REPORT

SCOPING REPORT FOR THE DEVELOPMENT OF LITHIUM HIGHBURY MINE WITHIN RAY NKONYENI LOCAL MUNICIPALITY OF UGU DISTRICT MUNICIPALITY, KWAZULU NATAL PROVINCE.

APPLICANT: SA LITHIUM (PTY) LTD

REFERENCE NUMBER: KZN30/5/1/2/2/10116MR.

PREPARED BY: JOAN CONSULTING (PTY) LTD

DATE: SEPTEMBER 2022

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Company registration No: 2011/142803/07

mineral resources

Department:
Mineral Resources
REPUBLIC OF SOUTH AFRICA

SCOPING REPORT

FOR LISTED ACTIVITIES ASSOCIATED WITH MINING RIGHT AND/OR BULK SAMPLING ACTIVITIES INCLUDING TRENCHING IN CASES OF ALLUVIAL DIAMOND PROSPECTING.

SUBMITTED FOR ENVIRONMENTAL AUTHORIZATIONS IN TERMS OF THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998 AND THE NATIONAL ENVIRONMENTAL MANAGEMENT WASTE ACT, 2008 IN RESPECT OF LISTED ACTIVITIES THAT HAVE BEEN TRIGGERED BY APPLICATIONS IN TERMS OF THE MINERAL AND PETROLEUM RESOURCES DEVELOPMENT ACT, 2002 (MPRDA) (AS AMENDED).

NAME OF APPLICANT : SA LITHIUM (PTY) LTD

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FILE REFERENCE NUMBER SAMRAD: KZN30/5/1/2/2/10116MR.

IMPORTANT NOTICE

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

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

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

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

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

OBJECTIVE OF THE SCOPING PROCESS

1) The objective of the scoping process is to, through a consultative process—

(a) identify the relevant policies and legislation relevant to the activity;
(b) motivate the need and desirability of the proposed activity, including the need and desirability of the activity in the context of the preferred location;
(c) identify and confirm the preferred activity and technology alternative through an impact and risk assessment and ranking process;
(d) 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;
(e) identify the key issues to be addressed in the assessment phase;
(f) 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
(g) 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.

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1. Contact Person and Correspondence address

1.1. Applicant contact details

Table 1 below contain contact details of the applicant

Table 1: Contact details of the applicant

Project applicant:	SA Lithium (Pty) Ltd
Contact person:	Ian Harebottle
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1.2. Details of the EAP who prepared the report

Table 2 below contains the contact details of the Environmental Assessment Practitioner (EAP) who prepared and the Principal Environmental Assessment Practitioner who reviewed and sign off this Scoping Report respectively.

Table 2:Contact details of the Environmental Assessment Practitioner

Name of the Consultant	Joan Consulting (Pty) Ltd
Report Compiled by	Mulalo Tshilimandila mulalo@joanprojects.co.za
The report reviewed and approved by	Lufuno Mutshathama 073 912 0800 lufuno@Joanprojects.co.za
Postal address:	P O Box 4147, Honeydew,2040
Physical address	09 Loerie Road, Randpark Ridge, Randburg, Johannesburg
Telephone:	011 791 5032
Fax:	086235 5142

1.3. Summary of the EAP's experience and Qualification.

Table 3 below contains the expertise, experience and qualifications of the Environmental Assessment Practitioner (EAP) who prepared and the principal environmental Practitioner who reviewed and sign off this Scoping Report respectively.

Table 3:Expertise of the EAP that compiled this Scoping report

Name of the EAP	Experience
Mulalo Tshilimandila (EAP in training)	Mulalo Tshilimandila is an Environmental and Mineral Officer at Joan Consulting (Pty) Ltd. He holds a degree in Environmental Science from the University of Venda, and an Introduction to SAMTRAC Certificate from NOSA. He is registered as Trainee Certificated Natural Scientist, level B with the South African Council for Natural Scientific Professions ("SACNASP") with registration number 600002/15. Mr. Tshilimandila has expertise in a wide range of environmental disciplines, including Environmental Impact Assessment ("EIA"), Environmental Management Programmes ("EMPRs"), and coordination and facilitation of the public participation processes ("PPP"). Drafting of informed recommendations on NEMA S24G applications and the correct application of S24G guidelines, Environmental Assessment policies and procedures. He reviewed and prepared recommendations and set permit conditions for EIAs at Gauteng Department of Agriculture and Rural Development (GDARD).
Lufuno Mutshathama	The EAP (Lufuno Mutshathama) holds a Bachelor of Environmental Science from the University of Venda. She is a certificated natural scientist with the South African Council of Natural Scientific Professionals (SACNASP Reg: 114437). She is also registered with the Environmental Assessment Practitioner Association of South Africa (EAPASA Reg.2019/1789). Lufuno Mutshathama has over 14 years of experience in the field of Environmental Management, having worked largely in South Africa's mining sector. She worked 3 years as an environmental officer at the Department of Mineral Resources, 2 years as a group Environmental Manager in the mining sector and just over 9 years in environmental consulting as Founder and Managing Director of Joan Consulting. Her field of expertise includes the compilation of Environmental Impact Assessments and EMPr, environmental auditing and stakeholder engagement.

2. Location and property description of the application area

The proposed mining right application project is located on portion 0,1,2 of the farm The Corner 11328, portion 2, 3, 5,7,8 10, 11,12 of the farm Longwood 10289, farm Glanfield of Bembridge No 2 10837, portion 0,1,2,5,6,7, 8,9,10,11,13,14,17,18,20,21,22, 29,31,34, 35 of the farm Umsinsini 13307 in the Magisterial District of Port Shepstone in the Ray Nkonyeni Local Municipality, Kwazulu Natal Province. SA Lithium Highburry Mineral Right area is situated in KwaZulu Natal of the Republic of South Africa, an area approximately 16.5km North East of the town of Port Shepstone and lie Southwest and adjacent to the town of Hibberdene with the centre coordinates of 30°36'13.44"S 30°29'20.91"E. A Locality Map is attached to the overleaf page.

Table 4: Property Description of the mining Right Area

Application area (Ha)	1233.6 Hectares
Magisterial district:	Port Shepstone Magisterial District.
Local Municipality	Ray Nkonyeni Local Municipality.
District Municipality	Ugu District Municipality
Distance and direction from the nearest town	The site is situated approximately 16.5km North East of the town of Port Shepstone and lie Southwest and adjacent to the town of Hibberdene
Farm Name:	**21-digit Surveyor General Code**
The Corner 11328	N0ET00000001132800000
The Corner 11328	N0ET00000001132800001
The Corner 11328	N0ET00000001132800002
Longwood 10289	N0ET00000001028900002
Longwood 10289	N0ET00000001028900010
Longwood 10289	N0ET00000001028900011
Longwood 10289	N0ET00000001028900005
Longwood 10289	N0ET00000001028900012
Longwood 10289	N0ET00000001028900007
Longwood 10289	N0ET00000001028900008
Bembridge 9106	N0ET00000000910600003
Glanfield of Bembridge No 2 10837	N0ET00000001083700000
Umsinsini 13307	N0ET00000001330700035
Umsinsini 13307	N0ET00000001330700001
Umsinsini 13307	N0ET00000001330700022

Umsinsini 13307	N0ET00000001330700013
Umsinsini 13307	N0ET00000001330700011
Umsinsini 13307	N0ET00000001330700007
Umsinsini 13307	N0ET00000001330700002
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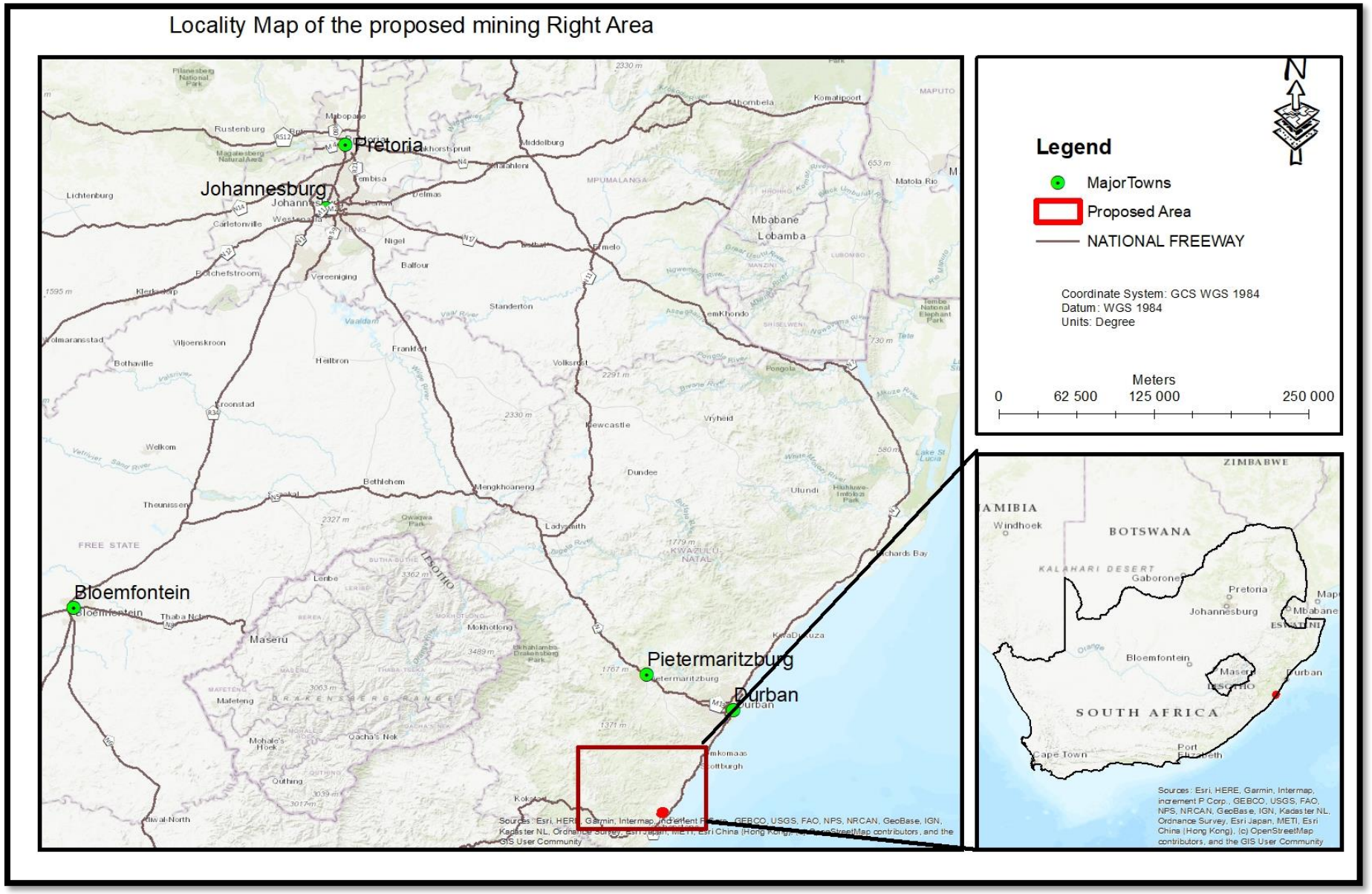


Figure 1: Proposed mining Right area Locality Map

3. Description of the scope of the proposed overall activity- Listed Activity

The proposed project entails the mining of Lithium, Feldspar, Tin and Tantalum. This section outlines all the listed activities as per the Environmental Impact Assessment (EIA) regulations 2014 (and other relevant legislations) that are triggered by the mine. The activities require an Environmental Authorization, Waste Management License and a Water Use License. Below is the list of each activities triggered and various legislation requirement.

3.1. Listed and specified activities - NEMA

Provide a plan drawn to a scale acceptable to the competent authority but not less than 1: 10 000 that shows the location, and area (hectares) of all the aforesaid main and listed activities, and infrastructure to be placed on site and attach as **Appendix 4**

The Environmental Impact Assessment Regulations of 2014 promulgated in terms of Section 24(5) of the National Environmental Management Act, (Act No. 107 of 1998) as amended, requires Environmental Authorization from the competent authority for activities listed government notices, Listing Notice - Environmental Impact Assessment Regulations of 2014, 08 December 2014 as amended in April 2017. The table below identifies the activity in the Environmental Impact Assessment Regulations of 2014 that has been triggered for the proposed development.

Table 5:Listed and specified activities

Name of Activity	Extent Ha or m²	Listed activity	Specified Activity	Applicable listing notice
Activities Listed in Listing Notice 1				
The development of infrastructure exceeding 1 000 metres in length for the bulk transportation of water or storm water. **I.** with an internal diameter of 0, 36 metres or re; or **II.** with a peak throughput of 120 litres per second or more; excluding where **a)** such infrastructure is for bulk transportatio0n of water or storm water or storm water drainage inside a road reserve or railway line reserve; or **b)** Where such development will occur within an urban area.	> 1000m	**X**	Storm water pipe/ channel	Activity 9 of GNR 327
The development and related operation of infrastructure exceeding 1 000 metres in length for the bulk transportation of sewage, effluent, process	> 1000m	**X**	Sewage pipeline	Activity 10 of GNR 327

Name of Activity	Extent Ha or m²	Listed activity	Specified Activity	Applicable listing notice
water, waste water, return water, industrial discharge or tailings I. with an internal diameter of 0,36 metres or more; or II. with a peak throughput of 120 litres per second or more; excluding were a) such infrastructure is for the bulk transportation of sewage, effluent, process water, waste water, return water, industrial discharge or tailings inside a road reserve or railway line reserve; or b) Where such development will occur within an urban area.				
The development and related operation of facilities or infrastructure, for the storage, or for the storage and handling, of a dangerous good, where such storage occurs in containers with a combined capacity of 80 cubic metres or more but not exceeding 500 cubic metres.	>80 m3	**X**	Diesel and other hydrocarbons and chemicals storages	Activity 14 of GNR 327
The development of a road for which an environmental authorisation was obtained for the route determination in terms of activity 5 in Government Notice 387 of 2006 or activity 18 in Government Notice 545 of 2010; or with a reserve wider than 13,5 meters, or where no reserve exists where the road is wider than 8 metres; but excluding a road (a) which is identified and included in activity 27 in Listing Notice 2 of 2014; (b) [roads] where the entire road falls within an urban area; or (c) Which is 1 kilometre or shorter.	>13.5 m	**X**	Internal access roads	Activity 24 of GNR 327
Activities Listed in Listing Notice 2				
The clearance of an area of 20 hectares or more of indigenous vegetation, excluding where such clearance of indigenous vegetation is required for	>20ha	**X**	Clearance of land for mining and	Activity 15 of GNR 327

Name of Activity	Extent Ha or m²	Listed activity	Specified Activity	Applicable listing notice
I. the undertaking of a linear activity; or Maintenance purposes undertaken in accordance with a maintenance management plan.			associated activities	
Any activity including the operation of that activity which requires a mining right as contemplated in section 22 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002), including; **(a)** associated infrastructure, structures and earthworks, directly related to the extraction of a mineral resource or **(b)** the primary processing of a mineral resource including winning, extraction, classifying, concentrating, crushing, screening or washing; but excluding the secondary processing of a mineral resource, including the smelting, beneficiation, reduction, refining, calcining or gasification of the mineral resource in which case activity 6 in this Notice applies.	1216ha	**X**	Mining right application comprising of the following • Waste rock dump • Processing Plant • Open pit	Activity 17 of GNR 325

3.2. Waste Management license

The National Environmental Management: Waste Act (Act No 59 of 2008) (NEMWA) governs all waste management activities. The proposed Project will require a Waste Management Licence (WML) for activities listed in the Government Notice 921 in Government Gazette 37083 dated 29 November 2013 which came into effect on 29 November 2013. Table 6 below details the waste activities triggered.

Table 6:Waste Management Licence Activities

Activity Number	Activity Description	Specific activity
Activities listed in Category B		
Category B, Activity 7	The disposal of any quantity of hazardous waste to land.	Tailings dam and waste rock dump

Category B, Activity 10	The construction of a facility for a waste management activity listed in Category B of this schedule. (Not on isolation to associated waste management activity)	Return water dam/ Pollution Control Dam

3.3. Water use license

An integrated Water Use License Application ("IWULA") will be compiled and submitted to the Department of Water and Sanitation ("DWS") to apply for the authorization of the water uses applicable to the proposed Project. An Integrated Waste and Water Management Plan ("IWWMP") will also be compiled and submitted as a supporting technical document to the IWULA. An IWWMP serves as a management tool for the mine to manage storm water and waste water.

Section 21 of the National Water Act, 1998 (Act 36 of 1998) lists activities that require a license or registration if permissible under General Authorisation. The proposed project will require authorisations in terms of the water use indicated in the table below that will be triggered:

Table 7:Water Licence Listed Activities

Activity number	Water use
Section 21 (a) of NWA, 1998	Taking water from a water resource
Section 21 (b) of NWA, 1998	Storing water
Section 21 (c) & (i) of NWA, 1998	Impeding or diverting the flow of water in a watercourse; and altering the bed, banks, course or characteristics of a watercourse
Section 21 (g) of NWA, 1998	Disposing of waste in a manner which may detrimentally impact on a water resource;

4. Description of the activities to be undertaken

(Describe the Methodology or technology to be employed, and for a linear activity, a description of the route of the activity

The SA Lithium (Pty) Ltd propose to commence mining of Lithium Ore and other related minerals (Feldspar, Tin, dimension stone and Tantalum) in Highbury mining right area which comprises of 520m strike length on the MZ and LZ reef. The MZ and LZ sub-crop lies to the Northern Mountain slope of the Right boundary. The general dip of the MZ is 10-25° towards the south. The LZ dips 10- 30° to the south. Access to the open pit resources will be via a typical open pit layout using ramps inclined at 1 in 10 inclinations for each bench. The proposed project has 2 main activities for the life of mine (LoM) on a site that is 1233 hectares in extent.

- Opencast mining
- Processing Plant

4.1. Development of the mining open pit.

The development of the Mining Right area will commence with the mining of the Main Zone Reef from the sub outcrop on the northern faces. This mining will allow for sufficient time to complete further work on the Lower Zone reef. The Main Zone comprises a thick pegmatite dipping south. Lower Zone succession that runs parallel and below the Main Zone, and a small remnant of Top zone that follows the Main Zone Dip on the NW portion also represents substantial pegmatite formation which would become minable once the phase 2 processing facility has been established.

Limited infrastructure will be required for the open pit activities and where appropriate temporary facilities will be erected. The surface orebody will be mined by means of strip mining which is a well-known method in industry and typically used for extraction of surface resources.

The surface sub outcrop will be extracted from the North to the South of the site, with surface mining being determined by aspects such as safe blast radius, natural water features, mountain slope, and community housing (buffers).

During the initial phase of development and operation of the mine, approximately 250 thousand tonnes will be contract mined through a simple box-cut with the aim to later employ rollover mining methods once a large enough void has been created. This will negate the requirement for large overburden stockpiles as mine rehabilitation will be carried out concurrently with the mine development.

4.2. Overview of the mining method

The mining will take place by means of a strip-mining operation along the outcrop of the orebody with a rollover of waste back into the void created, typical of migmatite operations in general. Mining will take place by cutting 10 m benches with a final highwall height of 299m, with an overall highwall slope angle of 55-60° in order to ensure geotechnical integrity. Waste will be backfilled into the void once sufficient volume has been excavated to enable safe deposition. Waste rock dumps located on the highwall side of the operation will store excavated material until such time as pit deposition is possible.

A box-cut will be established on the northern face of the ore body, with mining progressing along strike in opposite directions away from the box-cut to establish multiple working faces and provide flexibility to the operation.

4.2.1. Mining Operation

The typical mining cycle for the open pit operation would be as follows:

Bush-clearing and Topsoil Stripping

The area to be mined will first be cleared by means of a tracked dozer to enable survey control and ground levels to be established. Topsoil will be stripped by means of dozing into stockpile berms on the highwall side as well as the outcrop side of the pit. Topsoil that cannot be economically dozed will be removed to stockpile by load and haul using an excavator and articulated dump trucks.

Establishment of Box-Cut

A box cut will be developed to establish the initial access to the orebody. The box cut will be stepped [on the highwall side] up to surface in benches. Initially overburden from the box cut will be utilised in the construction of the tailings dam walls, haul roads and construction laydown areas.

Removal of Overburden

Overburden will be excavated to stockpile using large 90t and 120t excavators matched with 40-60t dump trucks. Overburden will initially be transported to waste rock dumps located in close proximity to the final highwall, until such time that sufficient in-pit void volumes has been established, whereupon it will be re-loaded and hauled for placement in-pit.

Drilling and Blasting

Hard overburden will be drilled and blasted in benches. Blasted material will be excavated to stockpile.

Ore Mining

Ore will be mined during all working hours using a 90t excavator and 40t articulated dump trucks. The hanging wall face of the exposed orebody will be swept clean by the upturned bucket of the excavator to reduce dilution to a practical minimum. The footwall wall be cleaned mechanically by the excavator.

4.3. Mining infrastructure

The following infrastructure will be required for all phases

- Workshop
- Offices
- Change houses
- Emulsion Bay
- Roads
- Fences
- Water management infrastructure
- Security kiosk
- Power supply
- Processing plant
- Tailings storage facility
- ROM stockpiles
- Waste stockpiles
- Product stockpiles

4.4. Processing Plant

Lithium and the associated minerals can be processed through 2 different stages to extract the final product. These stages are:-

- A Lithium course beneficiation plant with an 167ktpm capacity.
- Lithium tailings processing plant (may be constructed to further beneficiate the tailings)

The plant process flow for each stage of the project is fully described in the following sections.

