

**April
2016**

DRAFT SCOPING REPORT

**Carrisbrooke Quarry on Portion 3 of Lot 9 Incalu
5000**

uBuhlebezwe Local Municipality

Matzogystix (Pty) Ltd

KZN 30/5/1/1/2/10463MP



Prepared by



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This report was prepared by EnviroPro Environmental Consulting in terms of Appendix 1 to GNR 982

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Executive Summary

Matzogystix (Pty) Ltd have applied for a Mining Permit to mine stone from a community owned property within the uBuhlebezwe Municipality, Harry Gwala District. The mine area is 4.99 hectares in extent and includes all stockpile areas, offices, parking etc. Weekly / bi-monthly controlled blasts will loosen material to create benches in the quarry with the material being screened and crushed on site. The material will be stored in stockpiles, collected by top-loaders and distributed to consumers. The preferred site has been positioned more than 500m away from any infrastructure and servitudes. An alternative site, on the opposite side of the hill has been considered and is discussed in the Scoping Report.

The operation of the mine requires a Mining Permit in terms of section 27 of the Mineral and Petroleum Resources Development Act (No. 28 of 2002) and will result in the cumulative clearance of more than 1 hectare of indigenous vegetation. A Scoping Report and Environmental Impact Assessment are therefore in process in terms of section 28 of the National Environmental Management Act (107 of 1998 as amended).

A Final Scoping Report will be submitted to the Department of Mineral Resources (DMR) for approval prior to the release of a Draft Environmental Impact Report (EIR), which will be available to registered Interested and Affected Parties for further comment. The EIR will contain all specialist reports that have been commissioned with more detailed mitigation measures provided for the impacts identified.

The following key impacts and mitigation measures have been identified in the Scoping Report and will be expanded on in the EIR. Areas where specialist input will be required are identified in blue italics:

- **Risk of collapse of the mining face:** A *Mine Works Programme* is currently being prepared which will detail the mining operation, including details on the height and width of the proposed benches to ensure there is no collapse of the mine face.
- **Increase in heavy truck traffic in the area:** The nature of the activity will result in a localised increase in haulage truck traffic. Having direct access onto the R56, prevents trucks from travelling on any additional private / residential roads.
- **Generation of flyrock, noise and dust as a result of blasting:** Mitigation is generally applied when mining comes to within 100m of any structure and whenever the ground vibration is likely to cause damage to the structure. There are no structures within 500m of the preferred mine area. The *Blasting Plan* will determine Peak Particle Velocities (PPV) at varying distance intervals from the quarry so that potential impacts on nearby structures can be determined, this will also provide necessary information to adjust timing and size of blasts to minimise potential impacts. Perimeter monitoring of dust will be conducted to monitor dust levels to ensure they remain within legislated limits and dust control mitigation measures will be put in place. The operation of the quarry will generate noise although the topography and increased distance to the nearest residential household are expected to assist in reducing this impact. Where necessary, noise mitigation measures can be implemented.
- **Cumulative impact on the biodiversity due to the loss of vegetation and the impact on fauna:** The *Vegetation Assessment* will provide further insight into this cumulative impact on biodiversity. From the desktop study, the site does not fall within a critically endangered or endangered ecosystem. The potential threatened fauna to be found in the area are small Millipedes, Insects, Molluscs and Amphibians. These animals will naturally move away from the disturbed area however some will be destroyed during the initial clearing.
- **Visual impact:** The preferred mine site is located on the opposite side of the hill to the Inyezi Community, reducing the visual impact to these established homesteads. Timber plantations to the north and south shield the visual impact from these directions. The only nearby property that may see the quarry, is located to the south-west however the steep topography and trees will contribute to concealing the operations. This is to be further determined in the EIR.
- **Loss of vegetation within the Midlands Mistbelt Grassland ecosystem:** This impact cannot be avoided as the entire permitted mine area, will ultimately be cleared of vegetation. A *Vegetation Assessment* will confirm the quality of the vegetation associated with the mining area and identify the presence of any threatened, protected or valuable flora species.
- **Poor stormwater management increasing the risk of erosion and risk to water quality in nearby watercourses:** A *Stormwater Management Programme* to be attached to the EIR. Stormwater Management during operation of the mine will also be discussed in detail in the *Mine Works Plan*. The *Wetland and Aquatic Assessment* will determine any potential impacts on nearby watercourses and the catchment at large, however appropriate stormwater management should prevent such impacts from occurring. Clean run off from surrounding slopes will be prevented from entering the quarry by strategically placing berms around the perimeter of the site. Any run off from the quarry areas itself and

especially areas where blasting takes place will be directed into a sump at the lowest point of the site and will not be permitted to leave the site.

Initial mitigation measures for these impacts have been included in the Impacts Table in section 7.0 of the Scoping Report but will be addressed further by the relevant specialists in various reports to be submitted with the Draft EIR (indicated in section 8.1 of the Scoping Report).

Contents

Executive Summary.....	2
Section 1: Scope of Work and Location of Activity	6
1.1 Project Title	6
1.2 Aim of the Scoping Report.....	6
1.3 Applicant and Independent Consultant Details.....	6
1.4 A Description of the Activities to Be Undertaken Including Associated Structure and Infrastructure As per Section 2 (d) (ii)	7
1.5 All Listed and Specific Activities to Be Triggered and Being Applied For as Per Section 2 (d) (i)	9
1.6 Location Of Activity As Per Section 2 (b)(i)-(iii)	9
Section 2: Alternatives as Per Section 2 (h) (i) and 2 (i) (i)	12
2.1 Description of Process Followed to Reach Proposed Preferred Activity, Site and Location within the Site as Per Section 2 (h) (i)	12
Section 3: Site Description and Surrounding Land Use as per section 2 (h) (iv)	15
3.1 Geographical, Physical Characteristics of the Site and Surrounding Land Uses.....	15
3.2 Surface Water	15
3.3 Fauna and Flora	16
3.4 Heritage and Cultural Aspects	18
3.5 Socio-Economic Environment.....	18
Section 4: Policy and Legislative Context.....	19
4.1 Identification of all Legislation, Policies, Plans, Guidelines, Spatial Tools, Municipal Development Planning Frameworks and Instruments As Per Section 3(e)(i) and Compliance of Proposed Activity with Legislation and Policy 2 (e)	19
Section 5: Motivation, Need and Desirability	20
5.1 Need and Desirability as Per Section 2 (f).....	20
5.2 Motivation for Preferred Site, Activity and Technology Alternative as Per Section 2 (h) (x) and (xi) 20	
Section 6: Public Participation as per Section 2 (h) (ii) & (iii) and 2 (i) (vi) & (vii).....	21
6.1. Notification of Interested and Affected Parties	21
6.2. Registered Interested and Affected Parties.....	22
6.3. Comments.....	22
Section 7: Preliminary Impact Assessment as Per Section 2 (h) (v) - (ix).....	23
7.1 Methodology to Determine and Rank Nature, Significance and Consequences of Impacts Associated With all Alternative as Per Section 2 (h) (vi) and 2 (i) (v)	23
7.2 Preferred Site and Layout Alternative.....	24
Section 8: Plan of Study for Undertaking the EIA.....	29
8.1 Description of Aspects to be Assessed in the EIA, including Specialist Input, and Proposed Tasks to be Undertaken as Part of the EIA as Per Section 2 (i) (ii), (iii) and (viii)	29
8.1.1 Specialist Assessments	29
8.1.1.1 <i>Blasting Plan</i>	29
8.1.1.2 <i>Geohydrological Investigation</i>	29
8.1.1.3 <i>Mine Works Programme</i>	29
8.1.1.4 <i>Stormwater Management Programme</i>	29
8.1.1.5 <i>Vegetation Assessment</i>	29
8.1.1.6 <i>Wetland and Aquatic Assessment</i>	29
8.1.2 Other Proposed Tasks.....	29
8.2 Methodology for Assessment of Environmental Aspects as Per Section 2 (i) (iv), (v) and (ix)	30
8.1 Financial Provisions	30
8.2 Conclusion	32

Appendices

Appendix A: EAP Declaration and Curriculum Vitae	33
Appendix B: Proof of Placement of Notice Board.....	34
Appendix C: Adverts	35
Appendix D: Proof of Notification.....	36
Appendix E: Registered I &Aps	37
Appendix F: Comments and Response Table and Comments Received	38
Appendix G: Impacts Scoring Matrix	39

Section 1: Scope of Work and Location of Activity

1.1 Project Title

Carrisbrooke Quarry located within the uBuhlebezwe Local Municipality.

1.2 Aim of the Scoping Report

As per Appendix 2 of the Environmental Impact Assessment Regulations¹, the objective of the scoping process is to, “through a consultative process-

- 1) Identify the relevant policies and legislation relevant to the activity;
- 2) Motivate the need and desirability of the proposed activity, including the need and desirability of the activity in the context of the preferred location;
- 3) Identify and confirm the preferred activity and technology alternative through an impact and risk assessment and ranking process;
- 4) Identify and confirm the preferred site, through a detailed site selection process, which includes an impact and risk assessment process inclusive of cumulative impacts and a ranking process of all the identified alternatives focusing on the geographical, physical, biological, social, economic, and cultural aspects of the environment;
- 5) Identify the key issues to be addressed in the assessment phase;
- 6) Agree on the level of assessment to be undertaken, including the methodology to be applied, the expertise required as well as the extent of further consultation to be undertaken to determine the impacts and risks the activity will impose on the preferred site through the life of the activity, including the nature, significance, consequence, extent, duration and probability of the impacts to inform the location of the development footprint within the preferred site; and
- 7) Identify suitable measures to avoid, manage or mitigate identified impacts and to determine the extent of the residual risks that need to be managed and monitored.”

The Scoping Report therefore aims to provide registered Interested and Affected Parties (I & APs) with sufficient information to gain an understanding of the project and the preferred site alternative so that they can provide meaningful input for further investigation in the Environmental Impact Report (EIR). Opportunity to provide comments on the scoping report will be provided and meetings held on request if needed to clarify or discuss aspects of the application. The EIR will be produced after the final Scoping Report has been accepted by the DMR, and will provide more detail on the mining process, addresses concerns raised during the “Scoping Phase” and will include specialist input on impacts identified by the independent Environmental Assessment Practitioner (EAP; see section 7.0 of the Scoping Report for the impacts section).

All registered I & APs will be given a legislated 30 day comment period to comment on the Draft Scoping Report and then later on the Draft EIR, before these reports are submitted to the Department of Mineral Resources (DMR)². Comments are to be submitted to the EnviroPro Consultant whose details are provided below.

1.3 Applicant and Independent Consultant Details

ITEM	APPLICANT CONTACT DETAILS
Name	Matzogystix (Pty) Ltd / Tristan Mackenzie
Tel no	079 880 7697
Fax no:	086 549 6900
E-mail address	tristmac@futurenet.co.za / tristmac1@icloud.com
Postal address	PO Box 317, Highflats, 3306

ITEM	CONSULTANT CONTACT DETAILS
Name	EnviroPro / Stephanie Williams and Josette Oberholzer
Tel no	031 765 2942
Fax no:	086 549 0342

¹ Environmental Impact Assessment Regulations published on the 04th December 2014 in Government Gazette No. 38282 notice R982.

² “Timeframes” are outlined in Chapter 2 of the 2014 EIA Regulations.

Cellular no	083 929 4662
E-mail address	steph@enviropro.co.za / josette@enviropro.co.za
Postal address	P.O Box 1391 Kloof 3640

1.4 A Description of the Activities to Be Undertaken Including Associated Structure and Infrastructure As per Section 2 (d) (ii)

Matzogystix (Pty) Ltd have applied for a Mining Permit in terms of section 27 of the Mineral and Petroleum Resources Development Act (No. 28 of 2002), to mine dolerite on a community owned portion of land in Ward 2 of the uBuhlebezwe Local Municipality, Harry Gwala District. The Inyezi Communal Property Association own Portion 3 of Lot 9 Incalu 5000, where the mining will take place (proof of landowner is provided in Appendix D).

