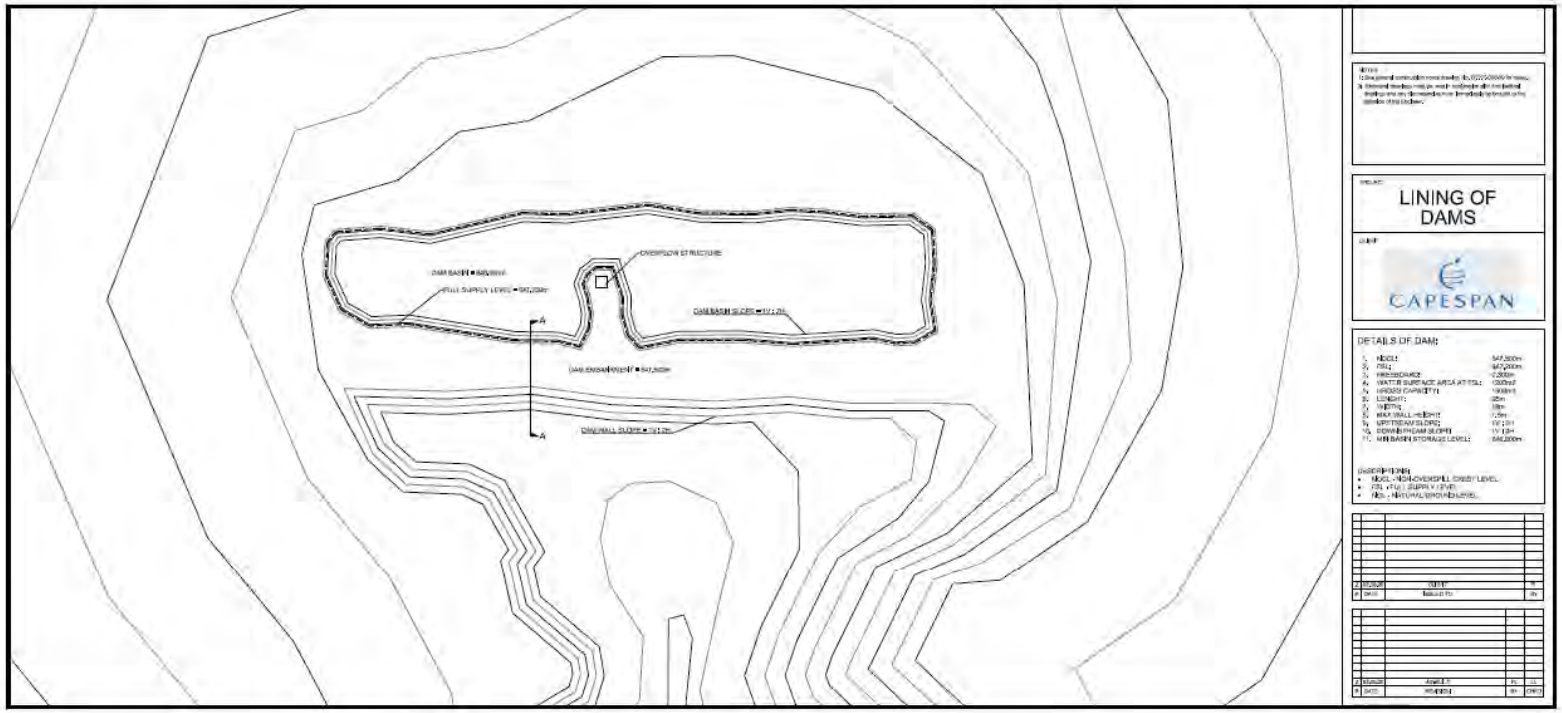
APPENDIX C: Deed Search and Title Deeds.

APPENDIX D: Power of Attorney.

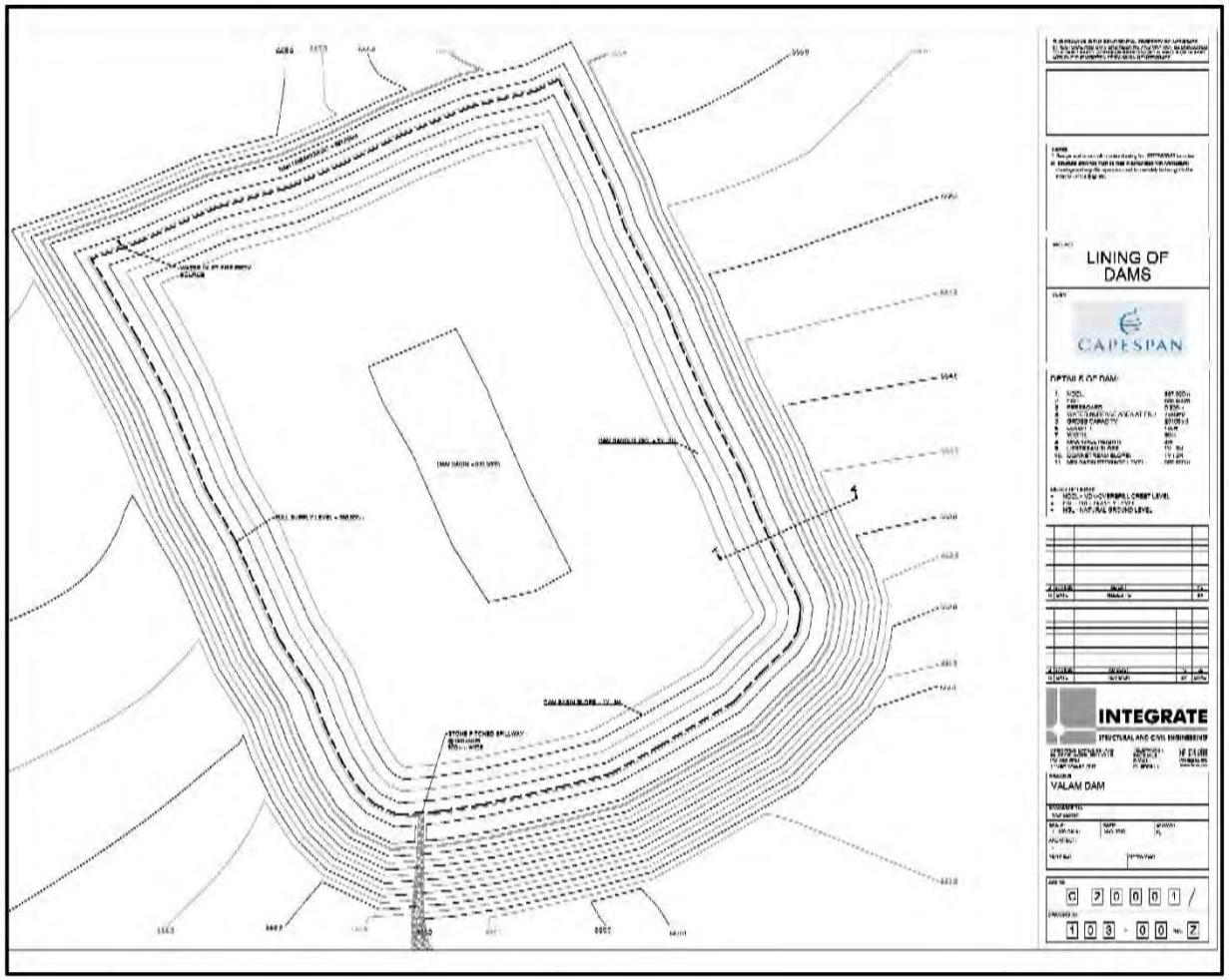
APPENDIX E1: Proposed Locality and Development layout.

