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# Final Basic Assessment Report

## Proposed extension of pit on Portion 21 of Farm Waaifontein 301, KwaZulu-Natal

Version - **Final**

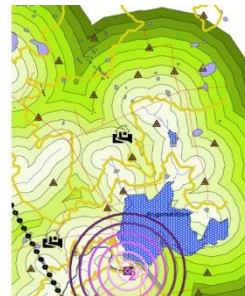
November 2022

Applicant: Stonewell Quarry CC

GCS Project Number: 22-0864

Mining Right: KZN 30/5/1/2/2/155 MR

DMRE SAMRAD Ref No: KZN-00047-MR/102






## Final Basic Assessment Report

Proposed extension of pit on Portion 21 of Farm Waaifontein 301, KwaZulu-Natal

November 2022

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**After placing the report for public review, a Heritage Desktop Study was undertaken by Umlando Archaeological Surveys and Heritage Management. This study confirmed that no heritage sites are known to occur in the study area, nor were any noted from the historical maps. The specialist recommended that the project be exempt from any further heritage mitigation, and that a Paleontological Impact Assessment be undertaken, in line with the recommendations of the EAP made in the DBAR.**

## EXECUTIVE SUMMARY

Stonewell Quarry CC (Stonewell) is a dolerite quarry located approximately 5.6km southeast of Kokstad, KwaZulu-Natal on Portion 21 of Farm Waaifontein No 301 (as indicated in Figure 1-1 and Figure 1-2). The site has been in operation since 2001. The current mining area is located in the north-western corner of the property and is approximately 15.5ha in extent. Due to a depletion of resources in the current pit, Stonewell wishes to extend the footprint of the current pit by approximately 4.58 ha. The proposed Section 102 area will be an additional 31 ha, resulting in a total area of 46.4ha. The extension of the pit is located on the same property, and will be in a south-easterly direction, up the slope of the hill in the same direction as the current pit was mined out, with an area of approximately 4.58ha. This activity triggers the need to amend its current approved Environmental Authorisation (EA) to make provision for the increase in mining area, within its existing approved MR area.

An application in terms of Section 102 of the MPRDA is therefore required. This application was submitted to the Department of Mineral Resources and Energy (DMRE) on 9 June 2022 (Appendix A). An application for EA in terms of the National Environmental Management Act (Act 107 of 1998) (NEMA): Environmental Impact Assessment Regulations (2014) as amended (EIA Regulations) is also required. The application was submitted to the DMRE on 29 October 2022 (Appendix A).

## NEED AND DESIRABILITY

Stonewell Quarry is an existing operation, with an established client base. Due to the depletion of the resource in the current area, the pit needs to be extended in order to meet the needs to the existing client demands. It has been recommended that the MR area be extended to incorporate all of the associated infrastructure of the operation, to streamline the provision and associated activities for closure of the site when required.

## LISTED ACTIVITIES

Listed activities in terms of the 2014 NEMA EIA regulations, as amended:

Notice	Activity	Description of related activity	Applicability
1	21D	Any activity including the operation of the that activity which requires an amendment or variation to a right or permit in terms of section 102 of the Mineral and Petroleum Resources Development Act, as well as any other applicable activity contained in this Listing Notice or in Listing Notice 3 of 2014, required for such amendment.	An application in terms of Section 102 of the MPRDA is required to amend the mining area.
1	27	The clearance of an area of 1 hectares or more, but less than 20 hectares of indigenous vegetation, except where such clearance of	The proposed extension of the pit will be approximately 4.58ha.

Notice	Activity	Description of related activity	Applicability
		indigenous vegetation is required for— i. the undertaking of a linear activity; or ii. maintenance purposes undertaken in accordance with a maintenance management plan.	

## **CONCLUSIONS**

The EAP is confident that all major impacts associated with the proposed pit extension have been adequately described and mitigated. In the impact assessment, consideration has been given to the medium-term duration of the proposed operation, and the localised nature of the potential impacts.

In light of the above, and given the generally medium-low impacts associated with the proposed mine, as well as the strict implementation of the proposed mitigation measures including those in the detailed EMPr (Appendix J), the EAP is confident that the project can proceed without significant impact on the receiving environment.

## **PUBLIC CONSULTATION**

The Draft Basic Assessment Report was made available to all registered I&APs for public review and comment from **17 October 2022** (comment period ending **16 November 2022**). I&AP's were notified of the availability of the report. Copies were available for download from the GCS website: [www.gcs-sa.biz](http://www.gcs-sa.biz), and a hard copy was available for viewing at the quarry's security offices at the entrance to the site. The only comments received during this period were from the Department of Agriculture, Land Reform and Rural Development (DALRRD) confirming there were no land claims against the property.

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## ACRONYMS AND ABBREVIATIONS

BA	Basic Assessment
BP	Best Practice
CA	Competent Authority
CARA	Conservation of Agricultural Resources Act, 1983 (Act No. 43 of 1983)
CRR	Comments and Responses Report
CV	Curriculum Vitae
DALRRD	Department of Agriculture, Land Reform and Rural Development
DBAR	Draft Basic Assessment Report
DFFE	Department of Forestry and Fisheries and Environment
DMRE	Department of Mineral Resources and Energy
DWS	Department of Water and Sanitation
EA	Environmental Authorisation
EAP	Environmental Assessment Practitioner
ECA	Environment Conservation Act, 1989 (Act No. 73 of 1989)
EIA	Environmental Impact Assessment
EIA Regulations	Environmental Impact Assessment (EIA) Regulations: GNR 982, 983, 984 and 985 in GG 38282 of 4 December 2014, as amended
EMPr	Environmental Management Programme
EO	Environmental Officer
FBAR	Final Basic Assessment Report
Financial Provisioning Regulations	GN R1147 in Government Gazette 39425, 20 November 2015, as amended
GCS	GCS Water and Environmental Consultants (Pty) Ltd
GNR	Government Notice Regulation
GPS	Global Positioning System
ha	Hectares
HSA	Hazardous Substance Act (Act No. 15 of 1973)
I&AP	Interested and Affected Party
IDP	Integrated Development Plan
LOM	Life of Mine
mamsl	Metres above mean sea level
MHSA	Mine Health and Safety Act (Act No. 29 of 1996)
MPRDA	Mineral and Petroleum Resources Development Act, 2002
MR	Mining Right
NCR	Noise Control Regulations
NEMA	National Environmental Management Act, 1998 (Act No. 107 of 1998)
NEM:AQA	National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004), as amended
NEM: BA	National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004)

NEM:WA	National Environmental Management: Waste Act, 2008 (Act No.59 of 2008), as amended
NFA	National Forests Act, No 84 of 1998
NFEPA	National Freshwater Ecosystem Priority Area
NGO	Non-Governmental Organisation
NHRA	National Heritage Resources Act, 1999 (Act No. 25 of 1999)
NVFFA	National Veld and Forest Fire Act (Act 101 of 1998)
NWA	National Water Act, 1998 (Act No. 36 of 1998)
OHSA	Occupational Health and Safety Act, 1993 (Act No. 85 of 1993)
PIA	Palaeontological Impact Assessment
PPP	Public Participation Process
The Protocols	Procedures for the Assessment and Minimum Criteria for Reporting on Identified Environmental Themes in terms of Sections 24(5)(a) and (h) and 44 of the NEMA (GN R320 of 20 March 2020)
SAHRA	South African Heritage Resources Agency
SANBI	South African National Biodiversity Institute
SANS	South African National Standards
SAPS	South African Police Services
SDF	Spatial Development Framework
SEIA	Scoping and Environmental Impact Assessment
Stonewell	Stonewell Quarry CC
SWMP	Stormwater Management Plan
WMA	Water Management Area

## STRUCTURE AND CONTENT OF THIS REPORT

The contents of an environmental impact assessment report are required to contain information as outlined in Table 0-1-1 below. These requirements are regulated under Appendix 1, Regulation 19 of GNR 326 (2014, as amended).

**Table 0-1-1: Contents of a Basic Assessment Report (BAR)**

CONTENTS OF THE BAR	SECTION IN THIS REPORT
(a) Details of - <ol style="list-style-type: none"> <li>i. The EAP who prepared the report; and</li> <li>ii. The expertise of the EAP, including a curriculum vitae</li> </ol>	Section 1.3 Appendix C
(b) The location of the activity, including - <ol style="list-style-type: none"> <li>i. The 21 digit Surveyor General code for each cadastral land parcel;</li> <li>ii. Where available, the physical address and farm name;</li> <li>iii. Where the required information in terms of (i) and (ii) is not available, the coordinates of the boundary of the property or properties</li> </ol>	Section 2.3
(c) A plan which locates the proposed activity or activities applied for at an appropriate scale, or, if it is - <ol style="list-style-type: none"> <li>i. A linear activity, a description and coordinates of the corridor in which the proposed activity or activities is to be undertaken; or</li> <li>ii. On land where the property has not been defined, the coordinates within which the activity is to be undertaken</li> </ol>	Section 2.2 Figure 2-2
(d) A description of the scope of the proposed activity, including - <ol style="list-style-type: none"> <li>i. All listed and specified activities triggered and being applied for; and</li> <li>ii. A description of the activities to be undertaken, including associated structures and infrastructure</li> </ol>	Table 3-4 Section 2.1
(e) A description of the policy and legislative context within which the development is proposed including <ol style="list-style-type: none"> <li>i. An identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks and instruments that are applicable to this activity and have been considered in the preparation of the report; and</li> <li>ii. How the proposed activity complies with and responds to the legislation and policy context, plans, guidelines, tools, frameworks and instruments</li> </ol>	Section 3 Table 3-1
(f) A motivation for the need and desirability for the proposed development including the need and desirability of the activity in the context of the preferred location	Section 4
(g) A motivation for the preferred site, activity and technology alternative	Section 5
(h) A full description of the process followed to reach the proposed preferred activity, site and location within the site, including - <ol style="list-style-type: none"> <li>i. Details of all alternatives to be considered;</li> <li>ii. Details of the public participation process undertaken in terms of regulation 41 of the Regulations, including copies of the supporting documents and inputs;</li> <li>iii. A summary of the issues raised by interested and affected parties, and an indication of the manner in which the issues were incorporated, or the reasons for not including them;</li> <li>iv. The environmental attributes associated with the alternatives focusing on geographical, physical, biological, social, economic, heritage and cultural aspects;</li> <li>v. The impacts and risks identified for each alternative, including the nature, significance, consequence, extent, duration and probability of the impacts, including the degree to which these impacts -               <ol style="list-style-type: none"> <li>aa. can be reversed;</li> <li>bb. may cause irreplaceable loss of resources; and</li> <li>cc. can be avoided, managed or mitigated;</li> </ol> </li> <li>vi. 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;</li> </ol>	Section 5 Section 7 Appendix H Section 6 Section 8 Section 8

<ul style="list-style-type: none"> <li>vii. Positive and negative impacts that the proposed activity and alternatives will have on the environment and on the community that may be affected focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects;</li> <li>viii. The possible mitigation measures that could be applied and level of residual risk;</li> <li>ix. The outcome of the site selection matrix;</li> <li>x. If no alternatives, including alternative locations for the activity were investigated, the motivation for not considering such; and</li> <li>xi. A concluding statement indicating the preferred alternatives, including preferred location of the activity</li> </ul>	<p>Section 8</p> <p>Section 8 Appendix J N/A Section 5 Section 5</p>
<p>(i) A full description of the process undertaken to identify, assess and rank the impacts the activity will impose on the preferred location through the life of the activity, including -</p> <ul style="list-style-type: none"> <li>i. A description of all environmental issues and risks that were identified during the environmental impact assessment process; and</li> <li>ii. An assessment of the significance of each issue and risk and an indication of the extent to which the issue and risk could be avoided or addressed by the adoption of mitigation measures</li> </ul>	Section 8
<p>(j) An assessment of each identified potentially significant impact and risk, including-</p> <ul style="list-style-type: none"> <li>i. cumulative impacts;</li> <li>ii. the nature, significance and consequences of the impact and risk;</li> <li>iii. the extent and duration of the impact and risk;</li> <li>iv. the probability of the impact and risk occurring;</li> <li>v. the degree to which the impact and risk can be reversed;</li> <li>vi. the degree to which the impact and risk may cause irreplaceable loss of resources; and</li> <li>vii. the degree to which the impact and risk can be avoided, managed or mitigated</li> </ul>	Section 8
<p>(k) Where applicable, 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</p>	Section 8
<p>(m) An undertaking oath or affirmation by the EAP in relation to -</p> <ul style="list-style-type: none"> <li>i. The correctness of the information provided in the report;</li> <li>ii. The inclusion of comments and inputs from stakeholders and interested and affected parties; and</li> <li>iii. 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</li> </ul>	Appendix A
<p>(m) An undertaking oath or affirmation by the EAP in relation to -</p> <ul style="list-style-type: none"> <li>i. The correctness of the information provided in the report;</li> <li>ii. The inclusion of comments and inputs from stakeholders and interested and affected parties; and</li> <li>iii. 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</li> </ul>	Appendix A
<p>(n) Based on the assessment, and where applicable, impact management measures from specialist reports, the recording of the proposed impact management outcomes for the development for inclusion in the EMPr</p>	Section 8
<p>o) Any aspects which were conditional to the findings of the assessment either by the EAP or specialist which are to be included as conditions of authorisation</p>	Section 12
<p>(p) A description of any assumptions, uncertainties, and gaps in knowledge which relate to the assessment and mitigation measures proposed</p>	Section 9
<p>(q) A reasoned opinion as to whether the proposed activity should or should not be authorised, and if the opinion is that it should be authorised, any conditions that should be made in respect of that authorisation</p>	Section 12
<p>(r) Where the proposed activity does not include operational aspects, the period for which the environmental authorisation is required, the date on which the activity will be concluded, and the post construction monitoring requirements finalised</p>	N/A

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(s) An undertaking under oath or affirmation by the EAP in relation to - i. the correctness of the information provided in the reports; ii. the inclusion of comments and inputs from stakeholders and I&APs; iii. the inclusion of inputs and recommendations from the specialist reports where relevant; and iv. any information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested and affected parties	Appendix A
(t) Where applicable, any specific information required by the competent authority	N/A
(u) Any other matter required in terms of section 24(4)(a) and (b) of the Act	N/A

# 1 INTRODUCTION

## 1.1 Background and Overview

Stonewell Quarry CC (Stonewell) is a dolerite quarry located approximately 5.6km southeast of Kokstad, KwaZulu-Natal on Portion 21 of Farm Waaifontein No 301 (as indicated in Figure 1-1 and Figure 1-2). The site has been in operation since 2001. Due to a depletion of resources in the current pit, Stonewell wishes to extend the footprint of the current pit by approximately 4.58 ha. This activity triggers the need to amend its current approved Environmental Authorisation (EA) to make provision for the increase in mining area, within its existing approved Mining Right (MR) area.

An application in terms of Section 102 of the Mineral and Petroleum Resources Development Act (Act 28 of 2002) (MPRDA) is therefore required. This application was submitted to the Department of Mineral Resources and Energy (DMRE) on 9 June 2022 (Appendix A). An application for EA in terms of the National Environmental Management Act (Act 107 of 1998) (NEMA): Environmental Impact Assessment Regulations (2014) as amended (EIA Regulations) is also required. The application was submitted to the DMRE on 29 October 2022 (Appendix A).

It is in this regard that GCS Water and Environment (Pty) Ltd (GCS) was appointed by Stonewell as the independent Environmental Assessment Practitioner (EAP) to conduct this EA process. This report, the Final Basic Assessment Report (FBAR) has been prepared per requirements of the EIA Regulations in support of this application. The Draft Basic Assessment Report (DBAR) was made available for public review from 17 October 2022 to 16 November 2022, in accordance with Chapter 6 of the EIA Regulations. It has now been finalised (as the FBAR, being this report) and will be submitted to the DMRE as the competent authority for consideration.

## 1.2 Current Authorisations

The following is a summary of the authorisations currently held by Stonewell (Appendix B):

- Mining Right (reference: KZN 30/5/1/2/2/155 MR, dated 23 February 2017) - this was a conversion of the Old Order Mining Right (ML 326/01).
- Water Use Registration of Existing Lawful Water Use (reference: 28095613, dated 31 July 2018) issued by the Department of Water and Sanitation (DWS) in terms of the National Water Act (Act No 36 of 1998)(NWA) for Section 21(a) and Section 21(b) water uses.
- EMP Update was compiled in 2021 in terms of Chapter 3, Section 11(2) of NEMA.

## 1.3 Details of Applicant and Environmental Assessment Practitioner

The details of the applicant are provided in Table 1-1.

**Table 1-1: Contact details for applicant**

ITEM	DETAILS		
Project Applicant:	Stonewell Quarry CC		
Registration Number:	2017/502047/07		
Trading Name:	Dorning Crushers		
Responsible Person:	Director/Mine Manager		
Contact Persons	Russ Dorning		
Physical Address	Farm Waaifontein No 301, Lower Brooksnek, Kokstad, KwaZulu-Natal		
Postal Address	P.O Box 402, Kokstad, KwaZulu-Natal		
Postal Code:	4700	Cell:	083 468 5550
Telephone:	039 727 1976	Fax:	039 727 2381
E-mail:	<a href="mailto:russ@dorninggroup.co.za">russ@dorninggroup.co.za</a>		

The contact details of the EAP are provided in Table 1-2 and the EAP's CV is attached as Appendix C.

**Table 1-2: Contact details for EAP**

ITEM	DETAILS	
Company Name:	GCS Water and Environment (Pty) Ltd	
Company Representative:	Janice Callaghan	Magnus van Rooyen
Professional Registration:	Reg. EAP (2019/955), <i>Cand.Sci.Nat</i> (122924)	<i>Pr.Sci.Nat</i> (400335/11)
E-mail Address:	<a href="mailto:janicec@gcs-sa.biz">janicec@gcs-sa.biz</a>	<a href="mailto:magnusvr@gcs-sa.biz">magnusvr@gcs-sa.biz</a>
Physical address:	4a Old Main Road, Judges Walk, Kloof, 3640	
Postal Address	P.O Box 819, Gillitts, 3603	
Telephone:	+27 (0)31 764 7430	
Fax:	+27 (0)11 803 5745	

Ms Janice Callaghan is an Environmental Consultant at GCS since April 2018 with 4.5 years' experience. She forms part of the GCS Environmental Unit and has undertaken various applications including Water Use License Applications, Integrated Water and Waste Management Plans, Environmental Impact Assessments and Environmental Management Programmes. Ms Callaghan pays great attention to detail and is passionate about the environment with a particular interest in biogeography and conservation.

Mr Magnus van Rooyen is currently the Technical Director at GCS with 18 years' experience. His expertise lies within the large infrastructure development and mining sector, where he has gained extensive exposure to all the aspects of projects from the pre-feasibility, environmental impact assessment and implementation and monitoring stages. He also has experience conducting Specialist Biodiversity Assessments associated with Environmental Impact Assessments and Project Feasibility Studies, Due Diligence Assessments, as well as Environmental Compliance Monitoring and Management of a variety of infrastructure development, energy and mining sites.

