



**CONTINGENCY PLAN IN SUPPORT OF A
WATER USE LICENCE APPLICATION FOR
NAAZ QUARRY NEAR
PIETERMARITZBURG, KWAZULU-NATAL**

**March 2021
REPORT NO. 5547R01**

For:



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SYNOPSIS
Contingency plan for potential events at the Naaz Quarry site which may result in impacts to watercourses

KEY WORDS:
Risk, impact, response, surface water, groundwater, wetlands

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QUALITY VERIFICATION

This report has been prepared under the controls established by a quality management system that meets the requirements of ISO9001: 2015 which has been independently certified by DEKRA Certification



Verification	Capacity	Name	Signature	Date
By Author	Senior Environmental Scientist	Gary Ainsworth		30 MARCH 2021
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1 INTRODUCTION

This report presents a contingency plan for the proposed Naaz Quarry site near Pietermaritzburg in KwaZulu-Natal. The plan is prepared in terms of risks to water resources as a result of site activities. The contingency plan has been developed based on findings made by the hydrological, geohydrological and wetland studies conducted at the site.

2 TERMS OF REFERENCE

Further to an email request dated 10 March 2021, JG Afrika (Pty) Ltd submitted a proposal and cost estimate to prepare a contingency plan for the Naaz Quarry referenced 5524 2111002L01, dated 10 March 2021. JG Afrika's appointment to proceed with the proposed works was confirmed by e-mail dated 30 March 2021.

3 SITE LOCATION

The site is located on Portion 0 of the Farm Thandisizwe No. 16691, approximately 10km to the north-east of Pietermaritzburg, as shown on the site plan in Figure 1.