The property is 214.66 hectares in extent. The mining area, including all stockpile areas, offices, parking etc. will ultimately measure a total area of 4.99 hectares.

Construction

There will be very little activity associated with the construction phase apart from establishing a site office and setting up the screening and crushing equipment in the demarcated areas. The site has existing dirt through the Remainder Portion of Woodburn Valley No. 15322 which is owned by the Bo Woodburn Family Trust (see Figure 2). The landowner through whose property access will be obtained has requested a meeting and this will be arranged within the next month. The site is located approximately 8km south of Ixopo town (as the crow flies). Access to the mine area will be restricted and controlled during operation. The applicant will only commence with removing material using excavators on approval of this application.

Operation

Mining will be carried out in phases so that only portions of the 4.99 hectare site will be cleared at any one time. In the long term, the activity will result in the clearance of more than 1 hectare of indigenous vegetation from the property, triggering an Environmental Impact Assessment (EIA).

Blasting will be required either weekly or bi-monthly to soften material so that it can be removed by excavator. A stone crusher and screening plant will also be used on the site. The crusher will be used to reduce the size of larger stones to a finer grade. This will increase the range of consumers depending on the size of stone provided by the quarry (i.e. larger stones required for French drains or landscaping compared to the crushed smaller stones used for the construction of roads). The blasting, crushing and screening of material on site will qualify as primary processing of the mined material and therefore a Scoping/EIA process applies (see section below).

A Mine Works Plans is currently being prepared which will describe the mining methodology in detail, however the mining operation can be summarised as follows:

- The permitted area to be mined will be demarcated.
- The site agent will establish access for the plant and plan out the excavation approach.
- A topsoil storage site will be established for storage of topsoil removed during the initial clearing. This will be retained for use in rehabilitation at a later stage.
- Overburden will be cleared using an excavator and soft material cut back.
- Controlled blasts will loosen material to create benches (minimum of 30m wide and ideal bench height of 10-12m, to be confirmed in the Mine Works Plan).
- Blasting to be conducted during day light hours only, while trucks may operate 18 hours a day, depending on demand, Monday to Saturdays.
- A Blasting Plan will be submitted as part of the EIR, which provides more detail on the frequency and intensity of the blasting required.
- Material will be transported to the crushing and screening plant on site for processing.
- Material collected by top-loaders and distributed to consumers.
- All activity will be monitored and managed by a site foreman and flag men will be placed to ensure safe operation of the earth moving equipment in and out of the quarry.

This process will be confirmed and described in more detail in the Mine Works Plan, to be attached to the EIR. The location of the various activities in the mine area will be included in the EIR.

Rehabilitation/ Decommissioning

On decommissioning, the processing equipment and offices will need to be removed, the roads ripped and rehabilitated. The quarry will need to be rehabilitated by shaping slopes and ensuring that there is no loose material or areas where slippage could occur. Topsoil will be re-laid over exposed areas and indigenous grassland species re-introduced.

Before the quarry is legally abandoned, the DMR requirements of long-term drainage, environmental and public access issues will be adequately considered and controlled. Adequate geotechnical data is normally available at the time of a quarry closure to address all long-term geotechnical concerns regarding the abandonment of the mine. By making geotechnical engineering input to the quarry planning and design process an integral part of the mining operation, improvements can be made to quarry safety, productivity, economic efficiency as well as closing concerns when abandoning the mine.

A number of environmental impacts may remain after a site has been mined as the area may be vulnerable to erosion. Stormwater flow must be managed by placing diversion berms and ditches at the top of the slope which will act to divert and slow water flow down the slope. The ditch and berms will be vegetated. Even with rehabilitation, an excavated area will remain on the hillside. The visual aspect of this will be mitigated as far as possible through shaping, re-vegetation and screening with vegetation. Rehabilitation measures will be further guided by specialist findings in the EIR.

On closure, the aim of the rehabilitation will be to reduce visual and safety impacts and to control risk of erosion and slippage. The following key points must be followed to ensure appropriate closure. These will be included in the Environmental Management Programme attached to the EIR.

- Rehabilitation will occur as soon as practically possible on completion of mining, following the cessation of the work in a specific section.
- No more than one month will pass between cessation of mining and rehabilitation.
- Any infrastructure erected for mining will be demolished and removed.
- All equipment, concrete footings, fencing, etc. will be removed from site.
- All waste will be removed from site and disposed of at an approved landfill.
- Soil contaminated with oil, grease, fuel may not be disposed of in the excavation but will be disposed at a permitted landfill.
- The floor of the quarry will be left level and ripped to allow re growth of vegetation. Topsoil removed at the beginning of the process can be used to cover this area.
- Before placing topsoil, all visible weeds will be removed.
- The topsoil will be spread evenly over the prepared surface to a depth of 75 to 150mm on slopes of 1:3 or steeper.
- Topsoil placement will occur in a phased manner, concurrent with the phased operation of the quarry. Topsoil will be placed in the same area from which it was stripped.
- Where amounts are inadequate to cover the entire area, slopes will receive priority treatment.
- Site access will be blocked to ensure that other operators or opportunists do not re-visit closed areas and continue to remove material.
- Re-vegetated areas will be protected until vegetation has become established. No vehicles or equipment will be allowed access to areas that have been vegetated.
- Any erosion channels that develop after re-vegetation will be backfilled and consolidated and the areas restored to a proper stable condition. The erosion will not be allowed to develop on a large scale before effecting repairs and all erosion damage should be repaired as soon as possible.
- Any large rocks uncovered by the mining activity must be placed in the pit and covered with overburden material and topsoil.
- The site will not be used further once it has been closed. The area will be shaped and re vegetated to ensure that it does not pose a safety or erosion and environmental hazard.

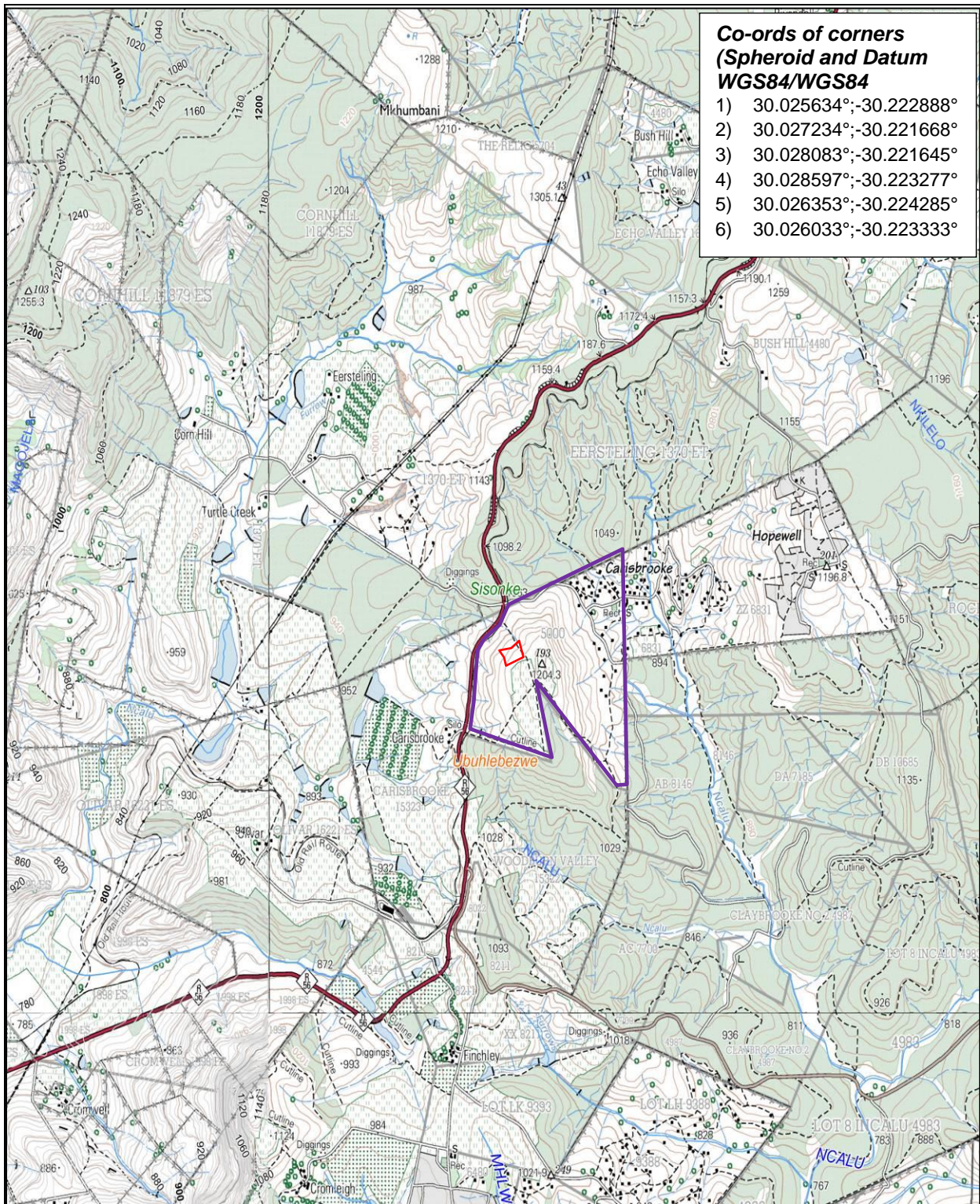
1.5 All Listed and Specific Activities to Be Triggered and Being Applied For as Per Section 2 (d) (i)

GNR	Activity Number	Activity as per the legislation	Activity as it applies to the proposal
GNR 983 Listing Notice 1; 04 th December 2014	21	<i>Any activity including the operation of that activity which requires a mining permit in terms of s27 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002), including associated infrastructure, structures and earthworks directly related to the extraction of a mineral resource, including activities for which an exemption has been issued in terms of section 106 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002).</i>	A Mining Permit application was submitted to the Department of Mineral Resources and acceptance was received on the 17 th March 2016.
GNR 983 Listing Notice 1; 04 th December 2014	27	<i>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- (i) the undertaking of a linear activity; or (ii) maintenance purposes undertaken in accordance with a maintenance management plan.</i>	The mining activities will require the clearance of more than 1 hectare of indigenous vegetation. The entire quarry area, including parking, stockpiling and crushing plant, is 4.99 hectares.
GNR 984 Listing Notice 2; 04 th December 2014	21	<i>Any activity including the operation of that activity associated with the primary processing of a mineral resource including winning, reduction, extraction, classifying, concentrating, crushing, screening and washing but excluding the smelting, beneficiation, refining, calcining or gasification of the mineral resource in which case activity 6 in this Notice applies.</i>	Blasting, crushing and screening of rock material will take place on site. These activities are considered "primary processing of the raw material".

1.6 Location Of Activity As Per Section 2 (b)(i)-(iii)

District Municipality	Harry Gwala District Municipality.	
Local Municipality	uBuhlebezwe Local Municipality.	
Ward	2	
Area / Town / Village	Ixopo	
Co-ordinates:	Latitude	Longitude
Quarry Edge 1	30°13'22.38"S	30° 1'32.24"E
Quarry Edge 2	30°13'17.96"S	30° 1'38.03"E
Quarry Edge 3	30°13'17.90"S	30° 1'41.10"E
Quarry Edge 4	30°13'23.80"S	30° 1'42.96"E
Quarry Edge 5	30°13'27.43"S	30° 1'34.87"E
Quarry Edge 6	30°13'24.02"S	30° 1'33.73"E
Property Description:	Parent Farm:	Farm Portion:
	Lot 9 Incalu 5000	Portion 3
21 Digit Surveyor General's numbers:	N0ET00000000500000003	

Figure 1: 1 in 50 000 Locality Map Showing Proposed Quarry on Portion 3 of Lot 9 Incalu 5000 In The Ubuhlebezwe Local Municipality; Harry Gwala District Municipality; KwaZulu Natal. Applicant: Matzogystix (Pty) Ltd. Property boundary in purple; Proposed Mining Area Shown in Red Measuring 4.99ha.