4.4.1. Lithium Course Processing Plant

The Run of Mine (RoM) material from the pits is delivered to the surface stockpile via trucks. The stockpiled RoM material reports to crushing, screening and milling circuits prior to de-sliming for gravity concentration by the use of Dens Media Separation (DMS). The DMS plant design is based on the receipt of the Pegmatite product stream and consists of the following spiral stages:

- Rougher
- Cleaner

Dens Media Separation (DMS) theory

Dense medium separation is a form of gravity separation technology that separate particles with different specific gravities into a floats fraction (lower particle SG's) and sinks fraction (higher particle SG's). DMS technology has become very popular in spodumene beneficiation (compared to traditional beneficiation using flotation) due to lower capital and operating costs (reduced grinding, reagent and fines disposal costs).

The density at which separation occurs (also called the separation density or D50) is defined as the density at which a particle has a 50% probability of reporting to either the floats or the sinks stream. Under ideal conditions all particles with an SG higher than the separation density would report to the sinks fraction and all particles with an SG lower than the separation density would report to the floats fraction. The separation curve for such a scenario is depicted in graph 3 below. This specific separation curve was used to determine the theoretical yield for the three crush-size scenarios by changing the separation density to achieve a 6.0% Li2O content.

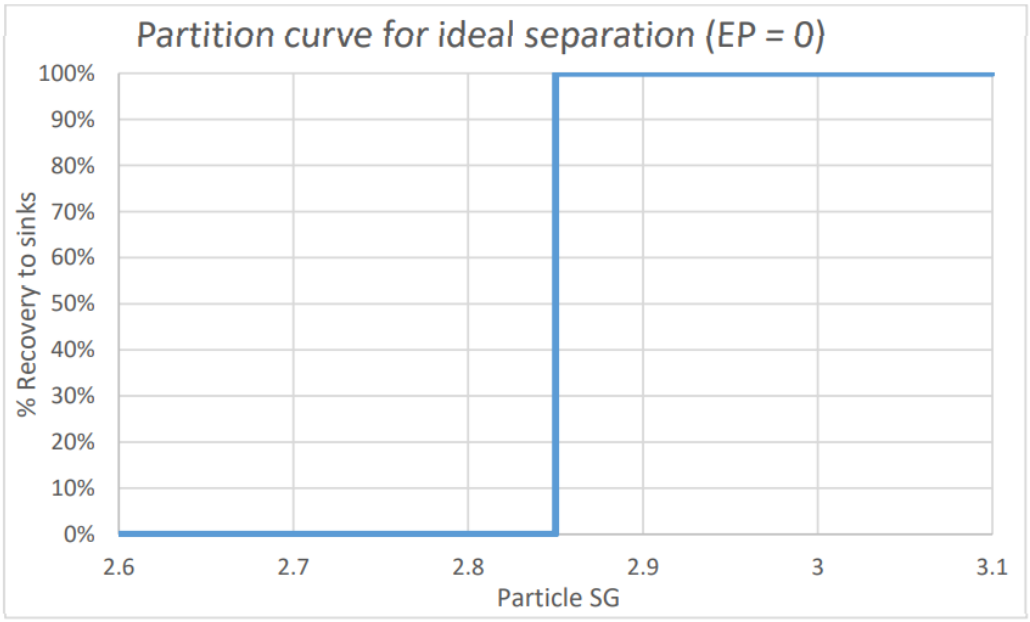


Figure 2:Ideal partition curve

No dynamic separation technique would in practice be able to achieve an ideal separation as natural inefficiencies causes some of the higher SG particles to report to the floats stream and some of the lower SG particles to report to the sinks stream. The degree of inefficiency increases relative to the proximity of the particle SG to the separation density (also called near density material). The sharpness of the separation is displayed by the slope on the separation curve, which can be quantified by the "Probable Error of Separation" or EP and is defined as half of the density difference between the D75 and D25, where a lower EP indicates a higher separation efficiency - See figure 2 above.

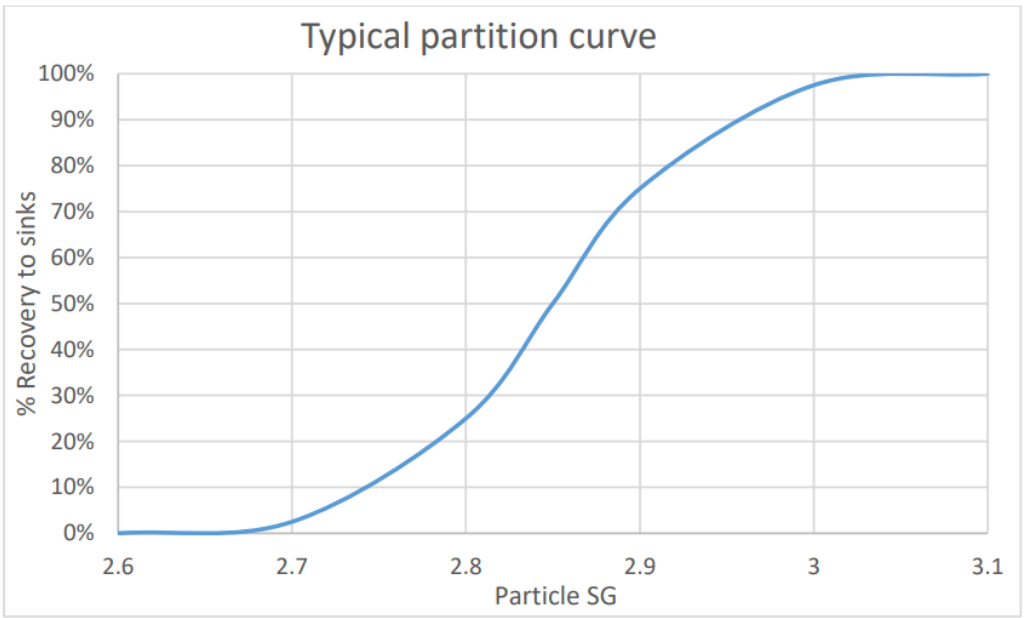


Figure 3:Typical partition curve (D75 = 2.9, D50 = 2.85, D25 = 2.8, EP =(2.9-2.8)/2 = 0.05

The partition curve for a particular vessel under a specific set of operating condition scan be determined by tracer testing. Tracer testing involves the introduction of color-coded ceramic tracers of various sizes (typically 2mm, 4mm and 8mm) into the feed stream. The tracers are collected from the floats and sinks streams and the % recovery of sinks for each density and tracer size is determined to plot the partition curve.

Typical partition curves using 2mm, 4mm and 8mm ceramic tracers (see graph 5) normally show the following general trends:

- D50 for 2mm tracers is approximately 0.025 higher than the D50 for 4mm tracers,
- D50 for 4mm tracers is approximately 0.025 higher than the D50 for 8mm tracers,
- EP for 2mm tracers is approximately 0.05,
- EP for 4mm tracers is approximately 0.04, and
- EP for 8mm tracers is approximately 0.03

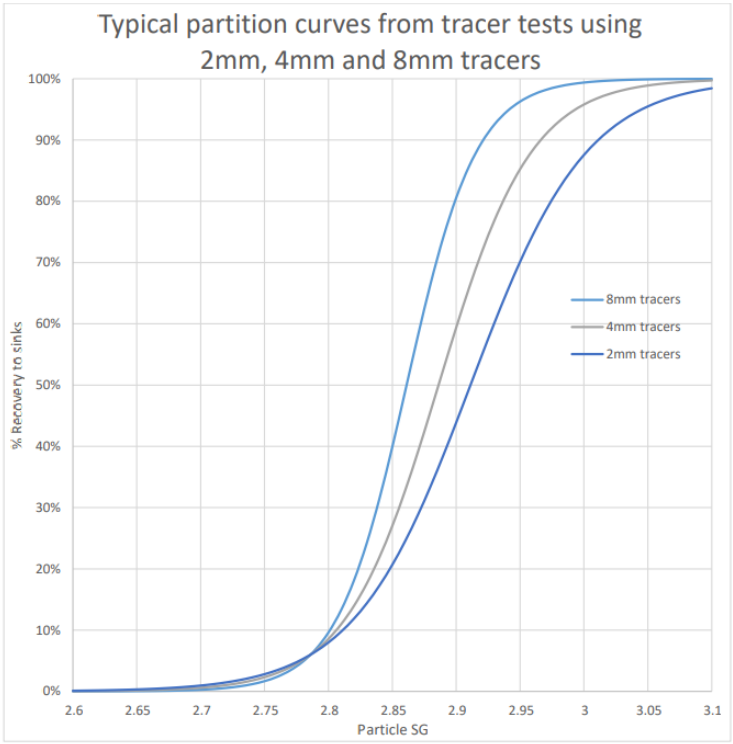


Figure 4:Typical partition curve derived from tracer tests using 2mm, 4mm and 8mm tracers

The EP is affected by amongst others the following:

- Medium viscosity (affected by medium density, cyclone inlet pressure, medium particle size distribution, volume of non-magnetic contaminants, amount of residual magnetism, etc.)
- Cyclone configuration (affected by cyclone diameter, spigot diameter, vortex finder diameter, inclusion / exclusion of barrel extension, inlet shape, installation angle, etc.),
- Cyclone condition (affected by cyclone wear, steps between the various cyclone sections, etc.)
- Cyclone feed (affected by particle size, medium: ore ratio / inter-particle distance, etc.).

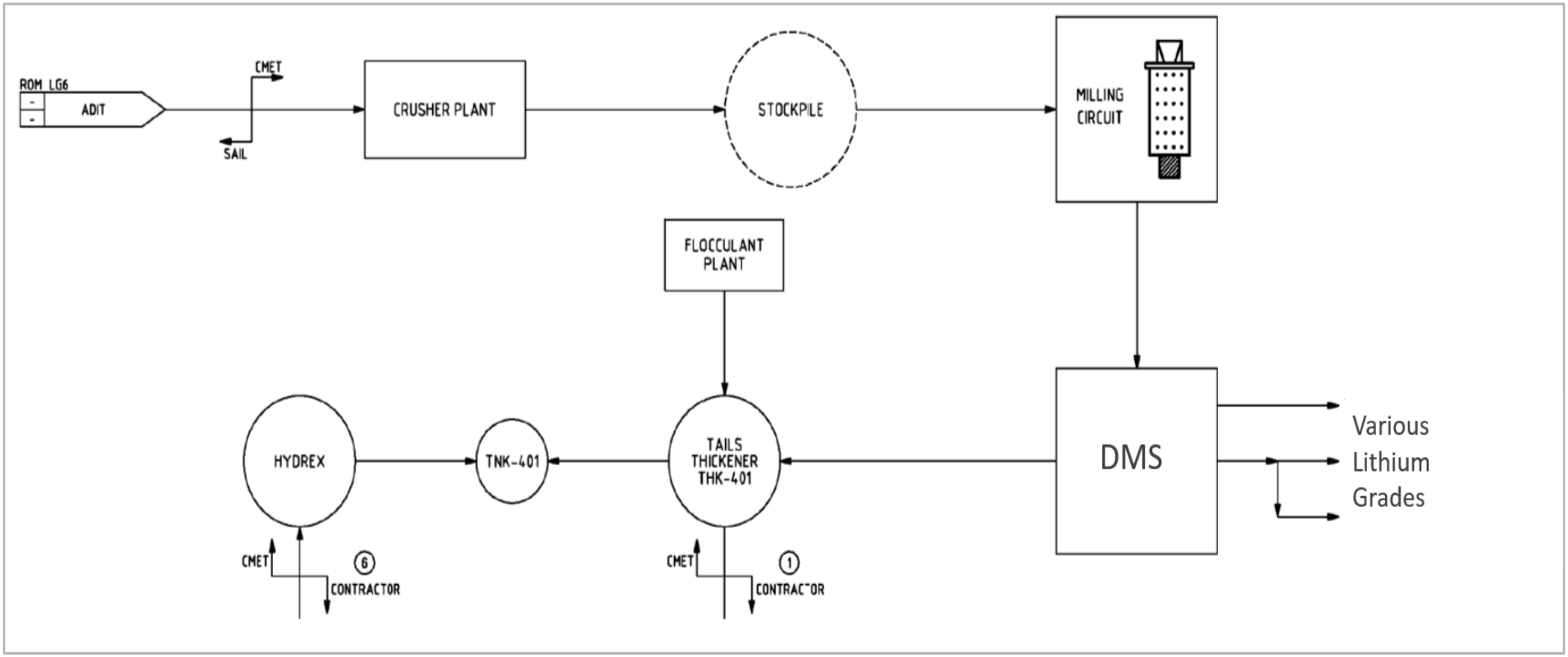


Figure 5:Pegmatite ore process flow diagram.

4.4.2. Lithium Tailings Processing Plant

Tailings material from the pegmatite beneficiation plant is further processed at the flotation plant. The DMS plant tailings streams from Lithium plant and reports to the flotation feed thickener for process water recovery and to prepare thickened slurry for primary milling. The DMS plant tailings thickener underflow is pumped across to the Initiation Plant. The slurry reports to a primary ball mill for liberation at a finer grind. The ball mill is in closed circuit with a classification cyclone, the cyclone overflow reports to the rougher flotation condition tank prior to direct froth flotation. The main objective is to float the liberated Lithium as final product and leave the gangue minerals in the tailings stream for final tailings disposal.

Froth flotation is a method for physically separating particles based on differences in the ability of air bubbles to selectively adhere to specific mineral surfaces in mineral/water slurry. The Lithium particles in the spiral tails with attached air bubbles are then carried to the surface and removed as concentrate (Figure below). Chemical treatments (Collectors, Frothers, Activators, Depressants and pH) selectively alter the mineral surfaces so that they have the necessary properties for the separation of the Lithium spodumene minerals from silica gangue.

The process water recovered from the TSF will be recycled back into the process to reduce the freshwater top-up requirements. The return water reports to an intermediate process water dam, the clean water from the intermediate process water dam reports to the main process water supply dam.

Figure below shows the flow diagram of the Lithium tailings processing to be constructed. The final tailings are pumped through pipes to the tailings dam and process water is recycled back to the Lithium beneficiation plant.

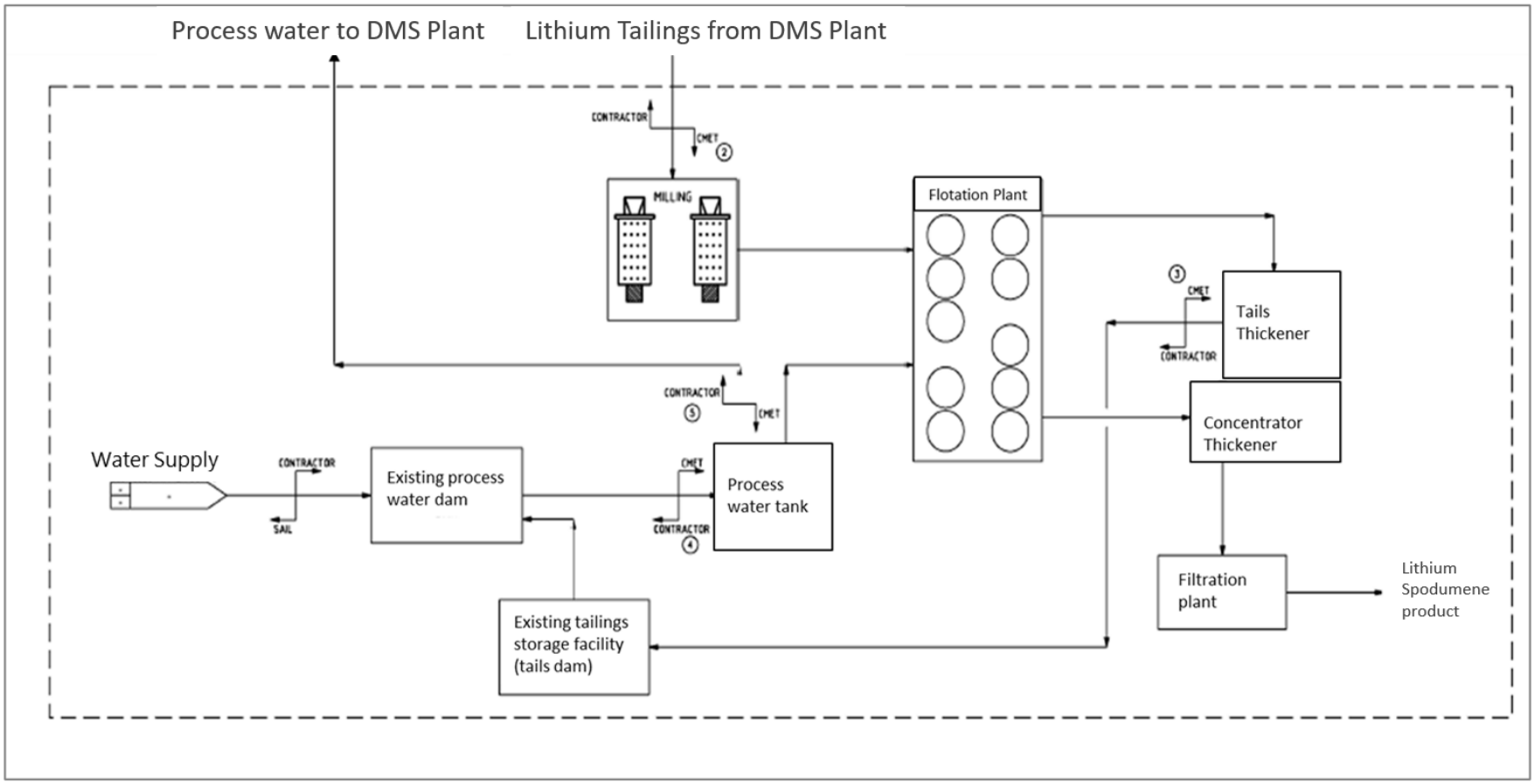


Figure 6:Lithium tailings process flow diagram.

5. Policy and Legislative Context

The EIA and EMPr preparation process must take cognisance of various sets of legislation to be comprehensive. The following legislations apply to the proposed mine and will need to comply with the provisions of each legislation.

5.1. The Constitution of the Republic of South Africa 1996, (Act No 108 of 1996)

The Bill of Rights, in the Constitution of South Africa (No. 108 of 1996), states that everyone has a right to an environment that is safe for their health and well-being and requires that reasonable measures are applied to protect the environment. This protection encompasses preventing pollution; promoting conservation and environmentally sustainable development.

These principles are embraced in NEMA and given further expression. It will be ensured that as little damage as possible will be left to the surrounding environment and local community. The community's well-being and safety shall be put into consideration and impacts on the receiving environment will be mitigated to ensure sustainability for future generations. This report is drafted to ensure compliance with this piece of legislation.

5.2. Mineral and Petroleum Resources Development Act. (Act no 28 of 2002)

The Mineral and Petroleum Resources Development Act. (Act no 28 of 2002) (MPRDA) regulates all mining-related activities and requires that authorisation, permits and rights are obtained before the removal of any minerals or the commencement of any mining activities. It makes provision for equitable access to and sustainable development of the nation's mineral and petroleum resources. The recent amendments to NEMA and the MPRDA resulted in changes to align specific environmental legislation associated with mining activities and sections of NEMA and MPRDA to provide for one environmental management system. NEMA is now the primary legislation for the environmental regulation of mining and associated activities.

5.3. Financial Provision Regulations - GN R1147 of 20 November 2015).

The purpose of these regulations is to regulate the determination and furnishing of financial provision for the costs associated with the undertaking of management, rehabilitation and remediation of environmental impacts through the lifespan of such operations and latent or residual environmental impacts that may become known in the future. Under Regulation 5, financial provision must be made for:

- Rehabilitation and remediation;
- Decommissioning and closure activities at the end of inter alia mining operations; and
- Remediation and management of latent or residual environmental impacts which may become known in future, including the pumping and treatment of polluted or extraneous water.

5.4. National Environmental Management Act 1998, (Act No. 107 of 1998)

The National Environmental Management Act (Act No. 107 of 1998) (NEMA) is the principal framework for environmental legislation. It sets out the principles that assist as a general framework for environmental planning, as guidelines by reference to which organs of state must exercise their functions and guide other laws concerned with the protection or management of the environment.

NEMA requires that measures are taken to prevent pollution and ecological degradation; promote conservation; and secure ecologically sustainable development and use of natural resources, while promoting justifiable economic and social development. The application takes into account the environmental and socioeconomic conditions in compliance with the NEMA principles.

Duty of Care Section 28(1) of NEMA states that “every person who causes, has caused or may cause significant pollution or degradation of the environment must take reasonable measures to prevent such pollution or degradation from occurring, continuing or recurring”" (Duty of Care). If such degradation / pollution cannot be prevented, then appropriate measures must be taken to minimise or rectify such pollution. These measures may include:

- Assessing the environmental impact.
- Informing and educating employees about the environmental risks of their work and ways of minimising these risks.
- Ceasing, modifying or controlling actions which cause pollution/degradation.
- Containing pollutants or preventing movement of pollutants.