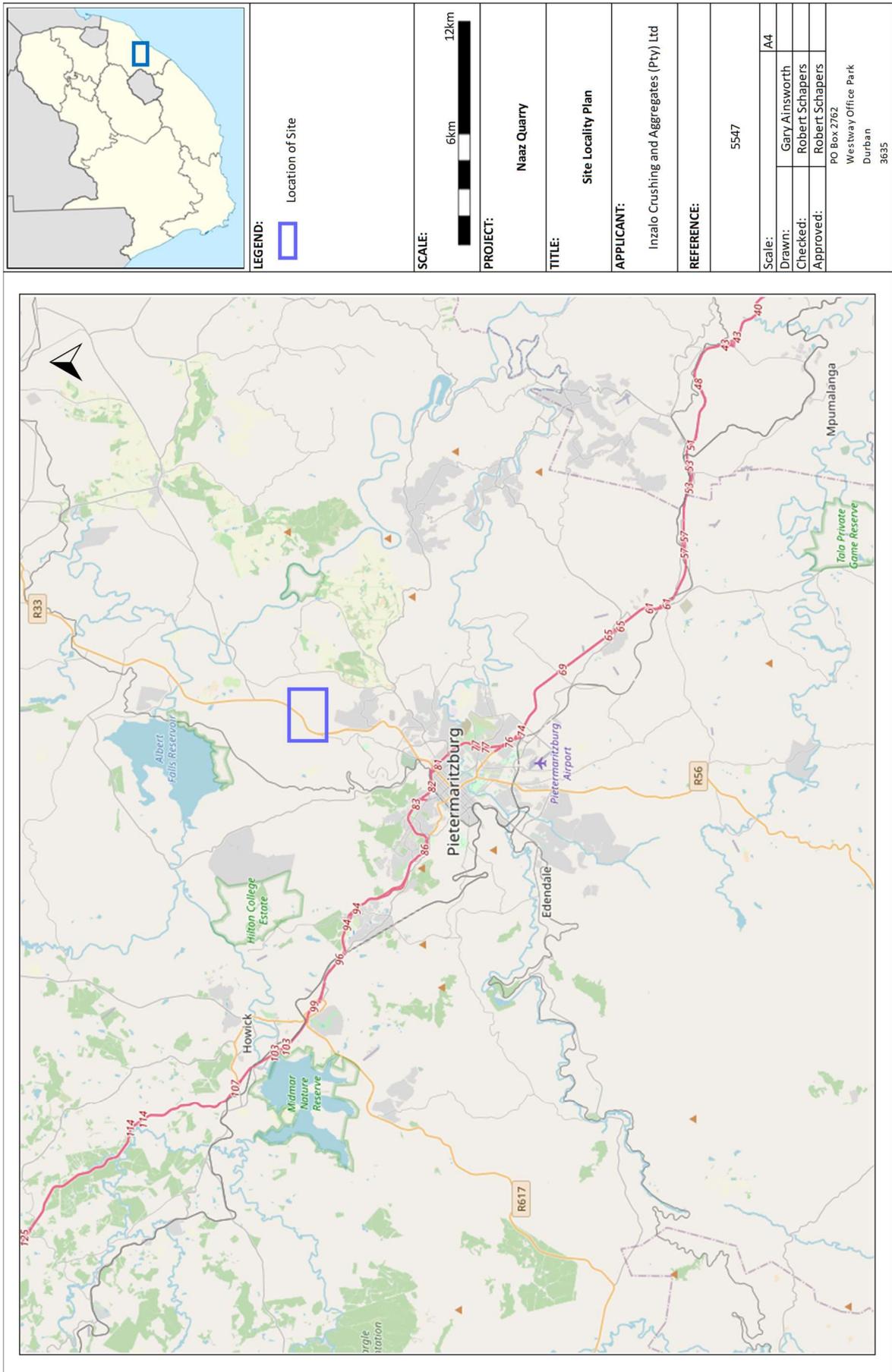


Figure 1: Site Locality Plan

4 ACTIVITY DESCRIPTION

The proposed quarry operations comprises three (3 No.) phases as defined in the Final Basic Assessment Report and summarised below:

1. Construction Phase
 - a. Demarcating of the permitted quarrying area
 - b. Vegetation removal, topsoil stripping and stockpiling
 - c. Introduction of quarrying machinery and equipment onto site
2. Operational Phase
 - a. Quarrying of dolerite from opencast pit using conventional drilling and blasting methods
 - b. Transport of mined material via tipper trucks to the crushing and screening processing plant where it will be screened to various sized stockpiles
 - c. Loading and distribution from site to clients.
3. Decommissioning Phase
 - a. Rehabilitation of the affected environment prior to the submission of a closure application to the Department of Mineral Resources and Energy (DMRE).

5 AVAILABLE INFORMATION

The following information was used in the preparation of this report

1. Report referenced KZN 30/5/1/3/2/10724 MP of Greenmined Environmental titled, *“Proposed Quarrying on a Portion of Portion 0 (Remaining Extent) of the Farm Thandisizwe No. 16691, Umshwathi Municipal Area, KwaZulu-Natal Province”*, dated January 2021
2. Report referenced 5516 of JG Afrika titled, *“Naaz Quarry – Baseline Hydrological and Impact Assessment Specialist Study”*, dated March 2021
3. Report referenced 5526 of JG Afrika titled, *“Assessment of Wetlands and Watercourses in the Vicinity of the Proposed New Dolerite Mine Near Pietermaritzburg, KwaZulu-Natal”*, dated March 2021
4. Document referenced 21/1/1 of The Directorate: Policy Development and Regulatory Frameworks titled, *“Guideline – Contingency Planning and Arrangements”*, dated April 2019.

6 DETERMINATION OF EVENTS

6.1 Risk Analysis

Risk analyses have been undertaken as part of the hydrological, geohydrological and wetland assessments carried out at the site and described in the relevant reports listed in Section 5. The risk assessments typically considered applicable hazards, likelihoods of occurring, resultant impacts and mitigatory measures. This contingency plan has been developed based on the identified risks that may require emergency response.

7 PREPAREDNESS FOR EVENTS

7.1 Planning

The Incident Action Plan presented in Table 1 should be reviewed at least annually. All personnel and contractors are to undergo internal training/inductions which should include details on the incident action plan.