Development Layout Plan for the retention dam.

Development Layout for the dam


OVERFLOW STRUCTURE
DAM BASIN
FULL SUPPLY LEVEL
DAM BASIN SLOPE
DAM EMBANKMENT
DAM WALL SLOPE
A
A
LINING OF DAMS
CAPESPAN
DETAILS OF DAM:

Dam Design



APPENDIX F: Technical Documents
Appendix F.1: S24G Assessment Report.

A S24G process is underway, and this report will be advertised as part of the public participation for the draft Assessment Report.

Appendix F.2: Environmental Authorisation.

Appendix F.3: Fresh Water Ecology Assessment Report.

APPENDIX G: Proof of Public Participation.

Will be sent once finalised.

APPENDIX H: Section 27 Report.

APPENDIX I: Certified copy of ID.

APPENDIX J: Company Registration certificates.

APPENDIX K: Copy of Receipt.

APPENDIX L: Section 21 c and i list of drainage lines coordinates and Risk Matrix.

APPENDIX M: Land claim letter.

APPENDIX N: Plough Certificate

APPENDIX H4: FRESH WATER ASSESSMENT REPORT

FRESHWATER ASSESSMENT FOR THE ALLEGED UNLAWFUL ACTIVITIES ON FARM KAKAMAS NORTH SETTLEMENT NO. 343, NORTHERN CAPE

DECEMBER 2020

Compiled by: Ms. Jeanne Snyman (M.Sc. Env Water Sciences, Pr. Sci. Nat)

EXECUTIVE SUMMERY

The applicant, Capespan Farms (Pty) Ltd has, through the construction of a small instream dam, entered into a listed activity. Everwater Freshwater Consulting has been commissioned as part of the 24 G Process, to determine the impact of above activity. The aim of this report is to describe the previous and present ecological state of the freshwater features surrounding the proposed development site as well as impacts that the development might have had on the surrounding freshwater ecosystem.

The study area lies approximately 38 km north west of Kakamas and can be reached via a gravel road that runs parallel to the Orange River. The farm, Kakamas North Settlement No. 343 is located just north of Augrabies in the Northern Cape Province. Several small seasonal tributaries dissect the top section of the property to where in meets to form the Swartdraai-se-leegte river. The area is located within Quaternary catchment D81A, which is falls within the Orange river WMA.

Swartdraai-se-leegte River, in its natural unmodified state, can be classified as an ephemeral river, which at the impacted site, has been modified into a more perennial system due to the artificial release of irrigation water. The river at the impact site was found to be in a Largely Modified (D) state upstream of the new detention dam improving slightly to a Moderately modified state downstream of the detention dam (C/D). The river was also found to have a Low EIS, largely due to its ephemeral nature, as well as the existing impacts on site. Impacts caused by the construction of the new retention dam, would have been limited to the following:

Loss of biodiversity:

Due to the existing modified state of the river at this section, where loss of aquatic instream and riparian vegetation has occurred, in a river reach that would not under natural circumstances sustained this, the impact of loss of biodiversity due to the construction and operation of the detention dam would be deemed to be of long-term Low negative nature. From the photographs taken on site, it looks as if large stands of vegetation have already established around the dammed area, even further lowering this impact to a Negligible one. Mitigation measures relating to the loss of biodiversity would include the following:

- It would be proposed that any disturbed areas still remaining unvegetated should be rehabilitated;
- A buffer zone of 20m should be kept from the Swartdraai-se-leegte River for all future developments.

Flow modification:

Both the construction and operational phase of the new detention dam would cause some reduction in flow towards downstream features. Considering that most of the flow within the river can be attributed

to the artificial release of irrigation drainage, which had a greater impact, modifying this section of the river from a ephemeral to a more perennial feature, the construction and operation of this dam has in fact had a Low to Medium Positive impact on the downstream section of the river, stopping most of the irrigation flow to pass towards downstream features, and so re-instating its more ephemeral nature. The following mitigation measure would be proposed to limit any other possible impacts due to flow modification.

- The only other concern would be that the dam impedes the very necessary flood flows when these do occur. The size of the dam should thus be of such nature that it does not impede flood flows, after heavy rainfall.

Water quality:

As with the flow modification, water quality in this section of the river (prior to construction of the dam) has had immense impact on the vegetation and biodiversity, through nutrification and salination of this area and downstream features with the flow of enriched irrigation drainage water. It is clear that since the construction of the dam, with reduced flow towards downstream features (including the Orange River), this impact has been lowered, with the dam thus having a Low Positive impact on downstream freshwater features. What would be of concern is the concentration of salts and minerals within the detention dam, which could be flushed downstream with the event of future flood flows. This could have a short-term Medium Negative impact on both the downstream section as well as the Orange River. The following mitigation measure would be proposed to limit such water quality impacts:

- Regular monitoring and reporting on water quality within the small dam should be included in the EMPR and care should be taken that all salt levels are within specifications by DEA and DWS;
- Should the salt concentration within the dam exceed these specifications, specific procedures for the rectification of this should be provided (and included in the EMPR). Specialist opinion should be sought as input on such rectification actions.

CONCLUSION

Considering the current modified state of the affected section of the Swartdraai-se-leegte River, together with the general positive impact the detention dam has had on the flow modification and water quality impacts on downstream features, the cumulative impact of the detention dam on the larger freshwater system (especially downstream of the site as well as the Orange River) with effective implementation of mitigation measures, would be deemed to be of Low Positive Impact. As the dam would be considered an in-stream dam, triggering aspects contained under Section 21 (c) and (i) water uses, it should be included in a Water Use License Application (WULA).

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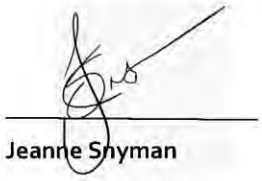
DECLARATION OF INDEPENDENCE

I, **Jeanne Snyman,** declare that -

- I am subcontracted as specialist consultant by Capespan Farms (Pty) Ltd, for input in the 24G process for alleged unlawful activities on the property, Kakamas North Settlement No. 343;
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favorable to the applicant;
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting the specialist report relevant to this application, including knowledge of the National Environmental Management Act, 1998 (Act No. 107 of 1998), regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, regulations and all other applicable legislation;
- I will take into account, to the extent possible, the matters listed in Regulation 8;
- I have no, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- All the particulars furnished by me in this form are true and correct; and
- I realise that a false declaration is an offence in terms of Regulation 71 and is punishable in terms of section 24F of the Act.



Jeanne Snyman

SACNASP Reg. No: 400091/17

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Glossary of Terms

Alluvial Material / deposits Sedimentary deposits resulting from the action of rivers, including those deposited within river channels, floodplains, etc.

