Stads- en Streekbeplanners
Town and Regional Planners

Yorkstraat 56 York Street | Posbus 1186/P.O. Box 1186 | George 6530 | Tel: (044) 874 5207 | Fax: (044) 8736354
Cell: 082 569 2438 E-pos/E-mail: neldek@mweb.co.za

8 May 2025

The Municipal Manager
P.O. Box 19
George
6530

Sir

PROPOSED CONSENT USE FOR A QUARRY REMAINDER FARM BUFFELS DRIFT No. 227, SITUATED IN THE MUNICIPALITY AND DIVISION OF GEORGE, WESTERN CAPE.

Duly authorized by the registered owner of Remainder Farm Buffels Drift No. 227, George, we hereby apply for the following:

Application is being made for a consent use for the purpose of mining weathered granite gravel (aggregate) on Remainder Farm Buffels Drift No. 227, George, in terms of Section 15.(2)(o) of the By-Law on Municipal Land Use Planning of George Municipality, 2023.

In support of the application, the following documentation is attached for your consideration:

a) Application form fully completed and signed **(Annexure 1)**;
b) Power of Attorney by the Registered Owner **(Annexure 2)**;
c) Bondholders Consent by ABSA **(Annexure 3)**;
d) Motivation Report **(Annexure 4)**;
e) Copy of the General Plan No. 8978/59 **(Annexure 5)**;
f) Locality Map **(Annexure 6)**;
g) Site Development Plan **(Annexure 7)**;
h) Proof of Payment will be provided in due course as it is made available to the applicant **(Annexure 8)**;
i) Copy of Title Deed No. T7794/93 **(Annexure 9)**;

j) Conveyancer certificate by Herman Josias Swanepoel **(Annexure 10)**;
k) Environmental Authorisation dd. 20/08/2021 **(Annexure 11)**;
l) Mining Permit dd. 05/11/2021 **(Annexure 12)**;
m) Mining Permit Renewal dd. 12/11/2024 **(Annexure 13)**;
n) Basic Assessment Report and Environmental Management Programme by Stephen Davey of Klipberg Consulting **(Annexure 14)**;
o) Water Use License Application and Fresh Water Report by Dr. Dirk van Driel of WATSAN Africa **(Annexure 15)**;
p) Agricultural Assessment by Johan Lanz **(Annexure 16)**;
q) Screening tool site sensitivity verification and analysis by Stephen Davey of Klipberg Consulting **(Annexure 17)**;
r) Visual Representation **(Annexure 18)**; and
s) Copy of Pre-Application dd. 26/11/2024 **(Annexure 19)**.

Should any additional information be required you are kindly requested to contact us.

Yours Sincerely

Nel & de Kock Town and Regional Planners
Per: Alexander Havenga A/3313/2023

ANNEXURE 1

Application Form for Application(s) Submitted in terms of the Land Use Planning By-Law for George Municipality

NOTE: *Please complete this form by using: Font: Calibri; Size: 11*					
PART A: APPLICANT DETAILS					
First name(s)	**Alexander**				
Surname	**Havenga**				
SACPLAN Reg No. (if applicable)	**Pr. Pln A/3313/2023**				
Company name (if applicable)	**Nel & de Kock Town and Regional Planners**				
Postal Address	***P.O. Box 1186,***				
	George		*Postal Code*	**6530**	
Email	**neldek@mweb.co.za**				
Tel	**044 874 5207**	*Fax*	**n/a**	*Cell*	**079 513 3530**
PART B: REGISTERED OWNER(S) DETAILS (if different from applicant)					
Registered owner	**James Dewald Barnard**				
Address	**Remainder Farm Buffels Drift No. 227**				
	George Rural		*Postal code*	**6529**	
E-mail	**jamesizaak@gmail.com**				
Tel	**n/a**	*Fax*	**n/a**	*Cell*	**076 427 1523**
PART C: PROPERTY DETAILS (in accordance with Title Deed)					
Property	**Remainder Farm Buffels Drift No. 227, George**				

Description [Erf / Erven / Portion(s) and Farm number(s), allotment area.]							
Physical Address	**Remainder Farm Buffels Drift, Sinksabrug, George**						
GPS Coordinates	**33°59'47.69"S 22°20'07.00"E**			*Town/City*	**George Rural**		
Current Zoning	**Agricultural Zone I**		*Extent*	**86.2311ha**	*Are there existing buildings?*	**Y**	N
Current Land Use	**Agriculture**						
Title Deed number & date	**T7794/93**						
Any restrictive conditions prohibiting application?	Y	**N**	*If Yes, list condition number(s).*				
Are the restrictive conditions in favour of a third party(ies)?	Y	**N**	*If Yes, list the party(ies).*				
Is the property encumbered by a bond?	**Y**	N	*If Yes, list Bondholder(s)?*	**ABSA**			
Has the Municipality already decided on the application(s)?	Y	**N**	*If yes, list reference number(s)?*				

Any existing unauthorized buildings and/or land use on the subject property(ies)?	Y	**N**	*If yes, is this application to legalize the building / land use?*	Y	**N**
Are there any pending court case / order relating to the subject property(ies)?	Y	***N***	*Are there any land claim(s) registered on the subject property(ies)?*	Y	***N***

PART D: PRE-APPLICATION CONSULTATION

Has there been any pre-application consultation?	**Y**	N	*If Yes, please complete the information below and attach the minutes.*		
Official's name	**Martin Botha**	*Reference number*	**Collab no. 3488547**	*Date of consultation*	**26/11/2024**

PART E: LAND USE APPLICATIONS IN TERMS OF SECTION 15 OF THE LAND USE PLANNING BY-LAW FOR GEORGE MUNICIPALITY & APPLICATION FEES PAYABLE

***Application fees that are paid to the Municipality are non-refundable and proof of payment of the application fees must accompany the application.**

BANKING DETAILS

Name:	***George Municipality***
Bank:	***First National Bank (FNB)***
Branch no.:	***210554***
Account no.:	***62869623150***
Type:	***Public Sector Cheque Account***
Swift Code:	***FIRNZAJJ***
VAT Registration Nr:	***4630193664***
E-MAIL:	***msbrits@george.gov.za***
****Payment reference**:*	**Erven ____, George/Wilderness/Hoekwil…**

PART F: DETAILS OF PROPOSAL

Brief description of proposed development / intent of application:

Application is being made for a consent use for the purpose of mining weathered granite gravel (aggregate) on Remainder Farm Buffels Drift No. 227, George, in terms of Section 15.(2)(o) of the By-Law on Municipal Land Use Planning of George Municipality, 2023.

PART G: ATTACHMENTS & SUPPORTING INFORMATION FOR LAND USE PLANNING APPLICATIONS

Please complete the following checklist and attach all the information relevant to the proposal. Failure to submit all information required will result in the application being deemed incomplete.

Is the following compulsory information attached?

Y	*N*	*Completed application form*		**Y**	N	*Pre-application Checklist (where applicable)*	
Y	*N*	*Power of Attorney / Owner's consent if applicant is not owner*		**Y**	N	*Bondholder's consent*	
Y	*N*	*Motivation report / letter*		***Y***	*N*	*Proof of payment of fees*	
Y	*N*	*Full copy of the Title Deed*		***Y***	*N*	*S.G. noting sheet extract / Erf diagram / General Plan*	
Y	*N*	*Locality Plan*		***Y***	*N*	*Site layout plan*	

Minimum and additional requirements:

Y	N	*N/A*	*Conveyancer's Certificate*	*Y*	*N*	**N/A**	*Land Use Plan / Zoning plan*
Y	*N*	**N/A**	*Proposed Subdivision Plan (including street names and numbers)*	*Y*	*N*	***N/A***	*Phasing Plan*
Y	N	**N/A**	*Consolidation Plan*	Y	N	**N/A**	*Copy of original approval letter (if applicable)*
Y	N	*N/A*	*Site Development Plan*	Y	N	**N/A**	*Landscaping / Tree Plan*

Y	**N**	N/A	*Abutting owner's consent*		*Y*	N	**N/A**	*Home Owners' Association consent*
Y	N	N/A	*Copy of Environmental Impact Assessment (EIA) /* *~~Heritage Impact Assessment (HIA)~~* *~~Traffic Impact Assessment (TIA) / Traffic Impact Statement (TIS) /~~* *~~Major Hazard Impact Assessment (MHIA) /~~* *Environmental Authorisation (EA) / Record of Decision (ROD)*		Y	N	**N/A**	*1 : 50 / 1:100 Flood line determination (plan / report)*
Y	N	**N/A**	*Services Report or indication of all municipal services / registered servitudes*		**Y**	N	N/A	*Required number of documentation copies* **2 copies**
Y	*N*	N/A	*Any additional documents or information required as listed in the pre-application consultation form / minutes*		Y	N	**N/A**	*Other (specify)*
PART H: AUTHORISATION(S) IN TERMS OF OTHER LEGISLATION								
Y	***N/A***	*National Heritage Resources Act, 1999 (Act 25 of 1999)*					*Specific Environmental Management Act(s) (SEMA)* *(e.g. Environmental Conservation Act, 1989 (Act 73 of 1989), National Environmental Management: Air Quality Act, 2004 (Act 39 of 2004),* *National Environmental Integrated Coastal Management Act, 2008 (Act 24 of 2008), National Environmental Management: Waste Act, 2008 (Act 59 of 2008),* *National Water Act, 1998 (Act 36 of 1998)* *(strikethrough irrelevant)*	
Y	N/A	*National Environmental Management Act, 1998 (Act 107 of 1998)*						
Y	**N/A**	*Subdivision of Agricultural Land Act, 1970 (Act 70 of 1970)*			Y	**N/A**		
Y	**N/A**	*Spatial Planning and Land Use Management Act, 2013 (Act 16 of 2013)(SPLUMA)*						
Y	**N/A**	*Occupational Health and Safety Act, 1993 (Act 85 of 1993): Major Hazard Installations Regulations*						
Y	**N/A**	*Land Use Planning Act, 2014 (Act 3 of 2014) (LUPA)*			Y	**N/A**	*Other (specify)*	
Y	N/A	*If required, has application for EIA / HIA / TIA / TIS / MHIA approval been made? If yes, attach documents / plans / proof of submission etc.*						
Y	**N**	*If required, do you want to follow an integrated application procedure in terms of section 44(1)of the Land-Use Planning By-law for George Municipality?*						

SECTION I: DECLARATION

I hereby wish to confirm the following:

1. *That the information contained in this application form and accompanying documentation is complete and correct.*
2. *The Municipality has not already decided on the application.*
3. *I'm aware that it is an offense in terms of section 86(1)(d) to supply particulars, information or answers in an application, knowing it to be false, incorrect or misleading or not believing them to be correct.*
4. *I am properly authorized to make this application on behalf of the owner and (where applicable) copies of such full relevant Powers of Attorney/Consent are attached hereto.*
5. *I have been appointed to submit this application on behalf of the owner and it is accepted that correspondence from and notifications by the Municipality in terms of the by-law will be sent only to me as the authorised agent and the owner will regularly consult with the agent in this regard (where applicable).*
6. *That this submission includes all necessary land use planning applications required to enable the development proposed herein.*
7. *I confirm that the relevant title deed(s) have been read and that there are no restrictive title deed restrictions, which impact on this application, or alternatively an application for removal/amendment/suspension forms part of this submission.*
8. *I am aware of the status of the existing bulk services and infrastructure in the subject area and that I am liable for any possible development charges which may be payable as a result of the proposed development.*
9. *I acknowledge that in terms of the Protection of Personal Information Act (POPIA) all correspondence will be communicated directly and only to myself (the applicant). No information will be given to any third party and/or landowner (if the landowner is not the applicant). I herewith take responsibility to convey all correspondence to the relevant parties.*

Applicant's signature:		*Date:*	**8 May 2025**
Full name:	**Alexander Havenga**		
Professional capacity:	**Registered Professional Planner**		
SACPLAN Reg. Nr:	**Pr. Pln A/3313/2023**		

Annexure 2

POWER OF ATTORNEY

I, the undersigned,

James Dewald Barnard

In my capacity as the registered owner of Remainder Farm Buffels Drift No. 227, George, situated in the Municipality and division of George, Province of the Western Cape.

hereby nominate and appoint:

NEL & DE KOCK TOWN & REGIONAL PLANNERS

With power of substitution, to be my true and lawful Agent in my name, place and stead, to apply to the George Municipality for a **Consent Use for a quarry on Rem. Farm Buffelsdrfit 227, George,** and I hereby ratify, allow and confirm, and promise and agree to ratify, allow and confirm all and whatsoever our said Agent shall lawfully do or cause to be done by virtue of these presents.

SIGNED at George on this 7th day of February 2025 in the presence of the under mentioned witnesses.

.....

James Dewald Barnard
(ID: 600703 5042 00 0)

AS WITNESSES:

1. .....

2. .....

Annexure 3

Nel & De Kock

Subject: FW: Verbandhouer Toestemming

From: **Wilhelm Lourens (ZA)** <Wilhelm.Lourens@absa.africa>
Date: Mon, 05 May 2025, 08:40
Subject: RE: Verbandhouer Toestemming
To: Maidene Barnard <maidenedp@gmail.com>, Bennie Landman (ZA) <Bennie.Landman@absa.africa>, Adene Allens (ZA) <Adene.Allens@absa.africa>
Cc: james izaak <jamesizaak@gmail.com>

Hi Maidene

Regarding the Remainder of the Farm Buffels Drift No. 227, George,in name of JD Barnard as indicated on the attached title deed. The following bonds are currently registered against the property:

1. B 21423/2019 in favour of ABSA BANK LTD.
2. B 26415/2010 in favour of ABSA BANK LTD.

The Bank consent to the mining of the quarry

Regards

Respect | Integrity | Service | Excellence | Stewardship
Helping people achieve their ambitions - in the right way

Wilhelm Lourens

Relationship Executive
Commercial Business George | Absa Retail and Business Banking

Tel +27 (0)44 803 3018
Cell +27 (0)82 453 9441
Email wilhelm.lourens@absa.africa

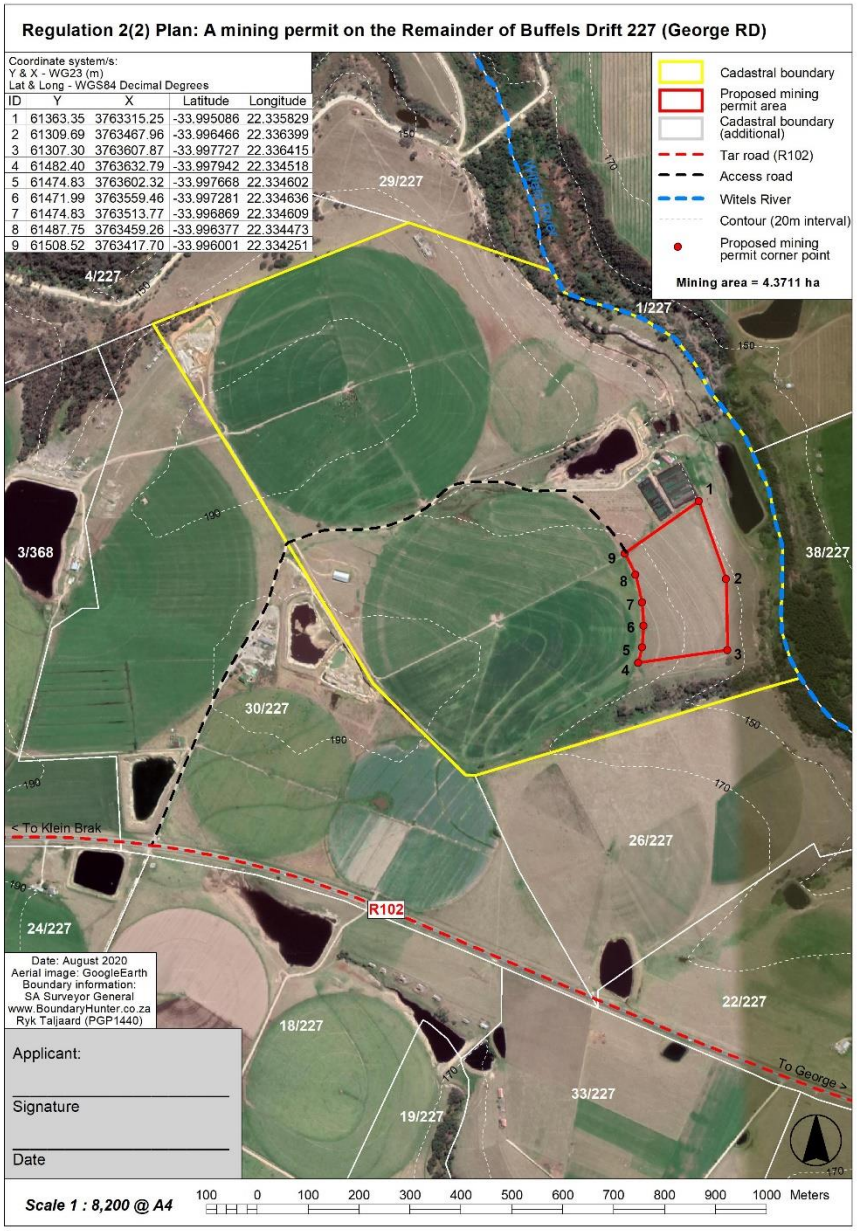
ANNEXURE 4

MOTIVATION REPORT

CONSENT USE FOR A QUARRY: REMAINDER FARM BUFFELS DRIFT No. 227, SITUATED IN THE MUNICIPALITY AND DIVISION OF GEORGE, WESTERN CAPE

FOR

KIRSTEN EN TULLEKEN VERVOER CC



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Town and Regional Planners

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1. APPLICATION

Application is being made for a consent use for the purpose of mining weathered granite gravel (aggregate) on Remainder Farm Buffels Drift No. 227, George, in terms of Section 15.(2)(o) of the By-Law on Municipal Land Use Planning of George Municipality, 2023.

2. BACKGROUND

Kirsten & Tulleken, an established transport and building material supplier in George and the owner of the subject property entered into an agreement to mine a portion of Remainder Farm Buffels Drift No. 227 for weathered granite gravel (aggregate). Originally the client contacted a Town Planner in George to assist in obtaining the relevant consent use approval for the quarry from the Municipality. The consultant never came to light with an application and left the client in a predicament as mining had already begun on the property due to the time sensitive matter considering that the Mining Permit is only valid for a limited period of 2 years with the option of extending it three times for one year each time. The client then contacted Nel & De Kock Town and Regional Planners to prepare and submit this consent use application.

Currently a second year renewal was granted for a mining permit ending 4 November 2025 which is attached to this application as Annexure 13.

3. PURPOSE

The purpose of this application is to obtain approval for a consent use for a quarry on Remainder Farm Buffels Drift No. 227, George, which will allow the owners to operate a quarry therefrom in accordance with George Municipality's Integrated Zoning Scheme By-Law, 2023.

4. MOTIVATION

4.1 NEED

The need for this application sprouted from Kirsten & Tulleken's business to provide their customers with aggregate/gravel which can be mined on the subject property. Therefore, the need for this application is to obtain the Municipality's approval for the supplementary use of a quarry on the subject property which will allow Kirsten & Tulleken to mine aggregate/gravel and as a result thereof provide it to their customers. Considering the rapid growth of George and environs the availability of building material as now applied for has become a challenge. The extraction of the 'minerals' in the close proximity of George as the main focal development node in

the Southern Cape will necessarily be conducive to keeping the cost of the product lower which will contribute to the economy of George in various aspects. The quarry will result in a financial gain for the owner of the property, the mining company and the workers which will be employed by the quarry. By benefiting these entities will also be beneficial to the Municipal fiscus.

4.2 DESIRABILITY

PHYSICAL CONDITION:

4.2.1 TOPOGRAPHY

The subject property is situated on top of a crest of a hill and is basically split in two with a natural drainage line running through the middle of the property, while two ridges north and south of the natural drainage slopes downwards towards the Witels River in a North Easterly direction. The topography of the property is at its highest point roughly 194m A.M.S.L. while it slopes downwards from its highest point to Witels River which is approximately 138m above sea level. The slope of the property is approximately 1:80 on its flattest part on top of the hill and 1:2,6 on its steepest part where it slopes down to the Witels River. The area where the proposed mining activities will take place will be manipulated with machinery to extract the materials. Therefore, topography pose to not negatively affect the application, while agricultural contours will be reinstated during the rehabilitation process of the quarry.

4.2.2 BOTTOM CONDITIONS

The geology of the of the property is discussed extensively in Par. 9.2.4 of the Basic Assessment Report attached to this application as Annexure 14. Stephen Davey of Klipberg Consulting (Pty) Ltd states the following with regard to the Geology of the proposed mining area: “The mining permit area is underlain by the Maalgaten Granite. The deformed Maalgaten Granite represents the most voluminous part of the George Pluton which in turn is part of the Cape Granite Suite.”
The bottom conditions pose to not negatively affect this application as it is the content of the bottom conditions which gave rise to this application. The aggregate will be extracted and used for road wearing course, subgrade and fill.

4.2.3 VEGETATION

The area where the quarry is proposed was historically covered by Garden Route Granite Fynbos. The area is currently located within transformed agricultural land with no natural vegetation. Therefore, this application will not negatively affect any sensitive conservation vegetation as the area where the proposed quarry is proposed currently consists of cultivated lands. After fruition of the mining activities the area will be rehabilitated so that it can continue to be used for agricultural purposes.

4.2.4 FLOOD LINES

Dr Dirk van Driel of WATSAN Africa compiled a Water Use License Application and Fresh Water Report which is attached to this application as Annexure 15. The impact of the proposed quarry on the fresh water systems is discussed extensively in this report. Par. 10 of the abovementioned report states that if any development is to take place within the 32m buffer zone as required in terms of NEMA, official authorisation will be required. However, if the proposed mining area grows into the 100m buffer zone right onto the 32m buffer, it won't increase environmental risk to the aquatic environment.

4.2.5 SENSITIVITIES

Sensitivities which can be found on the property is summarised in Table 2 of the Screening tool report compiled by Klipberg Consulting which is attached to this application as Annexure 17. According to the summary, the proposed mining activities are of low sensitivity towards the various themes of sensitivity listed in the table. Therefore, no further elaboration will be made in this regard.

4.2.6 WATER TABLE

The water table pose to not be an issue with regard to the proposed application as no permanent construction is proposed which can be affected by a high water table. Therefore, since a quarry as a consent use is proposed, it will not be elaborated further on in this report.

4.2.7 DRAINAGE PATTERN

No new construction is proposed and therefore the design of the drainage pattern and how it will connect to the municipal storm water system is not applicable. It should, however, be mentioned that mitigation measures are proposed in the Fresh Water Report by Dr van Driel. The mitigation measures include a cut-off drain, a silt retention pond and an overflow to an existing dam which is indicated on the SDP attached as Annexure 7. Dr. van Driel further states that should it be necessary a separate storm water management plan can be required.

4.2.8 FILLINGS AND EXCAVATIONS

Application is made for a consent use for a quarry on the subject property. Therefore, excavations and fillings will be present as it is a standard method to mine weathered granite gravel (aggregate). The area will be rehabilitated in accordance with the rehabilitation plan contained in the Basic Assessment Report attached to

this application as Annexure 14 in Par. 19.4. The rehabilitation plan requires that topography and soil surface should be smoothed to allow for cultivation. Therefore, fillings and excavations will be a result of this application, but it will be smoothed in order to once again utilise the property for agricultural purposes after fruition of the mining activities. Therefore, fillings and excavations pose to not impinge the approval of this application.

4.3 EXISTING PLANNING AND LEGISLATION

4.3.1 SPATIAL PLANNING AND LAND USE MANEGEMENT ACT, 2013, (S.P.L.U.M.A.)

4.3.1.1 SPATIAL JUSTICE

- **Past spatial and other development imbalances must be redressed through improved access to and use of land.**
  The property which relates to this application is situated in the George rural area known as Sinksabrug. The property is in extent 86.2311ha and exclusively utilised for agricultural purposes. Therefore, this application pose to not be adequate to address this principle of access to and use of land as it is situated outside the urban area of George and utilised for agricultural activities.

- **Spatial development frameworks and policies at all spheres of government must address the inclusion of persons and areas that were previously excluded, with an emphasis on informal settlements, former homeland areas and areas characterises by widespread poverty and deprivation.**
  Due to considerations discussed above, this objective is not readily achievable with this application.

- **Spatial Planning mechanisms, including land use schemes, must incorporate provisions that enable redress in access to land by disadvantaged communities and persons.**
  As discussed above, the location of the property in Sinksabrug does not lend itself to the compliance of this objective and the fact that the property is zoned and actively used for agricultural purposes and not to address the access to land by disadvantaged communities or persons.

- **Land use management systems must include all areas of a Municipality and specifically include provisions that are flexible and appropriate for the management of disadvantaged areas, informal settlements and former homeland areas.**
  A pragmatic approach to the management of land use systems to follow flexible and appropriate processes to facilitate housing for the disadvantaged community is indispensable.

- **Land development procedures must include provisions that accommodate access to secure tenure and the incremental upgrading of informal areas.**
  This aspect has already been discussed above.

- **A Municipal Planning Tribunal considering an application before it, may not be implemented or restricted in the exercise of its discretion solely on the ground that the value of land or property is affected by the outcome of the application.**
  This provision does not apply to the application.

4.3.1.2 PRICIPLE OF SPATIAL SUSTAINABILITY

- **Promote land development that is within the fiscal, institutional and administrative means of the Republic.**
  The proposed development is done with private funding and therefore the fiscal, institutional and administrative capacity of government agencies are not relevant to this application.

- **Ensure that special consideration is given to the protection of prime and unique agricultural land.**
  The property forming the focus of this application is zoned Agricultural Zone I and is currently and historically used for planted perennial pastures. The proposed quarry is situated on a portion of the property currently cultivated for dry land crops. The extraction of the aggregate is temporary while this consent use will only be valid for the period the mining permit is issued. Therefore, after fruition of the mining activities, the area will be rehabilitated and once again be utilised for agricultural activities.

- **Uphold consistency of land use measures in accordance with the environmental management instruments.**
  An Environmental Authorisation for the proposed quarry was issued on 20/08/2021. Therefore, the consistency of land use was taken into consideration with environmental management instruments before the relevant Environmental Authorisation was issued.

- **Consider all current and future costs to all parties for the provision of infrastructure and social services in land developments.**
  Approval of this application will not incur any costs with regard to the provision of services as the proposed quarry does not require any new services. Any new infrastructure which may be required will be for the cost of the company managing the mine. Therefore, approval of this application pose to not hold any costs for the Municipality.

- **Promote land development in locations that are sustainable and limit urban sprawl.**
  The nature of this application does not lend itself to be accommodated within the urban edge. Therefore, this principle aimed at limiting urban sprawl is not relevant to this application. The building material provided by the applicant may, on the contrary, promote densification within the urban edge.

- **Result in communities that are viable.**
  Approval of this application will result in a viable quarry which will produce aggregate to the community for the period the mining permit is issued. Therefore, approval of this application will contribute to the viability of the community as the proposed quarry will create jobs and supply the development sector with materials required for construction. After fruition of the quarry and the lapsing of the mining permit, the quarry will be rehabilitated and the area will revert back to its current state which is for agricultural activities.

4.3.1.3 PRINCIPLE OF EFFICIENCY

- **Land development optimises the use of existing resources and infrastructure.**
  The intent of this application is obtain approval for a quarry which will extract natural resources i.e. aggregate/gravel and make it available for the building and construction industry in the area. The proposed quarry poses to utilise existing resources and infrastructure for the duration of the mining activity. Therefore, this application poses to be in line with this principle.

- **Decision-making procedures are designed to minimise negative financial, social, economic, or environmental impacts.**
  As a privately funded project, sensible decision making to have minimal negative consequences are indispensable for the successful implementation of the project. As already discussed, it will not have a negative social or economic and impact, but will result in a viable opportunity for the business to extract the ‘minerals’ for their customers.

- **Development applications procedures are efficient and streamlined and timeframes are adhered to by all parties.**
  Adherence to prescribed timeframes vest in the Municipality and therefore the applicant does not have any control over it.

4.3.1.4 PRINCIPLE OF SPATIAL RESILIENCE

This principle, which is primarily aimed at a sustainable way of life for communities that are most vulnerable to economic and environmental setbacks, is not directly applicable to this application.

4.3.1.5 PRINCIPLE OF GOOD ADMINISTRATION

- **All spheres of government ensure an integrated approach to land use and land development that is guided by the spatial planning and land use management systems as embodied in this Act.**
  Authorities involved in this application includes George Municipality, Department of Agriculture, Department of Environmental Affairs and Development Planning, Department of Public Works and the Department of Mineral Resources and Energy. The various departments of the authorities involved function as an integrated team and the applicant has no further comment on this principle of good administration.

- **Policies, legislation and procedures must be clearly set in order to inform and empower members of the public.**
  Procedures of the public participation process for this application will be adhered to as prescribed when the applicant receives a Section 38 Compliance Letter and is instructed to start with this process.

4.3.2 LAND USE PLANNING ACT, 2014, (L.U.P.A.)

As far as the proposed development is concerned, there is a great deal of overlap between the principles of spatial justice, sustainability, good administration and resilience that are pursued under this legislation, but which have already been discussed in par 4.3.1 above. To avoid duplication, these principles will not be discussed again.

4.3.3 NATIONAL, PROVINCIAL AND LOCAL GOVERNMENT POLICIES AND GEORGE MUNICIPAL SPATIAL DEVELOPMENT FRAMEWORK, 2023

National, Provincial and Local Government policies sets out and put in place coherent policies and frameworks to support Municipalities fulfil their municipal planning mandate in line with national and provincial agendas. Application is made in terms of Section 15 of the Land Use Planning By–Law of George Municipality, 2023. Therefore, the local policies and frameworks of the Municipality took the policies and frameworks of National and Provincial Government into consideration and only the George Municipal Spatial Development Framework, 2023 (MSDF) will be discussed for the purpose of this application.

George Municipality's Spatial Development Framework, 2023, lists mining and quarrying(supported) in Policy B2 which relates to the Primary Sector in the Economic Growth chapter of the document. The policy focusses on forestry areas which should be maintained as an economic sector. Bearing in mind that the proposed quarry is situated in the rural area of Sinksabrug and not within a proclaimed forestry area it will therefore not detract from this policy and the applicant cannot comment on the policy guidelines as a result thereof.

4.3.4 Western Cape Land Use Planning Guidelines for rural areas, 2019

Chapter 13 of the Western Cape Land Use Planning Guidelines focusses on mining and industry in rural areas. The objectives of this guideline are as follows:

- "To facilitate the development of industrial activity that underpins the rural economy, conservation and tourism.
- Appropriate industrial activity in rural areas includes:
    - Packing, storage and bottling or processing of agricultural products.
    - Small scale production or processing activities associated with tourist facilities.
    - Extracting minerals e.g. salt mining.
    - Processing natural resources e.g. bottling of spring water."

This application proposes the development of an industrial activity in the form of a quarry which will support the economy in the rural area of George. Approval of this application will raise funds not only for the owner of the property who can plough the extra income back into agricultural activities, but also for the owners of the mine which in turn employs various individuals who will be reimbursed by working on the mine. Therefore, this application is in line with this objective which will contribute and support the rural economy in George.

The Western Cape Land Use Planning Guidelines for rural areas, 2019, gives the following guidance for implementation of mining and industries in rural areas:

- **"Industry in rural areas should only be located in the following SPC'S:**
  Settlement
  Agriculture
  Buffer 2"
    - Two portions of property abutting the Witels River is classified as Critical Biodiversity Area 2: Aquatic which is provided for in a Core 2 Spatial Planning Category another portion of the property which forms a natural drainage to the Witels River is classified as Critical Biodiversity Area 2: Terrestrial. The remainder of the property is not classified as biodiversity areas. In light thereof, the applicant's interpretation is that it falls under 'Agriculture' SPC and therefore this application is in line with this guideline.

- **“All non-place-bound industry (industries not ancillary to agriculture or serving rural needs e.g. transport contractors, breweries, fabricating pallets, bottling & canning plants, abattoirs, sawmills and builder’s yards) should be located within urban areas. The obligation is on the applicant to illustrate why the industry must be located in the rural area rather than in an industrial area of a town.”**
    - This application intends to obtain approval for a quarry on the subject property which is place bound due to the availability of aggregate in the specific area where the quarry is proposed. Therefore, since no industry is proposed with this application, no further elaboration will be made on this guideline.

- **“Industries associated with tourist facilities in the rural areas such as a small scale brewery, butchery or arts and craft factory can be accommodated, depending on local conditions.”**
    - This guideline is not applicable to this application as the proposed quarry is not associated with tourist facilities. The mining of raw materials on this farm will, however, be used for the construction of roads and facilities related to tourist amenities in close proximity thereof.

- **“Only activities that are appropriate in a rural context, generate positive socio-economic returns, and do not compromise the environment or ability of the municipality to deliver on its mandate should be accommodated. The long term impact on the municipality (resources and financial); agricultural activities, production and sustainability, risk and finances; and the scenic, heritage and cultural landscape should be considered when decisions are taken.”**
    - This guideline is applicable to the Municipality as the decision making authority. It should, however, be mentioned that a quarry is normally associated in a rural context, it will generate positive socio economic returns and will not compromise the environment as the area where the quarry is proposed is not environmentally sensitive.

- **“Extractive industry (i.e. quarrying and mining) and secondary beneficiation (e.g. cement block production, concrete batch plants, pre-mix asphalt plants) have to take place at the mineral or material source. If the mine will result in a significant negative impact on biodiversity, a biodiversity offset must be considered in accordance with National policy and Provincial guidelines.”**
    - The minerals (aggregate/gravel) will be excavated and loaded onto trucks that will transport the material. Therefore, this proposal does not provide for secondary beneficiation.

- **“All place-bound agricultural industry related to the processing of locally sourced (i.e. from own and/or surrounding farms) products due**

to the perishability thereof, should be located within the farmstead precinct in the agricultural area."

- The minerals proposed to be extracted in the quarry are not perishable and therefore no further elaboration will be made on this guideline.

- **"Industry in rural areas should not adversely affect the agricultural potential of the property."**
    - Indicated on the attached Site Development Plan, Annexure 7, the extent of the proposed quarry pose to not adversely affect the agricultural potential of the property due to its limited size. It should, however, be mentioned that after fruition of the mining activities the quarry will be rehabilitated in accordance with the rehabilitation plan. Therefore, it will revert back to agriculture after the completion of the mining activities.

- **"Agricultural industry should be subservient or related to the dominant agricultural use of the property and/or surrounding farms."**
    - The proposed quarry is subservient to the dominant agriculture practices on the subject property as the quarry will be approximately 4.3711ha in size leaving roughly 81ha for agricultural purposes. It should, however, also be mentioned that the owner of the subject property also owns other agricultural land units in the area. Therefore, the granting of rights for the proposed quarry will not have a detrimental impact on the agricultural viability of his agricultural activities.

- **"The employees of an agricultural industry as provided for in Chapter 10.2 Agri Worker Housing can be accommodated on the farm in a sustainable manner, that does not compromise the functionality and integrity of farming landscapes."**
    - This application does not propose a housing component. Therefore, this guideline is not relevant to this application.

- **"Avoid establishing industries with any permanent on-site employees' residential component in rural areas as on the farm accommodation is restricted to agri workers. Employees should be accommodated in existing settlements."**
    - As stated above, this application does not propose a housing component for workers which will therefore not establish permanent on-site employees.

- **"Structures accommodating industry should conform to local vernacular, and attention needs to be given to appropriate buffers, and landscaping and screening to reduce their visual impact on the rural landscape. Information on the architectural design must be provided, for the purposes of heritage and visual assessments."**

- As indicated on Annexure 7, Site Development Plan, the quarry does not propose any structures. Therefore, no further elaboration will be made on this guideline.

- **"Development applications should include a locality plan to indicate how it contributes to the clustering of nodal areas."**
  - A locality map is attached to this application as Annexure 6. The availability of the minerals proposed to be extracted is the reason for the location of the quarry. Therefore, it cannot contribute to the clustering of nodal areas as it is site bound.

- **"A site development plan must be submitted to the municipality for consideration. The exact proposed footprint must be shown on the site development plan, it should illustrate the placement of the industry in relation to existing buildings on the property, and provide details on infrastructure provision, engineering services, access and parking arrangements and the position and nature of all proposed signage and landscaping."**
  - A Site Development Plan is attached as Annexure 7. The extent of the proposed quarry is 4.3711ha and does not require any infrastructure provision with regard to engineering services as all of the equipment will be dependent on its own power. Site access is indicated on the attached locality plan.

- **"The subdivision of agricultural land to accommodate industrial activities should be discouraged and only used as a last resort so as not to fragment the agricultural landscape."**
  - This application does not propose the subdivision of agricultural land. Therefore, no further elaboration will be made in this regard.

- **"Before subdivision is considered, all other options to fund and provide security for loans' and financing, e.g. long term lease agreements, shareholding in the land holding entity or title deed restrictions should be investigated before subdivision is granted."**
  - As stated above, this application does not propose the subdivision of agricultural land. Therefore, no further elaboration will be made in this regard.

- **"Conditions should be imposed to effectively manage waste and effluent."**
  - This guideline is aimed at the Municipality and the quarry will conform to any conditions relating to waste management and effluent which may be imposed by the Municipality.

4.3.4 BY-LAW ON MUNICIPAL LAND USE PLANNING OF GEORGE MUNICIPALITY, 2023

4.3.4.1 According to Section 38(1), the following documents are required in support of the application:

4.3.4.1.1 **Annexure 1**, Application form fully completed and signed;

4.3.4.1.2 **Annexure 2**, Power of Attorney to Nel & de Kock Town and Regional Planners by the registered owner to prepare and submit this application;

4.3.4.1.3 **Annexure 3**, Bondholders Consent by ABSA is attached to this application;

4.3.4.1.4 **Annexure 4**, Motivation Report by Nel & de Kock Town and Regional Planners;

4.3.4.1.5 **Annexure 5**, Copy of the Surveyor General Plan No. 8978/59 is attached to this application;

4.3.4.1.6 **Annexure 6,** Locality Map is attached to this application;

4.3.4.1.7 **Annexure 7,** Site Development Plan is attached to this application;

4.3.4.1.8 **Annexure 8,** Proof of Payment will be provided in due course as it is made available to the applicant;

4.3.4.1.9 **Annexure 9,** Copy of Title Deed No. T7794/93 is attached to this application;

4.3.4.1.10 **Annexure 10**, Conveyancer certificate by Herman Josias Swanepoel is attached to this application;

4.3.4.1.11 **Annexure 11**, Environmental Authorisation dd. 20/08/2021 is attached to this application;

4.3.4.1.12 **Annexure 12**, Mining Permit dd. 05/11/2021 is attached to this application;

4.3.4.1.13 **Annexure 13,** Mining Permit Renewal dd. 12/11/2024 is attached to this application

4.3.4.1.14 **Annexure 14,** Basic Assessment Report and Environmental Management Programme by Stephen Davey of Klipberg Consulting is attached to this application;

4.3.4.1.15 **Annexure 15,** Water Use License Application and Fresh Water Report by Dr. Dirk van Driel of WATSAN Africa is attached to this application;

4.3.4.1.16 Rehabilitation Plan is included in the attached BAR attached to this application as Annexure 13;

4.3.4.1.17 **Annexure 16,** Agricultural Assessment by Johan Lanz is attached to this application;

4.3.4.1.18 **Annexure 17,** Screening tool site sensitivity verification and analysis by Stephen Davey of Klipberg Consulting is attached to this application;

4.3.4.1.19 **Annexure 18,** Visual Representation is attached to this application; and

4.3.4.1.20 **Annexure 19,** Copy of Pre-Application dd. 26/11/2024:
The following comments were received as part of the Pre-Application:

- **The application must be motivated in terms of the relevant legislation (SPLUMA, LUPA, PSDF, Rural Areas Guidelines, and George MSDF).**
    - The application is motivated in accordance with the above listed legislation in Par. 4.3.1 – 4.3.4 of this report.

- **Please take note of and address the impact of the proposal on the existing waterbodies on the site.**
    - A specialist fresh water report was compiled by Dr. Dirk van Diel and is attached to this application as Annexure 15. In this report the impact of the proposed quarry on water courses are discussed in depth. The potential washing of mud and silt down the river which may be triggered by the mining activities was determined to be low should the required mitigation measures be adhered to. The proposed mitigation measures are as follows:
        - Implement a storm water management plan.
        - Maintain a buffer zone of 32m between the mine and water courses.
        - Limit the footprint of the mine within the demarcated area.

- **Address the impact of the proposal on the primary land use (agriculture).**
    - This aspect is addressed in Par. 4.5.1 of this report.

- **Address the impact of the proposal in relation to the land uses in the surrounding area.**
    - All of the surrounding properties are zoned for agricultural purposes. A Quarry is listed as a consent use for properties zoned Agriculture. The non-agricultural use, i.e. quarry, will increase the economic potential of the property as the owner will be in a position to reinvest the income earned from the quarry back into the farming practices. The increased demand for construction material is necessitated by the influx of people to the Garden Route. Therefore, the impact the proposed quarry

may have on the surrounding properties will be of a temporary nature as this application will only be approved for the duration for which the mining permit is issued, but the provision of construction materials to consumers in the area will be lasting. It should furthermore, also be mentioned that according to Stephen Davey of Klipberg Consulting who compiled the attached BAR the socio-economic impact of the proposed mine will not have a negative impact on surrounding farms.

- **The Department of Environmental Affairs and Development Planning (EIA and Planning respectively) must also comment on the application.**
    - The application will be referred to this department during the Public Participation Process.

- **The visual impact must be addressed.**
    - Visual Representation is attached to this application as Annexure 18. As can be seen on the attached visual representation, the proposed quarry is barely visible from the TR209. The proposed quarry is screened of by a berm which is covered with natural vegetation which also help to keep the berm in place. Therefore, the visual impact of the proposed quarry is minimal from the public roads abutting the subject property.

- **The renewed mining permit needs to be obtained prior to and submitted with the land use application.**
    - Attached as Annexure 13, is a copy of the renewed mining permit which is valid until 5 November 2025. The permit may be renewed for another year should this permit lapse.

- **The relevant Environmental Authorization needs to be obtained prior to and submitted with the land use application.**
    - Attached as Annexure 11, is a copy of the Environmental Authorisation dd. 20/08/2021.

- **The relevant Environmental Management Programme must accompany the application.**
    - The Environmental Management Programme is included in the Basic Assessment Report which is attached to this application as Annexure 14.

- **Validity period of the land use approval, if so granted, will be in line with the mining permit period.**
    - The mining permit is currently valid until 5 November 2025 and may be renewed for another year. Therefore, the mining permit will only be valid until 5 November 2026 should it be renewed for a third time.

- **Access approval required from the applicable Road authority, who may require a Traffic Impact Assessment.**
    - This application will be referred to the relevant authority for comment during the Public Participation Process.

- **Possible requirement of access servitudes will be the responsibility of the developer.**
    - The access to the proposed quarry is over Farm 227/30, which is owned by the same owner of the subject property. Bearing this in mind a servitude cannot be registered in favour of oneself. Should the Municipality deem it necessary it can be covered in a condition of approval that should the subject property be transferred, the access over Farm 227/30 should be formalised. Therefore, no further elaboration will be made in this regard.

- **All parking must be provided on-site, in accordance with the parking requirements as specified in the GIZS 2023 parking tables (Note PT1 ratios can be applied).**
    - George Municipality's Integrated Zoning Scheme By-Law does not indicate parking requirement for the proposed land use. Therefore, the applicant cannot comment on this requirement.

- **No parking is allowed within the road reserve, and the owner may be held liable for any costs associated with preventing parking in the road reserve.**
    - The property does not abut a road. Therefore, this requirement is irrelevant to this application.

- **Normal Development Charges (DCs) will apply in accordance with the DC policy and the Town Planning By-law.**
    - The necessary DC's will be paid should it be a requirement contained in the decision letter.

- **No municipal water and/or sewer extend up to the area. Developer to make provision for these services.**
    - As mentioned in Par. 4.7 of this report, the proposed quarry does not require any services. Therefore, no further elaboration will be made on this requirement.

- **The developer must comply with the relevant Stormwater By-law.**
    - A freshwater report was compiled by Dr Dirk van Driel and is attached to this application as Annexure 15.

- **The property is in an Eskom Supply Area. Applicant to liaise directly with Eskom.**

- As mentioned earlier in this report, the proposed quarry does not require any services and will therefore not require an electrical connection. Therefore, no further elaboration will be made in this regard.

4.3.4.3 Proposed development parameters (George Integrated Zoning Scheme By-Law, 2023)
Quarry:
4.3.4.3.1 Development parameters applicable to "agriculture' together with additional parameters determined by the Municipality apply:
The focus of this application, a quarry, does not propose any permanent structures which can be evaluated in accordance with the development parameters of the Zoning Scheme. Therefore, the applicant cannot give comment in this regard. The Site Development Plan of the proposed quarry is attached to this application as Annexure 7.

4.3.4.3.2 If a quarry is approved as a consent use in Agricultural Zone I, the consent may only be granted for the number of years equal to the expected lifetime of the quarry concerned:
The mining permit of the proposed quarry is attached to this application as Annexure 12. The aforementioned permit was renewed until 04/11/2025. The permit can be renewed once more. Therefore, it is proposed that this consent use approval be valid until 04/11/2026 to make provision for any renewals of the mining permit.

4.3.4.3.3 The owner must comply with national and provincial statutory requirements applicable to mining:
The owner of the quarry will abide to the statutory requirements of government as required by this development parameter.

4.3.4.3.4 A Site Development Plan must be submitted to the Municipality for its approval:
A Site Development Plan of the proposed quarry is attached to this application as Annexure 7 which therefore complies with this development parameter.

4.3.5 TITLE DEED

Herman Swanepoel of KLS Attorneys compiled a conveyancer certificate which is attached to this application as Annexure 10. In the aforementioned certificate it is stated that the title deed of the property, i.e., Title Deed No. T7794/1993, does not contain any restrictive which could have any influence on the proposed application.

The Conveyancer Certificate furthermore list bonds registered on the property. Attached as Annexure 3, is bondholders consent by ABSA.

4.4 CHARACTER OF THE ENVIRONMENT

The property relevant to this application is situated within the rural area of Sinksabrug where the predominant land use is agriculture which focusses on grazing of cattle/sheep and rotational crops. This application for a consent use for a quarry is temporary as the application will only be valid for the period the mining permit was issued. Quarrying is normally associated within rural areas as it cannot take place within the urban edge of a town. After fruition of the mining activities, the quarry will be rehabilitated and will again be cultivated for agricultural purposes. Therefore, the proposed application for a quarry pose to not detract from the character of the environment on a permanent basis.

4.5 POTENTIAL OF THE PROPERTY

4.5.1 AGRICULTURE

An assessment of the impact of granite gravel mining on agricultural potential on Remainder Farm Buffels Drift No. 227 was compiled by Johann Lanz and is attached to this application as Annexure 16. According to Mr. Lanz if rehabilitation and mitigation measures are successful, the land will retain a similar agricultural potential to what it was pre-mining. Therefore, no further elaboration will be made in this regard.

4.5.2 CONSERVATION

As stated earlier in this report, the property has been transformed by farming activities and the sensitivity with regard to plant species is low as verified by Dr. van Driel. Therefore, this application poses to not negatively affect any conservation worthy vegetation.

4.5.3 MINING

Aggregate can be found on the property which is the motive for this application. Therefore, approval of this application will allow the owners to legally operate a quarry from the property. A renewal of the mining permit was issued until 04/11/2025 by the Department of Mineral Resources and Energy for the proposed mining activities.

4.5.4 RECREATION

As mentioned throughout this report the subject property is zoned for agricultural purposes. The property does not directly offer recreational activities for the public, but indirectly it may facilitate recreation elsewhere where the material which is extracted from the subject property is used to construct recreational facilities for others. Therefore, since this property is in private ownership and application is made for a quarry it is not reasonably profound to prose any recreational facilities. In light of the aforementioned no further elaboration will be made with regard to recreation.

4.5.5 RESIDENTIAL

The subject property is zoned for agricultural purposes and the owner is allowed by George Municipality's Integrated Zoning Scheme By-Law, 2023, to construct a dwelling house and agricultural worker's accommodation on the property, should the need or desire persist. This application for a quarry does not propose any residential opportunities and since the primary use of the property is for agriculture no further elaboration will be made in this regard.

4.6 LOCATION AND ACCESSIBILITY

The subject property is situated at 33°59'47.69"S 22°20'07.00"E within the rural area of Sinksabrug outside George. The property is accessed from TR209 via an existing road traversing Buffels Drift 227/30 which is another property of the registered owner. This application does not propose an amendment to the access and the existing access will remain in place as is.

4.7 PROVISION OF SERVICES

The subject property currently receives electricity directly from Eskom and water used for irrigation purposes is gathered rainwater. Approval of this application will not require any additional services from the Municipality as the quarry do not require any services. In light of the aforementioned no further elaboration will be made in this regard.

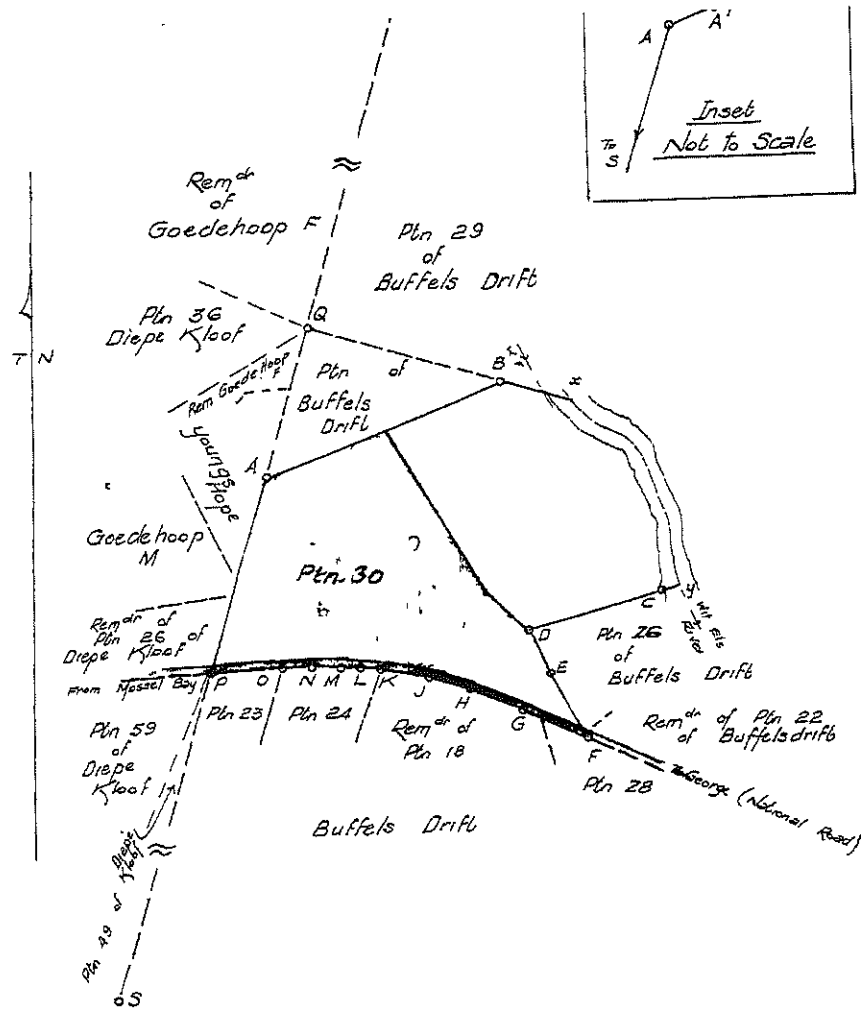
4.8 CONSTRUCTION PHASE

This application does not propose any construction and therefore no elaboration will be made with regard to a construction phase.