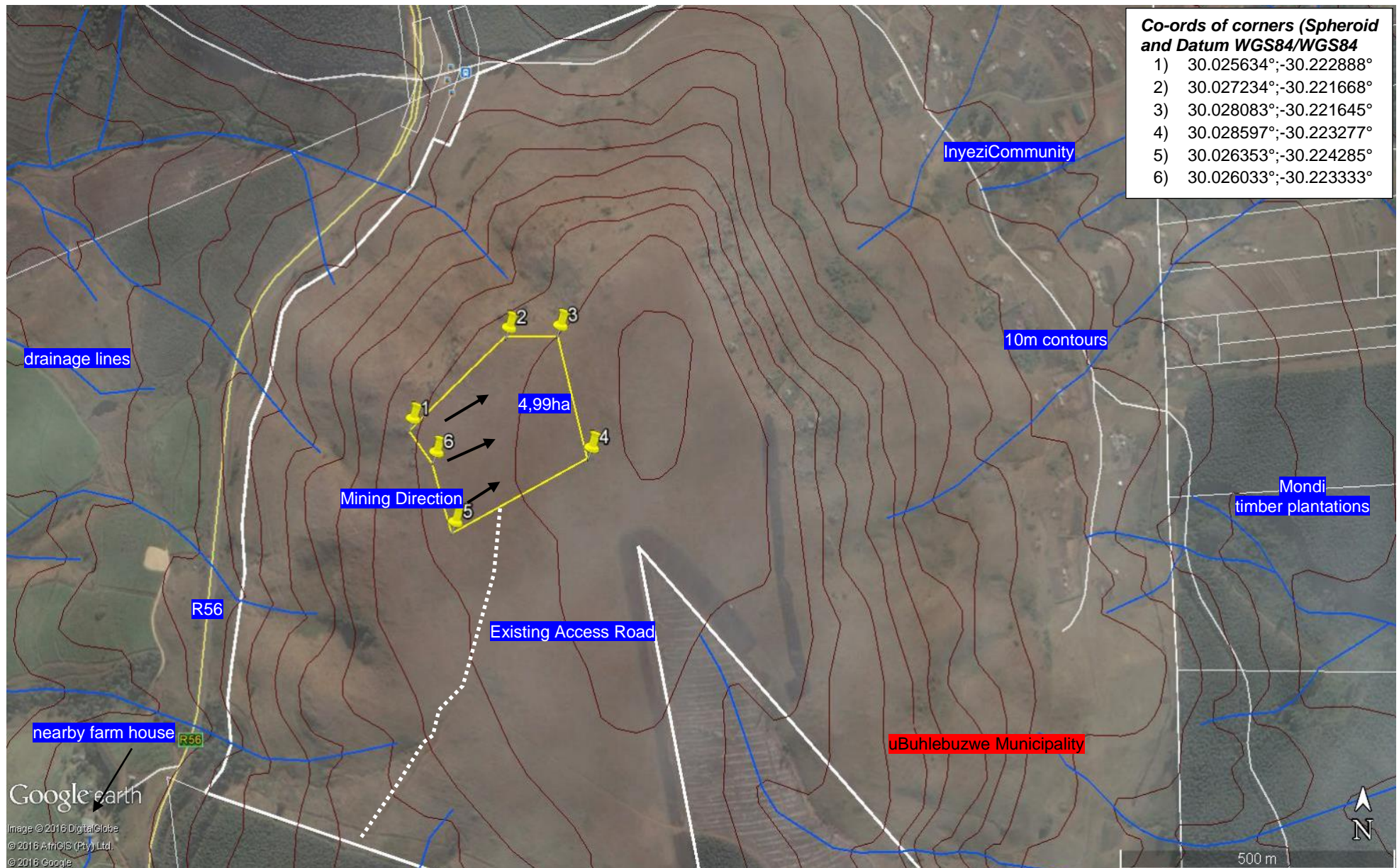


Title	Carrisbrooke Quarry	Legend	
Co-ordinates	30°13'22.81"S; 30° 1'37.83"E		Watercourses
Scale	1:50 000		Property
Topographical Sheet No.	3030AA		Quarry site
Drawing No.	Carrisbrooke Quarry #01		20m Contour
Date Prepared	29 th March 2016		Forest Plantations
Prepared By	Stephanie Williams		Urban Areas



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Figure 2: Aerial Photograph Showing Proposed Quarry on Portion 3 of Lot 9 Incalu 5000 in the Ubuhlebezwe Local Municipality; Harry Gwala District Municipality; KwaZulu Natal. Applicant: Matzogystix (Pty) Ltd. Property boundary in white; Proposed Mining Area Shown in Yellow Measuring 4.99ha. The 10m contour lines are shown in brown (source: Google Earth Pro, 2016).



Section 2: Alternatives as Per Section 2 (h) (i) and 2 (i) (i)

2.1 Description of Process Followed to Reach Proposed Preferred Activity, Site and Location within the Site as Per Section 2 (h) (i)

Site Alternatives

Matzogystix (Pty) Ltd will be entering into a Lease Agreement with the Inyezi Communal Property Association, who own the property. The proposal is ultimately to mine a portion of land not exceeding 5 hectares. An application for a mining permit at the co-ordinates provided in section 1.5 has been submitted, acknowledged and accepted by the Department of Mineral Resources (DMR). There are therefore no feasible site alternatives considered. Based on the findings of the desktop Geotechnical Investigation, which confirmed the location of the desired stone, as well as restrictions imposed by infrastructure and sensitive environmental areas across and adjacent to the property, a preferred layout alternative on the site was formulated.

Layout Alternatives

The proposed mining area was discussed between the EAP and the applicant at the beginning of the EIA process. The proposed quarry site needed to be near the crest of the hill to reduce the amount of overburden requiring clearing during operation. The mine area was therefore shifted around the current layout, shown in yellow in the Figure above. The location of the proposed quarry area takes into account the following:

- 100m buffer from all drainage lines to the west of the site;
- Steep gradient associated with the eastern side of the property (see close contours in Figure above);
- Existing access to the south of the property. This access is to be discussed and confirmed; and
- Buffers associated with the various servitudes running along the western boundary of the property. Figure 3. The location of the quarry needs to take into account the various buffers associated with the infrastructure as well as the relevant health and safety restrictions when blasting in close proximity to this infrastructure. The South African National Road Agency Limited (SANRAL) have been included as an I & AP to provide comment on the location of the quarry in proximity to the railway line, the Department of Transport (DoT) due to the proximity of the R56 as well as Eskom for the powerlines traversing the north and eastern portions of the property.

The different variations to the quarry site that were considered are shown in black in Figure 4 below. The vegetation does not differ greatly between the alternatives as all alternatives fall within the Midlands Mistbelt Grassland ecosystem. The property is currently used for grazing by the surrounding community. Vegetation is discussed further in section 3 of the Scoping Report. Similar to the vegetation, potential fauna species associated with the mine area is unlikely to differ significantly between the layout alternatives due to their close proximity. Since the layout variations do not significantly differ from the proposed preferred layout (red in Figure 4), no feasible alternative layout have been discussed. Specialist studies will therefore concentrate on assessing this preferred quarry area in the next phase of the EIA. Photographs of the preferred quarry site are provided in Figure 5.

Figure 3: Orthophoto Showing the Location of Infrastructure in Close Proximity to the Proposed Quarry Site (source: PlanetGIS Explorer 4.3).

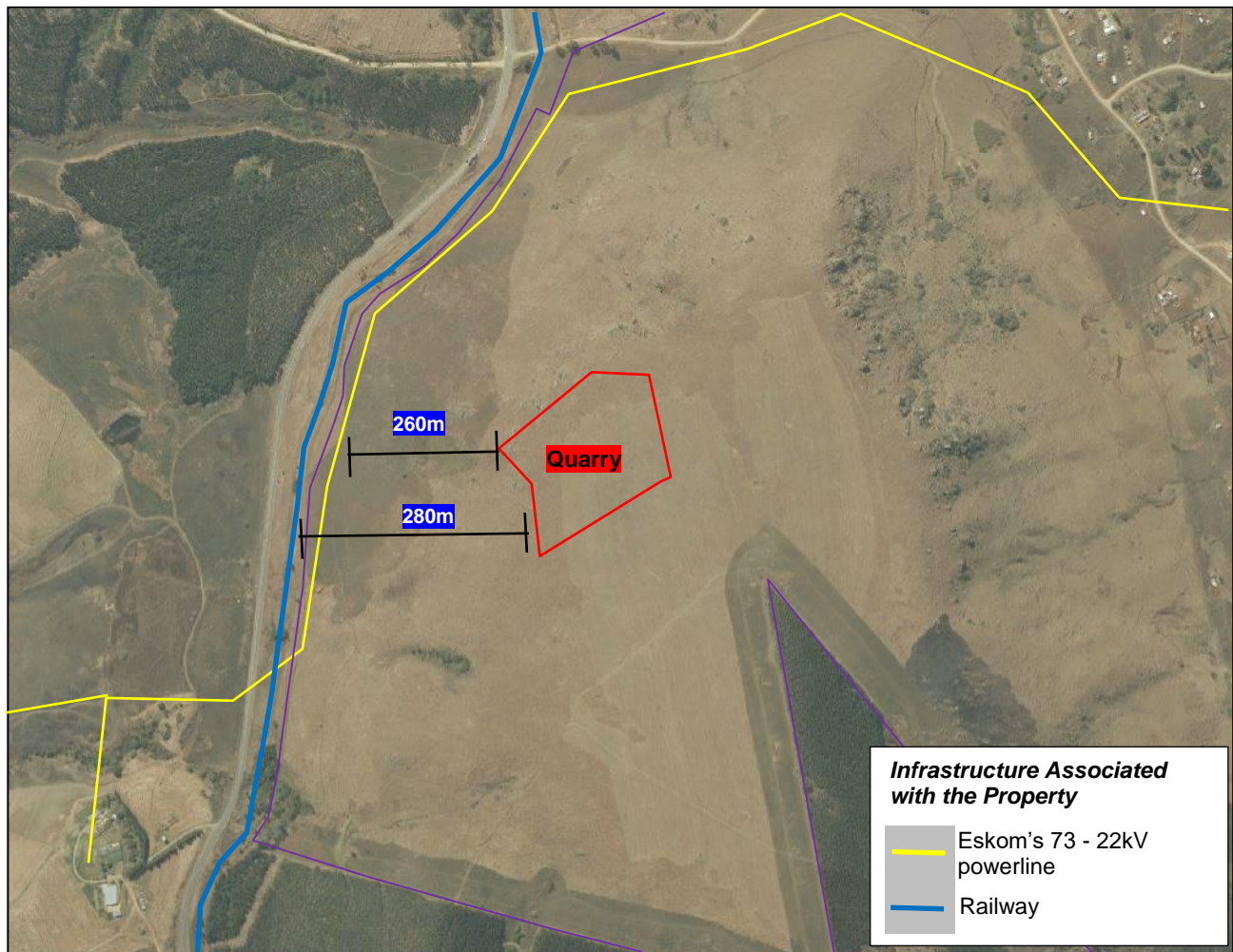


Figure 4: Proposed Layout Alternatives for the Carrisbrooke Quarry on Portion 3 of Lot 9 Incalu 5000. Layout Alternatives considered are outlined in black with the preferred Layout Alternative outlined in red. Drainage lines are drawn in blue (source: Google Earth Pro with DWS GIS overlay).