It is the responsibility of SA Lithium company to ensure that the proposed mining activities and the EIA process conform to the principles of NEMA at all times. The proponent is also must take reasonable measures to prevent pollution or degradation of the environment in terms of Section 28 of NEMA.

5.5. EIA Regulations of November 2014 amended in April 2017.

In accordance with the provisions of sections 24(5) and 44 of the NEMA, the Minister of Environment, Forestry and Fisheries ("Environment Minister") has published the EIA Regulations, 2014 which set out the process for conducting EIAs to apply for, and be granted, an EA.

Regulation 21 to 26 and Regulation 39 - 44 of GNR 326 set out the process required to undertake the scoping and EIA process, including the PPP that must be undertaken as part of the EIA. An EIA process is required for activities which have the potential to result in significant impacts. This process accordingly provides a mechanism for the comprehensive assessment of activities that are likely to have more significant environmental impacts. In terms of section 24C (2A) of NEMA, the Minister of Mineral Resources and Energy is the competent authority to issue Environmental Authorisations under NEMA for activities which are directly related to mining.

5.6. National Environmental Management: Protected Areas Act (31 of 2004)

The purpose of this Act is to provide for the protection and conservation of ecologically viable areas representative of South Africa's biological diversity and its natural landscapes and seascapes. The objectives of this Act are-

- To provide, within the framework of national legislation, including the NEMA, for the declaration and management of protected areas;
- To provide for co-operative governance in the declaration and management of protected areas;
- To affect a national system of protected areas in South Africa as part of a strategy to manage and conserve its biodiversity;
- To provide for a representative network of protected areas on state land, private land and communal land.
- To promote sustainable utilisation of protected areas for the benefit of people, in a manner that would preserve the ecological character of such areas;
- To promote participation of local communities in the management of protected areas, where appropriate; and
- To provide for the continued existence of South African National Parks.

5.7. National Environmental Management: Air Quality Act (Act No. 39 of 2004) (NEM: AQA)

The aim of NEMAQA is to regulate air quality to protect the environment from pollution and ecological degradation. NEMAQA's objectives are to protect the environment by providing reasonable measures for -

- The protection and enhancement of air quality in South Africa;
- The prevention of air pollution and ecological degradation;
- securing ecologically sustainable development, while promoting justifiable economic and social development; and
- Generally, to give effect to section 24(b) of the Constitution in order to enhance the quality of ambient air for the sake of securing an environment that is not harmful to the health and wellbeing of people.

5.8. National Environmental Management: Biodiversity Act (Act No. 10 of 2004)

National Environmental Management: Biodiversity Act (Act No. 10 of 2004) (NEMBA) aims to provide for the management and conservation of South Africa's biodiversity within the framework of NEMA. Its purpose is to protect ecosystems and the species within and promote the sustainable use of indigenous biodiversity.

5.9. National Heritage Resources Act (Act No. 25 of 1999)

The protection and management of South Africa's heritage resources is controlled by National Heritage Resources Act (Act No. 25 of 1999) and the South African Heritage Resources Agency (SAHRA) and is the enforcing authority for this act.

In terms of the Act, historically important features such as graves, trees, archaeological artefacts/sites and fossil beds are protected. Similarly, culturally significant symbols, spaces and landscapes are also afforded protection. The National Heritage Resources Act (Act No. 25 of 1999) seeks to:

- Introduce an integrated and interactive system for the management of the national heritage resources.
- Promote good government at all levels, and empower civil society to nurture and conserve their heritage resources so that they may be bequeathed to future generations;
- Lay down general principles for governing heritage resources management throughout the South Africa;
- Introduce an integrated system for the identification, assessment and management of the heritage resources of South Africa;
- Establish the South African Heritage Resources Agency ("SAHRA"), together with its Council to co-ordinate and promote the management of heritage resources at national level;
- Set norms and maintain essential national standards for the management of heritage resources in the South Africa and protect heritage resources of national significance;
- Control the export of nationally significant heritage objects and the import into South Africa of cultural property illegally exported from foreign countries;
- Enable the provinces to establish heritage authorities, which must adopt powers to protect and manage certain categories of heritage resources; and
- Provide for the protection and management of conservation-worthy places and areas by local authorities.
- Under section 34 of the NHRA structures which are older than 60 years may not be demolished without a permit issued by the relevant heritage resources authority.
- Section 35 of the NHRA deals with archaeological, paleontological and meteorite heritage resources and requires that any archaeological or paleontological objects that are found on site must be reported to the competent heritage resources authorities. The discovered archaeological or paleontological objects may not be removed, damaged or destroyed without obtaining a permit from the heritage resources authority.
- An application for a heritage permit is required under section 35 of the NHRA from the competent heritage authority for undertaking certain activities, such as constructing roads or pipelines exceeding 300m in length; a development which will change the character of a site exceeding 5,000m2; or rezoning of a site exceeding 10,000m2.

- Section 38(8) of the NHRA however states that no separate consent of the heritage authority is required where an s is undertaken under other legislation, of which NEMA is an example, provided that it meets the relevant heritage resources authority's requirements and any comments and recommendations of the relevant heritage authority are taken into account in the decision-making process.

5.10. National Water Act (Act No 36 of 1998)

In South Africa Water use in is controlled by the National Water Act (Act no 36 of 1998) (NWA) which provides for the promotion of efficient, sustainable and beneficial use of water in the public interest; for the facilitation of social and economic development; for the protection of aquatic and associated ecosystems and their biological diversity; and for the reduction and prevention of pollution and degradation of water resources. Department of Water and Sanitation (DWS) is the competent authority and Section 21 of the NWA defines various water uses that require an integrated WUL or another authorisation, including:

(a) Taking water from a water resource;
(b) Storing water;
(c) Impeding or diverting the flow of water in a watercourse;
(d) Engaging in a stream flow reduction activity contemplated in section 36 of the NWA;
(e) Engaging in a controlled activity identified as such in section 37(1) or declared under section 38(1) of the NWA;
(f) Discharging waste or water containing waste into a water resource through a pipe, canal, sewer, sea outfall or other conduit;
(g) Disposing of waste in a manner which may detrimentally impact on a water resource;
(h) Disposing in any manner of water, which contains waste from, or which has been heated in, any industrial or power generation process;
(i) Altering the bed, banks, course or characteristics of a watercourse; and
(j) Removing, discharging or disposing of water found underground if it is necessary for the efficient continuation of an activity or for the safety of people.

5.11. National Forests Act, 1998 (Act No. 84 of 1998) (NFA)

The purposes of the Act are to:

- Promote the sustainable management and development of forests for the benefit of all;
- Create the conditions necessary to restructure forestry in State forests;
- Provide special measures for the protection of certain forests and trees;
- Promote the sustainable use of forests for environmental, economic, educational, recreational, cultural, health and spiritual purposes.

- Promote community forestry.

5.12. National environmental management: Waste Act (Act no 62 of 2008)

NEMWA aims to regulate waste management in South Africa to protect health, well-being and the environment by providing reasonable measures for the prevent pollution and ecological degradation. It defines waste broadly as "any substance, material or object, that is unwanted, rejected, abandoned, discarded or disposed of, or that is intended or required to be discarded or disposed of, by the holder of that substance, material or object, whether or not such substance, material or object can be re-used, recycled or recovered" and includes all wastes defined in Schedule 3 of NEM: WA. NEM: WA now regulates mining residue deposits or stockpiles

Section 16 of the NEM: WA must also be considered, which states as follows: A holder of waste must, within the holder's power, take all reasonable measures to-

- Avoid the generation of waste and, where such generation cannot be avoided, minimise the toxicity and amounts of waste that are generated;
- Reduce, re-use, recycle and recover waste;
- Where waste must be disposed of, ensure that the waste is treated and disposed of in an environmentally sound manner;
- Manage the waste in such a manner that it does not endanger health or the environment or cause a nuisance through noise, odour, or visual impacts;
- Prevent any employee or any person under his or her supervision from contravening the Act;
- Prevent the waste from being used for unauthorised purposes.
- The WML List specify waste management activities that require a WM. Activities related to treatment of effluent, wastewater or sewage are however excluded and do not require a WML.
- Where a WML is not required, the National Norms and Standards for the Storage of Waste (published in Government Gazette 37088 of 29 November 2013) (Waste Norms and Standards) must be complied with.

5.13. Explosives Act, 1956 (Act No 26 of 1956)

A licence may be required for the storage and use of explosives for the proposed Project. The licence is issued by the Chief Inspector of Explosives or his delegate. SA Lithium (Pty) Ltd will apply for a licence in respect of the storage and use of explosives, if required.

5.14. South African National Biodiversity Institute (SANBI) Biodiversity GIS (bgis.sanbi.org)

South African National Biodiversity Institute (SANBI) Biodiversity GIS will be used during desktop research to identify sensitive environments within the area.

5.15. National Road Traffic Act, 1996 (Act No. 93 of 1996)

The National Road Traffic Act (No. 93 of 1996) (NRTA) provides for all road traffic matters and is applied uniformly throughout South Africa.

5.16. KwaZulu-Natal Heritage Act (Act No. 4 of 2008)

The KwaZulu-Natal Heritage Act (Act No. 4 of 2008) provides for the conservation and preservation of the physical and intangible heritage resources of the KwaZulu-Natal province.

5.17. Occupational Health and Safety Act (Act No. 181 of 1993)

These regulations provide for the health and safety of persons at work, including aspects which are hazardous to health and safety. In terms of major hazardous installation, the regulations shall apply to employers, self-employed persons and users, who have on their premises, either permanently or temporarily, a major hazard installation or a quantity of a substance which may pose a risk that could affect the health and safety of employees and the public.

6. Need and desirability of the proposed activities.

(Motivate the need and desirability of the proposed development including the need and desirability of the activity in the context of the preferred location).

Although mining's contribution to South Africa's GDP has declined over the past 10-20 years, it remains one of the country's critical economic cornerstones and contributes to its economic activity, job creation and foreign exchange earnings. The sector is therefore critical to the country's socio-economic status.

Lithium (Li) is a light soft silver-white metal commonly found in three types of mineral deposits: brines (saline groundwater), pegmatites (hard rock), and sediments. The contained lithia concentration is generally low and therefore only a limited number of deposits can be economically extracted.

The Earth is facing climate change which is leading to global warming caused by the impact of human activities on the Earth because of overreliance on fossil fuels for energy supply. The world has begun planning and implementation of the world-wide transition from fossil fuels to renewable sources of energy. Energy transition will involve replacement of fossil-fuel power generation with renewable power installations and use of Lithium batteries to address climate change crisis.

The world is transitioning from internal combustion engine (ICE) vehicles to battery-powered electric vehicles. This will increase Lithium demand to meet increasing quantities for the energy transition from fossil fuels to renewable power in modern technological societies

The African deposits of lithium are sourced from hard rock deposits, generally associated with Mobile Belts. The host rock is the rare element class of pegmatites belonging to the lithium-caesium-tantalum (LCT) family. The host rock contains the lithium-bearing minerals of spodumene, petalite, lepidolite,

amblygonite and eucryptite. Spodumene, a member of the pyroxene–group, may contain up to 3.73% Lithium. Other economical minerals associated with these pegmatites are: tantalite (coltan), pollucite (caesium), tin, mica, beryl and feldspar.

Exploration for Lithium (Li) at is at present on an unprecedented level and is one of the top elements being explored for in the World. This is primarily due to its use in lithium-ion batteries, which are the key to lightweight, rechargeable power for laptops, phones and other digital devices, particularly for electric vehicles.

7. Period for which the environmental authorisation is required

It is anticipated that proposed Mine will operate for a period of 20 years and therefore an Environmental Authorisation is required for the duration of the proposed mining right, should there be a need for an extension, necessary process will be followed to request such extension.

8. Description of the process followed to reach the proposed preferred site.

NB!! – This section is not about the impact assessment itself; It is about the determination of the specific site layout having taken into consideration (1) the comparison of the originally proposed site plan, the comparison of that plan with the plan of environmental features and current land uses, the issues raised by interested and affected parties, and the consideration of alternatives to the initially proposed site layout as a result.

8.1. Details of all alternatives considered.

With reference to the site plan provided as Appendix 4 and the location of the individual activities on site, provide details of the alternatives considered with respect to:

One of the most key aspects of the S&EIA process is to identify and investigate development alternatives. According to the EIA 2014 Regulations (as amended) development alternatives is defined as the different means of meeting the general purpose and requirements of the activity without presenting significantly high associated impacts. It is crucial to identify and assess all rational and viable alternatives for the proposed project during the scoping phase, for the selection of the suitable alternatives during EIA Phase. Alternative sites will be considered and assessed during EIA phase.

8.1.1. Type of activity to be undertaken;

a) Mining activity (Preferred)

SA Lithium is a mining company and its interest is mining Lithium and beneficiating the ore for energy storage. The exploration report shows that the site has low but profitable lithium resource.

b) Agriculture (sugar came farming)

The site of interest already has sugar cane agricultural activities going on. However, SA Lithium is not interested nor experienced in sugar cane agricultural activities. This alternative is not in line with the company business plan

c) Hospitality and Tourism

The Hiberdene town is adjacent to the site. The town's hospitality and tourism business yields profits except that the COVID-19 pandemic crippled this industry as well. As good as this alternative is, SA Lithium is not a hospitality and tourism company but a mining company. Therefore, this alternative is not valid for.

8.1.2. Property on which or location where it is proposed to undertake the activity;

Property or location of the project is determined by the presence of lithium bearing pegmatite geology of the area, The underlying geology have been tested for the lithium and was found to bear a low but profitable quantity of Lithium. It Is not known if the surrounding area geology bears Lithium. It is due to this reason that there is no alternative for the property or location of the activity.

The proposed project is situated on portion 0,1,2 of the farm The Corner 11328, portion 2, 3, 5,7,8 10, 11,12 of the farm Longwood 10289, farm Glanfield of Bembridge No 2 10837, portion 0,1,2,5,6,7, 8,9,10,11,13,14,17,18,20,21,22, 29,31,34, 35 of the farm Umsinsini 13307 in the Magisterial District of Port Shepstone in the Ray Nkonyeni Local Municipality, KwaZulu Natal Province.

8.1.3. Mining methods.

a. Alternative 1: Surface Mining- Preferred alternative.

The project will be operated through the Open Pit Mining Method. The Open Pit method is a preferred one because the resource earmarked is shallow having in some areas the pegmatite outcrop on the surface area.

Advantages

- Cheaper to undertake
- Safer to operate
- Job creation and related capacity building and skills transfer;
- Conversion and diversification of economy;
- Enhanced transport and rural accessibility; and
- Creation of business opportunities for local entrepreneurs.

Disadvantages

- Destruction of surrounding environment and agricultural activities

b. Alternative 2: Underground mining –

The underground mining method is an alternative method to mining Lithium and associated minerals. However, this method is not preferred due to the following socio-economic reasons:

- It is a method for deep resource mining (the resource onsite is as shallow as on the surface)
- It is expensive to sink a shaft

- It has higher health and safety risk

While this method is less invasive on the surface, the socio-economic disadvantages deem it unviable.

8.1.4. Technology -Processing Plant

a. Alternative 1: Dense Media Separation (DMS) –Preferred alternative

Dense medium separation is a form of gravity separation technology that separate particles with different specific gravities into a floats fraction (lower particle SG's) and sinks fraction (higher particle SG's). DMS technology has become very popular in spodumene beneficiation (compared to traditional beneficiation using flotation) due to lower capital and operating costs (reduced grinding, reagent and fines disposal costs).

Advantage

- Ability to make sharp separations at any required density, with a high degree of efficiency even in the presence of high percentages of near-density material.
- Density of separation can be closely controlled and maintained under normal conditions, for indefinite periods.
- The separating density can be changed at will and quickly
- Low water pollution potential.

Disadvantage

- The process is, however, rather expensive, mainly due to the ancillary equipment needed to clean the medium and the cost.

b. Alternative 2: Floating –

Highbury mining area is characterised of quantities of Spodumene. Flotation is used to generate a high grade spodumene concentrate (75-85% spodumene) suitable for lithium extraction.

Advantage

- Generate a high-grade concentrate with high lithium recovery suitable for downstream roasting and hydrometallurgy
- Maximize recovery
- Minimize acid-consuming contaminants
- Minimize the cost of roasting

Disadvantage

- Use of high temperature furnaces
- Use lot of electricity to power high temperature furnaces.
- Cause air pollution.
- Use a lot of water
- Higher potential of water pollution compared to DMS

8.1.5. Design or layout of the activity;

The provisional site late out is attached hereto as an appendix. The design and location of activities such as the waste rock, processing plant, tailings dam, and other ancillary activities will be assessed during the Environmental Impact Assessment report (EIR) phase with the input of the specialist reports.

8.1.6. Operational aspects of the activity; and

The mining method selected is open pit mining. The open pit mining process consist of drilling, blasting, loading and hauling using truck and excavator combinations conducted by a mining contractor. The open pit will be developed in two stages or pushbacks and access is provided with a single ramp system.

(a) Proposed mining Programme

The proposed mining programme will be undertaken in four phases with the estimated period of 29 years. No alternatives are considered for the operational aspects. The entire mining operations include the followings phases.

Pre-construction Phase

This is a preliminary phase associated with collection of all relevant data, laying out the schedule and the scope pertaining to the project, and will involve the following activities;

- Applicable permitting,
- Environmental authorizations,
- Baseline monitoring, and
- Additional specialist assessments

Construction Phase

This is an execution phase of all planned activities and will involve the following activities could impact on the surrounding environment;

- Stripping of topsoil and sub-soil onsite,
- construction of the clean and dirty water systems,
- Dust dispersion from infrastructure construction, and,
- Impact on water system due to excavation of the open pit

Operational Phase

During the operational phase, the followings activities could impact/affect the biophysical environment and cultural practice

- Open Cast Mining activities
- Dust dispersion from blasting, hauling, and excavating of ore
- Surface and ground water implication due to operational activities
- Sewage management, and waste management
- Ancillary activities (setting office, auto workshop),
- Baseline monitoring

Closure and Decommissioning

During decommissioning of the mine, the following objectives and proposed actions for SA Lithium decommissioning and closure phase of the mine could be considered:

- Recovery of all saleable infrastructure;
- Demolition of structures;
- Ripping of all compacted areas, which will be followed with amelioration and vegetation;
- Ensure that all remaining dumps, blend in with the surrounding
- Monitoring of key environmental variables (i.e., soils, vegetation, groundwater and surface water) to restore ecosystem integrity and function
- Weed management after closure, limited to areas disturbed by mining infrastructure or included in the mining.

8.1.7. Option of not implementing the activity.

If the option of not implementing the activity was assessed. If this option is preferred and approved, the area will remain as is predominantly the sugar cane field. There would be no additional negative and positive which may be occur as a result of the proposed mining activities. The area will, however, continue to yield it's impacts from the current land uses and activities practiced which are agriculture, homesteads, recreational activities and stock farming. Although the impact will be at a lesser extent, other benefits will not realise. This simply means that the social status of the area would remain the same and averts the necessary opportunity to;

- Job creation and related capacity building and skills transfer.
- Conversion and diversification of the local economy.
- Enhanced transport and rural accessibility.
- Creation of business opportunities for local entrepreneurs.
- National economy boost.
- Provision of greener energy generated from Lithium.

9. Details of the Public Participation Process Followed

Describe the process undertaken to consult interested and affected parties including public meetings and one on one consultation. NB the affected parties must be specifically consulted regardless of whether or not they attended public meetings. (Information to be provided to affected parties must include sufficient detail of the intended operation to enable them to assess what impact the activities will have on them or on the use of their land.

Public participation is a process that is designed to provide project information to Interested & Affected Parties (I&APs) and to enable them to voice their opinions, concerns, comments or objections. Public participation is undertaken for the following reasons.

- Provide I&APs with sufficient and correct information to assist them to raise comments and make recommendations which will be considered in the impact assessment
- Provides I&APs with the opportunity of suggesting ways of reducing or mitigating negative impacts of an activity and for enhancing positive impacts;
- Advise I&APs of the outcome of the environmental authorisation (i.e., DMRE decision), and the appeals process and procedure.

Public participation process will be undertaken for Scoping and Environmental Impact Assessment report. This enables Environmental Assessment Practitioner to evaluate all aspects of the proposed development in an objective way. Below are the steps to be followed in order to fulfil the PPP requirements.

NB: The proof of public participation is not attached hereto because the process is still underway. The timeline for the submission of the scoping report from the date of acceptance does not allow for both 30 days review period of a scoping report and the proof of public participation. Should the stakeholder wish to receive the proof of participation, such will be sent when the 30 days has lapsed.

9.1. Notification Letters

Notification letters to the land owners, land occupiers and available adjacent land owners will be issued to notify them of the proposed project. This is to ensure that landowners are aware of the proposed project and to inform them of the process and how they can be involved throughout the project life.

9.2. Background Information Document

The purpose of the Background Information Document (BID) is to provide summery information to assist stakeholders to receive the basic primary information about the project.: The basic information includes but is not limited to the following: -

- applicant details,
- proposed project area,
- minerals of interest

- environmental authorisation process.
- how the stakeholders can get involved in the process and
- summary of the anticipated potential impacts.

9.3. Newspaper Advertisement

The primary aim of these advertisements is to ensure that the widest group of I&APs are informed, notified and invited to provide input and comments on the project, as well as obtaining contact information to register their interest in the project process.