5. CONCLUSION

The influx of people to the Garden Route through recent years led to and increased demand for aggregate which is a material commonly associated with construction. Therefore, approval of this application will contribute to serve the demands for construction materials in the Garden Route, while also contributing to the economy in various forms. The contribution to the economy includes, but is not limited to the following, financial gain for the owner of the farm, financial gain for the mining company, financial gain for the workers of the quarry, financial gain for construction companies requiring the materials, financial gain for the Municipality in the form of additional rates and taxes of new construction, etc. On the strength of the rationalisation followed in this report, it is evident that approval of this application has a substantial benefit not only for the owners of the mine and the owners of the property, but also to the Greater George as it will allow the mining of aggregate which can be supplied to local customers at more affordable rates which can lead to a well-balanced economy.

Nel & de Kock Town and Regional Planners **May 2025**
Per: Alexander Havenga Pr. Pln A/3313/2023



SIDES Cape Feet		ANGLES OF DIRECTION		CO-ORDINATES y	x
		Constant			+ 11900000 0
AB	3426 7	248 36 20	A	+ 199728 2	+ 51096 8
BC	3644 7	322 28 40	B	+ 196537 6	+ 49846 7
CD	1899 7	73 18 0	C	+ 194317 7	+ 52737 4
DE	654 9	336 7 10	D	+ 196187 3	+ 53283 3
EF	990 6	330 8 50	E	+ 195872 2	+ 53882 1
FG	940 5	113 8 0	F	+ 195579 1	+ 54741 3
GH	773 0	112 28 30	G	+ 196244 5	+ 54575 1
HJ	581 7	107 18 50	H	+ 196958 8	+ 54077 6
JK	685 6	101 1 30	J	+ 197514 1	+ 53904 5
KL	501 9	95 59 20	K	+ 198187 0	+ 53775 4
LM	278 1	92 53 10	L	+ 198487 3	+ 53741 9
MN	361 8	89 55 10	M	+ 198765 0	+ 53727 9
NO	400 1	87 7 30	N	+ 199126 8	+ 53728 4
OP	1000 2	87 3 30	O	+ 199526 4	+ 53748 5
PA	2818 1	196 25 50	P	+ 200525 3	+ 53799 8
QB	2706 9	286 24 10	Q	+ 199135 X	+ 49082 X
RA	9540 4	16 25 50	R	+ 197086 2	+ 42157 8
SP	9010 5	196 25 50	S	+ 203073 9	+ 62442 4
Bx		286 24 10	A'	+ 199725 4	+ 51095 7
Cy		253 18 0			
AA'	3 0	248 36 20			

Beacons :-

A, not beaconed (See inset)
A', planted stone proj 15"
B, do do 9"
B Q S, do do 15' (not on line AR)
C, concrete block 14" x 5" proj 6"
D, do 12" x 6" do 6"
E, do 8" x 7" do 6"
F, do 8" x 5" do 6'
G H J K L M N O & P, concrete block 7" x 6' proj 6"
R, concrete block 9" x 9" proj 12"

No. 5978/59

Approved

J. de Smidt
Surveyor-General.

6
22

Remainder of
Buffels Drift
George

No 227

Scale 1 25000

The figure A B x middle of Wit Els river y DEFGHJKLMNOP

represents 218·3573 Morgen of land being

The Remainder of the farm Buffels Drift

situate in the Division of George Province of Cape of Good Hope.

Surveyed in Oct 1959 by me

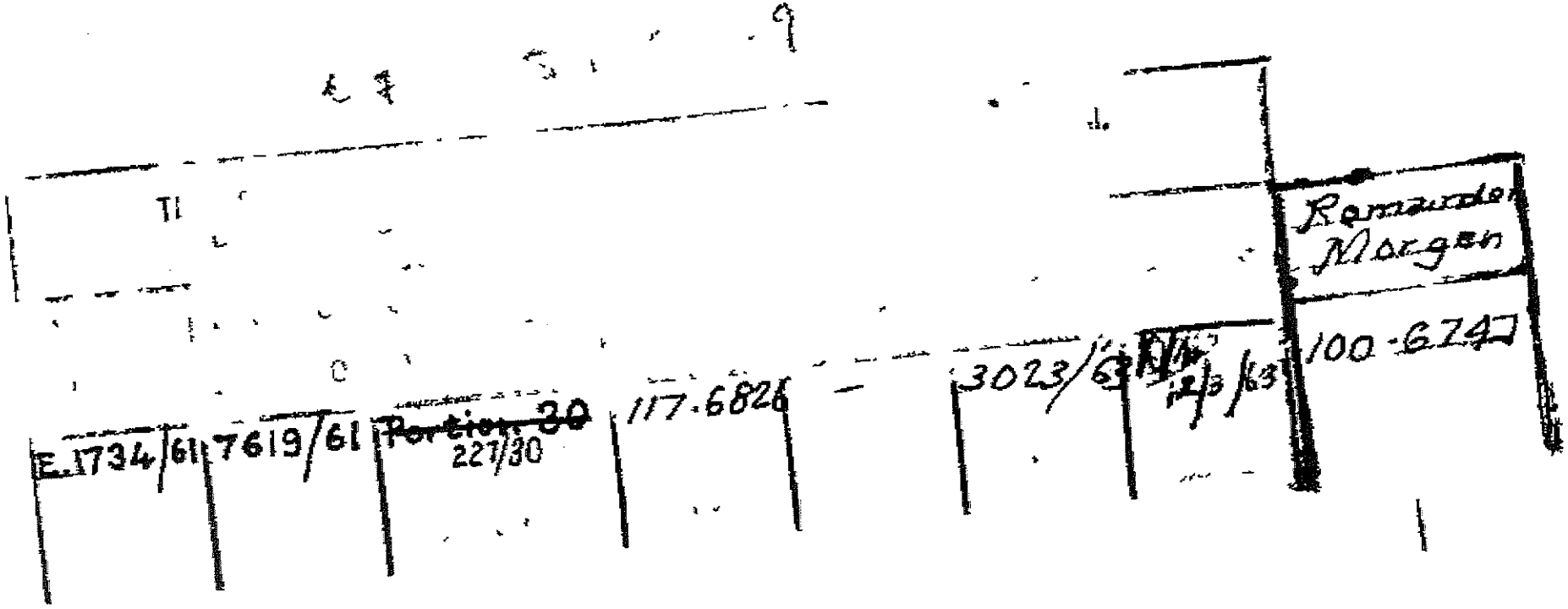
J. Pascoe
Land Surveyor.

This diagram is annexed to Deed of Grant George Q 148

The original diagram No ~~annexed to~~ for which this substituted

File No 5/8339
S R No E2007/59

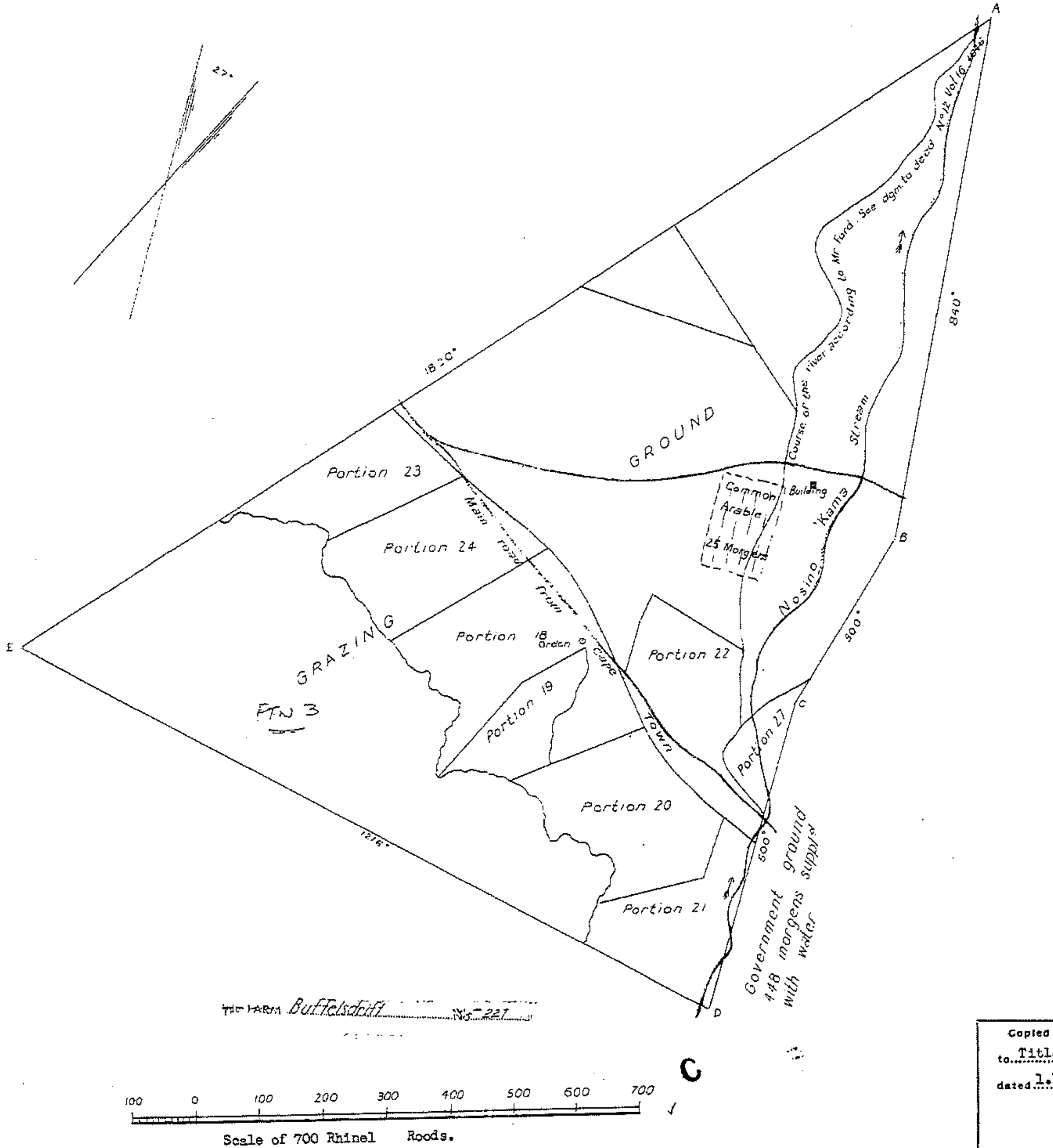
Annexure 5


Remainder
Morgen
100·6747
3023/63
E.1734/61
7619/61
Portion 30
227/30
117·6826

NO. B. 260/1816.

CANCELLED
Rem. of No. 23
This diagram ...
Vide Diagram. 8978/1959 (D/G George Q.1-48)
File S./8339

2.8.1960 (Sgd.) W.J. Woodman.
for SURVEYOR-GENERAL.



The farm Buffelsdrift No 227

Scale of 700 Rhinel Roods.

The diagram A to E represents the Loanplace Buffelsdrift of 1692 Morgens of Land, Landholder situated in the Fieldcornetcy of Outeniqualand, District George,

Extending E.N.E. contiguous to the place Moeras rivie Government Land

S^wds " to the place Hogekraal

W.N.W. " to the place Diepe Kloof

Surveyed by me,

(Sgd.) A. Eg^s Petersen.

Sworn Surveyor.

Copied from diagram relating to Title Deed No. Geo.Q.1-48 dated 1.12.1816
for Surveyor-General
30.7.1964

HL/MF

For list of deductions see back of diagram

BL-70CO (6288)

CHECKED
DATA CHECKED

S

B

C

THE FOLLOWING SUBDIVISIONS HAVE BEEN MADE FROM THIS DIAGRAM.

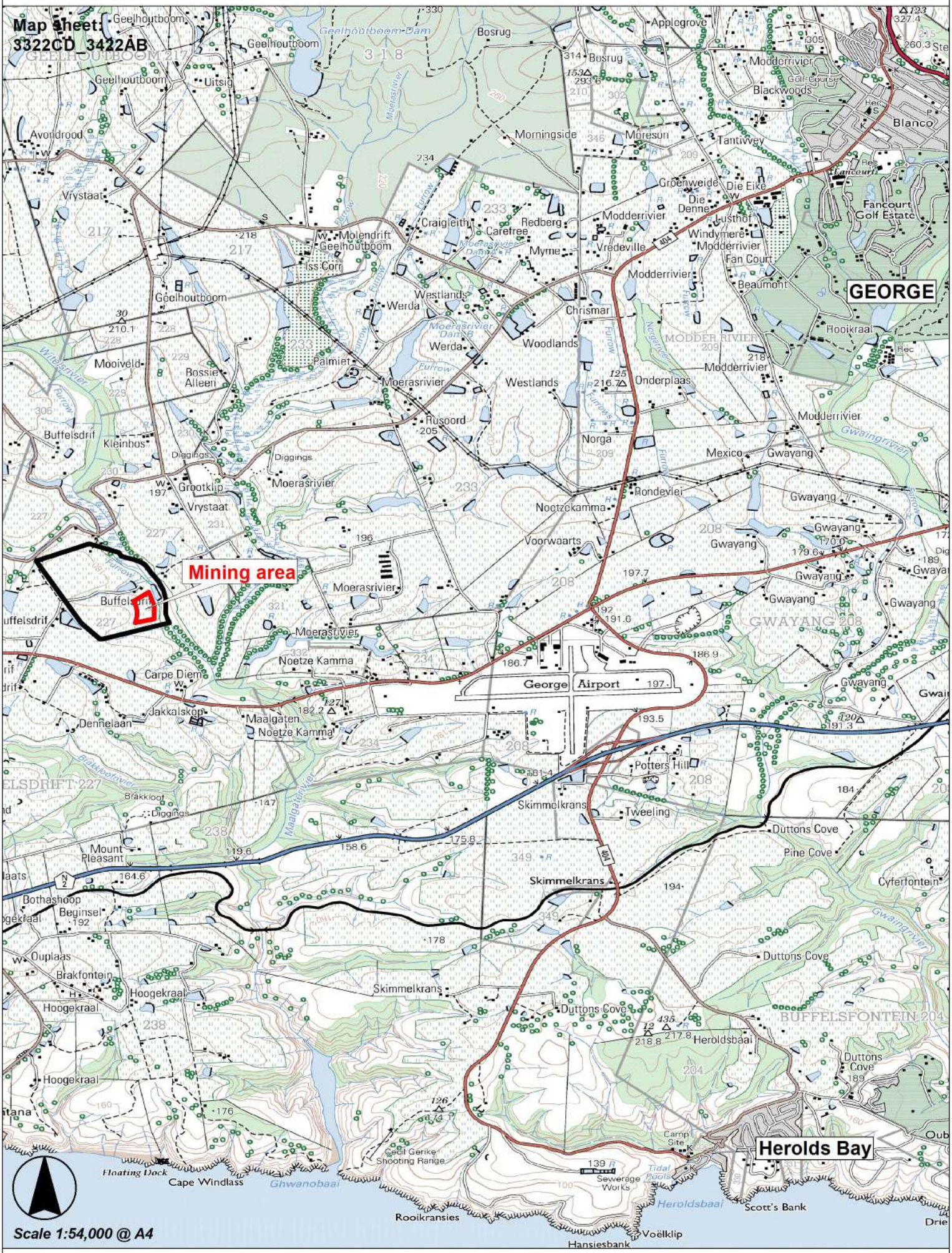
Survey Records.	Diagram.	Subdivision.	Area. Morgs.	Sq.Rds.	Sq.Ft.	Deed.
		~~Ptn. in pink~~ 227/1	216	75	-	1846-16-12
		~~Ptn. in green~~ 227/2	156	259	72	1858-10-132
		~~Ptn. in yellow~~ 227/3	382	66	-	1867-33-31
		~~Ptn. in mauve~~ 227/4	33	200	-	1886-36-285
E173/53	715/53	~~Portion 18~~ 227/18	109.9166	-	-	14986-1953
-"-	716/53	" ~~19~~ 227/19	64.4211	-	-	14985-1953
-"-	717/53	" ~~20~~ 227/20	76.2524	-	-	14985-1953
-"-	718/53	" ~~21~~ 227/21	48.6704	-	-	14987.1953
E519/53	2322/53	" ~~22~~ 227/22	77.2153	-	-	14990-1953
E172/53	713/53	" ~~23~~ 227/23	34.0576	-	-	14989-1953
-"-	714/53	" ~~24~~ 227/24	50.0000	-	-	14988-1953
E2272/55	9352/55	" ~~27~~ 227/27	17.4289	-	-	11570/1960

SGO Dgm No B 260/1816

227

Locality map: The Remainder of Buffels Drift 227 (George RD)

Annexure 6



Regulation 2(2) Plan: A mining permit on the Remainder of Buffels Drift 227 (George RD)

Annexure 7

Coordinate system/s:
Y & X - WG23 (m)
Lat & Long - WGS84 Decimal Degrees

ID	Y	X	Latitude	Longitude
1	61363.35	3763315.25	-33.995086	22.335829
2	61309.69	3763467.96	-33.996466	22.336399
3	61307.30	3763607.87	-33.997727	22.336415
4	61482.40	3763632.79	-33.997942	22.334518
5	61474.83	3763602.32	-33.997668	22.334602
6	61471.99	3763559.46	-33.997281	22.334636
7	61474.83	3763513.77	-33.996869	22.334609
8	61487.75	3763459.26	-33.996377	22.334473
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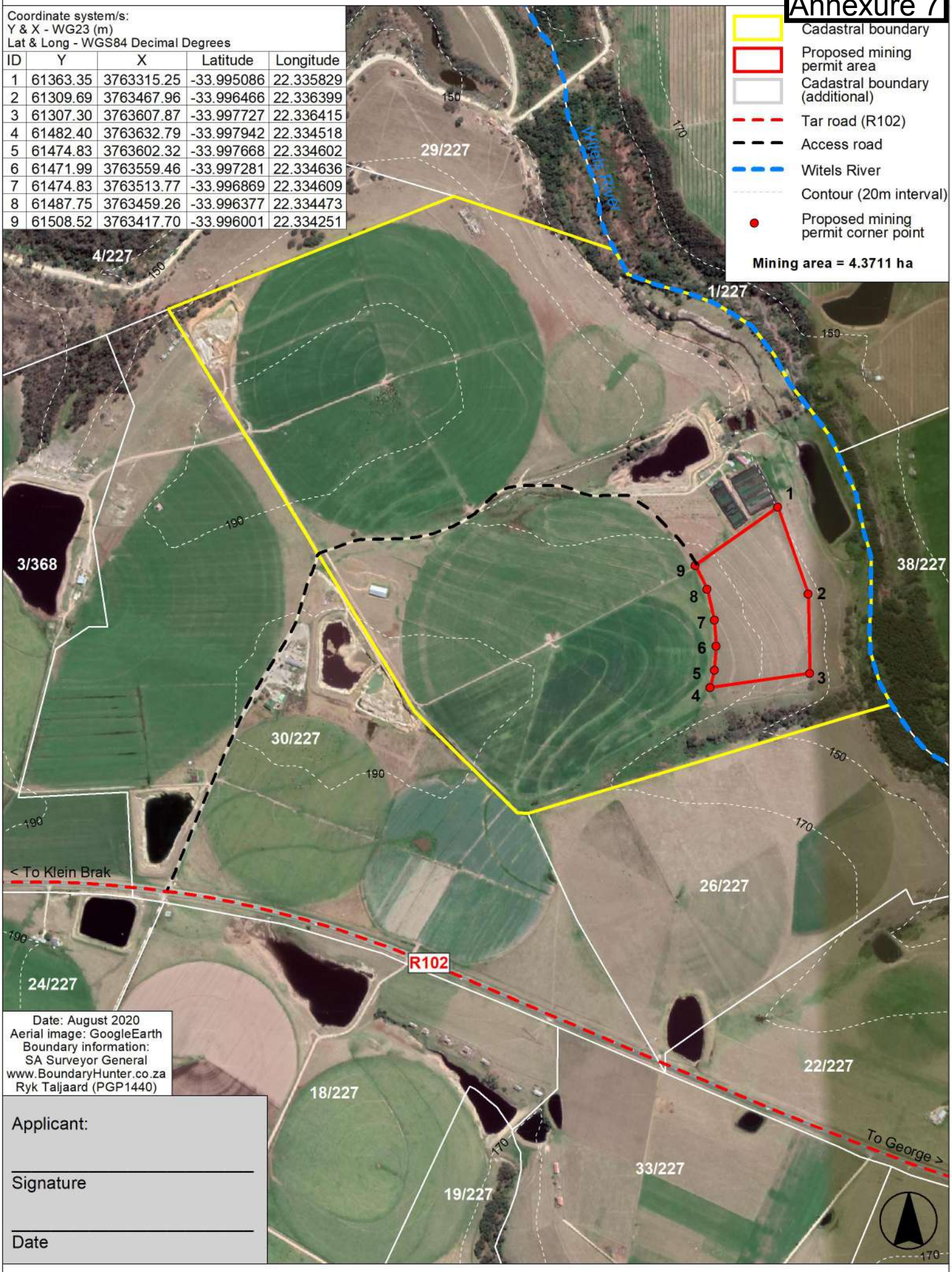


Date: August 2020
Aerial image: GoogleEarth
Boundary information:
SA Surveyor General
www.BoundaryHunter.co.za
Ryk Taljaard (PGP1440)

Applicant:

_____
Signature

_____
Date

Scale 1 : 8,200 @ A4

100 0 100 200 300 400 500 600 700 800 900 1000 Meters

Mining Layout Plan: Located on the Remainder of Buffels Drift 227 (George RD)

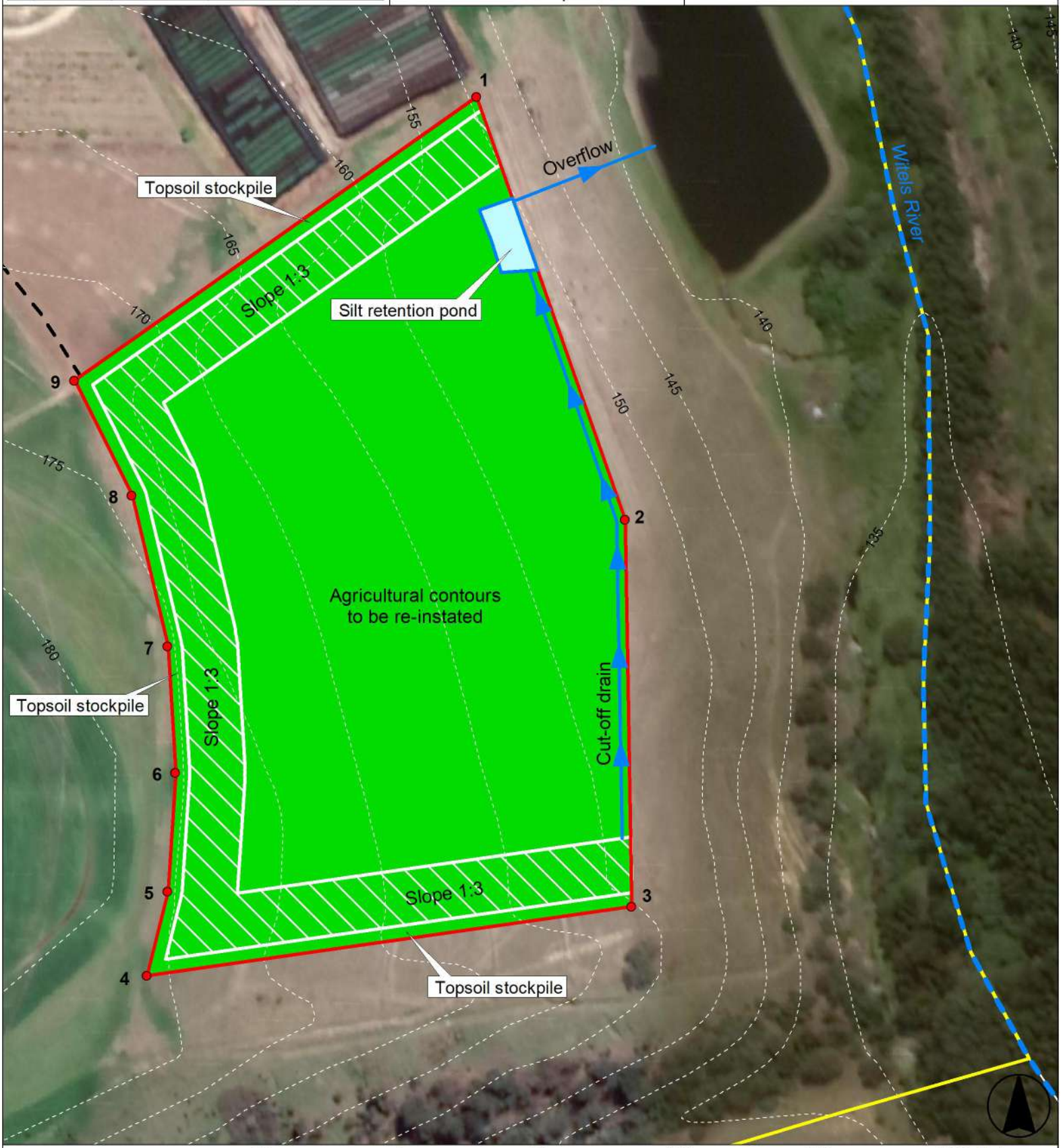
Coordinate system/s:
Y & X - WG23 (m)
Lat & Long - WGS84 Decimal Degrees

ID	Y	X	Latitude	Longitude
1	61363.35	3763315.25	-33.995086	22.335829
2	61309.69	3763467.96	-33.996466	22.336399
3	61307.30	3763607.87	-33.997727	22.336415
4	61482.40	3763632.79	-33.997942	22.334518
5	61474.83	3763602.32	-33.997668	22.334602
6	61471.99	3763559.46	-33.997281	22.334636
7	61474.83	3763513.77	-33.996869	22.334609
8	61487.75	3763459.26	-33.996377	22.334473
9	61508.52	3763417.70	-33.996001	22.334251

Proposed mining permit area
Quarry slope (1:3)
Silt retention pond
Cadastral boundary
Cut-off drain & overflow
Access road
Witels River
Contour (5m interval)
Proposed mining permit area corner point

Date: August 2020
Aerial image: GoogleEarth
Boundary information:
SA Surveyor General
www.BoundaryHunter.co.za
Ryk Taljaard (PGP1440)

Mining area = 4.3711 ha



Scale 1 : 1,850 @ A4

50 0 50 100 150 200 Meters

Annexure 8

Standard Bank of South Africa

ComputerGeneratedCopy

The Standard Bank of South Africa Limited Registered Bank Reg. No. 1962/000738/06

CUSTOMER PAYMENTS HISTORY PRINT REPORT

Customer no : 700077757 **User ID :** QDO82 **User Name :** KIRSTEN AND TULLEKEN VERVOER B
Action Date : 20250529 **Description :** CSN15 20250529 08:41:30.1 **Reference :** 2025149012

From :

Branch No	Branch Name	Account No	Account Name	Amount	Statement Reference	Sub Batch Description	Sub Batch No
214	GEORGE	82862745	KIRSTEN & TULLE *JJJ	291,100.90	2025149012/1	2025149012 C	1

Transaction No	Creditor	Acc No / CDI	Account Name	Amount	Statement Reference	RTGS/RTC	Branch No	Branch Name	Status
3	CAWMUNN	62869623150	GEORGE MUNISIPALITEIT	10,465.00	4031946	N	210554	FIRSTRAND BANKCOMM ACCOU	FINAL AUDIT TO BE DOWNLOADED

** END OF REPORT **

Annexure 9

61 SILBERBAUERS VIR ENDOSSEMENTE KYK BLADSY 8 ET SEQ
61 FOR ENDORSEMENTS SEE PAGE
SILBERBAUERS
(VERW: HJM/DS/92/993)

2x2

T 7794/93

TRANSPORTAKTE

KRAGTENS 'N PROKURASIE

Opgestel deur my,

Transportbesorger
H J MOUTON

SILBERBAUERS
Prokureurs
KAAPSTAD

HIERMEE WORD BEKEND GEMAAK

DAT ~~HENDRIK JOHANNES MOUTON~~ MARTINE COLETTE NEWMAN
verskyn het voor my, Registrateur van Aktes, te Kaapstad, hy die gesegde Komparant synde behoorlik daartoe gemagtig deur 'n Volmag uitgevoer te GEORGE op die 6de dag van OKTOBER 1992, aan hom verleen deur

DIE EKSEKUTEURS in die Boedel van wyle
JAMES IZAAK BARNARD

(hierna genoem die Transportgewer)

Kragtens Notariële akte Nr. K 1569 93 ged. 30/10/92
is (A) (Para 1) Ged. 19 van die plaas Buffels Drift Nr. 227
geregtig op 'n serwituut reg van toegang tot 'n
waterpypleiding vanuit die Witelsrivier oor Ged. 30
van die plaas Buffels Drift Nr. 227 gehou kragtens
Transportakte Nr. T (4)7796/93

(B) (Para 2) Die Restant van die plaas Buffels Drift Nr. 227
is ondehowig aan 'n serwituut reg van toegang tot
en waterpypleiding vanuit die Witelsrivier ten gunste
van Ged. 24 van die plaas Buffels Drift Nr. 227
gehou kragtens Transportakte Nr. T 7795/93 en Ged. 30
v/d plaas Buffels Drift Nr. 227 gehou kragtens
Transportakte Nr. T (4)7796/93

Soos meer volledig sal blyk uit gesegde Notariële akte

Aktekantoor
Kaapstad 10 02 93 Registrateur van aktes

Para 1

GETRANSPORTEER AAN	TRANSFERRED TO
G. A. Bairnard	
RESTANT/REMAINDER	
T 28967 93	
31 03 93	REGISTRATEUR/REGISTRAR

welke Volmag, geteken in die teenwoordigheid van getuie ooreenkomstig die Wet, vandag aan my getoon is;

EN DIE KOMPARANT HET VERKLAAR dat

NADEMAAL JAMES IZAAK BARNARD wie op 16 April 1992 oorlede is, gedurende sy leeftyd binne gemeenskap van goedere getroud was met GERTRUIDA ELIZABETH BARNARD;

EN NADEMAAL die boedels van genoemde wyle JAMES IZAAK BARNARD en genoemde GERTRUIDA ELIZABETH BARNARD kragtens hulle Gesamentlike Testament gedateer te GEORGE op 10 JULIE 1987 met Kodisille daartoe gedateer 5 AUGUSTUS 1987, 27 APRIL 1988 EN 7 DESEMBER 1990, saamgesmelt is en genoemde GERTRUIDA ELIZABETH BARNARD onder die Testament geadieer het;

EN NADEMAAL die hiernabeskrewe eiendom die hiernagenoemde Transportnemer toekom ingevolge die bepalings van klousules 4.2.1. en 4.2.2. van genoemde Gesamentlike Testament en kodisille; onderhewig aan die vruggebruik van die nagelate eggenote GERTRUIDA ELIZABETH BARNARD; onderhewig verder aan die voorkoopsreg ten gunste van die Transportnemer se mede-erfgenaam broers, GERHARD ADAM BARNARD getroud binne gemeenskap van goedere met MARIAN LYN BARNARD en DIRK BARNARD, Ongetroud, en verder onderhewig aan klousule 6 van genoemde Testament, soos meer volledig hierinlater uiteengesit.

NOU DERHALWE het hy in sy hoedanigheid as Prokureur voormeld, deur hierdie akte gesedeer en getransporteer in volle en vrye eiendom aan en ten gunste van

JAMES DEWALD BARNARD
Identiteitsnommer 600703 5042 00 0
Getroud buite gemeenskap van goedere

(hierna genoem die TRANSPORTNEMER)
Sy Erfgename, Eksekuteure, Administrateure of Regverkrygendes

Para 2

Binnegemelde eiendom is onderhewig aan 'n ewigdurende serwituut reg van toegang tot en waterleiding vanuit die WITTELSRIVIER ~~oor~~ ~~die~~ ten gunste van:

Gedeelte 19 van die Plaas BUFFELS DRIFT No. 227, AFDELING van GEORGE
Groot: 55,1787 ha
Gehou kragtens T 28967 93

31 03 93

Aktekantoor
Kaapstad

Registrateur v. Aktes

(4)

BC 042785/10
GEKANSELLEER
CANCELLED
REGISTRATEUR/REGISTRAR
15 SEP 2010

Para 2

VERBIND MORTGAGED
VIR / FOR R 150000,00

B 71348 93
21 09 93
REGISTRATEUR/REGISTRAR

Afstand van vruggebruik + verlengde opsigreg gedoen ten g/v verbandhouer

VIR ... BLADSY 10
FOR ENDORSEMENTS SEE PAGE

1. **GEDEELTE 19 van die Plaas BUFFELS DRIFT NR 227**
AFDELING van GEORGE;

GROOT: 55,1787 (Vyf en vyftig komma een sewe ag sewe) Hektaar;

AANVANKLIK OORGEDRA kragtens Transportakte nr T14985/1953 met kaart 716/53 wat daarop betrekking het en GEHOU kragtens Transportakte nr T16414/1969.

A. **ONDERHEWIG** aan sodanige voorwaardes as na verwys word in Transportakte nr T12246/1955.

B. **ONDERHEWIG VERDER** aan die terme van die endossement gedateer 9 Augustus 1988 op gesegde Transportakte nr T16414/1969, wat soos volg lees:

Kragtens Notariële Sessie van Saaklike Regte K544/88 gedateer 27-5-1988. Die eienaar van binnegemelde eiendom sedeer hiermee aan HIPPO QUARRIES (EIENDOMS) BEPERK (genoem "die Maatskappy") 'n saaklike reg die uitsluitlike en alleenreg om in op en onder die Klipgebied, groot 32,1462 Hektaar soos aangedui deur die figuur a middel van Stroom c middel van Brakkloofstroom b op serwituutkaart L.G.Nr 7381/1987, klip en sand uit te grawe, uit te haal, te herwin, te verwerk, te verwyder en vir eie rekening of andersins te verkoop of te vervreem. Soos meer volledig sal blyk uit gesegde Notariële Akte."

C. **ONDERHEWIG VERDER** aan die lewenslange vruggebruik ten gunste van die nagelate eggenote GERTRUIDA ELIZABETH BARNARD Identiteitsnommer 371114 0028 00 1, Ongetroud, kragtens klousule 4.5.1, en 4.5.2. van gesegde Gesamentlike Testament en Kodisille, wat soos volg lees:

(10)

Para 2

Afstand van vruggebruik en verkoopsreg gedaan t.g.v v/houer

VERBIND MORTGAGED (5)

VIR FOR R 100 000,00

B 56815/96

20 08 96

REGISTRATEUR/REGISTRAR

BC 042786/10

GEKANSELLEER CANCELLED

REGISTRATEUR/REGISTRAR

15 SEP 2010

Para 2.

Afstand van vruggebruik en voorkoopsreg gedaan tgv verbandhouer

VERBIND MORTGAGED (6)

VIR FOR R 300 000 00

B 64321/96

19 09 96

REGISTRATEUR/REGISTRAR

BC 042787/10

GEKANSELLEER CANCELLED

REGISTRATEUR/REGISTRAR

15 SEP 2010

PARA 2 N.O.P

PREFERENCE OF USUFRUCT & PRE-EMPTIVE RIGHT WAIVED IN FAVOUR OF BOND

VERBIND MORTGAGED (10)

VIR FOR R 1 000 000,00

B 000105927/2006

11 OCT 2006

REGISTRATEUR/REGISTRAR

BC 042791/10

GEKANSELLEER CANCELLED

REGISTRATEUR/REGISTRAR

15 SEP 2010

ENDOSSEMENT KRAGTENS ART. 68 (1) VAN WET 47 VAN 1937	ENDORSEMENT BY VIRTUE OF SECT. 68 (1) OF ACT 47 OF 1937
PERSOONLIKE SERWITUUT IN VOORWAARDE C OP BLADSY 5 ENDOSSEMENT GEDATEER HET VERVAL.	THE PERSONAL SERVITUDE IN CONDITION C ON PAGE 5 ENDORSEMENT DATED HAS LAPSED.
BC 042793/10 (9)	
15 SEP 2010	REGISTRATEUR/REGISTRAR

4.5.1. "Al die genoemde eiendomme sal onderhewig wees aan 'n lewenslange reg van vruggebruik aan en ten gunste van die Testatrise, die gesegde GERTRUIDA ELIZABETH BARNARD (gebore Terblanche), welke vruggebruik egter slegs op die volgende wyse deur die Testatrise uitgeoefen mag word, naamlik:

4.5.2. Die betrokke eiendom(me) sal aan die drie erfgename van die blote eiendomsreg daarin verhuur word teen 'n jaarlikse huurgeld van R3 500,00 (Drieduisend Vyfhonderd Rand) per jaar per erfgenaam, met jaarlikse stygings van sodanige huurgeld teen 5% saamgesteld, met dien verstande egter dat die Testatrise ook geregtig sal wees op die inkomste uit die klipgroefregte op die plaas Gedeelte 19 van Buffelsdrift tot haar dood;

D. **ONDERHEWIG VERDER** aan die volgende voorwaarde ten opsigte van 'n voorkoopsreg opgelê en soos vervat in Klousule 4.5.4. van die genoemde Gesamentlike Testament en Kodisille wat as volg lees:

4.5.4. "Die erfgenaam(e) van die blote eiendomsreg in die bogenoemde plaaseiendomme moet indien hy sy betrokke eiendom(me) wil verkoop, dit eers te koop aanbied aan sy mede-erfgename broer(s) teen dieselfde prys en verkoopsvoorwaardes as wat 'n buitestaander ingevolge 'n skriftelike koopakte of skriftelike koopaanbod bereid is om dit te koop. Indien die ander erfgenaam(e) nie binne NEGENTIG (90) DAE vanaf die voorlegging aan hom (hulle) van sodanige koopakte of aanbod, hul (sy) voorkoopsreg uitoefen nie, sal sodanige voorkoopsreg verval mits 'n verkoping in terme van die betrokke koopakte of aanbod met 'n buitestaander plaasvind. Bogenoemde voorkoopsregte verval by die dood van enige betrokke erfgenaam, ten opsigte van die eiendom wat aan daardie erfgenaam behoort."

welke voorkoopsreg bindend is op die Transportnemer ten opsigte van die eiendom hierkragtens getransporteer aan en ten gunste van sy mede-erfgenaam broers, naamlik:

GERHARD ADAM BARNARD
Identiteitsnommer 620106 5068 00 7
en
MARIAN LYN BARNARD
Identiteitsnommer 640419 0084 00 2
Getroud binne gemeenskap van goedere met mekaar

en

DIRK BARNARD
Identiteitsnommer 650422 5090 00 5
Ongetroud

Para 2

LSDP

VERBIND MORTGAGED

VIR FOR R 450000,00

B 26415/18 20

15 SEP 2010

REGISTRATEUR/REGISTRAR

E. **ONDERHEWIG VERDER** aan die voorwaarde vervat in Klousule 6 van genoemde Gesamentlike Testament en Kodisille, wat soos volg lees:-

6. "Ons bepaal dat enige voordeel wat enige begunstigde mag toekom kragtens hierdie ons testament, uitgesluit sal wees van enige gemeenskap van goed, en in die geval van enige vroulike begunstigde, ook van die maritale mag van haar eggenoot, kragtens enige huwelik wat dan of daarna mag bestaan tussen sodanige begunstigde en sy of haar onderskeie of toekomstige eggenoot of eggenote."

2. RESTANT van die Plaas BUFFELS DRIFT NR 227, AFDELING GEORGE;

GROOT: 86,2311 (Ses en tagtig komma twee drie een een) Hektaar

AANVANKLIK GEREGISTREER kragtens Grondbrief gedateer 1 Desember 1816 (George Erfpagte Boekdeel 1 nr 48) met Vervangingskaart nr 8978/59 wat daarop betrekking het en GEHOU kragtens Transportakte nr T32334/1972.

A. **ONDERHEWIG** aan die voorwaardes waarna verwys word in Transportakte nr T24357/1948.

B. **ONDERHEWIG VERDER** aan die endossement gedateer 8 Maart 1963 op Transportaktes nrs T15141/1957 en T11571/1960, welke endossement as volg lees:

"Restant Para. 2

Kragtens T.3023/63 hede gedateer is die Restant van binnegemelde eiendom geregtig op 'n Serwituutpad 6,30 meter wyd soos aangedui deur die bruin lyn gemerk a b op kaart No 7619/61 wat die middellyn van gemelde Serwituutpad voorstel tot by die punt waar dit aansluit met die Nasionale pad. Soos meer volledig sal blyk uit gesegde Transportakte."

C. **ONDERHEWIG VERDER** aan die lewenslange vruggebruik ten gunste van die nagelate eggenote GERTRUIDA ELIZABETH BARNARD Identiteitsnommer 371114 0028 00 1, Ongetroud, kragtens klousules 4.5.1. en 4.5.2. van gesegde Gesamentlike Testament en Kodisille, wat lees soos meer volledig uiteengesit in paragraaf 1.C. hiervan.

D. **ONDERHEWIG VERDER** aan die voorwaarde ten opsigte van 'n voorkoopsreg opgelê en soos vervat in Klousule 4.5.4. van die genoemde gesamentlike Testament en Kodisille, wat lees soos meer volledig uiteengesit in paragraaf l.D. hiervan.

E. **ONDERHEWIG VERDER** aan die voorwaarde vervat in klousule 6 van genoemde Gesamentlike Testament en Kodisille, wat lees soos meer volledig uiteengesit in paragraaf l.E. hiervan.

WESHALWE die Komparant afstand doen van al die regte en titel wat die GESAMENTLIKE BOEDEL voorheen op die genoemde eiendom gehad het en gevolglik ook erken dat die GESAMENTLIKE BOEDEL geheel en al van die besit daarvan onthef en nie meer daartoe geregtig is nie; en dat, kragtens hierdie Akte, die TRANSPORTNEMER, Sy Erfgename, Eksekteurs, Administrateurs of Regverkrygendes, tans en voortaan daartoe geregtig is ooreenkomstig plaaslike gebruik, behoudens die regte van die Staat;

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

ALDUS GEDOEN en **VERLY** op die Kantoor van die Registrateur van Aktes in KAAPSTAD op hede die 10 dag van die Maand Februarie in die jaar Eenduisend Negehonderd drie en Negentig (1993).

q.q.

in my teenwoordigheid

REGISTRATEUR VAN AKTES

Annexure 10

CONVEYANCERS CERTIFICATE

I, the undersigned,

HERMAN JOSIAS SWANEPOEL (44409)

Conveyancer practising in GREAT BRAK RIVER, hereby certifies from enquiries made by me that:-

REMAINDER OF THE FARM BUFFELS DRIFT NR. 227
IN THE MUNICIPALITY AND DIVISION OF GEORGE
PROVINCE OF THE WESTERN CAPE
IN EXTENT: 86,2311 (EIGHT SIX COMMA TWO THREE ONE ONE) Hectares

and held in terms of Deed of transfer no. T7794/93

is subject to:

1. "…`n serwituut reg van toegang tot en waterleiding vanuit die Witelsrivier ten gunste van gedeeltes 19, 24 en 30 van die plaas Buffels Drift 227 soos uiteengesit in Notariële Akte K 169/1993 S....."

The following bonds are registered against the property:

1. B 21423/2019 in amount of R 9 000 000 in favour of ABSA BANK LTD.
2. B 26415/2010 in amount of R 4 500 000 in favour of ABSA BANK LTD

The Deed has been examined and no further restrictive conditions have been noted which could have any influence on the application envisaged and applicable to the abovementioned property.

Signed at Great Brak River on 21 January 2025

CONVEYANCER
HERMAN JOSIAS SWANEPOEL (44409)

Annexure 11

mineral resources
& energy
Department:
Mineral Resources and Energy
REPUBLIC OF SOUTH AFRICA

Private Bag X 9, Rogge Bay, 8012, Tel: 021 427 1000, Fax: 021 427 1046
9th floor Atterbury House, 9 Cnr Riebeeck and Lower Burg Street, Cape Town, 8001

Enquiries: Ms. N Magubane **Email Address:** Nomfundo.magubane@dmr.gov.za
Ref: WC30/5/1/3/2/10261MP
Sub-Directorate: Mine Environmental Management

BY HAND
Kirsten & Tulleken Vervoer cc
P.O Box 1200
George
6530

Attention	: Andre Tulleken
Cell	: 079 268 63 65
Tel	: 044 875 8035
Fax	: 044 875 0273
Email	: jasper@tulleken.co.za

Dear Sir/Madam

ENVIRONMENTAL AUTHORISATION IN TERMS OF THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998 (NEMA) AS AMENDED, AND THE ENVIRONMENTAL IMPACT ASSESSMENT (EIA) REGULATIONS, 2014 AS AMENDED FOR MINING PERMIT APPLICATION IN RESPECT OF AGGREGATE, STONE AND GRAVEL LOCATED ON PORTION OF THE REMAINDER OF THE FARM BUFFELS DRIFT 227 SITUTATED WITHIN THE MAGISTERIAL DISTRICT OF GEORGE: WESTERN CAPE REGION

With reference to the above mentioned application, please be advised that the Department has decided to **grant** environmental authorisation in terms of the National Environmental Management Act (Act 107 of 1998). The environmental authorisation and reasons for the decision are attached herewith.

In terms of regulation 4(2) of the Environmental Impact Assessment Regulations of 2014, you are instructed to notify all registered interested and affected parties, in writing within 14 (Fourteen) calendar days, from the date of the Department's decision in respect of your application and the relevant provisions regarding the lodgement of appeal must be provided for in terms of the National Appeal Regulations of 2014.

Should you wish to appeal any aspect of the decision, you must submit the appeal to the Minister of Forestry, Fisheries and Environment a copy of such appeal to the Department of Mineral Resources and Energy (Western Cape Regional Office), within 20 days from the date of notification, and such appeal must be lodged as prescribed in by Chapter 2 of the National Appeal Regulations of 2014, by means of the methods as prescribed below:

Appeal to the Department of Forestry, Fisheries and Environment.

Attention : Directorate Appeals and Legal Review
Email : appeals@environment.gov.za
By post : Private Bag X 447, **PRETORIA**, 0001
By hand : Environmental House, Corner Steve Biko and Soutpansberg Street, Arcadia, **Pretoria,** 0083

Copy of the lodged appeal to the Department of Mineral Resources and Energy.

Attention : Regional Manager: Western Cape Region
By facsimile : (021) 427 1046
E-mail : Pieter.Swart@dmr.gov.za
By post : Private Bag X 09, **Roggebaai**, 8012
By hand : 9th floor Atterbury House, 9 Riebeeck Street, **Cape Town,** 8001

Should you decide to appeal, you must comply with the National Appeal Regulation of 2014 in relation to notification of all registered interested and affected, and a copy of the official appeal form can be obtained from the Department of Environmental Affairs.

Kind Regards,

.....
REGIONAL MANAGER: MINERAL REGULATION
WESTERN CAPE REGIONAL OFFICE
DATE: 20/8/2024

mineral resources
& energy
Department:
Mineral Resources and Energy
REPUBLIC OF SOUTH AFRICA

Private Bag X 9, Rogge Bay, 8012, Tel: 021 427 1000, Fax: 021 427 1046
9th floor Atterbury House, 9 Cnr Riebeeck and Lower Burg Street, Cape Town, 8001

Environmental Authorisation in terms of

The National Environmental Management Act, 1998 (Act 107 of 1998) as amended ("NEMA") and the 2014 EIA Regulations as amended

Aggregate, Stone & Gravel mining permit
Magisterial District of George
Western Cape Province

Reference number:	(WC)30/5/1/3/2/10261MP
Last amended:	First issue
Holder of authorisation:	Kristen & Tulleken Vervoer cc
Location of activities:	Portion of the remainder of the Farm Buffels Drift 227 in the Magisterial District of George

DECISION

ACRONYMS

DEPARTMENT:	Department of Mineral Resources
ECO:	Environmental Control Officer
EA:	Environmental Authorisation
EIA:	Environmental Impact Assessment
EIA REGULATIONS:	EIA Regulations, 2014 as amended
EIR:	Environmental Impact Report
EMPr:	Environmental Management Programme
HWC:	Heritage Western Cape
I&AP:	Interested and Affected Parties
MPRDA:	Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002), as amended
NEMA:	National Environmental Management Act, 1998 (Act 107 of 1998), as amended
NEMWA:	National Environmental Management: Waste Act, 2008 (Act 59 of 2008), as amended
SAHRA:	South African Heritage Resources Agency

The Department is satisfied, on the basis of information available to it and subject to compliance with the conditions of this environmental authorisation, that the applicant should be authorised to undertake **NEMA EIA** listed activities specified below. Details regarding the basis on which the Department reached this granting decision are set out in **Annexure "1"** and **"2"** of this environmental authorisation.

ACTIVITY APPLIED FOR

By virtue of the powers conferred on it by NEMA, the Department of Mineral and Energy Resources hereby **Grants** an Environmental Authorisation (EA) to **Kirsten & Tulleken Vervoer cc** with the following contact details –

BY HAND
Kirsten & Tulleken Vervoer cc
P.O Box 1200
George
6530

Attention	: Andre Tulleken
Cell	: 079 268 63 65
Tel	: 044 875 8035
Fax	: 044 875 0273
Email	: jasper@tulleken.co.za

to undertake the following activities listed in the NEMA:EIA Regulations:

LISTED ACTIVITIES AUTHORISED:

Listed Activities	**Activity and/or project description**
Activity 21 of Government notice No. R 983 as amended by GN 327 of April 2017	
Any activity including the operation of that activity which requires a mining permit in terms of section 27 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002), including — *(a) associated infrastructure, structures and earthworks, directly related to the extraction of a mineral resource ; or* *(b) the primary processing of a mineral resource including winning, extraction, classifying, concentrating, crushing, screening or washing; but*	*A aggregate, stone & gravel mine will be developed, with the total extent of 4.37Ha*

excluding the secondary processing of a mineral resource, including the smelting, beneficiation, reduction, refining, calcining or gasification of the mineral resource in which case activity 6 in Listing Notice 2 applies.	
Activity 22 of Government notice No. R 983 as amended by GN 327 of April 2017 *The decommissioning of any activity requiring –* *(i) a closure certificate in terms of section 43 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002); or* *(ii) a prospecting right, mining right, mining permit, production right or exploration right, where the throughput of the activity has reduced by 90% or more over a period of 5 years excluding where the competent authority has in writing agreed that such reduction in throughput does not constitute closure;* *but excluding the decommissioning of an activity relating to the secondary processing of a –* *(a) mineral resource, including the smelting, beneficiation, reduction, refining, calcining or gasification of the mineral resource; or* *(b) petroleum resource, including the refining of gas, beneficiation, oil or petroleum products;–* *in which case activity 31 in this Notice applies.*	*Mining activities will be conducted and a closure certificate will be applied once mining activities has ceased on site.*
Activity 28 of Government notice No. R 983 as amended by GN 327 of April 2017 *Residential, mixed, retail, commercial, industrial or institutional developments where such land was used for agriculture, game farming, equestrian purposes or afforestation on or after 01 April 1998 and where such development:* *(i) will occur inside an urban area, where the total land to be developed is bigger than 5 hectares; or* *will occur outside an urban area, where the total land to be developed is bigger than 1 hectare excluding where such land has already been*	*A aggregate, stone & gravel mine will be developed, with the total extent of 4.37Ha will be developed within agricultural area.*

developed for residential, mixed, retail, commercial, industrial or institutional purposes	

Detailed description of the activity are as follows:

The holder is hereby authorised to undertake mining activities including the above listed activities as it relates to the development as follows:

The total extent of the mining area will be 4.3711ha.

The site is located on transformed land that is used for crop farming. Mining activities will consist of clearing of vegetation, topsoil and overburden in order to expose the underlying aggregate/gravel, excavated and sold to customers for road construction and maintenance projects.