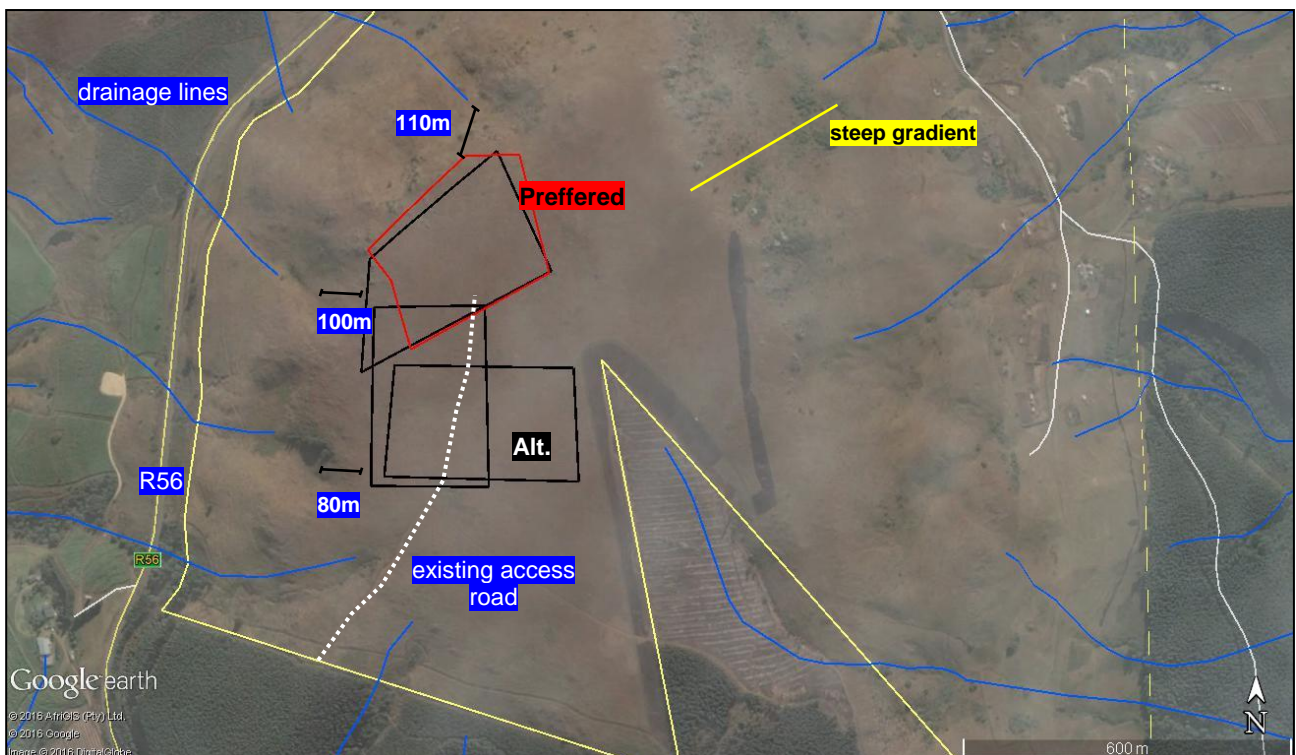


Figure 5: Photographs of the proposed Carrisbrooke Quarry area, outlined in black (a) Photograph taken in a southerly direction towards the mine area; (b) Photograph showing crest of hill and steep gradient associated with the northern portion of the property looking down towards the R56; (c) View from the Inyezi Community looking up the steep easterly bank; and (d) Photograph showing the general condition of the grassland associated with the proposed quarry area.



Technology Alternatives

In terms of the mining method proposed, overburden will be cleared using an excavator and soft material will be cut back. Work benches (minimum of 30m wide and ideal bench height of 10-12m, to be confirmed in the Mine Works Plan) will be cut into the mining area and material will be removed using controlled blasts. The loosened material will be removed using excavators and transported to the crushing and screening plant area. This is the standard methodology used to mine hard stone material and is therefore the only feasible technology alternative considered throughout the EIA process.

An alternative method would be to crush and screen the material at an offsite location. The applicant would need to provide and retain proof at the mine that the site processing the material further is permitted to do so. It therefore does not make logistical sense to transport truckloads of material before it is screened and then crushed at an alternative site. The Works Manager will have more control over the processing process, which will be discussed further in the EIR, if it is carried out at the site. There is an opportunity to ensure that best practice measures are carried out during the processing (as per the Environmental Management Programme, to be attached to the EIR).

The No Go Alternative

No mine will be established on the property and the land will remain as it. No impacts associated with mining will occur but neither will any of the positive economic benefits associated with employment, contributions to the local Inyezi community or a locally available source of material.

Section 3: Site Description and Surrounding Land Use as per section 2 (h) (iv)

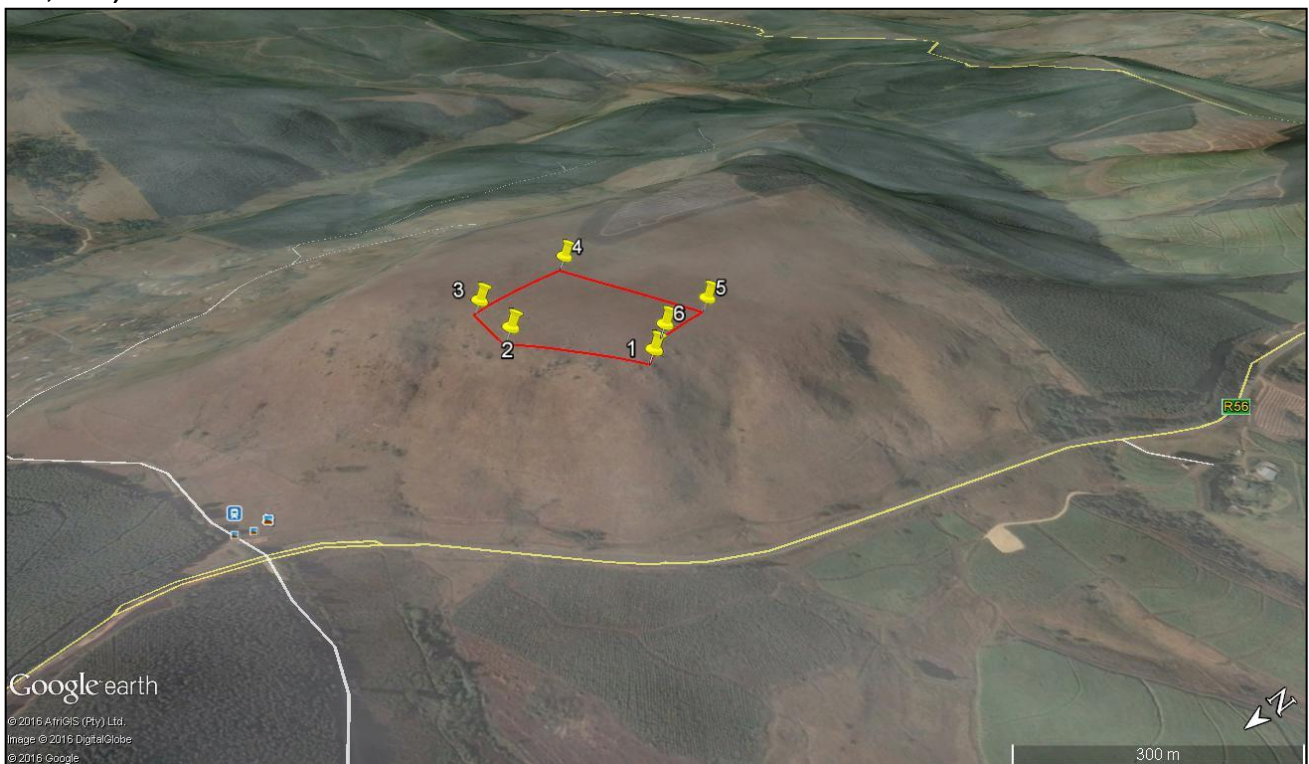
The information provided below is based on a desktop assessment of the site. A number of specialist reports have been commissioned to further investigate potentially environmental sensitive areas associated with the site. The findings of these reports will be discussed in the EIR.

3.1 Geographical, Physical Characteristics of the Site and Surrounding Land Uses

The property is located at an elevation of approximately 1200m above mean sea level. The south facing slope of the hill will be mined. The gradient drops off steeply to the north, east and west of the property (see elevation profile in Figure 6). Photographs taken of the proposed Carrisbrooke Quarry showing the surrounding topography are included in the photographs above.

The R56 is located to the west of the property with timber farming being a typical land use surrounding the site. The Inyezi Community is located to the north-east. Existing services associated with the property are shown in Figure 3 with surrounding land uses illustrated in Figure 4 above.

Figure 6: Elevation Profile Showing the Gradient Associated with the Carrisbrooke Quarry (source: Google Earth Pro, 2016).



3.2 Surface Water

The quarry falls in the T52D Quaternary Drainage Region. There are no major rivers in the immediate area however a number of drainage lines originate on the slopes of the property where rainfall runs down the steep gradient (drainage lines drawn in blue in Figures 2 and 4 above). All drainage lines associated with the site eventually form part of the Ncalu River system. All potential drainage lines lie further than 100m away from the boundary of the proposed quarry area.

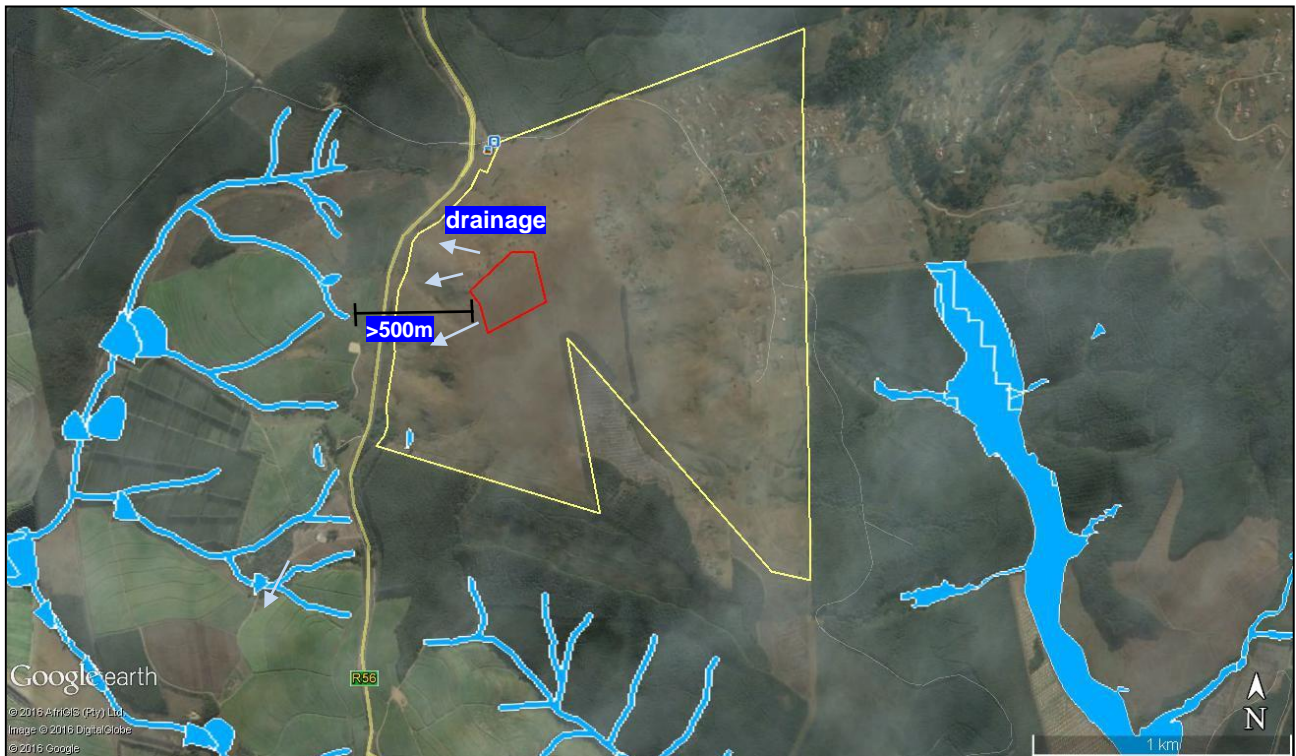
The National Freshwater Ecosystem Priority Areas (NFEPA) database shows a number of wetland systems located on either side of the property (shaded in blue in the Figure below). All wetland systems, however, fall further than 500m from the proposed quarry site and it is therefore considered unlikely that the wetlands will be impacted by the proposed activities. A wetland specialist has been appointed to determine the extent, health, functionality and if there are any potential impacts on these wetland systems.