9.4. Site Notices

The NEMA EIA Regulations require that a site notice is fixed at a place conspicuous to the public at the boundary or on the fence of the site where the activity to which the application relates is to be undertaken and on any alternative sites. The purpose of this is to notify the public of the project and to invite the public to register as stakeholders and inform them of the Public Participation Process. Joan Consulting (Pty) Ltd personnel will ensure that site notices are placed in strategic places accessible to all as part of disseminating information.

9.5. Registration of stakeholders

All stakeholders that respond to the project notice or advert will be registered and communicated to about the project throughout the process. The compiled database will be used to ensure that all stakeholders are notified of any project progress and related changes.

9.6. Public Meeting

Project public meeting which will inform the public and engage with the public about the project will be undertaken.

9.7. Scoping Report Review

Draft Scoping Report will be forwarded to registered interested and affected parties and give them an opportunity to put their comments for period of 30 days and comments received will be addressed on comment and response sheet of the report.

9.8. Public Participation report

Comments, concerns and objects raised during the public participation process will be collected and compiled into a report which will form part of the contents of the Scoping report and will assist the competent authority in decision making.

9.9. Summary of issues raised by I&APs

Comments received from interested and affected parties from the 30 days review and comment period of Scoping Report will be responded to by the Environmental Assessment Practitioner through Comments and response sheet report.

(Complete the table summarising comments and issues raised, and reaction to those responses)

Table 8:comments and issues raised, and reaction to those responses

Interested and Affected Parties List the names of persons consulted in this column, and		Date Comments Received	Issues raised	EAPs response to issues as mandated by the applicant	Consultation Status
AFFECTED PARTIES					
Landowner/s	X				
Lawful occupier/s of the land	X				
Landowners or lawful occupiers on adjacent properties	X				
Municipal councillor	X				
Municipality	X				
Communities	X				
Dept. Land Affairs	X				
Traditional Leaders	X				
Dept. Environmental Affairs	X				

NB: Public participation is still underway

10. The Environmental attributes associated with the sites

10.1. Baseline Environment affected by the proposed activity.

(Its current geographical, physical, biological, socio- economic, and cultural character).

This section outlines the environmental information associated with mining right area. All environmental aspects within the site are identified in this section and special consideration during all the phases of the projects is given with the intent to minimize impacts.

10.1.1. Climate

11. Temperature

The warm season lasts for 2.6 months, from January 9 to March 28, with an average daily high temperature above 78°F (26°). The hottest month of the year in Port Shepstone is February, with an average high of 80°F (27°) and low of 71°F (22°). The cool season lasts for 4.5 months, from June 5 to October 19, with an average daily high temperature below 73°F (23°). The coldest month of the year in Port Shepstone is July, with an average low of 60°F (16) and high of 71°F (22°).

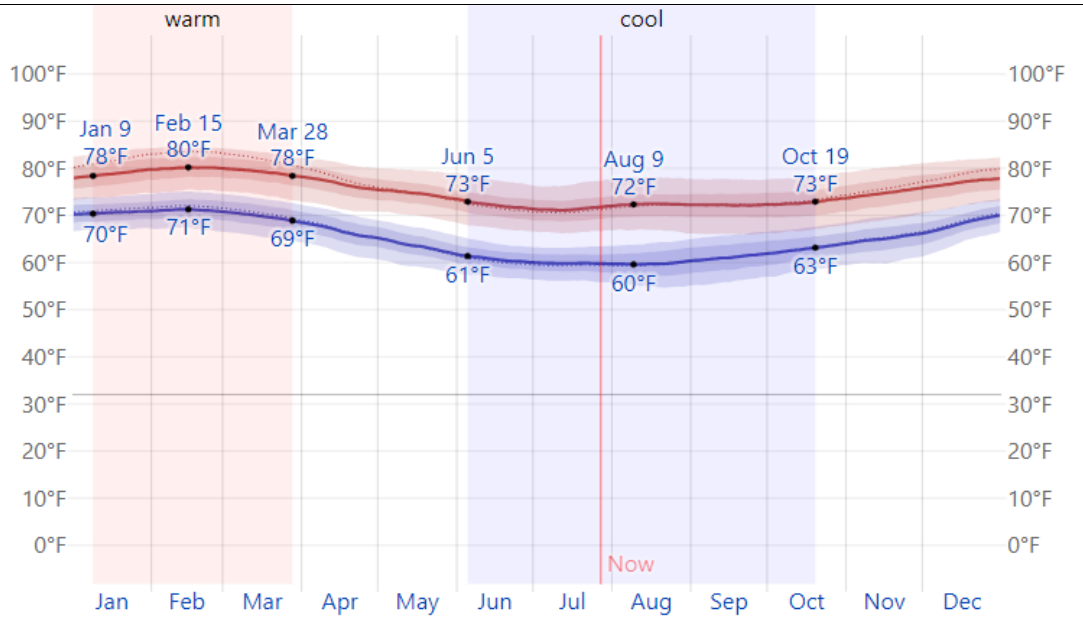


Figure 7:The daily average high (red line) and low (blue line) temperature, with 25th to 75th and 10th to 90th percentile bands. The thin dotted lines are the corresponding average perceived temperatures.

12. Clouds

In Port Shepstone, the average percentage of the sky covered by clouds experiences significant seasonal variation over the course of the year. The clearer part of the year in Port Shepstone begins around December 27 and lasts for 8.4 months, ending around September 10.

The clearest month of the year in Port Shepstone is July, during which on average the sky is clear, mostly clear, or partly cloudy 82% of the time. The cloudier part of the year begins around September

10 and lasts for 3.5 months, ending around December 27. The cloudiest month of the year in Port Shepstone is October, during which on average the sky is overcast or mostly cloudy 41% of the time.

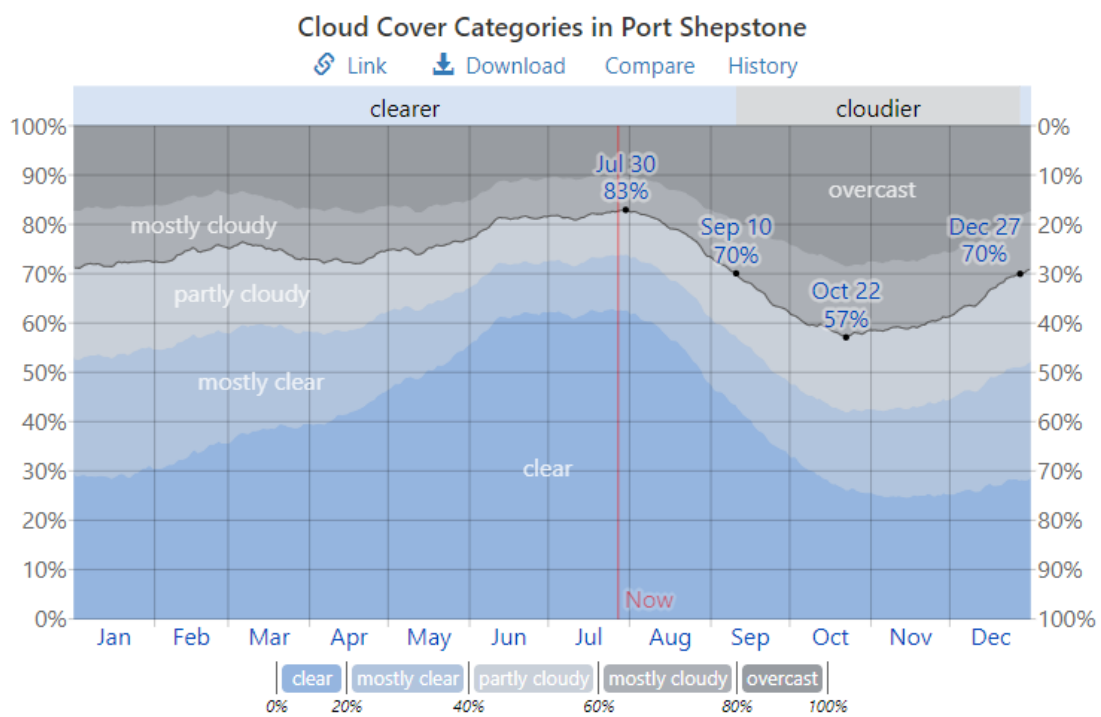


Figure 8:The percentage of time spent in each cloud cover band, categorized by the percentage of the sky covered by clouds.

13. Precipitation

A wet day is one with at least 0.04 inches (1016MM) of liquid or liquid-equivalent precipitation. The chance of wet days in Port Shepstone varies significantly throughout the year. The wetter season lasts 6.0 months, from September 30 to March 31, with a greater than 32% chance of a given day being a wet day. The month with the most wet days in Port Shepstone is December, with an average of 17.1 days with at least 0.04 inches (1016MM) of precipitation. The drier season lasts 6.0 months, from March 31 to September 30. The month with the fewest wet days in Port Shepstone is June, with an average of 2.6 days with at least 0.04 (1016MM) inches of precipitation.

Among wet days, we distinguish between those that experience rain alone, snow alone, or a mixture of the two. The month with the most days of rain alone in Port Shepstone is December, with an average of 17.1 days. Based on this categorization, the most common form of precipitation throughout the year is rain alone, with a peak probability of 57% on December 11.

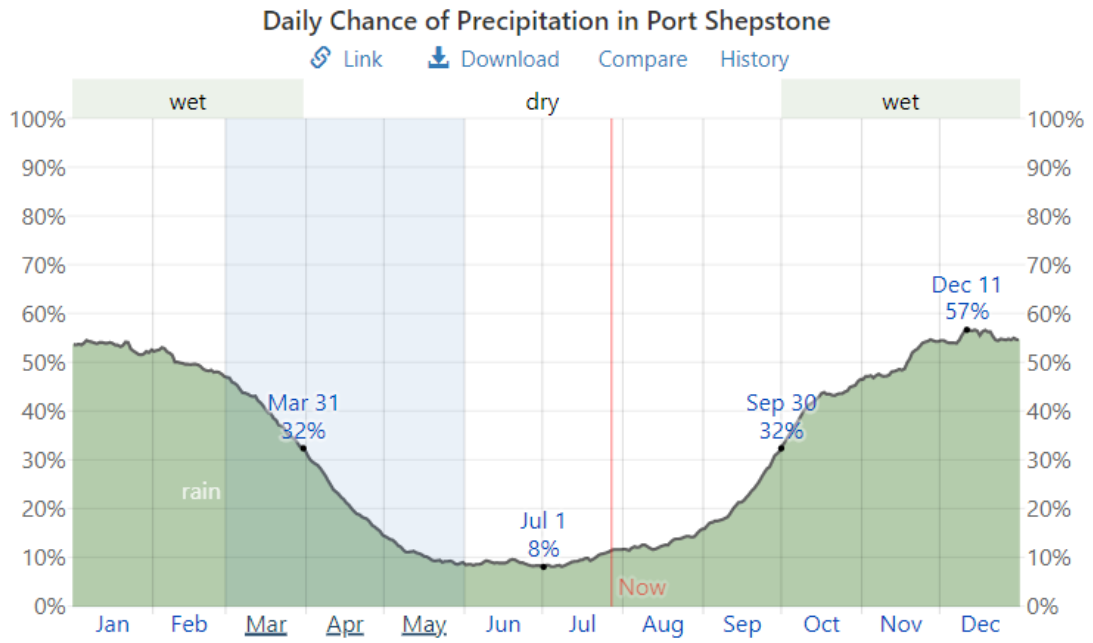


Figure 9:The percentage of days in which various types of precipitation are observed, excluding trace quantities: rain alone, snow alone, and mixed (both rain and snow fell in the same day).

14. Sun

The length of the day in Port Shepstone varies significantly over the course of the year. In 2022, the shortest day is June 21, with 10 hours, 9 minutes of daylight; the longest day is December 21, with 14 hours, 9 minutes of daylight.

The earliest sunrise is at 4:47 AM on December 4, and the latest sunrise is 2 hours, 9 minutes later at 6:56 AM on July 1. The earliest sunset is at 5:03 PM on June 10, and the latest sunset is 2 hours, 2 minutes later at 7:05 PM on January 9.

15. Wind

This section discusses the wide-area hourly average wind vector (speed and direction) at 10 meters above the ground. The wind experienced at any given location is highly dependent on local topography and other factors, and instantaneous wind speed and direction vary more widely than hourly averages. The average hourly wind speed in Port Shepstone experiences mild seasonal variation over the course of the year.

The windier part of the year lasts for 5.2 months, from August 13 to January 19, with average wind speeds of more than 20KM per hour. The windiest month of the year in Port Shepstone is October, with an average hourly wind speed of 22km per hour. The calmer time of year lasts for 6.8 months, from January 19 to August 13. The calmest month of the year in Port Shepstone is May, with an average hourly wind speed of 18 per hour.

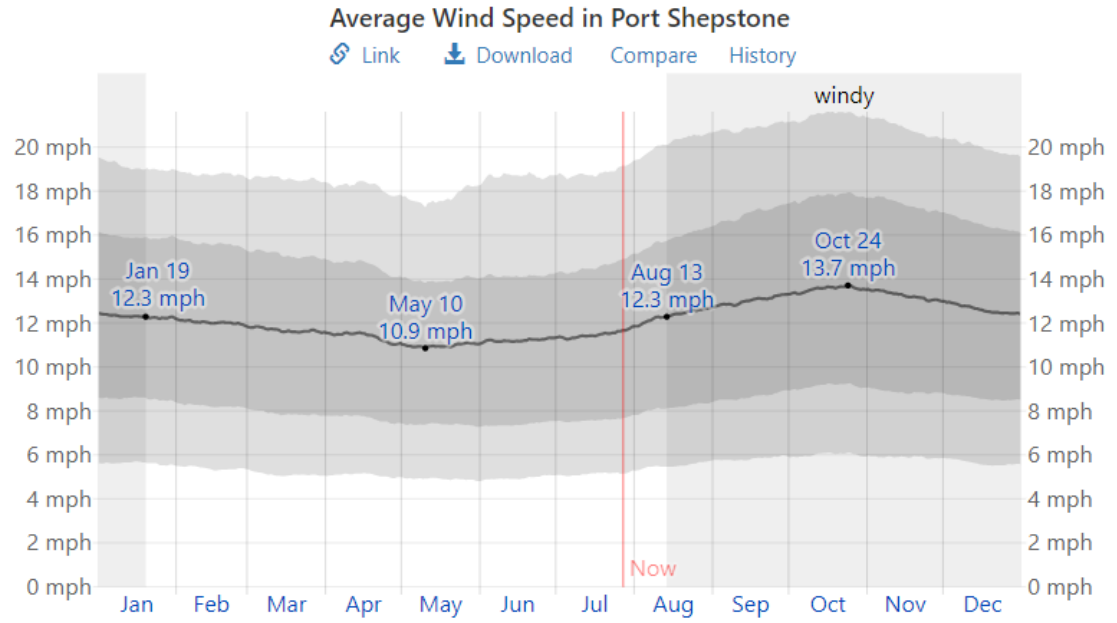


Figure 10:The average of mean hourly wind speeds (dark gray line), with 25th to 75th and 10th to 90th percentile bands.

15.1.1. Geology

The soil geology of the municipality is covered by seven geological formations, with the predominant being the Margate gneiss, followed by Msikaba Arenites, Gneiss, Tillete, Shale, Marble and Natal Group Arenite. Margate gneiss originates from a high-grade metamorphic rock which implies that it has been subjected to higher temperatures and pressures. It is formed by the metamorphosis of granite or sedimentary rock. Gneiss displays distinct foliation, representing alternating layers composed of different minerals. Below is the illustration of the geology of the municipality.

Significant quantities of spodumene have been identified from a number of ofleucocratic pegmatoid bodies which crop out on the corner near Highbury, Port Shepstone district in the southern part of the- I Ga natal Meta- morphic province. The mineralised rocks form part of a suite of sub-conrdant, predominantly aplitic sills which intruded high grade mafic gneisses of the mucklebraes formation. The entire package lies within a synformally folded klippen strucrure. The spodumene bearings sills, which are up to 15m thick were emplaced at several structural levels along the northern limb of the synform. These white, course -grained rocks are composed of quartz, albite, microcline and spodumene with traces of white Li-mica, garnet, graphite and very rare beryl. Pale yellowish-green to pink spodumene, symplectically intergrown with quartz (SQI) forms irregular to avoid poikilocrysts up to 40 cm across. This texture is characteristics of spodumene that has replaced primarily petalite and the composition of the SQI is comparable with published petalite analyses.

This iscochemical inversion model is supported by an observed volume change, evidence by the radical cracks which commonly surround isolated SQI crysts. The P-T conditions of formation of SQI

are consistent with near isobaric cooling models which have been proposed for this part of the Natal belt. Geochemical analyses show that the Li-pegmatites are highly siliceous with variable K/Na ratios and low Fe. Trace-element abundances (including H20 and F) are low, with the exception of Rb. The largely anhydrous minerals assemblages (coupled with the absence of other mineral phases typically associated with Lipegmatites) textural relationship and geochemically suggest that the highburry pegmatite crystalised from relatively from relatively high-temperature, volatile-poor liquids under conditions oflow ft20 and low/02. Consequently, the li-pegmatites are considered to be late stage differentiates of the characteristically anhydrous garnet leucogranites and charnockites of the margate suite with which they share many mineralogical and geochemical similarities. In view of the increasing economic importance of Li-minerals and the easily accessible position of the highburry pegmatite, coupled with feldspar and dimension stone as possible by-products, the prospects for future exploitation are considered favourable.

15.1.2. Topography

The KwaZulu-Natal province is well-known and characterised by its undulating topography. The municipality being a coastal strip, the topography generally falls towards the coast and is segmented by many water courses (streams/rivers) resulting in numerous hills and valleys as well as very flat areas along the coast.

The agricultural pattern within the area is primarily due to the undulating topography, which prescribes the available land parcels out of the valley lines and along other major structuring elements.

15.1.3. Land capability

According to IDP, the municipality is generally characterized by good potential agricultural land that needs to be preserved for food production. There is mixed agricultural practice with more commercial farming along the coastal belt..

Commercial farming is dominated by sugar cane farms and banana plantations along the coastal strip. Sugarcane and bananas are grown at a large scale while cattle rearing, macadamia nuts and vegetable are grown in gardens and small holdings. Subsistence farming (maize growing, amadumbe, beans and sweet potatoes) is practiced mainly in the hinterland where families grow for consumption. There is a notable growth in small-scale sugarcane farming in the interior, practiced mainly by emerging Black farmers. Seasonal rains, steep topography, poor infrastructure and lack of new scientific methods of ploughing are some of the challenges these farmers experience.

15.1.4. Biodiversity (fauna, flora)

“The bulk of Corner consists of KwaZulu-Natal Coastal Belt Grassland with a small portion in the northeast, next to the Mzumbe River, consisting of KwaZulu-Natal Coastal Belt Thornveld.

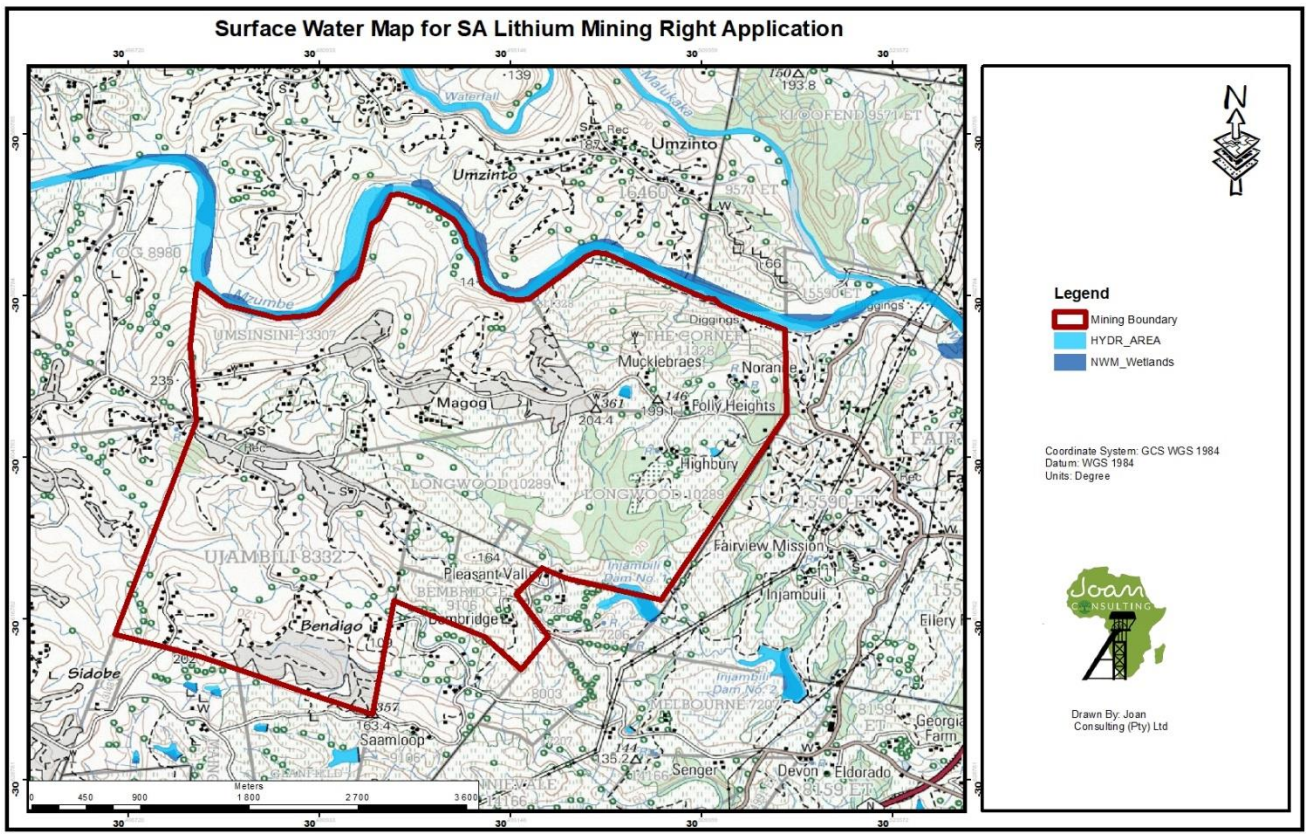
KwaZulu-Natal Coastal Belt Grassland (KZN Veg. Type 29, SANBI - CB3) consists of a long and broad coastal strip along the KwaZulu-Natal coast from Mthunzini in the North to just short of Port Edward in the south. The altitude ranges from about 20 to 450 m. It consists of highly dissected undulating planes which are thought to have been covered to a great extent with subtropical coastal forest. The KwaZulu-Natal coastal belt is heavily transformed by sugar cane, timber plantations and coastal resorts with interspersed secondary Aristida grasslands, thickets and patches of coastal Thornveld. The conservation status is Critically Endangered and only a small part is statutorily conserved in the Ngoye, Mbumbazi and Vernon Crookes Forest and nature reserves.