7.2 Communications Planning

A communication protocol must be established to allow for notification of affected parties and effective response. All incidents are to be reported to the Environmental Health and Safety (EHS) representative or Foreman on site as soon after the event as possible. Depending on the nature of the incident and the relevant stakeholders as given in Table 1, the Mine Manager and other stakeholders must be notified immediately thereafter.

Contact details for the relevant stakeholders must be available on site and all personnel are to be informed of communication protocols.

7.3 Organisation

7.3.1 Committees

It is recommended that a health and safety committee be established at the facility. The committee should comprise members of management and on-site personnel and should include the mandate of developing and implementing emergency response and evacuation plans based on site specific activities and conditions.

7.3.2 Capabilities

Suitable personnel should be identified and appointed as EHS representatives for the site. These personnel are to undergo training in accordance with legislative requirements pertaining to the site activities.

7.3.3 Resourcing

Scheduling should be such that an appointed EHS representative is available during all operational periods. An alternative EHS representative must always also be available for contact.

7.3.4 Equipping

Suitable Personal Protective Equipment (PPE) is to be issued and an inventory maintained. The equipment is to be kept in a safe working condition and must be repaired or replaced in accordance with the manufacturer's specifications.

Spill response kits are to be made available in all areas where hydrocarbon leaks and spills may occur. This should include areas such as fuelling stations, workshops, washbays and process areas. A register of the spill kits must be maintained and any of the contents that are used and/or expire must be replaced immediately.

Drip trays must be available for all plant and vehicles on the site. The drip trays are to be inspected before each use and must be maintained in a condition that is fit for purpose. Additional drip trays should be retained on site at all times for emergency use.

7.4 Training

All staff are to be adequately trained to ensure that activities are conducted by competent personnel. Training requirements are to be identified by management on a continuous basis and suitable internal and external training courses are to be made available to the identified personnel.

The employment of suitably trained workers will limit the likelihood of incidents that may arise due to operator error.

7.5 Awareness

Awareness campaigns which identify potential risks to surface water, groundwater and wetland systems as a result of site activities must be initiated on a regular basis. These may be in the form of specific training and induction exercises, or as part of ongoing communications such as “toolbox talks”.

8 RESPONSE TO EVENTS

8.1 Early Warnings

Early warning systems are considered to reduce the extent of impacts by limiting the duration over which they occur. These systems may also include forecasting of potential impacts based on scheduled activities and expected conditions.

Due to the nature of the quarrying operations, which includes blasting, all necessary health and safety protocols pertaining to specific activities should be implemented ahead of time. These protocols should include emergency response and evacuation plans that can be implemented in cases of harm to human health and/or the environment, and must be in place before the relevant activities can proceed.

On-site personnel should be trained to identify events that may result in impacts to the environment and should be encouraged to report these immediately. Such events may include, but not necessarily be limited to:

- Leaking plant and equipment
- Leaking sanitation
- Erosion and sedimentation
- Damaged equipment
- Damaged stormwater management infrastructure
- Unsafe work practices
- Improper waste management activities.

An Environmental Control Officer (ECO) is to be appointed to conduct regular inspections of the site in accordance with the relevant environmental and water use authorisation requirements. The ECO should be suitably qualified and experienced to identify activities/conditions at the site that must be corrected in order to prevent events that may result in impacts to the environment. These are to be communicated in writing and are to be rectified within the specified timeframes.

Surface water and groundwater monitoring programs are to be implemented in accordance with the recommendations given in the respective specialist studies. These programs serve to detect any changes in surface water and groundwater quality and therefore act as early warning systems of possible contamination events.

8.2 Assessment and Situational Awareness

8.2.1 Immediate Assessment of Magnitude

Following an event that results in damage to the receiving environment, an immediate assessment of the magnitude of the event must be made by the Mine Manager. This should include information on the following

- Area impacted (estimated extent)
- What is affected (receiving environment)
- Nature of damage
- Determination of immediate needs.