All clean surface water runoff from surrounding slopes will be diverted away from the mining area. Potentially contaminated run off from the mine area itself will be diverted into the onsite sump and will not be permitted to discharge to the surrounding environment or any watercourses. The extent and dimensions of the sump will be determined and included in the EIR and Water Use Authorisation. Water collected in the

sump will be treated as potentially contaminated and will only be used for dust suppression within the mine area that is protected by the berms and drains back to the sump.

A *Wetland and Aquatic Assessment* has been commissioned to delineate all watercourses and wetlands within 500m of the mine area and to assess risk to the catchment as a result of mining in this location. A Water Use Authorisation from DWS will also be applied for. The specialist is to recommend mitigation measures to prevent any impacts from occurring during the operation of the mine. A Stormwater Management Programme will also be provided in the EIR.

Figure 7: Desktop study showing the National Freshwater Priority Areas associated with Portion 3 of Lot 9 Incalu 5000 (source: NFEPA database overlay).



3.3 Fauna and Flora

Although the site is currently zoned for agriculture, there is no form of agricultural activity taking place. The Inyezi local community currently use the property to graze their cattle. According to the South African Biodiversity Institute's (SANBI) Geographical Information System (GIS) overlay, there are two ecosystem types falling within the property boundaries. The majority of the property is comprised of Midlands Mistbelt Grassland (purple in Figure 8) with the north-east corner of the property falling within the Ixopo Surrounds Ecosystem (brown in Figure 8). Both ecosystems are listed as "vulnerable". Photographs showing the current condition of the vegetation on the property are provided in Figure 5 above.

Midlands Mistbelt Grassland is characterised as follows:

- Distributed at an altitude of between 760 – 1400m.
- Hilly and rolling landscape mainly associated with a discontinuous east-facing scarp formed by dolerite intrusions.
- It is dominated by forb-rich, tall, sour *Themeda triandra* grasslands transformed by the invasion of native "Ngongoni grass"
- The climate is typically summer rainfall with heavy and frequent occurrence of mist.
- Only a small fraction is statutorily conserved in a number of reserves such as Ngeli, Doreen Clark and Queen Elizabeth Park.
- Uncontrolled fires and poorly regulated grazing by livestock adds to the threats to this grassland³.

Ixopo Surrounds Ecosystem is characterised as follows:

- Distributed in the Ixopo and Creighton areas.
- The original area of the ecosystem is 27 000 hectares in extent.

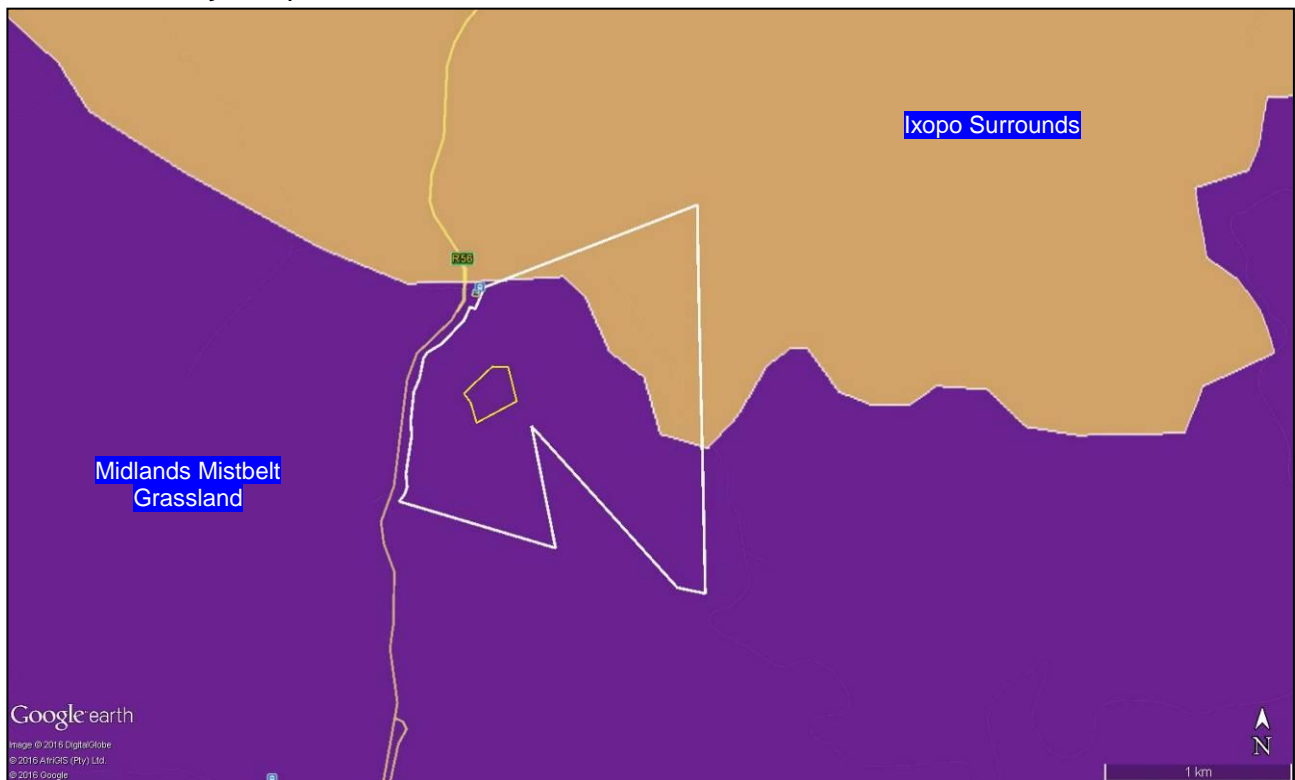
³ Mucina & Rutherford (eds.) "The Vegetation of South Africa, Lesotho and Swaziland" 2006 *Strelitzia* 19.

- There are 8 known threatened or endemic plant and animal species.
- 15% of the original area of the ecosystem remains natural with 0% officially protected⁴.

The operation of the proposed Carrisbrooke Quarry will result in the clearance of 4.99 hectares of indigenous vegetation from within the Midlands Mistbelt Grassland ecosystem. The vegetation specialist will assess the property with specific attention to the preferred mine area. Should any important / red data species be identified, measures to relocate, re-plant or rehabilitate will be provided by the specialist.

A *Vegetation Assessment* will provide input on the species found within the proposed mine area to determine what species will be removed. A species list will be included (indigenous and alien species). Recommendations and mitigation measures are to be provided by the specialist with particular reference to the rehabilitation and landscaping of the mine on decommissioning / closure.

Figure 8: Aerial image with the SANBI threatened ecosystems GIS overlay. The Midlands Mistbelt Grassland Ecosystem is shaded in purple with the Ixopo Surrounds Ecosystem shaded in brown (source: Google Earth Pro with SANBI overlay, 2016).



According to the Ezemvelo KZN Wildlife Minset Map, there is the potential for 3 threatened species of Millipede and 1 threatened Mollusc and amphibian species and 4 threatened grasshopper species to found in the study area. The species are include:

- *Spinotarsus glomeratus* (Millipede)
- *Centrobolus tricolor* (Millipede)
- *Doratogonus montanus* (Millipede)
- *Euonyma lymnaeiformis* (Mollusca)
- *Whitea alticeps* (Insect)
- *Whitea coniceps* (Insect)
- *Pagopedilum martini* (Insect)
- *Eremidium erectus* (Insect)
- *Arthroleptella ngongoniensis* (Amphibian)

⁴ Goodman, P.S. 2007. KwaZulu-Natal Terrestrial Conservation Plan (C-Plan), Version 4. Biodiversity Conservation Planning Division, Ezemvelo KZN Wildlife.

3.4 Heritage and Cultural Aspects

During the initial site visit, no archaeologically/ cultural significant resources or evidence of graves were identified in the proposed mine area.

3.5 Socio-Economic Environment

The area is rural in nature. It is located adjacent to the R56, which is the main road between Ixopo and Umzimkhulu. The property is surrounded by agricultural activities with the majority of the land being used as timber plantations. There nearest farm house is located approximately 780m south-west of the proposed quarry site. Scattered rural housing is located approximately 700m north-east of the site however due to the steep topography, the quarry activities will not be visible to the community. Please refer to Figure 2 above showing surrounding land-uses.

Section 4: Policy and Legislative Context

4.1 Identification of all Legislation, Policies, Plans, Guidelines, Spatial Tools, Municipal Development Planning Frameworks and Instruments As Per Section 3(e)(i) and Compliance of Proposed Activity with Legislation and Policy 2 (e)

Legislation	Compliance of Activity
National Environmental Management Act 1998	<p>The National Environmental Management Act (Act 107 of 1998) (NEMA) is South Africa's overarching environmental legislation. It includes a set of principles that govern environmental management and against which all Environmental Management Programmes (EMPrs) and actions are measured. These principles include and relate to sustainable development, protection of the natural environment, waste minimisation, public consultation, the right to an environment that is not harmful to one's health or wellbeing, and a general duty of care.</p> <p>The Environmental Impact Assessment (EIA) Regulations, 2014: GN R.982, R.983, and R.985 under Section 24 of the NEMA define the activities that require Environmental Authorisation and the processes to be followed to assess environmental impacts and obtain Environmental Authorisation.</p> <p>Environmental authorisation is required for the proposed mining activity including the processing of the raw material on site. Therefore this application is in line with the requirements of NEMA.</p>
National Water Act 1998	<p>Provides for fundamental reform of the law relating to water resources in a water scarce country. Section 21 of the National Water Act (NWA) lists certain water uses requiring a Water Use License from the Department of Water and Sanitation (DWS).</p> <p>A Water Use Authorisation (WUA) will be required for the mining activities. The WUA application is running concurrently with the EIA process. The following water uses have been identified:</p> <p>s21(a) – abstraction of water from the sump for dust suppression; s21(g) – stockpile areas, sump and dust suppression s21(c) & (i) - wetland specialist to confirm the presence and proximity of watercourses and wetlands.</p>
National Waste Management Act 2008	<p>Reforms the law regulating waste management to prevent pollution and ecological degradation.</p> <p>Section 19 allows the Minister to publish a list of activities, which require a Waste Management License. The most recent list is published in Government Gazette 37083 Notice No. 921 dated 29 November 2013. The proposal will not trigger a Waste Management Activity.</p>
Environmental Conservation Act 1996	Makes provisions for the application of general environmental principles for the protection of ecological processes, promotion of sustainable development and the protection of the environment. This Act has mostly been repealed by NEMA.
National Environmental Management Biodiversity Act 2004	<p>To provide the framework, norms, and standards for the conservation, sustainable use and equitable benefit-sharing of South Africa's biological resources. Section 52 allows for the publication of a list of threatened ecosystems in need of protection. The list was published in Government Gazette No. 34809 Notice No. 1002 dated 9 December 2011.</p> <p>This site is not located within an endangered ecosystem type in terms of section 52 of the National Environmental Management Biodiversity Act and therefore does not require environmental authorisation for this aspect.</p>
National Heritage Resources Act 25 of 1999	For the protection of South African Heritage to nurture and conserve communities legacy. Since the quarry area does not exceed 5 hectares, there is no requirement to carry out a Heritage Impact Assessment. No archaeologically/ cultural significant resources or evidence of graves were identified during the site visit.
Municipal Planning Framework	
Harry Gwala Municipality Integrated Development Framework 2015/2016	The intention of the Carrisbrooke Quarry is to supply material for future developments and service delivery within the Harry Gwala Municipality fulfilling one of the municipal goals discussed in the framework. The applicant has indicated that the material will be used by the DoT to upgrade roads in the Ixopo area.