Baseflow The component of river flow that is sustained from groundwater sources rather than from surface water runoff

Facultative Occurring optionally in response to circumstances rather than by nature; applied to wetland plants in this context – a facultative species is a species usually found in wetlands, but occasionally found in non-wetland areas

Herb A small non-woody plant in which the aerial parts die back at the end of every growing season

Herbaceous A plant having little or no woody tissue and persisting usually for a single growing season

Hydrology The scientific study of the distribution and properties of water on the earth's surface

Hydrogeomorphological zone An area defined by the interaction and linkage of hydrologic processes with landforms or earth materials and the interaction of geomorphic processes with surface and subsurface water in temporal and spatial dimensions

Hydrophyte A plant that grows in water or in conditions that are at least periodically deficient in oxygen as a result of saturation by water – these are typically wetland plants

Macrophyte An aquatic plant that grows in or near water. Macrophytic plants can be emergent, submerged, or floating

Marginal Plants and habitat on the edge of waterbodies

Obligate Hydrophyte A plant species that almost always occurs in wetlands (>99% of the time)

Pediment(ation) A gentle slope, cut into bedrock, occurring below a much steeper slope, extending at a flatter gradient down to a valley bottom.

Reach/ section A portion / stretch of a river

Riparian Zone The physical structure and associated vegetation of the areas associated with a watercourse which are commonly characterised by alluvial soils, and which are inundated or flooded to an extent and with a frequency sufficient to support vegetation of species with a composition and physical structure distinct from those of adjacent land areas

Abbreviations

CBA –Critical biodiversity areas

DSP – Decision Support Protocol

DWAF - Department of Water and Forestry

EIS – Ecological Importance and Sensitivity

ELU – Existing Lawful Use

ESA – Ecological Support Areas

HGM (zone) – Hydrogeomorphological zone

NAEHMP – National Aquatic Ecosystem Health Monitoring Programme

NEMA – National Environmental Management Act

NFEPA – National Freshwater Ecosystem Priority Area

NWA – National Water Act

PES – Present Ecological State

REC – Recommended Ecological Class

RHP – River Health Programme

WCBSP – Western Cape Biodiversity Spatial Plan

WMA – Water Management Area

Introduction

The applicant, Capespan Farms (Pty) Ltd has, through the construction a small instream dam, entered into a listed activity. Everwater Freshwater Consulting has been commissioned as part of the 24 G Process, to determine the impact of above activity. The aim of this report is to describe the previous and present ecological state of the freshwater features surrounding the proposed development site as well as impacts that the development might have had on the surrounding freshwater ecosystem.

Assumptions and limitations

Limitations and uncertainties often exist within the various techniques adopted to assess the condition of ecosystems. The following limitations apply to the techniques and methodology utilized to undertake this study:

- This freshwater assessment was conducted on Desktop level, with extensive information and photographs provided by GroenbergEnviro (Pty) Ltd;
- Analysis of the freshwater ecosystems was undertaken at a rapid level and did not involve detailed habitat and biota assessments (Ecosystem level III);
- The River Habitat Integrity and EIS assessment was carried out using South African Department of Water and Sanitation developed methodologies. These assessments were carried out to provide information on the ecological condition and ecological importance and sensitivity of the river systems impacted.
- Even though every care was taken to ensure the accuracy of this report, environmental assessment studies are limited in scope, time, and budget. Discussions and proposed mitigations are to some extent made on reasonable and informed assumptions built on *bona fide* information sources, as well as deductive reasoning. No biomonitoring or physical chemical aspects of the water found on the study was done.

Background

Site location and regional description

The study area lies approximately 38 km north west of Kakamas and can be reached via a gravel road that runs parallel to the Orange River. The farm, Kakamas North Settlement No. 343 is located just north of Augrabies in the Northern Cape Province. Several small seasonal tributaries dissect the top section of the property to where in meets to form the Swartdraai-se-leegte river. The area is located within Quaternary catchment D81A, which is falls within the Orange river WMA.

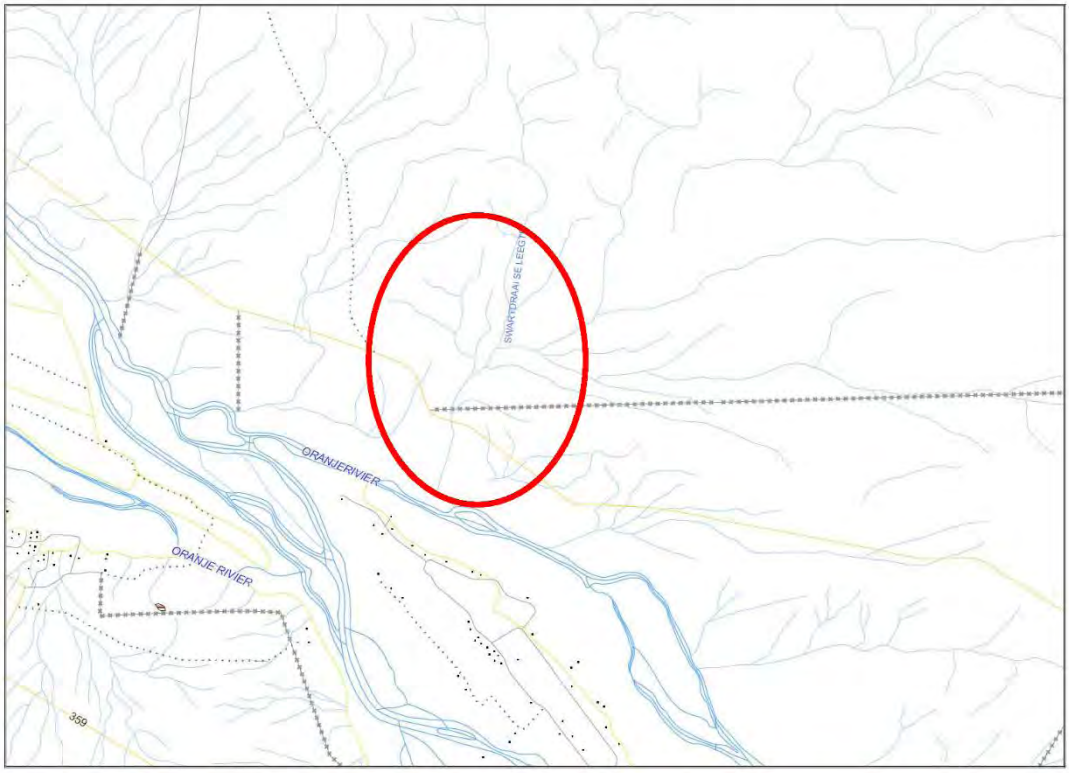

Figure 1: 1:50 000 Topographical map of the area with the location of the proposed development

Project Activities

In response to concerns raised by the neighbor regarding salination of his vineyards located downstream from the applicant's agricultural development, the applicant has constructed a small instream retention dam in order to minimize flow towards the downstream property. Details of the dam is as below:

NOCL	647.55
FSL	647.200
Surface area at FSL	1200m²
Gross capacity	1500m³
Length	95m
Width	18m
Max Wall Height	1.5m

Figure 2: Larger freshwater features surrounding the small retention dam.