KwaZulu-Natal Coastal Belt Thornveld (KZN Veg Type 41, SANBI - CB6) is found on the coastal strip along the KwaZulu-Natal coast from near Mandini in the north to Oribi Gorge in the south. The altitude ranges from 30-500 m. It is found on steep valley sides and a hilly landscape, mainly associated with drier larger river valleys in the rain shadow of the rain bearing frontal weather systems from the east coast. It consists of bushed grassland, bushland and bushland thicket and open woodland. The conservation status is Vulnerable and only a small part is statutorily conserved in Harold Johnson Nature Reserve.

15.1.5. Surface water and wetland

The free flowing Mzumbe River is a perennial river located within quaternary catchment U80C. it stretches approximately 75km and drain into the Indian Ocean. The Umzumbe River is a National Freshwater Ecosystem Priority Area (NFEPA). The river serves as the North boundary of the mining right area with sugar cane farming on the southern bank.

There are no wetlands directly on site, but Longwood farm has a small patch of Alluvial Wetlands: Subtropical Alluvial Vegetation (KZN 75.1, SANBI AZa 7). There is a small farm dam on Corner which is included on the NFEPA wetland coverage as shown in the figure below. (The Independent Environmental Advisor, Draft EIA 2018).



15.1.6. Groundwater

The project is situated in the lower uThukela region and groundwater in this region is characterised by fractured aquifers which are formed by predominantly arenaceous rocks consisting of sandstone and diamictite (Dwyka tillite).

15.1.7. Air Quality and Noise

Ray Nkonyeni Municipality has a high number of industrial and manufacturing activities which produce toxic emissions in comparison to the other municipalities in the district. This is mainly due to the fact that there is relatively more industrial activities in Municipality, with the location of two major industrial basins in Uvongo and Marburg and limited activity in the areas of Hibberdene and Margate. (Source: Ugu DM Air Quality Management Plan, 2012).

According to the UGU District Air Quality Management Plan (2012), the following activities are indicated as the main sources of air pollution in Ugu District Municipality, namely: -

- Industrial and mining activities;
- Motor vehicle traffic on main roads and in popular coastal towns;
- Residential areas where wood is used for cooking and heating; and
- Sugar cane burning and other agricultural burning.

The mining right area is rural in nature and air quality in the area should be of good quality, due to the lack of industry and low traffic volumes. Dust from agricultural activities, mining operations, dirt roads and fires in winter are the greatest impacts on air quality. Noise in the area is generated by vehicles and , general activities in the surrounding communities.

15.1.8. Cultural heritage

There are features of heritage significance on the mining right application area. A heritage impact assessment will be undertaken and formulate mitigation measures to protected identified heritage features in the site.

15.2. Demography of the area

The proposed mining right area is situated in the in the Ray Nkonyeni Local Municipality of Ugu District municipality in the KwaZulu Natal Province. The municipality is one of the four local municipalities under Ugu District Municipality. Ray Nkonyeni Municipality is ranked number five out of the forty-three local municipalities in terms of population in the province of KwaZulu Natal (KZN).

The Indian Ocean borders the Eastern side of the municipality and covers approximately 72 km of the coastal belt. The municipality consists of a diverse population.

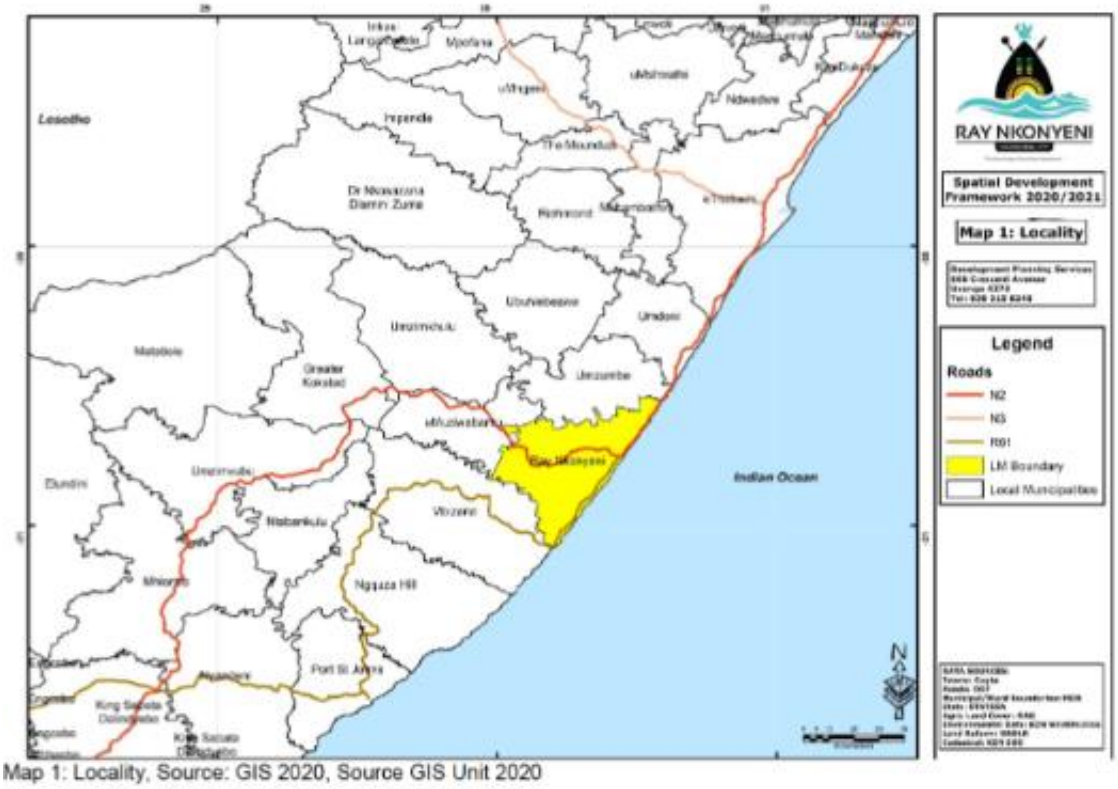


Figure 11:Ray Nkonyeni Municipality

15.2.1. Population

Ray Nkonyeni Municipality covers an area of 1 488.5 square kilometres with diverse population of approximately population of 348 534 people with 86% of such people being black followed by Whites (11%), followed by the Coloured population and lastly the Indian population, see graph below as indicated in the figure below. Female gender is dominant in the municipality consisting of 52%.

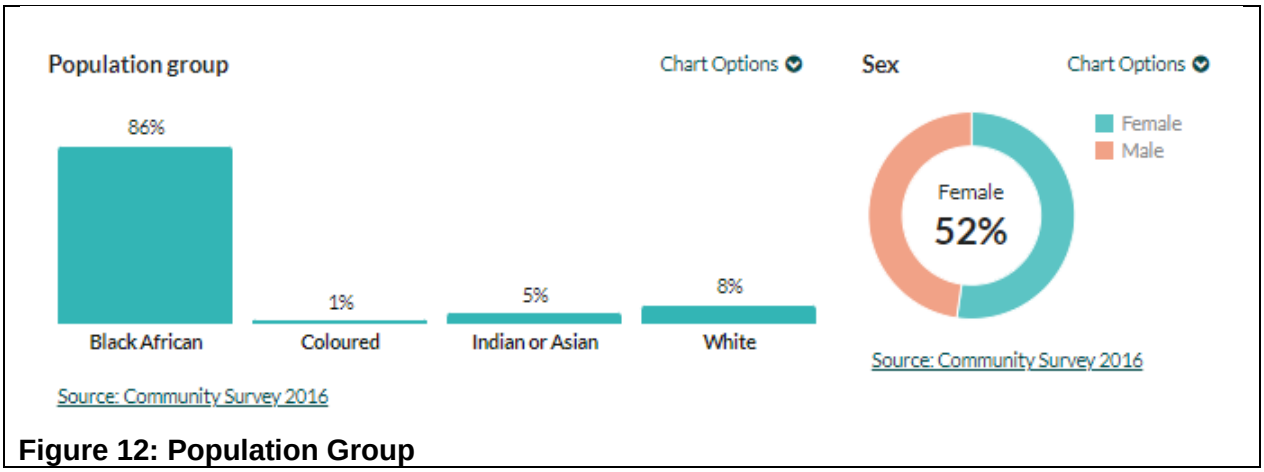


Figure 12: Population Group

15.2.2. Population by language most spoken at home

IsiZulu, English, Afrikaans and isiXhosa are already regarded as official languages in the province. Isizulu is the language that is mostly spoken by majority of the population and Afrikaans by 3% of the population and majority of the population are born in the province of KwaZulu Natal. English is the second most popular spoken language, at 11.4% while IsiXhosa follows at 6.3%. Afrikaans is 3.2%. There are also other languages spoken by a very small minority.

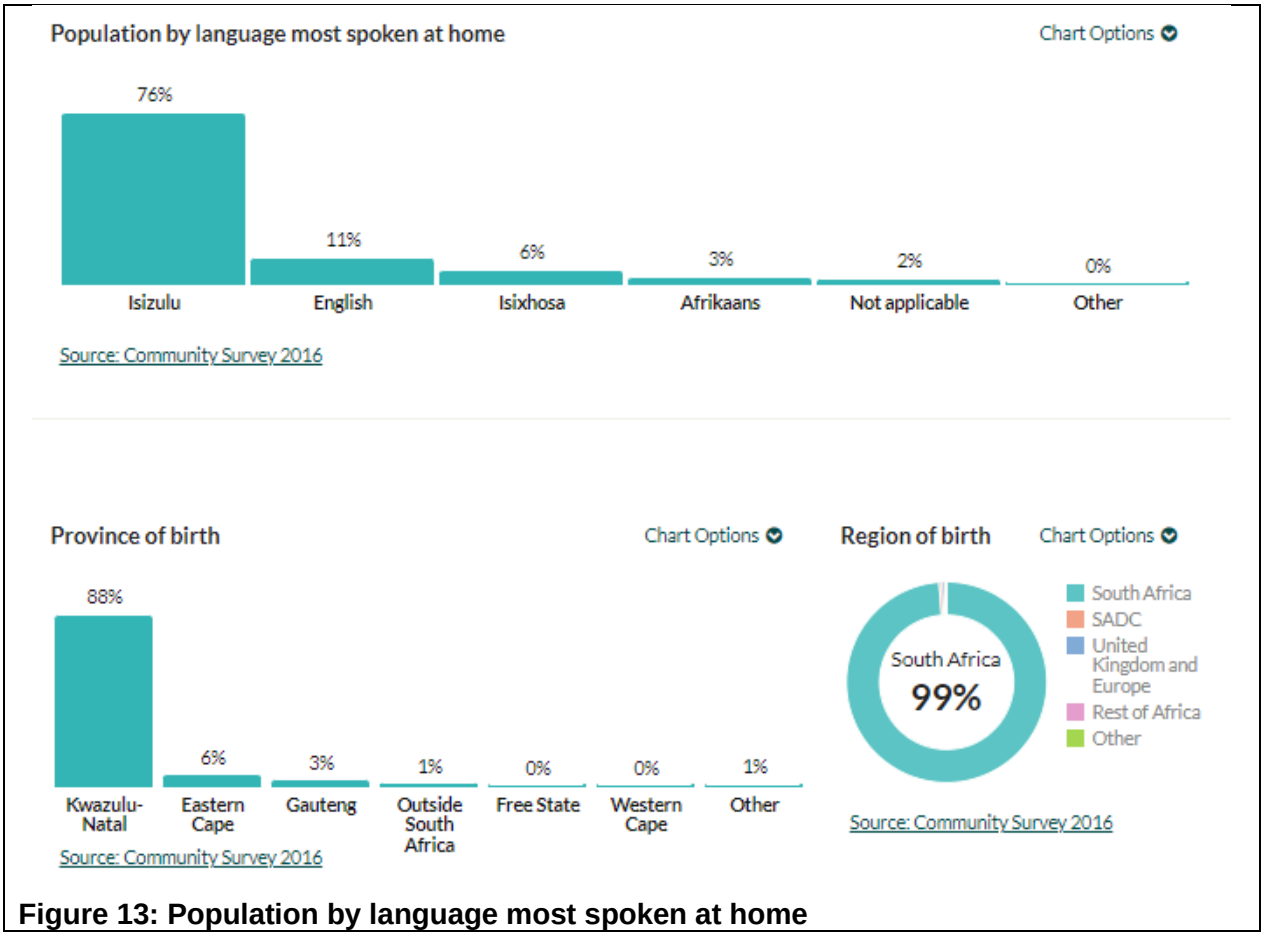


Figure 13: Population by language most spoken at home

15.2.3. Population by age range

Figure below indicate population by age with 18 years to years making about 52 % of the population in the municipality.

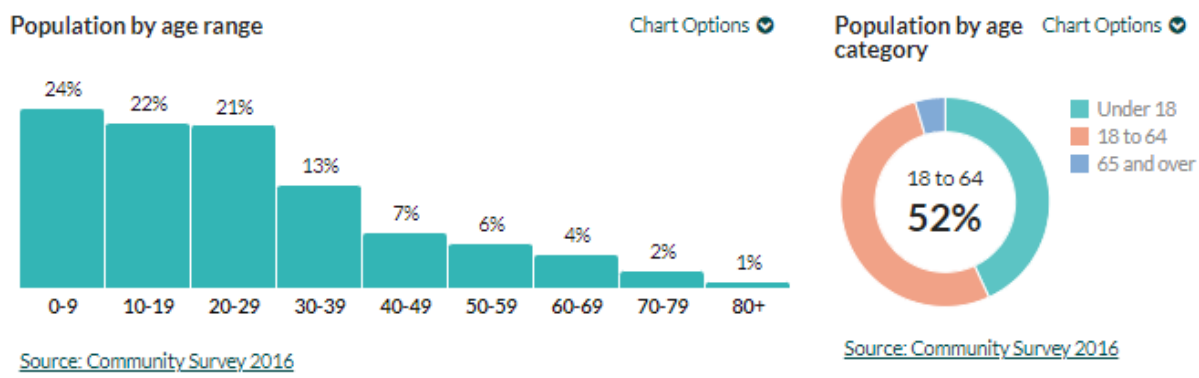


Figure 14:Population by age range

15.2.4. Households by type of dwelling

About 53% of the total population in the municipality are living in the houses while 13% are living in the shacks as represented in the figure 6 below. Figure 7 below represent 59% of the houses are paid off and fully owned by the population

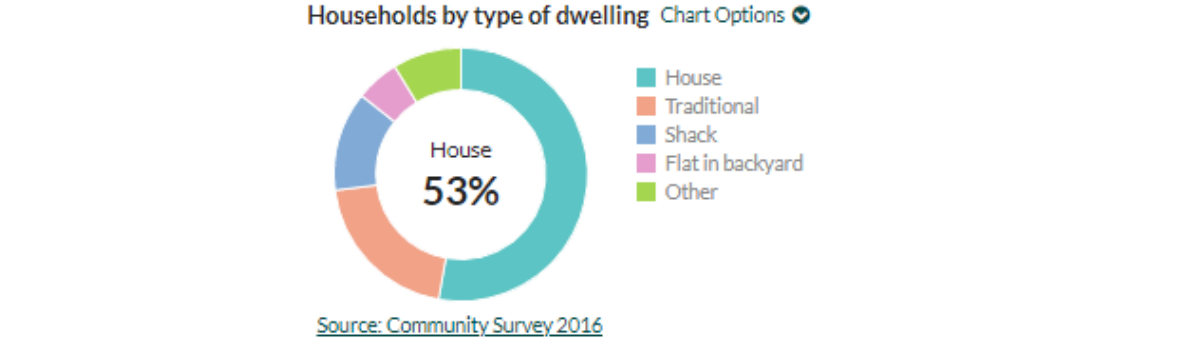


Figure 15:Households by type of dwelling

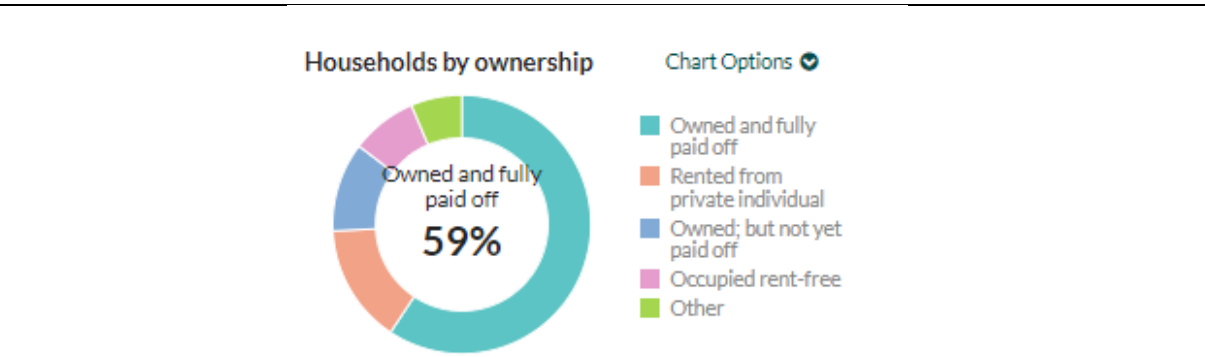


Figure 16: Household Ownership

15.2.5. Educational level

About 74.7% of the population have completed Grade 9 or higher and 45.2% Completed Matric or higher.

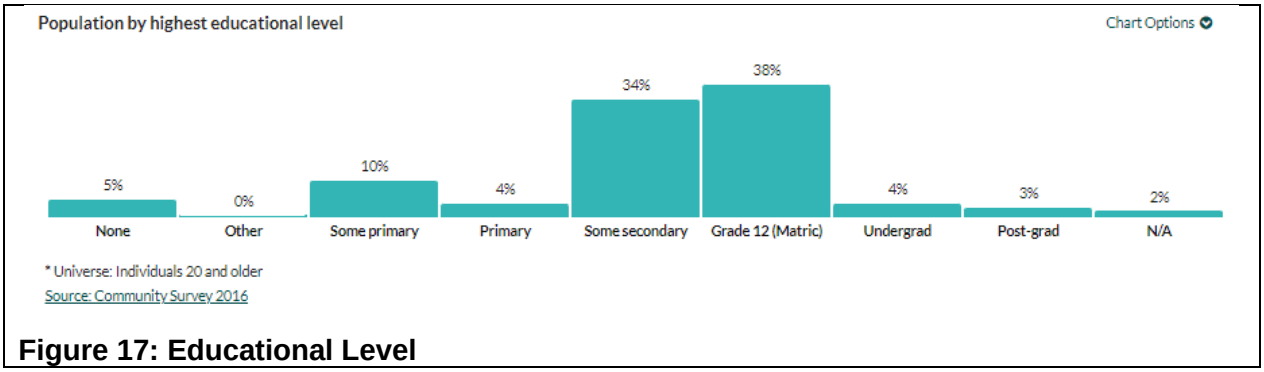


Figure 17: Educational Level

15.2.6. Child population

There are about 150 321 Children in the municipality and about 43% of the children are under 18 years while 49% are female.