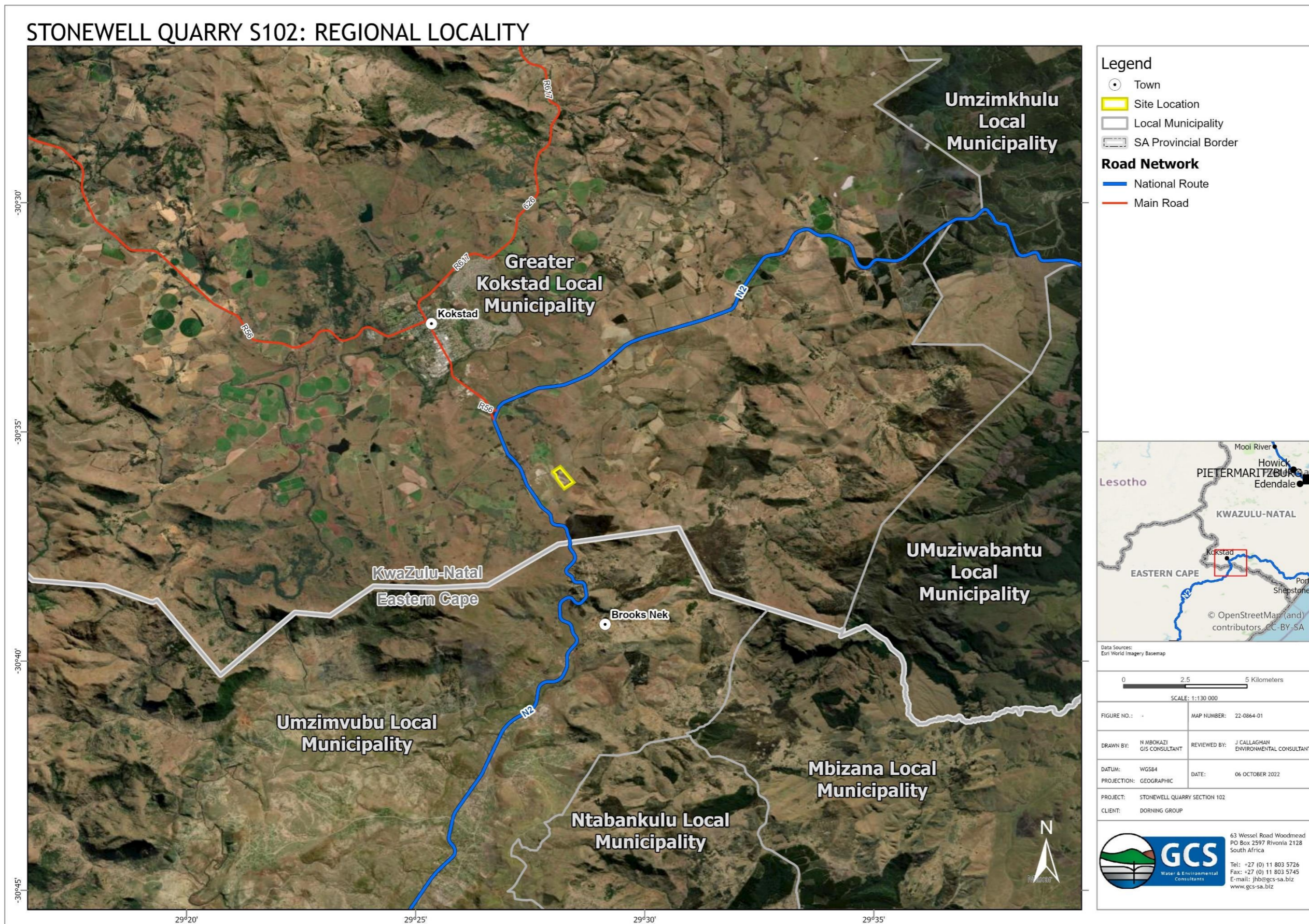


Figure 1-1: Regional Locality Map



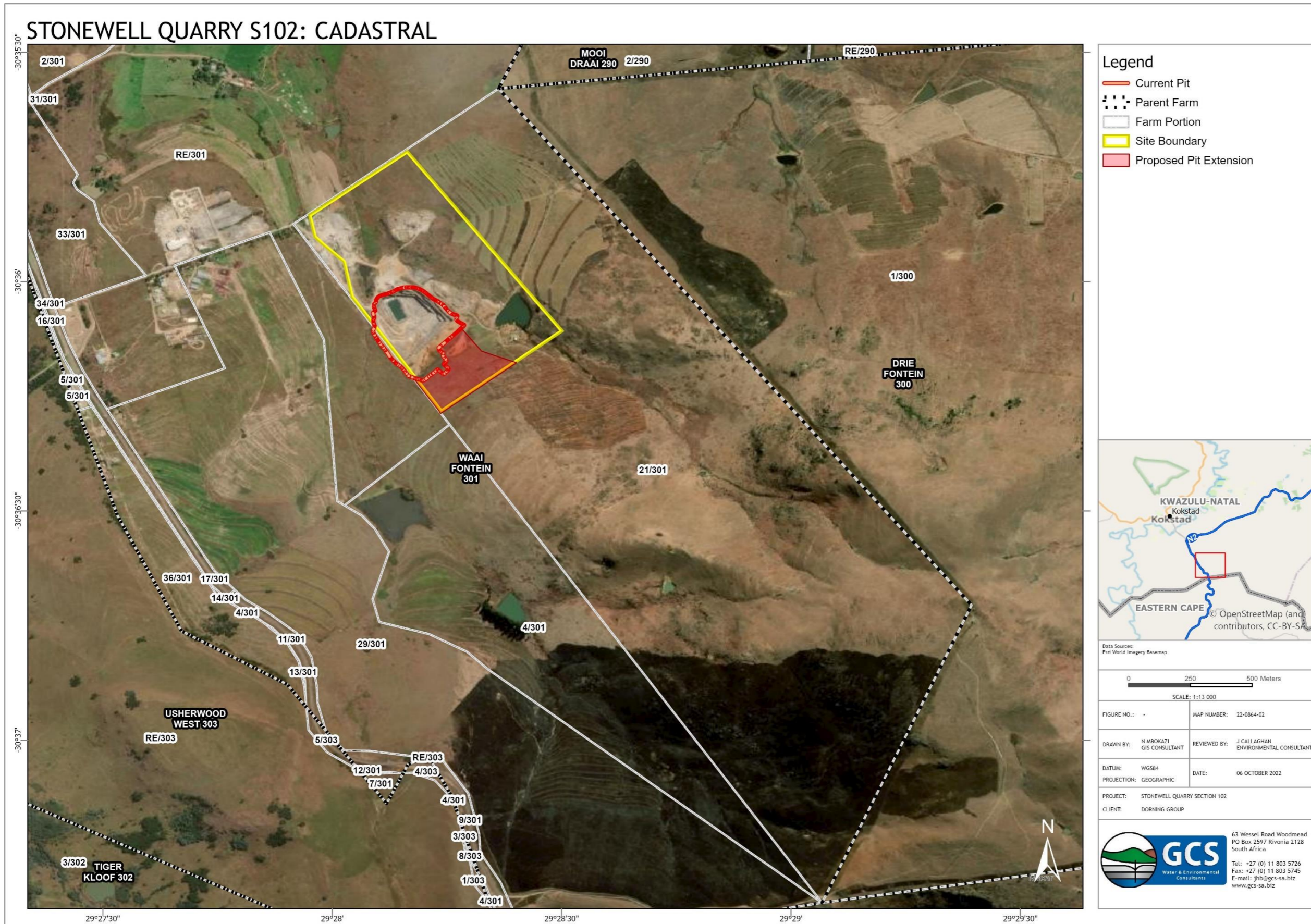


Figure 1-2: Site Locality Map

## 2 PROJECT DESCRIPTION

### 2.1 Description of Proposed Activity

Stonewell has proposed the extension of the current pit by 4.58ha. Topsoil stripped during the clearance of the site will be added to the existing topsoil stockpile. No new infrastructure will be required on site. Access to area will be gained through the current pit, and the current storage facilities will be sufficient to handle the material mined from the extension, as resources in the current pit have been depleted.

As with mining from the current pit, material will be mined through an opencast excavation, in benches. The material will be transported by tipper truck to the primary and secondary crusher located to the north of the pit for processing, before being sold. Table 2-1 describes the machinery used on site.

**Table 2-1: Machinery used on site**

Equipment name	Quantity
ADT Volvo A40D	3
Volvo A40E	2
Doosan 300 Loader	1
Doosan Excavator	1
Doosan 225	1
Bobcat	1
Bell 2106D Loader	1
Bell 1204D Loader	1
Bell ADT B45E	2
CAT Excavator 365	1
CAT Watercart 23 000l	1
CAT Excavator 345	1
Hyundai 300 Excavator	1
Hyundai 760	1

The envisaged production rate is approximately 25 000 t per month, with an expected Life of Mine (LOM) of 25 years. This product will supply local markets for road and building construction, agricultural purposes and local infrastructure. Table 2-2 indicates the products and monthly proportionate quantities are anticipated

**Table 2-2: Product and monthly proportionate quantities**

Product	Size	Weight
Product 1	G1 - G3	3 639 t
Product 2	G4 - G7	3 719 t
Product 3	Larger than 26mm	0 t

Product 4	13 - 26mm	8261 t
Product 5	4.75 - 13mm	2 149 t
Product 6	Crusher sand	8 880 t

## 2.2 Locality

The Mining Right area consists of approximately 15.5 ha of the total 300.9 ha of Portion 21 of the Farm Waaifontein No. 301 (Figure 1-2). The current mining area is located in the north-western corner of the property.

The proposed Section 102 area will be an additional 31 ha, resulting in a total area of 46.4ha. The extension of the pit is located on the same property, and will be in a south-easterly direction, up the slope of the hill in the same direction as the current pit was mined out. (Figure 2-2 and Figure 2-3).

The Global Positioning System (GPS) coordinates of the proposed mining area are provided in Figure 1-2. The approximate mid-point of the proposed pit extension is at 30° 36'11.90"S; 29° 28'16.47"E. The co-ordinates of the corner points as described in Table 2-3 and indicated in Figure 2-1.

**Table 2-3: Co-ordinates of the corner points of the proposed pit extension**

Point	Latitude	Longitude
A	30° 36'6.12"S	29° 28'16.88"E
B	30° 36'9.09"S	29° 28'19.57"E
C	30° 36'10.63"S	29° 28'24.02"E
D	30° 36'17.24"S	29° 28'14.17"E
E	30° 36'12.55"S	29° 28'10.58"E
F	30° 36'12.92"S	29° 28'11.80"E
G	30° 36'11.52"S	29° 28'13.77"E
H	30° 36'12.03"S	29° 28'14.57"E
I	30° 36'11.42"S	29° 28'15.22"E
J	30° 36'10.76"S	29° 28'14.64"E
K	30° 36'10.38"S	29° 28'14.95"E
L	30° 36'9.78"S	29° 28'14.54"E
M	30° 36'9.35"S	29° 28'14.49"E
N	30° 36'9.01"S	29° 28'14.08"E
O	30° 36'8.67"S	29° 28'13.93"E



Figure 2-1: Co-ordinates of the proposed pit extension

### 2.3 Land Ownership

The identified property is owned by Shanelle Janine Dorning. Refer to Table 2-4 for the applicable property details, and Appendix D for the title deed.

Table 2-4: Property Owner Details

Farm Details	SG Code	Total Property Size (ha)
Portion 21 of Farm Waaifontein No 301	NOES0000000030100021	300.9

### STONEWELL QUARRY S102: CURRENT AND PROPOSED MINING RIGHT AREAS

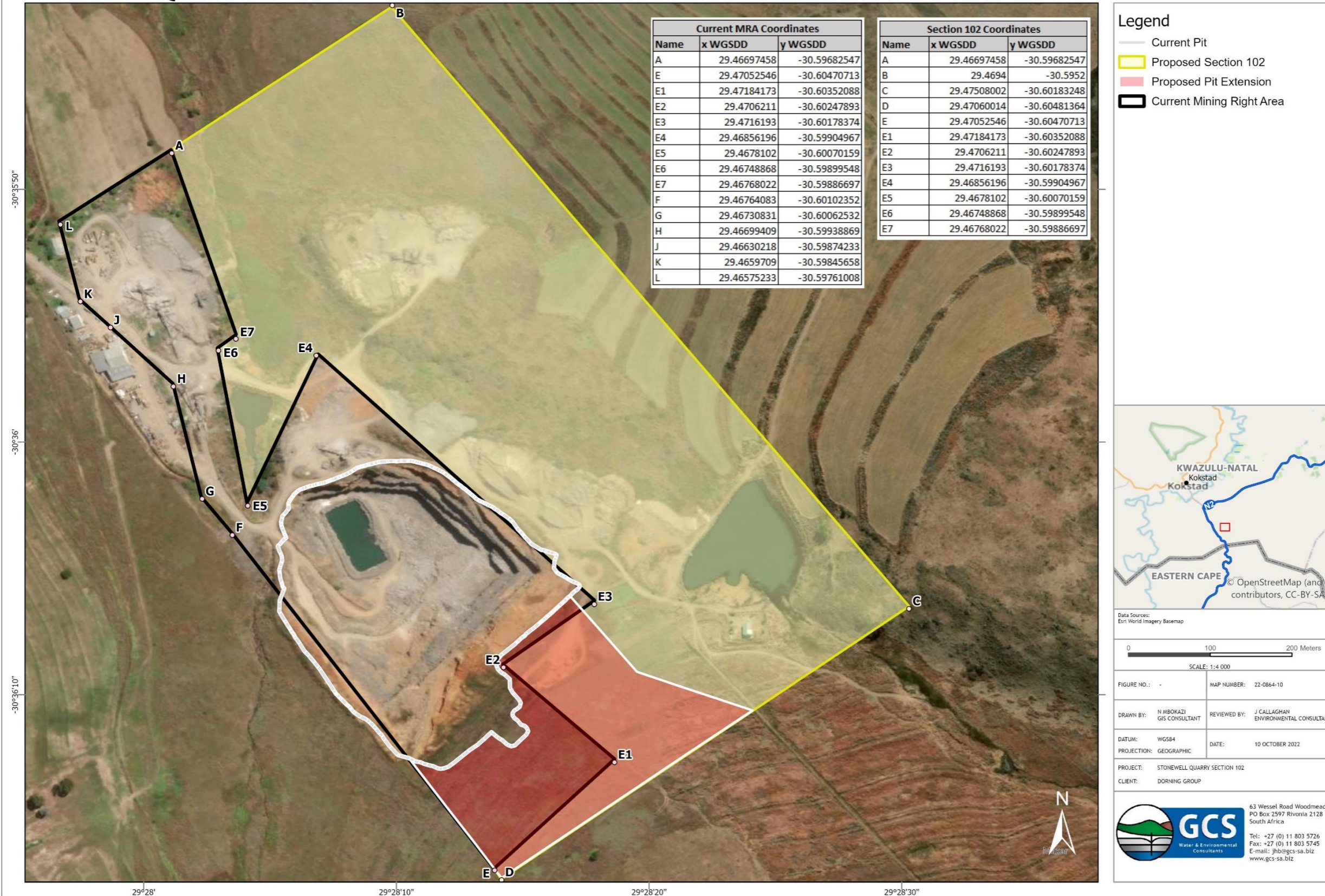


Figure 2-2: Current Mining Right Area and proposed extension

### STONEWELL QUARRY S102: SITE LAYOUT



**Legend**

- Current Pit
- Site Boundary
- Proposed Pit Extension

Data Sources:  
Esri World Imagery Basemap

0 100 200 Meters  
SCALE: 1:4 000

FIGURE NO.:	MAP NUMBER: 22-0864-03
DRAWN BY: N HIBOKAZI GIS CONSULTANT	REVIEWED BY: J CALLAGHAN ENVIRONMENTAL CONSULTANT
DATUM: WGS84	DATE: 06 OCTOBER 2022
PROJECTION: GEOGRAPHIC	
PROJECT: STONEWELL QUARRY SECTION 102	
CLIENT: DORNING GROUP	

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Figure 2-3: Proposed Site Layout

### **3 LEGAL FRAMEWORK**

This chapter details applicable legal provisions and aims to provide a review of relevant national and provincial legislation and regulations, and policy documents, which apply to, or have implications for, the proposed activities.

#### **3.1 General Overview**

The legislation outlined in Table 3-1 below is applicable to activities on site.

**Table 3-1: Legislation applicable to Activities at Stonewell Quarry**

Legislation/Guideline	Objective and Relevance
The Constitution of the Republic of South Africa, 1996 (Act No. 108 of 1996)	<p>Provides inter alia the right to an environment that is not harmful to human health or wellbeing, and to have the environment protected through ecologically sustainable development, while promoting the prevention of pollution and ecological degradation and promoting conservation.</p> <p>This right is binding on the State and people, both natural and juristic.</p> <p>In fulfilment of its constitutional mandate to take reasonable legislative measures to give effect to section 24 of the Constitution, the government has promulgated several environmental laws. These laws provide a legal framework that embodies internationally recognised legal principles.</p> <p>The principal act governing activities that affect the environment is NEMA.</p> <p>The Applicant must ensure that environmental impacts are avoided, mitigated or managed as far as possible throughout the life cycle of the project.</p>
Mineral and Petroleum Resources Development Act (Act 28 of 2002) (MPRDA), as amended	<p>The MPRDA governs mineral resources in South Africa, regulates mining and mining authorisations and has as one of its principal objectives the equitable access and the sustainable development of the South Africa's mineral resources.</p> <p>Section 5(a) of the MPRDA provides that: "No person may prospect for or remove, mine, conduct technical co-operation operations, reconnaissance operations, explore for and produce any mineral or petroleum or commence with any work incidental thereto on any area without - (a) an environmental authorisation".</p> <p>The MPRDA requires all mining and prospecting operations and related activities to be carried out in terms of the environmental management principles set out in section 2 of NEMA and that an EA be obtained.</p> <p>Section 102 of the MPRDA states that: "A reconnaissance permission, prospecting right, mining right, mining permit, retention permit, technical corporation permit, reconnaissance permit, exploration right and production right work programme, mining work programme, environmental management programme and environmental management plan may not be amended or varied (including by extension of the area covered by it or by the addition of materials or a share or shares of seams, mineralised bodies, or strata, which are not at the time the subject thereof) without the written consent of the Minister."</p> <p>It is in this regard that a Section 102 application has been submitted.</p>
Regulations pertaining to the financial provision for prospecting, exploration, mining or production operations GN R1147 in Government Gazette 39425, 20 November 2015, as amended (Financial Provision Regulations).	<p>The regulations pertaining to the provision of financial guarantees or instruments for the closure and rehabilitation of mine sites, throughout the lifecycle of the mine. The Financial Provision Regulations, 2015 set out the requirements for an applicant or holder of a right or permit in terms of the MPRDA to determine and make financial provision to guarantee the availability of sufficient funds to undertake progressive rehabilitation, decommissioning, mine closure and the management of post-closure environmental impacts: of prospecting, exploration, mining or production operations.</p> <p>Stonewell currently holds financial provisioning guarantees for the existing operations, this will need to be amended to account for the proposed extension.</p>



<p>National Environmental Management Act, 1998 (Act 107 of 1998) (NEMA)</p>	<p>Framework law giving effect to the constitutional environmental right. Provides the framework for regulatory tools in respect of environmental impacts, including mining and mine closure.</p> <p>In terms of section 24(2)(a) and (b) of NEMA the Minister may publish lists of activities and geographical areas where specified activities may not commence without EA. Section 24F(1)(a)&amp;(b) states that: <i>“Notwithstanding any other Act, no person may - (a) commence an activity listed or specified in terms of section 24(2)(a) or (b) unless the competent authority or the Minister responsible for mineral resources, as the case may be, has granted an environmental authorisation for the activity; or (b) commence and continue an activity listed in terms of section 24(2)(d) unless it is done in terms of an applicable norm or standard.”</i> Accordingly, the EIA Regulations require that an EA is issued before a Listed Activity can be commenced with.</p> <p>Sections 24P, 24Q, 24R and 24S are relevant to mining. Section 24P of NEMA sets out the requirements for financial provision for remediation of environmental damage. Section 24Q refers to the monitoring and performance assessments required for those holding an EA for mining or a mining right. Section 24R regulates mine closure and section 24S establishes that residue stockpiles and deposits should currently be managed according to NEM:WA.</p> <p>Section 28(1) states that <i>“Every person who causes, has caused or may cause significant pollution or degradation of the environment must take reasonable measures to prevent such pollution or degradation from occurring, continuing or recurring, or, in so far as such harm to the environment is authorised by law or cannot reasonably be avoided or stopped, to minimise and rectify such pollution or degradation of the environment”</i>.</p>
<p>Environmental Impact Assessment (EIA) Regulations: GNR 982, 983, 984 and 985 in GG 38282 of 4 December 2014, as amended (EIA Regulations)</p>	<p>Lists certain activities which require either an EIA or a basic assessment report and EA before they may be undertaken.</p>
<p>National Environmental Management: Waste Act, 2008 (Act No.59 of 2008), as amended (NEM:WA)</p>	<p>NEMWA's purpose is to: assist in regulating waste management; ensure the protection of human health; and prevent pollution and environmental degradation through sound waste management principles and guidelines. It furthermore provides for:</p> <ul style="list-style-type: none"> <li>• national norms and standards for regulating waste management by all spheres of government;</li> <li>• licensing and control of waste management activities;</li> <li>• remediation of contaminated land;</li> <li>• a national waste information system; and</li> <li>• provision for compliance and enforcement.</li> </ul> <p>Section 16(1) of the NEM: WA provides that:</p> <p><i>“A holder of waste must, within the holder’s power, take all reasonable measures to -</i></p> <ol style="list-style-type: none"> <li><i>a. avoid the generation of waste and where such generation cannot be avoided, to minimise the toxicity and amounts of waste that are generated;</i></li> <li><i>b. reduce, re-use, recycle and recover waste;</i></li> <li><i>c. where waste must be disposed of, ensure that the waste is treated and disposed of in an environmentally sound manner;</i></li> </ol>