The proposed mining methodology would entail the use of an excavator to remove the material, care will be required to ensure that soil erosion and storm water runoff is avoided, as the site is located on a slope within a 100m from a river.

Site description and location:

Mining activities will be conducted on portion of the remainder of the Farm Buffels Drift 227 in the Magisterial District of George at the following co-ordinates:

ID	Latitude	Longitude
1	-33.995086	22.335829
2	-33.996466	22.336399
3	-33.997727	22.336415
4	-33.997942	22.334518
5	-33.997668	22.334602
6	-33.997281	22.334636
7	-33.996869	22.334609
8	-33.996377	22.334473
9	-33.996001	22.334251

The SG codes for each farm portion are as follows:

- C02700000000022700000

Granting of this EA is subject to the conditions set out below (site specific) and in **Annexure 2** (Departmental Standard Conditions).The Environmental Management Programme (EMPr) attached as part of the reports for the above development submitted as part of the application for an EA complies with Section 24N of NEMA, Appendix 4 of the EIA Regulations, 2014 as amended and

is hereby approved and must be adhered to throughout the life cycle of the operation.

ENVIRONMENTAL AUTHORISATION SITE SPECIFIC CONDITIONS

1. Mining activities must be conducted in accordance to the approved Environmental Management Programme and the attached site layout plan.
2. Visible semi-permanent markers must be placed on the mining boundary before mining activities commences and must be kept for the duration of mining.
3. No permanent surface infrastructure is permitted onsite.
4. Mining activities must strictly be conducted within the demarcated area and other areas outside of the mine layout boundary must be treated as the No-Go areas.
5. Concurrent mining and rehabilitation must be done in the mining area.
6. A 32m buffer from any watercourse must be strictly adhered to. No groundwater may be used by this mining operation.
7. No blasting will take place on site.
8. Access to the site must be limited to the approved access road depicted on the layout plan All the vehicles used on site must maintain the minimum required speed limit and the signage must be installed within the access road.
9. Noise generated during mining and rehabilitation operations must comply with the Western Cape Noise Control Regulations.
10. The stockpiled topsoil must be protected from and/or against losses by water and wind erosion. Driving over topsoil stockpile is prohibited.
11. All recommendations and conditions set out and the approved EMPr must be strictly adhered to.

3. Key factors considered in making the decision

a) The environmental impacts associated with the proposed activity outlined in the BAR will be addressed through the implementation of the proposed mitigation measures outlined in the EMPr compiled by Stephen Davey of Klipberg Consulting (Pty)Ltd;

b) The screening tool report indicated that this application is located within land that is high in Agricultural, Aquatic Biodiversity and Terrestrial Biodiversity.

c) Public Participation Process Report (PPP) is attached as Appendix C of the BAR & EMPr received by the Department on 18 December 2020. The Public Participation Process (PPP) that was undertaken by the Applicant has satisfied the minimum requirements prescribed in the EIA Regulations R982 of 2014 as amended by (GN 326) for public involvement and the PPP results shows that the concerns raised by the I&APs and the Authorities were addressed by the Applicant in the BAR and EMPr, and no objections were noted.

d) A letter of consent dated 16 April 2020, was received from the landowner of the remaining extent of the farm Buffels Drift 227.

e) A Freshwater Report date August 2020 by Dr D van Driel of Watsan Africa is attached as Appendix 3 of the BAR & EMPR received by the Department on 18 December 2020, the purpose of this report was a requirement for a water use license (WUL) application, as it states that the proposed gravel mine is in close proximity of the Witels River, a tributary of the Maalgate River. In terms of the National Water Act a WUL is required. And a site sensitivity verification was conducted, it was determined that the site had low sensitivity with respect to aquatic biodiversity.

f) The screening tool report indicated that this application area is located in high in Biodiversity theme, however the site is located on transformed land as the natural vegetation was cleared by agricultural activities and no study was done in this regard.

g) A assessment of the impact of granite gravel mining on agricultural potential on farm RE/227 by Johann Lanz (P.Sci.Nat.400268/12) is attached as Appendix 2 of the BAR & EMPR received by the Department on 18 December 2020, states that the application area is located on land that has medium-high agricultural potential and the site is suitable for cultivation of pastures. The significance of this activity on this land will be sustainable as long as the mitigation measures and the rehabilitation plan provided in this report are complied with.

h) Heritage Western Cape reviewed the draft BAR recommended that a Heritage Impact Assessment is not required.

i) The comments received from the Principal Inspector of mines supported mining activities on the abovementioned property.

4. Findings

After consideration of the information and factors listed above, the Department made the following findings –

a) The potential impacts on the proposed site were clearly investigated and mitigation measures outlined in the BAR.

b) The application area is located on transformed land, and the current land use is agricultural, there are no species of conservation concern.

c) Western Cape Heritage confirmed that no heritage study is required for this application area.

d) Public Participation Process complied with Chapter 6 of the 2014 EIA Regulations R.982. The PPP included, *inter-alia*, the following:

- A newspaper advertisement was placed in the local newspaper George Herald on 08 October 2020;
- Notices were sent to all key stakeholders and the registered interested and affected parties;
- The landowner submitted his letter of constant for this mining permit application.
- No objections were noted.

ANNEXURE 2: DEPARTMENTAL STANDARD CONDITIONS

1 SCOPE OF AUTHORISATION

1.1 The holder of EA shall be responsible for ensuring compliance with the conditions contained in the EA. This includes any person acting on the holder's behalf, including but not limited to an agent, servant, contractor, subcontractor, employee, consultant or any person rendering a service to the holder of EA.

1.2 Any changes to, or deviation from the project description set out in this EA must be approved in writing by this department before such changes or deviation may be effected. In assessing whether to grant such approval or not, the department may request such information as is deemed necessary to evaluate the significance and impacts of such changes or deviation and it may be necessary for the holder of the EA to apply for further authorisation in terms of the EIA Regulations.

1.3 The activities, which are authorised, may only be carried out at the property indicated in the EA and or on the approved EMPR.

1.4 When any of the holder of the EA contact details change including name of the responsible person, physical or postal address/ or telephonic details, the holder of the EA must notify the department as soon as the new details become known to the holder of the EA.

1.5 The EA does not negate the responsibility of the holder to comply with any other statutory requirements that may be applicable to the undertaking of such activities.

1.6 The holder of EA must ensure that all areas where the authorised activities occur have controlled access to ensure safety of people and animals.

2 APPEAL OF AUTHORISATION

2.1 The holder of EA must in writing, within 14 (fourteen) calendar days from the date of this decision and in accordance with EIA Regulation 4(2) do the following:

2.2 Notify all registered I&APs of –

2.2.1 The outcome of the application;
2.2.2 The date of the decision;
2.2.3 The date of issue of the decision and;
2.2.4 The reasons for the decision as included in Annexure 1 and Departmental Standard Conditions in Annexure 2.

2.3 Draw the attention of all registered I&APs to the fact that an appeal may be lodged against the
decision in terms of the National Appeals Regulations,

2.4 Draw the attention of all registered I&APs to the manner in which they may access the decision.

2.5 Provide the registered I&APs with:

2.5.1 Name of the holder (entity) of this EA
2.5.2 Name of the responsible person for this EA
2.5.3 Postal address of the holder;
2.5.4 Telephonic and fax details of the holder and
2.5.5 E-mail address of the holder if any

3 COMMENCEMENT OF THE ACTIVITIES

3.1 In order to ensure safety, all employees must be given the necessary personnel protective equipment (PPE) and any employee without PPE must not be allowed on site.

3.2 This EA must be provided to the site operator and the requirements thereof must be made fully known to him or her.

3.3 Appropriate notification sign must be erected at the mining site, warning the public (residents, visitors etc.) about the hazard around the mining site and presence of heavy vehicles and machinery.

3.4 Mitigation measures must be implemented to reduce the risk of erosion and alien species invasion.

3.5 Existing topsoil stockpiles and any new topsoil stripped from mining area must be protected from erosion, contamination and/or pollution.

3.6 If any soil contamination is noted at any phase of the proposed activities, the contaminated soil must be removed to a licensed waste disposal

facility designed for such waste and the site must be rehabilitated to the satisfaction of the department and Department of Water and Sanitation. The opportunity for the onsite remediation and re-use of contaminated soil must be investigated prior to the disposal and this department must be informed in this regard.

3.7 An integrated waste management approach must be implemented that is based on waste minimization (waste management hierarchy) and must incorporate avoidance, reduction, recycling, treat, reuse and disposal where appropriate. Ensure that no refuse generated on the mining area is placed, buried, dumped or deposited on the adjacent properties or public places and open space.

3.8 The waste storage site must have a firm, impermeable, chemical resistant floors and a roof to prevent direct sunlight and rain water from getting in contact with the waste.

3.9 In terms of sections 28 and 30 of NEMA, and sections 19 and 20 of the National Water Act, 1998 (Act No. 36 of 1998), any costs incurred to remedy environmental damage must be borne by the person responsible for the damage. It is therefore imperative that the holder of the EA reads through and understand the legislative requirements pertaining to the project. It is the holder of EA responsibility to take reasonable measures which include informing and educating contractors and employees about environmental risks of their work and training them to operate in an environmentally acceptable manner.

3.10 Operational vehicles for mining must be serviced and maintained in the manner whereby excessive smokes and noise production is reduced to acceptable levels, and to prevent oil leaks. Servicing of machinery and vehicles must not take place on site.

3.11 Residents (if any) on the property and surrounding areas must be informed if any unusual noise activities are planned.

3.12 Dust suppression measures must be implemented on all exposed surface access road to minimize and control airborne dust.

3.13 Should any heritage remains be exposed during operation or any actions on the site, these must immediately be reported to the South African Heritage Resource Agency (SAHRA) and/or Heritage Western Cape (HWC) (in accordance with the applicable legislation). Heritage remains uncovered or disturbed during earthworks must not be further disturbed until the necessary approval has been obtained from the South African Heritage Resource Agency (SAHRA) and/or Heritage Western Cape (HWC).

Heritage remains include: archaeological remains (including fossil bones and fossil shells); coins; middens, indigenous and/or colonial ceramics; any articles of value or antiquity; marine shell heaps; stone artifacts and

bone remains; structures and other built features; rock art and rock engravings; shipwrecks; and graves or unmarked human burials. A qualified archaeologist must be contracted where necessary (at the expense of the applicant and in consultation with the relevant authority) to remove any human remains in accordance with the requirements of the relevant authority.

3.14 Chemical sanitation facilities or system such as toilets that do not rely on the seepage of liquids must be provided with a ratio of 1 for every 15 workers. These must be placed such that they prevent spills or leaks to the environment and must be maintained according to the operating instructions and the content thereof must be disposed of at an authorised waste water treatment works.

3.15 The holder of EA must ensure that any water uses listed in terms of Section 21 of National Water Act must get authorization from Department of Water and Sanitation prior to the commencement of such activities.

3.16 This EA does not purport to absolve the holder of EA from its common law obligations towards the owner of the surface of land affected.

3.17 The holder of EA must ensure that rehabilitation of the disturbed areas caused by operation at all times comply with the approved EMPR.

3.18 This EA may be amended or withdrawn at any stage for non-compliance and provides no relief from the provisions of any other relevant statutory or contractual obligations.

3.19 The holder of EA must note that in terms Section 20 of the National Environmental Management: Waste Act, 2008 (Act No.59 of 2008), no person may commence, undertake or conduct a waste management activity, except in accordance, with the requirements of norms and standards determined in terms of Section 19 (3) for that activity or a waste management license is issued in respect of that activity if license is required.

3.20 An appeal under Section 43 (7)of the National Environmental Management Act (NEMA), Act 107 of 1998 (as amended) suspend an EA or exemption or any provisions of conditions attached hereto, or any directive unless the Minister directs otherwise.

3.21 Should you be notified by the Minister of a suspension of the authorisation pending appeal procedure, you may not commence with the activities until such time that the Minister allows you to commence with such activities in writing.

3.22 The department reserves the right to audit and/or inspect the activities without prior notification at any reasonable time and at such frequency as may be determined by the Regional Manager.

3.23 Subject to the commencement and duration requirements of the MPRDA and NEMA for the listed Mining activity, the EA is valid for the period for which the aforesaid Right is granted provided that this activity must commence within 10 years. If the commencement of the proposed activity does not occur within the specified period, the EA lapses and a new application for EA in terms of the NEMA and the EIA Regulations should be made for the activity to be undertaken.

3.24 This EA will only be effective on the event that a corresponding mining right/permit is issued in terms of MPRDA as amended and none of the activities listed in this EA may commence without a mining right/Permit.

3.25 The listed activities, including site preparation, must not commence within 20 (twenty) calendar days of the date of the notification of the decision being sent to the registered I&APs. In the event that an appeal is lodged with the appeal administrator, the effect of this environmental authorization is suspended until such time as the appeal is decided.

3.26 Should there be any conflicting conditions between this EA and other approval granted by other authorities, it is upon the holder of EA to bring it to the attention of the department for resolution.

4 MANAGEMENT OF ACTIVITIES

4.1 A copy of the EA and EMPR must be kept at the property or on site office where the activity (lies) will be undertaken. The EA and EMPR must be produced to any authorised officials of the department who request to see it and must be made available for inspection by any employee or agent of the holder of the EA who works or undertakes work at the property.

4.2 The Environmental Management Programme (EMPR) attached to the BAR dated 31 Janaury 2020 for a Borrow Pit on the remaining extent of the Farm Modder Rivier 721 as submitted for the environmental authorisation of this project complies with section 24N of NEMA and Appendix 4 of the EIA Regulations, 2014. This EMPR is hereby approved. The holder of the EA must comply with the approved EMPR and implemented accordingly.

4.3 The content of the EMPR and its objectives must be made known to all contractors, subcontractors, agent and any other people working on the site, and any updates or amendments to the EMPR must be submitted to the department for approval.

4.4 Any complaint received from the I&AP during all phases of the operation must be attended to as soon as possible and addressed to the satisfaction of all concerned interested and affected parties.

4.5 Material leaving the site must be covered with a cloth during transportation to prevent sand from being blown away by wind and causing pollution.

4.6 The holder of the EA must prevent nuisance conditions or health hazards, or the potential creation of nuisance conditions or health hazards.

4.7 The holder of the EA must ensure that all non-recyclable waste is disposed of at waste management facilities licensed to handle such waste and all recyclable waste is collected by licensed waste management facilities for recycling, reuse or treatment.

4.8 Non-compliance with any condition of this EA or the approved EMPR is an offence in terms of section 49A(1)(c) of NEMA and may result in criminal proceedings and issuing of a directive in terms of section 28 and or a compliance notice in terms of section 31L of NEMA.

4.9 Only listed activities that are expressly specified in the EMPR that forms part of this EA may be conducted, and additional or new activities not specified herein must be applied for by the holder and authorized by the competent authority in the form of an amendment of the EA and the EMPR before such activities may be commenced with. This condition is also applicable in the case of the amendment, addition, substitution, correction, and removal or updating of any detail in the aforesaid EA and EMPR.

4.10 Rehabilitation of the disturbed surface caused by operation must comply with the approved EMPR.

4.11 The Holder of EA must appoint the ECO before commencement of mining activities and ensure that the name and contact details of the ECO is made available to the Regional Manager within 30 days of commencement. The holder of EA must also ensure that an ECO is always available on site to ensure that activities at all times comply with the issued EA and approved EMPR.

4.12 The ECO must:

4.12.1 Keep and maintain a detailed incidents register (including any spillages of fuels, chemicals or any other material

4.12.2 Keep a complaint register on site indicating the complaint and how the issues were addressed, what measures were taken and what the preventative measures were implemented to avoid re-occurrence of complaints.

4.12.3 Keep records relating to monitoring and auditing on site and avail them for inspection to any relevant authorised officials.

4.12.4 Keep copies of all environmental reports submitted to the department.

4.12.5 Keep the records of all permits, licences and authorisations required by the operation.

4.12.6 Compile a monthly monitoring report and make it available to the department if requested.

4.13 The duties and responsibility of the ECO should not be seen as exempting the holder of the EA from the legal obligations in terms of the NEMA.

4.14 The footprint of the activities must be limited on the areas authorized for the actual mining works and operational activities and all areas outside of the footprint must be regarded as a "no go" areas.

4.15 Erosion and soil loss must be prevented by making sure that mining is only confined to one phase at a time.

4.16 In order to prevent nuisance conditions, the holder of the EA must ensure that all storage skips and bins are not overfilled. The holder of the EA must also make sure that littering of waste within the mining area is prohibited.

5 REPORTING TO THE DEPARTMENT

5.1 The holder of EA must:

5.1.1 submit and Environmental Audit Report to this department biennially and such report must be done by qualified Environmental Assessment Practitioner and the audit report must specify whether conditions of this environmental authorisation and EMPR/closure plan are adhered to;

5.1.2 The audit report must be in accordance to appendix 7 of the 2014 EIA regulations;

5.1.3 identify and assess any new impacts and risks as a result of undertaking the activities, if applicable

5.1.4 identify shortcomings in the EMPR/closure plan, if applicable;

5.1.5 identify the need, if any, for any changes to the management, avoidance and mitigation measures provided for in the EMPR/closure plan;

5.1.6 if applicable, specify that the corrective action/s taken for the previous audit's non-conformities, was adequate; and,

5.1.7 Be submitted by the holder to the competent authority within 30 days from the date on which the auditor finalised the audit.

5.2 Should any shortcomings in terms of Regulation 34(4) be identified, the holder must submit recommendation to amend the EMPR/closure plan in order to rectify any shortcomings identified with the aforementioned audit report.

5.3 The holder of the EA must annually assess the environmental liabilities of the operation by using the master rates in line with the applicable

Consumer Price Index (CPI) at the time and address the shortfall on the financial provision submitted in terms of section 24P of NEMA.

5.4 The holder of the EA must, within 24 hours of any incidents occurring, notify the Competent Authority of the occurrence or detection of any incident on the site, or incidental to the operation of the site, which has the potential to cause, or has caused pollution of the environment, health risks, nuisance conditions or water pollution.

5.5 The holder of the EA must, within 14 days, or a shorter period of time, if specified by the Competent Authority from the occurrence or detection of any incident referred to in condition 5.4, submit an action plan, which must include a detailed time schedule, and resource allocation signed off by top management, to the satisfaction of the Competent Authority of measures taken to –

5.5.1 Correct the impact resulting from the incident;

5.5.2 Prevent the incident from causing any further impact; and

5.5.3 Prevent a recurrence of a similar incident.

5.5.4 In the event that measures have not been implemented within 21 days of the incident referred to in condition 5.4, or measures which have been implemented are inadequate, the Competent Authority may implement the necessary measures at the cost of the holder of the EA.

6 SITE SECURITY AND ACCESS CONTROL

6.1 The holder of the EA must ensure effective access control on the site to reasonably prevent unauthorised entry. Signs indicating the risks involved in unauthorised entry must be displayed at each entrance.

6.2 The mining area must be demarcated and lockable gates must be installed to restrict unauthorized access to the mining site.

6.3 Weather proof, durable and legible notices in at least three official languages applicable in the area must be displayed at each entrance to the Site. These notices must prohibit unauthorised entry and state the hours of operation, the name, address and telephone number of the holder of the EA and the person responsible for the operation of the site.

7 EMERGENCY PREPAREDNESS PLAN

7.1 The holder of the EA must maintain and implement an emergency preparedness plan and review it biennially when conducting audit and after each emergency and or major accident. The plan must, amongst others, include:

7.1.1 Site Fire

7.1.2 Spillage
7.1.3 Natural disasters such as floods
7.1.4 Industrial action
7.1.5 Contact details of police, ambulances and any emergency centre closer to the site.

7.2 The holder of EA must ensure that an up to date emergency register is kept during all phases of the operation. This register must be made available upon request by the department.

8 INVESTIGATIONS

8.1 If, in the opinion of the Competent Authority, nuisances or health risks may be or is occurring on the site, the holder of the EA must initiate an investigation into the cause of the problem or suspected problem.

8.2 If, in the opinion of the Competent Authority, pollution may be or is occurring, the holder of the EA must initiate an investigation into the cause of the problem or suspected problem. Such investigation must include the monitoring of the water quality variables and air quality, at those monitoring points and such frequency as may be specified by the Competent Authority.

8.3 Investigations carried out in terms of conditions 8.1 and 8.2 above must include the monitoring of the relevant environmental pollution, nuisance and health risk variables, at those monitoring points and such frequency to be determined in consultation with the Competent Authority.

8.4 Should the investigation carried out as per conditions 8.1 and 8.2 above reveal any unacceptable levels of pollution, the holder of the EA must submit mitigation measures to the satisfaction of the Competent Authority.

8.5 The holder of the EA must comply with Section 28 of the NEMA and conduct mining in an environmentally friendly manner.

9 COMMISSIONING AND DECOMMISSIONING

9.1 The commissioning and decommissioning of individual activity within the overall listed Mining activity must take place within the phases and timeframes as set out in EMP or EMPR.

10 SITE CLOSURE

10.1 The holder of EA must apply for a closure certificate in terms of Section 43 of Mineral and Petroleum Resources Development Act (Act 28 of 2002), as amended within 180 days of occurrence of lapsing, abandonment, cancellation, cessation, relinquishment and completion of development.

10.2 The application for closure indicated above must be submitted together with all relevant documents as indicated in Section 43 of Mineral and Petroleum Resources Development Act (Act 28 of 2002), as amended.

10.3 No exotic plants may be used for rehabilitation purposes only indigenous plant can be utilized for rehabilitation purposes.

10.4 The holder of EA remains responsible for any environmental liability, pollution or ecological degradation, the pumping and treatment of extraneous water, compliance with the conditions of EA and the management and sustainable closure thereof until the Minister has issued a Closure Certificate in terms of Section 43 of Mineral and Petroleum Resources Development Act (Act 28 of 2002). Where necessary the Minister may retain certain portion of financial provision for residual, health or environmental impacts that might be known in future.

11 NEMA PRINCIPLES

The NEMA Principles (set out in Section 2 of NEMA, which apply to the actions of all Organs of State, serve as guidelines by reference to which any Organ of State must exercise any function when taking any decision, and which must guide the interpretation, administration and implementation of any other law concerned with the protection or management of the environment), *inter alia*, provides for:

- the effects of decisions on all aspects of the environment to be taken into account;
- the consideration, assessment and evaluation of the social, economic and environmental impacts of activities (disadvantages and benefits), and for decisions to be appropriate in the light of such consideration and assessment;
- the co-ordination and harmonisation of policies, legislation and actions relating to the environment;
- the resolving of actual or potential conflicts of interest between Organs of State through conflict resolution procedures; and
- the selection of the best practicable environmental option.

12 DISCLAIMER

The Department of Mineral Resources in terms of the conditions of this environmental authorisation shall not be responsible for any damages or losses suffered by the holder, developer or his/her successor in any instance where construction or operation subsequent to construction is temporarily or permanently stopped for reasons of non-compliance with the conditions as set

out herein or any other subsequent document or legal action emanating from this decision.

13 RECOMMENDATIONS

In view of the above, the NEMA principles, compliance with the conditions stipulated in this EA, and compliance with the EMPR/closure plan, the competent authority is satisfied that the proposed listed activities will not conflict with the general objectives of Integrated Environmental Management stipulated in Chapter 5 of NEMA, and that any potentially detrimental environmental impacts resulting from the listed activities can be mitigated to acceptable levels. **The authorisation is accordingly granted.**

Your interest in the future of our environment is appreciated.

Kind Regards

.....

REGIONAL MANAGER: MINERAL REGULATION
WESTERN CAPE REGIONAL OFFICE

DEPT. OF MINERAL RESOURCES
AND ENERGY
PRIVAATSAK / PRIVATE BAG X9
20 AUG 2021
ROGGEBAAI 8012
REGIONAL MANAGER
WESTERN CAPE REGION

Annexure 12

mineral resources
& energy

Department
Mineral Resources and Energy
REPUBLIC OF SOUTH AFRICA

Private Bag X9, Rogge Bay, 8012,

Cnr Lower Burger & Riebeeck Street, The Box Building,15th floor, Cape Town, 8012

Tel: 021 427 1058 **Fax :021 427 1046** **Email: Curtis.Wright@dmre.gov.za**

Enquiries: Curtis Wright **Ref No. WC30/5/1/3/2/10261MP**

BY HAND

KIRSTEN & TULLENKEN CC

P.O BOX 1200

GEORGE

6530

Email: jasper@tulleken.co.za

Cell: 079 268 6365

Dear Sir/Madam

APPLICATION FOR THE RENEWAL OF A MINING PERMIT IN TERMS OF SECTION 27(8) OF THE MINERAL AND PETROLEUM RESOURCES DEVELOPMENT ACT, 2002 (ACT 28 OF 2002): AS AMENDED TO MINE AGGREGATE, STONE, AND GRAVEL ON PORTION OF THE REMAINDER OF THE FARM BUFFELS DRIFT 227, IN THE MAGISTERIAL DISTRICT OF GEORGE.

Herewith, attached is your renewed mining permit No.23/2021 and sketch plan No.23/2021 for a period ending on 04 NOVEMBER 2024. Please ensure that the permit is always available and that a copy is kept on site at your mining operation. The said mining permit is subject to the conditions of your approved Environmental Authorisation.

The mining operation must be conducted in accordance with your approved Environmental Authorisation. The mining area must be clearly demarcated by means of beacons at its corners and along its boundaries.

Permanent beacons as indicated on the layout plan or a prescribed by the Regional Manager must be firmly erected and maintained in their position throughout the life of the operation.

Further note that:

I. Any authorized person may during office hours without warrant enter the mining area.
II. The required permit holder or person in charge must produce a book or record, statement or data relating to matters dealt with in the Act for inspections.
III. It is an offence to submit inaccurate, incorrect, or misleading information in connection with any matter required to be submitted under the Act.

It must be bone in mind that in terms of section 98, any person convicted of an offence in terms of this act will be liable for a penalty which includes a fine or imprisonment or both, as stated in section 99 of the Act.

Kindly note that your permit is issued and may not be transferred, ceded, let, sublet, alienated, or disposed of in any manner whatsoever, but may be encumbered or mortgaged only to attain funding of financing for the mining operation in question subject to the minister's consent.

Kindly note this is the FIRST renewal period, and you may apply for Mining rights should you wish to continue.

Yours faithfully

.....

REGIONAL MANAGER:

MINERAL REGULATION

WESTERN CAPE REGION

DATE: 12/9/2025

DMRE 58

mineral resources & energy

Department:
Mineral Resources and Energy
REPUBLIC OF SOUTH AFRICA

DEPT. OF MINERAL RESOURCES
05 NOV 2021
Office Stamp

MINING PERMIT

[issued in terms of section 27 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002)]

Permit No.	23/2021	Region	Western Cape
Office reference	WC/30/5/1/3/2/10261MP		

Permission is hereby granted under and subject to the provisions of the Mineral and Petroleum Resources Development Act, 2002 to [full name] KIRSTEN &TULLEKEN VERVOER CC

Identity number in case of a natural person

In the case of a person other than a natural person please indicate:

Co		Cc	x	Partnership/Joint venture		Other *	

* If other, specify

Registration number of Co. or Cc. 1988/000671/23

To mine for [name of mineral] AGGREGATE, STONE, GRAVEL

On [full name of farm and subdivision, registration division and no.] On Portion of the Remainder of the Farm Buffels Drift 227 situated in the District of George

as indicated on the attached plan No. 23/2021 signed by the Regional Manager on 05/11/2021

Unless this permit is suspended, cancelled, abandoned or lapses, it shall be valid for a period (not more than two years) which shall extend from the date of issuing to 04/11/2023 and may be renewed for three periods each which may not exceed one year.

This permit does not exempt the holder from the requirements of any provision of any other law or from any restrictive provisions or conditions contained in the title deed of the land concerned, nor does it encroach upon the rights of any person who may have an interest in the land concerned.

Signed at Cape Town this 05th day of November 2021

MINISTER OF MINERAL RESOURCES AND ENERGY

RENEWALS

DEPT. OF MINERAL RESOURCES AND ENERGY
PRIVAATSAK / PRIVATE BAG X9
Official
10 OCT 2023
ROGGEBAAI 8012
REGIONAL MANAGER
WESTERN CAPE REGION

First renewal approved for the period from 05 November 2023 to 04 November 2024 [not more than one year].

AS WITNESSES

1. _____
(Signature)

_____
MINISTER OF MINERAL RESOURCES AND ENERGY

2. _____
(Signature)

DATE: 12/10/2023

Official
Office Stamp

Second renewal approved for the period to [not more than one year].

AS WITNESSES

1. _____
(Signature)

_____
MINISTER OF MINERAL RESOURCES AND ENERGY

2. _____
(Signature)

DATE: _____

Official
Office Stamp

Third renewal approved for the period to [not more than one year].

AS WITNESSES

1. _____
(Signature)

_____
MINISTER OF MINERAL RESOURCES AND ENERGY

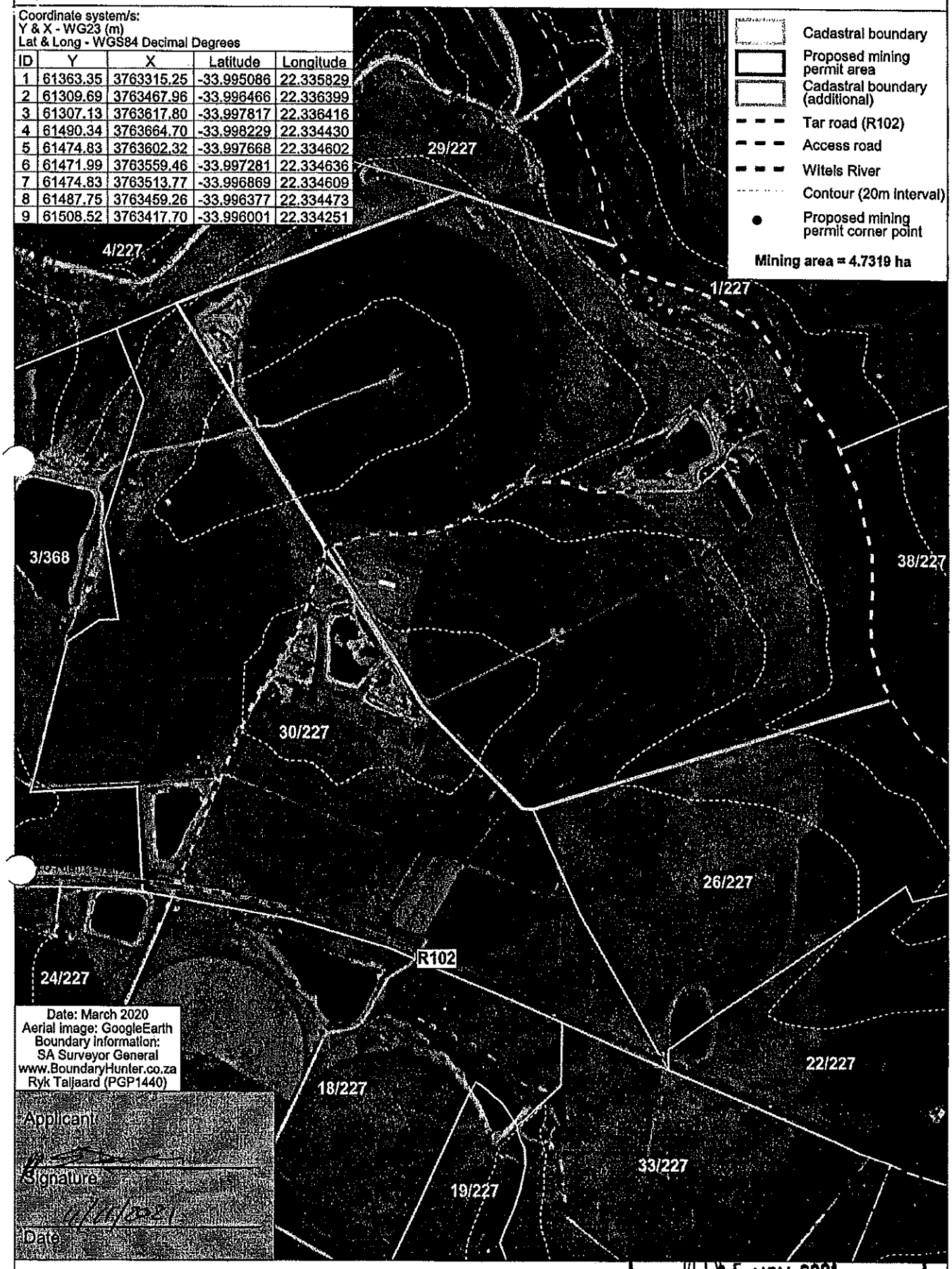
2. _____
(Signature)

DATE: _____

Regulation 2(2) Plan: A mining permit on the Remainder of Buffels Drift 227 (George RD)

Coordinate system/s:
Y & X - WG23 (m)
Lat & Long - WGS84 Decimal Degrees

ID	Y	X	Latitude	Longitude
1	61363.35	3763315.25	-33.995086	22.335829
2	61309.69	3763467.96	-33.996466	22.336399
3	61307.13	3763617.80	-33.997817	22.336416
4	61490.34	3763664.70	-33.998229	22.334430
5	61474.83	3763602.32	-33.997668	22.334602
6	61471.99	3763559.46	-33.997281	22.334636
7	61474.83	3763513.77	-33.996869	22.334609
8	61487.75	3763459.26	-33.996377	22.334473
9	61508.52	3763417.70	-33.996001	22.334251



Cadastral boundary
Proposed mining permit area
Cadastral boundary (additional)
Tar road (R102)
Access road
Witels River
Contour (20m interval)
Proposed mining permit corner point

Mining area = 4.7319 ha

Date: March 2020
Aerial image: GoogleEarth
Boundary information:
SA Surveyor General
www.BoundaryHunter.co.za
Ryk Taljaard (PGP1440)

Applicant

Signature

Date

Scale 1 : 8,200 @ A4

100 0 100 200 300 400 500 600 700 800 900 1000 Meters

05 NOV 2021
ROGGEBAAI 8012
REGIONAL MANAGER
WESTERN CAPE REGION

mineral resources
& energy
Department:
Mineral Resources and Energy
REPUBLIC OF SOUTH AFRICA

Private Bag X9, Rogge Bay, 8012, Tel: 021 427 1000, Fax 021 427 1046
9 Atterbury House, Cnr Lower Burger & Riebeck Street, Cape Town, 8012
Directorate: Mineral Regulation: Western Cape Region
Sub directorate: Mineral Laws **Enquiries:** NM Qwalela
File Ref: WC 30/5/1/3/2/10261MP

Per registered mail

KIRSTEN & TULLEKEN VERVOER CC
PO BOX 1200
GEORGE
6530

Attention: Andre Tulleken
Tel: 079 268 6365
Email: jasper@tulleken.co.za

Dear Sir / Madam

APPLICATION FOR A MINING PERMIT IN TERMS OF SECTION 27 OF THE MINERAL AND PETROLEUM RESOURCES DEVELOPMENT ACT, 2002 AS AMENDED: ON PORTION OF THE REMAINDER OF THE FARM BUFFELS DRIFT 227: ADMINISTRATIVE DISTRICT OF GEORGE

1. This is to inform you that your application for a mining permit in terms of section 27 of the Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002) ("Act") as amended for the mineral **Aggregate, Gravel and Stone** has been accepted.

2. In terms of the Act requirements as stipulated 16(1) and 16(2) of the EIA Regulations, your application for an Environmental Authorisation was incomplete as it was not accompanied by this acceptance letter as per Sub Regulation 16 (1) (ix) and considering that it is now completed by this acceptance letter, you are hereby required to submit the documents as

stipulated on Regulation 19(1) to 19(8) of the EIA Regulations (Only in cases where Basic Assessment Report is applicable) or Regulation 21 (Scoping Report) and Regulations 21 (Scoping Report) 23 (EIR and EMPr) (In case of Scoping and Environmental Impact Report). All timeframes are effective from the date of this letter.

3. Consult in the prescribed manner with the landowner, lawful occupier and any interested and affected party and include the results of the consultation in the relevant environmental reports.

4. Further note that the acceptance of your application does not grant you the right to commence with mining activities. It only signify that your application will be processed, evaluated and the Minister or his delegate will make a decision within 300 days from the acceptance of your application.

Yours faithfully

REGIONAL MANAGER:
MINERAL REGULATION
WESTERN CAPE REGION
DATE: 9/10/2020

NM Qwalela

10261MP

Annexure 13

mineral resources
& energy
Department:
Mineral Resources and Energy
REPUBLIC OF SOUTH AFRICA

Private Bag X9, Rogge Bay, 8012,

Cnr Lower Burger & Riebeeck Street, The Box Building,15th floor, Cape Town, 8012

Tel: 021 427 1058 Fax :021 427 1046 Email: Curtis.Wright@dmre.gov.za

Enquiries: Curtis Wright

Ref No. WC30/5/1/3/2/10261MP

BY HAND

KIRSTEN & TULLENKEN CC

P.O BOX 1200

GEORGE

6530

Email: jasper@tulleken.co.za

Cell: 079 268 6365

Dear Sir/Madam

APPLICATION FOR THE RENEWAL OF A MINING PERMIT IN TERMS OF SECTION 27(8) OF THE MINERAL AND PETROLEUM RESOURCES DEVELOPMENT ACT, 2002 (ACT 28 OF 2002): AS AMENDED TO MINE AGGREGATE, STONE, AND GRAVEL ON PORTION OF THE REMAINDER OF THE FARM BUFFELS DRIFT 227, IN THE MAGISTERIAL DISTRICT OF GEORGE.

Herewith, attached is your renewed mining permit No.23/2021 and sketch plan No.23/2021 for a period ending on 04 NOVEMBER 2025. Please ensure that the permit is always available and that a copy is kept on site at your mining operation. The said mining permit is subject to the conditions of your approved Environmental Authorisation.

The mining operation must be conducted in accordance with your approved Environmental Authorisation. The mining area must be clearly demarcated by means of beacons at its corners and along its boundaries.

Permanent beacons as indicated on the layout plan or a prescribed by the Regional Manager must be firmly erected and maintained in their position throughout the life of the operation.

Further note that:

I. Any authorized person may during office hours without warrant enter the mining area.
II. The required permit holder or person in charge must produce a book or record, statement or data relating to matters dealt with in the Act for inspections.
III. It is an offence to submit inaccurate, incorrect, or misleading information in connection with any matter required to be submitted under the Act.

It must be bone in mind that in terms of section 98, any person convicted of an offence in terms of this act will be liable for a penalty which includes a fine or imprisonment or both, as stated in section 99 of the Act.

Kindly note that your permit is issued and may not be transferred, ceded, let, sublet, alienated, or disposed of in any manner whatsoever, but may be encumbered or mortgaged only to attain funding of financing for the mining operation in question subject to the minister's consent.

Kindly note this is the Second year renewal period, and you have a third one-year renewal period remaining.

Yours faithfully

.....

REGIONAL MANAGER:
MINERAL REGULATION
WESTERN CAPE REGION
DATE: 12/11/24

Annexure14

mineral resources

Department:
Mineral Resources
REPUBLIC OF SOUTH AFRICA

BASIC ASSESSMENT REPORT

and

ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

SUBMITTED FOR ENVIRONMENTAL AUTHORISATION IN TERMS OF THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998 (NEMA) IN RESPECT OF LISTED ACTIVITIES THAT HAVE BEEN TRIGGERED BY A MINING PERMIT APPLICATION IN TERMS OF THE MINERAL AND PETROLEUM RESOURCES DEVELOPMENT ACT, 2002 (MPRDA).

DMR Reference Number: WC30/5/1/3/2/10261MP

Type of application: Application for a mining permit

Applicant: Kirsten & Tulleken Vervoer CC

Property: Remaining Extent of the farm Buffels Drift 227

Magisterial District: George

Local authority: George Municipality

Date: 10 November 2020

IMPORTANT NOTICE

In terms of the Mineral and Petroleum Resources Development Act (Act 28 of 2002 as amended), the Minister must grant a prospecting or mining right if among others the mining "will not result in unacceptable pollution, ecological degradation or damage to the environment".

Unless an Environmental Authorisation can be granted following the evaluation of an Environmental Impact Assessment and an Environmental Management Programme report in terms of the National Environmental Management Act (Act 107 of 1998) (NEMA), it cannot be concluded that the said activities will not result in unacceptable pollution, ecological degradation or damage to the environment.

In terms of section 16(3)(b) of the EIA Regulations, 2014, any report submitted as part of an application must be prepared in a format that may be determined by the Competent Authority and in terms of section 17 (1) (c) the competent Authority must check whether the application has taken into account any minimum requirements applicable or instructions or guidance provided by the competent authority to the submission of applications.

It is therefore an instruction that the prescribed reports required in respect of applications for an environmental authorisation for listed activities triggered by an application for a right or a permit are submitted in the exact format of, and provide all the information required in terms of, this template. Furthermore please be advised that failure to submit the information required in the format provided in this template will be regarded as a failure to meet the requirements of the Regulation and will lead to the Environmental Authorisation being refused.

It is furthermore an instruction that the Environmental Assessment Practitioner must process and interpret his/her research and analysis and use the findings thereof to compile the information required herein. (Unprocessed supporting information may be attached as appendices). The EAP must ensure that the information required is placed correctly in the relevant sections of the Report, in the order, and under the provided headings as set out below, and ensure that the report is not cluttered with un-interpreted information and that it unambiguously represents the interpretation of the applicant.

THE OBJECTIVE OF THE BASIC ASSESSMENT PROCESS
(As described in Appendix 1 of the EIA Regulations, 2014)

The objective of the basic assessment process is to, through a consultative process–
(a) determine the policy and legislative context within which the proposed activity is located and how the activity complies with and responds to the policy and legislative context;

(b) identify the alternatives considered, including the activity, location, and technology alternatives;

(c) describe the need and desirability of the proposed alternatives,

(d) through the undertaking of an impact and risk assessment process inclusive of cumulative impacts which focused on determining the geographical, physical, biological, social, economic, heritage , and cultural sensitivity of the sites and locations within sites and the risk of impact of the proposed activity and technology alternatives on the these aspects to determine:
- (i) the nature, significance, consequence, extent, duration, and probability of the impacts occurring to; and
- (ii) the degree to which these impacts—
  - (aa) can be reversed;
  - (bb) may cause irreplaceable loss of resources; and
  - (cc) can be managed, avoided or mitigated;

(e) through a ranking of the site sensitivities and possible impacts the activity and technology alternatives will impose on the sites and location identified through the life of the activity to—
- (i) identify and motivate a preferred site, activity and technology alternative;
- (ii) identify suitable measures to manage, avoid or mitigate identified impacts; and
- (iii) identify residual risks that need to be managed and monitored.

NOTE ON THE SCOPE AND CONTENT OF BASIC ASSESSMENT REPORTS AND THE CONTENTS OF ENVIRONMENTAL MANAGEMENT PROGRAMMES

The scope and content of Basic Assessment Reports and the contents of Environmental Management Programmes are specified in Appendix 1 and Appendix 4 of the Environmental Impact Assessment Regulations, 2014 (as amended). Where relevant, extracts from the EIA Regulations, 2014 are shown in italics below each heading in this report.

Note: The amendments of the EIA Regulations, 2014 commenced on 7 April 2017. These were published in the following government notices:
- GN R326 – Amendments to the Environmental Impact Assessment Regulations, 2014
- GN R327 – Amendment of Listing Notice 1 of 2014
- GN R325 – Amendment of Listing Notice 2 of 2014
- GN R324 – Amendment of Listing Notice 3 of 2014

BAR & EMPr

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PART A: BASIC ASSESSMENT REPORT

1. CONTACT PERSON & CORRESPONDENCE ADDRESS

1.1 Details of the Environmental Assessment Practitioner

ITEM	CONTACT DETAILS
Name of the EAP:	Stephen Davey
Company:	Klipberg Consulting (Pty) Ltd
Postal address:	PO Box 46, Darling, 7345
Mobile no:	082 782 3727
E-mail:	sdavey@klipberg.co.za
Web site:	www.klipberg.co.za

1.2 The expertise of the EAP, including a curriculum vitae

A summarised CV of the EAP (including qualifications and past experience) is provided below:

EDUCATION

M. Phil (Environmental Management)	University of Cape Town	2001
B.Sc Honours (Geochemistry)	University of Cape Town	1984
B.Sc (Geology)	University of Cape Town	1981

PROFESSIONAL EXPERIENCE

Klipberg Consulting (Pty) Ltd (2013 – Present)
Klipberg Consulting (Pty) Ltd was started by the EAP during 2013.

Klipberg Consulting provides geological and environmental consulting services with a focus on prospecting and mining applications.

Amathemba Environmental Management Consulting CC (2001 – 2013)
The EAP was a founder member.

Projects included:

- EIA processes for the closure of the Brackenfell Landfill Site, the construction of a Refuse Transfer Station in the Oostenberg area and the upgrading of the Bellville Wastewater Treatment Works – for the City of Cape Town.
- Sustainable Coastal Management Plans for the City of Cape Town
- EIAs and EMPs for Phosphate, Silica sand, Diamond & Heavy Mineral Prospecting Right applications.
- EIAs and EMPs for numerous Mining Right applications (sand, gravel, aggregate and clay i.e. construction materials) in the Western Cape Province.
- EIA for the Mothae Diamond project in Lesotho.

- Guest lecturer for a module in Environmental Management for Geography (Honours) students at the University of the Western Cape since 2004.

Billiton Argentina and Billiton Ecuador (1994 - 1999) - Exploration Manager

Gencor (1991 - 1993) - Regional and International Exploration (Mokopane, Argentina, Chile and Peru)

Impala Platinum and Karee Platinum Mine (1985 – 1990) - Mine Geologist, Project Geologist and Chief Geologist (Bafokeng South Mine, Rustenburg and Karee Mine, Marikana)

Anglovaal Exploration (1981 – 1983) – Field Geologist (Barberton)

PROFESSSIONAL AFFILIATIONS

- Registered as an Environmental Assessment Practitioner (EAP) by the Environmental Assessment Practitioners Association of South Africa (EAPASA): Registration No. 2019/159.
- Registered as a Professional Natural Scientist - Geological Science - (Registration Number 400087/88) with the South African Council for Natural Scientific Professions (SACNASP).
- Fellow of the Geological Society of South Africa
- Member of the International Association for Impact Assessment – South Africa (IAIAsa)

2. LOCATION OF THE ACTIVITY

Full particulars of the applicant:

ITEM	CONTACT DETAILS
Name of the Applicant:	Kirsten & Tulleken Vervoer CC
Tel no:	044 875 8035
Fax no:	044 875 0273
Cellular no:	079 268 6365
Contact person:	Jasper van der Westhuizen
E-mail address:	jasper@tulleken.co.za
Postal address:	PO Box 1200, George, 6530
Physical address:	Binnestraat 26, George Industria

Registered description of the land:

Registered Property Name:	Remaining Extent (RE) of the farm Buffels Drift 227
Local Authority:	George Municipality
Magisterial District:	George
Extent of the property:	755.2741 hectares
Extent of mining permit application area:	4.3711 hectares
Landowner:	James Barnard
Address:	PO Box 1870, George, 6530
LPI 21-digit codes:	C02700000000022700000
Distance and direction from the nearest town	The site is located 10 km west of George. Access to the site is obtained over a farm road from the R102.

3. PLANS

The location of the farm is shown in **Figure 1**, the plan of the land in **Figure 2,** the mining layout plan in **Figure 3** and a cross section in **Figure 4**.