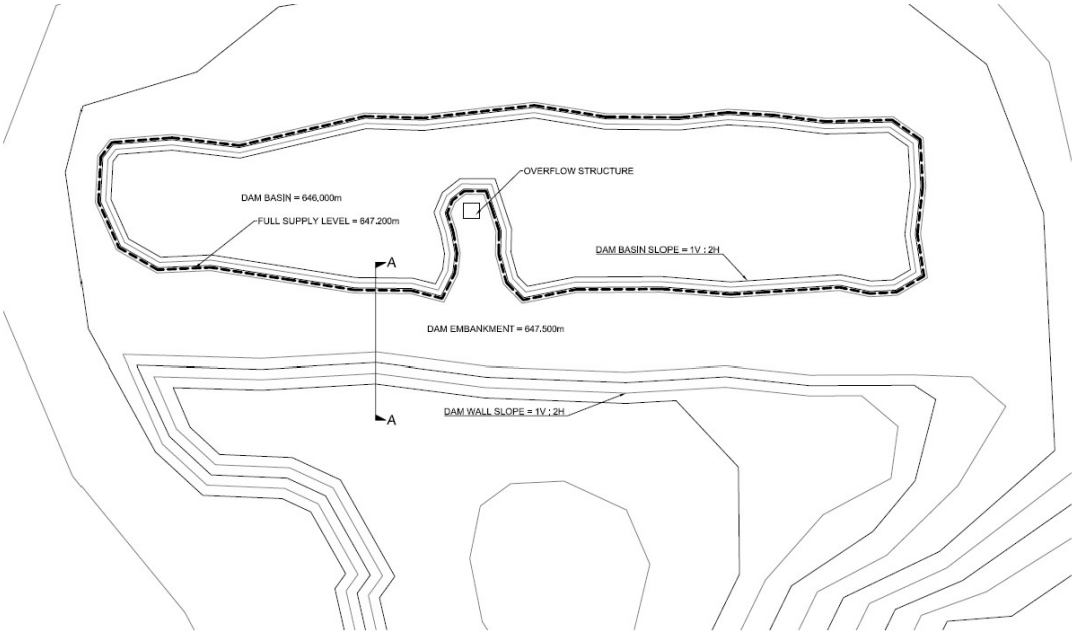

Figure 3: Layout of the retention dam.

Historical and current land use

Land cover in the greater area consists primarily of natural land consisting either of bare or low shrubland, with dense thicket found along the stream channels. The area is largely utilised for agricultural use such as livestock farming and vineyards. The closest urban development (by road) is Kakamas, lying approximately 20km south east of the farm. From the national land cover map (Figure 4) the areas affected by the new retention dam is classified as a thicket/Dense Bush.

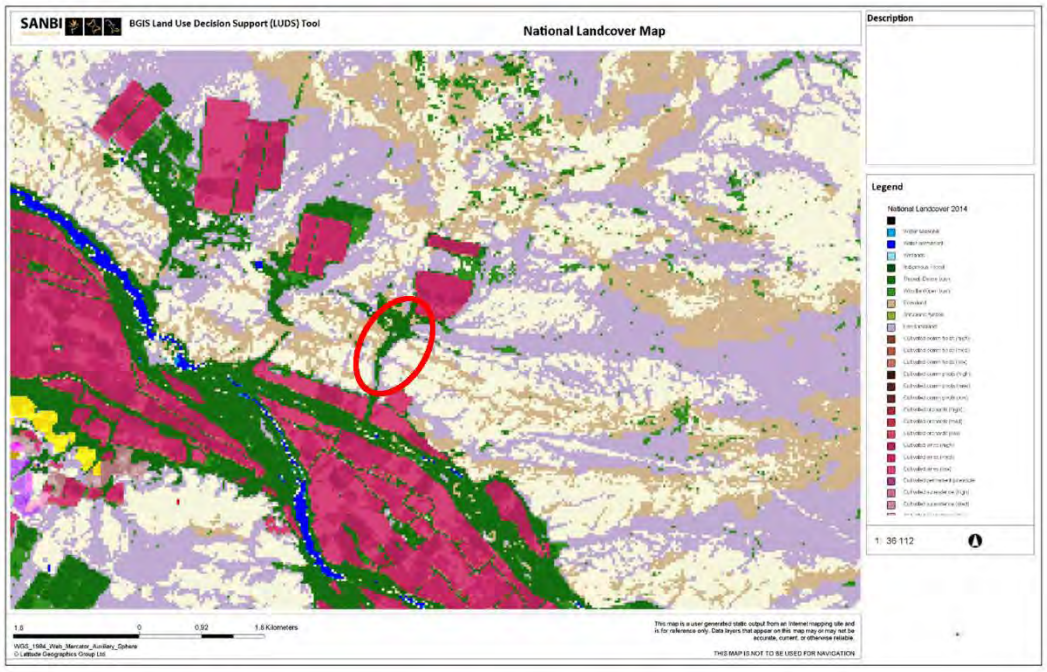

Figure 4: National land cover map (2014) for the area (SANBI GIS, 2020)

Google Earth's Timeline function was used as reference imagery (accessed December 2020) for historical land use as well as identification of any wet areas. Google Earth imagery from October 2004 is the earliest available footage covering the farm and was used together with a comparison from October 2012 and February 2019 (Figure 4) as well as historical aerial footage from 1980 to look at historical land use and whether the site was extensively altered in the past or to detect large changes in the land use of the catchment. The maps are also used to identify areas where possible aquatic ecosystems occur or might have occurred. When looking at these images, the land use around the site has for many years remained the same (mostly natural), with some vineyards visible in 2003 and further development thereof taking place in 2012 and 2016. Regarding the affected section of the Swartdraai-se-leegte river, one can see that prior to the flow modification caused by high intensity upstream irrigation (in the 1980 and 2003 footage), the river acted as ephemeral water course, draining large amounts of water after periods of heavy rainfall from the higher lying areas in a large catchment located to the north-east. The river remained dry for the largest part of the year, with a generally well defined terrestrial riparian zone, but little to none, aquatic vegetation. From 2012, the section of the river located downstream of the agricultural development, clearly becomes modified into a more perennial feature, being wet for most of the year, and clearly sustaining aquatic vegetation.