	<p><i>d. manage the waste in such a manner that it does not endanger health or the environment or cause a nuisance through the noise, odour or visual impacts;</i></p> <p><i>e. prevent any employee or any person under his or her supervision from contravening this Act; and</i></p> <p><i>f. prevent the waste from being used for an unauthorised purpose.”</i></p> <p>The NEMWA imposes a general duty upon waste holders to take reasonable measures to avoid waste generation and, where this is impossible, to: minimise the toxicity and quantities of waste generated; reuse, reduce, recycle and recover waste; and ensure that it is treated and disposed of in an environmentally sound way. Failure to do so is a criminal offence, with a maximum fine of R10 million or imprisonment of up to 10 years, or both. The NEM: WA also provides for a licensing regime specific to waste management activities. While no Waste Management Licence is required for this development, the Applicant must ensure that waste is appropriately managed throughout the life cycle of the project, as per the proposed mitigation measures in Section 8, where relevant, and the EMPr.</p>
<p>National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004), as amended (NEM:AQA)</p>	<p>NEM:AQA was promulgated to ensure the protection and regulation of air quality and provide measures that will prevent pollution and sustainability.</p> <p>Under NEM:AQA, the Minister of Forestry and Fisheries and Environmental Affairs must identify substances in ambient air which present a threat to health, well-being or the environment and establish national standards for ambient air quality, including the permissible quantity or concentration of each substance in ambient air.</p> <p>The following regulations have been promulgated under NEMAQA:</p> <ul style="list-style-type: none"> <li>• List of activities which result in atmospheric emissions which have or may have a significant detrimental effect on the environment, including health, social conditions, economic conditions, ecological conditions or cultural heritage, which lists activities that could result in atmospheric emissions requiring an atmospheric emissions licence before being undertaken. No such activities are triggered by the proposed activities.</li> <li>• The NEM: AQA Dust Control Regulations (1 November 2013). prescribe dust fallout rates for residential and non-residential areas. For activities where the dustfall standard is exceeded, a dustfall monitoring report must be compiled and submitted.</li> </ul> <p>An Air Emissions Licence will not be required; however, a duty of care should be employed during construction to minimise air pollution as far as possible. The Applicant must take all reasonable measures to minimise the generation of dust and ensure compliance with the Dust Control Regulations.</p>
<p>Environmental Conservation Act, 1989 (Act No. 73 of 1989), as amended (ECA)</p>	<p>ECA has now largely been replaced by the NEMA but certain provisions remain in force. Section 21 of the ECA relates to the control of activities that may have a detrimental effect on the environment, which require written authorization issued by the relevant authority.</p> <p>The national Noise Control Regulations (NCR) (GN R154 in Government Gazette No. 13717 dated 10 January 1992) (NCR) were promulgated in terms of Section 25 of the ECA, relating to noise, vibration and shock. The NCRs were revised under Government Notice Number R55 of 14 January 1994 to make it obligatory for all authorities to apply the regulations. In accordance with the Act, two procedures exist for assessing and controlling noise, respectively</p> <ul style="list-style-type: none"> <li>• South African National Standard (SANS) 10328:2008 Methods for environmental noise impact assessments;</li> <li>• SANS 10103:2004 ‘The measurement and rating of environmental noise with respect to annoyance and speech communication’; and</li> </ul>

	<ul style="list-style-type: none"> <li>• Other SANS.</li> </ul> <p>As the operation is existing, no new or increase in noise impacts are identified. Noise impacts are closely related to construction and mining activities and trucks transporting the product from site. The EMPr includes mitigation measures relating to the mitigation of noise impacts.</p>
<p>National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004)(NEM:BA)</p>	<p>In line with the Convention on Biological Diversity, NEM:BA aims to legally provide for biodiversity conservation, sustainable use and equitable access and benefit sharing. NEM:BA creates a basic legal framework for the formation of a national biodiversity strategy and action plan and identification of biodiversity hotspots and bioregions, which may then be given legal recognition. It imposes obligations on landowners (state or private) regarding alien invasive species. NEM:BA requires that provision be made by a site developer to remove any aliens which have been introduced to the site or are present on the site.</p> <p>The NEM:BA also provides for listing of threatened or protected ecosystems in one of four categories: critically endangered, endangered, vulnerable or protected. Threatened ecosystems are listed to reduce the rate of ecosystem and species extinction, by preventing further degradation and loss of structure, function and composition of threatened ecosystems. The purpose of listing protected ecosystems is primarily to conserve sites of exceptionally high conservation value.</p> <p>Section 53 of NEM:BA provides that:</p> <p><i>"(1) The Minister may, by notice in the Gazette, identify any process or activity in a listed ecosystem as a threatening process.</i></p> <p><i>(2) A threatening process identified in terms of subsection (1) must be regarded as a specified activity contemplated in section 24(2)(b) of the NEMA and a listed ecosystem must be regarded as an area identified for the purpose of that section."</i></p> <p>The 2007 Threatened or Protected Species (TOPS) Regulations (GN R150, as amended) provides protection through a permit system as well as through the identification of restricted activities. If required, the relevant permits will be applied for.</p> <p>Chapter 5 of NEM:BA pertains to alien and invasive plants (AIP) and provides that a person may not carry out a restricted activity involving a specimen of an AIP without a permit issued in terms of Chapter 7 of NEM:BA. Such permit can only be issued after a prescribed assessment of risks and potential impacts on biodiversity is carried out. The Applicant must also control and eradicate alien and invasive species in line with the NEM: BA Alien and Invasive Species Regulations.</p>
<p>Conservation of Agricultural Resources Act (Act 43 of 1983) (CARA)</p>	<p>In terms of CARA, landowners are legally responsible for the control of weeds and alien vegetation. CARA makes provision for three categories of AIP:</p> <ul style="list-style-type: none"> <li>• Category 1a: must immediately be removed and destroyed;</li> <li>• Category 1b: need to be immediately removed and contained;</li> <li>• Category 2: requires a permit to retain the species on site and it must be ensured that they do not spread. All category 2 plants in riparian zones need to be removed; and</li> <li>• Category 3: require a permit to retain these species. All category 3 plants in the riparian zone need to be removed.</li> </ul> <p>CARA also regulates the conservation of soil and states that degradation of the agricultural potential is illegal. It furthermore requires the protection of land against soil erosion and the prevention of water logging and associated salinization.</p>

	<p>Permissions / permits are required under CARA for the ‘cultivation’ of ‘virgin soil’; cultivation and/or draining vleis, marshes or water sponges; and cultivation of an area within a watercourse’s flood area. No such permissions are triggered by the Section 102 or EA Applications.</p>
<p>National Water Act, 1998 (Act No. 36 of 1998) (NWA)</p>	<p>The NWA presents strategies to facilitate sound management of water resources; provides for the protection of water resources; and regulates use of water by means of Catchment Management Agencies, Water User Associations, Advisory Committees and International Water Management. As the NWA is founded on the principle of trusteeship, the government has overall responsibility for and authority over water resource management, including the equitable allocation and beneficial use of water in the public interest. Industry (including mines) can therefore only be entitled to use water if the use is permissible under the NWA.</p> <p>In terms of section 21 of the NWA, certain consumptive and non-consumptive water uses are identified and can only commence once authorised, including taking water from a water resource (section 21(a) of NWA) and storing water (section 21(b)). Non-consumptive water uses may include activities which reduce stream flow; waste discharges and disposals that may detrimentally impact on a watercourse; controlled activities; impeding or diverting a watercourse’s flow (section 21(c); altering a watercourse’s bed, banks, course or characteristics (section 21(i); removing water found underground for certain purposes (section 21(j)); and recreation.</p> <p>Where a water use constitutes a Scheduled 1 Use (permissible use without an authorisation requirement); permissible water uses in terms of section 22 of the NWA; or is authorised in terms of a General Authorisation (GA), a WUL is not required. Various GAs have been published under the NWA, including for Sections 21(c),(i),(g), and (a) water uses. In respect of sections 21(c) and (i) water uses, activities can be conducted within 100m of a watercourse and 500m of a wetland without a WUL if the impacts to the watercourse / wetland are low. Water uses that will be conducted under a GA need to be registered with the DWS.</p> <p>The DWS is to be contacted to determine their exact licensing requirements (if any) for the proposed activities.</p> <p>Section 19(1) states that “An owner of land, a person in control of land or a person who occupies or uses the land on which</p> <ul style="list-style-type: none"> <li>a) any activity or process is or was performed or undertaken; or</li> <li>b) any other situation exists, which causes, has caused or is likely to cause pollution of a water resource, must take all reasonable measures to prevent any such pollution from occurring, continuing or recurring.”</li> </ul> <p>The site current holds an Existing Lawful Water Use registration for its current activities. As this application is for the continuation of mining, no further water uses or changes in volumes are anticipated.</p>
<p>Regulations of Use of Water for Mining and Related Activities aimed at the Protection of Water Resources: GNR 704 in GG 20119 of 4 June 1999</p>	<p>GN 704 was promulgated under section 26(1) of the NWA and regulates the use of water on mining areas. It provides minimum requirements which need to be adhered to for the protection of the water resources on a mine and introduces controls to prevent and mitigate the pollution of water resources within mining areas. GN 704 regulates water use; management of dirty and clean water infrastructure; and related activities at mines. This includes minimum requirements for infrastructure that hold dirty water. A mine can apply for exemptions from these requirements and be granted approval, should sufficient management measures be put in place to ensure environmental protection. No such exemptions are required for the proposed activities.</p>

	<p>Regulation 4 of GN 704 places some restrictions in terms of the locality of certain infrastructure which could have an impact on water resources. The proposed pit extension does not fall within 100m of the nearest drainage line, or 500m of the nearest wetland.</p>
<p>National Heritage Resources Act (Act No. 25 of 1999) (NHRA)</p>	<p>The protection and management of South Africa’s heritage resources are controlled by the NHRA. The national enforcing authority for the NHRA is the South African Heritage Resources Agency (SAHRA). In terms of the NHRA, historically important features, such as graves, archaeology and fossil beds, are protected. Similarly, culturally significant symbols, spaces and landscapes are also afforded protection. In terms of section 38 of the NHRA, a permit is required for certain categories of development as follows:</p> <p>Section 38 states:</p> <p><i>“(1) (a): The construction of a road, wall, power line, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length;</i>  <i>(c): Any development or other activity which will change the character of a site -</i>  <i>i. exceeding 5 000 m<sup>2</sup> in extent;</i>  <i>ii. involving three or more existing erven or subdivisions thereof;</i>  <i>iii. involving three or more erven or divisions thereof which have been consolidated within the past 5 years; or</i>  <i>iv. the costs of which will exceed a sum in terms of regulations by SAHRA or a provincial heritage resource authority.”</i></p> <p>In terms of Section 38(8) of the NHRA, section 38(1) approval from SAHRA is not required where an environmental impact assessment is undertaken under NEMA, including a HIA, and SAHRA’s requirements are considered by the CA when granting the EA. Section 38(8) of the NHRA provides that:</p> <p><i>“The provisions of this section do not apply to a development as described in subsection (1) if an evaluation of the impact of such development on heritage resources is required in terms of the ECA, or the integrated environmental management guidelines issued by the Department of Environment Affairs and Tourism, or the Minerals Act, 1991 (Act No. 50 of 1991), or any other legislation: Provided that the consenting authority must ensure that the evaluation fulfils the requirements of the relevant heritage resources authority in terms of subsection (3), and any comments and recommendations of the relevant heritage resources authority with regard to such development have been taken into account prior to the granting of the consent.”</i></p> <p>A Basic Assessment Application requires an assessment of all impacts, including heritage impacts. This has been undertaken.</p>
<p>Mine Health and Safety Act (Act No. 29 of 1996) (MHSA)</p>	<p>The MHSA aims to provide for protection of the health and safety of all employees and other personnel at RSA mines. Its main objectives are:</p> <ul style="list-style-type: none"> <li>• Protection of the health and safety of all persons at mines;</li> <li>• Requiring employers and employees to identify hazards and eliminate them, control and minimise the risks relating to health and safety at mines;</li> <li>• Giving effect to South Africa’s public international law obligations that concern health and safety at all mines;</li> <li>• Providing for -             <ul style="list-style-type: none"> <li>○ employee participation in matters of health and safety through health and safety representatives and the health and safety committees at mines;</li> <li>○ effective monitoring of health and safety conditions at mines;</li> <li>○ enforcement of health and safety measures at mines;</li> </ul> </li> </ul>

	<ul style="list-style-type: none"> <li>○ investigations and inquiries to improve health and safety at mines; and</li> <li>● Promoting:             <ul style="list-style-type: none"> <li>○ a culture of health and safety in the mining industry;</li> <li>○ training in health and safety in the mining industry; and</li> <li>○ cooperation and consultation on health and safety between the State, employers, employees and their representatives.</li> </ul> </li> </ul>
Occupational Health and Safety Act, 1993 (Act No. 85 of 1993)(OHSA)	<p>The OHSA makes provision to protect the health and safety of employees at work or others affected by activities undertaken by businesses or industries.</p> <p>The Applicant must adhere to the stipulations within the Act throughout the lifecycle of the activity.</p>
Hazardous Substance Act (Act No. 15 of 1973) (HSA)	<p>The HSA provides for the:</p> <ul style="list-style-type: none"> <li>● Control of substances which may cause injury or ill-health to or death of human beings by reason of their toxic, corrosive, irritant, strongly sensitizing or flammable nature or the generation of pressure thereby in certain circumstances;</li> <li>● Control of certain electronic products;</li> <li>● Division of such substances or products into groups in relation to the degree of danger, with licensing requirements for certain activities undertaken in respect of Groups I and III.;</li> <li>● Prohibition and control of the importation, manufacture, sale, use, operation, application, modification, disposal or dumping of such substances and products; and</li> <li>● Matters connected therewith.</li> </ul>
National Veld and Forest Fire Act (Act 101 of 1998) (NVFFA)	<p>Chapter 4 of the NVFFA (Veldfire Protection through Firebreaks) provides that owners must prepare and maintain firebreaks. This Chapter sets out the procedure in this regard and the role of neighbouring landowners and the fire protection association.</p> <p>Landowners must ensure that: (i) firebreaks are wide and long enough to have a reasonable chance of preventing a veldfire from spreading to or from neighbouring property, (ii) that it does not cause soil erosion; and (iii) it is reasonably free of inflammable material capable of carrying a veldfire across it.</p> <p>Chapter 5 (Fire Fighting) places a duty on all owners to acquire equipment and have available personnel to fight fires. Provision has been made for this in the EMPr.</p>
National Forests Act, No 84 of 1998 (NFA)	<p>In terms of section 15(3) of the NFA, the Minister published a list of protected tree species. The effect thereof is that no person may cut, disturb, damage or destroy any protected tree or possess, collect, remove, transport, export, purchase, sell, donate or in any other manner acquire or dispose of any protected tree or any product derived from a protected tree, except under a licence or exemption granted by the Minister to an applicant and subject to such period and conditions as may be stipulated.</p>

Other Legislation and Policy	<p>Other policies, legislation and associated regulations (where applicable) considered as part of the application process include:</p> <ul style="list-style-type: none"> <li>• Harry Gwala District Municipality 2022-2027 Draft Integrated Development Plan</li> <li>• Kokstad Local Municipality 2022-2027 Final Spatial Development Framework</li> <li>• Kokstad Local Municipality 2022-2027 Final Human Settlement Plan</li> <li>• Municipal Systems Act, No 32 of 2000</li> <li>• DFFE Consultation Guidelines</li> <li>• Spatial Planning and Land Use Management Act, No 16 of 2013</li> <li>• Protection of Personal Information Act, No. 4 of 2013</li> </ul>
Standards and Guidelines	<p>In addition to the abovementioned Acts and their associated Regulations, the following guidelines and standards are applicable:</p> <ul style="list-style-type: none"> <li>• SANS 10103 of 2008.</li> <li>• SANS 10210 of 2004.</li> <li>• NEMA Implementation Guidelines: Sector Guidelines for Environmental Impact Assessment Regulation (published under GN 654 in GG 3333 of 29 June 2010).</li> <li>• DEA (2011): A user friendly guide to the National Environmental Management: Waste Act, 2008. South Africa, Pretoria.</li> <li>• Department of Environmental Affairs and Tourism (2004): Criteria for determining Alternatives in EIA, Integrated Environmental Management, Information Series 11.</li> <li>• Guideline for Implementation: Public Participation in the EIA Process (published in under GN 807 in GG 35769 of 10 October 2012).</li> <li>• Publication of Public Participation Guideline (GN 807 of 10 October 2012 GG No. 35769)</li> <li>• Best Practice Guidelines for Water Resource Protection in the South African Mining Industry (Department of Water Affairs, 2006):</li> <li>• Series A: Best Practice (BP) Guidelines <ul style="list-style-type: none"> <li>○ A2: Water Management for Mine Residue Deposits, July 2008;</li> <li>○ A4: Pollution Control Dams, August 2007;</li> <li>○ A5: Water Management for Surface Mines, July 2008;</li> </ul> </li> <li>• Series G: BP Guidelines <ul style="list-style-type: none"> <li>○ G1: Storm Water Management, August 2006;</li> <li>○ G2: Water and Salt Balances, August 2006;</li> <li>○ G3: Water Monitoring Systems, July 2007;</li> <li>○ G4: Impact Prediction, December 2008;</li> <li>○ G5: Water Management Aspects for Mine Closure, December 2008;</li> </ul> </li> <li>• Series H: BP Guidelines <ul style="list-style-type: none"> <li>○ H1: Integrated Mine Water Management, December 2008;</li> <li>○ H2: Pollution Prevention &amp; Minimization of Impacts, July 2008;</li> <li>○ H3: Water Reuse &amp; Reclamation, June 2006; and</li> <li>○ H4: Water Treatment, September 2007.</li> </ul> </li> </ul>

### 3.2 NEMA EIA Regulations 2014 (as amended)

The NEMA, 1998 (Act No. 107 of 1998) is South Africa's overarching framework for environmental legislation. Of particular importance is the requirement of 'duty of care' with regards to environmental remediation stipulated in Section 28 of NEMA:

*Duty of care and remediation of environmental damage: "(1) Every person who causes has caused or may cause significant pollution or degradation of the environment must take reasonable measures to prevent such pollution or degradation from occurring, continuing or recurring, or, in so far as such harm to the environment is authorised by law or cannot be reasonably be avoided or stopped, to minimise and rectify such pollution or degradation of the environment."*

Regulations promulgated under NEMA include the EIA Regulations (2014) published under Government Notice Regulation (GNR) 982, as amended 4 April 2017, and the associated Listing Notices Listing Notice 1, 2 and 3. Section 24(5) of NEMA stipulates that certain "listed activities" require environmental authorisation by way of either a Basic Assessment (BA) or a full Scoping and Environmental Impact Assessment (SEIA) as defined in the Listing Notices. Activities listed under Listing Notice 1 and 3 require a BA process to be undertaken while those listed under Listing Notice 2 require a full Scoping and SEIA process. Table 3-2 provides an assessment of the applicable listed activities.

#### 3.2.1 Screening and Initial Site Sensitivity Verification

Based on the Procedures for the Assessment and Minimum Criteria for Reporting on Identified Environmental Themes in terms of Sections 24(5)(a) and (h) and 44 of the NEMA, when applying for EA (GN R320 of 20 March 2020) (the Protocols), the required level of assessment must be based on the findings of the Initial Site Sensitivity Verification and must comply with Appendix 6 of the EIA Regulations promulgated under sections 24(5) and 44 of the NEMA, where a specialist assessment is required.

An Initial Site Sensitivity Verification must be undertaken by an EAP or a registered specialist with expertise in the relevant environmental theme being considered. The Initial Site Sensitivity Verification must be undertaken through the use of:

- A desktop analysis, using satellite imagery; and
- A preliminary on-site inspection to identify if there are any discrepancies with the current use of land and environmental status quo versus the environmental sensitivity as identified on the national web-based environmental screening tool, such as new developments, infrastructure, indigenous/pristine vegetation, etc.

The outcome of the Initial Site Sensitivity Verification must be recorded in the form of a report that-

- Confirms or disputes the current use of the land and environmental sensitivity as identified by the national web-based environmental screening tool;
- Contains motivation and evidence (e.g. photographs) of either the verified or different use



of the land and environmental sensitivity; and

- Is submitted together with the relevant assessment report prepared following the requirements of the EIA Regulations.

A site assessment was undertaken by using the Department of Forestry, Fisheries and Environment (DFFE) online screening tool for the entire Section 102 area (24 August 2022). A further assessment was undertaken for the extension pit only, as this is the only area that will be disturbed by mining activities (12 October 2022). Please refer to Appendix E for these reports.