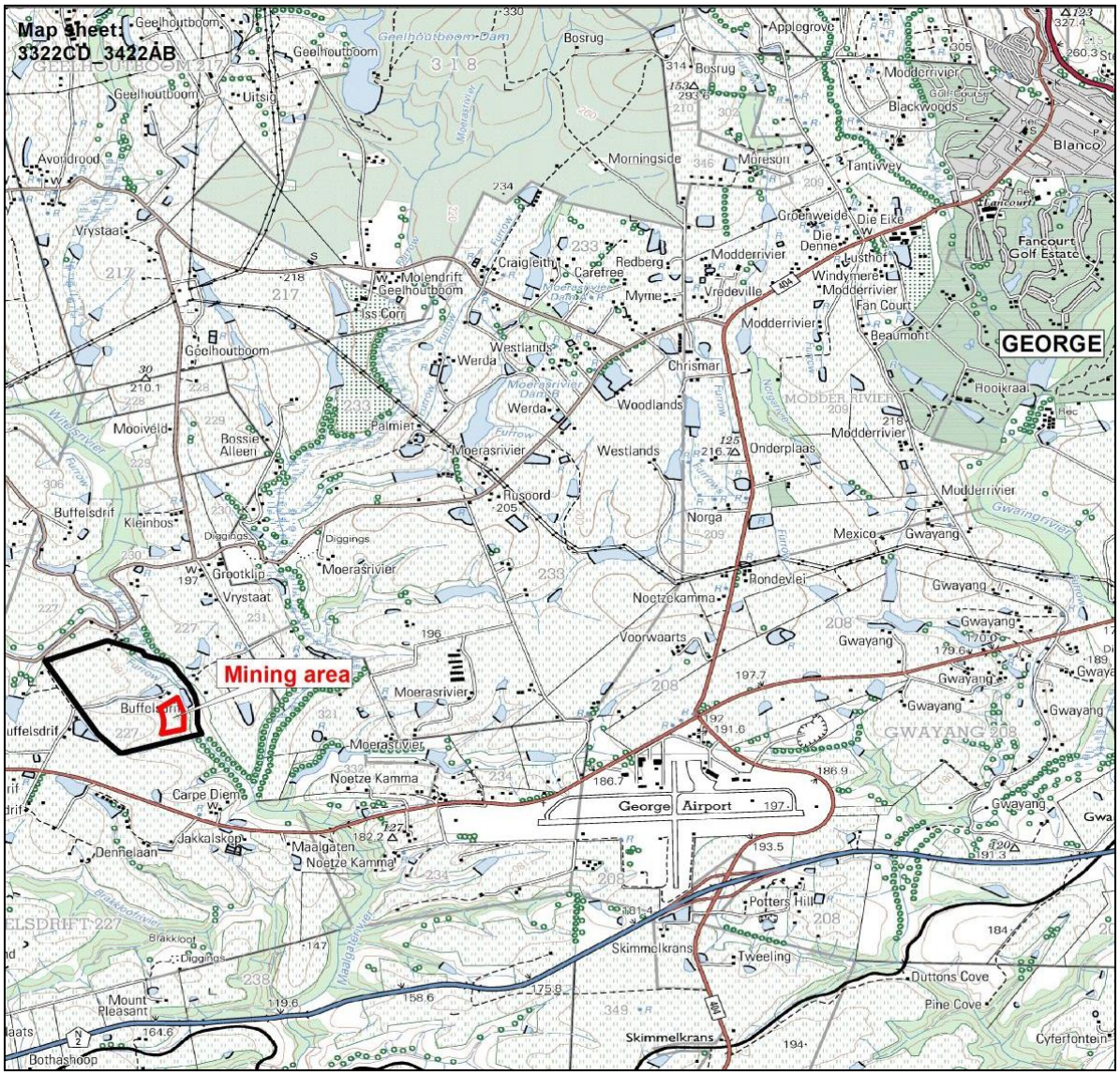

Figure 1: Locality plan

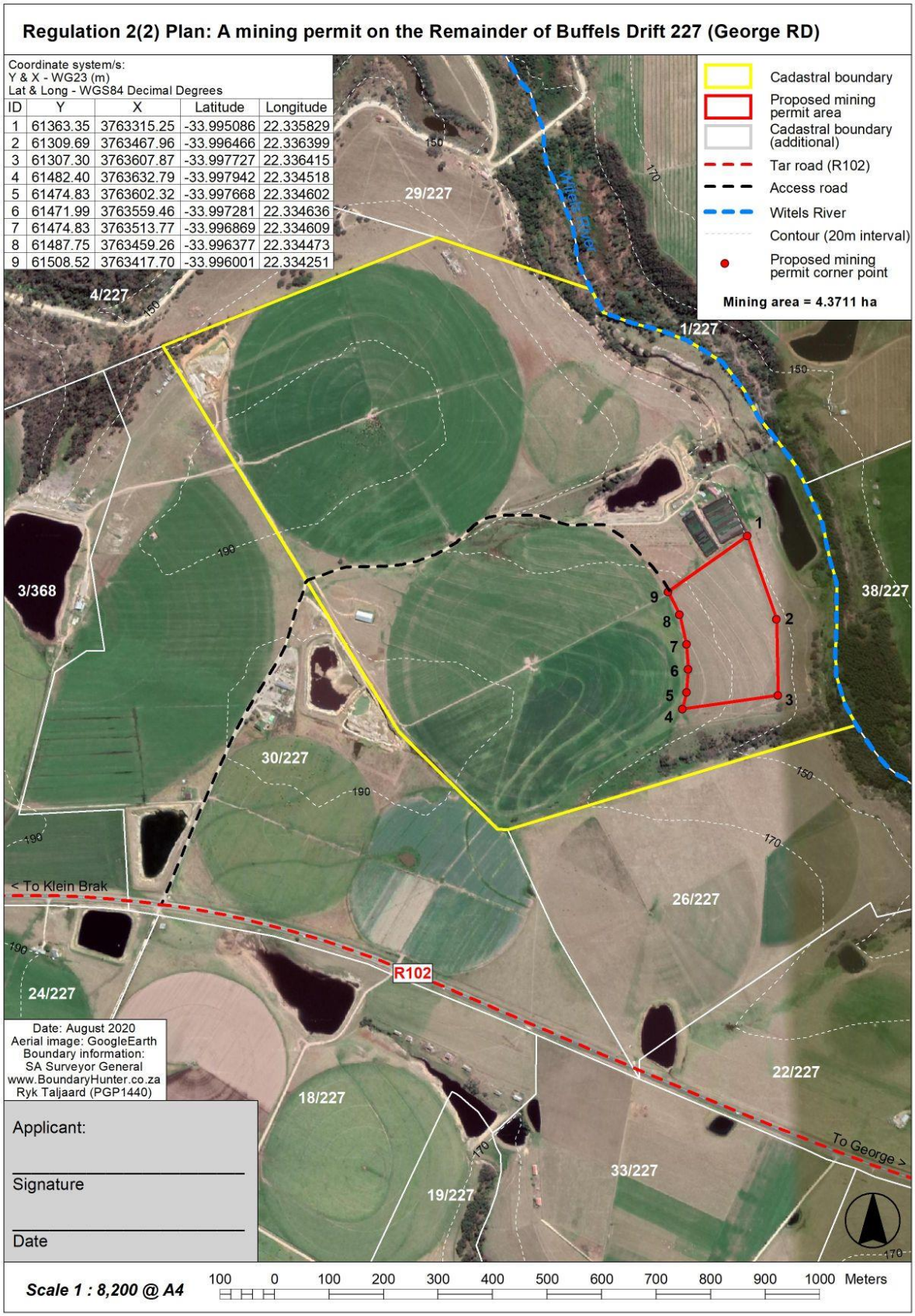

Figure 2: Plan of the land

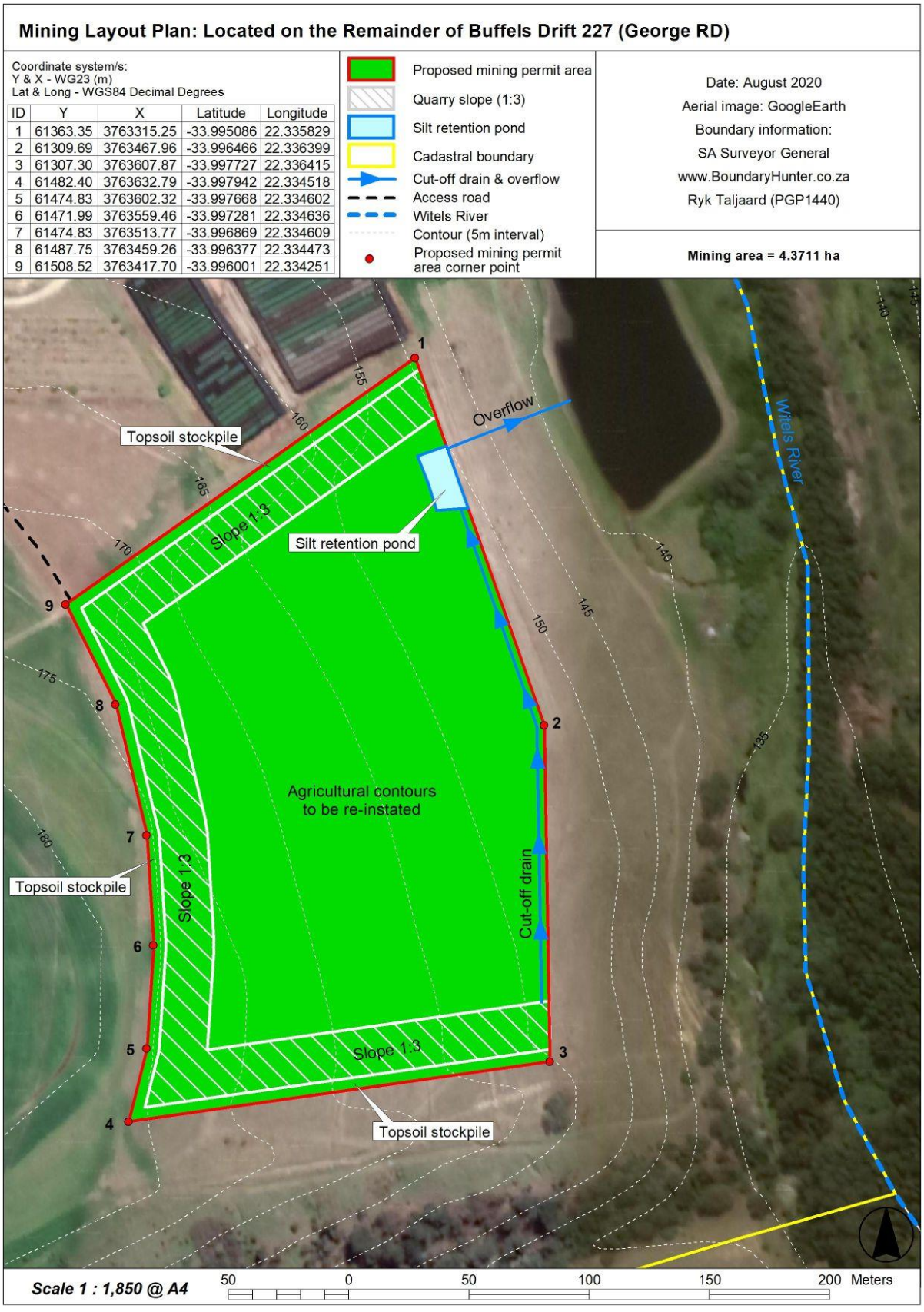

Figure 3: Mining layout plan

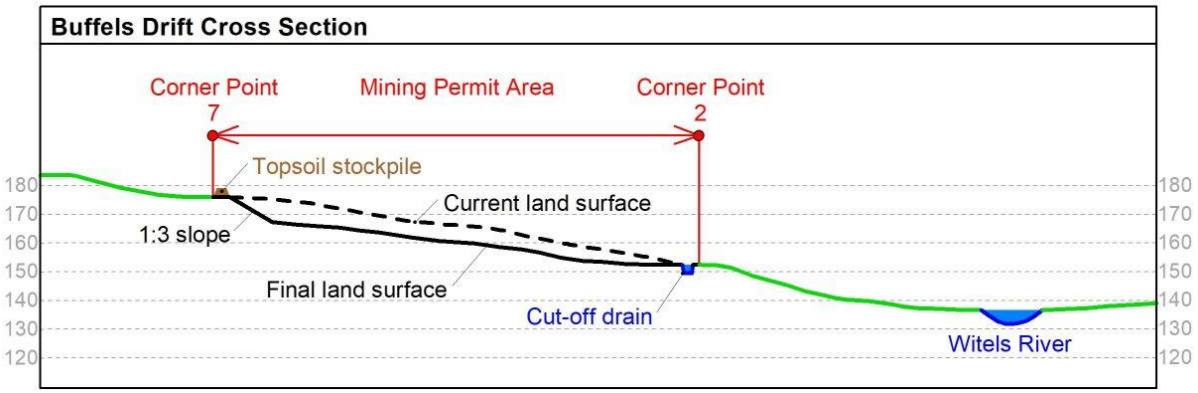

Figure 4: Cross section through the mining permit area

Note: Elevations are provided in metres above sea level on the vertical axis. The horizontal scale is the same as the vertical scale.

4. DESCRIPTION OF THE PROPOSED ACTIVITIES

4.1 The scope of the proposed activities

4.1.1 Listed and specified activities applied for

Listing Notice	Activity no.	Description
LN1	21	Any activity including the operation of that activity which requires a mining permit in terms of section 27 of the MPRDA, including: (a) associated infrastructure, structures and earthworks, directly related to the extraction of a mineral resource; & (b) the primary processing of a mineral resource including winning, extraction, classifying, concentrating, crushing, screening or washing.
LN1	22	The decommissioning of any activity requiring: (i) a closure certificate in terms of section 43 of the MPRDA; or (ii) a mining permit where the throughput of the activity has reduced by 90% or more over period of 5 years excluding where the competent authority has in writing agreed that such reduction in throughput does not constitute closure.
LN1	28	Residential, mixed, retail, commercial, industrial or institutional developments where such land was used for agriculture or afforestation on or after 01 April 1998 and where such development: (i) …… (ii) will occur outside an urban area, where the total land to be developed is bigger than 1 hectare.

4.1.2 Description of the activities to be undertaken

The extent of the proposed mining permit area is 4.3711 hectares. The site is located on transformed farm land that is used for planted pasture crops.

It is proposed to mine weathered granite gravel (aggregate) that will be used by customers for road construction and maintenance projects as well as for other construction and development projects in the area.

The site is located on transformed farm land **(see Figure 2)**.

The proposed mining sequence is as follows:

- Overburden clearing and stockpiling of topsoil.
- Loading of weathered granite gravel/aggregate into trucks using an excavator.
- Recording volumes in trucks.
- Final rehabilitation of slopes to not more than 1:3.
- Shaping the floor so that it matches the current topography.
- Replacing top soil, re-establishing agricultural contours, stabilising the soil surface and rehabilitating the area so that it can continue to be used for agricultural purposes.
- Concurrent mining and rehabilitation is planned so that any one time the size of the active mining area should not be larger than one hectare.

5. POLICY & LEGISLATIVE CONTEXT

Applicable legislation, policies, plans, guidelines, spatial tools and municipal IDPs that are applicable	Reference where applicable	How the proposed activity complies with and responds to the policy and legislative context
National Environmental Management Act (NEMA), 1998 (Act No. 107 of 1998).	This BAR and EMPr.	The application for environmental authorisation, the compilation of this Basic Assessment Report and the Public Participation Process are required in terms of NEMA.
EIA Regulations, 2014	This BAR and EMPr.	The listed activities that are triggered determine the Environmental Authorisation (EA) application process to be followed.
National Environmental Management: Biodiversity Act, 2004 (Act 10 of 2004)	Sections 9.2.5 and 11.3	There are no mapped Critical Biodiversity Areas on the site.
National Environmental Management: Waste Act, 2008 (Act 59 of 2008)	Sections 11.6 and 18.13	An integrated waste management approach that incorporates the waste management hierarchy is included in the EMPr.
National Environmental Management: Air Quality Act, 2004 (Act 39 of 2004). National Dust Control Regulations in GN R827 of 1 November 2013	Sections 11.4, 18.10 and 19.3	Dust control measures are included in the EMPr
National Water Act, 1998 (Act 36 of 1998)	Sections 10.3 and 11.2	An e-WULAAS application has been submitted to the BGCMA.
Mineral and Petroleum Resources Development Act, 2008 (Act 28 of 2002)	Section 4	An application for a mining permit in terms of section 27 was submitted to the DMR. This determines that the DMR is the Competent Authority (CA) for this NEMA application.
Mine Health and Safety Act, 1996 (Act 29 of 1996)	Sections 11.4 and 11.5	The objects of the MHSA are to protect the health & safety of mine workers. All mining activities described in this report must comply with the MHSA.
Western Cape Noise Control Regulations (PN 200/2013) of 20 June 2013	Sections 11.5 and 18.11	Noise control measures are included in the EMPr
National Heritage Resources Act, 1999 (Act No. 25 of 1999)	Sections 10.1 and 11.7	A final comment in terms of the NHRA was provided by Heritage Western Cape.

Promotion of Administrative Justice Act, 2000 (Act 3 of 2000)	Decision by the Competent Authority	Gives effect to section 33 of the Constitution that requires that "Everyone has the right to administrative action that is lawful, reasonable and procedurally fair"
Land Use Planning Act, 2014 (Act 3 of 2014) (LUPA)	Section 6	Consent use in terms of the George Municipal Planning By-law, 2015 is required to allow a quarry on a property that is zoned as Agriculture 1.
George Municipality SDF	Section 6	The "Need & Desirability" of the project is described with respect to the George SDF.
George Municipality Integrated Development Plan (IDP)	Section 6	The "Need & Desirability" of the project is described with respect to the IDP.
DEA and DEA&DP Guidelines e.g. Need & Desirability, Public Participation, Using Specialists and Alternatives.	This BAR and EMPr	The relevant DEA and DEA&DP guidelines were used to compile this report, conduct the Public Participation Process (PPP) process and to guide specialist input.

6. NEED & DESIRABILITY OF THE PROPOSED ACTIVITIES

Before completing this section, the following documents were consulted: The DEA&DP's Circular EADP 0028/2014 on the "One Environmental Management System" and the EIA Regulations, 2014 and subsequent circulars and guidelines as well as the Guideline on Need and Desirability in terms of the Environmental Impact Assessment (EIA) Regulations, 2010 published by the national Department of Environmental Affairs on 20 October 2014.

The "Need & Desirability" of the project is described by answering the same questions that are required by the Western Cape Provincial Department of Environmental Affairs & Development Planning (DEA&DP).

Q1. Is the activity permitted in terms of the property's existing land use rights?	Yes	No ✓
Explain: The property is zoned as Agriculture 1 by the George Municipality. Land use approval from the George Municipality is required.		

Q2. Will the activity be in line with the following?		
(a) Provincial Spatial Development Framework (PSDF 2014)?	Yes ✓	No
Explain: The PSDF (2014) promotes sustainable farming and mining (i.e. activities that generate positive socio-economic returns and do not pose significant risks to the environment). The applicable policy is listed below. Policy R3: Safeguard the Western Cape's Agricultural and Mineral Resources and manage their sustainable use: 1. Record unique and high potential agricultural land in municipal SDFs, demarcate urban edges to protect these assets, and adopt and apply policies to protect this resource. 2. Record the location of mineral deposits and known reserves of construction materials in municipal SDFs, and introduce and apply land use policies that reserve these assets for possible use (subject to environmental authorization). Response The proposed mining permit area is located on transformed land that is not high potential agricultural land. The site is not located within an existing pivot irrigation circle.		
(b) Urban edge / Edge of built environment?	Yes ✓	No
Explain: The property is located outside the urban edge. The proposed mining project will have no impact on the urban edge.		
(c) Integrated Development Plan (IDP) of the Municipality	Yes ✓	No
Explain: The approved George IDP (4th generation IDP for 2017-2022) has the following strategic objectives: SO1: Develop and grow George SO2: Safe, clean and green SO3: Affordable quality services SO4: Participative partnerships		

SO5: Good governance and human capital The gravel mine will contribute to local economic development and employment. The gravel is required for construction and development projects that are needed to help diversify the economic base of the municipality. The weathered granite gravel resources of the site have the potential to generate revenue and employment opportunities. The gravel mine will support SO3 because gravel is required for construction and development.

(d) Spatial Development Plan / Structure Plan of the Municipality	Yes ✓	No
Explain: The final George Municipal SDF prepared by GAPP Architects & Urban Designers (29 May 2019) provides no information about potential sources of construction material for infrastructure development in the municipal area. Policy E3 states: Manage rural land use in terms of the Western Cape Government's rural development guidelines and the Spatial Planning Categories (SPC) identified therein a) In line with Western Cape Government's guidelines for rural land use development, new investment in rural areas should not: i. Have significant impact on biodiversity; ii. Alienate or compromise unique or high value agricultural land; iii. Compromise existing farming activities; iv. Compromise the current and future use of mineral resources; v. Be inconsistent with cultural and scenic landscapes within which it is situated; vi. Involve extensions to the municipality's reticulation networks; vii. Impose real costs or risks to the municipality delivering on their mandate.		
(e) Environmental Management Framework (EMF) adopted by the DEA&DP	Yes N/A	No
Explain: There is no approved EMF adopted by the DEA&DP for this area		

Q3. Is the proposed land use considered within the timeframe intended by the existing approved Spatial Development Framework (SDF)?	Yes…..✓	No
Explain: Gravel mining and subsequent agricultural land use is consistent with the George Municipality's SDF. There are no specified time frames.		

Q4. Should development of the area concerned in terms of this land use (associated with the activity being applied for) occur here at this point in time?	Yes…..✓	No
Explain: Gravel is needed for construction and development. This site is conveniently located to provide gravel to the market in the George area.		

Q5. . Does the community/area need the activity and the associated land use concerned (is it a societal priority)?	Yes…..✓	No
Explain: Gravel is a basic material that is needed for construction and development. If gravel is not obtained from this site it will still need to be obtained from somewhere else.		

The local community has not raised any concerns.

Q6. Are the necessary services with adequate capacity currently available (at the time of application), or must additional capacity be created to cater for the development?	Yes…..N/A	No
Explain: No municipal services are required at all for this proposed small-scale mining project.		

Q7. Is this development provided for in the infrastructure planning of the municipality	Yes…..N/A	No
Explain: The municipality does not need to provide any services.		

Q8. Is this project part of a national programme to address an issue of national concern or importance?	Yes…..	No ✓
Explain: No, it is only a mining permit application. However, it will support construction and development projects in the George area.		

Q9. Do location factors favour this land use (associated with the activity applied for) at this place?	Yes…..✓	No
Explain: The resources on this farm are favourably positioned to supply the market in the George area.		

Q10. Will the activity or the land use associated with the activity applied for, impact on sensitive natural and cultural areas (built and rural/natural environment)?	Yes…..	No ✓
Explain: The area is not located within a mapped Critical Biodiversity Area (CBA). Furthermore, there are no sensitive heritage resources located on the site. The activity will take place on previously transformed farm land. The site is located within 100m of the Witels River and a specialist freshwater assessment has been undertaken to assess the potential impacts on water resources. An e-WULAAS application has been submitted to the BGCMA.		

Q11. Will the development impact on people's health and wellbeing (e.g. in terms of noise, odours, visual character and sense of place, etc)?	Yes…..✓	No
Explain: There will be noise and dust impacts occurring over a short term duration and limited extent during the operational life of the mine. Once the area has been rehabilitated the area will continue to be used for agricultural purposes and will fit in with the existing rural character and sense of place.		

Q12 Will the proposed activity or the land use associated with the activity applied for, result in unacceptable opportunity costs?	Yes…..	No ✓
Explain:		

There will be no unacceptable opportunity costs.

Q13 Are there any cumulative impacts (positive and negative) of the proposed land use associated with the activity applied for, be?	Yes…..	No ✓
Explain: There will be no significant cumulative impacts.		

Q14. Is the development the best practicable environmental option for this land/site?	Yes…..✓	No
Explain: The land has already been transformed. The area will be rehabilitated so that it can continue to be used for farming activities.		

Q15. What will the benefits be to society in general and to the local communities?	Yes…..✓	No
Explain: Gravel will be provided for construction and development projects.		

Q16 Any other need and desirability considerations related to the proposed activity?	Yes…..	No ✓
None		

Q17. Please describe how the general objectives of Integrated Environmental Management as set out in section 23 of NEMA have been taken into account:
Explain: The principles of Integrated Environmental Management (EIM) as set out in s23 of NEMA have been considered in this environmental assessment and EMPr. Potential impacts on the environment, socio-economic conditions, and cultural heritage have been assessed, and steps have been taken to mitigate negative impacts, and enhance positive impacts. Adequate and appropriate opportunity has been provided for public participation. Environmental attributes have been considered, and environmental management practices have been identified and established to ensure that the proposed activities would proceed in accordance with the principles of IEM.

Q18. Please describe how the principles of environmental management as set out in section 2 of NEMA have been taken into account:
Explain: In accordance with the s2 NEMA Principles this assessment has placed people and their needs at the forefront of its concern. The importance of sustainable development, in terms of social, environmental and economic factors has been carefully considered. The participation of all potential interested and affected parties has been encouraged. The social, economic and environmental impacts of activities, including disadvantages and benefits, have been considered, assessed and evaluated. Recommendations made are considered to be appropriate in the light of this consideration and assessment.

The applicant is aware that the costs of remedying pollution, environmental degradation and consequent adverse health effects and of preventing, controlling or minimising further pollution, environmental damage or health effects must be paid for by those harming the environment.

7. A MOTIVATION FOR THE PREFERRED SITE, ACTIVITY & ALTERNATIVE

Kirsten & Tulleken Vervoer requires viable mineral resources in order to sustain its business and to provide gravel and sand for construction and development projects in the George and Garden Route area.

Kirsten & Tulleken Vervoer is continually evaluating alternative sites and locations in the area. Many of these alternatives are rejected at an early stage due to the identification of potential fatal flaws e.g. the mineral resources do not comply with customer specifications or the site is located in an environmentally sensitive area.

The mining permit area was selected because it is not located in a sensitive environment (i.e. it is not located in a Critical Biodiversity Area and there are no concerns about heritage resources).

Furthermore the site is in a rural area and so the mining activities will not disturb any local communities.

Two alternative sites on the farm outside of the pivot irrigation crop circles were investigated, however the area selected was the most suitable.

The mining permit area does not consist of unique and high potential agricultural land and is only used for the cultivation of planted pastures.

The core business of Kirsten & Tulleken Vervoer is to provide construction materials and so when an area is investigated the primary focus is to evaluate the viability of mining the mineral resource from a financial, technical and environmental point of view.

Kirsten & Tulleken Vervoer is not the land owner, so it would not be realistic for Kirsten & Tulleken Vervoer to propose another type of activity on the land e.g. for housing or commercial or industrial activities.

The land will be rehabilitated so that it can continue to be used for agricultural purposes.

The “preferred alternative” takes into account location alternatives, activity alternatives, layout alternatives, technology alternatives and operational alternatives.

8. PUBLIC PARTICIPATION PROCESS

8.1 Details of the public participation process

The public participation process has been conducted according to the requirements as prescribed in Regulations 40 to 44 of the EIA Regulations, 2014. Full details of the public participation process conducted including copies of all supporting documents (e.g. the information provided to interested & affected parties and the comments received) are included in **Appendix 1**.

The landowner (Mr James Barnard) provided consent for the application on 16 April 2020.

The notice and a Background Information Document (BID) were e-mailed on 5 October 2020 to the authorities and interested & affected parties including the neighbours and the Ward Councillor.

A bilingual notice (English and Afrikaans) was placed in the George Herald of 8 October 2020.

A site notice was placed at the entrance to the site on 8 October 2020.

Authorities and Interested and Affected Parties were requested to provide initial comments by 9 November 2020.

As per the instruction from the Competent Authority on 6 July 2018, and as required in order to comply with the DEFF Directions to address, prevent and combat the spread of COVID-19, a written public participation plan was prepared **(see Appendix 1)**.

8.2 Summary of the issues raised by interested & affected parties

The issues and concerns that were raised during the public participation process to date as well as the responses to these issues are summarised in **Table 1**, below:

Table 1: Comment – response summary table

NAME	ISSUES AND CONCERNS	RESPONSE
LAND OWNER		
James Barnard (RE Buffels Drift 227)	The landowner provided consent in a letter dated 16 April 2020.	Noted.
NEIGHBOURING LAND OWNERS:		
Jack Familietrust (Farms RE/1/227 & 38/227)	No comment submitted.	Noted.
Abraham van Tonder (Farm 26/227)	No comment submitted.	Noted.
JI Barnard Familietrust (Farm 30/227)	No comment submitted.	Noted.
Jonck Landgoed CC (Farms 4/227 &29/227)	No comment submitted.	Noted.
WARD COUNCILLOR		
Mr Gerrit Pretorius (Ward 22)	E-mail dated 5 October 2020 Please register me as an Interested Party.	 Registered.

NAME	ISSUES AND CONCERNS	RESPONSE
AUTHORITIES:		
Heritage Western Cape	Final comment dated 12 August 2020. Since there is no reason to believe that the proposed gravel mine, Farm 227 George, will impact on heritage resources, no further action under Section 38 of the National Heritage Resources Act (Act 25 of 1999) is required. However, should any heritage resources, including evidence of graves and human burials, archaeological material and paleontological material be discovered during the execution of the activities, all works must be stopped immediately and Heritage Western Cape must be notified without delay.	 Noted. Agreed.
DEA&DP: Directorate Development Management (Region 3)	Letter dated 29 October 2020. 3.1 According to Cape Farm Mapper, the vegetation type identified is critically endangered Garden Route Granite Fynbos. The current land use is cultivation of pasture crops and grazing by livestock and although it is unlikely that there is any garden route shale fynbos present inside the mining area, this must be confirmed by CapeNature or a botanical specialist. 3.2 Specialist Involvement a) Please note that any specialist performing work related to any of the fields of practice listed in Schedule I of the Natural Scientific Professions Act, 2003 (Act 27 of 2003) must be registered with SACNASP. b) It will therefore be prudent for such specialists performing specialist studies or preparing specialist reports to provide proof of compliance with this Act. Please ensure that all specialist input complies with this requirement. 3.3 Watercourse a) It is also noted that the proposed mining activities will take place within very close proximity of the Witels River, which is a channelled valley bottom wetland and also a National Freshwater Priority Area (NFEPA). b) It is therefore crucial to consult with the Breede Gouritz Catchment Management Agency to confirm the applicability of the National Water Act, 1998 (Act No 36 of 1998) (NWA). c) Should the proposal require a Water Use Licence, please be reminded that the one environmental system requires that the EIA	 The entire site has been transformed into agricultural land, with no original vegetation left. This was confirmed by the specialist. Agreed. The specialists are all registered with SACNASP. Noted. Consultation with the BGCMA is on-going. Application on e-WULAAS has been submitted. E-WULAAS has confirmed the

NAME	ISSUES AND CONCERNS	RESPONSE
	and WULA processes be synchronised in order to ensure that both processes are duly informed by one another. It is therefore the duty of the EAP to take note of the timeframes and synchronise the two processes. Failure to give effect to the one environmental system may prejudice the success of the application. 3.4 Draft BAR a) The BAR must include all the information stipulated in Appendix 1 of the NEMA EIA Regulations, 2014 as amended on 7 April 2017. b) The BAR must also include a detailed assessment of the cumulative impacts 3.5 The Environmental Management Programme (EMPr) a) The EMPr to be submitted with the Basic Assessment Report must contain all the relevant information stipulated in Appendix 7 of the EIA Regulations and comply with Section 24N of the National Environmental Management Act, 1998 (NEMA). b) The EMPr must also include a detailed rehabilitation plan which clearly outlines the rehabilitation measures as well as the cost. It is strongly advised that this rehabilitation fund first be secured, prior to approving the proposed development instead of only ensuring suitable planning for future restoration costs has been undertaken. c) Rehabilitation of the mining area must be focussed on restoring the topography (land form), and no significant depression should be left in the landscape. Please adequately address this aspect in the draft BAR. d) Stringent stormwater management actions should also be included in the EMPr for the duration of the mine to manage erosion control and prevent siltation of the nearby watercourse.	pre-application water use enquiry and the applicant is waiting for the BGCMA to appoint a case officer and undertake a site inspection. Agreed. Agreed. Agreed. Agreed. The DMR will require the financial provision for rehabilitation to be made prior to the granting of a mining permit. Agreed. Agreed.
DMR	The DMR acknowledged receipt of the application on 14 October 2020.	Noted.
George Municipality	E-mail dated 5 October 2020. Thank you for your mail. Please note that, due to current conditions (COVID-19) the department is operating with limited capacity and under abnormal circumstances. The department's officials will attend to your enquiries, complaints and applications as soon as practically possible.	 Noted.
Cape Nature	No comment submitted.	Noted.
Department of Agriculture Western Cape	No comment submitted	Noted.

NAME	ISSUES AND CONCERNS	RESPONSE
Breede-Gouritz Catchment Management Agency (BGCMA)	Letter dated 20 October 2020. 1. All relevant sections and regulations of the National Water Act, 1998 (Act 36 of 1998) regarding water use must be adhered to. 2. Please note that the mining area is close to a water resource. It is therefore recommended that a risk matrix be conducted by a qualified professional scientist at SACNASP. The outcomes of this matrix will determine the authorization process to be followed in terms of Section 22 of the National Water Act of 1998 (Act 36 of 1998). 3. No pollution of surface water or ground water resources may occur due to any activity. 4. All comments, recommendations, etc with regards to this development must be adhere to at all times.	 Agreed. Dr Dirk van Driel, a SACNASP registered scientist, has been appointed to submit the required risk matrix to the BGCMA. Noted and agreed. Agreed
e-WULAAS (Department of Water & Sanitation)	E-mail dated 24 October 2020. Dear Dr Dirk van Driel (Designated signatory) A request for consultation for the following Pre-Application Water Use Enquiry have been submitted to the department: Buffelsdrift Gravel Mine (WU18361).	 Noted.
Garden Route Biosphere Reserve	No comment submitted	Noted

9. PROCESS TO REACH THE PROPOSED PREFERRED ALTERNATIVE

9.1 Details of the alternatives considered

(Note: "Alternatives", in relation to a proposed activity, means different means of meeting the general purpose and requirements of the activity, which may include alternatives to:

(a) the property on which or location where it is proposed to undertake the activity;
(b) the type of activity to be undertaken;
(c) the design or layout of the activity;
(d) the technology to be used in the activity;
(e) the operational aspects of the activity; and
(f) the option of not implementing the activity ("the no go alternative").

9.1.1 Location or site alternatives

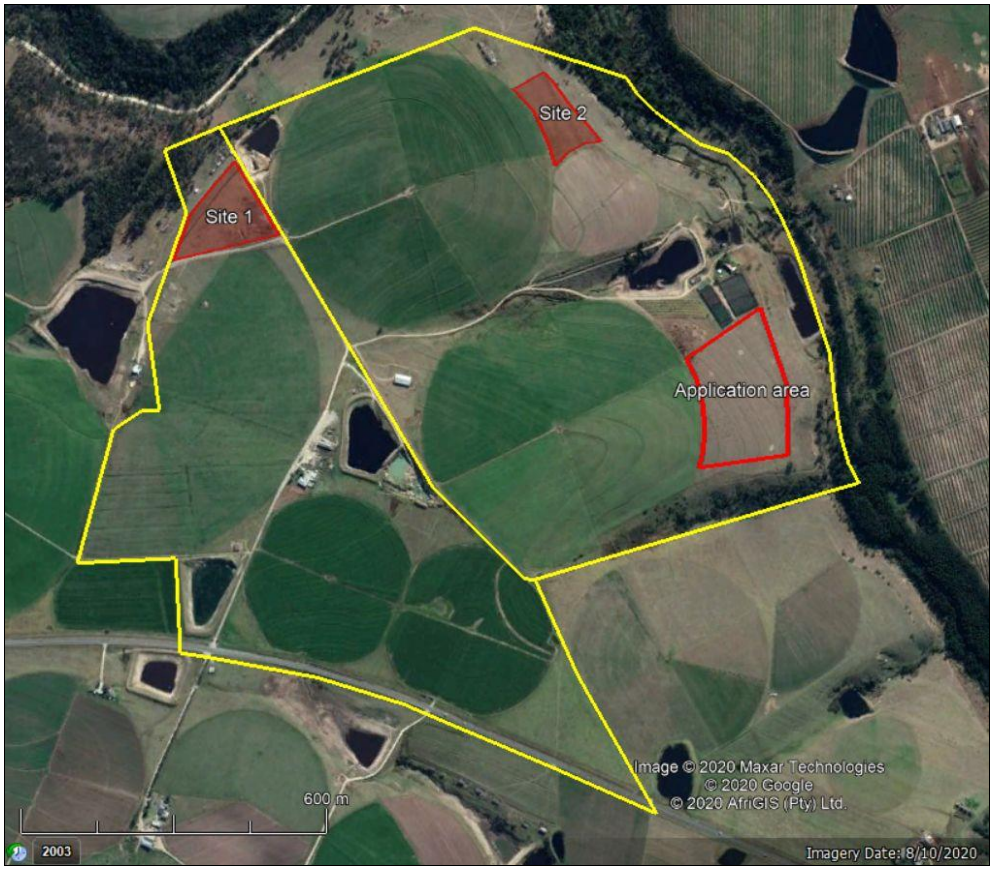

Figure 5: Site alternatives investigated

Kirsten & Tulleken Vervoer requires viable mineral resources in order to sustain its business and to provide gravel and sand for construction and development projects in the George and Garden Route area.

Kirsten & Tulleken Vervoer is continually evaluating alternative sites and locations in the area. Many of these alternatives are rejected at an early stage due to the identification of potential fatal flaws e.g. the mineral resources do not comply with customer specifications or the site is located in an environmentally sensitive area.

Two alternative sites on the farm outside of the pivot irrigation crop circles were investigated, however the application area selected was the most suitable. Site 1 is located too close to the farm workers' cottages and the slope at Site 2 is too steep **(see Figure 5)**.

The mining permit area was selected because it is not located in a sensitive environment (i.e. it is not located in a Critical Biodiversity Area and there are no concerns about heritage resources).

Furthermore the site is in a rural area and so the mining activities will not disturb any local communities.

The mining permit area does not consist of unique and high potential agricultural land and is only used for the cultivation of planted pastures.

9.1.2 Activity alternatives

The core business of Kirsten & Tulleken Vervoer is to provide construction materials and so when an area is investigated the primary focus is to evaluate the viability of mining the mineral resource from a financial, technical and environmental point of view.

Kirsten & Tulleken Vervoer is not the land owner, so it would not be realistic for Kirsten & Tulleken Vervoer to propose another type of activity on the land e.g. for housing or commercial or industrial activities.

The holder of a mining permit is required to rehabilitate the environment affected by mining to its natural state or to another predetermined land use. The mining activity takes place over a relatively short time period, so the selection of the best post-mining long term land use is an important consideration.

In the case of this application the best post-mining land use alternative is for agricultural purposes as this is in line with the defined primary land uses for the area as determined by the agricultural zoning of the land.

9.1.3 Design or layout alternatives

The design or layout of a mining project is determined by the shape, position and orientation of the mineral resource.

There would be two feasible ways of mining this resource. It could be mined from west to east or from east to west. In this instance it is better to mine and rehabilitate the area concurrently from the west towards the east, as this minimises the disturbance to the mined areas once they have been rehabilitated.

The significance of the environmental impacts associated with different possible design or layout alternatives would be very similar, therefore layout alternatives are not considered any further.

9.1.4 Technology alternatives

The technology used in a mining project is determined by the shape, position and orientation of the mineral resource e.g. if a mineral deposit is situated below the surface then an underground mining method would be appropriate.

For surface mining in the Western Cape essentially two alternative mining methods are used. Where the mineral resources occur below the current land surface (e.g. in the hillwash sand deposits in the Malmesbury area) then an excavator is used to reach down and mine the material.

Where dunes are mined, a front end loader is normally used to mine sand.

An excavator will be used for this project.

The significance of the environmental impacts associated with different possible technology alternatives would be very similar, therefore technology alternatives are not considered any further.

9.1.5 Operational alternatives

From an operational point of view it could be possible to mine this mineral resource on a continuous basis (i.e. by using a double shift over 24 hours). The reality is that there would be additional health & safety considerations (e.g. requiring extra lighting at night). Mining operations will therefore take place during normal working hours only.

9.1.6 The “no go” alternative

The assessment of alternatives must at all times include the “no go” option as a baseline against which all other alternatives must be measured. The “no go” alternative is therefore assessed together with the preferred alternative.

9.2 The environmental attributes associated with the alternatives (i.e. the Baseline Environment)

(The description of the baseline environment should focus on the geographical, physical, biological, social, economic, heritage and cultural aspects)

9.2.1 Geographical

The proposed mining permit area is located is located 10 km west of George. Access to the site is obtained over a farm road from the R102.

The site is located east of an agricultural pivot irrigation circle on a slope that is used for the cultivation of pasture crops. Agricultural contours are present on the site.

The site is located on an east-facing slope. The elevation of the site varies from 175m above sea level in the west to 155m above sea level in the east.

9.2.2 Climate

The climate for the area originally covered by Garden Route Granite Fynbos is described in Mucina and Rutherford (2006) as follows:

"Mean Annual Precipitation 350–880 mm (mean: 600 mm), with a slight low in early winter. Mean daily maximum and minimum temperatures 27.8°C and 6.8°C for January–February and July, respectively. Frost incidence 2 or 3 days per year."

The predominant wind direction is from the southeast, although the northwester does blow from May to August. The average wind speed is gentle.

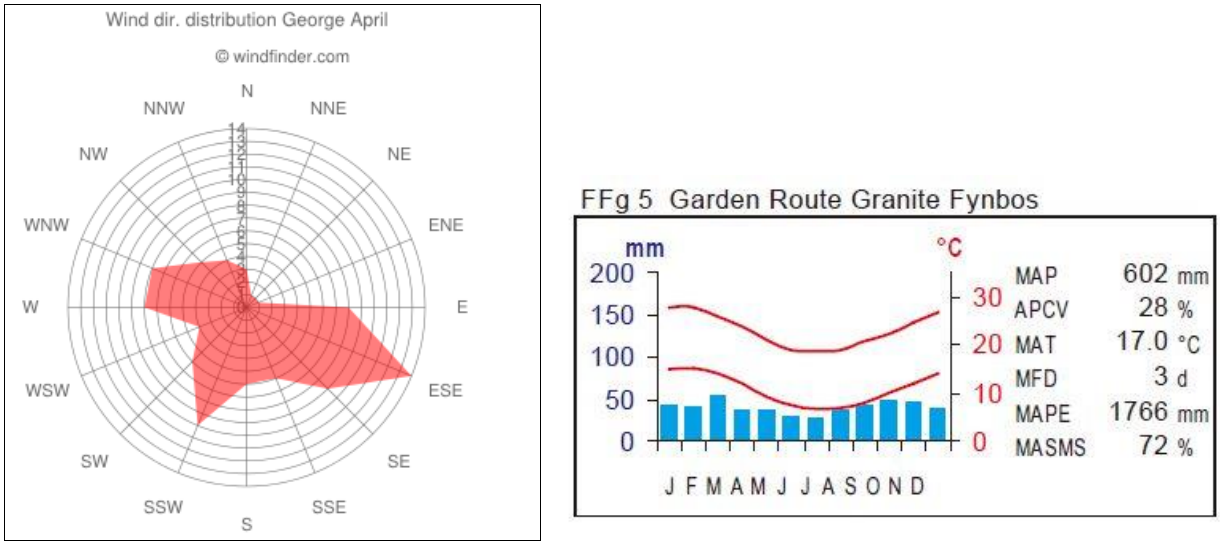

Figure 6: Wind rose and climate diagram for the area

(Sources:www.windfinder.com & Mucina and Rutherford (2006))

9.2.3 Soil

A specialist soil report prepared by Johann Lanz on the impact of the proposed mining on the agricultural potential of the land is included in **Appendix 2**.

The soils and underlying weathered granite are very uniform across the investigated area. The soils are generally moderately shallow, with upper soil horizons of loamy-sand (10% clay content) on underlying weathered granite, with a thin, structured clay horizon between the sandy upper horizons and the weathered granite. They are mostly of the Estcourt 2200 soil family, as classified by the South African soil classification system, although they are transitional to Cartref soil form because the clay B horizon, that defines them as Estcourt is very thin. The depth below surface to the weathered granite varies between 60 and 70 cm.

The weathered granite extends to at least the bottom of the test pits, which were approximately 5 metres deep.

The soils are limited predominantly by their depth. They have a medium-high agricultural potential, and are rated 6 out of 10 according to the system used by Western Cape soil scientists. The land capability evaluation value of the area is predominantly 6 although it varies from 4 to 7. The site is suitable for planted pastures.

The proposed mining area is on land currently and historically used for planted perennial pastures.

Figure 7: View of typical site conditions down the slope of the proposed mining area

(Photo: Johann Lanz)

9.2.4 Geology

The property is underlain by the Maalgaten Granite (pale orange colour on map). A number of other occurrences of Road Material and gravel are shown in the area (map symbols RM and gr).

The Explanation of Geological Sheets 3322CD and 3422AB, the Geology of George and Environs (Council for Geoscience, 2008) provides a detailed description of the Geology as well as the Economic Geology of the area. This is summarised below:

The southern slopes of the Outeniqua mountains drop steeply to a low-relief, 10-km-wide coastal plain. This coastal plain is underlain by the more susceptible rocks of the Cape Granite Suite and metasediments of the Neoproterozoic Kaaimans Group.

The mining permit area is underlain by the Maalgaten Granite. The deformed Maalgaten Granite represents the most voluminous part of the George Pluton which in turn is part of the Cape Granite Suite.

The granite is poorly exposed and has a distinct weathering profile in which the fresh granite is commonly overlain by friable partially weathered granite, which in turn is overlain by a clay-rich weathered regolith.

The saprolite consists of a deeply weathered friable granite gravel with a sandy, clayey matrix that grades down into weathered granite of the George pluton. It is between 3 and 19m thick, and has been, or is currently exploited from 14 known sites. The gravel is used for road wearing course, subgrade and fill. In some cases the underlying, slightly weathered granite has been exploited for stone aggregate.

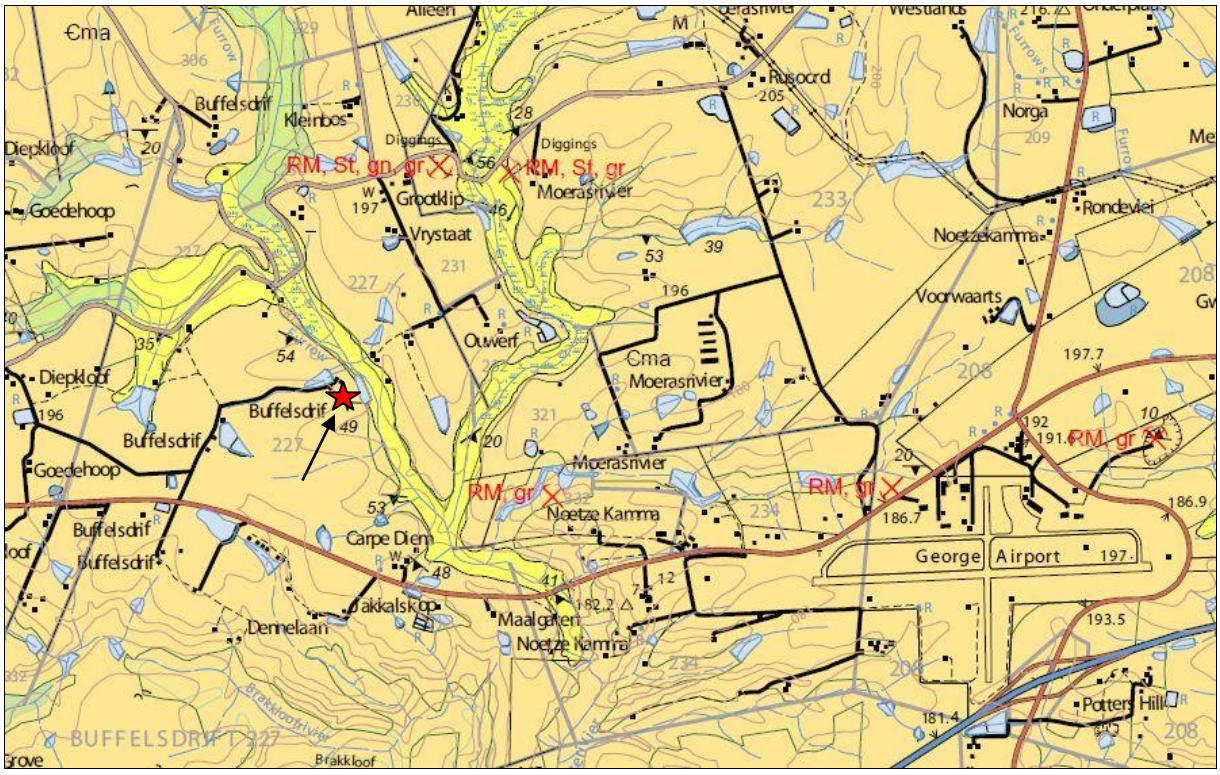

Figure 8: Extract from 1:50 000 geological map sheet 3322CD & 3422AB George

The red star indicates the location of the site.

9.2.5 Biodiversity

The proposed mining permit area was historically covered by Garden Route Granite Fynbos (FFg 5). Garden Route Granite Fynbos is listed as an Endangered Ecosystem. Garden Route Granite Fynbos is described in Mucina and Rutherford (2006) as "*Moderately undulating plains and undulating hills on the coastal forelands. Dense proteoid and ericoid shrubby grassland. Proteoid and graminoid fynbos are dominant with ericaceous fynbos in seeps.*"

However, the proposed mining permit area is located within transformed agricultural land and there is no remaining natural vegetation.

There are no mapped Critical Biodiversity Areas (CBA) or Ecological Support Areas (ESAs) in the mining permit area.

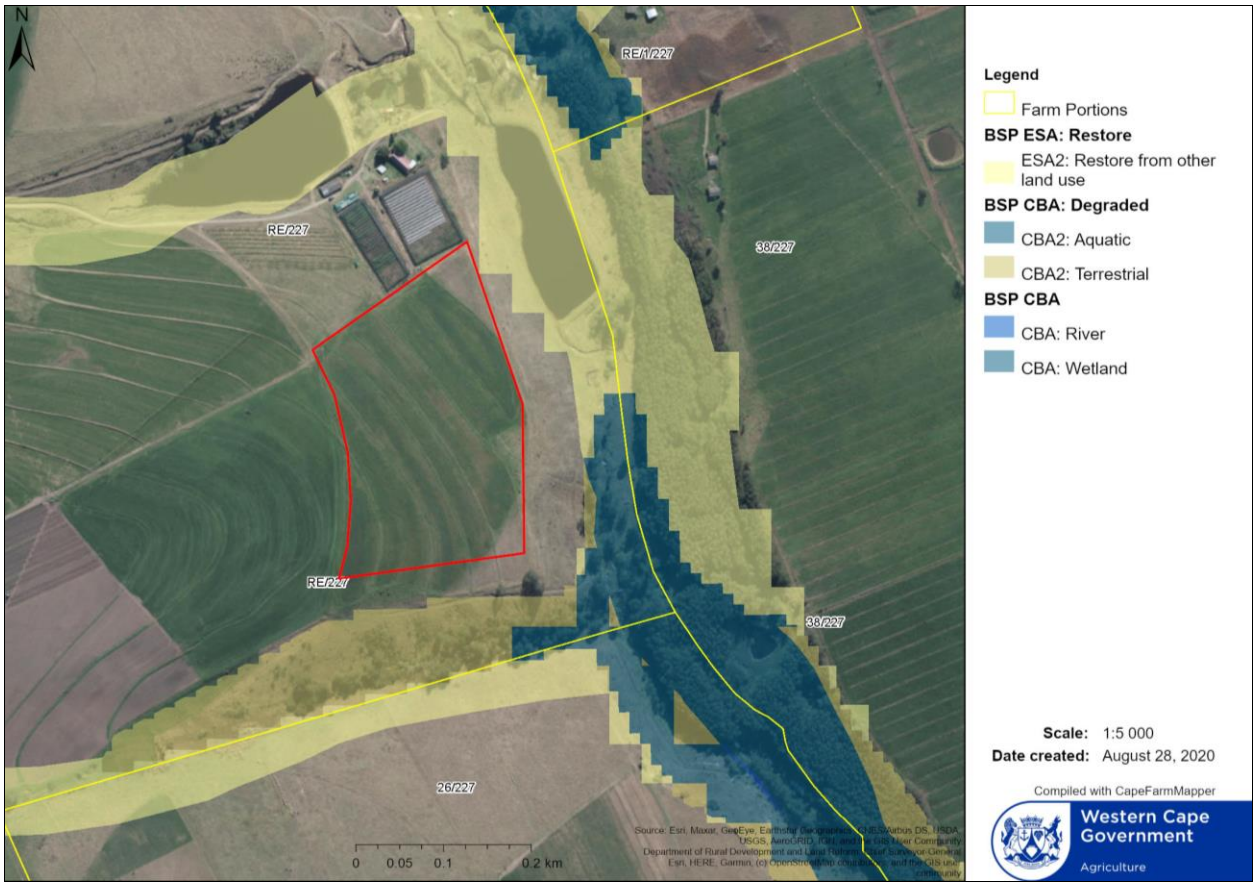

Figure 9: Critical Biodiversity Areas (CBA) map of the area (WCBSP 2017)

The Witels river valley is located downslope and east of the mining area. The original natural vegetation in this area is mapped as Cape Lowland Alluvial Vegetation (Aza 2). Unfortunately the river valley has been extensively invaded by alien species such as Black Wattle.

No significant impacts to natural vegetation or to terrestrial or aquatic biodiversity are anticipated.

9.2.6 Water resources

The site is located in the K30A Quaternary catchment area. Water resources in this area are managed by the Breede-Gouritz Catchment Management Agency (BGCMA).

Dr Dirk van Driel has a prepared a specialist fresh water report **(see Appendix 3)**. There are no dams, rivers or wetlands in the proposed mining area. The Witels River occurs to the east of the site and a non-perennial drainage line occurs more than 32 metres south of the site. At the time of the site visit by the specialist (on 20 August 2020) the Witels River consisted of a series of isolated pools.

There is a farm dam located between the mining permit area and the Witels River

The Witels River is within 100 metres of the site and mapped wetland areas within the Witels River valley occur within 500 metres of the site hence it is necessary for the specialist to prepare and submit a Water Use application to the BGCMA.

The section of the Witels River closest to the mining area has been highly impacted by agriculture, abstraction and a heavy infestation of black wattle, blue gums and other invasive species. The river is in a poor ecological state.

The proposed gravel mine will need to ensure that the mining operations do not have a negative impact on water resources.

Pollution prevention measures must be implemented to ensure that no pollution of any water resource by oil, grease, fuel or chemicals takes place.

The area does not overlie an important aquifer. No significant impacts on groundwater are anticipated.

9.2.7 Socio-economic

The proposed gravel mine is located in a rural part of Ward 22 in the George Municipal Area.

The George Municipality is a local municipality situated within the Garden Route. As of 2011 it had a population of 193 672 people. Its municipality code is WC044.

The strategic location of George along the N2 national road between Cape Town and Port Elizabeth facilitates the mobility of people, goods and services.

The municipality covers an area of 5 191 square kilometres in the Garden Route and Little Karoo regions.

According to the 2011 census the municipality has a population of 193 672 people in 53 551 households. Of this population, 50.4% describe themselves as "Coloured", 28.2% as "Black African", and 19.7% as "White". The first language of 67.2% of the population is Afrikaans, while 21.7% speak Xhosa and 8.1% speak English.

The majority of the residents of the municipality are in the city of George, which as of 2011 has a population of 157,394. Close to George are the coastal resorts of Herolds Bay (population 704) and Wilderness (population 6 164).