8.3 Coordination

The Mine Manager will be responsible for coordinating the relevant role-players with the assistance of the designated EHS representative. Contact details for the following must be maintained on site and accessible at all times:

- Emergency Services
- Spill response contractor
- Relevant authorities
- Neighbouring landowners/occupants
- Relevant specialists
- Staff and next of kin.

The Mine Manager will need to report significant incidents to the relevant authorities within the specified timeframes.

8.4 Damage Assessment

An assessment of damage is to be undertaken by a competent professional to accurately determine the nature and extent of potential impacts to surface water, groundwater and/or wetland systems. Such assessments must also serve to identify suitable remediation/rehabilitation measures and define appropriate implementation plans.

8.5 Incident Action Plan

The incident action plan has been developed in terms of emergency events that may occur at site. It is noted that the incident action plan presents a response to emergency events and does not include mitigation measures/action steps that are considered to be precautionary. Such measures are still required to be implemented in accordance with the recommendations given in the respective reports.

The incident action plans for the establishment, operational and closure phases are given in Table 1, Table 2 and Table 3 respectively.

Table 1: Incident Action Plan – Establishment and Site Preparation

Phase	Activity	Potential Risk	Response Action	Period	Responsible Party	
Establishment and Site Preparation	Vegetation Clearing	Increased erosion and sedimentation to downstream watercourses	Construction of stormwater diversion channels and berms (sediment traps)	48 hours	Foreman and Mine Manager	
		Dust generation	Dust suppression over area concerned using either water spraying, straw and/or dust-suppressants	Immediately	Foreman	
	Topsoil Stockpiling	Mobilisation and sedimentation from stockpiled soil	Construction of stormwater diversion channels and berms (sediment traps)	48 hours	Foreman and Mine Manager	
		Dust generation	Dust suppression over area concerned using either water spraying, straw and/or dust-suppressants	Immediately	Foreman	
	General	Seeding of alien invasive plant species	Removal	Removal	Immediately	All personnel
			Contain leak	Contain leak	Immediately	Foreman
			Remove and replace unit	Remove and replace unit	Immediately	Mine Manager and Supplier
		Leaks from temporary ablutions	Removal of impacted soil for safe disposal	Removal of impacted soil for safe disposal	Immediately	Mine Manager and Waste Contractor
			Contain leak	Contain leak	Immediately	Operator
			Remove vehicle/equipment for repair	Remove vehicle/equipment for repair	Immediately	Operator
			Clean up using spill kit	Clean up using spill kit	Immediately	Foreman
		Hydrocarbon leaks from vehicles and equipment	Removal of impacted soil for safe disposal	Removal of impacted soil for safe disposal	Immediately	Mine Manager and Waste Contractor
			Removal of waste and containment in suitable receptacle for safe disposal	Removal of waste and containment in suitable receptacle for safe disposal	Immediately	Foreman and Waste Contractor

Table 2: Incident Action Plan - Operational Phase

Phase	Activity	Potential Risk	Response Action	Period	Responsible Party
Operational Phase	Blasting	Damage to power line	Evacuate all personnel to safe distance	Immediately	Safety Officer
			Cordon off affected area	Immediately	Safety Officer
			Inform Eskom (within 1 hour)		Mine Manager
	Stockpiling	Mobilisation and sedimentation from stockpiled rock aggregate	Facilitate immediate access for Eskom and their representatives	Immediately	Mine Manager
			Construction of stormwater diversion channels and berms (sediment traps)	48 Hours	Foreman and Mine Manager
		Inadvertent stockpiling within restricted areas	Relocation of stockpiled material to approved location	48 Hours	Foreman and Mine Manager
			Dust suppression over area concerned using either water spraying, straw and/or dust - suppressants	Immediately	Foreman
		Leaks from temporary ablutions	Contain leak	Immediately	Foreman
			Remove and replace unit	Immediately	Mine Manager and Supplier
			Removal of impacted soil for safe disposal	Immediately	Mine Manager and Waste Contractor
		Hydrocarbon leaks from vehicles and equipment	Contain leak	Immediately	Operator
			Remove vehicle/equipment for repair	Immediately	Operator
			Clean up using spill kit	Immediately	Foreman
	Removal of impacted soil for safe disposal		Immediately	Mine Manager and Waste Contractor	
	General	Unsuitable waste disposal practices	Removal of waste and containment in suitable receptacle for safe disposal	Immediately	Foreman and Waste Contractor
			Isolate and contain leak/spill	Immediately	Operator and Foreman
		Leaks and spills from stored chemicals, fuels and other hazardous materials	Recovery and storage within suitable container	Immediately	Foreman
If not contained to bunded area, isolate spill using temporary berms			Immediately	Foreman	
Removal of impacted soil for safe disposal			Immediately	Mine Manager and Waste Contractor	
Failure of stormwater management infrastructure		Significant events to be reported to the Relevant Authorities	24 Hours	Mine Manager	
		Specialists to be appointed to assess significant events	2 Weeks	Mine Manager	
	Repair/replace leaking containers	Immediately	Foreman		
	Diversion channels and berms to be repaired	48 hours	Mine Manager and Civil Contractor		