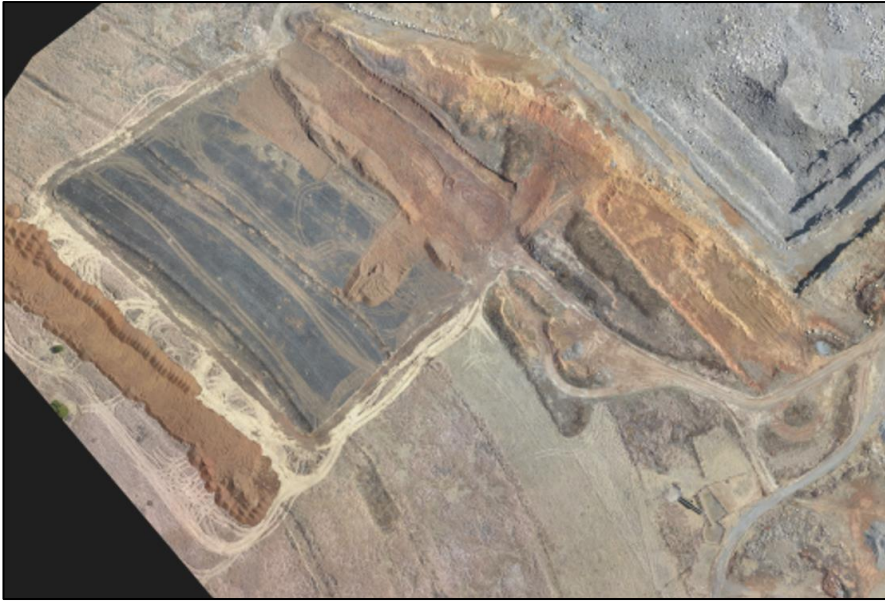
The site has several sensitivities and associated reporting requirements, as shown in Table 3-2 (the entire site) and Table 3-3 (the area to be affected by the pit extension).

**Table 3-2: Site Sensitivities of the entire Section 102 area**

Theme	Sensitivity	Reason for inclusion/exclusion
Agriculture	High	The area is already disturbed due to mining activities and is not in pristine condition - refer to Figure 3-1 and Figure 3-2.
Animal Species	High	Undertaken as part of the Terrestrial Biodiversity study.
Aquatic	Very High	A specialist has been appointed to undertake this study.
Archaeological and Cultural Heritage	Low	A letter of exemption will be compiled.
Civil Aviation	High	The area is an extension of a current pit and as such, no impacts are envisaged.
Defence	Low	The area is an extension of a current pit and as such, no impacts are envisaged.
Paleontology	Very High	Based on the soils identified on site, it is not anticipated that sandstone is present and therefore not envisaged that fossils will be observed. However, it is recommended that an assessment is undertaken prior to construction, as a condition of the authorisation.
Plant Species	Medium	Undertaken as part of the Terrestrial Biodiversity study.
Terrestrial Biodiversity	Very High	A specialist has been appointed to undertake this study.

**Table 3-3: Site Sensitivities of the area to be disturbed by mining activities**

Theme	Sensitivity	Reason for inclusion/exclusion
Agriculture	High	The area is already disturbed due to mining activities and is not in pristine condition - refer to Figure 3-1 and Figure 3-2.
Animal Species	High	A specialist has been appointed to undertake this study.
Aquatic	Very High	A specialist has been appointed to undertake this study.
Archaeological and Cultural Heritage	Low	A letter of exemption will be compiled.
Civil Aviation	High	The area is an extension of a current pit, and
Defence	Low	Not required.
Paleontology	Very High	Based on the soils identified on site, it is not anticipated that sandstone is present and therefore not envisaged that fossils will be observed. However, it is recommended that an assessment is undertaken prior to construction, as a condition of the authorisation.
Plant Species	Medium	A specialist has been appointed to undertake this study.
Terrestrial Biodiversity	Very High	A specialist has been appointed to undertake this study.



**Figure 3-1: Aerial view of the proposed extension area illustrating the disturbed nature of the site**



**Figure 3-2: Photograph illustrating the disturbed condition of the site of the proposed extension**

Based on the screening assessment findings, various specialist studies were identified. These are described in Table 3-4, as well as whether or not they were undertaken, and the reasoning behind this. The same specialist studies were identified in both screening assessments undertaken.

**Table 3-4: Specialist studies identified by the DFFE Screening Tool**

Specialist Assessment	Included	Reason for inclusion/exclusion
Agricultural Impact Assessment	<b>Not undertaken</b>	No agricultural impacts resulting from the proposed activity are envisaged. This is an extension of an existing pit, and the area is already disturbed due to mining activities and is not in pristine condition. Refer to Figure 3-1 and Figure 3-2.. Mitigation measures to minimise the impact on the surrounding area have been included in the EMPr.
Landscape/Visual Impact Assessment	<b>Not undertaken</b>	No further landscape/visual impacts resulting from the proposed activity are envisaged. This is an extension of an existing pit, and the area is already disturbed due to mining activities and is not in pristine condition. Refer to Figure 3-1 and Figure 3-2. Concurrent rehabilitation of portions of the mined-out area will be undertaken. Mitigation measures to minimise the impact on the surrounding area have been included in the EMPr.
Archaeological and Cultural Heritage Impact Assessment	<b>Undertaken</b>	A letter of exemption from the specialist has been compiled.
Palaeontology Impact Assessment	<b>To be confirmed</b>	Based on the soils identified on site, it is not anticipated that sandstone is present and therefore not envisaged that fossils will be observed. However, it is recommended that an assessment is undertaken prior to construction, as a condition of the authorisation.
Terrestrial Biodiversity Impact Assessment	<b>Undertaken</b>	The screening tool identifies this area as being of very high sensitivity.
Aquatic Biodiversity Impact Assessment	<b>Undertaken</b>	The screening tool identifies this area as being of very high sensitivity.
Hydrology Assessment	<b>Not undertaken</b>	No further hydrological impacts resulting from the proposed activity are envisaged. This is an extension of an existing pit and does not fall within 100m of any watercourse. Mitigation measures to minimise the impact on surface water resources have been included in the EMPr.
Noise Impact Assessment	<b>Not undertaken</b>	No further noise impacts are envisaged. The operations at the current pit will cease and then commence at the new area, directly adjacent to the existing pit. Mitigation measures to minimise the impact on the surrounding area have been included in the EMPr.
Radioactivity Impact Assessment	<b>Not undertaken</b>	This is an extension of an existing pit and the risk of radioactivity impacts is negligible.
Traffic Impact Assessment	<b>Not undertaken</b>	No further impacts on the traffic volume are envisaged. The operations at the current pit will cease when operations commence at the new area, directly adjacent to the existing pit. Mitigation measures to minimise the impact on the surrounding area have been included in the EMPr.

Geotechnical Assessment	<b>Not undertaken</b>	This is an extension of an existing pit and an engineer has been consulted to design the pit. Mitigation measures to minimise the impact on the surrounding area have been included in the EMPr.
Climate Impact Assessment	<b>Not undertaken</b>	No further impacts on the climate are envisaged. The operations at the current pit will cease and then commence at the new area, directly adjacent to the existing pit. Mitigation measures to minimise the impact on the surrounding area have been included in the EMPr.
Health Impact Assessment	<b>Not undertaken</b>	No changes to the environmental health status of the area are envisaged. The operations at the current pit will cease and then commence at the new area, directly adjacent to the existing pit. Mitigation measures to minimise the impact on the surrounding area have been included in the EMPr.
Socio-Economic Assessment	<b>Not undertaken</b>	No changes to the socio-economic status of the area are envisaged, other than the continuation of the operation to provide the limited employment opportunities it currently does. Operations at the current pit will cease and then commence at the new area, directly adjacent to the existing pit. Mitigation measures to minimise the impact on the surrounding area have been included in the EMPr.
Ambient Air Quality Impact Assessment	<b>Not undertaken</b>	No change in ambient air quality is envisaged. The operations at the current pit will cease and then commence at the new area, directly adjacent to the existing pit. Mitigation measures to minimise the impact on the surrounding area have been included in the EMPr.
Seismicity Assessment	<b>Not undertaken</b>	No seismic impacts are envisaged. The operations at the current pit will cease and then commence at the new area, directly adjacent to the existing pit. Mitigation measures to minimise the impact on the surrounding area have been included in the EMPr.
Plant Species Assessment	<b>Undertaken</b>	Included in the terrestrial biodiversity assessment.
Animal Species Assessment	<b>Undertaken</b>	Included in the terrestrial biodiversity assessment.

### 3.2.2 Applicable Listed Activities

The proposed project will require EA and Section 102 application through a BA process, due to the following listed activities being triggered.

**Table 3-5: Listed activities in terms of the 2014 NEMA EIA regulations, as amended**

Notice	Activity	Description of related activity	Applicability
1	21D	Any activity including the operation of the that activity which requires an amendment or variation to a right or permit in terms of section 102 of the Mineral and Petroleum Resources	An application in terms of Section 102 of the MPRDA is required to amend the mining area.

Notice	Activity	Description of related activity	Applicability
		Development Act, as well as any other applicable activity contained in this Listing Notice or in Listing Notice 3 of 2014, required for such amendment.	
1	27	The clearance of an area of 1 hectares or more, but less than 20 hectares of indigenous vegetation, except where such clearance of indigenous vegetation is required for— j. the undertaking of a linear activity; or ii. maintenance purposes undertaken in accordance with a maintenance management plan.	The proposed extension of the pit will be approximately 4.58ha.

#### 4 PROJECT MOTIVATION AND NEED & DESIRABILITY

Stonewell Quarry is an existing operation, with an established client base. Due to the depletion of the resource in the current area, the pit needs to be extended in order to meet the needs to the existing client demands. It has been recommended that the MR area be extended to incorporate all of the associated infrastructure of the operation, to streamline the provision and associated activities for closure of the site when required.

#### 5 DEVELOPMENT ALTERNATIVES

Development alternatives are defined in relation to a proposed activity as different means of meeting the general purposes and requirements of the activity, which may include alternatives to -

- The property on which, or location where it is proposed to undertake the activity;
- The type of activity to be undertaken;
- The design or layout of the activity;
- The technology to be used in the activity;
- The operational aspects of the activity; and
- The option of not implementing the activity.

##### 5.1 Potential Alternatives

Due to the operation already being established, there were limited options for the pit extension. The preferred location of the extension is that which is currently being applied for, as it does not require any additional infrastructure, or relocated of current infrastructure. The proposed site does not fall within any environmentally sensitive areas.

No alternate development types, layouts or technologies have been considered, as the activity is the basic mining of dolerite. This involves the stripping and storage of topsoil, mining of the target

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resource, and transporting it to the crushing plant. The only possible alternate activity would be alternate land uses.

## 5.2 No Go Alternative

Should the proposed extension not go ahead, the demand of the clients who require the products for construction and infrastructure developments will not be met. The quarry would then have to close, resulting in a loss of income for the owners and employees.

## 6 ENVIRONMENTAL ATTRIBUTES

This section outlines the biophysical and cultural heritage attributes of the study area, and indicates any environmental sensitivities that must be considered in planning and design, and in the impact assessment process.

### 6.1 Climate

The area receives an average ranging between 600mm and 1000mm per annum, dependent on the location within the Kokstad Municipality (SDF, 2022). As indicated in Figure 6-1, the area receives predominantly summer rainfall, with most of the rainfall occurring during November to January, i.e. Spring and Summer (Meteoblue, 2022).

The climate of the area is noted to be subtropical. Frost is common in this area. The warmest mean daily maximum temperature is recorded as 24°C in January and February, while the coolest mean daily minimum temperature is 5°C in June and July (Meteoblue, 2022) (Figure 6-1).

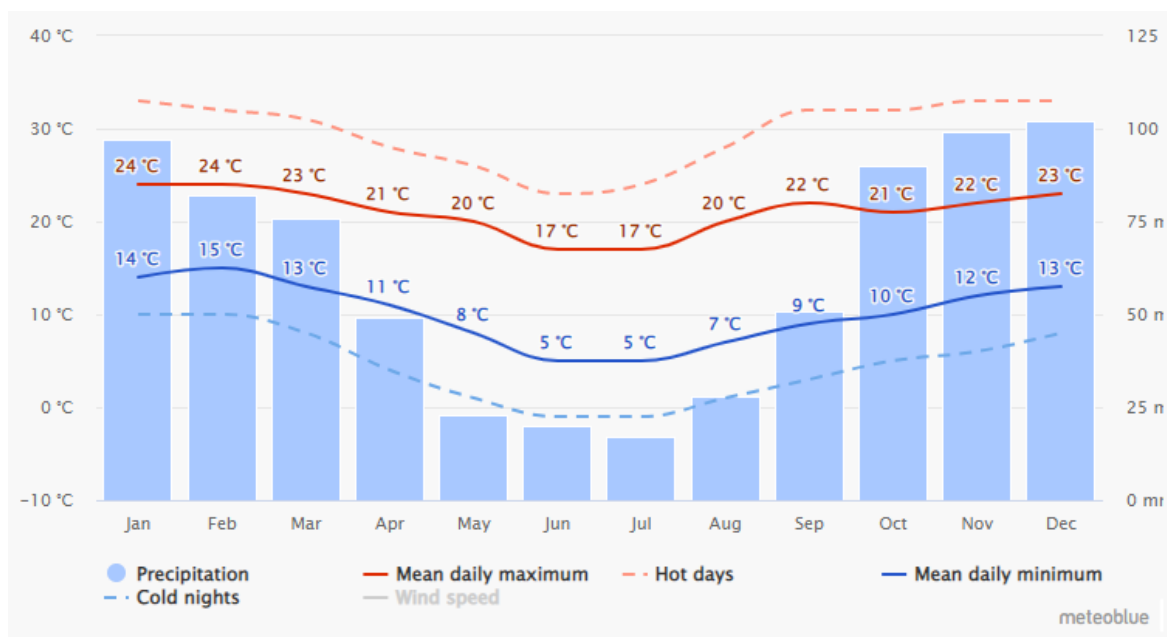


Figure 6-1: Rainfall and temperature averages for Kokstad, KwaZulu-Natal (Meteoblue, 2022)

The area does not often receive high wind speeds, with the predominant wind direction being an easterly direction (Figure 6-2). It is noted that the highest average windspeed (over 50km/hr) occurs in August, with a general trend of increased days recorded between August and November (Figure 6-3).

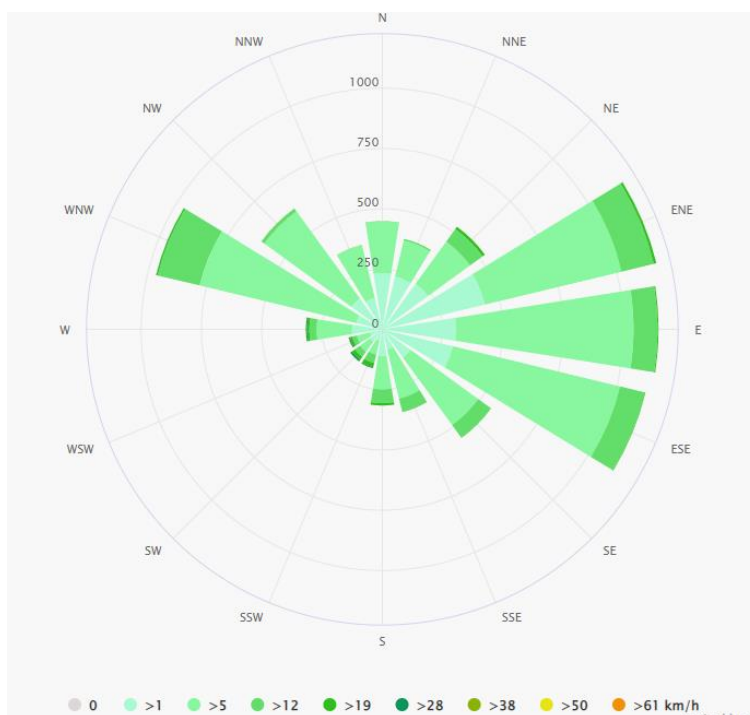


Figure 6-2: Predominant wind directions recorded in Kokstad (Meteoblue, 2022)

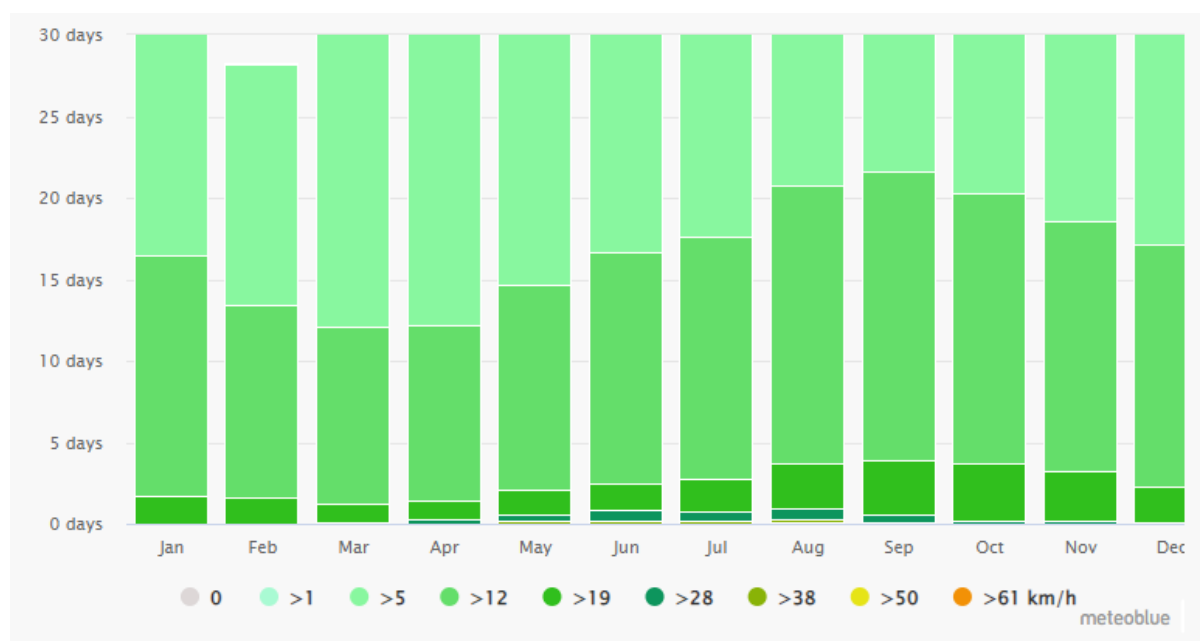


Figure 6-3: Average wind speeds recorded per month in Kokstad (Meteoblue, 2022)

## 6.2 Topography and Geology

The study site is located on the northern slope of a west - east running ridge that forms the southern border between the KwaZulu-Natal and Eastern Cape Provinces. The topography on the site varies from being relatively flat in the north where the infrastructure is located, to the proposed extension of the pit being into the hillside near the south. The site ranges from approximately 1386m above mean sea level (amsl) to approximately 1456mamsl. Refer to Figure 6-4. The natural topography of the study site has only been altered by the current pit.

The site is situated in the Adelaide Subgroup (Beaufort Group) of the Karoo Supergroup and is characterised by the dolerite intrusions, mudstone and sandstone (Figure 6-5), with a translational dolerite sill, linked to a thick differentiated sill forming mountains to the south of the site.

The soils in the study area are typically high in clay content. The soils in the northern portion of the study area falls within the Fa851 landform that typically has an average clay content of 35.7% while the soils to the south of the site falls within the Fa845 landform with an average clay content of 41%. The National Department of Agriculture has classified the soils on the study site as being undifferentiated and shallow with the limitation of being susceptible to erosion, excessive drainage and low natural fertility. Soil types that will typically occur on the site consists of Glenrosa and/or Mispah types.