The key statistics provided by Stats SA for the George Municipal Area based on the statistics from the 2011 Census are shown in the following table:

Table 2: Key Statistics 2011 for the George Municipal area

Total population	193 672
Young (0-14)	26.3%
Working Age (15-64)	67.3%
Elderly (65+)	6.4%
Growth rate	2.59% (2001-2011)
Population density	37 persons/km2
Youth unemployment rate	27.6%
No schooling aged 20+	3.9%
Higher education aged 20+	11.6%
Matric aged 20+	29.1%
Number of households	53 551
Number of Agricultural households	4 074
Female headed households	33.2%
Formal dwellings	83.9%
Housing owned/paying off	49%
Flush toilet connected to sewerage	82%
Weekly refuse removal	88.1%
Piped water inside dwelling	70.3%
Electricity for lighting	91%

The sectors that contribute the most to employment in the Garden Route District include the:

- Wholesale and retail trade, catering and accommodation sector (23.9 %)
- Finance, insurance, real estate and business services sector (17.3 %)
- Community, social and personal services sector (15.1 %)
- Agriculture, forestry and fishing sector (13.1 %)

The area surrounding the proposed mining permit area is predominantly used for agricultural purposes.

9.2.8 Heritage and cultural aspects

Dr Jayson Orton of ASHA Consulting compiled and submitted the NID (or Notice of Intent) document that was submitted to Heritage Western Cape.

Heritage Western Cape provided a final comment on 12 August 2020 and stated:

"Since there is no reason to believe that the proposed gravel mine, Farm 227 George, will impact on heritage resources, no further action under Section 38 of the National Heritage Resources Act (Act 25 of 1999) is required.

However, should any heritage resources, including evidence of graves and human burials, archaeological material and paleontological material be discovered during the execution of the activities, all works must be stopped immediately and Heritage Western Cape must be notified without delay".

9.2.9 Land uses and planning considerations

The property is zoned for agricultural purposes by the George Municipality. The applicant should ensure that the required land use approval is in place to allow mining on the property.

9.2.10 Description of specific environmental features and infrastructure on the site

Specific environmental features have already been described above.

9.2.11 Environmental sensitivity and current land use map

See **Figures 2 and 9.**

9.3 The impacts and risks identified for each alternative

(including the nature, significance, consequence, extent, duration and probability of the of the impacts, including the degree to which the impacts:- (aa) can be reversed, (bb) may cause irreplaceable loss of resources and (cc) can be avoided or mitigated)

(DMR: Provide a list of the potential impacts identified of the activities described in the initial site layout that will be undertaken, as informed by both the typical known impacts of such activities, and as informed by the consultations with affected parties)

The potential impacts and risks associated with each alternative are described in the following tables. The full assessment is provided in **Section 11** of this report.

Table 3: Potential impacts and risks associated with the preferred alternative

Aspect	Potential Impacts
Biodiversity	The proposed mining permit area is situated on transformed farm land and will have no impact on natural vegetation. Smaller animals will move away when mining operations are in progress.
Water resources	The proposed mining area is situated on a slope. Care will be required to prevent stormwater runoff containing silt from entering the Witels River. As the site is located within 100 metres of a river or 1:100 year floodline, authorisation in terms of the National Water Act, 1998 (Act 36 of 1998) will be required. The proposed mining activities will have no significant impact on surface water or groundwater resources.
Soil and agricultural potential	Care will be required to prevent soil erosion and proactive management will be required to ensure that the area will be rehabilitated to that it can continue to be used for agricultural purposes (i.e. planting of pasture crops).
Noise and dust	An excavator will be used to excavate the material and to load trucks. Noise and dust impacts will be largely restricted to the site. The mine will operate during working hours only.
Socio-economic	The proposed mine will not have a negative impact on any agricultural activity on the farm or of the surrounding farms. The mine will provide employment and the aim is to use the gravel for various construction projects in the George area.
Cultural and heritage resources	There are no old buildings or other significant heritage resources located within the mining permit area.

The potential impacts and risks associated with the “no-go” alternative are shown in the following table:

Table 4: Potential impacts and risks associated with the “no-go” alternative

Aspect	Potential Impacts
Flora and fauna	No change
Water resources	No change.
Soil and agricultural potential	No change
Noise and dust	No change
Socio-economic	Kirsten & Tulleken Vervoer will forgo an opportunity to create employment and generate an income from this project. Transport is a major component of the cost of low value bulk commodities like gravel. Increased transport costs for material obtained from further away will add to the total cost which will ultimately be paid by consumers.
Cultural and heritage resources	No change.

9.4 The methodology used in determining significance of potential impacts

The methodology used in determining and ranking the nature, significance, consequences, extent, duration and probability of potential environmental impacts and risks associated with the alternatives is provided in the following tables:

Table 5: Nature and type of impact

Nature and type of impact	Description
Positive	An impact that is considered to represent an improvement to the baseline conditions or represents a positive change
Negative	An impact that is considered to represent an adverse change from the baseline or introduces a new negative factor
Direct	Impacts that result from the direct interaction between a planned project activity and the receiving environment / receptors
Indirect	Impacts that result from other activities that could take place as a consequence of the project (e.g. an influx of work seekers)
Cumulative	Impacts that act together with other impacts (including those from concurrent or planned future third party activities) to affect the same resources and / or receptors as the project

Table 6: Criteria for the assessment of impacts

Criteria	Rating	Description
Spatial extent of impact	**National**	Impacts that affect nationally important environmental resources or affect an area that is nationally important / or have macro-economic consequences
	Regional	Impacts that affect regionally important environmental resources or are experienced on a regional scale as determined by administrative boundaries or habitat type / ecosystems
	Local	Within 2 km of the site
	Site specific	On site or within 100 m of the site boundary
Consequence of impact (magnitude / severity)	**High**	Natural and/ or social functions and/ or processes are *severely* altered
	Medium	Natural and/ or social functions and/ or processes are *notably* altered
	Low	Natural and/ or social functions and/ or processes are *slightly* altered
	Very Low	Natural and/ or social functions and/ or processes are *negligibly* altered
	Zero	Natural and/ or social functions and/ or processes remain *unaltered*
Duration of impact	**Temporary**	Impacts of short duration and intermittent and/or occasional
	Short term	During the construction period
	Medium term	During part or all of the operational phase
	Long term	Beyond the operational phase, but not permanently
	Permanent	Mitigation will not occur in such a way or in such a time span that the impact can be considered transient (irreversible)

Table 7: Significance rating

Significance rating	Description
High	High consequence with a regional extent and long term duration. High consequence with either a regional extent and medium term duration or a local extent and long term duration. Medium consequence with a regional extent and long term duration.
Medium	High consequence with a local extent and medium term duration. High consequence with a regional extent and short term duration or a site specific extent and long term duration. High consequence with either a local extent and short term duration or a site specific extent and medium term duration. Medium consequence with any combination of extent and duration except site specific and short term or regional and long term. Low consequence with a regional extent and long term duration.
Low	High consequence with a site specific extent and short term duration. Medium consequence with a site specific extent and short term duration. Low consequence with any combination of extent and duration except site specific and short term. Very low consequence with a regional extent and long term duration.
Very low	Low consequence with a site specific extent and short term duration. Very low consequence with any combination of extent and duration except regional and long term.
Neutral	Zero consequence with any combination of extent and duration.

Table 8: Probability, confidence, reversibility and irreplaceability

Criteria	Rating	Description
Probability	**Definite**	>90% likelihood of the impact occurring
	Probable	70% – 90% likelihood of the impact occurring
	Possible	40% – 70% likelihood of the impact occurring
	Unlikely	<40% likelihood of the impact occurring
Confidence	**Certain**	Wealth of information on and sound understanding of the environmental factors potentially affecting the impact
	Sure	Reasonable amount of useful information on and relatively sound understanding of the environmental factors potentially influencing the impact.
	Unsure	Limited useful information on and understanding of the environmental factors potentially influencing this impact
Reversibility	**Reversible**	The impact is reversible within 2 years after the cause or stress is removed.
	Irreversible	The activity will lead to an impact that is in all practical terms permanent.
Irreplaceability	**Replaceable**	The resources lost can be replaced to a certain degree
	Irreplaceable	The activity will lead to a permanent loss of resources

9.5 The positive & negative impacts that the proposed activity and alternatives will have

(The positive and negative impacts that the proposed activity and alternatives will have on the environment and the community that may be affected focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects)
(DMR: Provide a discussion in terms of advantages and disadvantages of the initial site layout compared to alternative layout options to accommodate concerns raised by affected parties)

See **Section 9.3** of this report.

9.6 The possible mitigation measures that could be applied

(The possible mitigation measures that could be applied and the level of residual risk)

See the environmental impact assessment in **Section 11** of this report.

9.7 The outcome of the site selection matrix

See **Figure 2** and **Figure 3**.

9.8 Motivation where no alternatives were considered

(If no alternatives, including alternative locations for the activity were investigated, the motivation for not considering such)

Alternatives were considered.

9.9 Concluding statement on alternatives

(a concluding statement indicating the preferred alternatives, including preferred location of the activity)

Kirsten & Tulleken Vervoer requires viable mineral resources in order to sustain its business and to provide gravel and sand for construction and development projects in the George and Garden Route area.

Kirsten & Tulleken Vervoer is continually evaluating alternative sites and locations in the area. Many of these alternatives are rejected at an early stage due to the identification of potential fatal flaws e.g. the mineral resources do not comply with customer specifications or the site is located in an environmentally sensitive area.

The mining permit area was selected because it is not located in a sensitive environment (i.e. it is not located in a Critical Biodiversity Area and there are no concerns about heritage resources).

Furthermore the site is in a rural area and so the mining activities will not disturb any local communities.

Two alternative sites on the farm outside of the pivot irrigation crop circles were investigated, however the area selected was the most suitable.

The mining permit area does not consist of unique and high potential agricultural land and is only used for the cultivation of planted pastures.

The core business of Kirsten & Tulleken Vervoer is to provide construction materials and so when an area is investigated the primary focus is to evaluate the viability of mining the mineral resource from a financial, technical and environmental point of view.

Kirsten & Tulleken Vervoer is not the land owner, so it would not be realistic for Kirsten & Tulleken Vervoer to propose another type of activity on the land e.g. for housing or commercial or industrial activities.

The land will be rehabilitated so that it can continue to be used for agricultural purposes.

The "preferred alternative" takes into account location alternatives, activity alternatives, layout alternatives, technology alternatives and operational alternatives.

10. SPECIALIST FINDINGS

(a summary of the findings and impact management measures identified in any specialist report complying with Appendix 6 to these Regulations) and an indication as to how these findings and recommendations have been included in the final report)

10.1 Heritage

Dr Jayson Orton of ASHA Consulting compiled and submitted the NID (or Notice of Intent) that was submitted to Heritage Western Cape.

Heritage Western Cape provided a final comment on 12 August 2020 and stated:

"Since there is no reason to believe that the proposed gravel mine, Farm 227 George, will impact on heritage resources, no further action under Section 38 of the National Heritage Resources Act (Act 25 of 1999) is required.

However, should any heritage resources, including evidence of graves and human burials, archaeological material and paleontological material be discovered during the execution of the activities, all works must be stopped immediately and Heritage Western Cape must be notified without delay".

10.2 Soil and agricultural potential

Johann Lanz, the specialist soil scientist compiled a specialist report on the impact of the proposed mining on the agricultural potential of the area **(see Appendix 2)**.

This assessment has found that there are adequate reserves of gravel on site for mining and rehabilitation. Soils are moderately deep, which results in medium-high agricultural potential. The site is suitable for cultivation of pastures.

There are both indirect and direct potential impacts of mining on agriculture. The indirect impacts are of low significance at this site:

- Change to the agricultural sense of place, which can damage the agritourism potential of the area.
- Dust deposition on surrounding crops.

The direct potential impact of mining on the land is to reduce its agricultural potential by way of nine different identified mechanisms:

1. Loss of agricultural land for duration of mining;
2. Reduction in soil depth;
3. Impaired soil drainage;

4. Loss of topsoil and fertility during mining and stockpiling;
5. Erosion;
6. Destruction of existing contour banks;
7. The creation of steep slopes and uneven surfaces;
8. Alien vegetation encroachment; and
9. Soil contamination from fuel spills.

Of the above the most important impacts are loss of topsoil and the creation of steep slopes.

Mitigation measures and a rehabilitation plan are provided in this report. Successful mitigation and rehabilitation of impacts is highly dependent on maintaining a sufficient level of environmental management. All the recommended steps must be well managed and effectively implemented in order for rehabilitation to be successful, especially ensuring double stripping and effective topsoiling.

If rehabilitation is successful, the land will retain a similar agricultural potential to what it was pre-mining. With effective mitigation, the reduction in agricultural potential is therefore assessed as having *'low'* significance. Without mitigation or with ineffective mitigation it can result in impacts of higher significance, that destroy agricultural potential.

Mine management must be held accountable for well managed and effectively implemented rehabilitation.

10.3 Water resources

Dr Dirk van Driel compiled the specialist fresh water report **(see Appendix 3)**.

There are no dams, rivers or wetlands in the proposed mining area. The Witels River occurs to the east of the site and a non-perennial drainage line occurs more than 32 metres south of the site. At the time of the site visit by the specialist (on 20 August 2020) the Witels River consisted of a series of isolated pools.

There is a farm dam located between the mining permit area and the Witels River

The Present Ecological Status (PES) of the Witels River and the adjacent riparian zone east of the mining permit area was scored as an "E" i.e. *"Extensively modified with loss of habitat, biota and ecosystem function".*

Both the instream habitat and the riparian zone score an "E", which is heavily impacted with a significant loss of ecological functioning, mainly because of the black wattle infestation as well as the abstraction of water for irrigation. To this the irrigation return flow must be added. The channel is deeply incised, with the banks steep, restricting hydrological connectivity with the riparian zone.

The proposed mining activity is not about to change the current status of the River in and around the Buffels Drift Farm. It is not expected that the river will deteriorate further because of the proposed mining activity, not if the mitigation measures are in place.

The significance of the potential impacts associated with mining and rehabilitation activities on the site that could lead to the washing of mud and silt down the river was determined to be "low" provided that the required mitigation measures are in place.

The mitigation measures are:

- Implement a storm water management plan.

- Maintain a buffer zone of 32m between the mine and water courses.
- Limit the foot print of the mine within the demarcated area.

An additional impact that was identified by the specialist is the growth of invasive trees such as black wattle and blue gums. However with effective alien vegetation control measures in place the significance of the potential impact was determined to be “low”.

The relatively high rainfall and the associated runoff requires storm water control measures.

A berm should be constructed from the overburden to divert storm water away and around the active mining area. Storm water on the mining site can be collected in a cut-off drain along the toe of the mining area. The drain is to end up in a silt retention pond. The sediments in the pond can then be removed from time to time. The overflow from the pond ends up in a farm dam. In this way sediments would effectively be prevented from being transported down the Witels River.

The slope of the upper end of the mined-out area should not be than 1 in 3 and should be re-vegetated as soon as the mining operation allows in order to prevent erosion and sediment production.

Following mining, agricultural contours should be re-constructed to further control runoff and to prevent erosion.

11. ENVIRONMENTAL IMPACT ASSESSMENT

(As prescribed in Appendix 1 of the EIA Regulations, 2014:
A full description of the process undertaken to identify, assess and rank the impacts and risks the activity will impose on the preferred location through the life of the activity, Including-
(i) a description of all environmental issues and risks that were identified during the environmental impact assessment process and
(ii) an assessment of the significance of each issue and risk and an indication of the extent to which the issue and risk could be avoided or addressed by the adoption of mitigation measures)

An assessment of each potentially significant impact and risk
(including- (i) cumulative impacts, (ii) the nature, significance and consequence of the impact and risk, (iii) the extent and duration of the impact and risk occurring, (iv) the probability of the impact and risk occurring, (v) the degree to which the impact and risk can be reversed, (vi) the degree to which the impact and risk may cause irreplaceable loss of resources, and (vii) the degree to which the impact and risk can be avoided, managed or mitigated)

A full description and assessment of the environmental impacts and risks associated with the "preferred alternative" is provided below:

11.1 Soil and agricultural potential

Introduction

Topsoil is a valuable and essential resource for rehabilitation and it should therefore be managed carefully to conserve and maintain it throughout the stockpiling and rehabilitation processes.

Potential impacts

The potential impact of mining on the land is to reduce its agricultural potential by way of nine different identified mechanisms:

1. Loss of agricultural land for duration of mining;
2. Reduction in soil depth;
3. Impaired soil drainage;
4. Loss of topsoil and fertility during mining and stockpiling;
5. Erosion;
6. Destruction of existing contour banks;
7. The creation of steep slopes and uneven surfaces;
8. Alien vegetation encroachment; and
9. Soil contamination from fuel spills.

Table 9: Soil and agricultural potential: summary of impact assessment

Potential impacts on soil & agric. potential:	
Nature of impact:	**Negative and direct**
Extent of impact:	**Site specific**
Consequence of impact:	**Medium**
Duration of impact:	**Medium term**
Probability of occurrence:	**Definite**
Confidence:	**Certain**
Degree to which the impact can be reversed:	**Reversible**
Degree to which the impact may cause irreplaceable loss of resources:	**Replaceable**
Significance rating of impact prior to mitigation (Neutral, Very Low, Low, Medium, or High)	**Medium**
Significance rating of impact after mitigation (Neutral, Very Low, Low, Medium, or High)	**Low**

Discussion
The overburden and topsoil will be pre-stripped and stockpiled for replacement on the land directly after mining has been completed.

The highest risk of significant impact is through loss of topsoil and through erosion. These aspects must therefore be well managed.

Erosion of topsoil can occur both as a result of stripping and stockpiling, as well as after topsoil spreading. These aspects must therefore be well managed in order for rehabilitation to be successful.

Proposed mitigation measures
The proposed mitigation measures to avoid or minimise the impact of the project on soils and the agricultural potential of the land are listed below:

1. Because the overburden above the mine-able gravel exceeds a thickness of 50cm, double stripping and stockpiling must be done to ensure that the topsoil remains separate from the underlying soil.
2. A depth of 40cm of topsoil must first be stripped and stockpiled.
3. Thereafter, any additional overburden (20 – 30 cm thickness) must be stripped and stockpiled separately from the topsoil stockpiles.
4. Topsoil is a valuable and essential resource for rehabilitation and it should therefore be managed carefully to conserve and maintain it throughout the stockpiling and rehabilitation processes.
5. Topsoil stockpiles should be protected against losses by water and wind erosion.
6. Stockpiles should be positioned so as not to be vulnerable to erosion by wind and water. The establishment of plants (weeds or a cover crop) on the stockpiles will help to prevent erosion. Stockpiles should be no more than 2 metres high.
7. During mining, the outflow of run-off water from the mining excavation must be controlled to prevent any down-slope erosion. The cut-off drain included in the mining layout plan will serve this purpose.
8. To prevent damming of water in the mining excavation, free drainage from the excavation into the cut-off drain must be ensured.
9. After mining, any steep slopes at the edges of excavations, must be reduced to the possible minimum. The upper and side edges will need to remain fairly steep at a slope of 1:3.
10. The stockpiled overburden (the layer taken from below the topsoil) must then be evenly spread over the entire mining area.
11. Thereafter, the stockpiled topsoil must be evenly spread on top of the overburden, across the entire mining area. The depth should be monitored during spreading to ensure that coverage is adequate and even.
12. The existing contour banks that have been destroyed must be re-established to similar specifications (height, slope, distance apart) as prior to disturbance, but also ensuring the integrity of the run-off system as a whole. This should be done to the satisfaction of a soil conservation specialist.
13. A cover crop must be planted and established immediately after the spreading of topsoil and the contour construction, to stabilise the soil and protect it from erosion. The cover crop should be fertilized for optimum biomass production, and any soil chemical deficiencies must be corrected, based on a chemical analysis of the respreads soil. A chemical analysis from an agricultural laboratory will include a recommendation of the appropriate quantities of chemical ameliorants (for example lime, phosphate etc) that should be applied to optimize the soil chemistry for the relevant crop. It is important that rehabilitation is taken up to the point of cover crop stabilisation. Rehabilitation cannot be considered to be complete until the first cover crop is well established.

14. Special protective slope stabilizing measures to prevent erosion of the steep banks will need to be taken. These will probably need to include fixing horizontal logs and covering with netting. The rehabilitated area must be monitored for erosion, and appropriately stabilised if any erosion occurs.
15. On-going alien vegetation control must keep the area free of alien vegetation after mining.

11.2 Water resources

Introduction

There are no rivers, streams or wetlands in the mining permit area. The site does not overlie an important aquifer. The Witels River occurs to the east of the site and a non-perennial drainage line occurs more than 32 metres south of the site

Potential impacts

The potential impacts of the mining operation on water resources could include soil erosion and sediment (silt and clay) entering the river or pollution from hydrocarbon spills.

Table 10: Water resources: summary of impact assessment

Potential impacts on water resources:	
Nature of impact:	**Negative and direct**
Extent of impact:	**Local**
Consequence of impact:	**High**
Duration of impact:	**Medium term**
Probability of occurrence:	**Possible**
Confidence:	**Sure**
Degree to which the impact can be reversed:	**Reversible**
Degree to which the impact may cause irreplaceable loss of resources:	**Replaceable**
Significance rating of impact prior to mitigation (Neutral, Very Low, Low, Medium, or High)	**Medium**
Significance rating of impact after mitigation (Neutral, Very Low, Low, Medium, or High)	**Low**

Discussion

No groundwater resources will be used by this mining operation. No mining is planned within any watercourses.

Proposed mitigation measures

The proposed mitigation measures to avoid or minimise the impact of the project on water resources are listed below:

- Establish EMP procedures to prevent and minimise contamination from hydrocarbon spills.
- Maintain a buffer distance of at least 32 metres away from all water courses.
- Ensure that an adequate storm-water management system is in place including berms, a cut-off drain and silt retention pond and ensure that all overflow run-off is first directed into the farm dam.
- Only strip topsoil when necessary and comply with all topsoil mitigation measures.
- Rehabilitate the mined areas and plant crops as soon as possible.
- Invasive alien vegetation (e.g. black wattle) must be controlled within the mining permit area.

11.3 Biodiversity

Introduction

The proposed mining permit area was selected in transformed farm land in order to avoid potential impacts on biodiversity.

Potential impacts

There will be no impacts on natural vegetation as the site is situated on transformed agricultural land. The disturbance of the land will make the area susceptible to invasion by alien vegetation.

The noise and vibration caused by the earthmoving equipment will disturb smaller animals (e.g. snakes and moles). These will move away whilst operations are in progress.

Table 11: Biodiversity: summary of impact assessment

Potential impacts on biodiversity:	
Nature of impact:	**Negative and direct**
Extent of impact:	**Site specific**
Consequence of impact:	**Low**
Duration of impact:	**Temporary**
Probability of occurrence:	**Unlikely**
Confidence:	**Sure**
Degree to which the impact can be reversed:	**Reversible**
Degree to which the impact may cause irreplaceable loss of resources:	**Replaceable**
Significance rating of impact prior to mitigation (Neutral, Very Low, Low, Medium, or High)	**Low**
Significance rating of impact after mitigation (Neutral, Very Low, Low, Medium, or High)	**Very low**

Discussion

Significant potential impacts on biodiversity have been avoided through the site selection process.

Proposed mitigation measures

The proposed mitigation measures to further avoid or minimise the impact of the project on biodiversity are listed below:

- If any animals are encountered during the mining operations they must not be killed or injured, but rather removed from the site (by a suitably trained nature conservation officer, if necessary).
- Invasive alien vegetation must be controlled within the mining permit area.
- The neighbouring farms are to be strictly treated as “no-go” zones for mine workers.

11.4 Dust

Introduction

Dust fallout is a standard aspect that is assessed for mining projects.

Potential impacts

Dust fallout may occur during all phases of the project (e.g. clearing, mining, loading and rehabilitation). Impacts may be aggravated during high wind conditions.

Table 12: Dust: summary of impact assessment

Potential dust impacts	
Nature of impact:	**Negative and direct**
Extent of impact:	**Site specific**
Consequence of impact:	**Low**
Duration of impact:	**Short term**
Probability of occurrence:	**Definite**
Confidence:	**Certain**
Degree to which the impact can be reversed:	**Reversible**
Degree to which the impact may cause irreplaceable loss of resources:	**Replaceable**
Significance rating of impact prior to mitigation (Neutral, Very Low, Low, Medium, or High)	**Low**
Significance rating of impact after mitigation (Neutral, Very Low, Low, Medium, or High)	**Very low**

Discussion
The applicant must ensure that all activities comply with the NEM: Air Quality Act (Act 39 of 2004) and the National Dust Control Regulations (GN R827 of 2013).

The sizes of the mining area is small in relation to the overall size of the property. There are no activities taking place close to the mining permit area that will be adversely affected.

Noise and Dust are Occupational Health and Safety issues for mine workers. These are controlled via the Mine Health and Safety Act, 1996 (Act 29 of 1996). The employer is required to:

- supply all the necessary health and safety equipment to each employee;
- provide regular health and safety training;
- establish a system of medical surveillance;
- conduct occupational hygiene measurements; and
- assess and control risks.

Proposed mitigation measures
The proposed mitigation measures to avoid or minimise impacts related to windblown dust are as follows:

- Establish EMPr procedures to minimise the generation of dust (e.g. use of water cart, commercial dust binders on access tracks etc.).
- Minimise size of areas to be cleared at any one time.
- Rehabilitate and revegetate mining blocks as soon as mining is completed.
- Ensure vehicles keep to the speed limit.
- Reduce activities during very strong winds.

11.5 Noise

Introduction
Noise is a standard aspect that is assessed for mining projects.

Potential impacts
Noise will be created by mining equipment (e.g. excavators and front end loaders) and vehicles.

Table 13: Noise: summary of impact assessment

Potential noise impacts:	
Nature of impact:	**Negative and direct**
Extent of impact:	**Site specific**
Consequence of impact:	**Very low**
Duration of impact:	**Temporary**
Probability of occurrence:	**Definite**
Confidence:	**Certain**
Degree to which the impact can be reversed:	**Reversible**
Degree to which the impact may cause irreplaceable loss of resources:	**Not applicable**
Significance rating of impact prior to mitigation (Neutral, Very Low, Low, Medium, or High)	**Very low**
Significance rating of impact after mitigation (Neutral, Very Low, Low, Medium, or High)	**Very low**

Discussion
Noise generated during mining and rehabilitation operations must comply with the Western Cape Noise Control Regulations (Provincial Notice 200/2013 of 20 June 2013).

The size of the mining area is small in relation to the overall size of the property.

Noise associated with the mining activity will not negatively impact on activities on any of the surrounding properties.

Noise and Dust are Occupational Health and Safety issues for mine workers. These are controlled via the Mine Health and Safety Act, 1996 (Act 29 of 1996). The employer is required to:

- supply all the necessary health and safety equipment to each employee;
- provide regular health and safety training;
- establish a system of medical surveillance;
- conduct occupational hygiene measurements; and
- assess and control risks.

Proposed mitigation measures
The proposed mitigation measures to avoid or minimise noise related impacts are as follows:

- Ensure all equipment and vehicles are well maintained.
- Restrict work to standard operating hours only.

11.6 Solid waste

Introduction
Solid waste is not a significant aspect for this project, however this aspect is assessed for completeness.

Potential impacts
Potential impacts may be associated with litter left by mine workers or if empty containers are left on site.

Table 14: Solid waste: summary of impact assessment

Potential solid waste impacts:	
Nature of impact:	**Negative and direct**

Extent of impact:	**Site specific**
Consequence of impact:	**Very low**
Duration of impact:	**Temporary**
Probability of occurrence:	**Possible**
Confidence:	**Sure**
Degree to which the impact can be reversed:	**Reversible**
Degree to which the impact may cause irreplaceable loss of resources:	**Not applicable**
Significance rating of impact prior to mitigation (Neutral, Very Low, Low, Medium, or High)	**Very low**
Significance rating of impact after mitigation (Neutral, Very Low, Low, Medium, or High)	**Very low**

Discussion
The mining activity itself will not generate any solid waste.

It is possible that minor solid waste may be generated if equipment is serviced (e.g. containers for lubricants and hydraulic fluid or packaging for spare parts).

The mine workers could potentially generate a small amount of solid waste (e.g. food wrapping paper and tins).

Proposed mitigation measures
The proposed mitigation measures to avoid or minimise impacts associated with solid waste are as follows:

- An integrated waste management approach, which is based on waste minimisation and incorporates reduction, recycling, re-use and disposal, where appropriate, must be used.
- Provide all workers with environmental awareness training.
- Provide a bin at the temporary site office / container.
- No waste is to be stored on the site and the bin must emptied at least once a week and the waste must be disposed of at a municipal waste disposal site.
- Ensure all workers comply with the requirements of the EMPr.

11.7 Heritage Resources

Introduction
No significant negative impacts to heritage resources are expected.

Potential impacts
There is a very small chance of finding unmarked buried human remains but this cannot be predicted.

Table 15: Heritage Resources: summary of impact assessment

Potential impacts on heritage resources:	
Nature of impact:	**Negative and direct**
Extent of impact:	**Site specific**
Consequence of impact:	**Low**
Duration of impact:	**Short term**
Probability of occurrence:	**Unlikely**
Confidence:	**Sure**
Degree to which the impact can be reversed:	**Reversible**
Degree to which the impact may cause irreplaceable loss of resources:	**Replaceable**
Significance rating of impact prior to mitigation	**Very low**

(Neutral, Very Low, Low, Medium, or High)	
Significance rating of impact after mitigation (Neutral, Very Low, Low, Medium, or High)	**Very low**

Discussion
No significant impacts on heritage resources are anticipated.

Proposed mitigation measures
Should any heritage resources, including graves or human remains, be encountered then these should be reported to Heritage Western Cape immediately.

11.8 Socio-economic

Introduction
Gravel is a basic construction materials required for construction and development projects. It is a low cost but high bulk material. A significant proportion of the total cost of construction materials is related to the transport distance from a mine to a development site. This site is very conveniently located to provide construction materials for George area. The mining site is located in a rural area where it will not cause any disturbance or disruption to neighbouring communities.

Potential impacts
The mine will provide direct employment for mine workers and indirect employment for truck drivers who will transport the material to construction sites. The provision of construction material is Kirsten & Tulleken Vervoer's core business. This project will secure mineral resources for Kirsten & Tulleken Vervoer and help to sustain its business.

The rehabilitation of the mining permit area will ensure that the land can still be used for agricultural purposes. The final landscape will blend in with the adjacent land on the farm.

Table 16: Socio-economic: summary of impact assessment

Potential impacts on socio-economic environment:	
Nature of impact:	**Positive – Direct and indirect**
Extent of impact:	**Local to regional**
Consequence of impact:	**Medium**
Duration of impact:	**Medium term**
Probability of occurrence:	**Definite**
Confidence:	**Certain**
Degree to which the impact can be reversed:	**n/a**
Degree to which the impact may cause irreplaceable loss of resources:	**n/a**
Significance rating of impact prior to mitigation (Neutral, Very Low, Low, Medium, or High)	**Medium (+ve)**
Significance rating of impact after mitigation (Neutral, Very Low, Low, Medium, or High)	**Medium (+ve)**

Discussion
The mining project will not only have a positive socio-economic impact during the life of the mine. Construction and development projects that make use of the materials provided will have a long term positive socio-economic benefit for the region.

Good housekeeping and compliance with the requirements of the EMPr are required to minimise any local short-term impacts on the neighbours.

Proposed mitigation / enhancement measures

- Ensure compliance with the requirements of the EMPr and the rehabilitation of the land.
- Maintain normal working hours.
- Ensure no dumping of rubble.
- Maintain communications with I&APs and keep a “Complaints Register” on site.

11.9 Cumulative impacts

The potential degradation of agricultural land can be considered as the most important possible cumulative impact associated with the proposed mining operation.

The impact of the proposed mining project on the soil and agricultural potential of the land has already been described, and so is not repeated again.

12. "NO GO" ALTERNATIVE

The significance rating of the "no go" alternative is Neutral with respect to most of the key aspects that have been assessed for the "preferred" mining option. However if the "no go" alternative is to be considered as a realistic and feasible option then it is important to consider the impact of the "no-go" alternative on the socio-economic aspects.

12.1 Socio-economic

Introduction

Kirsten & Tulleken Vervoer's core business is the provision of construction material for construction and development projects in the George area.

Potential impacts of the "no go" alternative

The "no go" alternative would mean that Kirsten & Tulleken Vervoer will lose an economic opportunity as well as an opportunity to create employment.

Construction projects in the George area would still require gravel to be obtained from somewhere else. If the material was transported from a longer distance it would increase the cost. The increased cost would ultimately be passed on to the consumer.

Table 17: Socio-economic: summary of assessment of the "no go" alternative

Potential impacts on socio-economic environment:	
Nature of impact:	**Negative**
Extent of impact:	**Local**
Consequence of impact:	**Medium**
Duration of impact:	**Long term**
Probability of occurrence:	**Probable**
Confidence:	**Sure**
Degree to which the impact can be reversed:	**Reversible**
Degree to which the impact may cause irreplaceable loss of resources:	**Replaceable**
Significance rating of impact prior to mitigation (Neutral, Very Low, Low, Medium, or High)	**Medium**
Significance rating of impact after mitigation (Neutral, Very Low, Low, Medium, or High)	**Medium**

Discussion

The "no go" alternative will not have a positive impact on the socio-economic aspects for Kirsten & Tulleken Vervoer, its employees or for construction projects in the area.

Proposed mitigation / enhancement measures

There are no mitigation or enhancement measures for the impact of the "no go" alternative on socio-economic conditions.

13. ENVIRONMENTAL IMPACT STATEMENT

13.1 Summary of the key findings of the environmental impact assessment

The significance ratings of impacts after mitigation on the key aspects of the "preferred alternative" and the "no go" alternative are shown in the following table:

Table 18: Comparative assessment of alternatives

Aspects	"preferred alternative"	"no go alternative"
Biodiversity	Very low	Neutral
Dust	Very low	Neutral
Noise	Very low	Neutral
Solid waste	Very low	Neutral
Heritage resources	Very low	Neutral
Water resources	Low	Neutral
Soil and agricultural potential	Low	Neutral
Socio-economic	Medium (+ve)	Medium (-ve)

The assessed impacts of the proposed mine are very low for most aspects apart from on the socio-economic aspects, the soil & agricultural potential of the land and water resources. These are therefore the key aspects that should be considered by decision makers.

Key findings of the environmental impact assessment for the "preferred alternative" are summarised below:

Biodiversity: The proposed mining area has been specifically sited to avoid negative impacts on biodiversity. Provided that the applicant complies with the requirements of the EMPr then the significance of impacts on biodiversity should be 'very low'.

Dust, noise and waste: The proposed mining activity could potentially result in dust, noise and waste impacts. However, as long as the applicant complies with the requirements of the EMPr, then the significance of potential dust, noise and waste impacts should be 'very low'.

Water Resources: There are no rivers, streams or wetlands in the mining permit area. However the Witels River is situated within 100 metres of the eastern boundary of the site. Provided that the applicant complies with the requirements of the EMPr and especially with the implementation of an effective storm water management system then the significance of impacts on water resources should be 'low'.

Soil and agricultural potential: The property is zoned for agricultural purposes and therefore it is essential that the proposed mining operation does not result in degradation of the land with

consequent negative impacts on the agricultural potential of the land. The EAP considers that this is the key aspect that should be closely monitored.

The soil scientist has provided detailed mitigation and rehabilitation measures. With mitigation, the reduction in the agricultural potential is assessed as having a 'low' significance, but without mitigation it is assessed as having 'medium' significance.

Socio-economic: The site is very conveniently located to provide gravel to the George area.

The proposed post-mining agricultural land use is consistent with use of the property as defined by the zoning scheme (Agricultural Zone 1).

It is considered that the long term socio-economic benefits of this project outweigh the negative impacts that will occur as the result of the proposed mining activities.

13.2 Final site map

(a map at an appropriate scale which superimposes the proposed activity and its associated structures and infrastructure on the environmental sensitivities of the preferred site indicating any areas that should be avoided, including buffers)

See **Figures 2, 3** and 9**.**

13.3 Summary of the positive and negative impacts and risks

(a summary of the positive and negative impacts and risks of the proposed activity and identified alternatives)

The assessed impacts of the proposed mine are very low for most aspects apart from on the socio-economic aspects, the soil & agricultural potential of the land and water resources. These are therefore the key aspects that should be considered by decision makers.

The area will be rehabilitated so that it can continue to be used for agricultural land. The final landscape will blend in with the adjacent land.

13.4 Proposed impact management objectives and outcomes

(based on the assessment, and where applicable, impact management measures from specialist reports, the recording of proposed impact management objectives, and the impact management outcomes for the development for inclusion in the EMPr)

The proposed impact management objectives and outcomes for the project are as follows:

Objective 1: To ensure effective rehabilitation of the mining permit area.
Outcomes:

- The site is to be shaped and sloped to match the adjacent topography
- Overburden and topsoil to be replaced over the mined areas.
- Agricultural contours are to be re-established.
- Crops are to be planted over the previously mined area.

Objective 2: To minimise pollution or degradation of the environment.
Outcomes:

- Ensure that no fuel or oil spills occur in the mining area.
- Ensure that no solid waste or rubble is dumped on the site.
- Ensure that portable toilets are used.

Objective 3: To minimise impacts on the community.
Outcomes:

- To ensure that workers remain within the mining permit area.
- To operate during normal working hours only.
- To minimise the generation of noise and dust.
- To respond rapidly to any complaints received.

13.5 Proposed conditions of authorisation

(any aspects which were conditional to the findings of the assessment either by the EAP or specialist which are to be included as conditions of authorisation)

The proposed conditions of authorisation are as follows:

- All mining and rehabilitation to be conducted as per the approved EMPr.
- Concurrent mining and rehabilitation must be done in the mining area.
- The proposed mining area must be clearly demarcated with semi-permanent markers.
- The upper 40 cm of soil must be removed and stockpiled to be returned after mining by spreading evenly over the mined area.
- Rehabilitation cannot be considered to be complete until the first cover crop is well established.
- Control measures must be implemented to prevent pollution of any water resource by oil, grease, fuel or chemicals.
- Eradicate all alien vegetation in the area during and regularly after mining.
- Appropriate pollution prevention measures must be implemented to prevent dust and noise pollution.
- Should any heritage remains be exposed during mining these must immediately be reported to Heritage Western Cape.
- Environmental audit reports should be submitted every second year.

13.6 Assumptions, uncertainties and gaps in knowledge

(a description of any assumptions, uncertainties and gaps in knowledge which relate to the assessment and mitigation measures proposed)

Where relevant or applicable, each specialist provided details of knowledge gaps, assumptions and uncertainties encountered in compiling the required information. The overall confidence was provided in the impact assessment tables for each aspect that was assessed. In no case was the confidence level found to be ‘unsure’.

Relevant knowledge gaps, assumptions and uncertainties are provided below.

Soil and fresh water specialists
There are no important knowledge gaps, assumptions and uncertainties in the soil scientist’s report or the fresh water specialist’s report.

Heritage specialist
The heritage specialist considers that the proposed mine will not have a significant impact on heritage resources. However there is a remote possibility that buried human remains may be uncovered or exposed by mining operations.

13.7 Reasoned opinion of the EAP

(a reasoned opinion as to whether the proposed activity should or should not be authorised, and if the opinion is that it should be authorised, any conditions that should be made in respect of that authorisation)

13.7.1 Reasons why the activity should be authorised or not

This report provides an assessment of the environmental impacts associated with the proposed mining activities. The assessment has taken into account the comments provided by the relevant authorities and interested and affected parties to date. All interested and affected parties will be provided with a further 30 day period to comment on this report and the comments will be included with the final submission to the Competent Authority (i.e. the DMR).

A specialist study was commissioned to assess the impact of the proposed mining activity on the soils and the agricultural potential of the land **(see Appendix 2).** A specialist study was undertaken by a fresh water specialist **(see Appendix 3)**. Provided that an effective storm water management system is implemented the significance of potential impacts on water resources should be 'low'. Heritage Western Cape has confirmed that no significant impact on heritage resources is anticipated.

The "preferred alternative" takes into account location alternatives, activity alternatives, layout alternatives, technology alternatives and operational alternatives.

The approach taken by the applicant is that it is preferable to avoid significant negative environmental impacts, wherever possible. This is in accordance with the mitigation hierarchy, whereby avoidance is the preferred mitigation measure. The mining permit area is not located in a mapped Critical Biodiversity Area (CBA.

It is the opinion of the Environmental Assessment Practitioner (EAP) that provided that the recommended mitigation measures are implemented and mining activities are managed in accordance with the stipulations of the Environmental Management Programme and in an environmentally sound manner, the potential negative impacts associated with the implementation of the preferred alternative can be reduced to acceptable levels.

No negative impacts have been identified that are so severe as to prevent the proposed mining activity from taking place, and the activity has been assessed to have a positive socio-economic impact, especially in terms of the creation of employment and the provision of gravel for construction and development projects in the George area.

13.8 Period for which the environmental authorisation is required

The environmental authorisation is required for a five year period.

13.9 Undertaking by the EAP

It is confirmed that the undertaking required to meet the requirements of this section is provided at the end of the EMPr and is applicable to both the Basic Assessment Report (BAR) and the Environmental Management Programme report (EMPr).

14. FINANCIAL PROVISION

(where applicable, details of any financial provisions for the rehabilitation, closure, and ongoing post decommissioning management of negative environmental impacts)

The Applicant is required to make the prescribed financial provision for the rehabilitation or management of negative environmental impacts. If the Applicant fails to rehabilitate or manage any negative impact on the environment, the DMR may, upon written notice to the Applicant, use all or part of the financial provision to rehabilitate or manage the negative environmental impact in question.

An itemised estimate of the financial provision for the rehabilitation, decommissioning and closure of the proposed mining permit is provided in the following table.

Table 19: Itemisation of the quantum of the financial provision

Item	Unit rate	Number of units/ hours /days	Amount
Transportation of equipment to site	R 4 000	1	R 4 000
Shaping and sloping of mine floor (hours)	R 450	40	R 18 000
Hauling and spreading of topsoil over mined areas (hours)	R 450	40	R 18 000
Seeding and planting / hectare	R 5 000	5	R 25 000
Labour (days)	R 800	10	R 8 000
Sub-total (1)			R 73 000
10% Supervision fees			R 7 300
Sub-total (2)			R 80 300
VAT	15%		R 12 045
TOTAL			**R 92 345**
		say	**R 93 000**

The quantum of the financial provision required is therefore: R93 000. The Applicant must annually update and review the quantum of the financial provision

The Applicant undertakes to provide financial provision and a Bank Guarantee will be the method of providing for the financial provision.

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15. ANY OTHER SPECIFIC INFORMATION

(any specific information that may be required by the competent authority)

None requested.

PART B: ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPr)

16. EMPr: INTRODUCTION

16.1 Details and expertise of the EAP

The details and expertise of the EAP have been included in PART A, the Basic Assessment Report.

16.2 Description of the aspects of the activity that are covered by the EMPr

The aspects of the activity have been described in PART A, the Basic Assessment Report.

16.3 Site map

(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 should be avoiding including buffers)

A site map is included in the Basic Assessment Report **(see Figures 2 and 3).**

17. IMPACT MANAGEMENT OBJECTIVES

17.1 Closure and environmental objectives

The closure and environmental objectives have already been described in the BAR and are repeated below:

Objective 1: To ensure effective rehabilitation of the mining permit area.
Outcomes:

- The site is to be shaped and sloped to match the adjacent topography
- Overburden and topsoil to be replaced over the mined areas.
- Agricultural contours are to be re-established.
- Crops are to be planted over the previously mined area.

Objective 2: To minimise pollution or degradation of the environment.
Outcomes:

- Ensure that no fuel or oil spills occur in the mining area.
- Ensure that no solid waste or rubble is dumped on the site.
- Ensure that portable toilets are used.

Objective 3: To minimise impacts on the community.
Outcomes:

- To ensure that workers remain within the mining permit area.
- To operate during normal working hours only.
- To minimise the generation of noise and dust.
- To respond rapidly to any complaints received.

17.2 Closure

The decommissioning of the mine will require a closure certificate in terms of section 43 of the MPRDA.

The contents of the closure plan are prescribed in Appendix 5 of the EIA Regulations, 2014 and must contain, inter alia:

- The closure objectives;
- The proposed mechanisms for monitoring compliance with and performance assessment against the closure plan;
- The time periods within which the measures contemplated in the closure plan must be implemented;
- The details of all public participation processes conducted; and
- The details of any financial provision for the rehabilitation, closure and on-going post decommissioning management of negative environmental impacts.

17.3 Impact management outcomes

See **Section 17.1** (above).

18. IMPACT MANAGEMENT ACTIONS

(1(f) in Appendix 4 of GN R326: A description of proposed impact management actions)

18.1 Introduction

This section contains guidelines, operating procedures and rehabilitation/pollution control requirements which will be binding on the holder of the mining permit after the granting of the environmental authorisation and the approval of the Environmental Management Programme. It is essential that this portion be carefully studied, understood, implemented and adhered to at all time.

The Applicant shall ensure that this Environmental Management Programme is provided to the Mine Manager and any other person or organisation who may work on the site. The Applicant shall ensure that any person or organisation that works on the site complies with the requirements of this Environmental Management Plan.

18.2 Responsibility

- The affected environment shall be maintained in a stable condition that will not be detrimental to the safety and health of humans and animals and that will not pollute the environment or lead to the degradation thereof.
- The environment affected by the mining operation shall be effectively rehabilitated, so that the land can be used for agricultural purposes.
- It is the responsibility of the Applicant to ensure that the manager on the site and the employees are capable of complying with all the statutory requirements that must be met in order to mine, which includes the implementation of this EMPr.
- The applicant must appoint an ECO (Environmental Control Officer).

Schedule
Ongoing, throughout the life of the mine.

18.3 Demarcation of the mining area

The mining area is to be clearly demarcated by means of painted beacons at its corners. Mining operations will only take place within this demarcated area.

Schedule
Annual check to see that corner beacons are still in place.

18.4 Community relations

The Applicant shall erect and maintain a notice board at the entrance to the Mine. The notice board shall include contact details for complaints by the neighbours and members of the public.

The Applicant shall keep a “Complaints Register” on site. The Register shall contain the contact details of the person who made the complaint, and information regarding the complaint itself. The Applicant shall respond to all complaints within seven days. Copies of all responses should be kept together with the Register.

Schedule
Ongoing, throughout the life of the mine.

18.5 Topsoil

As the site is progressively cleared and prepared for mining, the topsoil and overburden shall be removed. The topsoil and overburden should be stockpiled separately on previously cleared and level ground. The stockpiles shall not be higher than 2m in order to minimize composting.

The stockpiled topsoil must be protected from erosion. The Mine Manager must choose suitable locations for topsoil stockpiles. The topsoil stockpiles must be kept within the mining permit area.

As mining progresses and land is made available for rehabilitation, then the overburden and topsoil shall be evenly spread over the land.

Topsoil shall not be used for building or maintenance of access roads or for any purpose other than rehabilitating the land.

Schedule
Ongoing, throughout the life of the mine.

18.6 Topsoil, rehabilitation and storm water control

The following measures are required to minimise the impact of the project on soils and the agricultural potential of the land:

Topsoil clearing and stockpiling

- Because the overburden above the mine-able gravel exceeds a thickness of 50cm, double stripping and stockpiling must be done to ensure that the topsoil remains separate from the underlying soil.
- A depth of 40cm of topsoil must first be stripped and stockpiled. Thereafter, any additional overburden (20 – 30 cm thickness) must be stripped and stockpiled separately from the topsoil stockpiles.
- Topsoil is a valuable and essential resource for rehabilitation and it should therefore be managed carefully to conserve and maintain it throughout the stockpiling and rehabilitation processes.
- Topsoil stockpiles should be protected against losses by water and wind erosion. Stockpiles should be positioned so as not to be vulnerable to erosion by wind and water.
- The establishment of plants (weeds or a cover crop) on the stockpiles will help to prevent erosion. Stockpiles should be no more than 2 metres high.

Stormwater management

- During mining, the outflow of run-off water from the mining excavation must be controlled to prevent any down-slope erosion. The cut-off drain included in the mining layout plan will serve this purpose.
- To prevent damming of water in the mining excavation, free drainage from the excavation into the cut-off drain must be ensured.

Shaping, replacing topsoil and re-stablishing contour banks

- After mining, any steep slopes at the edges of excavations, must be reduced to the possible minimum. The upper and side edges will need to remain fairly steep at a slope of 1:3.
- The stockpiled overburden (the layer taken from below the topsoil) must then be evenly spread over the entire mining area.
- Thereafter, the stockpiled topsoil must be evenly spread on top of the overburden across the entire mining area. The depth should be monitored during spreading to ensure that coverage is adequate and even.
- The existing contour banks that have been destroyed must be re-established to similar specifications (height, slope, distance apart) as prior to disturbance, but also ensuring the integrity of the run-off system as a whole.

Establishment of a cover crop

- A cover crop must be planted and established immediately after the spreading of topsoil and the contour construction, to stabilise the soil and protect it from erosion. The cover crop should be fertilized for optimum biomass production.
- It is important that rehabilitation is taken up to the point of cover crop stabilisation. Rehabilitation cannot be considered to be complete until the first cover crop is well established.
- Special protective slope stabilizing measures to prevent erosion of the steep banks will need to be taken. These will probably need to include fixing horizontal logs and covering with netting. The rehabilitated area must be monitored for erosion, and appropriately stabilised if any erosion occurs.

Schedule
Ongoing, throughout the life of the mine.

18.7 Control of invasive alien vegetation

Disturbed areas are susceptible to invasion by alien *Acacia spp.* (i.e. Port Jackson or Rooikrants). If the mined areas are rehabilitated back to land that is suitable for cultivation within a short period of time, it will be difficult for alien invasive vegetation to get established.

The correct procedure for the removal of alien *Acacia spp*. is as follows:

1. Hand cut the stem as low as possible to ground level and apply a suitable herbicide immediately to the exposed stump.
2. Avoid herbicide drift onto other plants.
3. Dye can be added to above mixture to ensure that individual plants are not missed.
4. Hand cutting can be performed with tools, brushcutter or chainsaw.
5. Follow up annually by pulling out the alien invasive seedlings by hand or using a “Treepopper”.
6. Take care not to damage indigenous vegetation by trampling or stacking alien vegetation on top of it.

If alien vegetation clearance is required it could be conducted by suitable contractors or, alternatively, if the company plans to employ its own workers to clear alien vegetation, then these workers should first receive training from an experienced Nature Conservator.

Schedule
Ongoing, throughout the life of the mine.

18.8 Protection of animal life

It is anticipated that the noise and general activity will keep the animal life away from the site while the mining is ongoing. However, if animals are encountered during the mining operations they must not be killed or injured. Any animals encountered during the mining operations should be taken to a Nature Reserve. If necessary, a suitable trained nature conservation official should be called in to remove dangerous animals (e.g. venomous snakes).

Schedule
Ongoing, throughout the life of the mine.

18.9 Illegal Dumping of Rubble

Access to the site will be controlled at all times. The public will not have access to the site. The Mine will not be used for the dumping of rubble. The environmental awareness training will ensure that all workers are aware of this commitment. Any vehicle that is caught illegally dumping rubble will be reported to the George Municipality immediately.

Schedule
Ongoing, throughout the life of the mine.

18.10 Dust

The applicant must ensure that all activities comply with the NEM: Air Quality Act (Act 39 of 2004) and the National Dust Control Regulations (GN R827 of 2013).