Section 5: Motivation, Need and Desirability

5.1 Need and Desirability as Per Section 2 (f)

Following the World Summit on Sustainable Development in 2002, the Department of Minerals Resources initiated a programme to guide the mining and minerals sector to achieve “sustainable development”⁵. The Sustainable Development through Mining Programme (SDM) was therefore developed by the DMR. This EIA process aims to implement this Programme by ensuring that the planning and operational phases of the Carrisbrooke Quarry fall in line with sustainable development principles listed in Chapter 1 of NEMA. The EIA process guides the applicant in contributing to sustainable development thereby achieving one of the goals of the SDM Programme.

The Harry Gwala District Municipality Spatial Development Framework (SDF) identifies Ixopo as the primary node that provides services to meet the local requirements of the uBuhlebezwe Municipality as well as the greater Harry Gwala District. The Ixopo node contains a wide range of local and district level public and private sector activities. The Carrisbrooke Quarry, just south of Ixopo, therefore has the potential to supply construction material to the immediate area increasing its development potential further.

The material mined will be used in the construction industry, which is an important contributor to municipal and provincial development and growth. The uBuhlebezwe Municipality Integrated Development Plan 2012 – 2017 notes that the maintenance of provincial and district roads as “*a major problem owing to heavy rains and inadequate resources*”. The Carrisbrooke Quarry intend to supply DoT with good quality material to improve the road network. DoT have a major depot in Ixopo, which will be in close proximity to the proposed quarry.

Apart from supplying good quality material to the construction market, the mine will create job opportunities (skilled and unskilled) benefiting the local economy. One of the conditions listed in the Lease Agreement with the landowner will be for the applicant is to employ local community members as general labours in the mining operations.

5.2 Motivation for Preferred Site, Activity and Technology Alternative as Per Section 2 (h) (x) and (xi)

The site was selected for a mining permit on inspection of the underlying geology of the property and therefore there are no site alternatives. Layout Alternative 2, described in section 2, will be assessed in more detail in the EIR as the preferred alternative due to the close proximity to the access roads, decreased visual impact on surrounding farmers as well as certain restrictions associated with the property.

Due to the nature of the material available at the Carrisbrooke Quarry, there are no feasible technology alternatives. The technology / mining methodology is considered preferable as there is no excessive water use associated with the process. The only water used for the mining process will be that needed for dust suppression and water used by staff for drinking etc. Run off from the mined area will be collected in the sump and will be re-used in the mine are for dust suppression. Additional water may be needed for dust suppression and this will either be obtained from a municipal source or trucked in. The water source will be confirmed in the EIR and assessed under the Water Use Authorisation process.

⁵ Sustainable development can be defined as “development that meets the needs of the present generation without compromising the ability of future generations to meet their needs”.

Section 6: Public Participation as per Section 2 (h) (ii) & (iii) and 2 (i) (vi) & (vii)

As per Section 2 (h) (ii) and (iii), below is the details of the public participation process followed to date and a summary of the issues raised by interested and affected parties. Copies of supporting documents and inputs have been included in Appendices B - F.

6.1. Notification of Interested and Affected Parties

- 1) *fixing a noticeboard at a place conspicuous to and accessible by the public at the boundary, on the fence or along the corridor of-*
 - i. *the site where the activity to which the application or proposed application relates is or is to be undertaken; and*
 - ii. *any alternative site;*

Three noticeboards were placed at various locations around the proposed Carrisbrooke Quarry mine site with an additional noticeboard placed at the entrance to the site (isiZulu). An English noticeboard was placed at the Carrisbrooke train station and at the exit of the R56, towards the proposed access road. An isiZulu noticeboard was placed in the Inyezi Community, east of the site. Noticeboards were erected on the 23rd March 2016. The noticeboard detailed the applicants proposed plan to mine a 4.99 hectare of hill on the property, subject to a Scoping/EIA process. See Appendix B for proof of placement of the noticeboards.

- 2) *giving written notice, in any of the manners provided for in section 47D of the Act, to-*
 - i. *the occupiers of the site and, if the proponent or applicant is not the owner or person in control of the site on which the activity is to be undertaken, the owner or person in control of the site where the activity is or is to be undertaken or to any alternative site where the activity is to be undertaken;*
 - ii. *the municipal councillor of the ward in which the site or alternative site is situated and any organisation of ratepayers that represent the community in the area;*
 - iii. *the municipality which has jurisdiction in the area;*
 - iv. *any organ of state having jurisdiction in respect of any aspect of the activity, and;*
 - v. *any other party as required by the competent authority;*

Rural houses forming part of the Inyezi Community currently occupy a small portion of the eastern boundary of the property. One of the conditions of the Lease Agreement with the landowner will be for the applicant to allow the community members to continue residing on the property where homesteads and sheds have already been established. One of the signboards described above was placed in this section of the community, where houses have been established on the property. A meeting has been scheduled for the 09th April 2016 with representatives of the Inyezi Community where the EAP will meet with the relevant community representatives to distribute relevant information through the correct channels.

The municipal councilor for Ward 2, Mr Tenza, was contacted via telephone on the 22nd March 2016 to discuss the project. An official email of notification was sent to the Ward Councilor shortly after (see Appendix D for proof of notification). Representatives from the uBuhlebezwa Municipality and Harry Gwala District Municipality have been notified by email. The Land Restitution Commission was also included in the notification. The results of land claim clearance for the proposed property is pending and will be included in the Final Scoping Report. A number of stakeholders and authorities were also tracked down electronically and information has been provided to them via email on the 23rd March 2016 (see Appendix D for proof).

All relevant authorities have therefore been notified of the application and have been provided with copies of the Draft Scoping Report (SR). The Draft SR will be circulated for a legislated 30 day comment period (31st March 2016 – 02nd May 2016). All comments received within the comment period will be included in Appendix F of the Final SR. The Draft EIR will be circulated for comment, once DMR approves the Final SR.

- i. *owners, persons in control of, and occupiers of land adjacent to the site where the activity is or is to be undertaken or to any alternative site where the activity is to be undertaken;*

A map showing the properties directly adjacent to Portion 3 of Lot 9 Incalu 5000 has been provided in Appendix D. A number of the properties are not registered with the title deeds office or contact details are not available (from the deeds office or the local municipality). The EAP is therefore in the process of obtaining contact details through the Inyezi Communal Property Association and potentially, the Ingonyama Trust Board. Clarity on the various adjacent landowners to the east of the property will therefore be obtained during the public meeting scheduled on the 09th April 2016. Proof of notification of the remaining adjacent landowners is attached under Appendix D.

The landowner through whose property access is proposed has raised concerns regarding this access through his property (Remainder Portion of Woodburn Valley No. 15322). It has therefore been recommended that a meeting be scheduled with the adjacent landowner and the applicant within the next month to discuss access to the site. Concerns regarding the impact of blasting on nearby structures, transformation of virgin grassland and potential impacts on the natural spring supply water to the adjacent farm was also raised. Concerns raised during the Scoping phase are to be addressed in the EIR by the relevant specialists.

- 3) *placing an advertisement in-*
 - i. *one local newspaper; or*
 - ii. *any official Gazette that is published specifically for the purpose of providing public notice of applications or other submissions made in terms of these Regulations;*
- 4) *placing an advertisement in at least one provincial newspaper or national newspaper, if the activity has or may have an impact that extends beyond the boundaries of the metropolitan or district municipality in which it is or will be undertaken: Provided that this paragraph need not be complied with if an advertisement has been placed in an official Gazette referred to in paragraph (c)(ii);and*

The project has been advertised in the Kokstad Advertiser (English) and Ilanga (isiZulu). The adverts were published on the 31st March 2016 and 03rd April respectively. The adverts detail the proposed Carrisbroke Quarry, Scoping/EIA process and provide contact details for EnviroPro should anyone wish to register as I&AP. Proof of adverts is provided in Appendix C.

6.2. Registered Interested and Affected Parties

42. *A proponent or applicant must ensure the opening and maintenance of a register of interested and affected parties and submit such a register to the competent authority, which register must contain the names, contact details and addresses of-*
 - (a) *all persons who, as a consequence of the public participation process conducted in respect of that application, have submitted written comments or attended meetings with the proponent, applicant or EAP;*
 - (b) *all persons who have requested the proponent or applicant, in writing, for their names to be placed on the register; and*
 - (c) *all organs of state which have jurisdiction in respect of the activity to which the application relates.*

The contact details of all I&APs that have registered have been provided in the Registered I&AP list in Appendix E.

6.3. Comments

Comments of interested and affected parties to be recorded in reports and plans.

- 1) *The applicant must ensure that the comments of interested and affected parties are recorded in reports and plans and that such written comments, including responses to such comments and records of meetings, are attached to the reports and plans that are submitted to the competent authority in terms of these Regulations.*
- 2) *Where a person desires but is unable to access written comments as contemplated in subregulation (1) due to-*
 - i. *a lack of skills to read or write;*
 - ii. *disability; or*
 - iii. *any other disadvantage;*
 - iv. *reasonable alternative methods of recording comments must be provided for.*

All comments received from I&APs to date have been recorded in the comments and response table. The original comments provided have been provided together with the comments and response table. See Appendix F for the Comments and Response Table and all comments received to date.

Section 7: Preliminary Impact Assessment as Per Section 2 (h) (v) - (ix)

7.1 Methodology to Determine and Rank Nature, Significance and Consequences of Impacts Associated With all Alternative as Per Section 2 (h) (vi) and 2 (i) (v)

Impacts are assessed qualitatively and quantitatively, looking at the duration / frequency of the activity and likely impacts associated with that activity during construction, operation and closure. If the activity happens frequently, the risk of the associated impact occurring is much higher than if the activity happens less frequently. The geographical extent of the impact is assessed i.e. will the impact be restricted to the point of occurrence or will it have a local or regional effect. Impacts are also reviewed looking at severity levels and consequences should the impact occur i.e. will the severity be low, medium or high and then probability of the impact occurring is taken into account.

Whether or not the impact can be mitigated and the extent to which it can be avoided, managed, mitigated or reversed is assessed i.e. the probability of occurrence after mitigation has been applied. This also takes into account likelihood of human error based on construction and operational auditing experience i.e. even though spills can be completely mitigated against and prevented, there is always a small chance that spills will still occur (residual risk). Based on all of these factors, the impact is then rated to determine its significance. For example an impact can have a regional affect with severe environmental implications, however the probability of it occurring is very low and the implementation of the proposed mitigation measures means that the ultimate rating is medium or low.

Please see below a description of the scoring. The full impact scoring tables detailing how the significance rating was calculated can be found in Appendix G, as per section 2 (h) (ix).