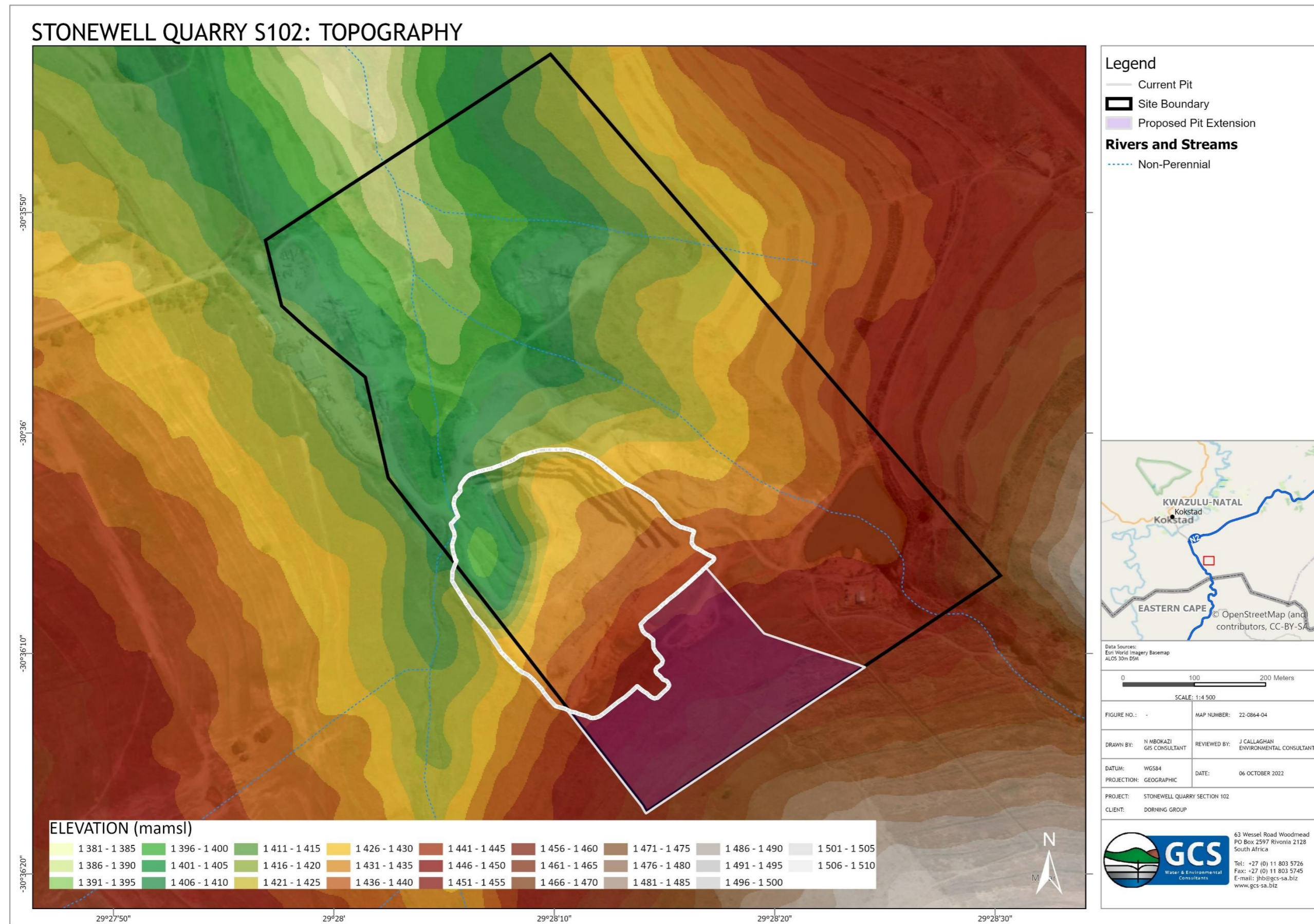


Figure 6-4: Topography of the proposed site

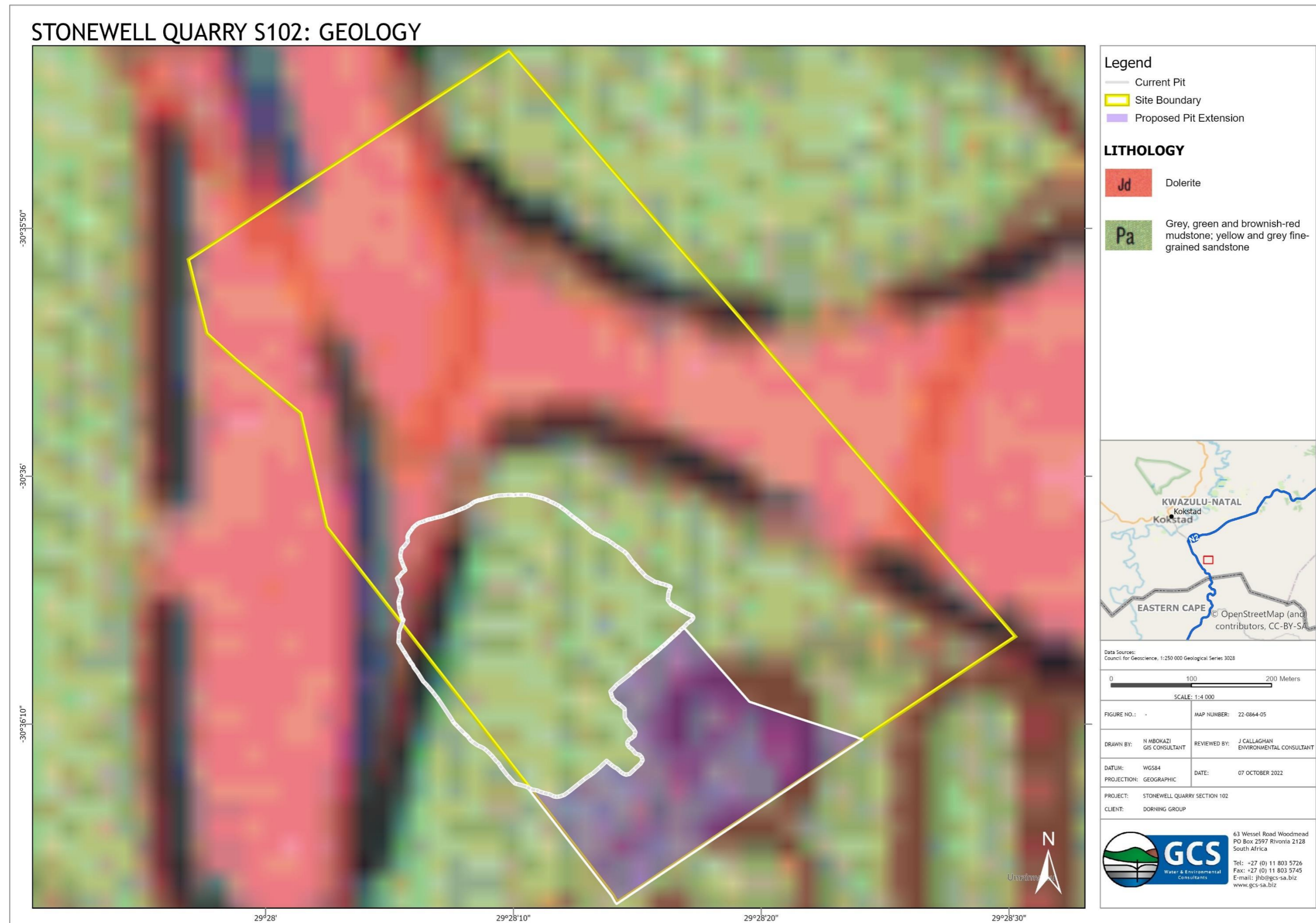


Figure 6-5: Geology of the proposed site

### 6.3 Terrestrial Biodiversity

The vegetation on the study area is classified as East Griqualand Grassland (Gs12) (Figure 6-7) by the National Vegetation Map (2018) managed by the South African National Biodiversity Institute (SANBI). The SANBI reference places the vegetation type in the Sub-escarpment Grassland Bioregion within the Grassland Biome. The total area under this vegetation type is in excess of 260 000ha. The vegetation type has a conservation status classification of “least threatened”.

It can be confirmed that the study site falls within the natural distribution of sensitive plant and animal species identified by the Screening Tool, but due to the historic clearance of the study site for agricultural and mining activities, none of these species are present on the site. The areas that have been altered through the agricultural activities have reverted back to a monoculture of *Elionurus muticus* (Wire Grass). This grass species is typical to disturbed areas and is an indication of disturbance from the natural state. The relatively bitter taste of leaves makes this species highly unpalatable to animals. Please refer to Appendix G for the Terrestrial Biodiversity Assessment.

### 6.4 Hydrology and Aquatic Features

The site is located in the Mzintlava River left bank tributary catchment, part of Quaternary subcatchment T32C in Water Management Area (WMA) 12.

The drainage from the site is in a northern direction via two unnamed watercourses that pass through and is within close proximity of the current mining operations (Figure 6-8). The unnamed watercourses are seasonal in nature and will only flow during and immediately after periods of heavy rains. One existing farm dam and one dam within the existing quarry operations are present on site, with another two farm dams located outside of the site boundary. Three of the dams are located upstream of the MR area in one of each of the unnamed tributaries with the fourth downstream of the quarry downstream of the confluence of the two unnamed tributaries. The location of these dams and unnamed tributaries are provided in Figure 6-6. Please refer to Appendix G for the Aquatic Assessment.

The National Freshwater Ecosystem Priority Areas (NFEPA) (2012) does not indicate the presence of any wetlands within the mining operations. A wetland is however present to the north of the quarry pit area. This wetland area is an unchannelled valley bottom directly associated with the unnamed watercourse that drains the mining operations.

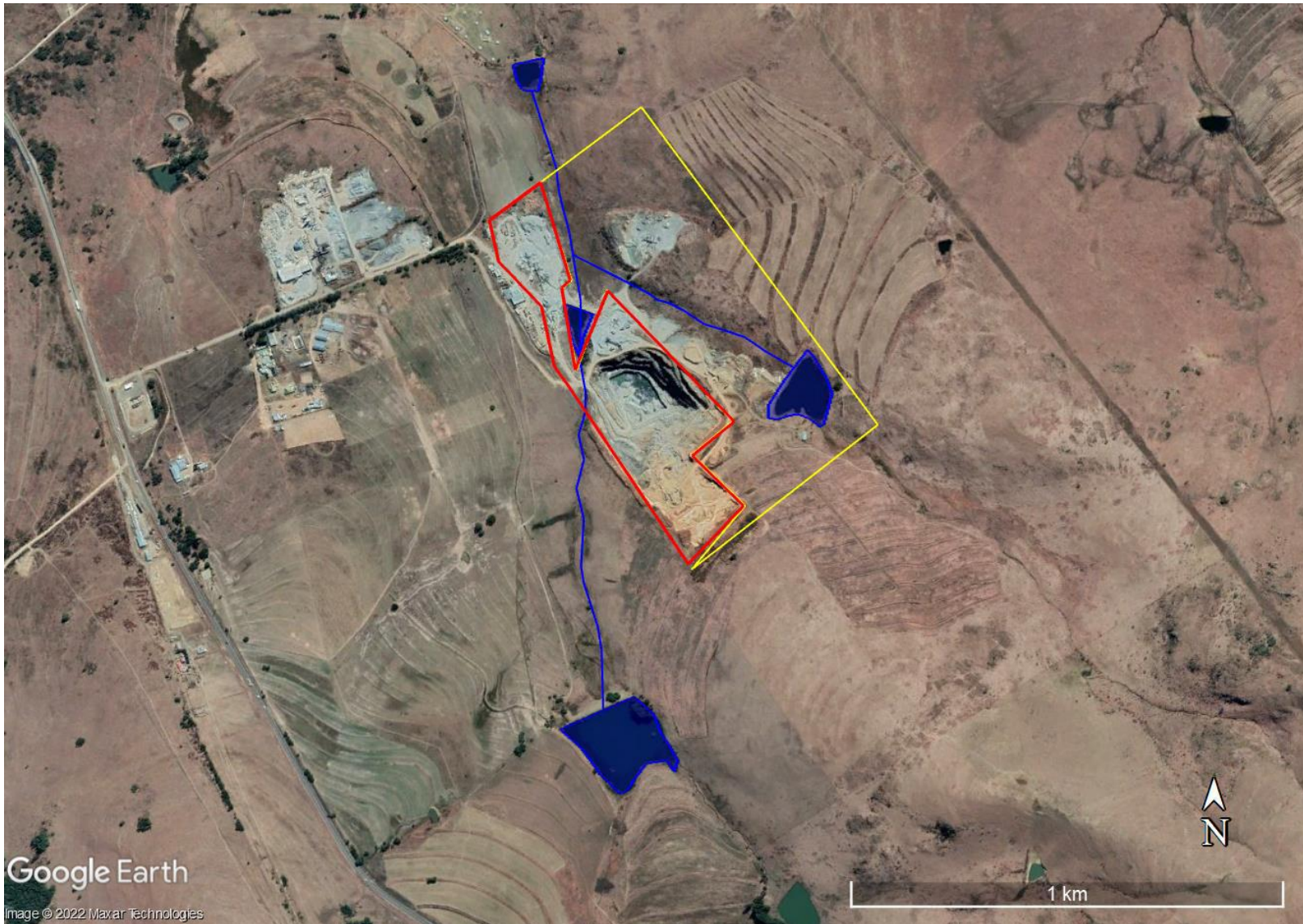


Figure 6-6: Location of the drainage features associated with the study site

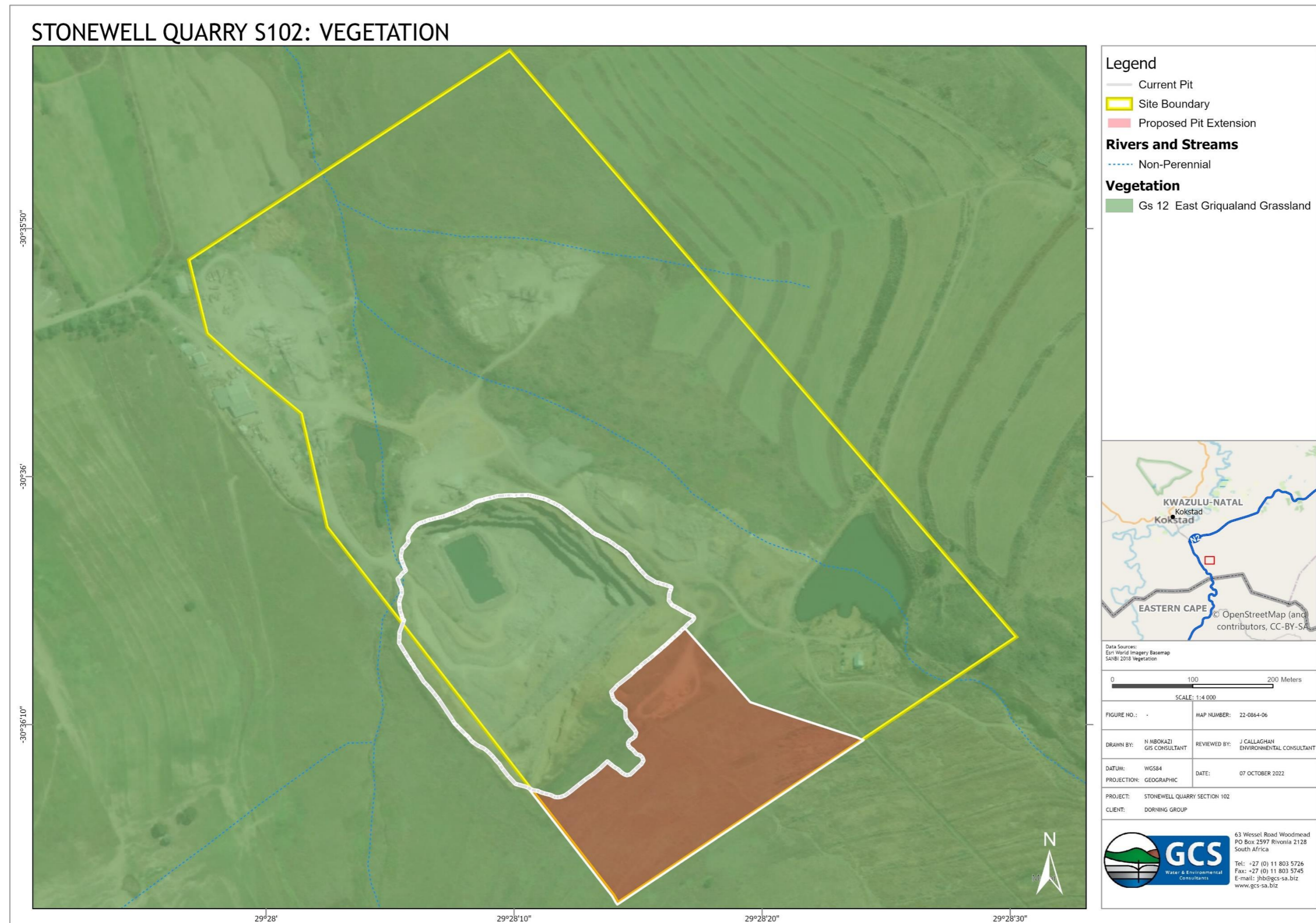


Figure 6-7: Vegetation of the proposed extension area

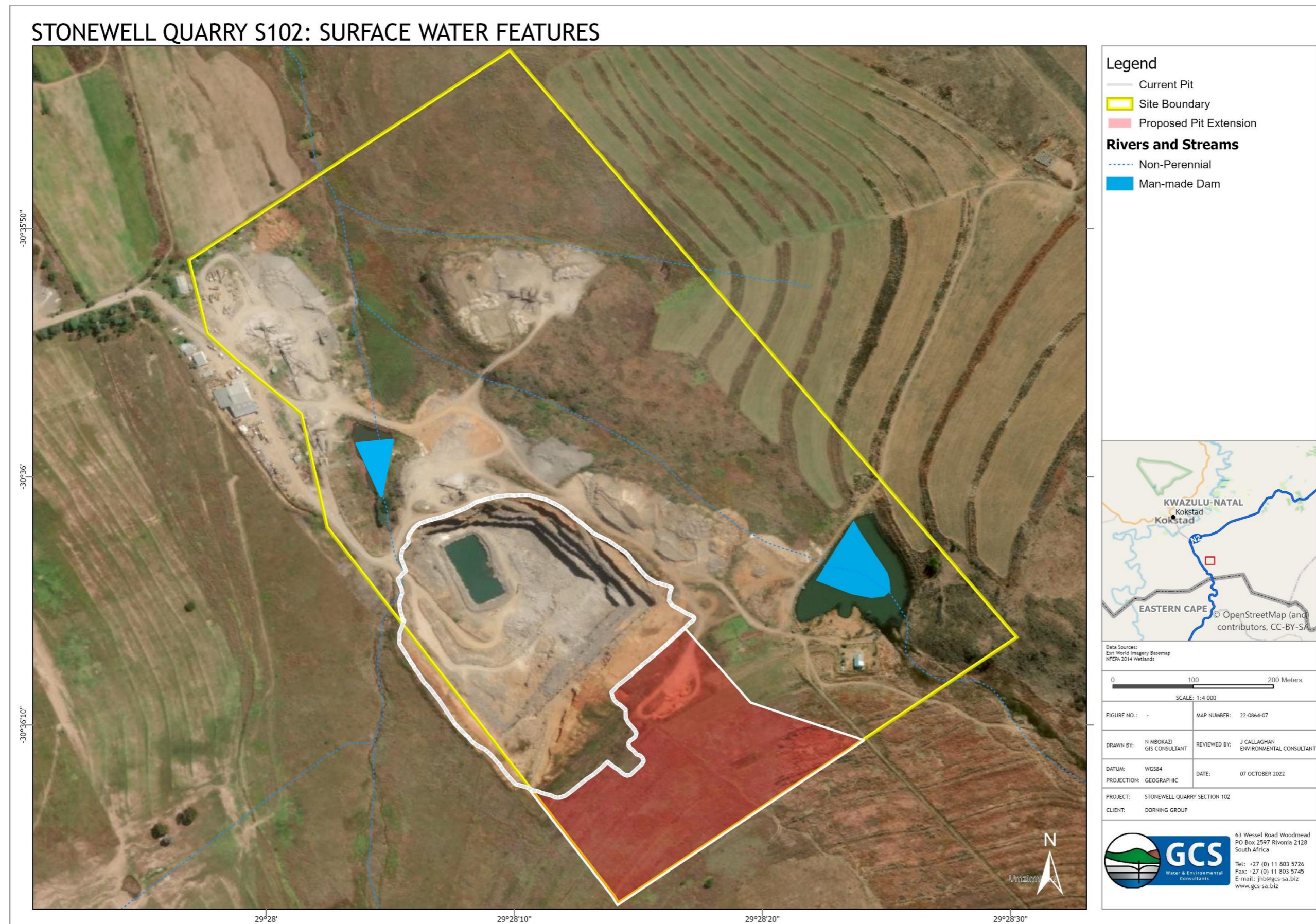


Figure 6-8: Rivers and wetlands around the proposed extension

## 6.5 Socio-Economic Context

Kwa-Zulu Natal (KZN) is one of the three coastal provinces in South Africa and shares international borders with Mozambique, Eswatini (Swaziland) and Lesotho, and provincial borders with Mpumalanga, Orange Free State and Eastern Cape provinces. The province covers a geographical area of 94,361 km<sup>2</sup> and a population of approximately 11,513,575, placing the province 7th in surface area and 2nd in population density in South Africa.

KZN is divided into one metropolitan and ten district municipalities, which are in turn subdivided into 44 local municipalities. The economy of the province, as well as the district and local municipalities, is largely based on sugar refining, agriculture, manufacturing, mining and tourism.