All reasonable measures must be taken to minimise the generation of dust. These measures include:

Dust in the proposed mining areas:

- Removal of vegetation shall be avoided until such time as soil stripping is required and similarly exposed surfaces (especially mined out areas) shall be rehabilitated or stabilised as soon as is practically possible.
- Minimize size of areas to be cleared at any one time.
- Rehabilitate and revegetate each mining block as soon as mining is completed.
- Excavation, handling and transport of materials shall be avoided under high wind conditions or when a visible dust plume is present.
- During high wind conditions, the Mine Manager will evaluate the situation and make recommendations as to whether dust-control measures are adequate, or whether working will cease altogether until the wind speed drops to an acceptable level.
- Appropriate dust suppression includes the use of temporary stabilising measures (e.g. environmentally friendly dust binders, straw, brush packs, chipping etc.). The use of a water cart should only be considered as a last resort during drought conditions.
- Comply with all occupational hygiene requirements.

Dust along the farm access road:

- Vehicle speeds shall not exceed 35 km/h along the farm access road.
- Appropriate traffic warning signs shall be erected and maintained.
- All loads shall be covered with a tarpaulin or similar to prevent spillage and nuisance to other road users.
- Appropriate dust suppression along the access road could include the use of temporary stabilising measures (e.g. environmentally friendly dust binders, straw, brush packs, chipping etc.). The use of a water cart should only be considered as a last resort during drought conditions.
- Maintain on-going communication with the landowner and resolve any issues immediately.

Schedule
Ongoing, throughout the life of the mine..

18.11 Noise

Noise generated during mining and rehabilitation operations must comply with the Western Cape Noise Control Regulations (Provincial Notice 200/2013 of 20 June 2013).

The Applicant will limit the noise levels on the site by taking the following measures:

- Work will be restricted to the following operating hours:
    - 6:30 am to 5:00 pm Mondays to Fridays
    - 7:00 am to 2:00 pm Saturdays
    - Closed Sundays
- Equipment will be regularly maintained.
- Silencers will be installed and maintained on machinery, trucks and earth moving equipment.

- No amplified music will be allowed on the site.

Schedule
Ongoing, throughout the life of the mine.

18.12 Maintenance and fuel

No workshop is planned for the site, however if emergency maintenance is required, Kirsten & Tulleken Vervoer must ensure that no pollution occurs. When servicing equipment, drip trays shall be used to collect the waste oil, hydraulic fluid and other lubricants.

Vehicles and equipment used in the mining operation must be adequately maintained so that no spillage of oil, diesel, petrol or hydraulic fluid occurs.

Any hazardous substances such as detergents, fuels, oils etc. shall be securely stored at the yard in George (i.e. not on the mining permit site)

The earth moving equipment will be re-fuelled using a diesel bowser. Drip trays are to be used when re-fuelling takes place to prevent any diesel spillage on the ground. All other vehicles (e.g. bakkies) will be refuelled at the depot or at a commercial garage.

Kirsten & Tulleken Vervoer shall ensure that there is always a supply of absorbent material available to absorb / breakdown / encapsulate minor hydrocarbon spills. The quantity of such materials shall be able to handle a minimum of a 200 litre hydrocarbon spill.

Used oil should be collected in a suitable container (e.g. 210 litre drums or a tank provided by the Rose Foundation). The container shall be kept in a protected and bunded area. When the container is almost full then this should be removed from the depot, either for resale or for recycling. (Oilkol collects used oil on behalf of the Rose Foundation and can be contacted at: 0860 107107).

Any effluents or waste containing oil, grease or other industrial substances must be collected in a suitable container and removed from the depot, either for resale, recycling or for appropriate disposal at a recognised facility.

Schedule
Ongoing, throughout the life of the mine.

18.13 Solid Waste Management

An integrated waste management approach, which is based on waste minimisation and incorporates reduction, recycling, re-use and disposal, where appropriate, must be used.

No on-site burying or dumping of any waste materials, litter or refuse shall occur. The Applicant will use vermin- and weather-proof bins with lids to store any solid waste. The lids shall be kept firmly on the bins at all times.

Bins are to be emptied at least once a week and the waste is to be disposed of at an approved municipal waste disposal facility.

Schedule
Ongoing, throughout the life of the mine.

18.14 Effluents

Any effluents containing oil, grease or other industrial substances must be collected in a suitable receptacle and removed from the site, either for resale, recycling or for appropriate disposal at a recognised facility.

Schedule
On-going, throughout the life of the mine.

18.15 Toilets

Portable toilets will be used in the mining area. These facilities shall be maintained in a hygienic state and serviced regularly.

Schedule
Ongoing, throughout the life of the mine.

18.16 Road Safety

The speed of all vehicles must be strictly controlled to avoid dangerous conditions or excessive dust. No vehicles should travel at more than 35 km/hour while driving along the access track.

Schedule
Ongoing, throughout the life of the mine.

18.17 Heritage Resources

Contractors, staff and plant operators should be briefed about what to look out for with regard to heritage resources during clearing and mining operations.

If any heritage resources, including archaeological material, palaeontological material, graves or human remains are encountered, work must cease and these must be reported to Heritage Western Cape immediately.

Schedule
Ongoing, throughout the life of the mine.

18.18 Environmental Related Emergencies and Remediation

The Applicant will operate on the principle that “prevention is better than cure” and so will institute procedures to reduce the risk of emergencies taking place. These will include ensuring that all contracts specify that the contractor is required to comply with all the environmental measures specified in this EMPr, environmental awareness training, on-going risk assessment and emergency preparedness.

The control of incidents must comply with Section 30 of the NEMA (Act 107 of 1998).

Emergency telephone numbers
All employees shall have the telephone numbers of emergency services, including the local ambulance and firefighting service. All employees must be made aware of procedures to be followed during the environmental awareness training course.

Fire
The Applicant shall ensure that there is basic firefighting equipment available on Site at all times. This shall include at least two rubber beaters and at least one fire extinguisher.

The Applicant shall advise the relevant authority of a fire as soon as one starts and shall not wait until the fire is out of control.

Hydrocarbon spills

The Applicant shall ensure that all employees are aware of the procedures to be followed for dealing with hydrocarbon spills. The Applicant shall ensure that the necessary materials and equipment for dealing with hydrocarbon spills and leaks is available on Site at all times.

The Applicant shall ensure that there is always a supply of absorbent material readily available to absorb/ breakdown and where possible is designed to encapsulate minor hydrocarbon spillage. The quantity of such materials shall be able to handle a minimum of 200 l of hydrocarbon liquid spill.

There are a number of different products on the market, which can be used as absorbents and encapsulators of hydrocarbons. The following are examples of these products:

- Spill-Sorb
- Drizzit
- Enretech
- Peat Moss

In the event of a significant hydrocarbon spill, the following procedure is required:

- The source of the spillage shall be isolated
- The spillage must be contained using sand berms, sandbags, pre-made booms, sawdust or absorbent materials.
- The area shall be cordoned off, secured and made safe.
- If an incident has occurred then this must be reported to the Department of Environmental Affairs and Development Planning's (DEA&DP) Directorate: Pollution and Chemicals Management (Telephone: 021 483 4656).
- The Remediation and Emergency Incident Management Unit can be contacted at 021 483 0752.

Treatment and remediation of spill areas shall be undertaken to the satisfaction of the Mine Manager. Remediation may include in-situ bioremediation using appropriate products (e.g. Enretech-1) and / or the removal of the spillage together with the contaminated soil and the disposal at a recognised waste disposal facility.

Any contaminated spill kit cleaning materials must be disposed of at a hazardous waste disposal facility.

19. MONITORING & REPORTING

19.1 Introduction

Regular monitoring of the conditions of approval of the environmental authorisation and the environmental management procedures and mitigation measures in this EMPr shall be carried out by Kirsten & Tulleken Vervoer.

Kirsten & Tulleken Vervoer will ensure that compliance with the conditions of the environmental authorisation and the EMPr are audited and that an environmental audit report is submitted to the competent authority (i.e. the DMR).

The environmental audit report is required to contain the information set out in Appendix 7 of the EIA Regulations, 2014.

Schedule
The Mine Manager will monitor compliance with the conditions of the environmental authorisation and the EMPr on an on-going basis.

The environmental audit report is to be prepared by an independent person with the relevant environmental auditing expertise every two years or more frequently if required to do so by the competent authority.

19.2 Environmental Control Officer (ECO)

If an Environmental Authorisation (EA) is issued for this application then the Applicant must appoint an ECO before commencement of mining activities and ensure that the name and contact details of the ECO is made available to the Regional Manager within 30 days of commencement The holder of EA must also ensure that an ECO is available to ensure that activities at all times comply with the issued EA and approved EMPr.

The ECO must:

- Keep and maintain a detailed incident register (including any spillages of fuels, chemicals or any other material).
- Keep a complaint register on site indicating the complaint and how the issues were addressed, what measures were taken and what preventative measures were implemented to avoid reoccurrence of complaints.
- Keep records relating to monitoring and auditing on site and avail them for inspection to any relevant authorised official.
- Keep copies of all environmental reports submitted to the Department.
- Keep records of all permits, licences and authorisations required by the operation.
- Compile a monthly monitoring report and make it available to the Department, if requested.

19.3 Dust

Kirsten & Tulleken Vervoer is aware that in the event of an instruction from the George Municipality or the Air Quality Officer from the Garden Route District Municipality that dust fall monitoring may be called for to determine the extent of dust and fugitive dust emissions from the premises.

The National Dust Control Regulations, 2013 (GN R827 of 2013) provides the standards for acceptable dust fall rates. These are shown below in **Table 20**:

Table 20: Acceptable dust fall rates

Restriction Areas	Dust fall rate (D) ($mg/m^2/day$, 30-days average)	Permitted frequency of exceeding dust fall rate
Residential area	D < 600	Two within a year, not sequential months
Non-residential area	600 < D < 1200	Two within a year, not sequential months

The method to be used for measuring dust fall rate and the guideline for locating sampling points shall be ASTM D1739:1970, or equivalent method recognised by an internationally recognised body.

In the event that dust fall monitoring is required then Kirsten & Tulleken Vervoer will contract a suitable air quality specialist to install sampling / monitoring points at appropriate locations on the property boundaries.

If it is determined that the dust fall rate exceeds the Non-residential Standard then corrective action will be taken to ensure compliance.

19.4 Rehabilitation

The specific, measurable rehabilitation outcomes against which the effectiveness of completed rehabilitation must be measured are:

- That the topography and soil surface has been sufficiently smoothed to allow cultivation;
- That the slope has not been steepened anywhere by mining excavations to the extent that it is problematically steep for cultivation (except for the short section of steep slope along the upper and side boundaries);
- That topsoil has been spread on the surface;
- That there is a potential topsoil depth of 40 cm, which is suitable for root growth, across the entire mining area;
- That the entire mining area is free draining;
- That the pre-mining contour banks have been re-established to suitable specifications (height, slope, distance apart), and that the integrity of the contour bank system as a whole is in place;
- That there is no visible erosion across the area, or down-slope of it as a result of mining, and that no part of the area has been left unacceptably vulnerable to erosion; and
- That a successful cover crop has been established across the entire area.

20. ENVIRONMENTAL AWARENESS PLAN

General environmental awareness will be fostered among the project's workforce to encourage the implementation of environmentally sound practices throughout its duration. This will ensures that environmental incidents are minimised and environmental compliance maximised.

Environmental awareness will be fostered in the following manner:

- Induction course for all workers on site, before commencing work on site.
- Refresher courses as and when required
- Toolbox talks at the start of a day when workers can be alerted to particular environmental concerns associated with their tasks for that day or the area/habitat in which they are working.
- Displaying of information posters and other environmental awareness material.

The aim of training is to enable a shared understanding and common vision of the environment, the impact of the mining operation on the environment (and why this is important) and the role of mining personnel in terms of environmental management and compliance.

The induction course will consist of the following steps:

- The first step will be a background discussion about the environment: what it consists of, and how we interact with it.
- The second step will be a description of the components and phases of the mining operation.
- The third step will be a general account of how the mining operation and its associated activities can affect the environment, giving rise to Environmental Impacts.
- The fourth and most important step will be a discussion of what staff can do in order to help prevent the negative environmental impacts from degrading our environment and why the company is required to comply with the approved Environmental Management Programme.

An environmental awareness handout for mine workers is provided in **Appendix 4**.

Schedule

Employees should be provided with environmental awareness training before mining operations start. All new employees should be provided with environmental awareness training.

21. UNDERTAKING BY THE EAP

The Environmental Assessment Practitioner (EAP) herewith confirms

a) the correctness of the information provided in the BAR and EMPr;

b) the inclusion of comments and inputs from stakeholders and I&APs;

c) the inclusion of inputs and recommendations from the specialist reports where relevant;

d) any information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested and affected parties

Signature of the environmental assessment practitioner:

Name: Stephen Davey

Name of company: Klipberg Consulting (Pty) Ltd

Date: 10 November 2020

APPROVAL EMPR

Approved in terms of the National Environmental Management Act, 1998 (Act 107 of 1998), as amended.

Signed at ……..this……day of……..2021

…….
REGIONAL MANAGER: MINERAL REGULATION
WESTERN CAPE REGION
DATE:

Appendix 3:

Annexure 15

Kirsten en Tulleken Vervoer Bk

WATER USE LICENSE APPLICATION
FRESH WATER REPORT
PROPOSED GRAVEL MINE ON THE REMAINDER OF THE FARM BUFFELS DRIFT 229 GEORGE RD

A requirement in terms of Section 21 (c) and (i) of the National Water Act (36 of 1998), National Environmental Management Act (107 of 1998), EIA Regulations and Assessment Protocols

August 2020

WATSAN Africa

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Abbreviations

Critical Biodiversity Area	CBA
Department of Environment, fisheries and Forestry	DEFF
Department of Water and Sanitation	DWA
Ecological Importance	EI
Ecological Sensitivity	ES
Ecological Support Area	ESA
Environmental Management Program	EMPr
Environmental Impact Assessment	EIA
Electronic Water Use License Application (on-line)	eWULAA
Government Notice	GN
Geographical Information System	GIS
Hectares	ha
International Union for Conservation of Nature	IUCN
Metres Above Sea Level	masl
National Environmental Management Act (107 of 1998)	NEMA
National Freshwater Environment Priority Area	NFEPA
National Water Act (36 of 1998)	NWA
Non-government organization	NGO
Present Ecological State	PES
South Africa National Biodiversity Institute	SANBI
Section of an Act of Parliament	S
Water Use License Application	WULA

1 Introduction

Kirsten & Tulleken is an integral and widely respected part of the city of George's local economy, as well as that of the regional building and construction and transport industry. Gravel and aggregate are essential ingredients of any construction operation. Hence Kirsten and Tulleken wish to source gravel from the Farm Buffelsdrift in the George District in the Southern Cape.

The owners of Buffels Drift have given their consent for the proposed mining operation.

Mr Stephen Davey of Klipberg Consulting in Darling, Western Cape, has been appointed as the EAP to prepare the Basic Assessment Report and EMPr required in terms of the National Environmental Management Act (Act 107 of 1998, as amended) for the proposed application.

The proposed mining site is within close proximity of the Witels River, a tributary of the Maalgate River (Figure 1). Because of this, a WULA is required in terms of the NWA, along with its Fresh Water Report. Dr D van Driel of WATSAN Africa of Cape Town has been appointed to handle this aspect of the application.

The Fresh Water Report should answer to premeditated minimum requirements, along with a completed Risk Matrix, as is stipulated by GN 509. These requirements are to satisfy the information needs of the DWS for informed decision-making, in terms of S21 (c) and (i) of the NWA.

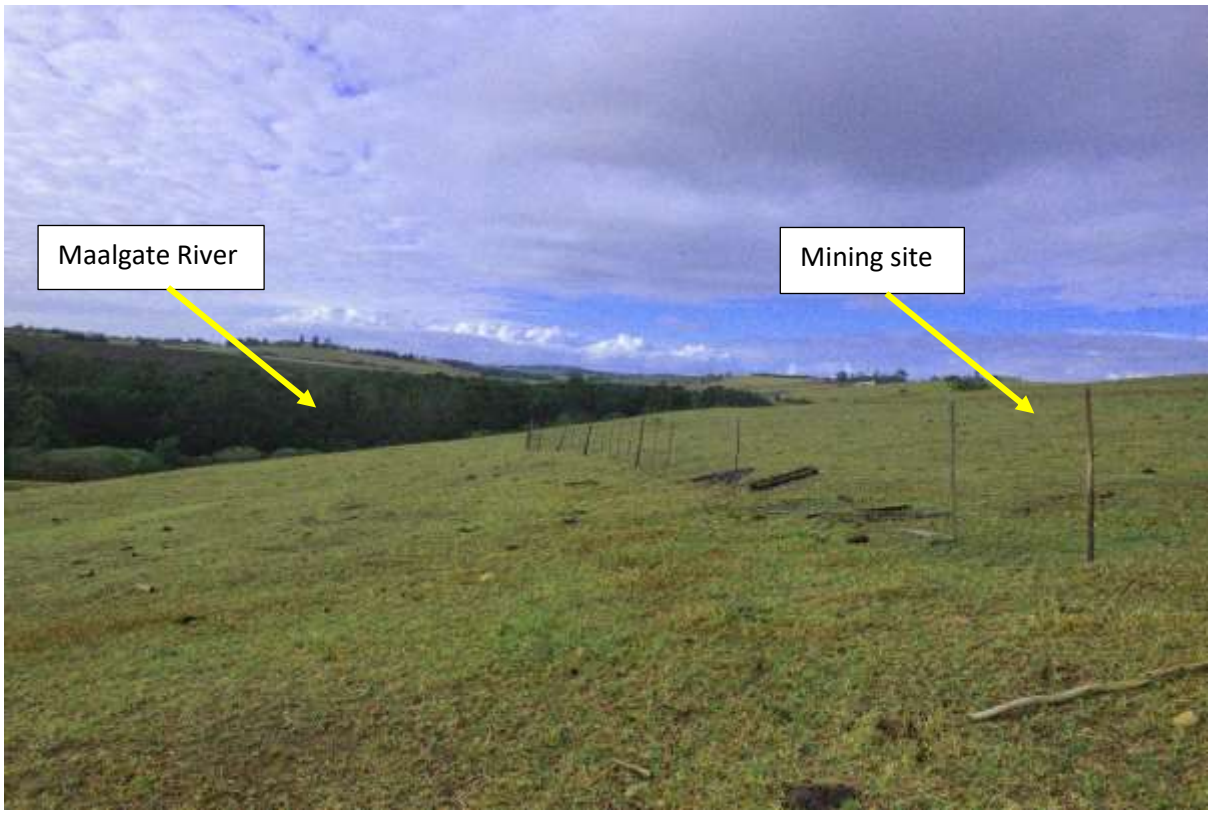

Figure 1 Mining site

Other government departments, such as the DEA&DP have information needs of their own, such as an Impact Assessment. This assessment is included in the Fresh Water Report.

To answer to CapeNature's information needs, the following was included:

- Western Cape Biodiversity Spatial Plan of 2017;
- DEFF Screening Tool in terms of GN 648 of 10 May 2019 was applied was to obtain an indication of the environmental sensitivity of the site.
- The SANBI BGIS vegetation maps.
- IUCN Red Data list, as on the SANBI webpage

2 Quaternary Catchment

Buffels Drift Farm is in the K30A quaternary catchment

3 Legal Framework

The proposed development "triggers" sections of the National Water Act. These are the following:

S21 (c) *Impeding or diverting the flow of a water course*

The proposed development is not spanning the banks of a drainage line. A drainage line would not be altered, should the development go ahead. This section does not apply to the proposed mine. However, the mining area is within 100m of a water course and 500m of a wetland. Hence GN509 apply.

S21 (i) *Altering the bed, bank, course of characteristics of a water course.*

Some part of the proposed development will not alter the characteristics of the banks of a drainage line. This section does not apply to the proposed mine. However, the mining area is within 100m of a water course and 500m of a wetland. Hence GN509 apply.

Government Notice 267 of 24 March 2017

Government Notice 1180 of 2002. *Risk Matrix.*

The Risk Matrix as published on the DWS official webpage must be completed and submitted along with the Water Use Licence Application (WULA). The outcome of this

risk assessment determines if a letter of consent, a General Authorization or a License is required.

Government Notice 509 of 26 August 2016 *Flood lines*

An extensive set of regulations that apply to any development in a water course is listed in this government notice in terms of Section 24 of the NWA. No development take place within the 1:100 year-flood line without the consent of the DWS. If the 1:100-year flood line flood line is not known, no development may take place within a 100m from a water course without the consent of the DWS. The development is adjacent to drainage lines, which are defined as legitimate water resources.

This Fresh Water Report is primarily focussed on GN 509 in terms of the NWA. It has been extended to cover some aspects of the NEMA, as is required for the concomitant EIA.

The EIA Regulations of 2014 No.1 Activity 12 states that no development may take place within 32m of a water course without the consent of the Department of Environmental Affairs and its provincial representatives. A part of the development is adjacent to drainage lines but not within the 32m buffer zone. Hence this regulation does not apply.

S52 of NEMBA *Conservation status*

This section in the Act demands that the ecosystem status be described and that the conservation status of organisms should be mentioned. It should be stated if any endangered species are present.

GR34809 of 9 December 2011 *Conservation status*

The notice lists the categories (critically endangered, endangered, vulnerable, protected) of ecosystems.

GN 648 of 10 May 2019. *Ecological sensitivity*

Draft protocol for the assessment and reporting of environmental impact on terrestrial biodiversity. The sensitivity of sites to impacts must be assessed according to a set protocol.

GN 320 of 20 March 2020. *Ecological sensitivity*

Protocol for the assessment of reporting of environmental impact on terrestrial biodiversity. The sensitivity of sites to impacts must be assessed according to a set protocol.

Appendix 6 of GN R982 *Contents of reports*

This Government Notice outlines the minimum requirements of the contents of specialist reports for EIA's.

4 Locality Buffels Drift Farm

Figure 2 Locality Buffelsdrift Farm

The locality of the Buffels Drift Farm is indicated in Figure 2. It is located approximately 3km west of the George Airport on the bank of the Witels River, the western tributary of the Maalgate River.

5 Mining Site

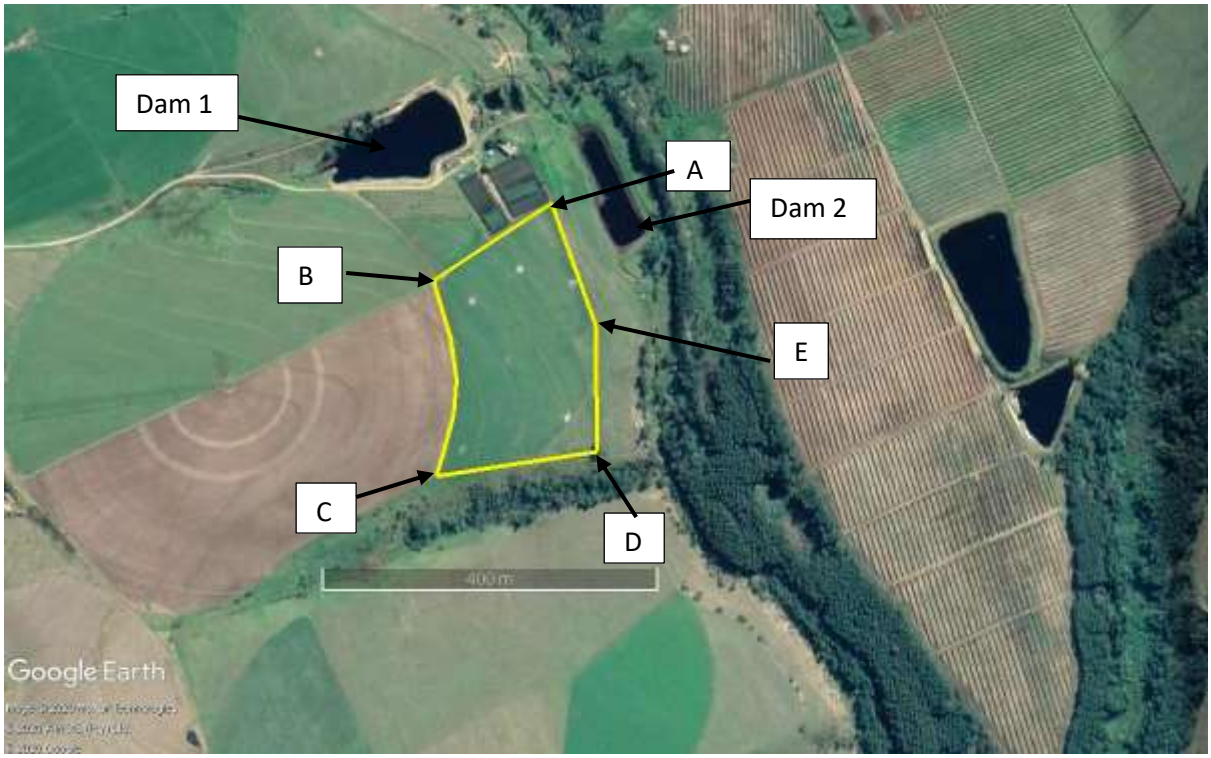

Figure 3 Mining site map

Table 1 Coordinates

Point	Coordinates	Elevation masl
A	33°59'42.37"S 22°20"08.74"E	151
B	33°59'45.87"S 22°20"03.09"E	175
C	33°59'53.81"S 22°20"03.50"E	173
D	33°59'53.03"S 22°20"11.37"E	151
E	33°59'47.71"S 22°20"11.07"E	155

As the project developed, the boundaries of the mining area were accurately and professionally determined, using contemporary GIS technology. The result is depicted in Figure 16 on p30.

6 Mining Operation

The proposed mining site is depicted in Figure 3 and its coordinates are given in Table 1.

The mining site is approximately 5ha in size.

The overburden will be removed and stored-on-site for re-placement following the cessation of mining activities.

The ore will simply be excavated with a heavy earth-moving machine, to be dumped on a waiting tipper truck. The truck will take the material of-site wherever it is needed in the construction and building industry.

The mined gravel material is suitable for infilling and road construction only. There will be no crushing or sorting machinery on the proposed mining site.

There will be only two or at most three workers on the site at any given moment during the operation, such as the excavator operator, the truck driver and a member of the management staff, from time to time.

This is to be a low-key operation over a long period of time.

Drinking and wash water will have to be supplied in containers that will have to be brought in from the nearby George.

A portable toilet will have to be provided that is by a local company that is active in the district.

Litter will be disposed of in the standard 230 litre-wheelie bin and the contents will be disposed of on the municipal waste disposal site.

No water will be abstracted from the Witels River for the purpose of mining. This will be an entirely dry operation.

No fuel will be stored on site. The fuel truck resides at a depot in town and is only to travel to the mining site if the excavator requires diesel.

Mining will take place during dry periods, as the site and access road will probably be water logged during rainfall events, which will render mining difficult if not impossible.

7 Climate George

https://en.climate-data.org/africa/south-africa/western-cape/george-7176/

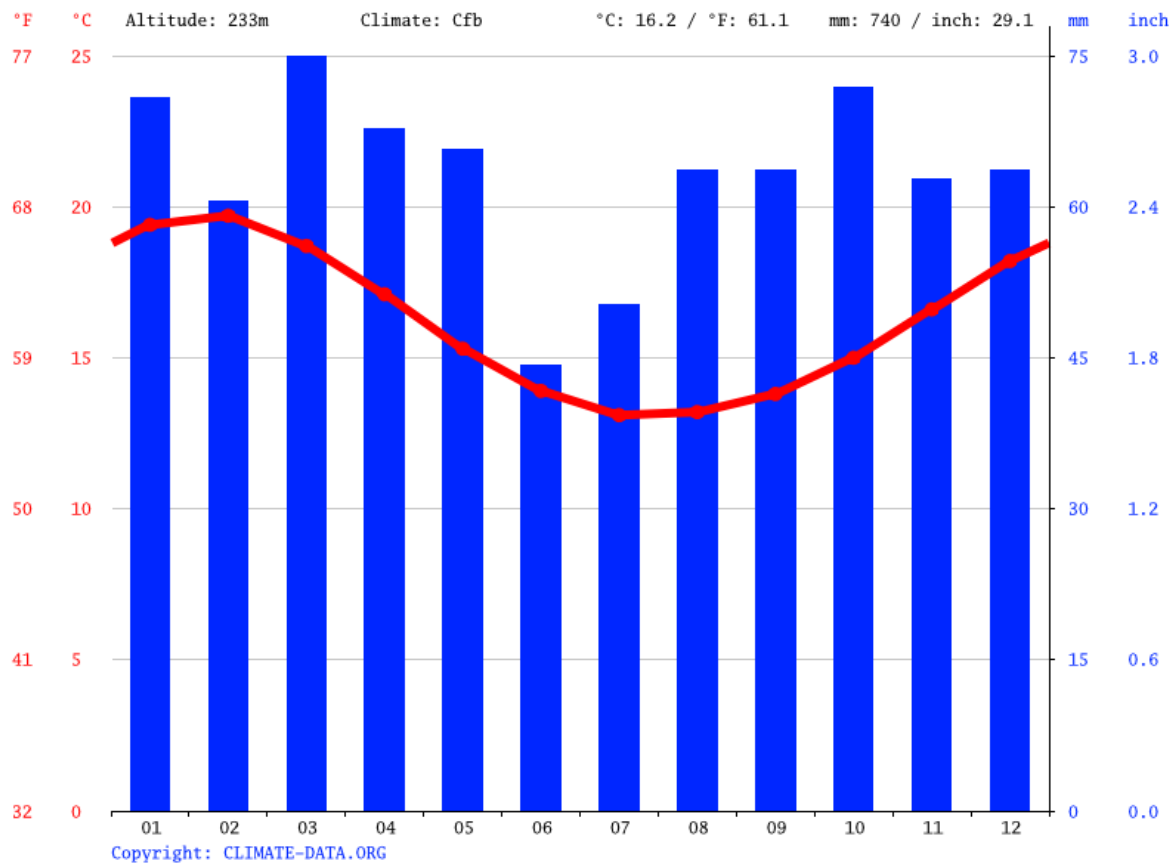

Figure 4 Climate George

George is the closest locality for which climate data is available online (Figure 4). It receives rain through the year, with most rain during the summer months. With a relatively high mean annual rainfall of 740mm, it can be expected that the mining site and its surround contributes to the replenishment of ground water that eventually and probably decants into the Maalgate River and its tributaries to ensure base flow.

It rains significantly more on the high ground of the Outeniqua Mountains (Figure 5) to the north of George (Le Maitre *et al*, 2018), from 1000mm up to 1500mm per year. The main driver of flow down the Maalgate River is the runoff from the mountains, with a smaller contribution from the coastal plain and much less from shallow unconfined aquifers.

During the site visit on 4 August 2020, the flow in the river was only a roughly estimated 3 ls^{-1}.

At the time the river constituted of isolated pools (Figure 5).

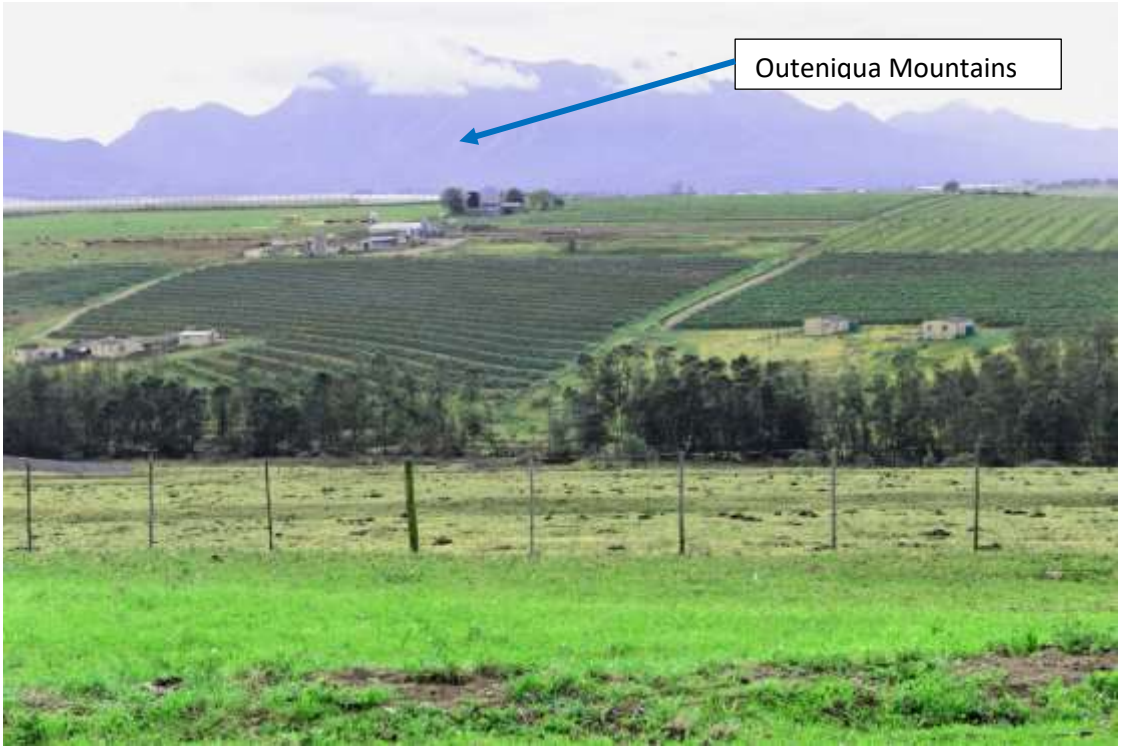

Figure 5 Outeniqua Mountains

Figure 6 Pool in the Witels River

There were many pumps (Figure 7) for the abstraction of water for irrigation on the river.

Figure 7 Pump next to the Witels River

8 Conservation status

8.1 Western Cape Biodiversity Spatial Plan

Definition of a CBA (Figure 8):

Areas in a natural condition. Required to meet biodiversity targets for species, ecosystems or ecological processes and infrastructure.

Objective of a CBA:

Maintain in a natural or near-natural state, with no further loss of habitat. Degraded areas should be rehabilitated. Only low-impact, biodiversity-sensitive land uses are appropriate.

Sub-categories: CBA1 River, CBA1 Wetland.

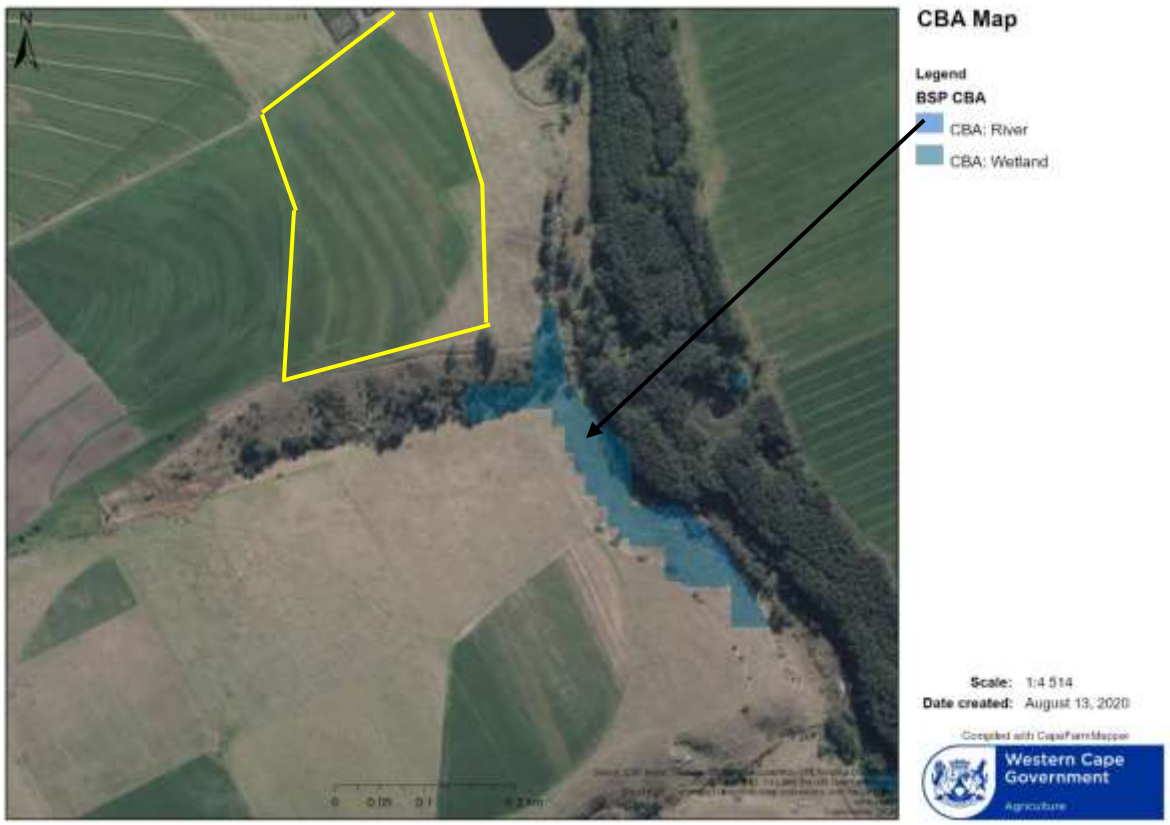

Figure 8 CBA

It is clear from Figure 8 that the CBA is just outside of the proposed mining area and should therefore not be an impediment to the WULA. If all mitigating measures are in place, the mining activities would have no impact on the CBA.

The proposed mining area is within 100m of the river and 500m from a wetland, hence a WULA is still required.

Definition of CBA Degraded:

Areas in a degraded or secondary condition. Required to meet biodiversity targets for species, ecosystems or ecological processes and infrastructure.

Management objective of a CBA Degraded:

Maintain in a functional, natural or near-natural state, with no further loss of habitat. Degraded areas should be rehabilitated. Only low-impact, biodiversity-sensitive land uses are appropriate.

Sub-categories CBA degraded aquatic and CBA degraded terrestrial.

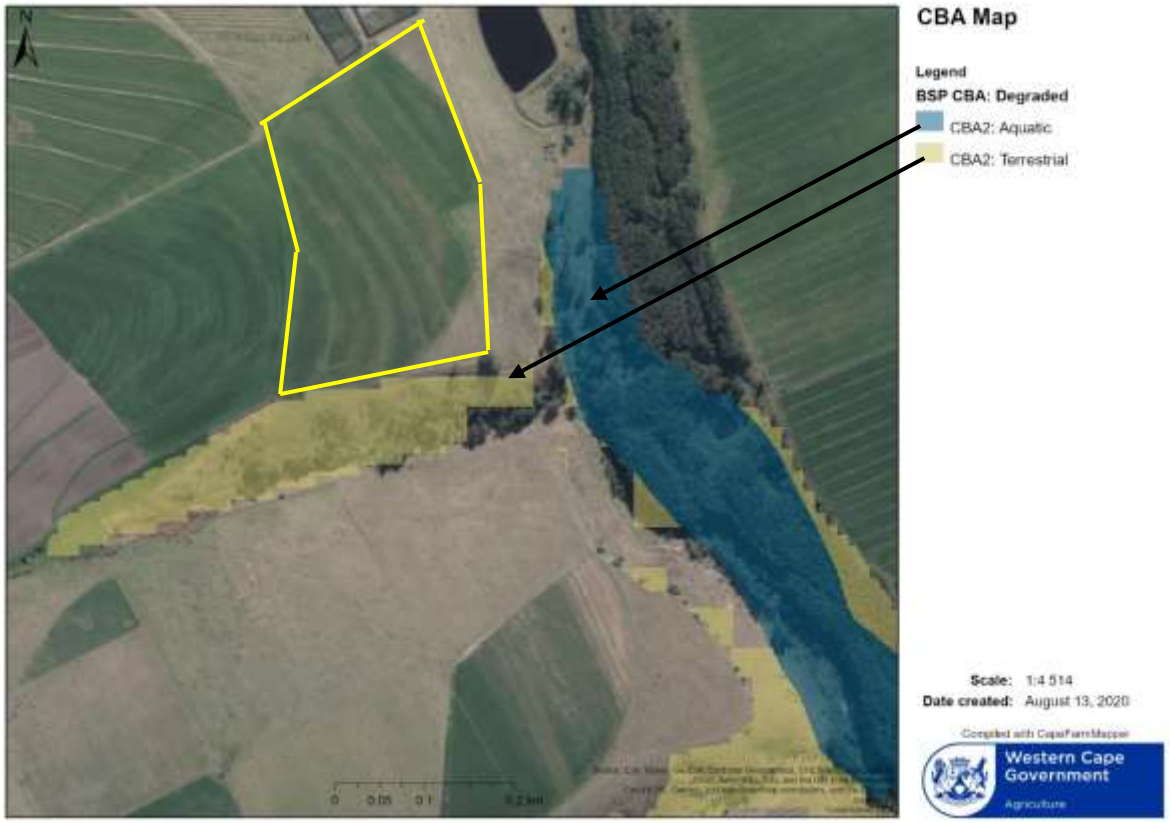

Figure 9 CBA Degraded

There is a CBA degraded aquatic area in the river and its riparian zone, away from the proposed mining area (Figure 9). There is a CBA degraded area up the small tributary to the south of the mining area.

The proposed mining will have no impact on the CBA degraded aquatic (Figure 9). It is adjacent right onto a CBA degraded terrestrial area. However, this area is already grossly impacted upon by agriculture, without any natural vegetation.

Definition of an ESA Restore (Figure 10):

Not essential for meeting biodiversity targets. Important in supporting functioning of PAs or CBAs. Often vital for ecosystem services.

Management objective for an ESA Restore:

Restore/minimise impact on ecological infrastructure functioning, especially soil and water-related services.

Sub-category: ESA2 Restore from Near-Natural

Figure 10 ESA Restore

Image 11 Dam 2

The ESA Restore category spans the mining area on three sides, but does not coincide with the mining area. The ESA is indicated right on the locality of Dam 2 (Figure 11), for which it is hard to see that it could ever be restored

No other categories in or around the proposed mining area have been indicated.

8.2 DEFF Screening Tool

Stephen Davey PrSciNat of Klipberg Consulting ran the DEFF Screening Tool for the proposed mining area. The screening tool rendered the following results:

Animal species theme:	Medium sensitivity
Aquatic biodiversity theme	Very High sensitivity
Plant species theme	Medium sensitivity
Terrestrial biodiversity theme	Very high sensitivity

8.2.1 Animal Species

The animal species theme was categorized as Medium because of the possible presence of the following butterflies:

Table 2 Butterflies

Species	Common name	Host
Lepidochrysops littoralis *Thestor barbatus* *Aloeides thyra* *Aloeides trimeni*	Coastal blue Bearded skollie Red copper Trimen's copper	No data No data *Lepisiota capensis* ants *Aspalathus* sp. & *Hermannia depressa*

Aloides trimeni and other butterflies (Table 2) are entirely dependent on specific indigenous plants species or a range of such plant species as host plants for their larvae to feed on. At the time of the site visit, there were no plants other than graminoids planted for farm animal fodder and exotic weeds. There were no plants that could serve as host plants for any of these butterflies.

In contrast, the red copper *Aloeides thyra* is associated with ants, which can be anywhere, even in cultivated and irrigated pastures. These are the common small black sugar ants found under stones, in leaf litter and even in the ground. These ants would probably recolonize the mining area, once rehabilitated.

Information of butterflies was obtained from Woodall (2005).

8.2.2 Aquatic Biodiversity

The aquatic biodiversity theme was categorized as “Very Sensitive”. The reasons given were as follows:

Strategic water resource area.
Within 500m of a water resource.

The proposed mining area falls within the Outeniqua Strategic Water Source Area for surface water (Le Maitre et al (2018). Strategic Water Source Areas are defined as areas of land that supply a disproportionate (i.e. relatively large) quantity of mean annual surface water runoff in relation to their size and so are considered nationally important. It is further defined according to its contribution toward the bulk water supply of urbanised areas. George receives its water solely from the Garden Route Dam. The Maalgate River does not contribute to the current water supply for George. For this reason, the Maalgate River can hardly be regarded as “strategic”. Moreover, a small gravel mine in the catchment would not detract from a “strategic” status.

The upper reaches of the Maalgate River high in the Outeniqua Mountains can be classified as pristine or near-pristine. The Maalgate estuary is still in a reasonable environmental state (Anonymous, 2019). The middle reaches have been highly impacted by agriculture, abstraction and a heavy infestation of black wattle, blue gums and other invasive species. This renders the middle reaches in a poor ecological state, with a restrained contribution towards aquatic biodiversity.

Most if not all middle reaches of the region’s rivers are in the same position, all highly impacted with a limited contribution to aquatic biodiversity.

The proposed mine of less than 5 hectares is not about to change the aquatic biodiversity of the Maalgate River reach, despite it being less than 100m or even 32m away from the river’s edge. The sensitivity of the site with respect to aquatic biodiversity as determined by site verification is therefore deemed to be “low”.

8.2.3 Plant Species Theme

The screening tool listed the following species:

Erica unicolor	Endangered
Diosma passerinoides	Vulnerable
Lampranthus paucifloris	Endangered

The proposed mining site as well as the entire surrounding area have been farmed for the past 300 years and more and has been ploughed over, grazed and irrigated to such an extent that none of these species, as well as any other natural vegetation, have been entirely erased from the landscape.

The proposed mine is not about to change the sensitivity with regard to plant species.

8.2.4 Terrestrial biodiversity theme

The proposed mining area is located within the endangered Garden Route Granite Fynbos and is therefore categorized as of “Very High sensitivity”

The proposed mining site can hardly contribute to faunal biodiversity under the current regime of intensive farming and the complete lack of natural vegetation. This condition is likely to persist as long as there is a demand for agricultural products.

The Maalgate River provides linear connectivity for animal species, but only for those which can cope with the mature stand of invasive trees, such as some of the birds. The only other animals that were encountered during the site visit were dairy cows and domestic dogs.

The mining site should therefore be re-assigned a “Low” environmental sensitivity.

8.3 SANBI BGIS vegetation maps

8.3.1 NFEPA

The SANBI BGIS map identifies the western tributary of the Maalgate River (Witels River) as a NFEPA. The riparian zone has been identified as a Wetland NFEPA. Likewise, the dam to the north of the proposed site (Dam 1, Figure 1) has been identified as a NFEPA as well as a wetland NFEPA. The farm dam on the bank of the river below the proposed mining site (Dam 2, Figure 1), has not been identified as a NFEPA.

8.3.2 Garden Route Granite Fynbos

The vegetation type on the proposed mining site has been identified as Garden Route Granite Fynbos. This vegetation type is rated as “Endangered”. However, the entire site has been transformed into agricultural land, with no original vegetation left.

8.3.3 Cape Lowland Alluvial Vegetation

The Maalgate River and its riparian zone has been identified as Cape Lowland Alluvial Vegetation. This is “Critically Endangered”. Again, there is very little if any of the original vegetation left, as it has been entirely replaced by black wattle *Acacia mearnsii*. Open ground on the river bank was thickly overgrown with kikuyu grass *Pennisetum clandestinum* and there was a stand of luisbos *Solanum mauritianum* as well.

9 Slopes

Steep slopes along with high rainfall demand proper storm water and erosion control, especially in mining areas where the ground is disturbed.

The slope from point B to point A (Figure 3) is 13.3 vertical metres in every 100 horizontal metres. From point C to point D the slope is 11.1 vertical metres in every 100 horizontal metres. These slopes are steep.

The river is at an elevation of 139masl. The mean slope from point C to the river is 9.7 vertical metres in every 100 horizontal metres, which is still very steep (Figure 12). Such a slope would give rise to high runoff velocities and a high erosion potential.

This calls for proper storm water management, which will be addressed under “Mitigation Measures”.

Figure 12 Slope (Photo Stephen Davey)

10 Buffer zones

Government Notice 905 states that official authorization is required when a development is to take place within the 1 in 100 year-flood line, or within 100m from a river or stream. The eastern boundary is 95m away from the edge of the Maalgate River's riparian zone. Since the flood line is unknown, authorization is required, along with a WULA and its Fresh Water Report. Moreover, the mining site is 60m away from the Maalgate River's small tributary that passes the southern boundary of the proposed mining site.

A buffer zone of 32m is required in terms of the NEMA. If any development is to take place withing the buffer zone, official authorization is required. There are no plans on the table to extend the mining operation beyond the demarcated area. However, if ever the development grows into the 100m buffer zone right onto the 32m line, it won't increase environmental risks to the aquatic environment.

11 Maalgate River Catchment

The catchment area of the Maalgate River demands to approximately 17 450ha. Since published information of this catchment is few and far between, the area was estimated by connecting the highest points around the Maalgate River and its tributaries, using Google Earth's polygon function. The length of the catchment is approximately 43km and it is 22km wide at its widest point (Figure 13).

The river rises in the Outeniqua Mountains, where the highest point in the catchment is 1390masl. The drop from the high mountain ridges to the coastal plain is extremely steep to approximately 300masl, from where the gradient is gradual near to the Indian Ocean, where the elevation is approximately 200masl, from where again it drops steeply to sea level.

The Maalgate River, as most rivers in the region, is naturally deeply incised and flows to the ocean from the mountains through deep valleys.

The upper catchment in the high mountains is natural to near-natural, with little if any human impact. However, the valleys are heavily overgrown with invasive exotic vegetation, mostly black wattle *Acacia mearnsii* (Figure 14), as well as eucalyps such as blue gum trees. Little of the original Afromontane forest remains in the protected valleys.

The coastal plane is heavily farmed. Large-scale wheat and dairy farming have been replaced in later years with fruit and especially berry farming. Much of this under irrigation, with a significant number of centre pivot irrigation systems in the catchment area.

The annual runoff amounts to 38 x $10^6 m^3$, of which 80% reaches the estuary, despite the significant water abstraction for agriculture.

The Maalgate River estuary is in a deep and narrow valley, has a surface area of 13.5km^2 and is picturesque. In addition to the mountains, the natural vegetation and the shoreline, it serves as a tourist attraction.