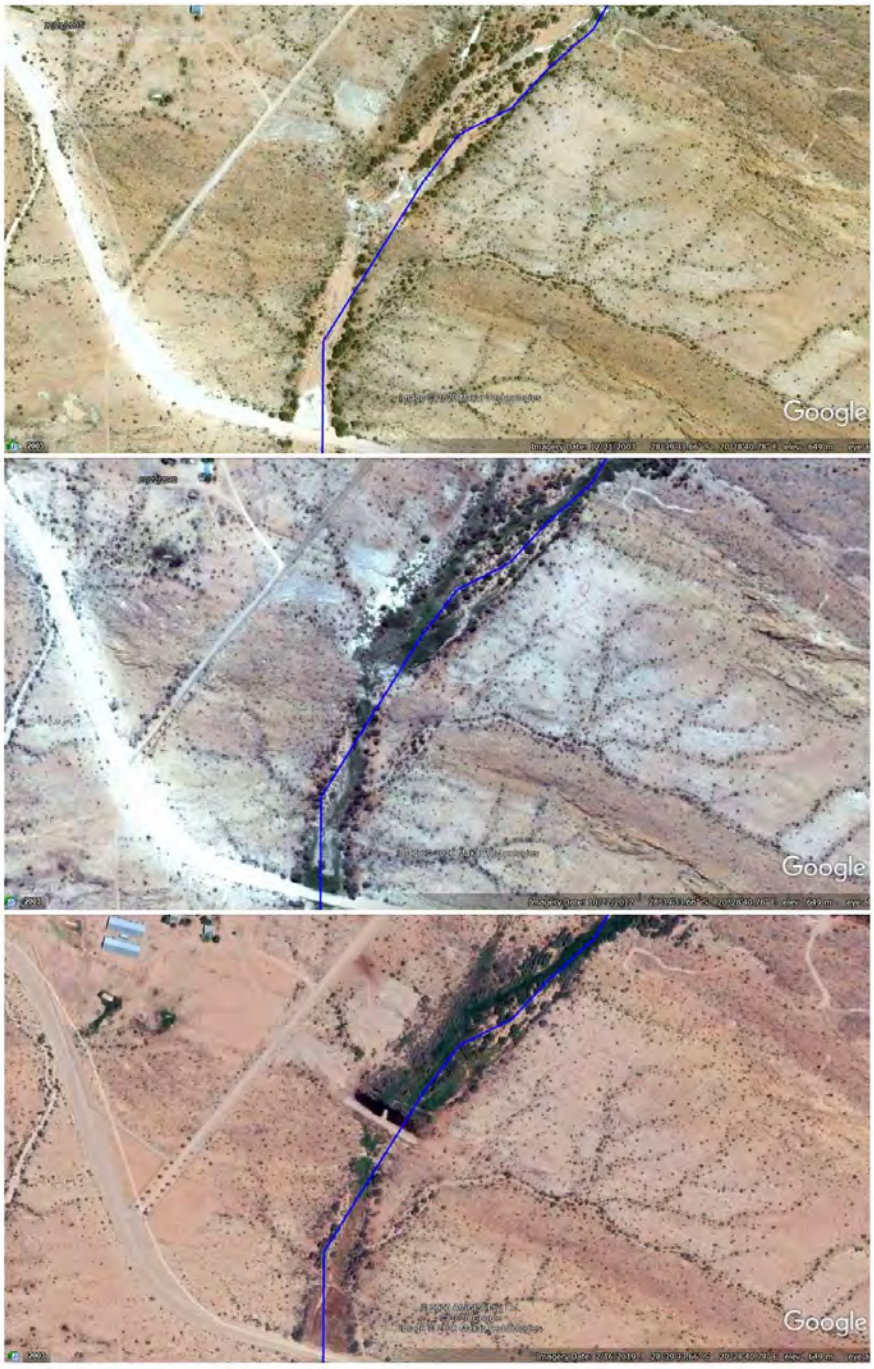

Figure 4: Google Earth imagery from 2003 (top), 2012 (middle) and 2019 (below).

Climatic conditions of the site

Augrabies is situated in a semi-arid region, which implies low annual rainfall and extreme variations of temperatures. In the peak summer months (January / February) the average daytime temperature is 41°C, but highs of 46°C have been recorded. During these months the high temperatures are further aggravated by the many rocks where temperatures can reach up to 70°C during the day. Summer nights are usually more pleasant, but temperatures will remain high at around 25°C. During winter months the average daytime temperature often hovers around 20°C but lower temperatures are a possibility. Winter nights average around 0°C although the temperature drops to -5° occasionally. Autumn and spring are characterized by pleasant, moderate temperatures. The average annual rainfall in the area is 124mm, with most rains occurring between November and April. Summer rain usually falls in short, heavy bursts, accompanied by spectacular thunderstorms and strong winds. Winter rains are gentle and last 1-3 days.

Figure 5: Climate graphs for the Augrabies area (World weather online, 2020)

Vegetation and Fauna

The mapped natural vegetation type for the area affected by the activity can broadly be classified as the Least threatened Bushmanland Arid Grassland (NKb3- Light maroon area in Figure 6). This vegetation type spans 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 northwest this vegetation unit borders on desert vegetation (northwest 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 mostly from 600–1 200 m. Landscape features associated with this vegetation includes extensive to irregular plains on a slightly sloping plateau sparsely vegetated by grassland dominated by white grasses

(*Stipagrostis species*) giving this vegetation type the character of semidesert 'steppe'. In places low shrubs of *Salsola* change the vegetation structure. In years of abundant rainfall rich displays of annual herbs can be expected. The conservation target for this vegetation type is 21%. Only small patches are statutorily conserved in Augrabies Falls National Park and Goegab Nature Reserve. Very little of the area has been transformed. Erosion is very low (60%) and low (33%) (Mucina & Rutherford 2006).

The vegetation description was done from photo's provided by the client, and would have to be confirmed on site if the need arise. There are however no threatened plant species listed within this vegetation type, and thus, the risk of loss of such species in this area is very low. From photographic images taken on site, it appears as if the general riparian vegetation directly surrounding the freshwater features, consist of a mix of shrubs and graminoid species, varying from a Largely to moderately modified state. A species list of vegetation found on site would be done purely on speculation and would for that reason be left out. Vegetation generally found within the area includes the following:

Graminoids: Aristida adscensionis, A. congesta, Enneapogon desvauxii, Eragrostis nindensis, Schmidtia kalahariensis, Stipagrostis ciliata, S. obtusa, Cenchrus ciliaris, Enneapogon scaber, Sporobolus nervosus, S. uniplumis, Tragus berte¬ronianus,

Small Trees: Boscia foetida subsp. foetida.

Tall Shrubs: Lycium cinereum, Rhigozum trichotomum, Cadaba aphylla, Parkinsonia africana.

Low Shrubs: Aptosimum spinescens, Hermannia spinosa, Pentzia spinescens, Aptosimum elongatum, Barleria rigida, Berkheya annectens, Blepharis mitrata, Eriocephalus ambiguus, E. spinescens, Limeum aethiopicum, Lophiocarpus poly¬stachyus, Monechma incanum, M. spartioides, Pentzia pinnatisecta, Polygala seminuda, Pteronia leucoclada, P. mucronata, P. sordida, Rosenia humilis, Senecio niveus, Sericocoma avolans, Solanum capense, Tetragonia arbuscula, Zygophyllum microphyllum.

Succulent Shrubs: Kleinia longiflora, Lycium bosciifolium, Salsola tuberculata, S. glabrescens.

Herbs: Acanthopsis hoffmannseggiana, Aizoon canariense, Amaranthus praetermissus, Chamaesyce inaequilatera, Dicoma capensis, Indigastrum argyraeum, Lotononis platycarpa, Sesamum capense, Tribulus pterophorus, T. terrestris, Vahlia capensis.

Succulent Herbs: Psilocaulon coriarium, Trianthema parvifolia.

Geophytic Herb: Moraea venenata.