The Greater Kokstad Municipality (GKM) falls under the jurisdiction of the Harry Gwala District Municipality and is situated approximately 250 km south-west of Durban and covers an area of 2,680 km<sup>2</sup>. GKM is one of a family of four local municipalities (i.e. Ubuhlebezwe, Dr. Nkosazana Dlamini-Zuma and Umzimkhulu) of the Harry Gwala District Municipality. The Municipality is bordered by Dr Nkosazana Dlamini-Zuma Municipality, Umzimkhulu Municipality, uMuziwabantu Municipality, Umzimvubu Municipality and Matatiele Municipality to the north, east, southeast, south and west, respectively. The municipality is also bordered by the Lesotho hinterland to the north-west.

The GKM is recognised as the lead economic node within the District of Harry Gwala. Due to its strategic location as the provincial gateway to the Eastern Cape, the town of Kokstad, which is the administrative, commercial, trade and financial services centre of the GKM, has developed to become the main commercial services centre and principal economic hub of the Harry Gwala District and serves most of East Griqualand and nearby parts of the Eastern Cape as well. The main economic sectors of the municipality include: - Agriculture (36%), trade (20%), community services (18%), finance (16%), transport (4%), manufacturing (3%), and electricity (2%).

In accordance with the GKM IDP (2021/22) the current population is 76 753, indicating a population growth rate of 3.27% between 2011 and 2016, factoring in the recent re-demarcating of municipal wards. The GKM shows a significant proportion of youth dependency. The overall population is split between youth (0-14), working class (15 - 64) and the elderly (+ 65). The youth population accounts for 40.7%, while the working age population accounts for a majority of the population at 56.6%, while the elderly population only makes up 2.7% of the population. There is a high ratio of women to men, which is indicative that majority of the households are women headed.

Notwithstanding the aforementioned, the dependency ratio within the GKM was found to be very high at 54%, with 38.25% of the population not receiving any income and approximately 17% with an income of less than R400 per month. A large number of persons depend on social grants and government funding for their survival, resulting in challenges for the municipality with regards to employment, due to high migration of people from the Eastern Cape and Lesotho into the area in search for employment opportunities.

The greater Kokstad area is home to various heritage buildings and museums, such as the St Patrick's

Catholic Cathedral and East Griqualand Museum. There are no known heritage sites or areas of cultural significance on the site of the proposed extension, as per the specialist report in Appendix G.

## **6.6 Land Use and Land Capability**

The current land use on the property is activities associated with the operations of the quarry as well as agriculture (planting of grazing and grazing of livestock). The land capability of the proposed extension pit is mines and commercial annual crops (Figure 6-9).



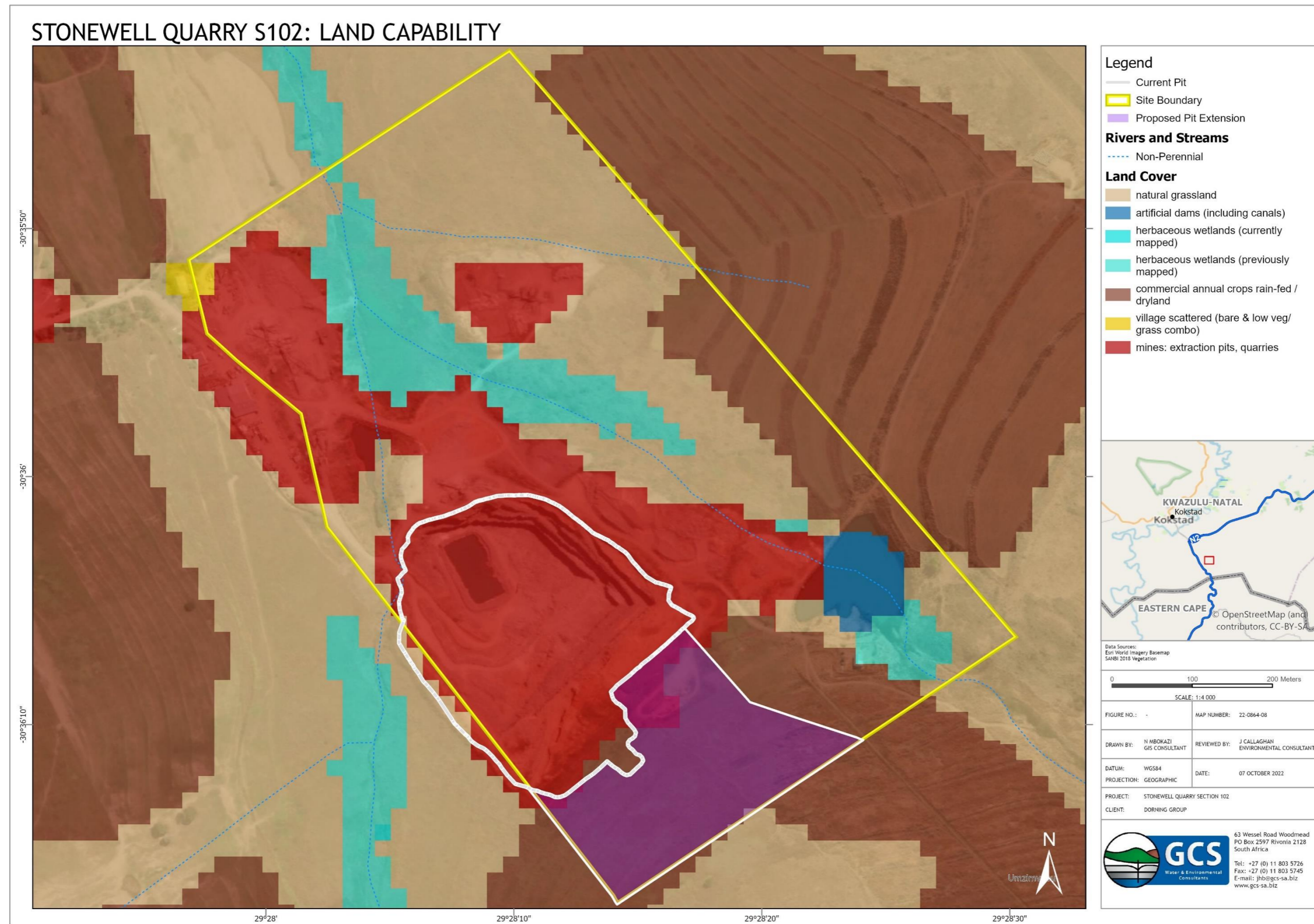


Figure 6-9: Land Capability of the Section 102 site

## 7 PUBLIC PARTICIPATION PROCESS

The Public Participation Process (PPP) is a legislated requirement environmental authorisation procedure. Refer to Appendix H for related documentation.

### 7.1 Objectives of Public Participation

The procedures followed during the undertaking of the PPP for the proposed Application for EA must adhere to the NEMA principle whereby the participation of all Interested and Affected Parties (I&APs) in environmental governance must be promoted, and all people must have the opportunity to develop the understanding, skills and capacity necessary for achieving equitable and effective participation, and involvement by vulnerable and disadvantaged individuals must be ensured (NEMA, Section 2(1)(f)).

The primary objectives of the PPP are to:

- Identify key stakeholders (i.e. Non-Governmental Organisations [NGOs], municipalities, government departments, traditional authorities) and I&APs (i.e. surrounding businesses, residents, landowners, interested members of the public);
- Inform I&APs about the proposed Application for EA;
- Establish lines of communication between I&APs and the project team to deal with potentially contentious issues;
- Provide ample opportunity to all parties to exchange information and express their views and raise issues and concerns; and
- Obtain contributions of I&APs and ensure that all issues, concerns and questions raised are fully documented and assessed as part of the BA process.

### 7.2 Public Participation Process

The public participation process included the following activities (refer to Appendix H):

- An electronic I&AP database was developed, which was maintained and updated throughout the project;
- An English and isiZulu advertisement for the registration and participation of I&APs and notification of the DBAR for comment was placed in the Kokstad Advertiser newspaper on 13 October 2022;
- Four (4) English and 4 isiZulu notice boards detailing information about the project, invitation to register as I&APs and availability of the DBAR for public comment, were placed at four strategic points around the site. All notice boards were designed to the specification of Section 54 (3) of the NEMA EIA Regulations; and
- Email notifications were circulated to all registered I&APs on the database (as applicable) inviting comments until 16 November 2022.

### 7.3 Public Review of Draft BAR

The DBAR was made available for public comment for 30 days, from **17 October 2022 to 16 November 2022** (30 days). The report was made available electronically via the GCS Website ([www.gcs-sa.biz](http://www.gcs-sa.biz)), and a hard copy was available for viewing at the security office at the entrance to the site.

### 7.4 Comments and Responses

All comments received during the application process have been captured in a Comments and Responses Report (CRR). The CRR was updated on a continuous basis and is to be presented to the authorities and other I&APs together with the consultation and final reports as a full record of issues raised, including responses on how the issues were considered during the application process (available as Appendix H to this report). The only comments received during the public consultation period was from the DALRRD, confirming that no land claims had been made against the affected property.

## 8 IMPACT ASSESSMENT

This section outlines the anticipated environmental impacts associated with each phase of the proposed pit extension. These impacts are rated in terms of significance.

### 8.1 Methodology

The assessment of potential impacts was addressed in a standard manner to ensure that a wide range of impacts were comparable. The ranking criteria and rating scales were applied to all potential impacts identified by the EMPr. The following methodology was used to rank these impacts. Clearly defined rating and rankings scales (**Table 8-1** -Table 8-4) were used to assess the impacts associated with the proposed activities. The impacts identified by each specialist study were combined into a single impact rating table for ease of assessment. The mitigation measures identified below are examples of measures to be implemented - please refer to the EMPr for more detailed measures.

**Table 8-1: Severity or magnitude of impact.**

Not applicable/none/negligible	0
Minor/insignificant/non-harmful (no loss of species/habitat)	2
Low/small/potentially harmful (replaceable loss with minimal effort)	4
Moderate/significant/slightly harmful (replaceable loss of species/habitat with great effort and investment)	6
High/highly Significant/harmful (impact to human health or welfare/loss of species/habitat)	8

Very High/extremely significant/extremely harmful/within a regulated sensitive area (loss of human life/irreplaceable loss of Red Data species/conservation habitat)	10
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**Table 8-2: Spatial Scale - extent of area being impacting upon.**

Not applicable/none/negligible	0
Site only	1
Local (within 5km)	2
Regional/neighbouring areas (5 km to 50 km)	3
National	4
International	5

**Table 8-3: Duration of activity**

Not applicable/none/negligible	0
Immediate	1
Short term (reversible, 0-5 years)	2
Medium term (difficult to reverse with effort, 5-15 years)	3
Life of the activity (long term - very difficult to reverse with extensive effort)	4
Beyond life of the activity (permanent - not reversible)	5

**Table 8-4: Probability**

Not applicable/none/negligible	0
Improbable / almost never / Annually or less	1
Low probability / Very seldom / 6 monthly	2
Medium probability / Infrequent / Temporary / Monthly	3
Highly probable / Often / semi-permanent / Weekly	4
Definite / Always / permanent / Daily	5

Each identified impact was assessed in terms of severity, spatial scale and duration (temporal scale). Significance was then determined as follows:

$$\text{Significance} = (\text{Magnitude} + \text{Duration} + \text{Scale}) \times \text{Probability}$$

Impacts were rated as either of high, moderate or low significance on the basis provided in **Table 8-5**.

**Table 8-5: Impact significance ratings (maximum of 100).**

Significance	Environmental Significance Points	Colour Code
High (positive)	>60	H
Medium (positive)	30 to 60	M
Low (positive)	<30	L
Neutral	0	N
Low (negative)	>-30	L
Medium (negative)	-30 to -60	M

High (negative)	<-60	H
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## 8.2 No-Go Impacts

To contextualise the potential impacts of the project's activities and associated infrastructure, the existing impacts (or status quo) associated with current terrestrial biodiversity conditions need to be described in terms of the vegetation patterns, structure and composition. This status quo should be used as the comparison against which the other project impacts are assessed. The main issues identified with the existing impacts are:

- The current levels of disturbance will persist on the study site.

Since these existing impacts will continue even if the project is not implemented, they are considered to be “no-go” impacts.

## 8.3 Construction Phase

### 8.3.1 Surface Water

The table below indicates the potential impacts based on activities and the proposed mitigation measures.

Impacts	Significance	
	Before Mitigation	Before Mitigation
Increase in surface runoff and velocity, leading to erosion due to the extension of the pit	28	10
<b>Mitigation Measures</b>	<ul style="list-style-type: none"> <li>• Restrict vegetation clearing to specific footprints.</li> <li>• Undertake continual monitoring to identify erosion as early as possible to remedy.</li> <li>• Implement the necessary stormwater control measures to ensure no uncontrolled discharge of stormwater takes place.</li> <li>• The 100m distance from the two unnamed watercourse must be survey and clearly demarcated. The pit extension in its current extent may not encroach into this 100m area.</li> <li>• All stormwater that falls within the quarry pit extension area must be allowed to drain into the existing sump in the quarry pit.</li> <li>• No stormwater runoff from the quarry pit extension area may be discharged into the environment without the appropriate approvals.</li> </ul>	

### 8.3.2 Fauna

The table below indicates the potential impacts based on activities and the proposed mitigation measures.

Impacts	Significance	
	Before Mitigation	After Mitigation
Disturbance or mortality incidents of terrestrial fauna due to the extension of the pit	28	14

Impacts	Significance	
	Before Mitigation	After Mitigation
Mitigation Measures	<ul style="list-style-type: none"> <li>Restrict all movement of vehicles and heavy machinery to permissible, designated areas. No off-road driving beyond designated areas may be allowed.</li> <li>Strict speed limits must be set and adhered to.</li> <li>Driving between dusk and dawn should be permissible to emergency situations only.</li> </ul>	

### 8.3.3 Flora

The table below indicates the potential impacts based on activities and the proposed mitigation measures.

Impacts	Significance:	
	Before Mitigation	After Mitigation
Loss of indigenous vegetation due to clearing of the site	44	18
Increase in alien invasive vegetation on cleared sites due to the clearing of vegetation	44	18
Contamination of the area by domestic waste	21	18
Mitigation Measures	<ul style="list-style-type: none"> <li>Restrict all movement of vehicles and heavy machinery to permissible areas. No off-road driving beyond designated areas may be allowed.</li> <li>Parking areas and vehicles should be regularly inspected for oil spills and covered with an impermeable or absorbent layer (with the necessary storm water control) if oil and fuel spillages are highly likely to occur.</li> <li>Re-fuelling must take place on a sealed surface or drip trays should be used to prevent infiltration of hydrocarbons into topsoil.</li> <li>Footprint areas should be kept as small as possible when removing alien plant species.</li> <li>Provision must be made for concurrent rehabilitation of the mined operations which will ensure that the area is mined in the designated sections.</li> <li>The EMPR for the quarry operations will make provision for the rehabilitation measures to be implemented at the operations. These must be made applicable to the proposed quarry pit extension.</li> <li>A seedbed of alien plants will be present within the cleared soils. This seedbed and the plants that originate from it must be managed as follows: <ul style="list-style-type: none"> <li>The Mining Permit footprint must be clearly surveyed and demarcated before any construction or operations are set to commence, to ensure that the area to be cleared is limited to only the areas that are necessary for the mining activities.</li> <li>The cleared areas must be regularly monitored for the establishment of alien plant species. These must be cleared when they appear.</li> <li>If alien invasive plant species become a problem on the site, a formal Alien Invasive Management Plan must be set up and implemented. This plan must make provision for the identification and eradication of these species.</li> </ul> </li> <li>Even though the impacts of contamination of the area by domestic waste are considered to be low pre-mitigation, the following mitigation measures must be included to further reduce the significance of the impact:</li> </ul>	

Impacts	Significance:	
	Before Mitigation	After Mitigation
	<ul style="list-style-type: none"> <li>○ A designated eating area must be established within the mining area.</li> <li>○ Covered domestic waste bins must be present at the eating area to receive all the domestic waste generated by the labour.</li> <li>○ The capacity of these domestic bins must be monitored on a daily basis to ensure they are emptied timeously.</li> <li>○ The domestic waste from these waste bins must be removed off site and disposed of at a municipal landfill site on a weekly basis or more regularly if the bins fill up quicker.</li> </ul>	

### 8.3.4 Rivers and Wetlands

The table below indicates the potential impacts based on activities and the proposed mitigation measures.

Impact	Significance:	
	Before Mitigation	Before Mitigation
Increase in runoff and erosion.	10	5
Mitigation Measures	<ul style="list-style-type: none"> <li>• Plant soil stabilizing species such as grasses.</li> <li>• Plant indigenous trees common to the habitat to replace riparian vegetation.</li> <li>• Monitor the establishment of invasive species and remove as soon as detected, whenever possible before regenerative material can be formed, destroy all material to prevent re-establishment. Undertake continual monitoring to identify erosion as early as possible to remedy.</li> <li>• Implement the necessary stormwater control measures to ensure no uncontrolled discharge of stormwater takes place.</li> </ul>	

### 8.3.5 Geology and Topography

The table below indicates the potential impacts based on activities and the proposed mitigation measures.

Impact	Significance:	
	Before Mitigation	Before Mitigation
Change in baseline topography	28	28
Mitigation Measures	<ul style="list-style-type: none"> <li>• There will be a permanent alteration to the geology of the area as the dolerite sill is the targeted resource that is being mined. No mitigation measures for this impact are applicable.</li> <li>• Restrict disturbance to designated footprint.</li> <li>• Strict adherence to the EMPr.</li> <li>• Ensure proper access control to the development area <ul style="list-style-type: none"> <li>○ Fencing.</li> <li>○ Security.</li> <li>○ Barriers.</li> </ul> </li> <li>• Ensure warning signs are erected on the perimeter of these areas.</li> <li>• Structural safety to be ensured according to engineering standards.</li> </ul>	

### 8.3.6 Soil

The table below indicates the potential impacts based on activities and the proposed mitigation measures.

Impact	Significance:	
	Before Mitigation	Before Mitigation
Contamination of the area by petrochemical spillages	18	6
<b>Mitigation Measures</b>	<ul style="list-style-type: none"> <li>• Material excavated from the pit is to be stockpiled separately i.e. Overburden and topsoil</li> <li>• Topsoil stockpiles must be clearly demarcated and situated away from any operational areas to avoid mixing. The following will be implemented: <ul style="list-style-type: none"> <li>○ An inventory will be kept of the topsoil thickness, organic content, texture and fertility status before stripping the soil.</li> <li>○ A1 or the surface soil horizon will be stripped first (approximately 50-100mm thick).</li> <li>○ Thereafter, the A2 soil horizon will be stripped to ensure no mixing of horizons.</li> <li>○ The subsoil/BC horizon will then be stripped and stockpiled. This layer is required for the profiling of areas when rehabilitated.</li> <li>○ All topsoil from any operations such as construction of haul roads and ramps will be excavated and stored as above.</li> <li>○ Soil stockpiles will be protected from erosion by runoff by installing adequate stormwater management systems.</li> <li>○ The soil and overburden stockpiles will be kept at less than 2m thick with slopes limited to 1:2.5 gradient. The top of the stockpiles should be flattened to reduce the height and length of slopes.</li> <li>○ Stockpiles will be revegetated with an appropriate mix of perennial grasses and leguminous plants to minimize erosion and reduce visibility, as well as enhance fertility and maintain soil biota.</li> </ul> </li> <li>• All plant and equipment that make use of petrochemical substances must be checked leakages on a daily basis before operations commence.</li> <li>• All plants and equipment that are found to be leaking must be removed from the property and only returned once the leakages have been addressed.</li> <li>• All refuelling of plant and equipment must be conducted over a drip-tray.</li> <li>• If any plant or equipment is to be parked on the site, these must be parked within the demarcated construction footprint that has been cleared.</li> <li>• If any spillages from plant or equipment occur, the spill must be immediately contained, the contaminated soils must be collected and bagged in impermeable bags and stored on site to be removed and disposed of by a registered service provider.</li> </ul>	

### 8.3.7 Land Use

The table below indicates the potential impacts based on activities and the proposed mitigation measures.

Impact	Significance:	
	Before Mitigation	Before Mitigation
Change in land use from disturbed area to mining	12	5



Impact	Significance:	
	Before Mitigation	Before Mitigation
Mitigation Measures	<ul style="list-style-type: none"> <li>Restrict disturbance to designated footprint.</li> <li>Restrict vehicle movement to designated access roads.</li> <li>Strict adherence to the EMPr.</li> <li>All areas disturbed by activities must be subject to rehabilitation.</li> </ul>	

### 8.3.8 Traffic

The table below indicates the potential impacts based on activities and the proposed mitigation measures.