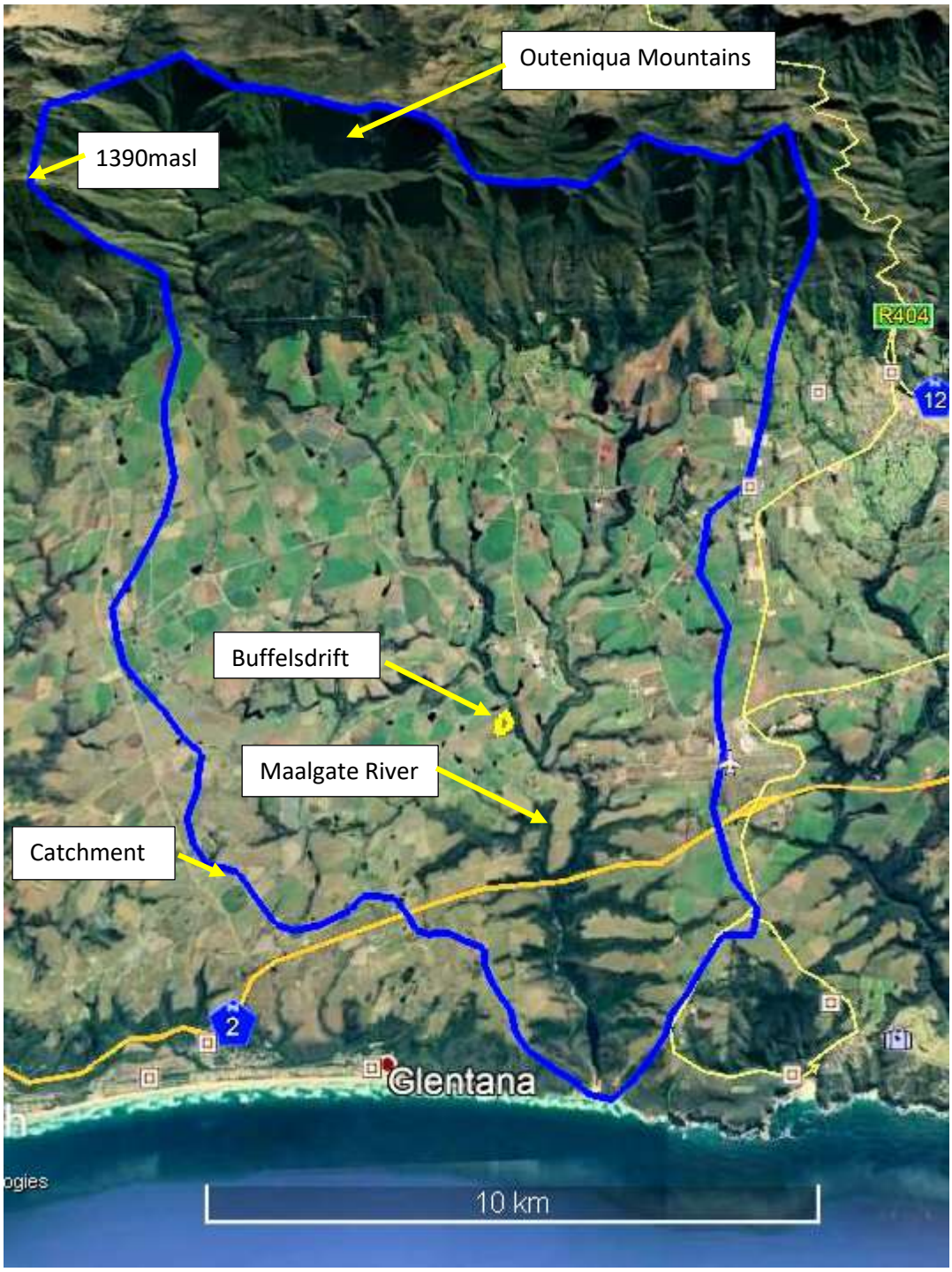

Figure 13 Maalgate River catchment area

There are at least 110 small farm dams in the catchment area, of which two thirds are instream dams and one is a larger dam at the foot of the Outeniqua Mountains. The instream dams tend to be bigger than the off-channel farm dams. There is a large number of pumps on the river and its tributaries, of which the farm dams are filled. Water from the dams, in turn, provide water for the centre pivot irrigation systems.

Figure 14 Black wattle

12 Ecological Sensitivity

GN 648 stipulates that the ecological sensitivity of an area on which an impact is to be induced, be determined.

Ecological Sensitivity (ES) is often described as the ability of a habitat to assimilate impacts. It is not sensitive if it remains the same despite of the onslaught of impacts. Put differently, sensitive habitat changes substantially, even under the pressure of slight impacts.

The Ecological Sensitivity also refers to the potential of a habitat to bounce back to an ecological condition closer to the situation prior to human impact. If it recovers, it is not regarded as sensitive.

If the above definition of ES is applied, the area would probably bounce back if allowed to recover, given the relatively high rainfall and availability of appropriate plant material

in the district, especially if it is helped along with an active restoration program, even though this would take many decades. From this perspective, the mining site is probably not all that sensitive.

However, in practical terms reality does not hold to this definition, as farming and human impact is a permanent feature of the landscape. The proposed mining site and surrounding land has been heavily impacted, grossly transformed and as long as the current situation is maintained, the land will not return to a condition closer to historic state.

Returning to a condition closer to the historical, un-impacted state would require a major and long-term effort to remove the heavy infestation of alien trees in the entire catchment. Without such an effort, this infestation will forever be a permanent feature of the rivers in the district, devoid of natural vegetation.

From this perspective the site is viewed as ecologically sensitive.

This anomaly persists in many localities with similar conditions, where entire fynbos landscapes are now actively farmed.

For the purpose of approval, it is important to note that the proposed mining activity is not about to change the status with regard to ecological sensitivity, even if the buffer zone is reduced to 32m.

13 Present Ecological State

The PES is a protocol that has been produced by Dr Neels Kleynhans (Table 3 and 4) in 1999 of the then DWAF to assess river reaches. The PES is one of the evaluations that is prescribed for S21 (c) and (i) WULA's. The scores given are solely that of the practitioner and are based on expert opinion.

Table 3 Habitat Integrity according to Kleynhans, 1999

A	Unmodified, natural	90 – 100
B	Largely natural with few modifications. A small change in natural habitats and biota, but the ecosystem function is unchanged	80 – 89
C	Moderately modified. A loss and change of the natural habitat and biota, but the ecosystem function is predominantly unchanged	60 – 79
D	Largely modified. A significant loss of natural habitat, biota and ecosystem function.	40 – 59
E	Extensive modified with loss of habitat, biota and ecosystem function	20 – 39
F	Critically modified with almost complete loss of habitat, biota and ecosystem function. In worse cases ecosystem function has been destroyed and changes are irreversible	0 - 19

Table 4 Present Ecological State of Maalgate River at the Buffelsdrift mining site

Instream	Score	Weight	Product	Maximum score
Water abstraction	8	14	112	350
Flow modification	9	13	108	325
Bed modification	9	13	117	325
Channel modification	9	13	117	325
Water quality	12	14	168	350
Inundation	9	10	90	250
Exotic macrophytes	1	9	9	225
Exotic fauna	9	8	72	200
Solid waste disposal	21	6	126	150
Total		100	919	2500
% of total			36.8	
Class			E	
Riparian				
Water abstraction	8	13	104	325
Inundation	9	11	99	275
Flow modification	8	12	96	300
Water quality	12	13	156	325
Indigenous vegetation removal	1	13	13	325
Exotic vegetation encroachment	1	12	12	300
Bank erosion	8	14	112	350
Channel modification	9	12	108	300
Total			700	2500
% of total			28.0	
Class			E	

Both the instream habitat and the riparian zone score an “E”, which is heavily impacted with a significant loss of ecological functioning, mainly because of the black wattle infestation as well as the abstraction of water for irrigation. To this the irrigation return flow must be added. The channel is deeply incised, with the banks steep, restricting hydrological connectivity with the riparian zone.

The proposed mining activity is not about to change the current status of the Maalgate River in and around the Buffelsdrift Farm. It is not expected that the river will deteriorate further because of the proposed mining activity, not if the mitigation measures are in place.

14 Ecological Importance

The Ecological Importance (EI) is based on the presence of especially fish species that are endangered on a local, regional or national level (Table 5).

Table 5 Ecological Importance according to endangered organisms (Kleynhans,1999).

Category	Description
1	One species or taxon are endangered on a local scale
2	More than one species or taxon are rare or endangered on a local scale
3	More than one species or taxon are rare or endangered on a provincial or regional scale
4	One or more species or taxa are rare or endangered on a national scale (Red Data)

Fish species (Table 6) that can be expected in the Maalgate River at Buffelsdrift are the following:

Table 6 Fish species probability of occurrence

Fish species		Probability
Galaxias zebratus	Galaxias	4
Sandelia capensis	Cape kurper	2
Myxus capensis	Fresh water mullet	1
Gambusia affinis	Mosquito fish	4
Lepomis macrochirus	Bluegill sunfish	4
Micropterus salmoides	Largemouth bass	2

The score is entirely the allocation of the fresh water specialist and reflects the probability on a scale from 1 to 5 of these species occurring in the middle Maalgate River. The fish listed are those recorded by Skelton (1993) in the Southern Cape rivers. Those indicated in blue are exotic fish.

Galaxias is widespread, common not endangered in any way, but each river, so has been established, has these fish of a unique genetic constituency. Consequently, each river in the Southern Cape has at least some conservation value, as to preserve the various Galaxias strains.

Habitat for *Sandelia* has been reduced. Predation by bass has severely and negatively impacted on *Sandelia* populations.

Myxus is naturally scarce.

All of the indigenous fishes are IUCN listed as of “Least Concern”.

Officially, the Maalgate River at Buffelsdrift is not “ecologically important”.

15 Mitigation Measures

A separate document is to be produced that fully explains the environmental mitigation measures that apply during the life cycle of the proposed gravel mine. Some of the main points are highlighted in this report.

The topsoil should be removed and stored, to be replaced and spread out over the site, once it has been mined out. This would allow for vegetation to be restored for faming purposes.

The mining activities could disturb and loosen large quantities of soil that could be washed down the Maalgate River during rain events. Measures should be taken to ensure that mud and sand do not enter the river. A separate storm water management plan should be devised, if necessary.

If mining is to take place to the elevation at a point 32m away from the river, it does not seem possible that the slope at the head of the mine on the western side can ever be gentle, but is should be as gentle as possible, with the runoff slowed down and erosion control measures in place. Even though this slope may be steep, it would probably be possible to integrate the mined-out site with the environment, as natural slopes in the area are steep as well.

The mining face should be kept as small as possible, with only one mining face. Mining should not be allowed at more than one locality on the mining site.

Restoration of the mined-out areas should start as progression of mining allows. Restoration and rehabilitation should not be left to the very end of the end of the mine’s life cycle, but should be ongoing as mining continues.

Only one access road should be allowed to the mining site. The access road must be maintained, especially as these roads can quickly deteriorate under the weight of fully laden trucks. Erosion should be prevented. Pooling during rainfall should be prevented, with accepted roadworks drainage structures.

Mining activities, the movement of vehicles and equipment and the storing of overburden and ore, should be restricted to the demarcated mining area. Any disturbance of adjacent land should be prohibited.

Mined material should not be allowed to fall of laden trucks onto the access road.

The silt load from the road should not be allowed to reach the Maalgate River.

Livestock should not be allowed on the site unless the vegetation has been fully restored.

Accidental oil and fuel spills must be cleaned up immediately, using accepted clean-up materials and equipment by trained and competent people.

There is a distinct possibility and likelihood that the mined are will be quickly and severely be re-contaminated and overgrown with black wattle. This should be prevented at all cost. A long-term control program is necessary.

The control of black wattle and blue gum trees should not be left to the state and government alone, but each land owner should bring his or her part as well by clearing their own land. Or at least carry out follow-up activities by clearing new growth following initial clearing by the government.

The proposed mine should be visited by an independent and properly qualified ECO, perhaps twice a year, to ensure that the mining sticks to an environmental management and rehabilitation plan.

16 Storm water

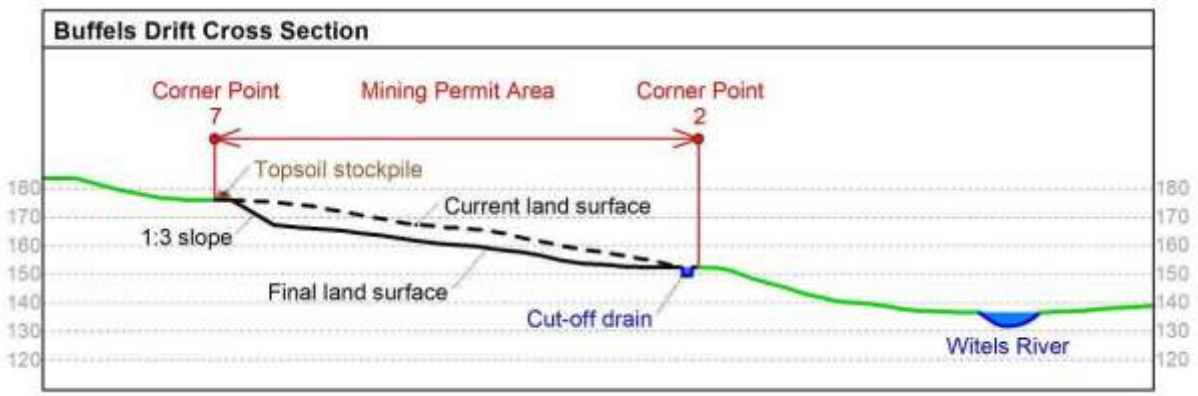

Figure 15 Cut-off drain (Diagram Stephen Davey)

Mining Layout Plan: Located on the Remainder of Buffels Drift 227 (George RD)

Coordinate system/s:
Y & X - WG23 (m)
Lat & Long - WGS84 Decimal Degrees

ID	Y	X	Latitude	Longitude
1	61363.35	3763315.25	-33.995086	22.335829
2	61309.69	3763467.96	-33.996466	22.336399
3	61307.30	3763607.87	-33.997727	22.336415
4	61482.40	3763632.79	-33.997942	22.334518
5	61474.83	3763602.32	-33.997668	22.334602
6	61471.99	3763559.46	-33.997281	22.334636
7	61474.83	3763513.77	-33.996869	22.334609
8	61487.75	3763459.26	-33.996377	22.334473
9	61508.52	3763417.70	-33.996001	22.334251

Proposed mining permit area
Quarry slope (1:3)
Silt retention pond
Cadastral boundary
Cut-off drain & overflow
Access road
Witels River
Contour (5m interval)
Proposed mining permit area corner point

Date: August 2020
Aerial image: GoogleEarth
Boundary information:
SA Surveyor General
www.BoundaryHunter.co.za
Ryk Taljaard (PGP1440)

Mining area = 4.3711 ha

Scale 1 : 1,850 @ A4

50 0 50 100 150 200 Meters

The relative high rainfall and the concomitant runoff necessitates the construction of storm water management infrastructure.

A berm can be constructed from the overburden to divert storm water away and around the active mining face (Figure 1). Storm water that rises on the mining site can be collected in a cut-off trench along the toe of the mining area. The trench is to end up in a silt retention pond. The sediments in the ponds can then be removed from time to time. The overflow from the pond ends up in Dam 2.

In this way sediments would effectively be prevented to be transported down the Witels River.

The slope of the upper end of the mined-out area should not be than 1 in 3 (Figure 1) and should be re-vegetated as soon as the mining operation allows, to prevent erosion and sediment production.

Following mining, agricultural contours should be re-constructed to further control runoff and to prevent erosion.

17 Impact assessment

Table 7 Impact Assessment

Description of impact

Removal of the overburden.
Storing of the overburden
Mining of the gravel
Transport of the gravel
Rehabilitation of the mining site

Washing of mud and silt down the Maalgate River

Mitigation measures

Implement a storm water management plan
Maintain a buffer zone of 32m
Limit the foot print of the mine within the demarcated area

Type Nature	Spatial Extent	Severity	Duration	Significance	Probability	Confidence	Reversibility	Replaceability
Without mitigation								
Negative	Regional	High	Long term	High	Certain	Certain	Irreversible	Irreplaceable
With mitigation measures								
Negative	Local	Low	Short term	Low	Unlikely	Sure	Reversible	Replaceable

Description of impact

Re-growth of invasive trees such as black wattle and blue gum

Mitigation measures

Remove re-growth

Type Nature	Spatial Extent	Severity	Duration	Significance	Probability	Confidence	Reversibility	Replaceability
Without mitigation								
Direct	Regional	High	Long term	High	Certain	Certain	Reversible	Replaceable
With mitigation measures								
Positive	Local	Low	Short term	Low	Certain	Sure	Reversible	Replaceable

The DEFF's document No.5 in the series Integrated Environmental Management Information labelled "Impact Significance" in 2002 was an important milestone is the development of environmental practice in South Africa. It set out the principles on which assessment methodologies are based that are currently applied by environmental practitioners. However, although methodologies have much in common, practitioners each have their own version. So has WATSAN Africa, a version that has worked for numerous past projects.

Table 7 attempts to follow the stages of the mining operation, from start to rehabilitation and eventual closing, while summarizing mitigation measures and evaluating their chances of success.

For this evaluation, it is assumed that the mitigation measures are in place.

The evaluation is solely directed at the possible impacts of the proposed mining operation on the aquatic environment of the Maalgate River.

In order to arrive at a value for Significance, values must be added to the formula given at the end of the Appendix.

Significance = Conservation value (Likelihood + Duration + Extent + Severity)

The conservation value is small because the veld type is of "Least Concern", with no Red Data species on the site. The values for likelihood, duration and severity were high, because the impact is direct, deleterious and would last after the mining has ended. The value for extent is small because of the small area. The values came to the following

Significance = 4 (3+2+2+2)

= 36

According to Table 19.3, the Significance of the impact is Low. This can be attributed that the mining operation is outside of the instream and riparian habitat.

According to Table 10.1, only if the score exceeds 64, a real concern will be raised. This finding indicates that it would be permissible for the proposed development to go ahead.

18 Risk Matrix

The purpose of the Risk Matrix is to determine if a General Authorisation of a License is applicable.

The assessment was carried out according to the interactive Excel table that is available on the DWS webpage. Table 6 is a replica of the Excel spreadsheet that

has been adapted to fit the format of this report. The numbers in Table 8 (continued) represent the same activities as in Table 7, with sub-activities added.

Table 8 Risk Matrix

No.	Activity	Aspect	Impact	Significance	Risk Rating
1	Removal of the overburden. Storing of the overburden Mining of the gravel Transport of the gravel Rehabilitation of the mining site	Washing of mud and silt down the Maalgate River	Loss of aquatic habitat	47.5	Low
2	Re-growth of invasive trees such as black wattle and blue gum	Invasive trees in riparian habitat	Loss of riparian habitat	50	Low

Table 8 Continued Risk Rating

No	Flow	Water Quality	Habitat	Biota	Severity	Spatial scale	Duration	Conse-quence
1 2	1 1	2 1	2 3	2 3	1.75 2	1 1	2 3	4.75 5

No	Frequency of activity	Frequency of impact	Legal issues	Detection	Likelihood	Significance	Risk Rating
1 2	2 2	2 2	5 5	1 1	10 10	47.5 50	Low Low

The methodology is tabled in the Appendix.

The mitigation measures can readily be implemented, with mud and silt being kept out of the river during rainfall events, for as long as the gravel mine is active. Once properly rehabilitated, the risk will be reduced to insignificant levels.

The risk of re-infestation with black wattle will be ever-present, even after mine closure. Removal of black wattle will be an ongoing activity, not only on the mining site, but everywhere in the district.

The incremental environmental risk of the proposed mine is rated as “Low” (Table 1), given that the mitigation measures are implemented successfully.

The Risk Matrix indicates that a General Authorization is the appropriate level of authorization. A License would not be required.

19 Resource Economics

The goods and services delivered by the environment, in this case the drainage line at the new Erf 4440 development, is a Resource Economics concept as adapted by Kotze *et al* (2009). The methodology was designed for the assessments of wetlands, but in the case of the drainage line the goods and services delivered are particularly applicable and important, hence it was decided to include it in the report.

Table 9. Goods and Services

Goods & Services	Score
Flood attenuation	4
Stream flow regulation	4
Sediment trapping	4
Phosphate trapping	2
Nitrate removal	2
Toxicant removal	2
Erosion control	3
Carbon storage	3
Biodiversity maintenance	2
Water supply for human use	5
Natural resources	1
Cultivated food	5
Cultural significance	1
Tourism and recreation	5
Education and research	1

0	Low
5	High

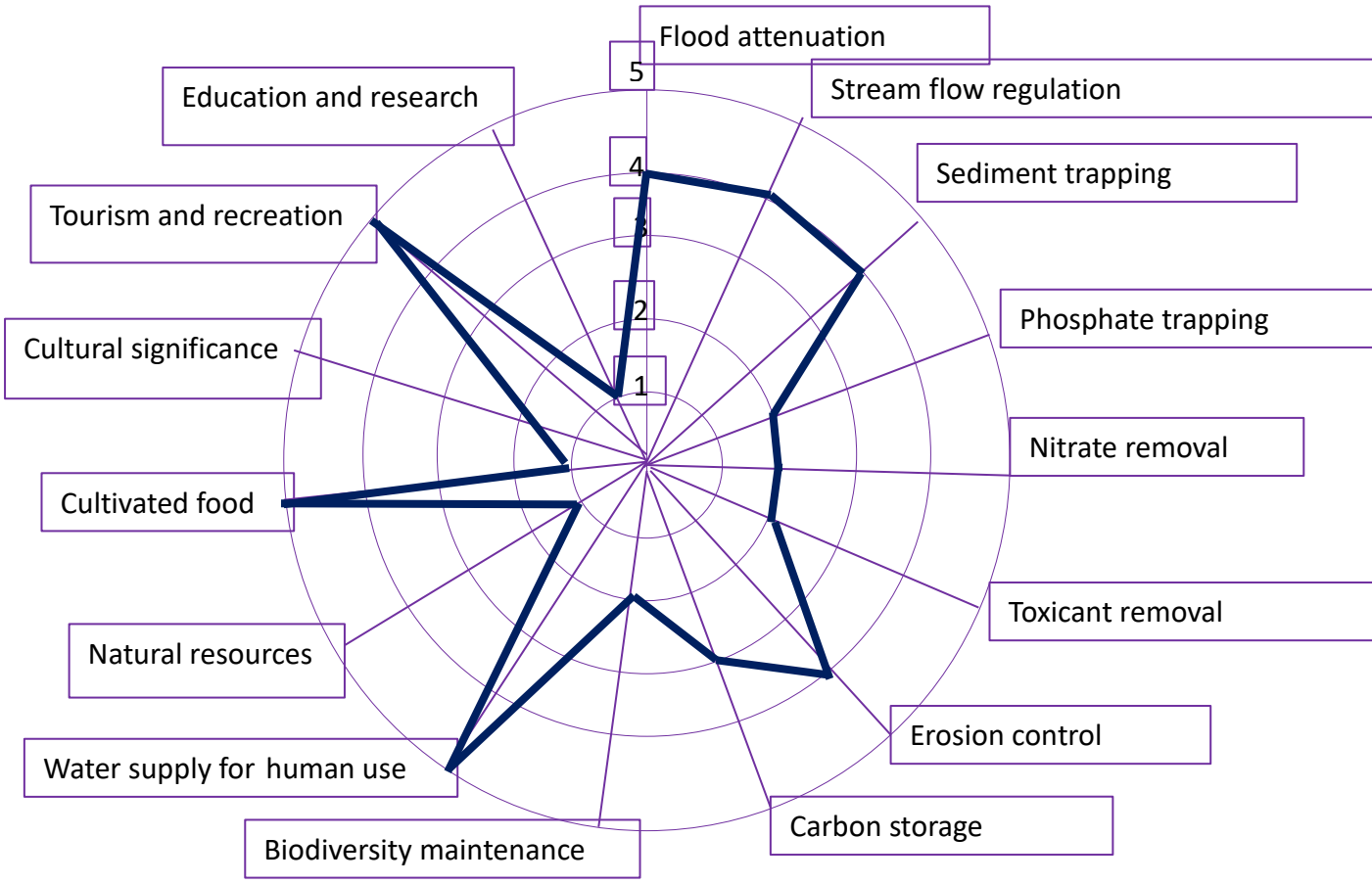

Figure 17. Resource Economics Footprint of the Maalgate River

The diagram (Figure 17) is an accepted manner to visually illustrate the resource economic footprint the drainage line, from the data in Table 15.

The size of the star shape (spider diagram) signifies the importance of the economic footprint. A large star shape attracts the attention of the decision-making authorities. The star shape of Figure 17 is rather large. The Maalgate River delivers a significant measure of ecological goods and services.

However, the proposed mining activity is not about to detract from any of this. To the contrary, the proposed mine alongside its banks would add to the value, as natural resources will be provided in the form of gravel for the construction and building industry.

20 Conclusions

An anthropogenic activity can impact on any of the ecosystem drivers or responses and this can have a knock-on effect on all of the other drivers and responses. This, in turn, will predictably impact on the ecosystem services (Figure 18). The WULA and the EAI must provide mitigation measured for these impacts.

Figure16 has been adapted from one of the most recent DWS policy documents.

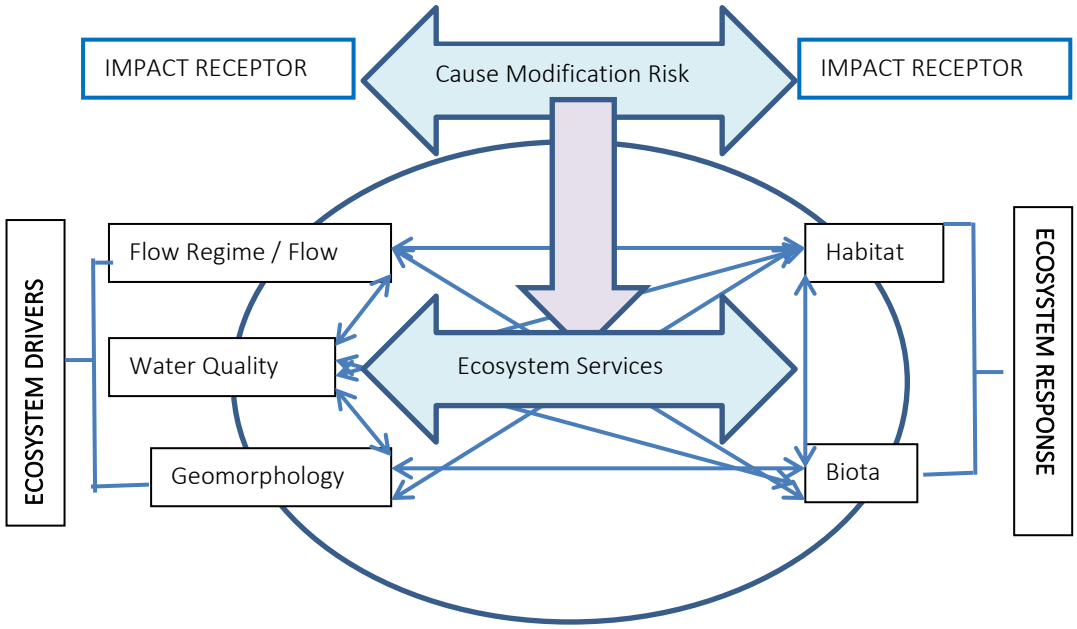

Figure 18 Minimum Requirements for a S21(c) and (i) Application.

The main driver of the Maalgate River is the large volume of water that comes from the upper catchment in the Outeniqua Mountains. This water is distributed throughout the year, with somewhat more during the summer months. According to long-term data, there is no annual drought period, as is so evident in the rest of South Africa. Nevertheless, droughts are common, even in this part of the world.

The even and relatively high rainfall gives rise to a particular vegetation, such as Afromontane forest in the valleys and a particular brand of fynbos.

The natural drivers have been modified. Large-scale water abstraction for irrigation has increased the low-flow period and introduced lengthy no-flow periods as well. Currently the river is only flowing during and shortly after heavy rainfall events.

The impoverished flow regime has been further modified by a mature and extended stand of black wattles and blue gums.

The river has been straightened and has become deeply incised, as to reduce the previously available habitat of pools and rapids to a mostly dry river, with isolated patches of water.

The upper part of the catchment on the high ground of the mountains, as well as the estuary, still provides most of its original environmental services. The middle reach contribution comes as water for irrigation.

The proposed mine is not about to reduce the rendered environmental goods and services.

20.1 Biodiversity Compliance Statement

The indicative rating for the “Aquatic Biodiversity Theme” in the screening tool report was ‘highly sensitive’. However, the river here has been entirely modified by large-scale farming and its concomitant water abstraction. The riparian zone is all but lost to invasive black wattle, with nothing left of the original riparian vegetation. The proposed mine is not about to change the current status. This modified environment is not sensitive to the proposed mining activities.

Similarly, the indicative rating for the “Terrestrial Biodiversity Theme” in the screening tool report was ‘highly sensitive’. Although the proposed application area is located in an area mapped as containing endangered Garden Route Granite Fynbos, the mining site and its surrounds have been ploughed over, planted and re-planted by many generations of farmers, resulting in an entire absence of the original vegetation. The mining site lost its ecological sensitivity to further impacts such as the proposed gravel mine. This would be a permanent situation, as the rehabilitated mining site, as it will be returned to agriculture and a pasture for farm animals, with planted and irrigated fodder.

20.2 Level of authorization

The Risk Matrix, as well as the Impacts Assessment indicated that the appropriate level of authorization is a General Authorization. A License is not required.

21 References

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Woodall, S. 2005. *Field guide to the butterflies of South Africa*. Struik, Cape Town.

22 Declaration of Independence

I, Dirk van Driel, as the appointed independent specialist hereby declare that I:

- Act/ed as the independent specialist in this application
- Regard the information contained in this report as it relates to my specialist input/study to be true and correct and;
- 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 NEMA, the Environmental Impact Assessment Regulations, 2010 and any specific environmental management act;
- Have and will not have vested interest in the proposed activity;
- Have disclosed to the applicant, EAP and competent authority any material information have or may have to influence the decision of the competent authority or the objectivity of any report, plan or document required in terms of the NEMA, the environmental Impact Assessment Regulations, 2010 and any specific environmental management act.
- Am fully aware and meet the responsibilities in terms of the NEMA, the Environmental Impacts Assessment Regulations, 2010 (specifically in terms of regulation 17 of GN No. R543) and any specific environmental management act and that failure to comply with these requirements may constitute and result in disqualification;
- Have ensured that information containing all relevant facts on respect of the specialist input / study was distributed or made available to interested and affected parties and the public and that participation by interested and affected parties facilitated in such a manner that all interested and affected parties were provided with reasonable opportunity to participate and to provide comments on the specialist input / study;
- Have ensured that all the comments of all the interested and affected parties on the specialist input were considered, recorded and submitted to the competent authority in respect of the application;
- Have ensured that the names of all the interested and affected parties that participated in terms of the specialist input / study were recorded in the register of interested and affected parties who participated in the public participation process;
- Have provided the competent authority with access to all information at my disposal regarding the application, weather such information is favourable or not and;
- Am aware that a false declaration is an offence in terms of regulation 71 of GN No. R543.

Signature of the specialist:  21 August 2020

23 Résumé

Dr Dirk van Driel
PhD, MBA, PrSciNat, MWISA
Water Scientist

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Experience

WATSAN Africa, Cape Town. Scientist **2011 – present**

USAID/RTI, ICMA & Chemonics. Iraq & Afghanistan **2007 -2011**

Program manager.

City of Cape Town **1999-2007**

Acting Head: Scientific Services, Manager: Hydrobiology.

Department of Water & Sanitation, South Africa **1989 – 1999**

Senior Scientist

Tshwane University of Technology, Pretoria **1979 – 1998**

Head of Department

University of Western Cape and Stellenbosch University **1994- 1998** part-time

- Lectured post-graduate courses in Water Management and Environmental Management to under-graduate civil engineering students
- Served as external dissertation and thesis examiner

Service Positions

- Project Leader, initiator, member and participator: Water Research Commission (WRC), Pretoria.
- Director: UNESCO West Coast Biosphere, South Africa
- Director (Deputy Chairperson): Grotto Bay Home Owner's Association
- Member Dassen Island Protected Area Association (PAAC)

Membership of Professional Societies

- South African Council for Scientific Professions. Registered Scientist No. 400041/96
- Water Institute of South Africa. Member

Reports

- Process Review Kathu Wastewater Treatment Works
- Effluent Irrigation Report Tydstroom Abattoir Durbanville
- River Rehabilitation Report Slangkop Farm, Yzerfontein
- Fresh Water and Estuary Report Erf 77 Elands Bay
- Ground Water Revision, Moorreesburg Cemetery
- Fresh Water Report Delaire Graff Estate, Stellenbosch
- Fresh Water Report Quantum Foods (Pty) Ltd. Moredou Poultry Farm, Tulbagh
- Fresh Water Report Revision, De Hoop Development, Malmesbury
- Fresh Water Report, Idas Valley Development Erf 10866, Stellenbosch
- Wetland Delineation Idas Valley Development Erf 10866, Stellenbosch
- Fresh Water Report, Idas Valley Development Erf 11330, Stellenbosch
- Fresh Water Report, La Motte Development, Franschhoek
- Ground Water Peer Review, Elandsfontein Exploration & Mining
- Fresh Water Report Woodlands Sand Mine Malmesbury
- Fresh Water Report Brakke Kuyl Sand Mine, Cape Town
- Wetland Delineation, Ingwe Housing Development, Somerset West
- Fresh Water Report, Suurbraak Wastewater Treatment Works, Swellendam
- Wetland Delineation, Zandbergfontein Sand Mine, Robertson
- Storm Water Management Plan, Smalblaar Quarry, Rawsonville
- Storm Water Management Plan, Riverside Quarry
- Water Quality Irrigation Dams Report, Langebaan Country Estate
- Wetland Delineation Farm Eenzaamheid, Langebaan
- Wetland Delineation Erf 599, Betty's Bay
- Technical Report Bloodhound Land Speed Record, Hakskeenpan
- Technical Report Harkerville Sand Mine, Plettenberg Bay
- Technical Report Doring Rivier Sand Mine, Vanrhynsdorp
- Rehabilitation Plan Roodefontein Dam, Plettenberg Bay
- Technical Report Groenvlei Crusher, Worcester
- Technical Report Wiedouw Sand Mine, Vanrhynsdorp
- Technical Report Lair Trust Farm, Augrabies
- Technical Report Schouwtoneel Sand Mine, Vredenburg
- Technical Report Waboomsrivier Weir Wolseley
- Technical Report Doornkraal Sand Mine Malmesbury
- Technical Report Berg-en-Dal Sand Mine Malmesbury
- Wetland Demarcation, Osdrif Farm, Worcester
- Technical Report Driefontein Dam, Farm Agterfontein, Ceres
- Technical Report Oewerzicht Farm Dam, Greyton
- Technical Report Glen Lossie Sand Mine, Malmesbury
- Preliminary Report Stellenbosch Cemeteries
- Technical Report Toeka & Harmony Dams, Houdenbek Farm, Koue Bokkeveld
- Technical Report Kluitjieskraal Sand & Gravel Mine, Swellendam
- Fresh Water Report Urban Development Witteklip Vredenburg
- Fresh Water Report Groblershoop Resort, Northern Cape
- Fresh Water Report CA Bruwer Quarry Kakamas, Northern Cape
- Fresh Water Report, CA Bruwer Sand Mine, Kakamas, Northern Cape
- Fresh Water Report, Triple D Farms, Agri Development, Kakamas
- Fresh Water Report, Keren Energy Photovoltaic Plant Kakamas
- Fresh Water Report, Keren Energy Photovoltaic Plant Hopetown
- Fresh Water Report Hopetown Sewer
- Fresh Water Report Hoogland Farm Agricultural Development, Touws River

- Fresh Water Report Klaarstroom Waste Water Treatment Works
- Fresh Water Report Calvinia Sports Grounds Irrigation
- Fresh Water Report CA Bruwer Agricultural Development Kakamas
- Fresh Water Report Zwartfontein Farm Dam, Hermon
- Statement Delsma Farm Wetland, Hermon
- Fresh Water Report Lemoenshoek Farms Pipelines Bonnyvale
- Fresh Water Report Water Provision Pipeline Brandvlei
- Fresh Water Report Erf 19992 Upington
- Botanical Report Zwartejongensfontein Sand Mine, Stilbaai
- Fresh Water Report CA Bruwer Feldspath Mine, Kakamas
- Sediment Yield Calculation, Kenhardt Sand Mine
- Wetland Demarcation, Grabouw Traffic Center
- Fresh Water Report, Osdrift Sand Mine, Worcester
- Fresh Water Report, Muggievlag Storm Water Canal, Vredenburg
- Fresh Water Report, Marksman's Nest Rifle Range, Malmesbury
- Biodiversity Report, Muggievlak Storm Water Canal, Vredenburg
- Strategic Planning Report, Sanitation, Afghanistan Government, New Delhi, India
- Fresh Water Report, Potable Water Pipeline, Komaggas
- Fresh Water Report, Wastewater Treatment Works, Kamieskroon
- Fresh Water Report, Turksvy Farm Dam, Upington
- Fresh Water Report, Groblershoop Urban Development, IKheis Municipality
- Fresh Water Report, Boegoeberg Urban Development, IKheis Municipality
- Fresh Water Report, Opwag Urban Development, IKheis Municipality
- Fresh Water Report, Wegdraai Urban Development, IKheis Municipality
- Fresh Water Report, Topline Urban Development, IKheis Municipality
- Fresh Water Report, Grootdrink Urban Development, IKheis Municipality
- Fresh Water Report, Gariep Urban Development, IKheis Municipality
- Fresh Water Report, Bonathaba Farm Dam, Hermon
- Botanical Report, Sand Mine Greystone Trading, Vredendal
- Botanical Report Namakwa Klei Stene, Klawer

24 Appendix

24.1 Cape Lowland Alluvial Vegetation

Riparian vegetation p.p. (Boucher 1978).

Distribution Western Cape Province: Vegetation of broad alluvia of middle and lower stretches of rivers of the Western Cape such as the upper Olifants, Berg, Eerste, Lourens, Palmiet, Bot, Klein, Breede, Goekoe, Gouritz, Hartebeeskuil, Klein Brak, Groot Brak, Keurbooms and a number of small tributaries of the above-mentioned water courses. Altitude ranging from 20–300 m.

Vegetation & Landscape Features Flat landscape with slow-flowing (in place meandering) lowland rivers fringed on banks by extensive tall reeds dominated by *Phragmites australis* and *Typha capensis* as well as by flooded grasslands and herblands and tall riparian thickets (gallery forests) with *Salix mucronata* subsp. *capensis* on the river terraces.

Geology, Soil & Hydrology Alluvial fine sandy, silty and clayey soils over Quaternary sediments, largely derived from weathering of Table Mountain sandstone, Bokkeveld Group shales and Cape Granite (specifically the George Batholith). The streams are fed mainly during the winter-rainfall season. An important factor on the flood regime are the numerous dams built for water storage, which can simulate features of a natural flood regime by means of several quick releases of water from
the reservoir.

Climate Identical to the climate of the surrounding lowland vegetation, and due to the large geographical span of the scattered patches of this vegetation unit, it typically encompasses winter rainfall as well as transitional winter-summer rainfall in both facies (with prevalence of either). The local MAP spans 320 mm (Breede River Valley) to 700 (Garden Route) while the MAT spans 15.9°C (Overberg) to 17.2°C (Garden Route). See also climate diagram for AZa 2 Cape Lowland Alluvial Vegetation (Figure 13.2).

Important Taxa ([C]Endemic to Capensis, [P]Sharing with Pondoland) **Riparian thickets** Small Trees: *Salix mucronata* subsp. *mucronata* (d), *Virgilia divaricata*[C], *Podocarpus elongatus*[C]. Tall Shrubs: *Buddleja saligna, B. salviifolia*, *Cliffortia strobilifera*, *Freylinia lanceolata*, *Rhus angustifolia*. Low Shrubs: *Cliffortia odorata* (d), *Senecio halimifolius* (d), *Cliffortia ferruginea*[C]. **Flooded grasslands & herblands** Tall Shrub: *Melianthus major* (d). Megagraminoids: *Prionium serratum*[P] (d), *Calopsis paniculata*, *Cyperus thunbergii*. Graminoids: *Cynodon dactylon* (d), *Cyperus congestus, C. denudatus*, *C. textilis*, *Eragrostis sarmentosa*, *Ficinia distans*, *Fuirena hirsuta*, *Hemarthria altissima*, *Isolepis cernua*, *I. prolifera*, *Juncus capensis*, *J. lomatophyllus*, *Leersia hexandra*, *Merxmuellera cincta*, *Paspalum distichum*, *Pennisetum macrourum*. Herbs: *Conyza scabrida*, *Helichrysum helianthemifolium*[C], *Laurembergia repens, Persicaria decipiens*. Geophytic Herbs: *Wachendorfia thyrsiflora*[C] (d), *Triglochin bulbosa* complex, *Watsonia galpinii*[C], *Zantedeschia aethiopica*. **Open water** Aquatic Herb: *Myriophyllum spicatum*.

Endemic Taxon **Riparian thickets** Small Tree: *Salix mucronata* subsp. *hirsuta* (d; only Olifants River and maybe Berg River catchments; see Jordaan 2005).

Conservation Critically endangered. Target 31%, but so far only about 1% statutorily (Bontebok National Park, Verlorenvlei (a Ramsar site), Broomvlei, Marloth Nature Reserves) or privately (Wadrif) conserved. Some 72% of the area has been transformed for cultivation, urban development and road building. Disturbance and alien infestation are very common in this type. Among the most vigorous woody alien invaders are *Acacia saligna*, *A. mearnsii* and *A. longifolia* as well as *Alnus glutinosa*, *Quercus robur*, *Salix babylonica* and *Sesbania punicea*. The high nutrient status of alluvial soils attracts fast-growing herbaceous alien weeds such as *Xanthium* species, *Sonchus oleraceus*, *Rumex crispus*, *Stellaria media* etc. as well as garden escapes such as *Tropaeolum majus*, *Tradescantia fluminensis*, *Pennisetum clandestinum* (kikuyu grass), *Colocasia esculenta* and *Lupinus angustifolius* (see for instance Duvenhage 1993 and Ahmed 1995).

References Duthie (1929), Muir (1929), Stephens (1929), Harrison & Elsworth (1958), Harrison (1964), Grobler & Marais (1967), Acocks (1976), Boucher (1978, 1987, 1996a, b, 1997), Noble & Hemens (1978), Rebelo et al. (1991), Duvenhage (1993), Ahmed (1995), Sieben (2003), http://www.ngo.grida.no/soesa/nsoer/resource/wetland/sa_ramsar.htm.

24.2 Garden Route Granite Fynbos

VT 46 Coastal Renosterbosveld (70%) (Acocks 1953). South Coast Renosterveld (22%) (Moll & Bossi 1983). LR 2 Afromontane Forest (67%) (Low & Rebelo 1996). BHU 100 Knysna Afromontane Forest (64%), BHU 28 Blanco Fynbos/Renosterveld Mosaic (36%) (Cowling et al. 1999b, Cowling & Heijnis 2001).

Distribution Western Cape Province: Garden Route—three main blocks south of the Outeniqua Mountains on the coastal plain from Botterberg west of Brandwaghoogte (south of Robinson Pass) to Groot Brak River; the largest block from Groot Brak River to Woodfield near the Wilderness (with a few strips along the coast from Bothastrand to the Wilderness); lastly, north of the lakes from Woodville to Hoogekraal Pass, west of Karatara. Altitude 0–300 m.

Vegetation & Landscape Features Moderately undulating plains and undulating hills on the coastal forelands. Dense proteoid and ericoid shrubby grassland. Proteoid and graminoid fynbos are dominant with ericaceous fynbos in seeps. In the west, most remnants of this type are dominated by proteas. Eastwards graminoid and ericaceous fynbos are dominant on the flat plateaus, with proteas confined to the steep slopes.

Geology & Soils George Batholith of the Cape Granite Suite. Deep, prismacutanic- and pedocutanic-dominated soils typical of Db land types (mainly).

Climate MAP 350–880 mm (mean: 600 mm), with a slight low in early winter. Mean daily maximum and minimum temperatures 27.8°C and 6.8°C for January–February and July, respectively. Frost incidence 2 or 3 days per year. See also climate diagram for FFg 5 Garden Route Granite Fynbos (Figure 4.92).

Important Taxa Tall Shrubs: *Passerina corymbosa* (d), *Cliffortia serpyllifolia*, *Protea coronata*, *P. lanceolata*, *P. neriifolia*. Low Shrubs: *Erica discolor* variant '*speciosa*' (d), *E. peltata* (d), *Phylica confusa* (d), *Syncarpha paniculata* (d), *Agathosma ovata*, *Anthospermum prostratum*, *Aspalathus asparagoides*, *Cliffortia falcata*, *Cullumia bisulca*, *Erica canaliculata*, *E. diaphana*, *E. formosa*, *Eriocephalus africanus*, *Hermannia angularis*, *Leucadendron salignum*, *Lobelia tomentosa*, *Metalasia pungens*, *Mimetes cucullatus*, *Pelargonium fruticosum*, *Relhania calycina*. Succulent Shrub: *Lampranthus sociorum*. Semiparasitic Shrubs: *Osyris compressa*, *Thesium virgatum*. Semiparasitic Epiphytic Shrub: *Viscum capense*. Geophytic Herb: *Schizaea pectinata*. Graminoids: *Tetraria cuspidata* (d), *Brachiaria serrata*, *Eragrostis capensis*, *Ficinia nigrescens*, *Heteropogon contortus*, *Pentaschistis eriostoma*, *Restio triticeus*, *Themeda triandra*.

Conservation Endangered. Target 23%. Only about 1% conserved in the proposed Garden Route National Park. About 70% has been transformed for cultivation (56%), pine plantations (7%) and by urban development (6%). Remnants are largely confined to isolated pockets on steeper slopes. Erosion moderate and high. Very few patches of this type remain in a pristine condition as most of it has been converted to pasture by liming, bush-cutting and frequent burning, and augmented with pasture grasses. Western remnants suggest that proteoid fynbos might have been dominant historically. It is easily converted to graminoid fynbos by regular fires and augmentation with pasture grasses.

References Drews (1980b), Hoare et al. (2000).

24.3 Methodology used in determining significance of impacts

The methodology to be used in determining and ranking the nature, significance, consequences, extent, duration and probability of potential environmental impacts and risks associated with the alternatives is provided in the following tables:

Table 24.3.1 Nature and type of impact

Nature and type of impact	Description
Positive	An impact that is considered to represent an improvement to the baseline conditions or represents a positive change
Negative	An impact that is considered to represent an adverse change from the baseline or introduces a new negative factor
Direct	Impacts that result from the direct interaction between a planned project activity and the receiving environment / receptors
Indirect	Impacts that result from other activities that could take place as a consequence of the project (e.g. an influx of work seekers)
Cumulative	Impacts that act together with other impacts (including those from concurrent or planned future activities) to affect the same resources and / or receptors as the project

Table 24.3.2 Criteria for the assessment of impacts

Criteria	Rating	Description
Spatial extent of impact	National	Impacts that affect nationally important environmental resources or affect an area that is nationally important or have macro-economic consequences
	Regional	Impacts that affect regionally important environmental resources or are experienced on a regional scale as determined by administrative boundaries or habitat type / ecosystems
	Local	Within 2 km of the site
	Site specific	On site or within 100m of the site boundary
Consequence of impact/ Magnitude/ Severity	High	Natural and / or social functions and / or processes are severely altered
	Medium	Natural and / or social functions and / or processes are notably altered
	Low	Natural and / or social functions and / or processes are slightly altered
	Very Low	Natural and / or social functions and / or processes are negligibly altered
	Zero	Natural and / or social functions and / or processes remain unaltered
Duration of impact	Temporary	Impacts of short duration and /or occasional
	Short term	During the construction period
	Medium term	During part or all of the operational phase
	Long term	Beyond the operational phase, but not permanently
	Permanent	Mitigation will not occur in such a way or in such a time span that the impact can be considered transient (irreversible)

Table 24.3.3 Significance Rating

Significance Rating	Description
High	High consequence with a regional extent and long-term duration High consequence with either a regional extent and medium-term duration or a local extent and long-term duration Medium consequence with a regional extent and a long-term duration
Medium	High with a local extent and medium-term duration High consequence with a regional extent and short-term duration or a site-specific extent and long-term duration High consequence with either local extent and short-term duration or a site-specific extent with a medium-term duration Medium consequence with any combination of extent and duration except site-specific and short-term or regional and long term Low consequence with a regional extent and long-term duration
Low	High consequence with a site-specific extent and short-term duration Medium consequence with a site-specific extent and short-term duration Low consequence with any combination of extent and duration except site-specific and short-term Very low consequence with a regional extent and long-term duration
Very low	Low consequence with a site-specific extent and short-term duration Very low consequence with any combination of extent and duration except regional and long term
Neutral	Zero consequence with any combination of extent and duration

Table 24.3.4 Probability, confidence, reversibility and irreplaceability

Criteria	Rating	Description
Probability	Definite	>90% likelihood of the impact occurring
	Probable	70 – 90% likelihood of the impact occurring
	Possible	40 – 70% likelihood of the impact occurring
	Unlikely	<40% likelihood of the impact occurring
Confidence	Certain	Wealth of information on and sound understanding of the environmental factors potentially affecting the impact
	Sure	Reasonable amount of useful information on and relatively sound understanding of the environmental factors potentially influencing the impact
	Unsure	Limited useful information on and understanding of the environmental factors potentially influencing this impact
Reversibility	Reversible	The impact is reversible within 2 years after the cause or stress is removed
	Irreversible	The activity will lead to an impact that is in all practical terms permanent
Irreplaceability	Replaceable	The resources lost can be replaced to a certain degree
	Irreplaceable	The activity will lead to a permanent loss of resources.

Table 24.4 Conservation Value

Conservation Value		
Refers to the intrinsic value of the area or its relative importance towards the conservation of an ecosystem or species or even natural aesthetics. Conservation status is based on habitat function, its vulnerability to loss and fragmentation or its value in terms of the protection of habitat or species	Low 1	The area is transformed, degraded not sensitive (e.g. Least threatened), with unlikely possibility of species loss.
	Medium / Low 2	The area is in good condition but not sensitive (e.g. Least threatened), with unlikely possibility of species loss.
	Medium 3	The area is in good condition, considered vulnerable (threatened), or falls within an ecological support area or a critical biodiversity area, but with unlikely possibility of species loss.
	Medium / High 4	The area is considered endangered or, falls within an ecological support area or a critical biodiversity area, or provides core habitat for endemic or rare & endangered species.
	High 5	The area is considered critically endangered or is part of a proclaimed provincial or national protected area.

Table 24.5 Significance

Significance	Score	Description
Insignificant	4 - 22	There is no impact or the impact is insignificant in scale or magnitude as a result of low sensitivity to change or low intrinsic value of the site.
Low	23 - 36	An impact barely noticeable in scale or magnitude as a result of low sensitivity to change or low intrinsic value of the site, or will be of very short-term or is unlikely to occur. Impact is unlikely to have any real effect and no or little mitigation is required.
Medium / Low	37 - 45	Impact is of a low order and therefore likely to have little real effect. Mitigation is either easily achieved. Impacts may have medium to short term effects on the natural environment within site boundaries.
Medium	46 - 55	Impact is real, but not substantial. Mitigation is both feasible and fairly easily possible, but may require modification of the project design or layout. These impacts will usually result in medium to long term effect on the natural environment, within site boundary.
Medium High	56 - 63	Impact is real, substantial and undesirable, but mitigation is feasible. Modification of the project design or layout may be required. These impacts will usually result in medium to long-term effect on the natural environment, beyond site boundary within local area.
High	64 - 79	An impact of high order. Mitigation is difficult, expensive, time-consuming or some combination of these. These impacts will usually result in long-term change to the natural environment, beyond site boundaries, regional or widespread.
Unacceptable	80 - 100	An impact of the highest order possible. There is no possible mitigation that could offset the impact. The impact will result in permanent change. Very often these impacts cannot be mitigated and usually result in very severe effects, beyond site boundaries, national or international.

Table 24.6 Scoring system

Parameter	1	2	3	4	5
Conservation value Likelihood Duration Extent Severity	Low Unlikely Temporary Site specific Zero	Medium /Low Possible Short term Local Very low	Medium More possible Medium term Regional Low	Medium / High Probable Long term National Medium	High Definite Permanent International High

Significance = Conservation value (Likelihood + Duration + Extent + Severity)

24.7 Risk Matrix Methodology

RISK ASSESSMENT KEY (Referenced from DWA RISK-BASED WATER USE AUTHORISATION APPROACH AND DELEGATION GUIDELINES)

Negative Rating

TABLE 1- SEVERITY

How severe does the aspects impact on the environment and resource quality characterisitics (flow regime, water quality, geomorfology, biota, habitat)

Insignificant / non-harmful	1
Small / potentially harmful	2
Significant / slightly harmful	3
Great / harmful	4
Disastrous / extremely harmful and/or wetland(s) involved	5

Where "or wetland(s) are involved" it means

TABLE 2 – SPATIAL SCALE

How big is the area that the aspect is impacting on?

Area specific (at impact site)	1
Whole site (entire surface right)	2
Regional / neighbouring areas (downstream within quaternary catch	3
National (impacting beyond seconday catchment or provinces)	4
Global (impacting beyond SA boundary)	5

TABLE 3 – DURATION

How long does the aspect impact on the environment and resource quality?