Table 1: Explanation of the scoring of the impacts identified in EIA

Scoring of Impacts	
Duration / Frequency of activity likely to cause impact	0 = No impact 1 = short term / once off 2 = medium term / during operation 3 = long term / permanent
Geographical Extent	0 = No impact 1 = point of impact / restricted to site 2 = local / surrounding area 3 = regional
Severity (level of damage caused) if impact were to occur	0 = No impact 1 = minor 3 = medium 5 = major
Probability of impact without mitigation	1 - 5 = low. 6 -10 = medium. 11 -14 = high.
Significance before application of Mitigation Measures	A score of between 1 and 5 is rated as low. A score of between 6 and 10 is rated as medium. A score of between 11 and 14 is rated as high.
Will activity cause irreplaceable loss of resources?	10 = Yes 0 = No
Mitigation measures	0 = No impact - 5 = can be fully mitigated - 3 = can be partially mitigated -1 = unable to be mitigated
Probability of impact after mitigation	0 = No impact 1 = Low 2 = Medium 3 = High
Significance after application of Mitigation Measures	A score of between 1 and 5 is rated as low. A score of between 6 and 10 is rated as medium. A score of between 11 and 14 is rated as high.

Some of the impacts in the table below will be expanded on in the EIR once more information is available from the various specialist studies. Impacts scoring a higher significance in the Scoping Report, will receive more attention in the EIR. The impacts identified below are therefore not the complete list, as there may be more impacts identified in the specialist reports and through the public participation process. Please note

that scoring and assessment of impacts as well as discussion of mitigations below are **preliminary** and that a more detailed assessment will be provided in the EIR.

7.2 Preferred Site and Layout Alternative

See Appendix G for the full impacts scoring matrix, which assesses the impacts based on the above scoring system. The below impacts relates to the site location and preferred layout.

Table 2: Impacts and mitigation measures associated with the *preferred* layout.

Nature and Consequences of impact	Significance rating of impacts ⁶ :	Proposed mitigation and Extent to which impact can be reversed / avoided, managed or mitigated:	Significance rating of impacts after mitigation:
Construction			
Since construction will result in the very little activity occurring on the site (establishment of site office, setting up screening and crushing plants in demarcated areas), no construction related impacts have been identified. There is also existing access to the mine site.			
Operation			
1. There is a risk of collapse of the mining face if the angle of removal is not correctly planned and managed. This could lead to slippage and collapse of the slope causing damage to the surrounding environment as well as posing a risk to onsite workers.	9 (med)	If the appropriate mining technique is not used and slippage occurs, it could potentially have a significant impact in terms of risk to the workers on site, on-going instability issues and on-going erosion. The risk of this impact occurring is relatively low, provided proper mining techniques are used and the angle of removal is appropriately planned, implemented and monitored. A <i>Mine Works Programme</i> is currently being prepared which will detail the height and width of the proposed benches to ensure there is no collapse of the mine face.	4 (low)
2. Loss of agricultural land in the uBuhlebezwe Municipality.	8 (med)	There is currently no agriculture taking place on the site.	0 (no impact)
3. Generation of emissions from vehicles.	7 (med)	All construction vehicles will be fitted with the appropriate silencers and exhausts. Emissions generated from these vehicles is not expected to significantly affect the workers on site, neighbouring farmers or community. This impact can be managed and mitigated.	3 (low)
4. Increase in heavy truck traffic as trucks enter and leave the site which could impact on existing traffic.	8 (med)	The nature of the activity will result in a localised increase in haulage truck traffic. Having direct access onto the R56, prevents trucks from travelling on any additional private / residential roads. The traffic increase should therefore not significantly affect neighbouring farms or the Inyezi Community.	6 (med)
5. Generation of flyrock as a result of blasting.	9 (med)	Mitigation is generally applied when mining comes to within 100m of any structure and whenever the ground vibration is likely to cause damage to the structure. There are no structures within 500m of the preferred mine area The <i>Blasting Plan</i> will however confirm the potential impact on any nearby structures that may require further	5 (low)

⁶ See Appendix H for more details.

Nature and Consequences of impact	Significance rating of impacts ⁶ :	Proposed mitigation and Extent to which impact can be reversed / avoided, managed or mitigated:	Significance rating of impacts after mitigation:
		<p>protection.</p> <p>The <i>Blasting Plan</i> will determine Peak Particle Velocities (PPV) at varying distance intervals from the quarry so that potential impacts on nearby structures can be determined, this will also provide necessary information to adjust timing and size of blasts to minimise potential impacts.</p> <p>Blasting generates short duration events that are noticeable only by communities and individuals living in the immediate environment. A number of mitigation measures will be recommended in the <i>Blasting Plan</i> to be included in the EIR.</p>	
6. Leaving the Carrisbrooke Quarry un-rehabilitated.	11 (high)	<p>If the quarry is not rehabilitated upon completion of the operation, the currently proposed activity will create an on-going safety risk (especially children and animals who may fall off the cliff edges or be hurt by unstable collapsing rock faces). It will also continue to have an unnecessary visual impact on the surrounding landscape. There may also be further slippage of unshaped slopes and erosion of soil above unstable slopes. Appropriate rehabilitation measures to be further investigated and discussed in the EIR will mitigate this risk. The <i>Vegetation Assessment</i> is to provide further input on any recommendations to be included in the rehabilitation of the quarry. Please refer to section 8.1 of the Scoping Report detailing the financial provisions which are to be set aside for the rehabilitation phase.</p>	6 (med)
7. Petrochemical spills from mining operational machinery.	7 (med)	<p>All mining equipment and vehicles are to be retained in the permitted mine area, which will be rehabilitated on closure. All spills must however be contained, placed in the hazardous waste removal containment area and removed off site to be disposed of at a licensed hazardous waste landfill site. Adequate spill kits and containers for spilled and contaminated material to be on standby on site. If a spill occurs, stop the source, contain it, clean up in accordance with MSDSs and notify relevant authorities.</p>	3 (low)
8. Inadequate waste management on site.	6 (med)	<p>The project will see an increase in workers on site and therefore an increase in waste in the area.</p> <ul style="list-style-type: none"> Littering will not be permitted in the study area; Designated waste storage areas with appropriate waste receptacles must be set up in the site camp; Waste will be removed from site and disposed of at a registered waste 	4 (low)

Nature and Consequences of impact	Significance rating of impacts ⁶ :	Proposed mitigation and Extent to which impact can be reversed / avoided, managed or mitigated:	Significance rating of impacts after mitigation:
		disposal site. • No dumping is permitted.	
9. Encroachment of alien vegetation into disturbed areas and surrounding grassland during operation of the mine.	7 (med)	The Vegetation Assessment will confirm the extent of alien invasion on the property however there is likely to be limited alien vegetation in the surrounding grassland. Alien vegetation establishment is to be tightly controlled to ensure that there is no encroachment into the surrounding areas. This impact can be managed and mitigated.	3 (low)
10. Insufficient number of toilet facilities on site resulting in the contamination of the environment.	7 (med)	Workers on site will require an appropriate number of toilet facilities on site. • Appropriate and sufficient toilet facilities (1 toilet per 15 employees) must be provided by the applicant; • All toilet facilities must be checked on a daily basis; • All toilet facilities must be emptied and cleaned on a weekly basis. • A registered waste removal contractor must remove effluent waste from site or effluent waste must be disposed of at a permitted Waste Water Treatment Site. This impact can be managed and mitigated.	3 (low)
11. Cumulative impact on biodiversity due to further loss of vegetation and the impact on fauna.	11 (high)	The proposed Carrisbrooke Quarry will take up just over 2% of the total property area. From the desktop study, the site does not fall within a critically endangered or endangered ecosystem. The potential fauna to be found in the area are small Millipedes, Insects, Molluscs and Amphibians. These animals will naturally move away from the disturbed area however some will be destroyed during the initial clearing. The Vegetation Assessment will provide further insight into this cumulative impact on biodiversity.	To be determined in specialist study.
12. Suitability of operation with respect to surrounding land use i.e. visual impact, and impact on sense of place.	11 (high)	The portion of land earmarked for mining is currently not being utilised for anything other than community cattle grazing. The preferred mine site is located on the opposite side of the hill to the Inyezi Community, reducing the visual impact to these established homesteads. Timber plantations to the north and south shield the visual impact from these directions. The only nearby property that may see the quarry, is located to the south-west however the steep topography and trees contribute to concealing the operations. This is to be further determined in the EIR. No infrastructure or services running through this property will be impacted by the mining operations. The mine is ideally located in close proximity to the R56 and	10 (med)

Nature and Consequences of impact	Significance rating of impacts ⁶ :	Proposed mitigation and Extent to which impact can be reversed / avoided, managed or mitigated:	Significance rating of impacts after mitigation:
		Ixopo town where it is anticipated that further development and service delivery will be increasing in the future. Once the site is closed, rehabilitation in the form of topsoil and hydro-seeding must take place to allow for the re-growth of vegetation on this site.	
13. Positive impacts for the Inyezi Community include potential for local employment.	0 (no impact)	This is a positive impact however it is to be noted that local labour must be sought, where possible, for the mining of this site.	0 (no impact)
14. Loss of vegetation within the Midlands Mistbelt Grassland ecosystem. There will be clearing of up to 4.99 hectares of indigenous vegetation as the mining area is expanded.	9 (med)	This impact cannot be avoided as the entire permitted mine area, will be cleared of vegetation. A Vegetation Assessment will confirm the quality of the vegetation associated with the mining area and identify the presence of any threatened, protected or valuable flora species. Recommendations are to be provided accordingly. The significance of the vegetation clearing can only then be determined. It is to be noted that the vegetation type is represented in the surrounding area and will not cause the isolation of any important vegetation or wetland areas.	To be determined in specialist study.
15. Noise generation during operation of plant equipment (crushing, screening and blasting) and trucks which may impact on staff and neighbours.	10 (med)	The noise from machinery, trucks and loading of stone will be on-going during operation and can't be completely mitigated against but can be minimised. The nearest household is located approximately 700m east of the quarry. Due to the distance from the site, and the topography, the noise from machinery (front end loaders, excavators, screener and crusher) and trucks will be significantly reduced before it reaches the Inyezi Community. Noise from blasting will however be further addressed in the Mine Works Plan and Blasting Plan . Typically, blasting is intermittent and at maximum capacity will only occur once a week.	8 (med)
16. Dust generation during preparation of site and roads as well as during operation impacting on air quality.	9 (med)	Dust generation will be primarily managed through the application of water on site and associated dirt access roads but is an impact associated with on-going operation of a quarry and even with mitigation, some dust will still be released. The existing dirt road to the site measures approximately 2km and is surrounded by timber plantations in the lower area near the main road. Dust levels at the site must comply with the National Dust Regulations (Government Notice R827, 2013) with regards to dust levels produced on site.	5 (low)

Nature and Consequences of impact	Significance rating of impacts ⁶ :	Proposed mitigation and Extent to which impact can be reversed / avoided, managed or mitigated:	Significance rating of impacts after mitigation:
17. Poor stormwater management during operation and after closure leading to erosion on the property.	9 (med)	Provision must be made to control stormwater runoff, especially down the slope of the mine face. The aim of the stormwater management is to ensure that clean water running off surrounding slopes does not enter the mine area and “dirty” water from within the mine area does not leave the mine area. This will be assessed as part of the WULA submitted to DWS. A <i>Stormwater Management Programme</i> will be provided and attached to the EIR. A <i>desktop Geohydrological Assessment</i> will provide input on any potential impacts to groundwater.	5 (low)
18. Risk to water quality on nearby watercourses and wetlands.	7 (med)	The preferred quarry area has taken into account the location of drainage lines identified during the desktop assessment reducing the potential for any contamination to enter these watercourses. Sediment and potentially contaminated run off is not permitted to enter the natural watercourses in the area. The <i>Wetland and Aquatic Assessment</i> will however assess the risk to the nearby watercourses and the catchment in detail. The wetland specialist will also comment on any NFEPA. A <i>Desktop Geohydrological Assessment</i> will provide input on potential impacts to groundwater wetlands in close proximity to the site.	3 (low)
19. Impact on existing services i.e. power lines, roads, railway line etc.	9 (med)	All existing services and infrastructure on the property have been identified (see Figure 3 above). The mine area has been located as far away from these services as feasible providing a sufficient buffer. Any infrastructure that is removed must be replaced and any damage caused from the mining operations must be repaired. The use and repair of the existing access road through the Remainder Portion of Woodburn Valley No. 15322 will be discussed with the landowner who has raised concerns.	4 (low)

Section 8: Plan of Study for Undertaking the EIA

8.1 Description of Aspects to be Assessed in the EIA, including Specialist Input, and Proposed Tasks to be Undertaken as Part of the EIA as Per Section 2 (i) (ii), (iii) and (viii)

No fatal flaws or red flags have been identified in the Scoping Report however all identified impacts will be further investigated and assessed in the EIA phase of the project. Additional impacts may be added to the Impacts Table on receipt of the various specialist reports.