Impact	Significance:	
	Before Mitigation	Before Mitigation
Minimal, intermittent increase in number of trucks on the road	6	5
Mitigation Measures	<ul style="list-style-type: none"> <li>The road is designed according to the specifications of a provincial road. The applicant will assist where feasibly possible to repair and maintain the road.</li> <li>The current number of trucks entering and leaving site is expected to be maintained.</li> <li>Restrict the speed of trucks on site.</li> </ul>	

### 8.3.9 Cultural and Heritage Resources

The table below indicates the potential impacts based on activities and the proposed mitigation measures.

Impact	Significance:	
	Before Mitigation	Before Mitigation
Disturbance of palaeontological material	7	5
Mitigation Measures	<ul style="list-style-type: none"> <li>Adhere to footprint areas.</li> <li>A Chance find procedure should be implemented for the duration of the project with inputs from stakeholders and the local community, should there be a heritage resource identified.</li> <li>For any chance finds of heritage resources, such as graves, all work must cease in the affected area and the Contractor must immediately inform the Project Manager (PM). A heritage specialist must be called to site for inspection. The relevant heritage resource agency (SAHRA) must also be informed about the finding.</li> <li>Should any recent remains be found on site that could potentially be human remains, the South African Police Service (SAPS) as well as SAHRA must be informed. No SAPS official may remove remains until the correct permit/s have been obtained.</li> <li>A Paleontological Impact Assessment (PIA) should be undertaken prior to commencement of the construction activities.</li> </ul>	

### 8.3.10 Socio-Economic

The table below indicates the potential impacts based on activities and the proposed mitigation measures.

Impact	Significance:	
	Before Mitigation	Before Mitigation
Continuation of employment of current workers	16	16
Mitigation Measures	<ul style="list-style-type: none"> <li>Positive impact, so no mitigation measures required.</li> </ul>	

### 8.3.11 Noise

The table below indicates the potential impacts based on activities and the proposed mitigation measures.

Impact	Significance	
	Before Mitigation	Before Mitigation
Continuation of ambient noise levels	30	16
Mitigation Measures	<ul style="list-style-type: none"> <li>The Contractor must keep noise level within acceptable limits.</li> <li>Comply with ECA (GN R154 of 10 January 1992) and all local noise bylaws.</li> <li>Restrict the use of sound amplification equipment for communication and emergency only.</li> <li>Any complaints received by the Contractor regarding noise must be recorded and communicated to the SS and PM.</li> <li>Develop a Code of Conduct for the site establishment phase in terms of the behaviour of construction staff.</li> </ul>	

### 8.3.12 Visual

The table below indicates the potential impacts based on activities and the proposed mitigation measures.

Impact	Significance	
	Before Mitigation	Before Mitigation
Visual intrusion	27	14
Mitigation Measures	<ul style="list-style-type: none"> <li>Limit the site footprint to the designated works area.</li> <li>Limit the site establishment duration.</li> <li>Reinstating and rehabilitating disturbed areas as soon as possible.</li> <li>Limiting site establishment activities to working hours.</li> <li>Ensure that the site is in a visually acceptable state at all times.</li> <li>Ensure a complaints register is in place to record and address complaints.</li> <li>Undertake rehabilitation efforts as soon as feasibly possible</li> </ul>	

### 8.3.13 Air

The table below indicates the potential impacts based on activities and the proposed mitigation measures.

Impact	Significance	
	Before Mitigation	Before Mitigation
Generation of dust	20	7
Air pollution from equipment	20	7

Impact	Significance	
	Before Mitigation	Before Mitigation
Mitigation Measures	<ul style="list-style-type: none"> <li>• Implement dust suppression measures.</li> <li>• Ensure a complaints register is in place to record and address complaints.</li> <li>• Fuel-saving through optimal vehicle and equipment use scheduling.</li> <li>• Servicing and maintenance of vehicles, and machinery.</li> <li>• Use of fuel-saving technology.</li> <li>• Use of low carbon and sulphur fuels.</li> <li>• Restricting vehicle speeds on access routes and other unsurfaced areas of the work site.</li> <li>• Restrict vehicle access to defined areas to avoid unnecessary off-road vehicle movements outside of the active work sites.</li> </ul>	

## 8.4 Operational Phase

### 8.4.1 Surface Water

The table below indicates the potential impacts based on activities and the proposed mitigation measures.

Impacts	Significance	
	Before Mitigation	Before Mitigation
Compaction of bare earth leading to increased surface runoff velocity	28	10
Potential pollution from hydrocarbons	28	10
Mitigation Measures	<ul style="list-style-type: none"> <li>• Measures should be put in place to prevent and contain spills and facilitate the safe collection and disposal of waste.</li> <li>• Restrict vehicle movement to designated access roads. No vehicles should be allowed to indiscriminately drive through the drainage lines or riparian areas.</li> <li>• Restrict vegetation clearing to specific footprints.</li> <li>• Minimise areas where spills might occur.</li> <li>• Capture and contain runoff from these areas.</li> <li>• Safely dispose of captured pollutants immediately upon detection.</li> </ul>	

### 8.4.2 Fauna

The table below indicates the potential impacts based on activities and the proposed mitigation measures.

Impacts	Significance	
	Before Mitigation	After Mitigation
Disturbance or mortality incidents of terrestrial fauna.	28	10
Mitigation Measures	<ul style="list-style-type: none"> <li>• Restrict all movement of vehicles and heavy machinery to permissible, designated areas. No off-road driving beyond designated areas may be allowed.</li> <li>• Strict speed limits must be set and adhered to.</li> <li>• Driving between dusk and dawn should be permissible to emergency situations only.</li> </ul>	

### 8.4.3 Flora

The table below indicates the potential impacts based on activities and the proposed mitigation measures.

Impacts	Significance:	
	Before Mitigation	After Mitigation
Loss of minimal indigenous vegetation present on site	44	18
Spreading of alien invasive plant species	44	18
Contamination of the area by domestic waste	21	18
<b>Mitigation Measures</b>	<ul style="list-style-type: none"> <li>• Provision must be made for concurrent rehabilitation of the mining operations which will ensure that the permit area is mined in designated sections.</li> <li>• The mined out sections will be rehabilitated and planted with an indigenous grass seed mix in the first growing season after it has been mined out. This will limit the operational area to the current operational area.</li> <li>• A seedbed of alien plants will be present within the cleared soils. This seedbed and the plants that originate from it must be managed as follows: <ul style="list-style-type: none"> <li>○ The Mining Permit footprint must be clearly surveyed and demarcated before any construction or operations are set to commence, to ensure that the area to be cleared is limited to only the areas that are necessary for the mining activities.</li> <li>○ The cleared areas must be regularly monitored for the establishment of alien plant species. These must be cleared when they appear.</li> <li>○ If alien invasive plant species become a problem on the mining area site, a formal Alien Invasive Management Plan must be set up and implemented. This plan must make provision for the identification and eradication of these species.</li> </ul> </li> <li>• Even though the impacts of contamination of the area by domestic waste are considered to be low pre-mitigation, the following mitigation measures must be included to further reduce the significance of the impact: <ul style="list-style-type: none"> <li>○ A designated eating area must be established within the mining area.</li> <li>○ Covered domestic waste bins must be present at the eating area to receive all the domestic waste generated by the labour.</li> <li>○ The capacity of these domestic bins must be monitored on a daily basis to ensure they are emptied timeously.</li> <li>○ The domestic waste from these waste bins must be removed off site and disposed of at a municipal landfill site on a weekly basis or more regularly if the bins fill up quicker.</li> </ul> </li> <li>• Restrict all movement of vehicles and heavy machinery to permissible areas. No off-road driving beyond designated areas may be allowed.</li> </ul>	

### 8.4.4 Rivers and Wetlands

The table below indicates the potential impacts based on activities and the proposed mitigation measures.

Impact	Significance:	
	Before Mitigation	Before Mitigation
Increase in runoff and erosion.	15	5
<b>Mitigation Measures</b>	<ul style="list-style-type: none"> <li>• Limit the footprint area of the mining activities to what is absolutely essential in order to minimise environmental damage.</li> <li>• Implement effective waste management in order to prevent waste from entering the drainage lines and riparian environments surrounding the project area</li> <li>• Plant soil stabilizing species such as grasses.</li> <li>• Monitor the establishment of invasive species and remove as soon as detected, whenever possible before regenerative material can be formed, destroy all material to prevent re-establishment.</li> </ul>	

#### 8.4.5 Geology and Topography

The table below indicates the potential impacts based on activities and the proposed mitigation measures.

Impact	Significance:	
	Before Mitigation	Before Mitigation
Removal of target resource	40	28
<b>Mitigation Measures</b>	<ul style="list-style-type: none"> <li>• Restrict disturbance to designated footprint.</li> <li>• Strict adherence to the EMPr.</li> <li>• Ensure proper access control to the development area <ul style="list-style-type: none"> <li>○ Fencing.</li> <li>○ Security.</li> <li>○ Barriers.</li> </ul> </li> <li>• Ensure warning signs are erected on the perimeter of these areas.</li> <li>• Structural safety to be ensured according to engineering standards.</li> <li>• Provision must be made during concurrent rehabilitation that the topography is free draining in the natural drainage direction of the surrounding area.</li> </ul>	

#### 8.4.6 Soil

The table below indicates the potential impacts based on activities and the proposed mitigation measures.

Impact	Significance:	
	Before Mitigation	Before Mitigation
Contamination of the area by petrochemical spillages	18	6

Impact	Significance:	
	Before Mitigation	Before Mitigation
Mitigation Measures	<ul style="list-style-type: none"> <li>• Even though the impacts of contamination of the area by petrochemical spillages are considered to be low pre-mitigation, the following mitigation measures must be included to further reduce the significance of the impact: <ul style="list-style-type: none"> <li>○ All plant and equipment that make use of petrochemical substances must be checked for leakages on a daily basis.</li> <li>○ All plant and equipment that are found to be leaking must be removed from the property and only returned once the leakages have been addressed.</li> <li>○ If any petrochemical substances are stored on the property, this storage must be done on an impermeable surface in a bunded area that makes provision for 110% of volume of the substances that are stored.</li> <li>○ All refuelling of plant and equipment must be conducted over a drip tray.</li> <li>○ If any plant or equipment is to be parked on site, these must be parked within the demarcated construction footprint that has been cleared.</li> <li>○ If any spillages from plant or equipment occur, the spill must be immediately contained, the contaminated soils must be collected and bagged in impermeable bags and stored on site to be removed and disposed of by a registered service provider.</li> </ul> </li> </ul>	

#### 8.4.7 Land Use

The table below indicates the potential impacts based on activities and the proposed mitigation measures.

Impact	Significance:	
	Before Mitigation	Before Mitigation
Reduction of grazing and agricultural land	28	10
Mitigation Measures	<ul style="list-style-type: none"> <li>• Restrict disturbance to designated footprint.</li> <li>• Restrict vehicle movement to designated access roads.</li> <li>• Strict adherence to the EMPr.</li> <li>• All areas disturbed by activities must be subject to rehabilitation.</li> </ul>	

#### 8.4.8 Traffic

The table below indicates the potential impacts based on activities and the proposed mitigation measures.

Impact	Significance:	
	Before Mitigation	Before Mitigation
Minimal, intermittent increase in number of trucks on the road	24	5
Mitigation Measures	<ul style="list-style-type: none"> <li>• The road is designed according to the specifications of a provincial road. The applicant will assist where feasibly possible to repair and maintain the road.</li> <li>• The current number of trucks entering and leaving site is expected to be maintained.</li> <li>• Restrict the speed of trucks on site.</li> </ul>	

#### 8.4.9 Cultural and Heritage Resources

The table below indicates the potential impacts based on activities and the proposed mitigation measures.

Impact	Significance:	
	Before Mitigation	Before Mitigation
Disturbance of palaeontological material	27	10
<b>Mitigation Measures</b>	<ul style="list-style-type: none"> <li>Adhere to footprint areas.</li> <li>A Chance find procedure should be implemented for the duration of the project with inputs from stakeholders and the local community, should there be a heritage resource identified.</li> <li>For any chance finds of heritage resources, such as graves, all work must cease in the affected area and the Contractor must immediately inform the PM. A heritage specialist must be called to site for inspection. SAHRA must also be informed about the finding.</li> <li>Should any recent remains be found on site that could potentially be human remains, the SAPS as well as SAHRA must be informed. No SAPS official may remove remains until the correct permit/s have been obtained.</li> </ul>	

#### 8.4.10 Socio-Economic

The table below indicates the potential impacts based on activities and the proposed mitigation measures.

Impact	Significance:	
	Before Mitigation	Before Mitigation
Continuation of employment of current workers	16	16
Meeting demands of contractors in the area	16	16
<b>Mitigation Measures</b>	<ul style="list-style-type: none"> <li>Positive impact, so no mitigation measures required.</li> </ul>	

#### 8.4.11 Noise

The table below indicates the potential impacts based on activities and the proposed mitigation measures.

Impact	Significance	
	Before Mitigation	Before Mitigation
Continuation of ambient noise levels	30	16
<b>Mitigation Measures</b>	<ul style="list-style-type: none"> <li>The Contractor must keep noise level within acceptable limits.</li> <li>Comply with the Noise Control Regulations in terms of Section 25 of ECA (GN R154 of 10 January 1992) and all local noise bylaws.</li> <li>Restrict the use of sound amplification equipment for communication and emergency only.</li> <li>Any complaints received by the Contractor regarding noise must be recorded and communicated to the SS and PM.</li> <li>Develop a Code of Conduct for the site establishment phase in terms of the behaviour of construction staff.</li> </ul>	

#### 8.4.12 Visual

The table below indicates the potential impacts based on activities and the proposed mitigation measures.

Impact	Significance	
	Before Mitigation	Before Mitigation
Visual intrusion	30	16
Mitigation Measures	<ul style="list-style-type: none"> <li>• Limit the site footprint to the designated works area.</li> <li>• Reinstating and rehabilitating disturbed areas as soon as possible.</li> <li>• Limiting operational activities to working hours.</li> <li>• Ensure that the site is in a visually acceptable state at all times.</li> <li>• Ensure a complaints register is in place to record and address complaints.</li> <li>• Undertake rehabilitation efforts as soon as feasibly possible</li> </ul>	

#### 8.4.13 Air

The table below indicates the potential impacts based on activities and the proposed mitigation measures.

Impact	Significance	
	Before Mitigation	Before Mitigation
Generation of dust	30	14
Air pollution from equipment	30	14
Mitigation Measures	<ul style="list-style-type: none"> <li>• Implement dust suppression measures.</li> <li>• Ensure a complaints register is in place to record and address complaints.</li> <li>• Fuel-saving through optimal vehicle and equipment use scheduling.</li> <li>• Servicing and maintenance of vehicles, and machinery.</li> <li>• Use of fuel-saving technology.</li> <li>• Use of low carbon and sulphur fuels.</li> <li>• Restricting vehicle speeds on access routes and other unsurfaced areas of the work site.</li> <li>• Restrict vehicle access to defined areas to avoid unnecessary off-road vehicle movements outside of the active work sites.</li> </ul>	

### 8.5 Decommissioning Phase

#### 8.5.1 Surface Water

The table below indicates the potential impacts based on activities and the proposed mitigation measures.

Impacts	Significance	
	Before Mitigation	Before Mitigation
Compaction of soil during rehabilitation activities leading to increased runoff velocity and erosion	18	8



Impacts	Significance	
	Before Mitigation	Before Mitigation
Pollution of surface water resources from hydrocarbons.	18	8
Mitigation Measures	<ul style="list-style-type: none"> <li>Restrict operational activities to specific footprints.</li> <li>Undertake continual monitoring to identify erosion as early as possible to remedy.</li> <li>Implement the necessary stormwater control measures to ensure no uncontrolled discharge of stormwater takes place.</li> <li>Rehabilitation activities must ensure the area reflects the natural drainage direction of the surrounding areas.</li> </ul>	

It is important to note that, although there is a low negative impact during the decommissioning phase, this impact will cease when rehabilitation is completed.

### 8.5.2 Fauna

The table below indicates the potential impacts based on activities and the proposed mitigation measures.

Impacts	Significance	
	Before Mitigation	After Mitigation
Restoration of habitats will encourage fauna to return to the area.	28	28
Mitigation Measures	<ul style="list-style-type: none"> <li>None required - positive impact.</li> </ul>	

### 8.5.3 Flora

The table below indicates the potential impacts based on activities and the proposed mitigation measures.

Impacts	Significance	
	Before Mitigation	After Mitigation
Spreading of alien invasive vegetation	44	9
Mitigation Measures	<ul style="list-style-type: none"> <li>A seedbed of alien plants will be present within the cleared soils. This seedbed and the plants that originate from it must be managed as follows: <ul style="list-style-type: none"> <li>The Mining Permit footprint must be clearly surveyed and demarcated before any construction or operations are set to commence, to ensure that the area to be cleared is limited to only the areas that are necessary for the mining activities.</li> <li>The cleared areas must be regularly monitored for the establishment of alien plant species. These must be cleared when they appear.</li> <li>If alien invasive plant species become a problem on the site, a formal Alien Invasive Management Plan must be set up and implemented. This plan must make provision for the identification and eradication of these species.</li> </ul> </li> </ul>	

It is important to note that, although there is a low negative impact during the decommissioning phase, this impact will cease when rehabilitation is completed and the pre-mining floral conditions are restored.

#### 8.5.4 Rivers and Wetlands

The table below indicates the potential impacts based on activities and the proposed mitigation measures.

Impact	Significance:	
	Before Mitigation	Before Mitigation
Restoration of site close to natural state	28	28
Improvement in biodiversity of the areas.	28	28
Mitigation Measures	<ul style="list-style-type: none"> <li>None required - positive impact.</li> </ul>	

#### 8.5.5 Geology and Topography

The table below indicates the potential impacts based on activities and the proposed mitigation measures.

Impact	Significance:	
	Before Mitigation	Before Mitigation
Alteration of catchment drainage due to change in baseline topography	36	28
Mitigation Measures	<ul style="list-style-type: none"> <li>Strict adherence to the EMPr.</li> <li>Provision must be made during concurrent rehabilitation that the topography is free draining in the natural drainage direction of the surrounding area.</li> </ul>	

#### 8.5.6 Soil

The table below indicates the potential impacts based on activities and the proposed mitigation measures.

Impact	Significance:	
	Before Mitigation	Before Mitigation
Contamination of the area by petrochemical spillages	18	6

Impact	Significance:	
	Before Mitigation	Before Mitigation
Mitigation Measures	<ul style="list-style-type: none"> <li>• Even though the impacts of contamination of the area by petrochemical spillages are considered to be low pre-mitigation, the following mitigation measures must be included to further reduce the significance of the impact: <ul style="list-style-type: none"> <li>○ All plant and equipment that make use of petrochemical substances must be checked for leakages on a daily basis.</li> <li>○ All plant and equipment that are found to be leaking must be removed from the property and only returned once the leakages have been addressed.</li> <li>○ If any petrochemical substances are stored on the property, this storage must be done on an impermeable surface in a bunded area that makes provision for 110% of volume of the substances that are stored.</li> <li>○ All refuelling of plant and equipment must be conducted over a drip tray.</li> <li>○ If any plant or equipment is to be parked on site, these must be parked within the demarcated construction footprint that has been cleared.</li> <li>○ If any spillages from plant or equipment occur, the spill must be immediately contained, the contaminated soils must be collected and bagged in impermeable bags and stored on site to be removed and disposed of by a registered service provider.</li> </ul> </li> </ul>	

#### 8.5.7 Land Use

The table below indicates the potential impacts based on activities and the proposed mitigation measures.

Impact	Significance:	
	Before Mitigation	Before Mitigation
Restoration of disturbed areas as closely as possible to natural land use	12	12
Mitigation Measures	<ul style="list-style-type: none"> <li>• None required - positive impact.</li> </ul>	

#### 8.5.8 Traffic

The table below indicates the potential impacts based on activities and the proposed mitigation measures.

Impact	Significance:	
	Before Mitigation	Before Mitigation
Cessation of activities on site	5	5
Mitigation Measures	<ul style="list-style-type: none"> <li>• None required - positive impact.</li> </ul>	

#### 8.5.9 Cultural and Heritage

The table below indicates the potential impacts based on activities and the proposed mitigation measures.