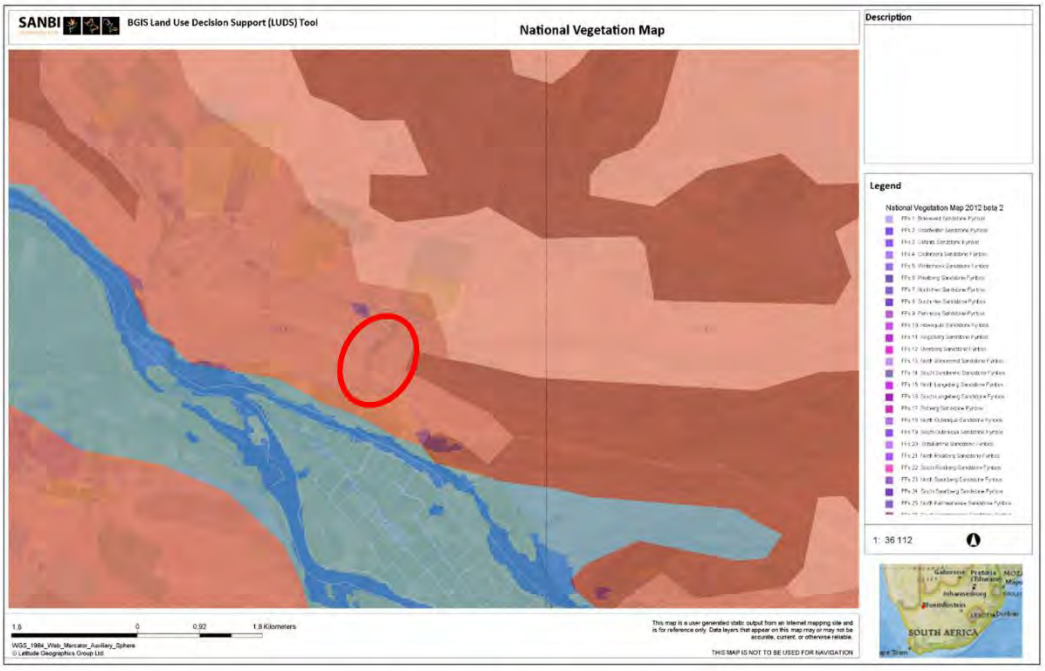

Figure 6: National vegetation map for the area (SANBI GIS, 2018)

Figure 7: Typical vegetation up(left) and downstream(right) of the retention dam.

Conservation Value

The 2016 Northern Cape Biodiversity Spatial Plan Map and the National Freshwater Ecosystem Priority Areas Map provides information regarding the conservation value and ecological importance of the freshwater features studied.

2016 Northern Cape Biodiversity Spatial Plan (WCBSP)

From the 2016 Northern Cape Biodiversity Spatial Plan (Figure 8) it is clear that most of the farm including the area affected by the activity is classified as Critical Biodiversity Area 2 (moderate priority), where areas in a natural condition are required to meet biodiversity targets, for species, ecosystems or ecological processes and infrastructure. These areas should be maintained in a natural or near-natural state, with no further loss of natural habitat. Degraded areas should be rehabilitated and only low-impact, biodiversity-sensitive land uses are appropriate.

Figure 8: The 2016 Northern Cape Biodiversity Spatial Plan (SANBI GIS, 2020)

NFEPA map

FEPAs are strategic spatial priorities for conserving freshwater ecosystems and supporting sustainable use of water resources. From the NFEPA map (Figure 9), the larger catchment in which the Swartdraai-se-leegte River and its tributaries fall, does not lie within a FEPA and are also not marked as FEPA wetlands. The section of the Orange River, at the confluence with the Swartdraai-se-leegte river, is marked as Nama Karoo Bushmanland_Floodplain wetland (FEPA rank 5). River FEPAs achieve biodiversity targets for river ecosystems and threatened/near-threatened fish species and were identified in rivers that are currently in a good condition. Their FEPA status indicates that they should

remain in a good condition in order to contribute to national biodiversity goals and support sustainable use of water resources.

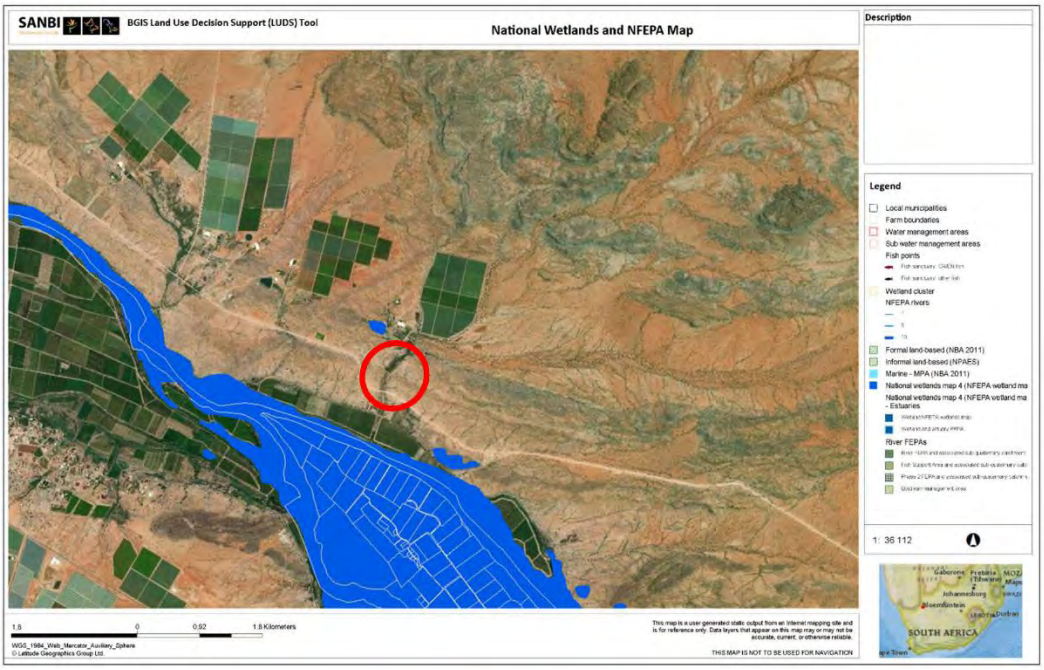

Figure 9: NFEPA map for the area (SANBI GIS, 2020)

Aquatic assessment

Classification of Aquatic Systems and Present Ecological State Calculation

The ecosystem and vegetation of the study area was assessed in its present, as well as its likely pre-expanded and historical composition, based on extensive information and photographs provided by the client, as well as a desktop study. Impacted freshwater features on site include the Swartdraai-se-leegte River, originating from the hills to the north and north-east, transecting the property while flowing in a south-westerly, and then south direction before meeting the Orange River.