8.1.1 Specialist Assessments

The following specialist reports are underway and will be included in the EIR:

8.1.1.1 *Blasting Plan*

Matzogystix (Pty) Ltd will provide the blasting methodology and detail management measures to be undertaken during the operation of the Carrisbrooke Quarry. The Blasting Plan will determine Peak Particle Velocities (PPV) at varying distance intervals from the quarry so that potential impacts on nearby structures can be determined, this will also provide necessary information to adjust timing and size of blasts to minimise potential impacts. The Blasting Plan will ensure that the blasting is managed to minimise adverse impacts on the surrounding farmers and environment. It will also provide clear definitions of the roles and responsibilities for employees and contractors working at the Carrisbrooke Quarry.

8.1.1.2 *Geohydrological Investigation*

Geomeasure Group (Groundwater and Environmental Consultants) are preparing the Geohydrological Investigation which will include a site inspection, detailed hydrocensus and water quality sampling (Phase A). Data analysis and reporting will form Phase B of the Investigation. Recommendations will be made on the findings of the specialist.

8.1.1.3 *Mine Works Programme*

Matzogystix (Pty) Ltd will prepare the proposed mine works programme identifying the methodology / technique for mining the mineral at the Carrisbrooke Quarry. Maps showing the mine design and schematic mining schedule will be provided. The Mine Works Programme includes details of infrastructure required on the site (office, access road, water source etc.).

8.1.1.4 *Stormwater Management Programme*

Matzogystix (Pty) Ltd will include a detailed, site specific Stormwater Management Programme in the Mine Works Programme. The Stormwater Management Programme will include measures to ensure that only clean water enters the surrounding environment. Dimensions of the proposed sump which is to be created in the centre to capture runoff from within the mine area (to be used for onsite dust suppression) will be included.

8.1.1.5 *Vegetation Assessment*

David Styles will undertake a detailed study of the property to ascertain the composition and importance of the vegetation associated with the mine area. The assessment will include a full reconnaissance of the site followed by plot based fieldwork. He will then produce a report including a species list and relevant GIS work and mapping. The report is to fulfil the DMR and Ezemvelo KZN Wildlife standards. Comment is to be provided on the local biodiversity.

8.1.1.6 *Wetland and Aquatic Assessment*

The Biodiversity Company are carrying out a study which will include a wetland assessment (where applicable) and an aquatic assessment of local rivers and streams affected by the project, in order to ensure that all legislative requirements are fulfilled. In accordance with DWS, a buffer area of 500m around the project area will also be assessed for the presence of wetland systems.

As per the Specialists proposal, the following will be carried out:

- Desktop assessment of the project area;
- Site visit to assess the baseline conditions;
- Identify, characterise and delineate the local wetland and riparian systems;
- Conduct an ecological health and functioning assessment of the systems; and
- Conduct a risk assessment for the project, based on potential impacts to the system.

8.1.2 Other Proposed Tasks

Mitigation measures and recommendations made by the specialists will be contained in a site specific Environmental Management Programme (EMPr), to be compiled during the next phase of the EIA. The EIA phase aims to adequately assess and address all the environmental impacts which have been identified

throughout the EIA, to provide DMR with sufficient information to make an informed decision regarding the proposed mining application.

Consultation will continue with the municipalities (uBuhlebezwe and Harry Gwala), Ward Councillor, DWS, KZN Wildlife and other authorities listed in the I & AP Register (Appendix E). Any other I & APs identified during the EIA phase will be included in the I & AP register and sufficient time provided to the I & APs to comment on the EIA reports. Consultation with authorities and I & APs is therefore a continuous process that takes place until completion of the environmental investigations.

Table 3 below provides the plan of study for the remainder of the EIA according to legislated timelines provided in the Environmental Impact Assessment Regulations, 2014 published on the 04th December 2014 in Government Gazette No. 38282 Notice No. R.982.

Table 3: Plan of Study for the EIA process for the Carrisbrooke Quarry

Date	Description
17 th March 2016	Receipt of DMR Acceptance of Mining Application
05 th April 2016	Release of Draft Scoping Report to I & APs for comment
09 th May 2016	End 30 day comment period
~ 09 th May 2016	Submission of Final Scoping Report to DMR (within 44 days of receipt of acceptance). Final Scoping Report to include any comments received from I & APs.
22 nd June 2016	Deadline for DMR to accept or reject Scoping Report (within 43 days of receipt of Scoping Report).
~ August 2016	Provided that the Scoping Report is accepted, the EIR will be released for I & AP comment (106 days from receipt of acceptance of Scoping Report). EIR to include all specialist studies listed above and updated impacts table.
~ September 2016	End 30 day comment period
~ October 2016	Submission of Final EIR to DMR (within 106 days of acceptance of Scoping Report).
~ February 2017	Deadline for DMR to accept or reject EIR (within 107 days of receipt of the EIR).

8.2 Methodology for Assessment of Environmental Aspects as Per Section 2 (i) (iv), (v) and (ix)

The impacts identified in the Impacts Table (section 7.0 above) as well as additional impacts raised in the specialist reports will be discussed in further detail in the EIR. The same methodology described in section 7.1 above for rating impacts identified in the Scoping Report, will be used to assess the environmental aspects in the EIR however the ratings will be more accurate with input from the specialists.

The duration / frequency of the activity and likely impacts associated with that activity during construction, operation and closure will be rated. The geographical extent of the impact will be assessed as well as the severity levels and consequences should the impact occur. Probability of the impact occurring will be taken into account. Whether or not the impact can be mitigated and the extent to which it can be avoided, managed, mitigated or reversed is assessed i.e. the probability of occurrence after mitigation has been applied. Based on all of these factors, the impact is then rated to determine its significance. Table 1 above explains the scoring system that will be used in the EIR to rate the significance of the impacts before and after mitigation.

8.1 Financial Provisions

Financial provision is required for rehabilitation of the site once mining is complete. The applicant is responsible for and must ensure that the site has been rehabilitated in full before leaving the site. This financial provision depends on the size and state of the cleared area requiring rehabilitation. The following tables, extracted from the DMR standard rehabilitation guideline⁷, provide guidance on rehabilitation fees applicable for mines based on sensitivity and area affected. The tables below are based on a desktop

⁷ DMR Financial Provision Guideline, 2005.

assessment and may change in the EIR depending on input from the Mine Works Programme. The highlighted items are applicable to the site in question.

Table 4: DMR sensitivity ratings for mines

Sensitivity	Sensitivity criteria		
	Biophysical	Social	Economic
Low	<ul style="list-style-type: none"> • Largely disturbed from natural state. • Limited natural fauna and flora remains. • Exotic plant species evident. • Unplanned development. • Water resources disturbed and impaired. 	<ul style="list-style-type: none"> • The local communities are not within sighting distance of the mining operation. • Lightly inhabited area (rural). 	<ul style="list-style-type: none"> • The area is insensitive to development. • The area is not a major source of income to the local communities.
Medium	<ul style="list-style-type: none"> • Mix of natural and exotic fauna and flora. • Development is a mix of disturbed and undisturbed areas, within an overall planned framework. • Water resources are well controlled. 	<ul style="list-style-type: none"> • The local communities are in the proximity of the mining operation (within sighting distance). • Peri-urban area with density aligned with a development framework. • Area developed with an established infrastructure. 	<ul style="list-style-type: none"> • The area has a balanced economic development where a degree of income for the local communities is derived from the area. • The economic activity could be influenced by indiscriminate development.
High	<ul style="list-style-type: none"> • Largely in natural state. • Vibrant fauna and flora, with species diversity and abundance matching the nature of the area. • Well planned development. • Area forms part of an overall ecological regime of conservation value. • Water resources emulate their original state. 	<ul style="list-style-type: none"> • The local communities are in close proximity of the mining operation (on the boundary of the mine). • Densely inhabited area (urban/dense settlements). • Developed and well-established communities 	<ul style="list-style-type: none"> • The local communities derive the bulk of their income directly from the area. • The area is sensitive to development that could compromise the existing economic activity.

Table 5: Rates (per Ha) to determine financial provision.

	Environmental Sensitivity of mine area		
	Low	Medium	High
Rate per hectare to determine the quantum (rands)	20 000.00	50 000.00	60 000.00
Minimum amount	R10 000.00		

As per Tables 4 and 5 above, the sensitivity of the site is considered “medium” for the economic and biophysical environments and “low” from a social perspective. Therefore:

- the standard DMR guideline for determining financial provision for a site of 1.38 ha in a ‘low – medium sensitivity’ area would amount to approximately R199 600.

The DMR standard rehabilitation guideline⁸ has been used in conjunction with the costing spreadsheet below. As per Table 6 below, the rehabilitation cost for rehabilitating this site measuring 4.99 ha is approximately R202 600.

⁸ DMR Financial Provision Guideline, 2005.

Table 6: Anticipated rehabilitation costs for the Carrisbrooke Quarry

Rehabilitation cost estimate				
Description	UNIT	QTY	RATE	Amount R
LANDSCAPING AND PLANTING				
Trimming	m ²	2500	4	R 20 000
Preparing areas for grassing				
Topsoiling within the quarry area	m ³	5000	15	R 75 000
GRASSING				
Hydroseeding	ha	3	15000	R 75 000
LABOUR				
Unskilled labour	Hour	80	20	R 2 400
Semi-Skilled	Hour	80	30	R 3 600
Skilled	Hour	100	60	R 6 000
PLANT WORK				
Tracked excavator (Bell HD 820 or similar)	Hour	20	300	R 6 000
Tracked Loader Backhoe (CAT 428 or similar)	Hour	20	220	R 4 400
Tip Truck (10m ³)	Hour	20	225	R 4 500
Water Tanker (10 000 litre)	Hour	30	190	R 5 700
Total				R202 600

8.2 Conclusion

The intent of this Scoping Report has been to provide a background to the proposal and a description of the site and activities so that I & APs and authorities can provide preliminary feedback on the proposal for further investigation in the EIR. All information provided should be considered preliminary subject to further investigation and confirmation as per the plan of study for EIA. The public participation process should be seen as ongoing and I & APs will continue to be given opportunities to review and comment on all information pertaining to the proposal. At this stage, no fatal flaws have been identified during the scoping process however this will be further investigated by the relevant specialists.

Appendix A: EAP Declaration and Curriculum Vitae

Appendix B: Proof of Placement of Notice Board

Appendix C: Adverts

Appendix D: Proof of Notification

- LO
- Adjacent LO
- Authorities and I & APs

Appendix E: Registered I &Aps

Appendix F: Comments and Response Table and Comments Received

Appendix G: Impacts Scoring Matrix