Impact	Significance:	
	Before Mitigation	Before Mitigation
Disturbance of palaeontological material	18	4
<b>Mitigation Measures</b>	<ul style="list-style-type: none"> <li>Adhere to footprint areas.</li> <li>A Chance find procedure should be implemented for the duration of the project with inputs from stakeholders and the local community, should there be a heritage resource identified.</li> <li>For any chance finds of heritage resources, such as graves, all work must cease in the affected area and the Contractor must immediately inform PM. A heritage specialist must be called to site for inspection. The relevant heritage resource agency (SAHRA) must also be informed about the finding.</li> <li>Should any recent remains be found on site that could potentially be human remains, the SAPS as well as SAHRA must be informed. No SAPS official may remove remains until the correct permit/s have been obtained.</li> </ul>	

#### 8.5.10 Socio-Economic

The table below indicates the potential impacts based on activities and the proposed mitigation measures.

Impact	Significance:	
	Before Mitigation	Before Mitigation
Potential employment opportunities for a limited number of local residents	16	16
<b>Mitigation Measures</b>	<ul style="list-style-type: none"> <li>Positive impact, so no mitigation measures required.</li> </ul>	

It is important to note that, although employment opportunities will be available during the decommissioning phase, these opportunities will cease with the closure of the operation.

#### 8.5.11 Noise

The table below indicates the potential impacts based on activities and the proposed mitigation measures.

Impact	Significance	
	Before Mitigation	Before Mitigation
Minimal increase in ambient noise levels	20	8
<b>Mitigation Measures</b>	<ul style="list-style-type: none"> <li>The Contractor must keep noise level within acceptable limits.</li> <li>Comply with the Noise Control Regulations in terms of Section 25 of ECA (GN R154 of 10 January 1992) and all local noise bylaws.</li> <li>Restrict the use of sound amplification equipment for communication and emergency only.</li> <li>Any complaints received by the Contractor regarding noise must be recorded and communicated to the SS and PM.</li> <li>Develop a Code of Conduct for the site establishment phase in terms of the behaviour of construction staff.</li> </ul>	

It is important to note that, although there is a low negative impact during the decommissioning phase, this impact will cease when rehabilitation is completed and the pre-mining ambient noise levels will resume.

#### 8.5.12 Visual

The table below indicates the potential impacts based on activities and the proposed mitigation measures.

Impact	Significance	
	Before Mitigation	Before Mitigation
Visual intrusion	28	14
Mitigation Measures	<ul style="list-style-type: none"> <li>• Limit the site footprint to the designated works area.</li> <li>• Reinstating and rehabilitating disturbed areas as soon as possible.</li> <li>• Limiting rehabilitation activities to working hours.</li> <li>• Ensure that the site is in a visually acceptable state at all times.</li> <li>• Ensure a complaints register is in place to record and address complaints.</li> <li>• Undertake rehabilitation efforts as soon as feasibly possible</li> </ul>	

It is important to note that, although there is a low negative impact during the decommissioning phase, this impact will cease when rehabilitation is completed and the pre-mining visual state will be restored as much as possible.

#### 8.5.13 Air Quality

The table below indicates the potential impacts based on activities and the proposed mitigation measures.

Impact	Significance	
	Before Mitigation	Before Mitigation
Air pollution from equipment undertaking rehabilitation activities	20	6
Mitigation Measures	<ul style="list-style-type: none"> <li>• Implement dust suppression measures.</li> <li>• Ensure a complaints register is in place to record and address complaints.</li> <li>• Fuel-saving through optimal vehicle and equipment use scheduling.</li> <li>• Servicing and maintenance of vehicles, and machinery.</li> <li>• Use of fuel-saving technology.</li> <li>• Use of low carbon and sulphur fuels.</li> <li>• Restricting vehicle speeds on access routes and other unsurfaced areas of the work site.</li> <li>• Restrict vehicle access to defined areas to avoid unnecessary off-road vehicle movements outside of the active work sites.</li> </ul>	

It is important to note that, although there is a low negative impact during the decommissioning phase, this impact will cease when rehabilitation is completed and the pre-mining ambient air quality will resume.

## 8.6 Cumulative Impacts

Section 2 of the NEMA requires the consideration of cumulative impacts as part of the environmental assessment process. EIAs have traditionally, however, failed to come to terms with such impacts, largely as a result of the following considerations:

- Cumulative effects may be local, regional or global in scale and dealing with such impacts requires co-ordinated institutional arrangements; and
- EIA's are typically carried out on specific developments, whereas cumulative impacts result from broader biophysical, social and economic considerations, which typically cannot be addressed at the project level.

Cumulative impacts associated with this type of development could lead to initial, incremental or augmentation of existing types of environmental degradation, including impacts on the soil and land use within the available habitat. Pollution of these elements might not always be immediately evident, but incremental increases might rise to levels where biological attributes could be affected adversely on a local or regional scale. In most cases, these effects are not bound and are dispersed or diluted over an area that is much larger than the actual footprint of the causal factor. These impacts are usually most prevalent in areas where continuous and long-term impacts have been experienced. **However in this instance, this is not envisaged.**

**It must also be noted that most of the impacts can be reversed with a medium effort, however the removal of the target resource cannot be reversed. The rest of the impacts can be mitigated as closely as possible to pre-mining states.**

The following cumulative impacts have been identified and assessed.

### 8.6.1 Loss of Indigenous Vegetation

Impact Description	Impact Rating
<p>The mining operations will be conducted as an open cast surface mining operation which will result in the removal of the vegetation from the active mining areas. As a result of this clearance, it is likely that some indigenous vegetation will be cleared from the site. However, vegetation that will be cleared primarily consists of <i>Elionurus muticus</i> (Wire Grass) that has a wide distribution and is highly unpalatable to animals. The value of this species as a habitat forming component is therefore very low.</p> <p>Furthermore, the rehabilitation of the site will make provision for the reestablishment of the same pioneering grasses that would have been removed during the mining activities.</p> <p>This cumulative impact can therefore be successfully managed and mitigated.</p>	Low

### 8.6.2 Spread of Alien Invasive Plant Species

Impact Description	Impact Rating
<p>Due to the existing presence of alien invasive species on the old agricultural areas as well as the existing mining operations, the risk of these species spreading from the site is present. However, since these species will be removed and managed during the mining activities, the impact is considered to be limited.</p> <p>Furthermore, the management of alien invasive plant species must be included in the EMPR for the operations. The measures included in this plan must have as a goal to reduce the spread of the alien invasive species and to eradicate them from area within the property in which they occur. Similarly, the rehabilitation of the site during the decommissioning phase must make provision for the planting of indigenous pioneering grasses on the site. As such implementation of these plans will result in the improvement of the vegetative biodiversity on the property and result in an improvement of the current biodiversity baseline on the site.</p> <p>This cumulative impact can therefore be successfully managed and mitigated.</p>	Low

### 8.6.3 Disruption of an Open Space Corridor

Impact Description	Impact Rating
<p>The site that is designated as the mining permit area is currently vacant land. The operations on the site will therefore change this “vacant land” status for the duration of the operations. As the project makes provision for the extension of the existing mining operations, the impact on the open space corridor already exists. The rehabilitation of the site will make provision for the shaping of the mining area to blend in with the surrounding topography and associated drainage as well as for the planting of pioneering grasses that are endemic to the area.</p> <p>This cumulative impact can therefore be successfully managed and mitigated.</p>	Low

## 9 ASSUMPTIONS, UNCERTAINTIES, AND GAPS IN KNOWLEDGE

Information in this report has been obtained from various sources. The following gaps, uncertainties or assumptions have been identified:

- The impact descriptions and assessment are based on the author’s understanding of the proposed development based on the information provided.
- It is assumed that the existing farm road will be used, and no new access roads constructed.

The following assumptions were made in the Terrestrial Biodiversity Assessment Report:

- The assessment of the potential impacts of the proposed development is based on the terrestrial biodiversity features on the development site is based on the project description provide in the sections above. If the project description is amended, the impact identification and assessment contained in this report may also change.
- The findings of the Terrestrial Biodiversity report are limited to a single day long site visit conducted on 24 August 2022 which is considered to be late winter / early spring. The

seasonal timing of the site assessment is not considered to influence / compromise the findings of the assessment.

- The following desktop information was used to augment the finding of the Terrestrial Biodiversity Assessment:
  - Electronic biodiversity databases managed by SANBI;
  - Available provincial electronic biodiversity databases; and
  - Wetland and Riparian Habitat Delineation Document (DWS report);

The following assumptions were made in the Aquatic Assessment Report:

- The assessment of the potential impacts of the proposed operations, is based on the aquatic features on the site and the operational activities provided. If the development layout and operations is amended, the impact identification and assessment contained in this report may also change.
- The findings of the Aquatic Assessment Report are based on a number of site visits conducted to the operations. The most recent of these visits took place on 26 August 2022. Based on the observations made during the previous site visits, the seasonality of the most recent site assessment is not considered to be a limitation to the findings of the study.
- The identification and possible delineation of the wetland and riparian areas within the development site was conducted in terms of the procedures as specified by the DWS.
- The determination of the Present Ecological State and the Ecological Importance and Sensitivity of the wetland and watercourses that may have been identified would have been conducted by using the WET-Assess Models.
- The classification of any identified aquatic features would have been conducted in accordance with the classification system of inland aquatic ecosystem as prescribed by Ollis et al., 2013
- The following desktop information was used to augment the finding of the assessment:
  - Electronic biodiversity databases managed by SANBI;
  - Available provincial electronic biodiversity databases;
  - Wetland and Riparian Habitat Delineation Document (DWS report); and
  - Classification system for wetlands and other aquatic ecosystems in South Africa (Inland Systems) (Ollis et al., 2013 - SANBI Biodiversity Series 22).

## 10 SPECIALIST RECOMMENDATIONS

The following recommendations are proposed by the Terrestrial Biodiversity Compliance Statement:

- It is recommended that an Environmental Control Officer, who meets the requirements of the NEMA: EIA Regulations (2014) as amended, be appointed to conduct audits in line with the current auditing programme that is in place for the mining operations. An audit report must be completed for each audit and be submitted to the DMRE.



- A specialist ecologist should conduct a site visit at the commencement of the rehabilitation phase of the project to ensure that the contractor is adequately informed of the rehabilitation requirements associated with the works.

The following recommendations are proposed by the Heritage Desktop Assessment:

- Undertake a PIA.

## 11 FINANCIAL PROVISIONING

Financial Provisioning for Mine Closure is covered under the applicable regulations pertaining to the Financial Provision for Prospecting, Exploration, Mining or Production Operations (GNR1147). The regulations aim to ensure that operating mines have a clearer understanding of what their operations will look like at the end of LoM and the risks associated with this. The overall goal is to ensure that there is adequate financial provision for rehabilitation if the mine undergoes sudden closure or once mining activities cease at the end of LoM.

The annual calculation of quantum for financial provision is based on the “rules-based” approach (Department of Minerals and Energy, 2005). The quantum of financial provision for rehabilitation made available through financial guarantee. As the site is existing, an approved financial guarantee is already in place. Based on the current rates, the following was calculated to be the proposed additional amount required for the extension of the pit.

**Table 11-1: Proposed additional quantum for rehabilitation**

Description	Unit	Quantity	Master Rate	Multiplication factor	Total
Opencast Rehabilitation including final voids and ramps	ha	4.58	R 242 984.15	0.04	R 44 514.70

## 12 ENVIRONMENTAL IMPACT STATEMENT

### 12.1 Summary of Key Findings

The investigation of potential environmental impacts associated with the proposed extension indicates that the overall impact of the proposed projects will be of low overall significance after implementation of appropriate mitigation measures. The results of the impact assessment indicated that the most significant impacts on the receiving environment would be those listed below.

#### 12.1.1 Negative Impacts

The following potential impacts associated with the proposed project are rated as **Medium (Negative)** significance (**pre-mitigation**):

- Loss of indigenous vegetation.
- Spread of alien invasive plant species.

- 
- Continuation and increase of ambient noise levels.
  - Removal of target resource.
  - Visual intrusion.
  - Continued generation of dust.
  - Air pollution from equipment.

**It must be emphasised that all of these medium negative impacts can be mitigated to a low significance, with the exception of the removal of the target resource.**

#### *12.1.2 Positive Impacts*

The following impacts associated with the proposed project are considered to be of **Positive** significance:

- Continuation of employment of current workers.
- Meeting demands of contractors in the area.
- Improvement in visual aspect of the site due to rehabilitation activities.

**In the decommissioning phase, the receiving environment will be rehabilitated as closely as possible to the natural condition of the area.**

## **12.2 Site Sensitivity**

The sensitivity of the receiving environment is depicted in Figure 12-1. A 100m buffer from all watercourses has been observed. Although it appears that the site falls within 500m of a NFEPA wetland, site verification determined that this wetland is in fact a farm dam.

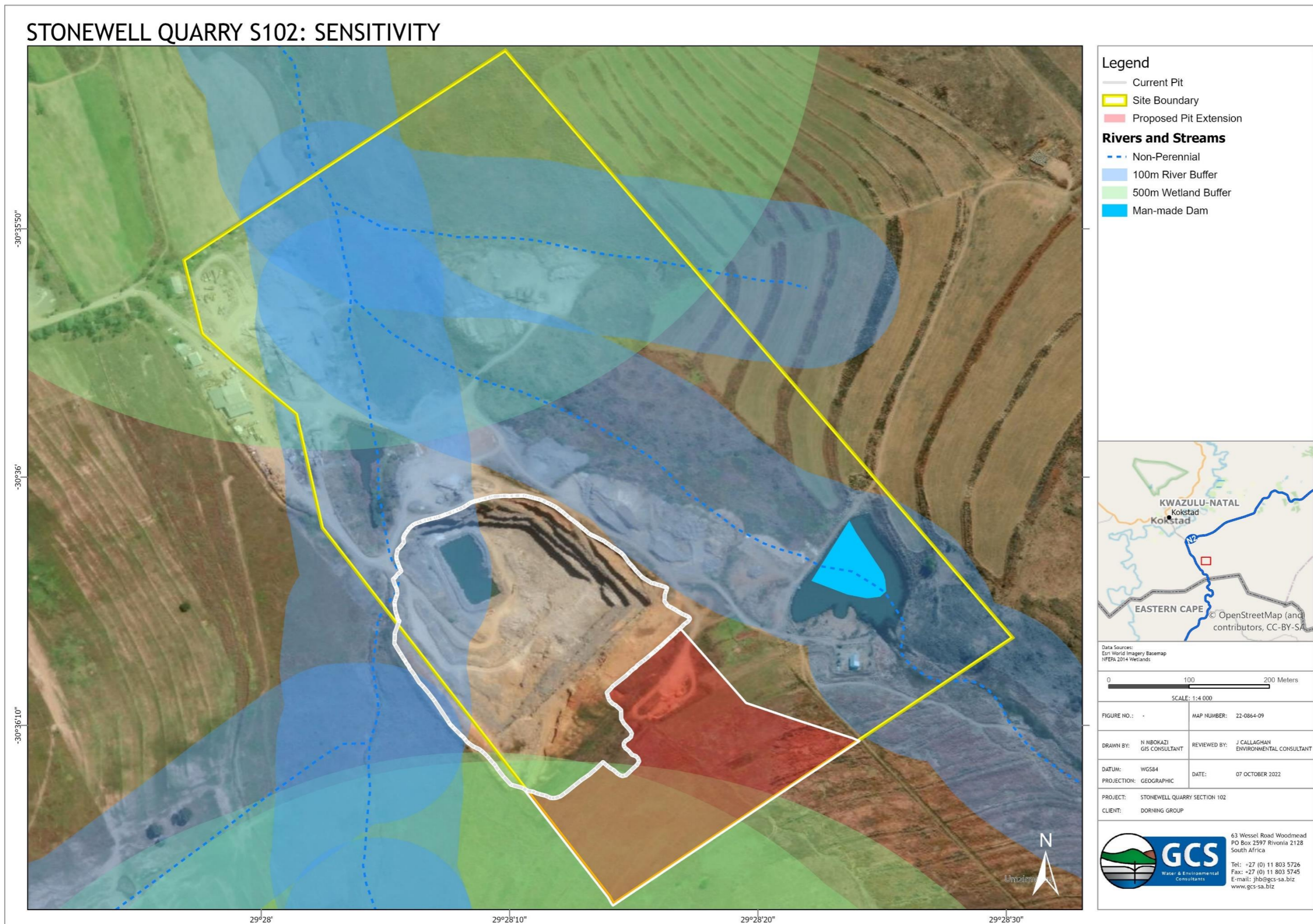


Figure 12-1: Sensitive Features on and around the site

### 12.3 Opinion regarding authorisation of the proposed project

The EAP is confident that all major impacts associated with the proposed extension have been adequately described and mitigated. It is the opinion of the EAP that the project should be authorised, provided that the proposed mitigation measures are implemented effectively and in line with the EMPr and any site specific conditions outlined within the environmental authorisation. Based on the findings of the Impact Assessment, the EAP sees no reason why the EA should not be granted for the proposed project to proceed.

### 12.4 Environmental Management Programme

GCS has prepared an Environmental Management Programme Report (EMPr), which is required as part of the submission in Appendix J. The purpose of the EMPr is to control the impacts of construction and operational activities. The effective implementation of an EMPr will ensure that the required works are conducted in an environmentally sound manner and that the potential negative impacts of construction and operational activities are minimised and/or prevented.

The EMPr details the responsibilities and authority of the various parties involved in the project and contains environmental specifications to which the contractor and operator are required to adhere throughout the duration of the site's operation. The EMPr cover impacts that have been identified in the BA Process and which could potentially arise during the construction and/or operation of the road. The EMPr cover the following aspects:

- Project background information.
- Identification/listing of project and operational activities.
- Implementation and operational instructions.
- Roles and responsibilities of parties with regard to environmental management.
- Environmental training and awareness material for construction staff.
- Environmental specifications e.g., protection of biodiversity and sensitive environments, rehabilitation, public safety and perceptions, traffic control, material and waste management, litter, containment and disposal of hazardous substances (e.g. paints, waste oils) etc.
- Measurement of compliance with the EMPr.

### 12.5 Conditions of Authorisation

Following the findings of the BA, it is suggested that the CA include the following conditions in the EA, should they decide to grant such:

- Undertake a PIA prior to construction activities commencing on site.
- The applicant must comply with the applicable legislation, regulatory and permit requirements from the Local & District Municipalities, DMRE and all relevant authorities during the operation of the quarry.

- 
- The recommendations and mitigation measures included in the specialist investigations must be adhered to;
  - Correct implementation of all feasible mitigation measures included in the Environmental Management Programme (EMPr) during the project lifecycle; and
  - In terms of Environmental Monitoring and Auditing, the following:
    - Appointment of an Environmental Control Officer for the duration of the construction phase of the project, to monitor environmental compliance of the project to all environmental conditions and requirements during all construction phases (pre-construction, construction, post-construction);
    - Appointment of an External Auditor to undertake annual environmental compliance audits for the project.

### 13 CONCLUSION

A DBAR has been compiled where the potential impacts on the environment of listed activities associated with the proposed extension of the pit were considered, investigated and assessed in compliance with the NEMA and EIA Regulations. The report contains all information that is necessary for all I&APs to be adequately informed of the project and includes an assessment of each identified potential impact, including biophysical, ecological, socio-economic and cumulative impacts of the proposed development on the environment.

The DBAR was available for public review and comment until 16 November 2022. Thereafter, comments from the I&APs were incorporated into the FBAR (this report) for submission to the DMRE for decision.

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## 14 REFERENCES

GCS. 2022. *Aquatic Compliance Statement for the Section 102 Extension of the Mining Right Area Associated with Stonewell Quarry Operations Near Kokstad, KwaZulu-Natal*. GCS Project Number 22-0864.

GCS. 2022. *Terrestrial Biodiversity Compliance Statement for the Section 102 Extension of the Mining Right Area Associated with Stonewell Quarry Operations Near Kokstad, KwaZulu-Natal*. GCS Project Number 22-0864.

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Meteoblue. 2022. *Simulated Historical Climate and Weather Data for Kokstad*. Accessed: [https://www.meteoblue.com/en/weather/historyclimate/climatemodelled/kokstad-south-africa\\_988356](https://www.meteoblue.com/en/weather/historyclimate/climatemodelled/kokstad-south-africa_988356)

Umlando. 2022. *Heritage Desktop for the Stonewell Quarry, Kokstad, KZN*.

# APPENDICES

## **APPENDIX A: APPLICATIONS SUBMITTED TO THE DMRE**



## **APPENDIX B: MINING RIGHT**

## **APPENDIX C: EAP CV AND DECLARATION**

## **APPENDIX D: TITLE DEED**

## **APPENDIX E: DFFE SCREENING ASSESSMENT**

## **APPENDIX F: MINE PLAN**

## **APPENDIX G: SPECIALIST STUDIES**

## **APPENDIX H: PPP**

## **APPENDIX I: IMPACT ASSESSMENT**



## **APPENDIX J: EMPR**