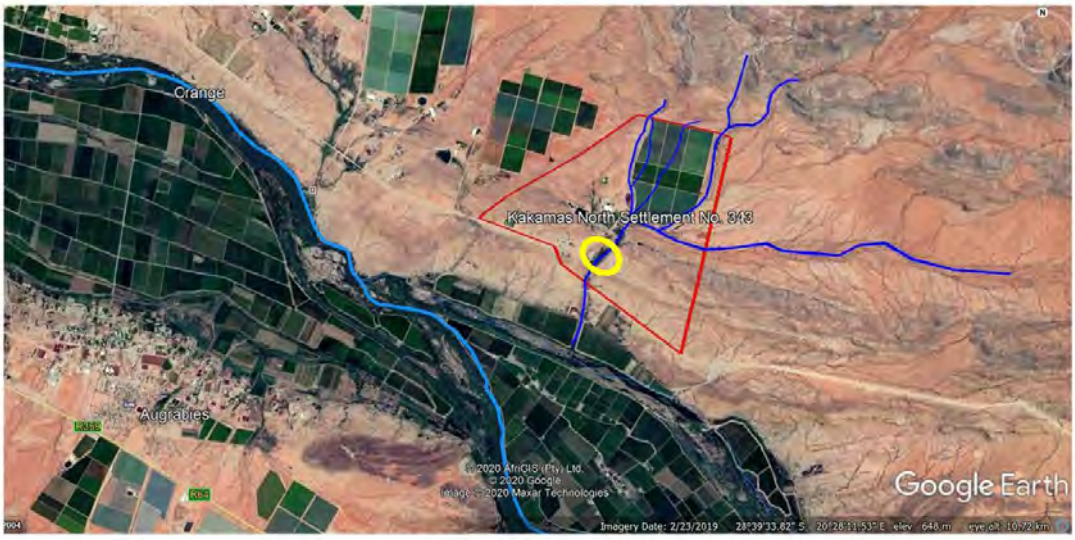

Figure 10: A satellite image of the larger freshwater features surrounding the property (red polygon) with the impacted area (in yellow circle).

Figure 11: A satellite image showing the Swartdraai-se-leegte River with the existing detention dam.

Swartdraai-se-leegte River, in its natural unmodified state, can be classified as an ephemeral river consisting of a braided system with well-defined river channels, clearly carrying large amounts of water after heavy rainfall in the larger catchment. According to the client, the river flows approximately 1-2 times a decade, for no longer than 3-4 hours. The river originates from several small drainage lines, draining a large catchment to the north-east, and is still in a near natural state in its upper reaches, degrading to a more modified state downstream of the vineyards. The largest existing impacts on this section of the river, is through flow modification caused by the artificial input of irrigation flow, causing a once ephemeral system to act as a perineal stream with wide valley-bottom wetland. Further downstream, towards the confluence with the Orange River, the river undergoes further degradation through farming activities encroaching on the riparian zone.

Figure 12: Swartdraai-se-leegte River at the detention pond.

With the Swartdraai-se-leegte River in essence being an ephemeral river system, with modified artificial attributes, it will be assessed as such. In order to get a good representation of the present ecological state of the affected streams, a formal River Habitat Integrity (PES), EIS (Ecostatus level III) and REC assessment were conducted.

Geomorphological and Physical description

TABLE 1. GEOMORPHOLOGICAL AND PHYSICAL FEATURES OF THE MIDDEL RIVER

	Swartdraai-se-leegte River
Geomorphological Zone	Lowland Sand Bed
Valley form	Pediment
Lateral mobility	Moderately confined: channel course determined by macro-scale features, but some lateral migration is possible.

Hydrological type	Ephemeral
River Size	>20m
Ecoregion	NAMA KAROO
DWA catchment	D81A
Vegetation type	Bushmanland Arid Grassland
Rainfall region	Arid

Ecological Assessment

Habitat integrity (PES)

The habitat integrity of a river refers to the maintenance of a balanced composition of physico-chemical and habitat characteristics on a temporal and spatial scale that are comparable to the characteristics of natural habitats of the same region (Kleynhans 1996). The determination and categorization of the state of various biophysical attributes of rivers relative the natural or close to the natural reference condition, provides the information needed to derive desirable and attainable future ecological objectives for the river as well as determine to which degree it has been altered from its natural state.

During the habitat integrity assessment, the instream and riparian zone aspects of the river or stream are assessed in terms of the number and severity of disturbances on the stream. These disturbances include both abiotic and biotic factors, which are regarded as the primary causes of degradation of a river. The river type context is also taken into account in order to consider the weight of abovementioned metrics on both the instream and riparian zone and includes the flow regime, geomorphic zone as well as size of the river assessed.

The result of integrity assessment is a percentage that is used to derive a descriptive habitat integrity category for the instream and riparian zone components and is also used as an indicator on the Present Ecological State (PES).

TABLE 2.

Habitat Integrity Category	Description	Rating (% of Total)
A	**Unmodified, natural reference condition:** All physical drivers unmodified or virtually unmodified. If use of the resource is present, the impact of such use falls completely within the natural disturbance regimes both in terms of extent and severity.	90-100

B	**Largely natural with few modifications:** A small change in natural habitats may have taken place but the ecosystem functions are essentially unchanged.	80-89
C	**Moderately modified:** Loss and change of natural habitat and biota have occurred, but the basic ecosystem functions are still predominantly unchanged.	60-79
D	**Largely modified.** A large loss and change of natural habitat, biota and basic ecosystem functions has occurred.	40-59
E	**Seriously modified.** The loss of natural habitat, biota and basic ecosystem functions is extensive.	20-39
F	**Critically / Extremely modified:** Modifications have reached a critical level and the system has been modified completely with an almost complete loss of natural habitat and biota. In the worst instances the basic ecosystem functions have been destroyed and the changes are irreversible.	0-19

This assessment was done for the Swartdraai-se-leegte River for the section located both up-and downstream of the new detention dam.

IHI ASSESSMENT AND RESULTS:

TABLE 3. INDEX OF HABITAT INTEGRITY ASSESSMENT RESULTS AND CRITERIA ASSESSED FOR RIPARIAN ZONE OF THE MIDDEL RIVER.

RIPARIAN ZONE HABITAT INTEGRITY	Upstream	Downstream
Vegetation Removal (Impact 1 - 25)	0	0
Exotic Vegetation (Impact 1 - 25)	0	0
Bank Erosion (Impact 1 - 25)	2	5
Channel Modification (Impact 1 - 25)	5	3
Water Abstraction (Impact 1 - 25)	3	5
Inundation (Impact 1 - 25)	3	8
Flow Modification (Impact 1 - 25)	18	20
Water Quality (Impact 1 - 25)	18	8
INTEGRITY CLASS	D	C/D

TABLE 4. INDEX OF HABITAT INTEGRITY ASSESSMENT RESULTS AND CRITERIA ASSESSED FOR INSTREAM ZONE OF THE MIDDEL RIVER.

INSTREAM HABITAT INTEGRITY	Upstream	Downstream
Water Abstraction (Impact 1 - 25)	3	6
Flow Modification (Impact 1 - 25)	18	20
Bed Modification (Impact 1 - 25)	3	6
Channel Modification (Impact 1 - 25)	5	3
Water Quality (Impact 1 - 25)	20	9
Inundation (Impact 1 - 25)	5	10
Exotic Macrophytes (Impact 1 - 25)	0	0
Exotic Fauna (Impact 1 - 25)	0	0
Rubbish Dumping (Impact 1 - 25)	Unknown	Unknown
INTEGRITY CLASS	**D**	**C/D**

Findings:

From the IHI assessment both the riparian and instream integrity of the Swartdraai-se-leegte River for the section upstream of the new detention dam was found to be in a Largely Modified (D) state improving slightly to a Moderately modified state downstream of the detention dam (C/D). The upstream impacts relate largely to a significant change in Flow modification and Water quality due to the artificial release of water through irrigation drainage. This causes flow to take place throughout the year (changing the ephemeral nature of the river) and leads to both nutrification and salination of the downstream features. The slight improvement of downstream features can in actual fact be attributed to the presence of the new detention dam, restoring some of the flow modification downwards as well as preventing much of the low-quality water to flow towards the downstream features.