One day to one month, PES, EIS and/or REC not impacted
One month to one year, PES, EIS and/or REC impacted but no change in status
One year to 10 years, PES, EIS and/or REC impacted to a lower status but can be improved over this period through mitigation
Life of the activity, PES, EIS and/or REC permanently lowered
More than life of the organisation/facility, PES and EIS scores, a E or F

TABLE 4 – FREQUENCY OF THE ACTIVITY

How often do you do the specific activity?

Annually or less	1
6 monthly	2
Monthly	3
Weekly	4
Daily	5

TABLE 5 – FREQUENCY OF THE INCIDENT/IMPACT

How often does the activity impact on the environment?

Almost never / almost impossible / >20%	1
Very seldom / highly unlikely / >40%	2
Infrequent / unlikely / seldom / >60%	3
Often / regularly / likely / possible / >80%	4
Daily / highly likely / definitely / >100%	5

TABLE 6 – LEGAL ISSUES

How is the activity governed by legislation?

No legislation	1
Fully covered by legislation (wetlands are legally governed)	5

Located within the regulated areas

TABLE 7 – DETECTION	
How quickly can the impacts/risks of the activity be observed on the environment (water resourc	
Immediately	
Without much effort	
Need some effort	
Remote and difficult to observe	
Covered	

TABLE 8: RATING CLASSES		
RATING	**CLASS**	**MANAGEMENT DESCRIPTION**
1 – 55	(L) Low Risk	Acceptable as is or consider requirement for mitigation. Impact to watercourses and resource quality small and easily mitigated. Wetlands may be excluded.
56 – 169	M) Moderate Risk	Risk and impact on watercourses are notably and require mitigation measures on a higher level, which costs more and
170 – 300	(H) High Risk	Always involves wetlands. Watercourse(s) impacts by the activity are such that they impose a long-term threat on a large scale
A low risk class must be obtained for all activities to be considered for a GA		

TABLE 9: CALCULATIONS

Consequence = Severity + Spatial Scale + Duration
Likelihood=Frequency of Activity + Frequency of Incident +Legal Issues + Detection
Significance \Risk= Consequence X Likelihood

Appendix 2:

Annexure 16

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Assessment of the impact of granite gravel mining on agricultural potential on Farm RE/227, Buffels Drift near George

Table of Contents

1 Introduction and brief

Johann Lanz was appointed to conduct a soil survey on Farm RE/227, Buffels Drift, near George. This assessment report uses data from the soil survey to determine gravel depths for suitability of mining and rehabilitation, to determine agricultural potential, to assess the impact of mining on that potential, and to provide recommended mitigation measures and rehabilitation guidelines for all the identified impacts caused by mining.

The soil investigation was conducted on 7 February 2020. A total of 6 test pits were investigated across the area. The location of the farm is shown in Figure 1 and the positions of test pits are shown in Figure 2.

Figure 1. *Location of the investigated farm.*

Figure 2. *Satellite image showing all investigated test pits (image date: 26/09/2019).*

2 Soils and agricultural potential

The geology of the area is mainly gneissic granite and granodiorite, as well as phyllite, schist, grit, hornfels and quartzite of the Kaaimans Group, and quartzitic sandstone of the Table Mountain Group, Cape Supergroup.

The soils and underlying weathered granite are very uniform across the investigated area. The soils are generally moderately shallow, with upper soil horizons of loamy-sand (10% clay content) on underlying weathered granite, with a thin, structured clay horizon between the sandy upper horizons and the weathered granite. They are mostly of the Estcourt 2200 soil family, as classified by the South African soil classification system, although they are transitional to Cartref soil form because the clay B horizon, that defines them as Estcourt is very thin. The depth below surface to the weathered granite varies between 60 and 70 cm. The weathered granite extends to at least the bottom of the test pits, which were approximately 5 metres deep.

Photographs of soils and site conditions are shown in Figures 3 to 5.

The soils are limited predominantly by their depth. They have a medium-high agricultural potential, and are rated 6 out of 10 according to the system used by Western Cape soil scientists. The land capability evaluation value of the area is predominantly 6 although it varies from 4 to 7. The site is suitable for planted pastures.

3 Agricultural land use

The proposed mining area is on land currently and historically used for planted perennial pastures.

Figure 3. *View of typical site conditions, looking down the slope of the proposed mining area.*

Figure 4. *View of test pit showing soil and gravel conditions, plus gravel heap.*

Figure 5. *The soil conditions of the investigated area.*

4 Identification and assessment of the impacts of mining on agricultural resources and production

Mining can have both direct and indirect impacts on agricultural potential. Direct impacts are those that change the soil potential on site in terms of growing agricultural crops. Indirect impacts are those that do not directly affect on-site crop growth, but that might impact the success of agricultural enterprises in the general area of the proposed mine.

4.1 Indirect impacts

The following potential indirect impacts are identified

4.1.1 Alteration of the agricultural sense of place

Mining is an intrusive activity of an industrial nature that, during its operational phase, can alter the agricultural sense of place in a farming area and impact on agritourism potential and therefore on the agricultural economy However the surrounding area considered in this report is in close proximity to various non-agricultural land uses and already has activities which include industry, the airport, mining, and battery chicken farming. It is not an area with high agritourism potential. Furthermore, the site itself is fairly low visibility from the surrounding area. The significance of this impact is therefore not likely to be high.

It is however very difficult to assess the significance of such impacts. An important indication of their significance would be provided by the response of neighbouring and surrounding land owners to the mining application.

The intrusive nature of mining may have some lifestyle impact on surrounding residents. However, the focus and defining question of an agricultural impact assessment is assessing the extent to which the development will cause a loss of future agricultural production. Such lifestyle impacts do not necessarily impact agricultural production and if they do not, are a social issue that is beyond the relevance and scope of an agricultural impact assessment, and should rather be addressed within a social impact assessment.

4.1.2 Dust deposition on surrounding crops

Mining can result in dust on surrounding crops. There are however not dust sensitive agricultural crops in close proximity. Dust should however still be mitigated by means of damping down surfaces when required. The significance of this impact is not high.

4.2 Direct impacts

Direct impacts are viewed in the context of the agricultural potential of the site, which is suitable for the cultivation of planted pastures.

Mining will change the existing soil profile through the removal of weathered granite material below the upper 60 to 70 cm. The impact of mining occurs by way of different identified mechanisms, listed below. All these mechanisms impact on the agricultural potential. For the purposes of this report, the overall impact, namely reduction in agricultural potential, as a result of the interaction of these different mechanisms, is assessed. Each mechanism is discussed below. Details of mitigation measures are provided in the following section.

The following direct impacts are identified.

4.2.1 Loss of agricultural land for duration of mining

All mining areas will be lost to agricultural production for the duration of mining activity on them. Given their use only as pastures, and the limited size of the area, the significance of this impact is low.

4.2.2 Reduction in soil depth

The mined material is sourced from below the existing root zone so its removal will not reduce the effective depth of the agricultural soil.

4.2.3 Impaired soil drainage resulting in water logging in potential root zone

In these soils, lateral water movement down-slope above the clay layer occurs periodically after significant rain. The mining process will not significantly affect this natural drainage. However, the creation of a damming effect against the bottom edge of the excavation will cause water logging in the potential root zone. Ensuring that the entire mining excavation is free-draining (recommended under mitigation, and included in mining plan in figure 6) will keep this impact of low significance.

4.2.4 Loss of topsoil and of topsoil fertility during mining and stockpiling

Poor topsoil management during mining may result in the loss of topsoil for rehabilitation through burial or erosion from stockpiles. Also, disturbance and dilution of topsoil with subsoil during stripping can cause loss of fertility as a result of reduced organic carbon and biological activity. The significance of this impact is highly dependent on the effectiveness of topsoil management during mining and during the rehabilitation phase.

4.2.5 Erosion

Downslope erosion during the operational phase can be caused by run-off accumulation from the mining excavations. When topsoil is re-spread, on completion of mining, the newly rehabilitated land will also be prone to erosion. Slopes are steep with high erosion risk. Mitigation of significant impact is highly dependent on effective erosion management during mining and during the rehabilitation phase.

4.2.6 Destruction of existing contour banks

The existing contour banks that have been constructed for erosion control will be destroyed during mining. Re-establishment of contour banks (as recommended under mitigation) will keep this impact of low significance.

4.2.7 The creation of uneven surfaces or steep slopes

Mining excavations can create an uneven surface or steep slopes (usually on the edge of the mining excavation) that would prevent or hinder future agricultural land use. The upper and side edges of the mining excavation will remain steep after mining (see Figures 6 and 7), but this will only affect a small area of land. On the rest of the site, this impact can be completely mitigated by effective levelling during rehabilitation.

4.2.8 Alien vegetation encroachment

Soil disturbance can result in alien vegetation encroachment after rehabilitation. This can be controlled with effective environmental management of alien removal.

4.2.9 Soil contamination due to fuel spills

The presence of heavy machinery in the mining area may result in contamination from fuel spills. This can be prevented or ameliorated with effective environmental spill management.

Mining Layout Plan: Located on the Remainder of Buffels Drift 227 (George RD)

Coordinate system/s:
Y & X - WG23 (m)
Lat & Long - WGS84 Decimal Degrees

ID	Y	X	Latitude	Longitude
1	61363.35	3763315.25	-33.995086	22.335829
2	61309.69	3763467.96	-33.996466	22.336399
3	61307.13	3763617.80	-33.997817	22.336416
4	61490.34	3763664.70	-33.998229	22.334430
5	61474.83	3763602.32	-33.997668	22.334602
6	61471.99	3763559.46	-33.997281	22.334636
7	61474.83	3763513.77	-33.996869	22.334609
8	61487.75	3763459.26	-33.996377	22.334473
9	61508.52	3763417.70	-33.996001	22.334251

Proposed mining permit area
Quarry slope (1:3)
Silt retention pond
Cadastral boundary
Cut-off drain & overflow
Access road
Witels River
Contour (5m interval)
Proposed mining permit area corner point

Date: March 2020
Aerial image: GoogleEarth
Boundary information:
SA Surveyor General
www.BoundaryHunter.co.za
Ryk Taljaard (PGP1440)

Mining area = 4.7319 ha

Figure 6. *The mining layout plan.*

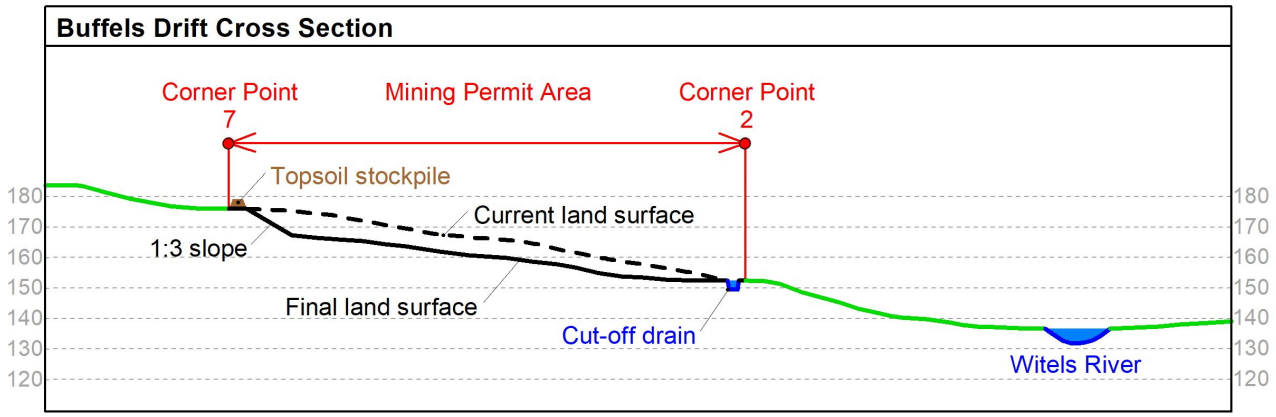

Figure 7. *Cross section of the proposed mine.*

5 Recommended mitigation and rehabilitation plan

A very important factor affecting the success of rehabilitation, and consequently the significance of all direct impacts, is the level of care that is taken to rehabilitate effectively. This is dependent on the level of environmental management of all mining activities that can impact on rehabilitation, both during the mining process and during the rehabilitation phase.

The following is the sequence of recommended rehabilitation steps:

1. Because the overburden above the mine-able gravel exceeds a thickness of 50cm, double stripping and stockpiling **must** be done to ensure that the topsoil remains separate from the underlying soil.
2. A depth of 40cm of topsoil must first be stripped and stockpiled.
3. Thereafter, any additional overburden (20 – 30 cm thickness) must be stripped and stockpiled **separately** from the topsoil stockpiles.
4. Topsoil is a valuable and essential resource for rehabilitation and it should therefore be managed carefully to conserve and maintain it throughout the stockpiling and rehabilitation processes.
5. Topsoil stockpiles should be protected against losses by water and wind erosion. Stockpiles should be positioned so as not to be vulnerable to erosion by wind and water. The establishment of plants (weeds or a cover crop) on the stockpiles will help to prevent erosion. Stockpiles should be no more than 2 metres high.
6. During mining, the outflow of run-off water from the mining excavation must be controlled to prevent any down-slope erosion. The cut-off drain included in the mining plan will serve this purpose.
7. To prevent damming of water in the mining excavation, free drainage from the excavation into the cut-off drain below, as indicated in Figures 6 and 7, must be ensured.

8. After mining, any steep slopes at the edges of excavations, must be reduced to the possible minimum. The upper and side edges will need to remain fairly steep at a slope of 1:3.
9. The stockpiled overburden (the layer taken from below the topsoil) must then be evenly spread over the entire mining area.
10. Thereafter, the stockpiled topsoil must be evenly spread on top of the overburden, across the entire mining area. The depth should be monitored during spreading to ensure that coverage is adequate and even.
11. The existing contour banks that have been destroyed must be re-established to similar specifications (height, slope, distance apart) as prior to disturbance, but also ensuring the integrity of the run-off system as a whole. This should be done to the satisfaction of a soil conservation specialist.
12. A cover crop must be planted and established immediately after the spreading of topsoil and the contour construction, to stabilise the soil and protect it from erosion. The cover crop should be fertilized for optimum biomass production, and any soil chemical deficiencies must be corrected, based on a chemical analysis of the re-spread soil. A chemical analysis from an agricultural laboratory will include a recommendation of the appropriate quantities of chemical ameliorants (for example lime, phosphate etc) that should be applied to optimize the soil chemistry for the relevant crop. It is important that rehabilitation is taken up to the point of cover crop stabilisation. Rehabilitation cannot be considered to be complete until the first cover crop is well established.
13. Special protective slope stabilizing measures to prevent erosion of the steep banks will need to be taken. These will probably need to include fixing horizontal logs and covering with netting.
14. The rehabilitated area must be monitored for erosion, and appropriately stabilised if any erosion occurs.
15. On-going alien vegetation control must keep the area free of alien vegetation after mining.

6 Conclusions

This assessment has found that there are adequate reserves of gravel on site for mining and rehabilitation. Soils are moderately deep, which results in medium-high agricultural potential. The site is suitable for cultivation of pastures.

There are both indirect and direct potential impacts of sand mining on agriculture. The indirect impacts are of low significance at this site:

1. Change to the agricultural sense of place, which can damage the agritourism potential of the area.
2. Dust deposition on surrounding crops.

The direct potential impact of mining on the land is to reduce its agricultural potential by way of different identified mechanisms:

1. Loss of agricultural land for duration of mining
2. Reduction in soil depth
3. Impaired soil drainage
4. Loss of topsoil and fertility during mining and stockpiling
5. Erosion
6. Destruction of existing contour banks
7. The creation of steep slopes and uneven surfaces
8. Alien vegetation encroachment
9. Soil contamination from fuel spills

Of the above the most important impacts are loss of topsoil and the creation of steep slopes.

Mitigation measures and a rehabilitation plan are provided in this report. Successful mitigation and rehabilitation of impacts is highly dependent on maintaining a sufficient level of environmental management. All the recommended steps must be well managed and effectively implemented in order for rehabilitation to be successful, especially ensuring double stripping and effective topsoiling.

If rehabilitation is successful, the land will retain a similar agricultural potential to what it was pre-mining. With effective mitigation, the reduction in agricultural potential is therefore assessed as having low significance. Without mitigation or with ineffective mitigation it can result in impacts of higher significance, that destroy agricultural potential.

Mine management must be held accountable for well managed and effectively implemented rehabilitation. The specific, measurable rehabilitation outcomes against which the effectiveness of completed rehabilitation must be measured are:

1. that the topography and soil surface has been sufficiently smoothed to allow cultivation;
2. that the slope has not been steepened anywhere by mining excavations to the extent that it is problematically steep for cultivation (except for the short section of steep slope along the upper and side boundaries);
3. that topsoil has been spread on the surface;
4. that there is a potential topsoil depth of 40 cm, which is suitable for root growth, across the entire mining area;
5. that the entire mining area is free draining;

6. that the pre-mining contour banks have been re-established to suitable specifications (height, slope, distance apart), and that the integrity of the contour bank system as a whole is in place;
7. that there is no visible erosion across the area, or down-slope of it as a result of mining, and that no part of the area has been left unacceptably vulnerable to erosion;
8. that a successful cover crop has been established across the entire area.

Johann Lanz (Pri. Sci. Nat.)
14 April 2020

Appendix 1: Positions of investigated test pits.

Test pit no.	GPS Position Lat/Lon hddd.ddddd° WGS84	
	latitude	longitude
1	-33.9963034820	22.3347898386
2	-33.9958900027	22.3354331497
3	-33.9960818645	22.3361762892
4	-33.9976313431	22.3360907100
5	-33.9980304893	22.3347283993
6	-33.9970242418	22.3353061639

Johann Lanz
Curriculum Vitae

Education

M.Sc. (Environmental Geochemistry)	University of Cape Town	1996 - 1997
B.Sc. Agriculture (Soil Science, Chemistry)	University of Stellenbosch	1992 - 1995
BA (English, Environmental & Geographical Science)	University of Cape Town	1989 - 1991
Matric Exemption	Wynberg Boy's High School	1983

Professional work experience

I have been registered as a Professional Natural Scientist (Pri.Sci.Nat.) in the field of soil science since 2012 (registration number 400268/12) and am a member of the Soil Science Society of South Africa.

Soil & Agricultural Consulting **Self employed** **2002 - present**

In the past 5 years of running my soil and agricultural consulting business, I have completed more than 120 agricultural assessments (EIAs, SEAs, EMPRs) in all 9 provinces for renewable energy, mining, urban, and agricultural developments. My regular clients include: Aurecon; CSIR; SiVEST; Arcus; SRK; Environamics; Royal Haskoning DHV; Jeffares & Green; JG Afrika; Juwi; Mainstream; Redcap; G7; Mulilo; and Tiptrans. Recent agricultural clients for soil resource evaluations and mapping include Cederberg Wines; Western Cape Department of Agriculture; Vogelfontein Citrus; De Grendel Estate; Zewenwacht Wine Estate; and Goedgedacht Olives.

In 2018 I completed a ground-breaking case study that measured the agricultural impact of existing wind farms in the Eastern Cape.

Soil Science Consultant **Agricultural Consultors International (Tinie du Preez)** **1998 - 2001**

Responsible for providing all aspects of a soil science technical consulting service directly to clients in the wine, fruit and environmental industries all over South Africa, and in Chile, South America.

Contracting Soil Scientist **De Beers Namaqualand Mines** **July 1997 - Jan 1998**

Completed a contract to advise soil rehabilitation and re-vegetation of mined areas.

Publications

- Lanz, J. 2012. Soil health: sustaining Stellenbosch's roots. In: M Swilling, B Sebitosi & R Loots (eds). *Sustainable Stellenbosch: opening dialogues*. Stellenbosch: SunMedia.
- Lanz, J. 2010. Soil health indicators: physical and chemical. *South African Fruit Journal*, April / May 2010 issue.
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- Lanz, J. 2005. Special Report: Soils and wine quality. *Wineland Magazine.*
  I am a reviewing scientist for the *South African Journal of Plant and Soil*.

DECLARATION OF THE SPECIALIST

Note: Duplicate this section where there is more than one specialist.

I, **Johann Lanz**, as the appointed Specialist hereby declare/affirm the correctness of the information provided or to be provided as part of the application, and that I:

- in terms of the general requirement to be independent:
  - other than fair remuneration for work performed/to be performed in terms of this application, have no business, financial, personal or other interest in the activity or application and that there are no circumstances that may compromise my objectivity; or
  - am not independent, but another specialist that meets the general requirements set out in Regulation 13 have been appointed to review my work (Note: a declaration by the review specialist must be submitted);
- in terms of the remainder of the general requirements for a specialist, am fully aware of and meet all of the requirements and that failure to comply with any the requirements may result in disqualification;
- have disclosed/will disclose, to the applicant, the Department and interested and affected parties, all material information that have or may have the potential to influence the decision of the Department or the objectivity of any report, plan or document prepared or to be prepared as part of the application;
- have ensured/will ensure that information containing all relevant facts in respect of the application was/will be distributed or was/will be made available to interested and affected parties and the public and that participation by interested and affected parties was/will be facilitated in such a manner that all interested and affected parties were/will be provided with a reasonable opportunity to participate and to provide comments;
- have ensured/will ensure that the comments of all interested and affected parties were/will be considered, recorded and submitted to the Department in respect of the application;
- have ensured/will ensure the inclusion of inputs and recommendations from the specialist reports in respect of the application, where relevant;
- have kept/will keep a register of all interested and affected parties that participate/d in the public participation process; and
- am aware that a false declaration is an offence in terms of regulation 48 of the 2014 NEMA EIA Regulations.

Note: The terms of reference of the review specialist must be attached.

Signature of the specialist: 

Name of company: **Johann Lanz – soil scientist (sole proprietor)**

Date: **6 October 2020**

Appendix 5: Screening tool site sensitivity verification and analysis

The screening tool report was generated by Klipberg Consulting on 28 August 2020. As required in Regulation 16 (v) of the EIA Regulations, 2014 (as amended) the screening tool report accompanied the application for environmental authorisation that was submitted to the Competent Authority.

An analysis of the results of the screening tool report is presented in the following tables:

Table 1: Relevant development incentives, restrictions, exclusions or prohibitions

Relevant development incentives, restrictions, exclusions or prohibitions	Implications and applicability to this process.
South African Conservation Areas (i.e. falls within the Garden Route Biosphere Reserve)	The site is located on transformed agricultural land The Garden Route Biosphere Reserve has been consulted.

Table 2: Analysis of the results of the screening tool report

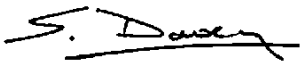
Theme Sensitivity	Feature (s)	Implications and applicability to this process.
Agriculture: High	Annual Crop Cultivation / Planted Pastures Rotation; Land capability; 01. Very low/02. Very low/03. Low-Very low/04. Low-Very low/05. Low. Land capability;0 6. Low-Moderate/07. Low-Moderate/08. Moderate.	A specialist agricultural impact assessment report was prepared **(see Appendix 2)**. The significance of the impact of the activity on the agricultural potential of the land was assessed to be 'low' as long as the recommended mitigation measures were complied with.
Animal species: Medium	Insects *Lepidochrysops littoralis* *Thestor barbatus* *Aloeides thyra orientis* *Aloeides trimeni southeyae*	Not relevant as the area is used for agricultural activities. Due to the vibrations and noise smaller animals will move away when mining operations are in progress. The sensitivity with respect to animal species is 'low'.
Aquatic biodiversity: V. high	Strategic water source area	Strategic Water Source Areas (SWSAs) are described in the Water Research Commission Report No. TT743/1/18 (Le Maitre et al. 2018). These are divided into surface water (sw) and

Theme Sensitivity	Feature (s)	Implications and applicability to this process.
		groundwater (gw) sources. The application area falls with a large area delineated in the WRC report as the Outeniqua SWSA-sw. This is 3005 km^2 in extent and stretches from George all the way passed Plettenberg Bay. The area has not been delineated by the WRC Study as a SWSA-gw for ground water. The Site Sensitivity Verification was undertaken by a freshwater specialist **(see Appendix 3)** and it was confirmed that the site had a 'low' sensitivity with respect to aquatic biodiversity.
Archaeological and Cultural Heritage: ……..High	Within 500 m of an important river.	A NID was submitted to HWC. HWC has confirmed that no further studies are required. The sensitivity of the site is 'low' with respect to heritage resources.
Civil aviation: Very High	Within 15 km of a civil aviation radar Within 5 km of an air traffic control or navigation site Within 8 km of a major civil aviation aerodrome.	The proposed activity will have no impact on airspace. The sensitivity with respect to civil aviation is 'low'.
Plant species: Medium	Listing of various sensitive plant species in the screening tool report.	The site has been transformed by farming activities The sensitivity with respect to plant species is 'low'. This was verified by Dr van Driel **(see Appendix 3)**.
Defence: Low	Low sensitivity	Noted.

Theme Sensitivity	Feature (s)	Implications and applicability to this process.
Terrestrial biodiversity: Very high	Endangered ecosystem Strategic Water Source Area	There are no mapped CBAs or ESAs on the site. The original natural vegetation was cleared by farming activity many years ago. The sensitivity of the site with respect to terrestrial biodiversity is 'low' and this was confirmed by Dr van Driel **(see Appendix 3)**.

The site verification for the Agriculture, Plant Species, Aquatic Biodiversity and Terrestrial Biodiversity themes was undertaken by SACNASP registered specialists.

I confirm that I have undertaken a comprehensive site verification of the remainder of the above themes and the actual site sensitivity for these themes is 'low'.

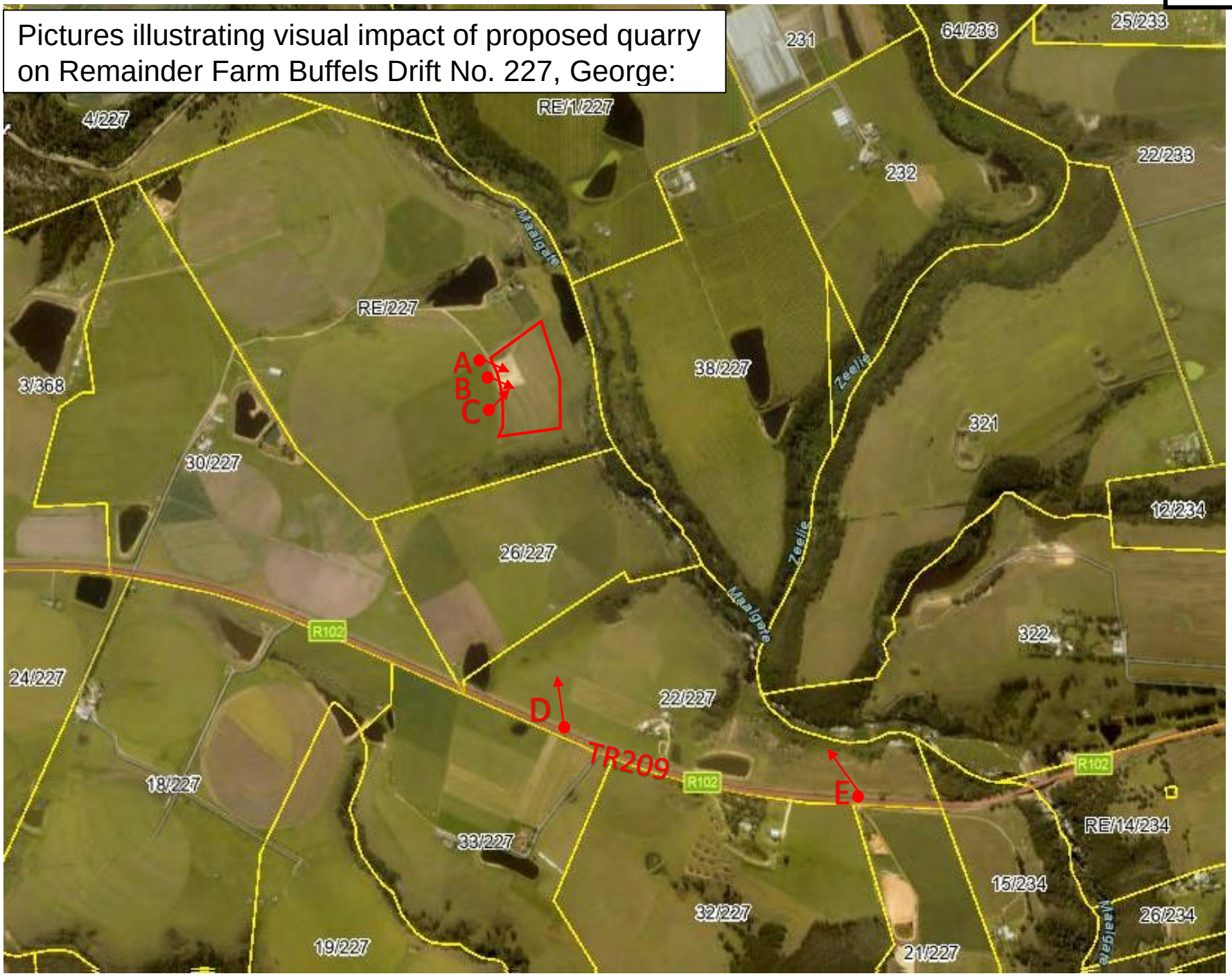


Stephen Davey
Registered EAP (2019/159

Registered SACNASP (40087/88)
Pr. Sci. Nat
(a registered natural scientist since 1988)

ANNEXURE 18

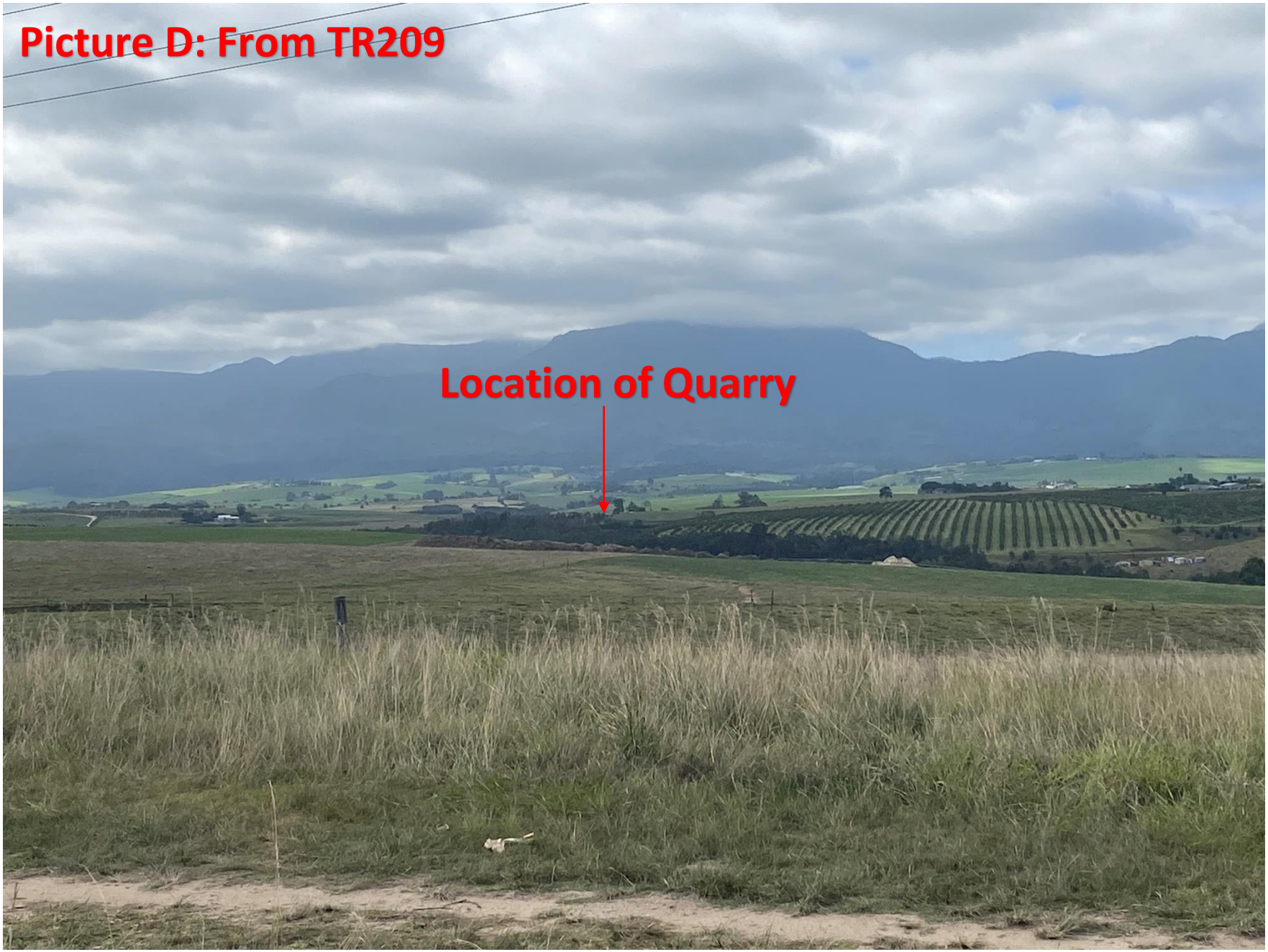
Pictures illustrating visual impact of proposed quarry on Remainder Farm Buffels Drift No. 227, George:

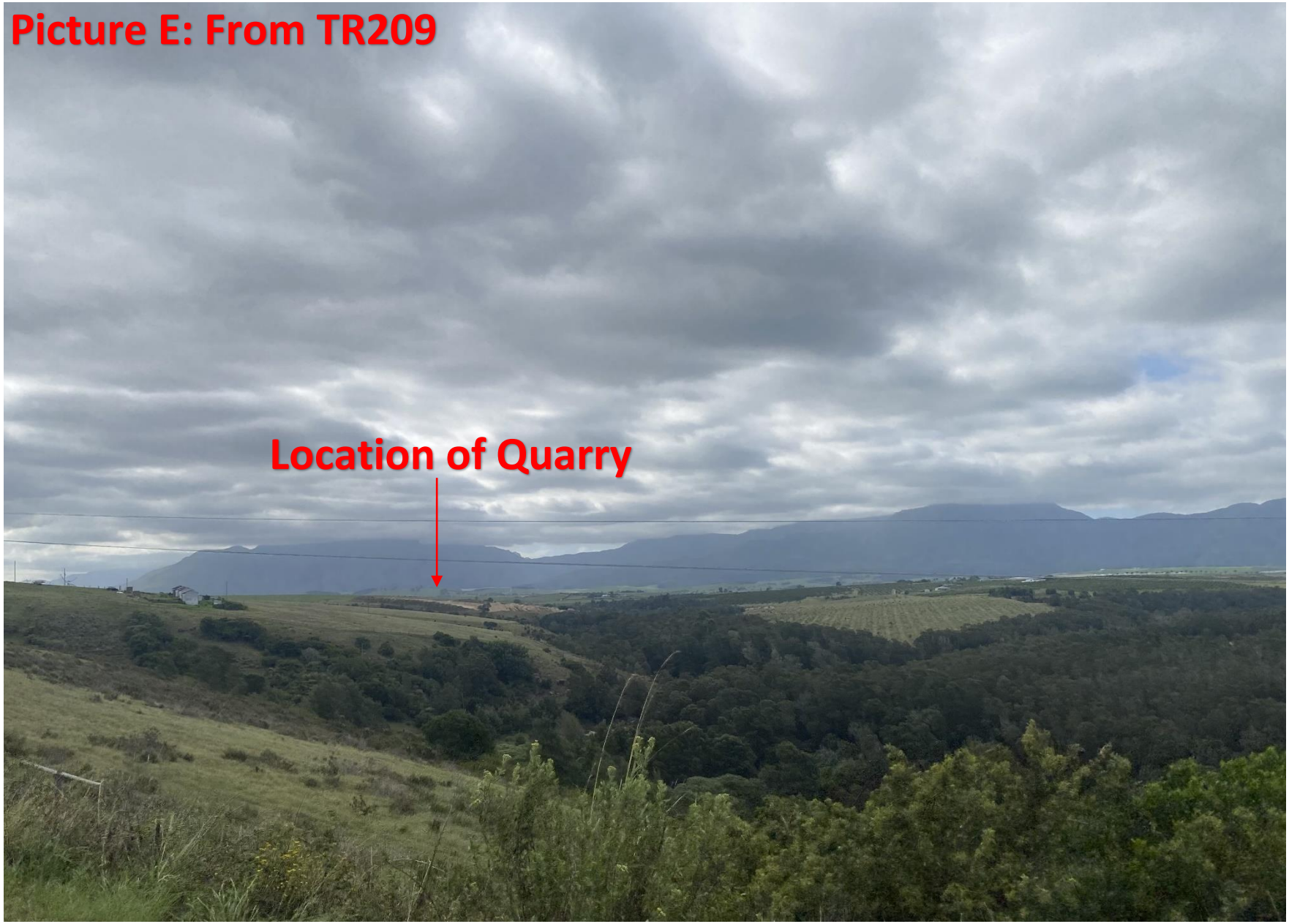


Picture A: From Site


Picture B: From Site


Picture C: From Site


Picture D: From TR209
Location of Quarry


Picture E: From TR209
Location of Quarry

Annexure 19

Planning and Development
E-mail: town.planning.application@george.gov.za
Tel: +27 (0)44 801 9477

LAND USE PLANNING PRE-APPLICATION CONSULTATION FORM

PLEASE NOTE:

Pre-application consultation is an advisory session and is required prior to submission of an application for rezoning, consent use, temporary departure and subdivision. It does not in any way pre-empt the outcome of any future application which may be submitted to the Municipality.

PART A: PARTICULARS

Reference number: __ **3488547**_____

Purpose of consultation: **Pre-Application**_____

Brief proposal: **Consent Use for a Quarry**_____

Property(ies) description: **Remainder Farm Buffels Drift No. 227, George.**_____

Date: **12/11/2024**_____

Attendees:

	Name & Surname	Organisation	Contact Number	E-mail
Official	**Martin Botha**	**George Mun.**	**044 801 9191**	**pmbotha@george.gov.za**
	Naudica Swanepoel	**George Mun.**	**044 801 9138**	**nswanepoel@george.gov.za**
Pre-applicant	**Alexander Havenga**	**Nel & de Kock Town and Regional Planners**	**044 874 5207**	**neldek@mweb.co.za**

Documentation provided for discussion:

(Include document reference, document/plan dates and plan numbers where possible and attach to this form)

Title Deed No. T7794/93;

SG Diagram No. 8978/59;

Locality Map;

Site Development Plan;

Mining Permit which is currently being renewed for a second year period; and

Environmental Authorisation.

Has pre-application been undertaken for a Land Development application with the Department of Environmental Affairs & Development Planning (DEA&DP)? *(If so, please provide a copy of the minutes)*	**NO**

Comprehensive overview of proposal:

Application is being made for a consent use in terms of Section 15.(2)(o) of the By-Law on Municipal Land Use Planning of George Municipality, 2023, for a quarry in order to permit the owner to extract aggregate, stone and gravel from Remainder Farm Buffels Drift No. 227, George.

PART C: QUESTIONNAIRES

SECTION A:
DETERMINATION OF APPLICATION TYPES, PRESCRIBED NOTICE AND ADVERTISEMENT PROCEDURES

Tick if relevant		What land use planning applications are required?	Application fees payable
	2(a)	a rezoning of land;	R
	2(b)	a permanent departure from the development parameters of the zoning scheme;	R
	2(c)	a departure granted on a temporary basis to utilise land for a purpose not permitted in terms of the primary rights of the zoning applicable to the land;	R
	2(d)	a subdivision of land that is not exempted in terms of section 24, including the registration of a servitude or lease agreement;	R
	2(e)	a consolidation of land that is not exempted in terms of section 24;	R
	2(f)	a removal, suspension or amendment of restrictive conditions in respect of a land unit;	R
	2(g)	a permission required in terms of the zoning scheme;	R
	2(h)	an amendment, deletion or imposition of conditions in respect of an existing approval;	R
	2(i)	an extension of the validity period of an approval;	R
	2(j)	an approval of an overlay zone as contemplated in the zoning scheme;	R
	2(k)	an amendment or cancellation of an approved subdivision plan or part thereof, including a general plan or diagram;	R
	2(l)	a permission required in terms of a condition of approval;	R

	2(m)	A determination of a zoning;	R
	2(n)	A closure of a public place or part thereof;	R
X	**2(o)**	**a consent use contemplated in the zoning scheme;**	**R9 510**
	2(p)	an occasional use of land;	R
	2(q)	to disestablish a home owner's association;	R
	2(r)	to rectify a failure by a home owner's association to meet its obligations in respect of the control over or maintenance of services;	R
	2(s)	a permission required for the reconstruction of an existing building that constitutes a non-conforming use that is destroyed or damaged to the extent that it is necessary to demolish a substantial part of the building	R
Tick if relevant		**What prescribed notice and advertisement procedures will be required?**	**Advertising fees payable**
Y	N	Serving of notices (i.e. registered letters etc.)	R
Y	N	Publication of notices (i.e. Provincial Gazette, Local Newspaper(s) etc.)	R
Y	N	Additional publication of notices (i.e. Site notice, public meeting, local radio, website, letters of consent etc.)	R
Y	N	Placing of final notice (i.e. Provincial Gazette etc.)	R
		TOTAL APPLICATION FEE* (VAT excluded):	**TBC following submission of application**

PLEASE NOTE: * *Application fees are estimated on the information discussed and are subject to change with submission of the formal application and/or yearly application fee increase.*

SECTION B:

PROVISIONS IN TERMS OF THE RELEVANT PLANNING LEGISLATION / POLICIES / GUIDELINES

QUESTIONS REGARDING PLANNING POLICY CONTEXT	YES	NO	TO BE DETERMINED	COMMENT
Is any Municipal Integrated Development Plan (IDP)/Spatial Development Framework (SDF) and/or any other Municipal policies/guidelines applicable? If yes, is the proposal in line with the aforementioned documentation/plans?			**X**	**Motivate in application**
Any applicable restrictive condition(s) prohibiting the proposal? If yes, is/are the condition(s) in favour of a third party(ies)? [List condition numbers and third party(ies)]			**X**	**Submit Conveyancer's Certificate**
Any other Municipal by-law that may be relevant to application? (If yes, specify)		**X**		
Zoning Scheme Regulation considerations: Which zoning scheme regulations apply to this site? **Agriculture**_____ What is the current zoning of the property? **Agricultural Zone I**_____ What is the proposed zoning of the property? **Agricultural Zone I** _____				

Does the proposal fall within the provisions/parameters of the zoning scheme? **Yes**_____ Are additional applications required to deviate from the zoning scheme? (if yes, specify) **No.**_____	

QUESTIONS REGARDING OTHER PLANNING CONSIDERATIONS	YES	NO	TO BE DETERMINED	COMMENT
Is the proposal in line with the Provincial Spatial Development Framework (PSDF) and/or any other Provincial bylaws/policies/guidelines/documents?			**X**	
Are any regional/district spatial plans relevant? If yes, is the proposal in line with the document/plans?			**X**	

SECTION C:

CONSENT / COMMENT REQUIRED FROM OTHER ORGANS OF STATE

OUESTIONS REGARDING CONSENT / COMMENT REQUIRED	YES	NO	TO BE DETERMINED	OBTAIN APPROVAL / CONSENT / COMMENT FROM:
Is/was the property(ies) utilised for agricultural purposes?	**X**			Western Cape Provincial Department of Agriculture
Will the proposal require approval in terms of Subdivision of Agricultural Land Act, 1970 (Act 70 of 1970)?		**X**		National Department of Agriculture
Will the proposal trigger a listed activity in terms of National Environmental Management Act, 1998 (Act 107 of 1998) (NEMA)?	**X**			Western Cape Provincial Department of Environmental Affairs & Development Planning (DEA&DP)
Will the proposal require authorisation in terms of Specific Environmental Management Act(s) (SEMA)? (National Environmental Management: Protected Areas Act, 2003 (Act 57 of 2003) (NEM:PAA) / National Environmental Management: Biodiversity Act, 2004 (Act 10 of 2004) (NEM:BA) / National Environmental Management: Air Quality Act, 2004 (Act 39 of 2004) (NEM:AQA) / National Environmental Management: Integrated Coastal Management Act, 2008 (Act 24 of 2008) (NEM:ICM) / National Environmental Management: Waste Act, 2008 (Act 59 of 2008) (NEM:WA) (strikethrough irrelevant)			**X**	National Department of Environmental Affairs (DEA) & DEA&DP
Will the proposal require authorisation in terms of the National Water Act, 1998 (Act 36 of 1998)?			**X**	National Department of Water & Sanitation (DWS)
Will the proposal trigger a listed activity in terms of			**X**	South African

OUESTIONS REGARDING CONSENT / COMMENT REQUIRED	YES	NO	TO BE DETERMINED	OBTAIN APPROVAL / CONSENT / COMMENT FROM:
the National Heritage Resources Act, 1999 (Act 25 of 1999)?				Heritage Resources Agency (SAHRA) & Heritage Western Cape (HWC)
Will the proposal have an impact on any National or Provincial roads?	X			National Department of Transport / South Africa National Roads Agency Ltd. (SANRAL) & Western Cape Provincial Department of Transport and Public Works (DTPW)
Will the proposal trigger a listed activity in terms of the Occupational Health and Safety Act, 1993 (Act 85 of 1993): Major Hazard Installations Regulations		X		National Department of Labour (DL)
Will the proposal affect any Eskom owned land and/or servitudes?	X			Eskom
Will the proposal affect any Telkom owned land and/or servitudes?		X		Telkom
Will the proposal affect any Transnet owned land and/or servitudes?		X		Transnet
Is the property subject to a land / restitution claims?		X		National Department of Rural Development & Land Reform
Will the proposal require comments from SANParks and/or CapeNature?		X		SANParks / CapeNature
Will the proposal require comments from DEFF?			X	Department of Environment, Forestry and Fishery
Is the property subject to any existing mineral rights?	X			National Department of Mineral Resources
Does the proposal lead to densification to such an extent that the number of schools, healthcare facilities, libraries, safety services, etc. In the area may be impacted on? (strikethrough irrelevant)		X		Western Cape Provincial Departments of Cultural Affairs & Sport (DCAS), Education, Social Development, Health and Community Safety

SECTION D:

SERVICE REQUIREMENTS

DOES THE PROPOSAL REQUIRE THE FOLLOWING ADDITIONAL INFRASTRUCTURE / SERVICES?	YES	NO	TO BE DETERMINED	OBTAIN COMMENT FROM: (list internal department)
Electricity supply:			**X**	Directorate: Electro-technical Services
Water supply:			**X**	Directorate: Civil Engineering Services
Sewerage and waste water:			**X**	Directorate: Civil Engineering Services
Stormwater:			**X**	Directorate: Civil Engineering Services
Road network:			**X**	Directorate: Civil Engineering Services
Telecommunication services:			**X**	
Other services required? Please specify.			**X**	
Development charges:			**X**	

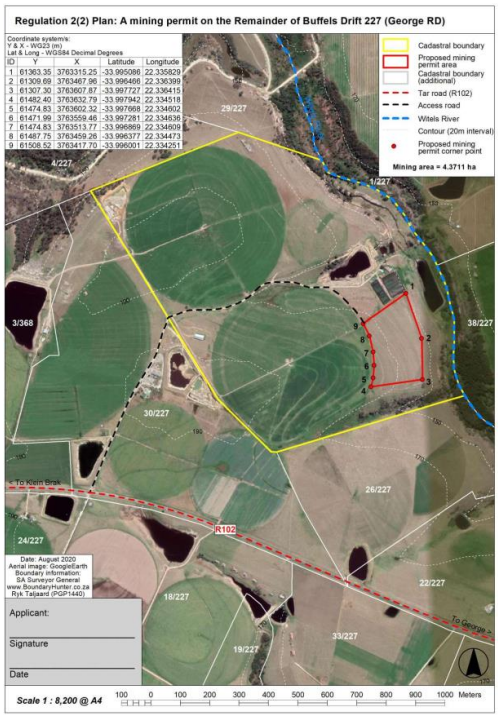
PART D: COPIES OF PLANS / DOCUMENTS TO BE SUBMITTED AS PART OF THE APPLICATION

COMPULSORY INFORMATION REQUIRED:						
Y	N	Power of Attorney / Owner's consent if applicant is not owner (if applicable)		**Y**	N	S.G. noting sheet extract / Erf diagram / General Plan
Y	N	Motivation report / letter		**Y**	N	Full copy of the Title Deed
Y	N	Locality Plan		**Y**	N	Site Layout Plan
Y	N	Proof of payment of fees		Y	**N**	Bondholder's consent
MINIMUM AND ADDITIONAL REQUIREMENTS:						
Y	N	Site Development Plan		**Y**	N	Conveyancer's Certificate
Y	N	Land Use Plan		Y	**N**	Proposed Zoning plan
Y	**N**	Phasing Plan		Y	**N**	Consolidation Plan
Y	**N**	Abutting owner's consent		Y	**N**	Landscaping / Tree Plan
Y	**N**	Proposed Subdivision Plan (including street names and numbers)		**Y**	N	Copy of original approval letter
Y	**N**	Services Report or indication of all municipal services / registered servitudes		Y	**N**	Home Owners' Association consent
Y	N	Copy of Environmental Impact Assessment (EIA) / Heritage Impact Assessment (HIA) / Traffic Impact Assessment (TIA) / Traffic Impact Statement (TIS) / Major Hazard Impact Assessment (MHIA) / Environmental Authorisation (EA) / Record of Decision (ROD) (strikethrough irrelevant)		Y	**N**	1 : 50 / 1:100 Flood line determination (plan / report)
Y	N	Other (specify)		Y	**N**	Required number of documentation copies

PART E: DISCUSSION

Town Planning:

The attached documents and plan to the right, were discussed.



- The application must be motivated in terms of the relevant legislation (SPLUMA, LUPA, PSDF, Rural Areas Guidelines, and George MSDF).
- Please take note of and address the impact of the proposal on the existing waterbodies on the site.
- Address the impact of the proposal on the primary land use (agriculture).
- Address the impact of the proposal in relation to the land uses in the surrounding area.
- The Department of Environmental Affairs and Development Planning (EIA and Planning respectively) must also comment on the application.
- The visual impact must be addressed.
- The renewed mining permit needs to be obtained prior to and submitted with the land use application.
- The relevant Environmental Authorization needs to be obtained prior to and submitted with the land use application.
- The relevant Environmental Management Programme must accompany the application.
- Validity period of the land use approval, if so granted, will be in line with the mining permit period.

CES:

Access:

- Access approval required from the applicable Road authority, who may require a Traffic Impact Assessment.
- Possible requirement of access servitudes will be the responsibility of the developer.

Parking:

- All parking must be provided on-site, in accordance with the parking requirements as specified in the GIZS 2023 parking tables (Note PT1 ratios can be applied).
- No parking is allowed within the road reserve, and the owner may be held liable for any costs associated with preventing parking in the road reserve.

Development Charges (DCs):

- Normal Development Charges (DCs) will apply in accordance with the DC policy and the Town Planning By-law.

Water and Sewer:

- No municipal water and/or sewer extend up to the area. Developer to make provision for these services.

Stormwater:

- The developer must comply with the relevant Stormwater By-law.

ETS:

The property is in an Eskom Supply Area. Applicant to liaise directly with Eskom.

PART F: SUMMARY / WAY FORWARD

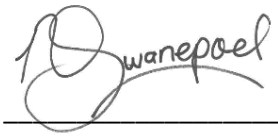
The land use application may proceed subject to Part E above.

OFFICIAL: Martin Botha PRE-APPLICANT: Alexander Havenga

SIGNED:  SIGNED: 

DATE: 26 November 2024 DATE: 12 November 2024

OFFICIAL: Naudica Swanepoel

SIGNED: 

DATE: **26 November 2024**

**Please note that the above comments are subject to the documents and information available to us at the time of the pre-application meeting and we reserve our rights to elaborate on this matter further and/or request more information/documents should it be deemed necessary.*