Table 3: Incident Action Plan - Closure Phase

Phase	Activity	Potential Risk	Response Action	Period	Responsible Party	
Closure	Redistribution of topsoil	Mobilisation and sedimentation from stockpiled soil	Construction of stormwater diversion channels and berms (sediment traps)	48 hours	Foreman and Mine Manager	
		Dust generation	Dust suppression over area concerned using either water spraying, straw and/or dust -suppressants	Immediately	Foreman	
	General	Leaks from temporary abluitions	Seeding of alien invasive plant species	Removal	Immediately	All personnel
				Contain leak	Immediately	Foreman
				Remove and replace unit	Immediately	Mine Manager and Supplier
	General	Hydrocarbon leaks from vehicles and equipment		Removal of impacted soil for safe disposal	Immediately	Mine Manager and Waste Contractor
				Contain leak	Immediately	Operator
				Remove vehicle/equipment for repair	Immediately	Operator
				Clean up using spill kit	Immediately	Foreman
	General	Unsuitable waste disposal practices		Removal of impacted soil for safe disposal	Immediately	Mine Manager and Waste Contractor
			Removal of waste and containment in suitable receptacle for safe disposal	Immediately	Foreman and Waste Contractor	

8.6 Support Function

8.6.1 Contractors

The following contractors should be identified and appointed to support the Naaz Quarry in response to events that may result in impacts to surface water, groundwater and/or wetland systems.

- Spill response contractor
 - Containment and clean up response following leak and spill events
 - Supply of spill-kits
- Civils contractor
 - Maintenance and repair of site infrastructure, particularly stormwater infrastructure such as diversion channels and berms
- Waste Management contractor
 - Removal and disposal of impacted soils
 - Ongoing management of waste.

8.6.2 Specialists

The following specialists may be required to determine the nature and extent of impacts to surface water, groundwater and wetland systems as well as to develop and implement remediation and rehabilitation plans if necessary.

- Contamination Specialist
- Hydrologist
- Geohydrologist
- Wetland Ecologist
- Civil Engineer.

8.6.3 Logistical Support

Inzalo Crushing and Aggregates must establish internal structures to allow for quick response to emergency situations in terms of financial provision and emergency procurement. An amount of approximately R1 208 500 has been determined for the annual management and rehabilitation of the environment. This amount must be available for the duration of the project and financial mechanisms must be set-up to allow for the immediate availability of these funds.

Inzalo Crushing and Aggregates must also ensure that applicable insurance policies are in place. These should include Workmen's Compensation as well as Public Liability insurance.

9 TRIGGERS TO INITIATE AND/OR SUSPEND RESPONSE ACTIONS

9.1 Notification and Activation

Response actions will be initiated on observation of any of the events identified in the Incident Action Plan or any other event that may result in impacts to the receiving surface water, groundwater or wetland systems.

9.2 Demobilisation

Response actions will be suspended/terminated once the necessary mitigatory measures have been successfully implemented and confirmed as such by the Environmental Compliance Officer and Mine Manager, or in the case of significant events, by the Relevant Authorities.