From the Desktop Present Ecological State (PES) done by the Resource Quality and Information Services at DWS, the PES for the Kamkierie River, which would be deemed the closest to the Swartdraai-se-leegte River, both in distance, size and nature, was deemed not-applicable due to its ephemeral nature.

Ecological Importance and Sensitivity (EIS)

Ecological importance of a water resource is an expression of its importance to the maintenance of ecological diversity and functioning on local and wider scales. Ecological sensitivity refers to the system's ability to resist disturbance and its capability to recover from disturbance once it has occurred.

The EIS assessment considers a number of biotic and habitat determinants construed to indicate either importance or sensitivity. The determinants are rated according to a four-point scale. The median of the resultant score is calculated to derive the EIS category. The EIS assessment was done for the section of the Swartdraai-se-leegte River running downstream of the agricultural development towards the property boundary.

TABLE 5. DEFINITION OF THE SCALE USED TO ASSESS BIOTIC AND HABITAT DETERMINANTS

Scale	Definition
1	One species/taxon judged as rare or endangered at a local scale.
2	More than one species/taxon judged to be rare or endangered on a local scale.
3	One or more species/taxon judged to be rare or endangered on a Provincial/regional scale.
4	One or more species/taxon judged as rare or endangered on National scale (SA Red Data Books)

TABLE 6. ECOLOGICAL IMPORTANCE AND SENSITIVITY CATEGORIES (DWAF, 1999)

EISC	General description	Range of median
Very high	Quaternaries/delineations considered to be unique on a national and international level based on unique biodiversity (habitat diversity, species diversity, unique species, rare and endangered species). These rivers (in terms of biota and habitat) are usually very sensitive to flow modifications and have no or only a small capacity for use.	>3-4
High	Quaternaries/delineations considered to be unique on a national scale based on their biodiversity (habitat diversity, species diversity, unique species, rare and endangered species). These rivers (in terms of biota and habitat) may be sensitive to flow modifications but in some cases may have substantial capacity for use.	>2-≤3
Moderate	Quaternaries/delineations considered to be unique on a provincial or local scale due to biodiversity (habitat diversity, species diversity, unique species, rare and endangered species). These rivers (in terms of biota and habitat) are not usually very sensitive to flow modifications and often have substantial capacity for use.	>1-≤2
Low/ marginal	Quaternaries/delineations not unique on any scale. These rivers (in terms of biota and habitat) are generally not very sensitive to flow modifications and usually have substantial capacity for use.	≤1

TABLE 7: RESULTS OF THE EIS ASSESSMENT

Biotic Determinants	Swartdraai-se-leegte River
Rare and endangered biota	0.5
Unique biota	0
Intolerant biota	0
Species/taxon richness	1.5
Aquatic Habitat Determinants	
Diversity of aquatic habitat types or features	0.5
Refuge value of habitat type	1
Sensitivity of habitat to flow changes	1.5
Sensitivity of flow related water quality changes	0.5
Migration route/corridor for instream and riparian biota	2
National parks, wilderness areas, Nature Reserves, Natural Heritage sites, Natural areas, PNEs	0
Total	0.75
EIS CATEGORY	**Low**

Findings:

The Ecological Importance (EI) and Ecological Sensitivity (ES) assessment done by the Resource Quality and Information Services at DWS, for the Kamkierie river, which once again is closest (in size, distance and nature) in comparison with the Swartdraai-se-leegte River,was found to be of High Ecological importance and Low Ecological Sensitivity with a Default Ecological Class B. This score differs slightly from the Swartdraai-se-leegte River, largely due to the fact that the Kamkierie River has very little to none modifications, and is still in a pristine state. The EIS for this section of the Swartdraai-se-leegte River, was found to be Low.

Impact Assessment and Recommendations

Swartdraai-se-leegte River, in its natural unmodified state, can be classified as an ephemeral river, which at the impacted site, has been modified into a more perennial system due to the artificial release of irrigation water. The river at the impact site was found to be in a Largely Modified (D) state upstream of the new detention dam improving slightly to a Moderately modified state downstream of the detention dam (C/D). The river was also found to have a Low EIS, largely due to its ephemeral nature, as well as the existing impacts on site. Impacts caused by the construction of the new retention dam, would have been limited to the following:

Loss of biodiversity:

Due to the existing modified state of the river at this section, where loss of aquatic instream and riparian vegetation has occurred, in a river reach that would not under natural circumstances sustained this, the impact of loss of biodiversity due to the construction and operation of the detention dam would be deemed to be of long-term Low negative nature. From the photographs taken on site, it looks as if large stands of vegetation have already established around the dammed area, even further lowering this impact to a Negligible one. Mitigation measures relating to the loss of biodiversity would include the following:

- It would be proposed that any disturbed areas still remaining unvegetated should be rehabilitated;
- A buffer zone of 20m should be kept from the Swartdraai-se-leegte River for all future developments.

Flow modification:

Both the construction and operational phase of the new detention dam would cause some reduction in flow towards downstream features. Considering that most of the flow within the river can be attributed to the artificial release of irrigation drainage, which had a greater impact, modifying this section of the river from a ephemeral to a more perennial feature, the construction and operation of this dam has in fact had a Low to Medium Positive impact on the downstream section of the river, stopping most of the irrigation flow to pass towards downstream features, and so re-instating its more ephemeral nature. The following mitigation measure would be proposed to limit any other possible impacts due to flow modification.

- The only other concern would be that the dam impedes the very necessary flood flows when these do occur. The size of the dam should thus be of such nature that it does not impede flood flows, after heavy rainfall.

Water quality:

As with the flow modification, water quality in this section of the river (prior to construction of the dam) has had immense impact on the vegetation and biodiversity, through nutrification and salination of this area and downstream features with the flow of enriched irrigation drainage water. It is clear that since the construction of the dam, with reduced flow towards downstream features (including the Orange River), this impact has been lowered, with the dam thus having a Low Positive impact on downstream freshwater features. What would be of concern is the concentration of salts and minerals within the detention dam, which could be flushed downstream with the event of future flood flows. This could have a short-term Medium Negative impact on both the downstream section as well as the Orange River. The following mitigation measure would be proposed to limit such water quality impacts:

- Regular monitoring and reporting on water quality within the small dam should be included in the EMPR and care should be taken that all salt levels are within specifications by DEA and DWS;
- Should the salt concentration within the dam exceed these specifications, specific procedures for the rectification of this should be provided (and included in the EMPR). Specialist opinion should be sought as input on such rectification actions.

Conclusion

Considering the current modified state of the affected section of the Swartdraai-se-leegte River, together with the general positive impact the detention dam has had on the flow modification and water quality impacts on downstream features, the cumulative impact of the detention dam on the larger freshwater system (especially downstream of the site as well as the Orange River) with effective implementation of mitigation measures, would be deemed to be of Low Positive Impact. As the dam would be considered an in-stream dam, triggering aspects contained under Section 21 (c) and (i) water uses, it should be included in a Water Use License Application (WULA).

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