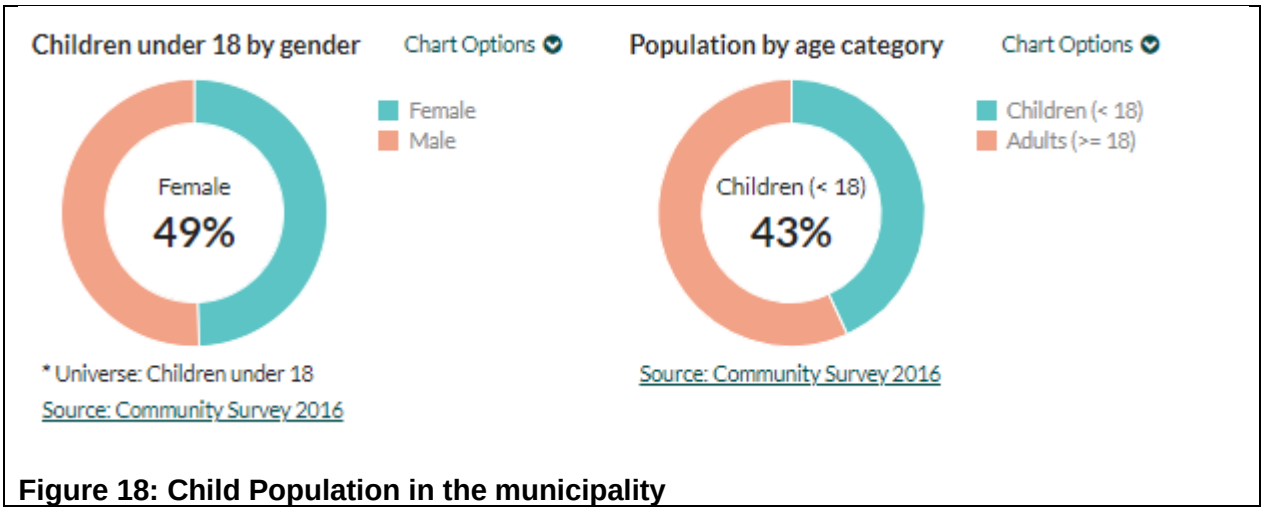


Figure 18: Child Population in the municipality

15.3. Economic aspect of the area

15.3.1. Employment in the municipality

RNM is the most developed local municipality within the Ugu District, boasting an array of social, educational, economic and health facilities. This alone serves as an attraction for job seekers as all these facilities offer more job opportunities than the surrounding local municipalities, however, contrary, there is high unemployment more especially in the formal sector About 43% of the population of the people living within the municipality are discourage to seek work and are not economically active. About 35.9% of the people are employed in the formal sector.

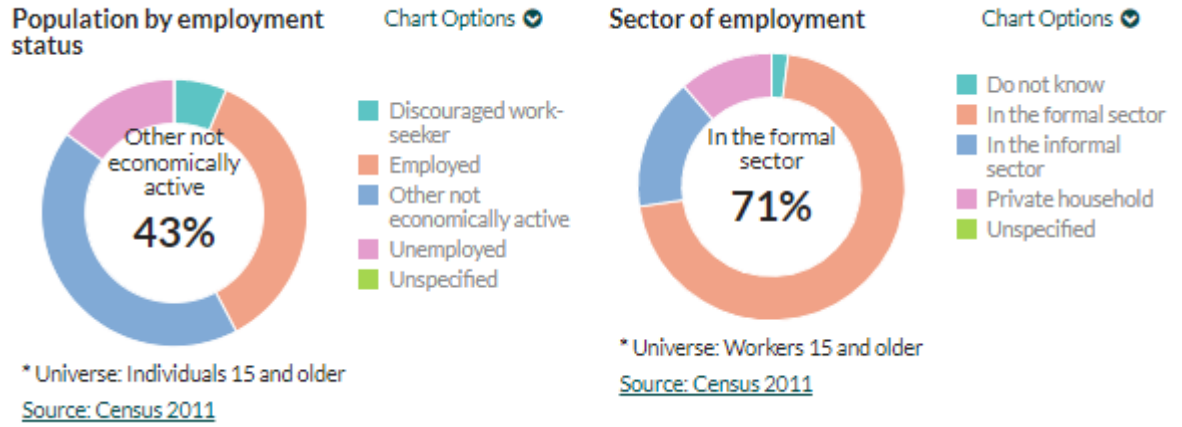


Figure 19: Employment within the municipality

15.3.2. Employees by annual income

Average annual income within the municipality is R30 000.

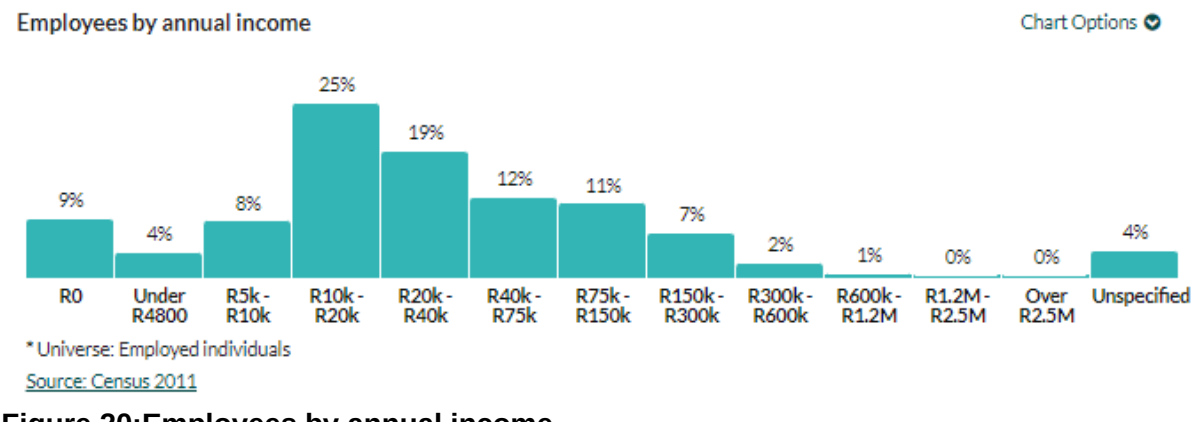


Figure 20:Employees by annual income

15.3.3. Employment by Gender

According to Ray Nkonyeni Municipality 2022/2023 – 2026/2027 IDP, the female population of the Municipality which is not economical active is higher as compared to the male population. In terms of discouraged work seeker, the female population is also higher as compared to that of males. With

unemployment, again, the female population is higher than that of males. According to the recent survey, in terms of employment, both female and male gender are now equal, however, it must be mentioned that the number is much lower as compared to those not economically active.

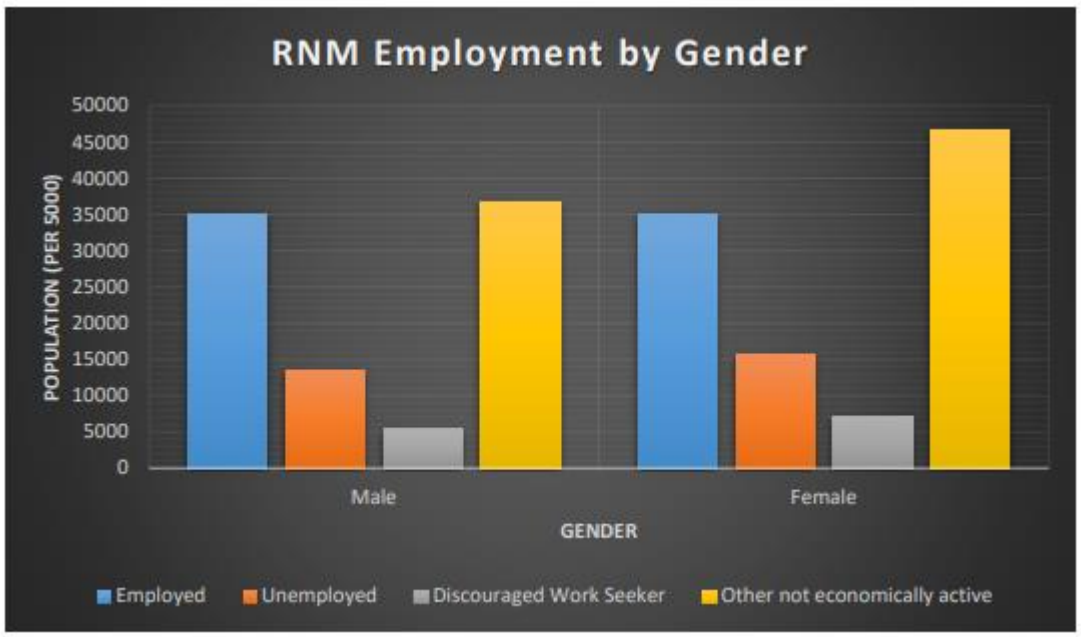


Figure 21:RNM Employment by Gender

16. Description of the current land uses.

The direct surrounds of the proposed site have been intensively used for sugarcane production and housing with subsistence agriculture. Several dirt roads exist, increasing the slope-channel connectivity. Higher up in the catchment, rural housing and localised farming dominates the landscape..

Two small scale mining areas, previously mined by Umzumbe Mining (Pty) Ltd is located the farm corner

16.1. Site Pictures

Table 9: Site Pictures

Figure 22: Residential Dwellings within mining right area

Figure 23: Sugar Cane Plantation on the mining right area

Figure 24: sugar cane plantation

Figure 25: Abandoned Umzumbe mining (Pty)Ltd area

17. Description of specific environmental features and infrastructure on the site.

- The Umzumbe River, an NFEPA wetland is the boundary towards North of the mining right area.
- Vegetated forest in some part of the farm corner
- Local communities
- Sugar cane plantation
- Electricity distribution powerlines
- Gravel roads used for site access
- Abandoned mining activities operated by Umzumbe mining (Pty) Ltd
- There are small patches of wetland on site.
- There are features of heritage significant on the mining right application area.

18. Environmental and current land use map.

(Show all environmental, and current land use features)

The map over shows current land use of the mining right application area.

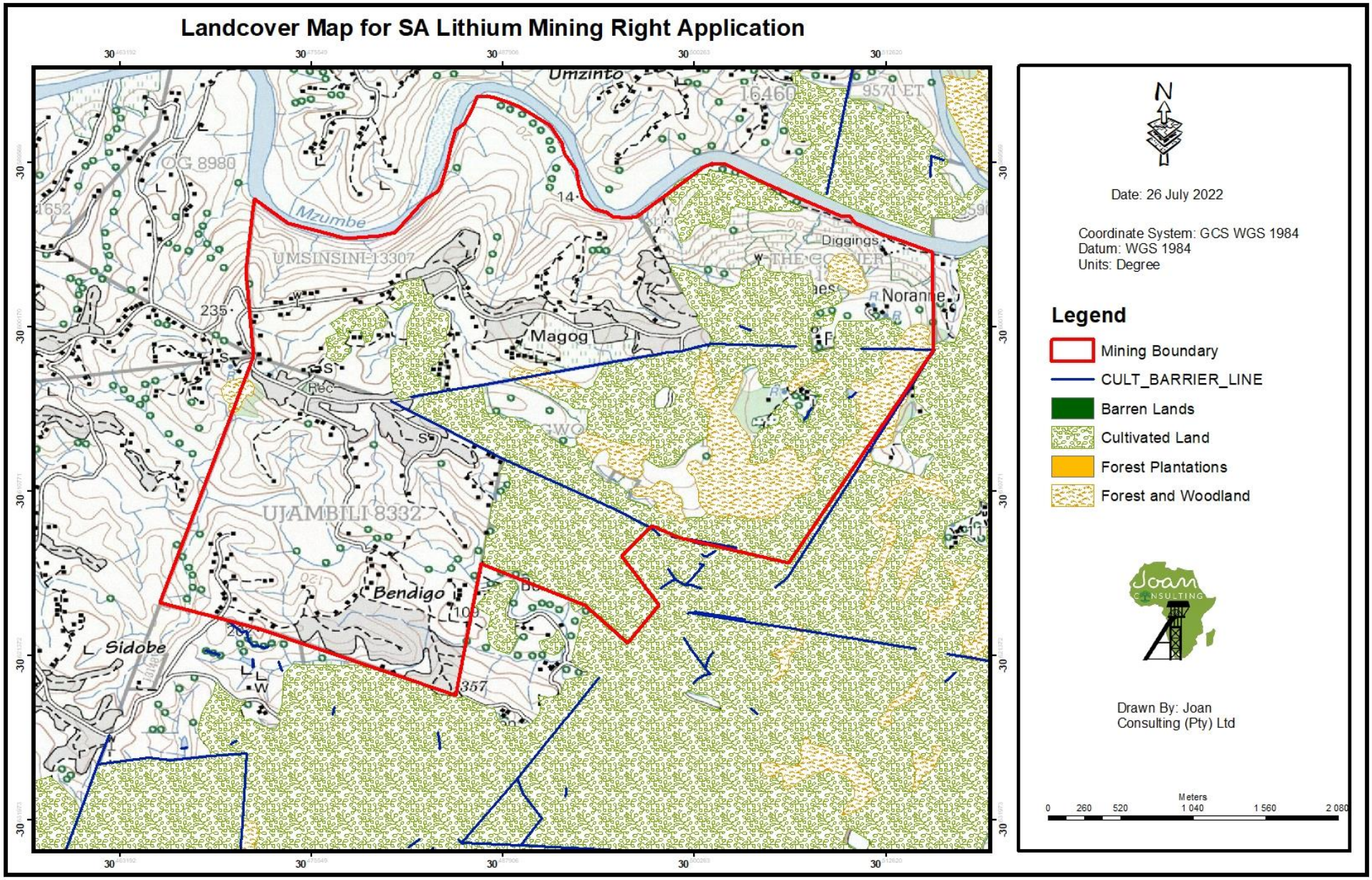


Figure 26: Land Cover map

19. Impacts identified

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

The following are the potential impacts identified

- Impacts on fauna and flora-degradation of natural vegetation and habitat for animal life which is low due to current land use.
- Impacts on surface water-increase in turbidity of surface water runoff.
- Impacts on surface water from spillages of hydrocarbons.
- Impacts on the groundwater from establishment of the surface mining operations and waste storage
- Surface water flowing into the pit due to hydraulic gradient and change in the topography
- Loss of topsoil as a resource through alterations and removal.
- Disturbances of the soils natural structure due to vegetation clearing and stripping of the topsoil.
- Compaction of soils due to movement of vehicles and machineries.
- Soil and water pollution by Hydrocarbons, chemical and waste.
- Loss of land capability due to removal of soil horizons.
- Potential visual impacts by the mine infrastructure.
- Air pollution by dust.
- Increase of ambient noise levels on site due to mining machinery and vehicles impacting on the surrounding sensitive receptors.
- Siltation on watercourses due to inadequate storm water management and soil stabilization
- Impacts on natural water springs.

20. Methodology used in determining the significance of environmental impacts

(Describe how the significance, probability, and duration of the aforesaid identified impacts that were identified through the consultation process was determined in order to decide the extent to which the initial site layout needs revision).

The significance of the impacts will be assessed considering the following descriptors:

Table 10:Criteria Used for Rating of Impacts

Nature of the impact (N)		
Positive	+	Impact will be beneficial to the environment (a benefit).
Negative	-	Impact will not be beneficial to the environment (a cost).
Neutral	0	Where a negative impact is offset by a positive impact, or mitigation measures, to have no overall effect.
`Magnitude(M)		
Minor	2	Negligible effects on biophysical or social functions / processes. Includes areas / environmental aspects which have already been altered significantly, and have little to no conservation importance (negligible sensitivity*).
Low	4	Minimal effects on biophysical or social functions / processes. Includes areas / environmental aspects which have been largely modified, and / or have a low conservation importance (low sensitivity*).
Moderate	6	Notable effects on biophysical or social functions / processes. Includes areas / environmental aspects which have already been moderately modified, and have a medium conservation importance (medium sensitivity*).
High	8	Considerable effects on biophysical or social functions / processes. Includes areas / environmental aspects which have been slightly modified and have a high conservation importance (high sensitivity*).
Very high	10	Severe effects on biophysical or social functions / processes. Includes areas / environmental aspects which have not previously been impacted upon and are pristine, thus of very high conservation importance (very high sensitivity*).
Extent (E)		
Site only	1	Effect limited to the site and its immediate surroundings.
Local	2	Effect limited to within 3-5 km of the site.
Regional	3	Activity will have an impact on a regional scale.
National	4	Activity will have an impact on a national scale.
International	5	Activity will have an impact on an international scale.
Duration (D)		
Immediate	1	Effect occurs periodically throughout the life of the activity.
Short term	2	Effect lasts for a period 0 to 5 years.
Medium term	3	Effect continues for a period between 5 and 15 years.

Long term	4	Effect will cease after the operational life of the activity either because of natural process or by human intervention.
Permanent	5	Where mitigation either by natural process or by human intervention will not occur in such a way or in such a time span that the impact can be considered transient.
Probability of occurrence (P)		
Improbable	1	Less than 30% chance of occurrence.
Low	2	Between 30 and 50% chance of occurrence.
Medium	3	Between 50 and 70% chance of occurrence.
High	4	Greater than 70% chance of occurrence.
Definite	5	Will occur, or where applicable has occurred, regardless or in spite of any mitigation measures.

Once the impact criteria have been ranked for each impact, the significance of the impacts will be calculated using the following formula:

Significance Points (SP) = (Magnitude + Duration + Extent) x Probability

The significance of the ecological impact is therefore calculated by multiplying the severity rating with the probability rating. The maximum value that can be reached through this impact evaluation process is 100 SP (points). The significance for each impact is rated as High (SP≥60), Medium (SP = 31-60) and Low (SP<30) significance as shown in the below.

Table 11:Criteria for Rating of Classified Impacts

Significance of predicted NEGATIVE impacts		
Low	0-30	Where the impact will have a relatively small effect on the environment and will require minimum or no mitigation and as such have a limited influence on the decision
Medium	31-60	Where the impact can have an influence on the environment and should be mitigated and as such could have an influence on the decision unless it is mitigated.
High	61-100	Where the impact will definitely have an influence on the environment and must be mitigated, where possible. This impact will influence the decision regardless of any possible mitigation.
Significance of predicted POSITIVE impacts		
Low	0-30	Where the impact will have a relatively small positive effect on the environment.
Medium	31-60	Where the positive impact will counteract an existing negative impact and result in an overall neutral effect on the environment.
High	61-100	Where the positive impact will improve the environment relative to baseline conditions.

21. The positive and negative impacts that the proposed activity (in terms of the initial site layout) and alternatives will have on the environment and the community that may be affected.

(Provide a discussion in terms of advantages and disadvantages of the initial site layout compared to alternative layout options to accommodate concerns raised by affected parties)

The positive and negative impacts of the project are discussed below.

21.1. Positive Impacts

The following are the potential positive impacts the activity will have on the environment and community in terms of the site layout.

- ***Job protection and creation***: the local people and surrounding areas will benefit greatly from employment opportunities during the construction and operational phase of the proposed activities.
- ***Upliftment and strengthening of the local and national economy:*** The local economy will be up lifted because the local business will get to supply goods and services to the mine and the businesses such as spaza shop and supermarket will be profitable as local people will have jobs and procure goods from the local shops.
- ***Improved standard of living:*** The creation of sustainable jobs during the construction and operational phases will equate to the improved standard of living, not just for the employees and their families but also for the local business people and their families.
- ***Good environmental management:*** The Environmental Authorisation together with the approved EIAR/EMPr report will guide the mine in terms of managing the physical and socio-economic environment that is impacted by the mining activities. This will be possible through the implementation of the requirements and conditions of the Environmental Authorisation and the approved EIAR/EMP report.

21.2. Negative Impacts

- ***Surface, ground water and soil pollution:***

Waste storage such as tailings dam, waste rock dump, and hydro carbons and other industrial liquids storage and potential leakage are risks of surface water, ground water and soil contamination. These potential impacts can however be mitigated by a properly implemented storm water management system and proper management of risk sources and activities.

- ***Dust:*** The use of the access dusty roads and the excavation or mining will cause dust. Dust will also be generated during blasting activities. However, dust nuisance to the residential area and road users can be minimised if mitigation measures are complied with. The affected community, affected adjacent land owners, affected road users and any personnel who could be deemed affected by the blasting activities should be notified a week before commencement of blasting activities.

Blasting should occur during off pick traffic hours . Dust generation also impacts on the plants surrounding the area as the dust can be carried by wind and deposited on the leaves. This interferes with the photosynthesis process of the plants. If the plants leaves are covered in dust, the animals (herbivores) are therefore also impacted as the plants are their food.

- ***Noise:*** The crushing plant, blasting, machinery used on site and the movement of the mine's vehicles, all causes noise. The noise levels depend on the type of equipment and activity. The mining activity noise level may only cover the immediate surround while the blasting noise level and vibration may go over the immediate site.
- **People and animal life disruption:** The mining activity, blasting noise and vibrations, dust, movement of trucks and other vehicles, the potential loitering of the employees may alter the daily routine of the people and animals around. The mining and related activities such as vehicle and machinery movement further pose a safety risk not only to the employees but also to the community members using the roads. Mitigation measures for these potential impacts are provided herein and will be detailed in full in the EIA report.
- **Removal of vegetation:** There will be removal of vegetation on the site where the mining and related activities will take place. This removal of vegetation will leave the ground bare and prone to erosion**.**
- **Soil erosion:** Soil erosion on denuded areas (and topsoil stockpile) is a potential negative impact on land capability. The mitigation measures are provided for this impact.
- **Habitat destruction:** Types of habitats vary in the proposed area. The soil/ground is the habitat to organisms such as the worms and the ants. The trees and bushes also are a home to other animal species. In essence, any activity or infrastructure that will be undertaken or placed on the ground and impacts on the plants will be impacting on the habitat of a certain animal species. Mitigation to this impact is provided
- **Accumulation of water into the pits (damming):** The probability of the pits to accumulate water when it rains is very high. It is therefore important that the designs of the pits be in a way that damming will be minimised and that there must be pumping equipment to pump out water that will accumulate in the pits **.**

22. The possible mitigation measures that could be applied and the level of risk.

(With regard to the issues and concerns raised by affected parties provide a list of the issues raised and an assessment/ discussion of the mitigations or site layout alternatives available to accommodate or address their concerns, together with an assessment of the impacts or risks associated with the mitigation or alternatives considered).

Table 12:Possible mitigation measures that could be applied and the level of risk.

ACTIVITIES	ASSOCIATED IMPACTS	TYPICAL MITIGATION MEASURES
Construction vehicles travelling on access roads towards the mine site	Generation of noise.	• Ensure that vehicles are properly maintained; • When deciding on vehicles for the construction activities consider noise parameters; • Include noise reduction technology on vehicles where possible or necessary • Service equipment, machineries, trucks and other vehicles regularlyto minimize noise. • Provide ear plugs to the employees and ensure they wear them forthe protection of their ears.
Construction vehicles travelling on access roads towards the mine site	Increased Traffic	• Limit construction activities to the daytime. • Use establishment routes as far as possible. • Ensure that drivers obey all the rules of the road. • Ensure an open channel of communication with the surrounding road users to act pro-activity on possible issues; • Consult with the relevant roads agency to determine whether the mine has to contribute to road maintenance or alterations due to increase traffic on the roads; • The access to the mine form the main roads will be designed in such a way as to fulfil the relevant roads agency requirements; • Clear signage must be erected to warn road users of heavy vehicle presence
Establishment of Surface Infrastructure	Dust Pollution	• Keep as much original land cover as possible; • Rip and rehabilitate areas which have been disturbed and • Implement dust suppression • Demarcate construction footprint and limit activities to within this footprint as far as possible
Establishment of Surface Infrastructure	Loss/ degradation of surrounding habitat	• No roads should be allowed within ecologically sensitive areas. The use of roads around ecologically sensitive areas for the purpose of buffers should be done with circumspect particularly

ACTIVITIES	ASSOCIATED IMPACTS	TYPICAL MITIGATION MEASURES
		in view of accidental killing of animals.
Establishment of Surface Infrastructure	Increase in environmental degradation, pollution (air, soils, surface water	• Implement a suitable buffer zone (at least 30m) between the edge of these area habitat and any type of development or surface disturbance; • Prevent contamination of natural habitat from any source of pollution
Establishment of Surface Infrastructure	Altering land use and land capability	• Limit operations to area designated to prospecting plan within the approved prospecting rights area. • Ensure that area is rehabilitated upon completion of activities, and that the soil is fertilized to facilitate vegetation establishment and growth • Implement concurrent rehabilitation to reduce exposed surfaces and speed up the recovery of the environment
Establishment of Surface Infrastructure	Impact on Land capability	• Topsoil replacement should be done systematically; slopes should be kept low to prevent run-off and erosion, and replaced according to the soil types. • Avoid Soil Compaction
Establishment of Surface Infrastructure	Safety Hazards to workers and community members	• Provide workers with safety clothing • Comply with Health and Safety measures, standards and regulations • Carry out Health and Safety audits frequently to ensure all Health and Safety measures, standards and regulations and complied with • Any hazardous zones on site should be monitored • Set and implement speed limit in the community roads • Ensure access control to the mining area
Establishment of Surface	Animal Life	• Fence -off the mine area to prevent animals from falling into the pits

ACTIVITIES	ASSOCIATED IMPACTS	TYPICAL MITIGATION MEASURES
Infrastructure	disruption	• Employees and contractors should be made aware of the presence of, and rules regarding, flora and fauna through suitable induction training and on- site signage
Establishment of Surface Infrastructure	Leaking and spillage	• Appropriate storage of hazardous material such as diesel must be implemented. • The areas where hazardous substances are stored should be bunded to avoid soil and water contamination. • Fuel must be stored in a secure designated room. • The ground where refuelling takes place must be protected and refuelling to be handled in a cautious manner.

23. The outcome of the site selection Matrix. Final Site Layout Plan

(Provide a final site layout plan as informed by the process of consultation with interested and affected parties)

The site plan will be drawn during the EIA phase after the specialist assessment has been undertaken and their recommendations has been considered. The mining pit will be on farm corner but the rest of the other activities and infrastructure location will only be determined at the EIA stages. The application area map is attached overleaf.

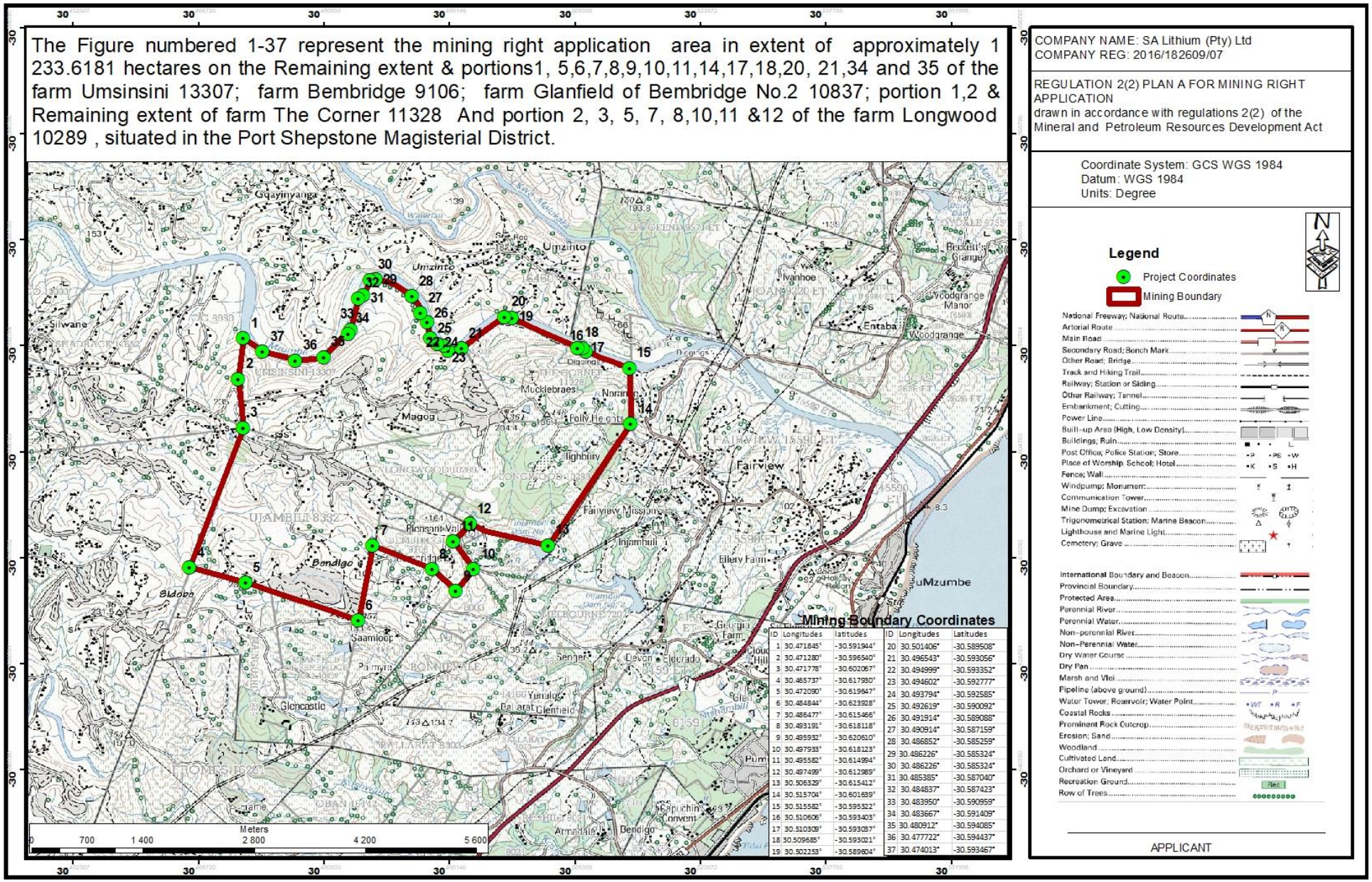


Figure 27: Site Layout Plan

24. Motivation where no alternative sites were considered.

The 'no-go' alternative is the option of not undertaking mining activities on the MRA. The no-go option assumes the site remains in its current state. There is no potential return for investment in a mine without operation of the mining activities. Should the mining right not granted, effectively the minerals being applied for will not benefit local community and local economy will remain unchanged. The socio-economic benefit and most notably the future employment and potential of mine development will also be lost if the mining activities are not implemented in order to determine the feasibility of any deposits that may occur within the area.

The project area is located adjacent to an existing mine and a rejection in this application will result in the loss of opportunity to supply the local and export markets as geological resources' location are site specific and will prevent the creation of various employment and socio-economic opportunities:

- Job creation and related capacity building and skills transfer.
- Conversion and diversification of economy.
- Enhanced transport and rural accessibility.
- Creation of business opportunities for local entrepreneurs.

Although a number of biophysical, social and cultural impacts have been identified, these can be mitigated and managed in accordance through the implementation of the EMPr and monitoring recommendations.

25. Statement motivating the preferred site.

(Provide a statement motivation the final site layout that is proposed)

The mining activity specifically looking at the orebody resource site is sorely dependent on the location of the orebody. In this case, the mining site is on farm Corner because the ore body has been identified there. Therefore, the preferred site is as per the application. In addition to the location of the orebody, the proposed mining project is located close to the harbour and there are infrastructures required to support the mining project.

26. Plan of study for the Environmental Impact Assessment process

26.1. Description of alternatives to be considered including the option of not going ahead with the activity.

See item 8 above for the details on the alternatives.

26.2. Description of the aspects to be assessed as part of the environmental impact assessment process

(The EAP must undertake to assess the aspects affected by each individual mining activity whether listed or not, including activities such as blasting, Loading, hauling and transport, and mining activities such as Excavations, stockpiles, discard dumps or dams, water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc…etc…etc.).

The following aspects will be assessed within the EIA and EMPr:

- Biophysical:
  - ✓ Soils,
  - ✓ Land capability
  - ✓ Land Use
  - ✓ Biodiversity (fauna, flora)
  - ✓ Aquatic ecology and ecosystems
  - ✓ Surface water
  - ✓ Groundwater
  - ✓ Wetlands
  - ✓ Air Quality
  - ✓ Noise
- Cultural heritage
- Visual environment
- Socio-economic
- Traffic and safety
- Closure and Rehabilitation

The final impact table will incorporate additional impacts identified by I&APs and specialists and include proposed mitigation measures, a post mitigation significance assessment, and monitoring and inspection details that need to be implemented to reduce the probability or severity of the impact and ensure mitigation measures are appropriate.

26.3. Description of aspects to be assessed by specialists

The department of Environmental Affairs now Forestry, Fisheries and Environment has developed a screening tool that assist environmental assessment practitioners with online pre site assessment through the use of various environmental datasets such as ecological datasets, wetlands and rivers

datasets. Fauna and flora datasets and etc. Below is the list all specialist studies that the screening tool has identified and deem necessary to be undertaken as part of the Environmental Impact Assessment Report (EIAR)

26.3.1. Heritage Impact Assessment (HIA)

The scope of the HIA includes:

- Establish whether any heritage resources ('national estate') as outlined in Section 3 of NHRA occur in the mining right area and, if so;
- Determine the significance of these heritage resources and whether they will be affected by the proposed Project;
- Propose mitigation measures for those heritage resources that may be affected by the proposed development project;
- Palaeontology assessment is will be included in the report.
- Development of Chance Finds Procedures or Conservation Management Plans is excluded
- Compliance with Section 38(3) and (8) of the NHRA is will be provided for.

26.3.2. Surface Water Assessment

The scope of study includes: -

- Surface water assessments, 1:50 and 1:100year flood lines delineation,
- Conceptual stormwater management plans(update) and
- water quality assessment

26.3.3. Visual impact study

This Visual Impact Assessment will document any anticipated visual impacts associated with the proposed mine, whilst identifying legislative and procedural requirements, and any additional information required, in the format as set out below:

- **Legal Framework –** Legislative context and importance of the visual impact assessment with reference to NEMA, the National Heritage Resources act and the advertising on Roads and Ribbons Act.
- **Adopted International Standards and Guidelines –** Description of international regulations or best practice guidelines that were used in this assessment.
- **Information and data Sources -** Summary of the various sources of information used to compile this assessment and any associated gaps / limitations associated with such data sources.
- **Assumptions and Limitations –** Description of the assumptions and limitations associated with this report.

- **Description of the Receiving Environment-** Description of the following criteria that will determine the current status of the surrounding visual environment, including brief descriptions of the visual character, landscape quality, sense of place and quality of visual resource of the immediate and surrounding project area**.**
- **Impact Identification and Description –** Identifies any major impacts associated with the proposed mining activity on surrounding receptors (residents, motorists, and tourists). These impacts are based on visual modelling results and factors including the Visual Absorption Capacity, Visibility and Visual Exposure, Sensitive Receptors and the Visual Distance of Sensitive Receptors from the proposed activity; and the Magnitude / Intensity of Visual Impact.
- **Mitigation of Impacts –** Identifies the most feasible and practical way of mitigating any potential impacts on sensitive receptors.
- **Proposed EMP Control and Monitoring Plan –** Description of necessary plan that needs to be adopted to mitigate potential impacts resulting from the proposed activity and the associated ways in which the effectiveness of such measures can be monitored.

26.3.4. Noise Impact Assessment

The scope of work involves: -

- Desktop review, background ambient noise measurements, modelling and impact assessment;
- Day and night-time assessments;

26.3.5. Traffic Impact Assessment

The Traffic Impact Assessment Study is the subject of this report and includes the following:

- Determine existing traffic flows on existing/adjacent road networks in order to quantify the regional traffic assessment
- To assess the potential impact of traffic generated by the proposed activity
- Identify current route ability to handle super and abnormal loads
- Investigation regarding any required road upgrading in the area
- Investigations on public transport, pedestrian activities and access arrangements
- Determine if the road network will operate safely and efficiently during operational phase of the development.
- Conclusions and recommendations.

26.3.6. Biodiversity Assessment

The scope of work involves:

- General description of the ecology and floristic component in the study area.

- Description and mapping of the broad vegetation units (if more than one) identified in the study area.
- Determine plant species diversity of the study area and compilation of a plant species list.
- Record the presence and diversity of plant species of conservation significance (ToPS, Red data, Protected, etc.) in the study area.
- Describe and map the sensitivity of the habitat in the study area from a terrestrial ecological and biodiversity point of view.
- Comment on plant species that can be utilized socially (medicine, food or other cultural or social purposes).
- Evaluate the impact of the proposed developments against the findings of this report.
- Recommend mitigation measures that can be implemented in order to minimize the impacts of the proposed development

26.3.7. Geotechnical Assessment

Scope of work of the Geotechnical Assessment is outlined as followed

- To obtain information on the physical properties of soil
- Rock around a site to design earthworks
- Foundations for proposed structures
- Vulnerability for erosion

26.3.8. Air Quality Study

The scope of the Air Quality Study includes to;

- Develop a status quo assessment in order to provide up-to-date information on air quality in the area
- Assess and analyse, and then make recommendations on the relevant Air Quality Emissions Inventory.
- Assess and analyse, and then make recommendations on the relevant Air Quality Monitoring network.
- Provide recommendations for the implementation of appropriate mitigation measures
- Impact significance assessment and health risk/nuisance dust

26.3.9. Socio-Economic Assessment

The Socio-Economic Assessment (SIA) will aim to determine and provide the following**:**

- The socio-economic profile of the region and the social characteristics of the affected environment - this data can then be used for current and future monitoring;

- Concerns, comments and impacts documented during consultation and the data gathering processes;
- Analysis of the findings for the detail assessment phase.
- Identification of impact categories and impact areas, and an analysis of the potential socioeconomic impacts with its significance rating for each impact.
- Guidelines for mitigating negative impacts and optimising benefits of the proposed mining activities.

26.4. Proposed method of assessing the environmental aspects including the proposed method of assessing alternatives

The impact assessment methodology to be utilised in the project is discussed in Section 15 under "Methodology used in determining the significance of environmental impacts" earlier in this report, including the duration scale

26.5. The proposed method of assessing duration significance

This will be incorporated into the impact assessment as "impact significance" which is evaluated in terms of severity:

- **Insignificant:** the potential impact is negligible and no mitigation measures or environmental management is required.
- **Very Low & Low:** no specific mitigation measures required, beyond normal environmental good practices.
- **Medium - High:** specific mitigation measures should be devised, to reduce the impact significance to an acceptable level. If mitigation is not possible, compensation measures should be considered.
- **Very high:** specific mitigation measures should be identified and implemented, to reduce the impact significance to an acceptable level. If such mitigation is not possible, very high significance negative impacts should be considered in the project's authorisation process.

26.6. The stages at which the competent authority will be consulted

The KwaZulu Natal department of Mineral Resources and Energy as a competent authority will be consulted on the following stages of the project.

- An application form detailing the listed activities will be submitted;
- A final copy of the Scoping Report after implementing the initial consultation process will be submitted to the DMRE for approval;
- A final copy of the EIR and EMPr will be submitted to the DMRE for consideration.

26.7. Particulars of the public participation process with regard to the Impact Assessment process that will be conducted

26.7.1. **Steps to be taken to notify interested and affected parties.**

(These steps must include the steps that will be taken to ensure consultation with the affected parties identified in (h) (ii) herein).

The following steps will be taken to undertake the public participation during the EIA phase.

- Registered I&APs will be notified of the availability of draft EIR Reports through the following
  - Notification to the mining committee and the chief to make announcement at their meeting
  - Emails and texts to all registered people
  - A newspaper adverts in a local newspaper
  - , and site notice;
- Draft reports will be posted or emailed to Organs of State;
- Copies of the draft reports will be placed at the Tribal office
- A public meeting will not be hosted as it will be done in the scoping phase.
- All I&APs will be notified of the record of decision of the environmental authorisation;

26.7.2. Details of the engagement process to be followed.

(Describe the process to be undertaken to consult interested and affected parties including public meetings and one on one consultation. NB the affected parties must be specifically consulted regardless of whether or not they attended public meetings and records of such consultation will be required in the EIA at a later stage).

The public participation process will be conducted strictly in accordance with EIA Regulations. The following three categories of variables will take into account when deciding the required level of public participation:

- The scale of anticipated impacts.
- The sensitivity of the affected environment and the degree of controversy of the project.
- The characteristics of the potentially affected parties.

The following public participation mechanisms will be used:

- Newspaper advertisement in local newspaper
- Pasting of Site Notices in prominent places
- Direct notification of surrounding land owners and occupiers
- Circulating (via emails.) and placing of the Scoping Report in areas that are accessible to the public
- Circulating (via Emails, WhatsApp, etc.) and placing of the of EIR in areas that are accessible to the public
- Public participation meeting (for the scoping phase)
- Direct notification to all registered stakeholders and I&APs of the decision regarding the Environmental Authorisation

26.7.3. Description of the information to be provided to Interested and Affected Parties.

(Information to be provided must include the initial site plan and sufficient detail of the intended operation and the typical impacts of each activity, to enable them to assess what impact the activities will have on them or on the use of their land).

The following information will be provided to the IAPs

- A draft EIR/EMPr will be compiled and made available to I&APs for a 30-day review period;
- The final EIR/ EMPr, incorporating comments received from the draft EIR, will be made available to all registered I&APs;
- Within 14 days of receipt of EA, the I&APs will be notified of the decision and given 21 days to appeal the decision.

27. Description of the tasks that will be undertaken during the environmental impact assessment process

In the acknowledgement of this report and having been assigned a reference number for the project, the DMRE will make a decision on whether or not to accept the Scoping Report and provide approval to proceed with the S&EIR process.

The Impact Assessment Phase being the next step will be conducted in accordance with the approved Plan of Study (PoS) for the EIA. The EIR and EMPr will be prepared with information and issues identified during the Scoping Phase activities; comments from I&APs and the commenting authorities; and the findings from the specialist studies.

The Impact Assessment Phase comprises of:

- The completion of the specialist studies and reports;
- The finalisation of the impact assessment;
- The compilation of the EIR, and EMPr;
- The public review of the EIR, and EMPr.

The Environmental Impact Assessment Report and Environmental Management Programme will include:

- details and expertise of the EAP who prepared the report
- the location of the development footprint of the activity
- Plan which locates the proposed activity or activities applied for as well as the associated structures and infrastructure
- A description of the scope of the proposed activity, including all listed and specified activities triggered and being applied for; and a description of the associated structures and infrastructure related to the development.
- description of the policy and legislative context
- motivation for the need and desirability for the proposed development
- motivation for the preferred development footprint within the approved site
- full description of the process followed to reach the proposed development including:
  - ✓ details of the development footprint alternatives considered
  - ✓ details of the public participation process undertaken in terms of regulation 41 of the Regulations.

- ✓ the environmental attributes associated with the development
- ✓ the impacts and risks identified including the nature, significance, consequence
- ✓ the methodology used in determining and ranking the nature, significance, consequences, extent, duration and probability of potential environmental impacts and risks;
- ✓ positive and negative impacts that the proposed activity and alternatives will have on the environment
- ✓ possible mitigation measures that could be applied and level of residual risk;
- ✓ full description of the process undertaken to identify, assess and rank the impacts the activity and associated structures and infrastructure will impose
- ✓ assessment of each identified potentially significant impact and risk,
- ✓ where applicable, a summary of the findings and recommendations of any specialist report
- ✓ an environmental impact statements

- based on the assessment, and where applicable, recommendations from specialist report
- final proposed alternatives which respond to the impact management measures, avoidance, and mitigation measures identified through the assessment;
- any aspects which were conditional to the findings of the assessment either by the EAP or specialist which are to be included as conditions of authorisation
- description of any assumptions, uncertainties and gaps in knowledge which relate to the assessment and mitigation measures proposed;
- reasoned opinion as to whether the proposed activity should or should not be authorised, and if the opinion is that it should be authorised, any conditions that should be made in respect of that authorisation;
- where the proposed activity does not include operational aspects, the period for which the environmental authorisation is required and the date on which the activity will be concluded and the post construction monitoring requirements finalised.
- undertaking under oath or affirmation by the EAP

Once the EIR and EMPr have been reviewed, comments received from stakeholders will be documented and considered in the Final EIR and EMPr, which will be and submitted to the DMRE for approval and given to the registered IAPs for records

28. Measures to avoid, reverse, mitigate, or manage identified impacts and to determine the extent of the residual risks that need to be managed and monitored.

Mitigation measures to avoid, reverse, mitigate, or manage identified impacts during Construction, operational and decommissioning phase are outlined on table 13,14 and 15 below.

28.1. Construction phase mitigation measures

The construction phase of the project will generate impacts that require attention. If proper management strategies are not implemented the impacts would accumulate and create environmental

risks. This section will outline the measures to be implemented during the construction phase of the project.

Table 13: Construction phase

Activity	Potential Impact	Aspect	Mitigation/Management Measures
Construction (mine infrastructure)	Creation of Dust	Air Quality	• Suppress dust • Monitor dust fall out • Speed limits must be established on dirt roads. • Vegetate soil stockpiles, soil berms and all exposed areas
	Generation of Noise	Humans and animals	• Monitor occupational noise levels as required by the law • Machinery and equipment must be regularly serviced. • Mine must consider conducting noisy activities during the day as far as possible. • When deciding on vehicles for the construction activities consider noise parameters; • Limit construction activities to daytime
	Vegetation removal	Flora	• Remove vegetation only in the designated areas • Prioritise low sensitivity areas (disturbed areas) rather than natural areas where feasible. • Use of existing roads and tracks where feasible, rather than creating new routes through naturally vegetated areas. • No open fires must be allowed on site such as for cooking. • Prohibit harvesting of indigenous trees for firewood and indigenous flora in general. • Limit the development footprint of the proposed development as far as possibly,
Construction (mine infrastructure)	Soil erosion	Soil	• The gravel haul road drainage system and surface must be well maintained • The vegetative (grass) cover on the soil stockpiles (berms) must be continually monitored in order to maintain a high basal cover. • Keep as much original land cover as possible • Erosion control measures such as intercept drains and toe berms must be constructed where necessary.

Activity	Potential Impact	Aspect	Mitigation/Management Measures
			• Gravel roads must be well drained
	Habitat disruption	Fauna	• Limit the development footprint of the proposed development as far as possible • Demarcate construction areas by semi-permanent means/material, in order to control movement of personnel, vehicles, providing boundaries for construction site
	Spillage and seepage of wastewater	Ground & surface water	• All chemicals should be stored in bunded areas with a capacity of no less than 110% of the content. • drip trays should be utilised at all times on all trucks and heavy machineries. • Contaminated soils must be managed as hazardous material
	Alien invasive establishment	Flora	• Compile and implement an alien invasive species management plan and implement it.
Site Preparation for the open Cast pit mining	Soil pollution and contamination	Soil	• Store fuel, chemicals and other hazardous substances in suitable secure weather-proof containers with impermeable and bunded floors to limit pilferage, spillage into the environment, flooding or storm damage. • Ensure that the excavator and frontend loader are properly maintained. Equipment must be regularly serviced and inspected to make sure there are no leaks of oil, diesel, fuel, detergents or hydraulic fluids. • Under no circumstances should oil or diesel to be disposed of at the site.
Site Preparation for the open Cast pit mining	Dust pollution due to exposure to loosen soils	Air Quality	• Handling must minimise the creation of dust and handling must be reduced during windy conditions. • Wetting of construction area must occur during very dry or windy conditions or if dust becomes a major problem
	Change in land use to mining	Land use	• Limit all impacts only to the approved development footprint and mining right area.

Activity	Potential Impact	Aspect	Mitigation/Management Measures
Site Preparation for the open Cast pit mining	Loss of and disturbance to archaeological / heritage sites	Heritage and Archaeology	• Cultural site and graves uncovered during operations will be cordoned off, and marked as no-go zones and evaluated by a specialist before proceeding with further activity. • Implement the Heritage study recommendations
	Loss of grazing land capability	Flora and fauna	• Rehabilitate land as close to the original land-use as possible; • Erosion control measures such as intercept drains and toe berms must be constructed where necessary • Revegetate all denuded areas that are not in use,
	Poor Visibility due to dust creation	Visual	• Implement dust suppression techniques where necessary
	Increase in traffic in the area	Traffic	• Manage traffic properly during construction to avoid accidents and congestion • Advise road users of the detour road if available; • Ensure that drivers obey all the rules of the road.
	Soil compaction	Land Capability	• Keep infrastructure localized to reduce footprint; • Tracked vehicles are more desirable than wheeled vehicles due to their lower point loading and slip, while vehicle speed should be maintained in order to reduce the duration of applied pressure • Rip the compacted areas that will not be used post construction at the end of the construction phase.
	Employment creation and decrease in unemployment	Socio-Economic	• Local labour should be used as far as possible; • Implement the SLP

Activity	Potential Impact	Aspect	Mitigation/Management Measures
Incidental Spills and/or leaks of potentially hazardous substances	Soil Contamination	Soil and land Capability	• Spill prevention and emergency spill response plan, as well as dust suppression, and fire prevention plans will be implemented during the construction phase • An emergency response contingency plan will be implemented to address clean-up measures should a spill and/or a leak occur • Spill kits will be provided for onsite spill clearing • All potential contaminants and hazardous substances hydrocarbons, cement, waste collection and storage areas will be located on bunded areas to capture and spills and leaks • Waste associated with construction phase activities will be stored and removed.
Vehicular traffic and construction activities	Soil Compaction	Soil and land Capability	• All vehicular traffic should be restricted to the existing access roads and the proposed power line servitude as far as practically possible • A regulated speed limit of ≤ 40 km per hour will be maintained to minimise dust generation during the construction activities

28.2. Operational phase mitigation measures

The operational phase of the proposed project will continue to generate impacts that require attention. If proper management strategies are not implemented the impacts would accumulate and create environmental risks. This section will outline the measures to be implemented during the operational phase of the project.

Table 14: Operational phase

Activity	Potential Impact	Aspect	Mitigation/Management Measures
Mining Activities: Open cast Excavations	Alteration of the Geology of the area	Geology	• No mitigation measures are possible, as mining permanently destroys the geological strata. • The mining operations will remain within the limits of the designated mining rights area.
Open Cast pit mining Operational	Soil pollution and contamination	Soil	• Store fuel, chemicals and other hazardous substances in suitable secure weather-proof containers with impermeable and bunded floors to limit pilferage, spillage into the environment, flooding or storm damage. • Ensure that the excavator and frontend loader are properly maintained. Equipment must be regularly serviced and inspected to make sure there are no leaks of oil, diesel, fuel, detergents or hydraulic fluids. • Under no circumstances should oil or diesel to be disposed of at the site.
Open Cast pit mining Operational	Soil compaction	Soil	• Tracked vehicles are more desirable than wheeled vehicles due to their lower point loading and slip, while vehicle speed should be maintained in order to reduce the duration of applied pressure, thereby minimizing compaction • Compacted soils must be ripped.
Open Cast pit mining Operational	Dust pollution due to exposure to loosen soils	Air Quality	• Dust suppression measures such as spraying of water on site access route and around site must be implemented. • Speed limits will be established and enforced on the mine to minimise dust generation. • Areas with difficulty to manage fallout dust and erosion may be treated with chemical dust suppressant or paved as opposed to using water
Open Cast pit mining Operational	Ore will be stockpiled at the stockpile and load out areas	Soil and land Capability	• The stockpile and load out area (where stockpiling will take place) should be lined; • Boreholes will be placed in positions to determine the upstream and downstream water quality of all dirty water systems;

Activity	Potential Impact	Aspect	Mitigation/Management Measures
	Poor visibility due to dust creation	Visual	• Implement dust suppression spraying where necessary to restrict the visual impact of dust emissions.
	Chemical soil pollution	Soil and land Capability	• A comprehensive Material Safety Data Sheet list must be drawn up of all chemicals stored on site. • Contaminated soils must be managed as hazardous material and treated accordingly. • Accidental spillage must be minimised and contained.
Open Cast pit mining Operational	Loss or degradation of natural fauna habitat	Fauna and Flora	• Before mining operations can commence, the Mining Manager in consultation with the ECO must clearly demarcate the mining footprint and the access road footprint. • Any fauna found on the stockpile site needs to be relocated away from the mining site without causing any damage or harm
	Contamination from dirty runoff	Surface Water	• Storm water Management Plan implemented and maintained; • All spills must be cleaned immediately. • A 100M buffer must be maintained from the edge of Mzumbe river during mining
	Increase in population size	Socio-Economic	• Employment criteria should be communicated to the community in advance (e.g. in newspapers, community forum notice boards, etc); • Local labour should be employed as far as possible;
	Employment creation and decrease in unemployment	Socio-Economic	• Non-locals should only be hired when specialist skills, which are not available locally • Local residents and communities must be employed, wherever possible; • Local construction companies must be used whenever possible, especially for subcontracting work. • Local suppliers should be used as far as possible

Activity	Potential Impact	Aspect	Mitigation/Management Measures
Open Cast pit mining Operational	Generation of waste	Waste management	• Littering must be prohibited, and all waste generated from the site must be cleared. A 'no waste dumping' sign should also be placed on site. • Waste generated by workers must be collected and disposed of weekly at the nearest registered landfill. • Store waste in labelled containers, indicating clearly whether the waste is hazardous or non-hazardous (general waste). • Burning of waste material will not be permitted. • Absorbent materials used to clean up spillages should be disposed of in a separate hazardous waste bin
Open Cast pit mining Operational	Increase in noise Levels	Noise	• When working near residential area the Contractor shall limit the number of simultaneous activities to the minimum • At all stages surrounding community must be informed with respect to the potential increase of noise from the mine. The information presented to stakeholders must be factual and must not set unrealistic expectations. • Ensuring that equipment is well maintained and fitted with the correct and appropriate noise abatement measures. • All machines should be roadworthy and should be equipped with appropriate noise reduction equipment.
Open Cast pit mining Operational	• Damage to road infrastructure. • Increased traffic	Traffic	• Traffic control measures aimed at reducing the entrainment of material by restricting traffic volumes and reducing vehicle speeds • Speed limits must be established and enforced on the mine to minimise accidents • Traffic signs to be put around the site to notify motorists and drivers about the activities • The mine shall ensure that the internal haul roads are adequately maintained, including monthly scraping where required.

Activity	Potential Impact	Aspect	Mitigation/Management Measures
Open Cast pit mining Operational	• Fire and explosion hazard. • Flying rock.	Health and Safety	• Personal Protective Equipment (PPE) must be provided to employees by the mine and each employee must ensure that they wear correct PPE at all times • The mine must implement a safety reporting procedure to ensure that all accidents and incidents (safety and environmental) are recorded.
Open Cast pit mining Operational	Discovery of graves and other heritage resources	Heritage Resources	• Should artefacts or archaeological items be observed, then all activity should cease immediately, the area marked off and a specialists consulted prior to any further activity • Should graves be observed on site during activity progress then all activity should cease and the area demarcated as a no-go zone
Open Cast pit mining Operational	Ground water Pollution though oil spills	Ground water	• Vehicles and equipment must be regularly serviced and maintained. • Refuelling of vehicles and equipment must be done with care to minimise chance of spillages. • Dip trays must be placed under parked vehicles and machinery.
Open Cast pit mining Operational	• Direct and indirect mortality of flora and fauna. • Habitat destruction • Introduction of invasion alien Plants.	Flora and Fauna	• Weed management plan must developed and implemented throughout the lifespan of the project • The weed management plan must include appropriate measures for removal/control of alien vegetation across the entire site.
Open Cast pit mining Operational	Ground vibration and human perception.	Ground vibration and human perception.	• Detailed blast design for each blast with consideration of the effects from blasting • Calculate expected ground vibration levels for blast to be done and if necessary, re-design to reduce charge mass • Record stemming lengths for each blast and correct, if necessary, prior to every blast blasted. • Surrounding community must be notified of the date and time of the blasting.

28.3. Decommissioning Phase

The decommissioning phase of the mining activities will see a decrease in negative impacts as the site will be under rehabilitation. Once rehabilitation is completed, the post-operation impacts will be very minimal. It is to be noted that the decommission and rehabilitation process also have negative impacts, however, such impacts are not of the magnitude of the operational phase. This section outlines mitigation measures that must be implemented during the decommissioning phase of the project.

Table 15: Decommissioning phase

Activity	Potential Impact	Aspect	Mitigation/Management measures
Transport to remove infrastructure	Soil Compaction	Soil and Land Capability	• Tracked vehicles are more desirable than wheeled vehicles due to their lower point loading and slip, while vehicle speed should be maintained in order to reduce the duration of applied pressure, thereby minimizing compaction • Compacted soils must be ripped.
Spillage of used hydrocarbons or chemical	Chemical Soil Pollution	Soil and Land Capability	• All chemicals should be stored in bunded areas with a capacity of no less than 110% of the content • Should vehicles be serviced on site, this has to be undertaken in surfaced and contained areas • In addition to the above, drip trays should be utilised; • A comprehensive Material Safety Data Sheet list will be drawn up of all chemicals stored on site. • Contaminated soils must be managed as hazardous material • Accidental spillage must be minimised and contained; • The spilled substance must be captured and stored in a suitable container within bunded area • Determine the depth and width that the oil/diesel has penetrated into the soil as far as possible, by digging up the polluted soil (excavating); and • Remove the polluted ground to one side and mix it thoroughly with the bioremediation powder • All fluids must be contained within properly constructed enclosure with concrete flooring Fuel tanks should be placed and operated such that accidental spillage potential is minimized and contained.

Activity	Potential Impact	Aspect	Mitigation/Management measures
Removal of infrastructure	• Direct impacts on flora species of conservation importance • Loss or degradation of natural vegetation/ pristine habitat • Direct impacts on ecological connectivity & ecosystem functioning • Increase in alien invasive plant	Flora	• Prohibit activities outside of the footprint area; • Prevent contamination of natural habitat from any source of pollution; • Prohibit all open fires; • Provide demarcated fire-safe zones, facilities and suitable fire control measures; • Use of branches of trees, shrubs or any vegetation for fire making purposes is strictly prohibited; • The irresponsible use of welding equipment, oxyacetylene torches and other naked flames, which could result in veld fires, or constitute a hazard and should be guided by safe practice guidelines; • Access is to be established by vehicles passing over the same track on natural ground.
Removal of infrastructure	• Loss/ degradation of surrounding habitat • Increase in local and regional fragmentation/ isolation of habitat	Fauna	• Prohibit activities outside of the footprint area • Prevent contamination of natural habitat from any source of pollution; • Prohibit all open fires; • Provide demarcated fire-safe zones, facilities and suitable fire control measures.
Removal of infrastructure	Dust Creation	Air Quality	• Implement dust suppression spraying where necessary. • Limit the movement of vehicle to established haul roads as far as possible.
Closure Period	Contamination from dirty runoff	Surface Water	• Storm water Management Plan maintained until after rehabilitation • All clean and dirty water systems will remain up until all contaminated sources have been removed.
	Impact on Heritage sites on the proposed area	Heritage	• Report all uncovered heritage and archaeological artefacts to the local heritage agency

Activity	Potential Impact	Aspect	Mitigation/Management measures
Removal of infrastructure			• All heritage and archaeological artefacts and graves uncovered during operations will handled by the specialist. • Graves should be left in situ, geo-referenced and left alone until investigated by an archaeologist.
Removal of infrastructure	Improved Visual Impact	Visual Impact	• Removal of infrastructure will improve general visual impact of the area.
Rehabilitation activities	Improved soil conditions	Soil and land Capability	• Implementation of the rehabilitation Plan. • Topsoil will be sampled to determine the quality thereof. A soil specialist will be involved to fertilise the soils where required • All compacted areas will be ripped and ameliorated where required. • Rehabilitated areas must be fenced off up until it is determined that the landscape is stable.
Rehabilitation activities	Positive impact on topography	Topography	• The area will be shaped to be free draining.
Rehabilitation activities	Improvement of vegetation	Flora	• The rehabilitation activities will be undertaken in such a manner to promote the self-succession of vegetation. • Should it be found that self-succession is not taking place the mine will investigate manners (such as vegetating the area) to promote a seedbed formation • The weed management programme will be maintained up until closure is obtained • Rehabilitated areas will be fenced off up until it is determined that the landscape is stable.
Rehabilitation activities	Contaminated runoff	Surface water	• Storm water Management Plan will be maintained until rehabilitation activities have been completed and the area is regarded as stable.

Activity	Potential Impact	Aspect	Mitigation/Management measures
			• At that stage, the infrastructure will be removed and the area will be shaped to ensure free drainage.
Spreading of contaminant plume	Poor quality leachate from Slimes dam	Ground water	• Nitrate concentration will decrease over time due to leaching by infiltrating rainwater leaching by infiltrating rainwater.
Demolishing of all surface infrastructure	• Habitat loss due to inappropriate demolition practices, • inefficient rehabilitation of disturbed areas	Biodiversity	• Rehabilitation of disturbed areas must be implemented and grass seeds of species indigenous to the area must be used • Monitoring and control of Alien Invasive Plant (AIP) must be done during the decommissioning and closure phase • Disturbed areas caused during the demolition activities need to be ripped and rehabilitated and seeded with grass seeds indigenous to the area • Care must be taken when rehabilitation activities need to be performed within wetlands and associated buffer zones as these areas are sensitive and manual labour needs to be the preferred option.

29. Other Information required by the competent Authority

Compliance with the provisions of sections 24(4)(a) and (b) read with section 24 (3) (a) and (7) of the National Environmental Management Act (Act 107 of 1998). the EIA report must include the following:-

29.1. Impact on the socio-economic conditions of any directly affected person.

(Provide the results of Investigation, assessment, and evaluation of the impact of the mining, bulk sampling or alluvial diamond prospecting on any directly affected person including the landowner, lawful occupier, or, where applicable, potential beneficiaries of any land restitution claim, attach the investigation report as **Appendix 2.19.1** and confirm that the applicable mitigation is reflected in 2.5.3; 2.11.6.and 2.12.herein).

Activities associated with the project will be limited to the project area, as far as possible. Where SA Lithium (Pty) Ltd is not the surface rights' holder, negotiations with the landowner will commence to either acquire or lease the land.

29.2. Impact on any national estate referred to in section 3(2) of the National Heritage Resources Act.

(Provide the results of Investigation, assessment, and evaluation of the impact of the mining, bulk sampling or alluvial diamond prospecting on any national estate referred to in section 3(2) of the National Heritage Resources Act, 1999 (Act No. 25 of 1999) with the exception of the national estate contemplated in section 3(2)(*i*)(vi) and (vii) of that Act, attach the investigation report as **Appendix 2.19.2** and confirm that the applicable mitigation is reflected in 2.5.3; 2.11.6.and 2.12.herein).

The impact on any national estate referred to in section 3(2) of the National Heritage Resources Act will however be investigated during the EIA process through Heritage Impacts Assessment study.

SAHRA and the provincial agency will be notified as an organ of state through the various PPP procedures described in this Scoping Report. Such report and such findings of the assessment will be incorporated into the EIR / EMPr for submission.

29.3. Other matters required in terms of sections 24(4)(a) and (b) of the Act.

(the EAP managing the application must provide the competent authority with detailed, written proof of an investigation as required by section 24(4)(b)(i) of the Act and motivation if no reasonable or feasible alternatives, as contemplated in sub-regulation 22(2)(h), exist. The EAP must attach such motivation as **Appendix 4)**.

When completing the EIA phase of the application, Section 24 (4)(a) and (b) will be used as a checklist to ensure that all procedural requirements for the environmental authorisation process have been achieved. On feasible alternatives, there are currently no alternatives and this is so because this specific site has been chosen for its mineral resources thus making an alternative site selection null and void.

Any further changes will be described and motivated in the EMPr once the specialist studies are completed.

30. UNDERTAKING REGARDING CORRECTNESS OF INFORMATION

I **Lufuno Precilla Mutshathama** herewith undertake that the information provided in the foregoing report is correct, and that the comments and inputs from stakeholders and Interested and Affected parties has been correctly recorded in the report.

_____
Signature of the EAP
DATE:

31. UNDERTAKING REGARDING LEVEL OF AGREEMENT

I **Lufuno Mutshathama** herewith undertake that the information provided in the foregoing report is correct, and that the level of agreement with interested and Affected Parties and stakeholders has been correctly recorded and reported herein.

_____
Signature of the EAP
DATE:

-END-