

## SUMMARY OF THE PROPOSED MINING OPERATION.

### 1. List of activities, scale and extent of activities applied for

All mining related activities for the recovering of Manganese and Iron by means of open cast mining:

NAME OF ACTIVITY	ARIAL EXTENT OF THE ACTIVITY HA OR M <sup>2</sup>	APPLICABLE LISTING NOTICE
<b>Mining</b>	<b>± 1 345.22 ha</b>	NEMA 2017, GNR 325, Listed 2, Activity 15: The clearance of an area of 20 hectares or more of indigenous vegetation
Excavation	Total: 1 076 ha Per year: 53.8 ha	<p>NEMA 2017, GNR 325, Listed 2, Activity 17: 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 ..., including (a) associated infrastructure, structures and earthworks, directly related to the extraction of a mineral resource ...</p> <p>NEMA 2017, GNR 327, Listed 1, Activity 22: the decommissioning of any activity requiring – (i) a closure certificate in terms of Section 43 of the Mineral and Petroleum Resources Development Act, 2002 ...; or (ii) a ... Mining Right ..., where the throughput of the activity has reduced by 90% or more over a period of 5 years excluding ...</p>
Topsoil	Total: 60.26 ha Per year: 3.01 ha	<p>NEMA 2017, GNR 325, Listed 2, Activity 17: 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 ..., including (a) associated infrastructure, structures and earthworks, directly related to the extraction of a mineral resource ...</p> <p>NEMA 2017, GNR 327, Listed 1, Activity 22: the decommissioning of any activity requiring – (i) a closure certificate in terms of Section 43 of the Mineral and Petroleum Resources Development Act, 2002 ...; or (ii) a ... Mining Right ..., where the throughput of the activity has reduced by 90% or more over a period of 5 years excluding ...</p>
Overburden	Total: 96.84 ha Per year: 4.84 ha	NEMA 2017, GNR 325, Listed 2, Activity 17: 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 ..., including (a) associated infrastructure, structures and earthworks, directly related to the extraction of a mineral resource ...

		NEMA 2017, GNR 327, Listed 1, Activity 22: the decommissioning of any activity requiring – (i) a closure certificate in terms of Section 43 of the Mineral and Petroleum Resources Development Act, 2002 ...; or (ii) a ... Mining Right ....., where the throughput of the activity has reduced by 90% or more over a period of 5 years excluding ...
Ore dumps	Total 71.51 ha Per month: 0.30 ha	<p>NEMA 2017, GNR 325, Listed 2, Activity 17: 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 ..., including (a) associated infrastructure, structures and earthworks, directly related to the extraction of a mineral resource ...</p> <p>NEMA 2017, GNR 327, Listed 1, Activity 22: the decommissioning of any activity requiring – (i) a closure certificate in terms of Section 43 of the Mineral and Petroleum Resources Development Act, 2002 ...; or (ii) a ... Mining Right ....., where the throughput of the activity has reduced by 90% or more over a period of 5 years excluding ...</p> <p>NEMWA 2015, GNR 633, Category A, Activity 15: The continuous establishment and reclamation of temporary stockpiles resulting from activities which require a ... Mining Right ...</p>
Waste dumps	Total: 40.48 ha Per month: 0.17 ha	<p>NEMA 2017, GNR 325, Listed 2, Activity 17: 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 ..., including (a) associated infrastructure, structures and earthworks, directly related to the extraction of a mineral resource ...</p> <p>NEMA 2017, GNR 327, Listed 1, Activity 22: the decommissioning of any activity requiring – (i) a closure certificate in terms of Section 43 of the Mineral and Petroleum Resources Development Act, 2002 ...; or (ii) a ... Mining Right ....., where the throughput of the activity has reduced by 90% or more over a period of 5 years excluding ...</p> <p>NEMWA 2014, GNR 449, Category B (General Waste), Activity 13: Inert waste ... (c) discarded soil, stones ...</p>

Stockpiles	0.13 ha	<p>NEMA 2017, GNR 325, Listed 2, Activity 17: 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 ..., including (a) associated infrastructure, structures and earthworks, directly related to the extraction of a mineral resource ...</p> <p>NEMWA 2015, GNR 633, Category A, Activity 15: The continuous establishment and reclamation of temporary stockpiles resulting from activities which require a ... Mining Right ...</p> <p>NEMA 2017, GNR 327, Listed 1, Activity 22: the decommissioning of any activity requiring – (i) a closure certificate in terms of Section 43 of the Mineral and Petroleum Resources Development Act, 2002 ...; or (ii) a ... Mining Right ....., where the throughput of the activity has reduced by 90% or more over a period of 5 years excluding ...</p>
<b>Mine related structures</b>	<b>± 4.0517 ha</b>	NEMA 2017, GNR 327, Listed 1, Activity 27: The clearance of an area of 1 hectares or more, but less than 20 ha of indigenous vegetation ...
Office site	0.0025 ha	<p>NEMA 2017, GNR 325, Listed 2, Activity 17: 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 ..., including (a) associated infrastructure, structures and earthworks, directly related to the extraction of a mineral resource ...</p> <p>NEMA 2017, GNR 327, Listed 1, Activity 22: the decommissioning of any activity requiring – (i) a closure certificate in terms of Section 43 of the Mineral and Petroleum Resources Development Act, 2002 ...</p> <p>NEMWA 2014, GNR 449, Category B (General Waste), Activity 12 – Domestic Wastes: ... (b) municipal waste, (c) food waste</p>
Processing site	1 ha	
2 way mobile Scalper Mobile Jaw Crusher 2-deck mobile Screen Single deck mobile Screen Rock breaker		NEMA 2017, GNR 325, Listed 2, Activity 17: 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 ..., including (b) ... the primary processing of a mineral resources including winning, extraction, classifying, concentrating, crushing, screening or washing; ...

		<p>NEMA 2017, GNR 325, Listed 2, Activity 21: Any activity including the operation of that activity associated with the primary processing of a mineral resource including, winning, reduction, extraction, classifying, concentrating, crushing screening and washing, but ...</p> <p>NEMA 2017, GNR 327, Listed 1, Activity 22: the decommissioning of any activity requiring – (i) a closure certificate in terms of Section 43 of the Mineral and Petroleum Resources Development Act, 2002 ...; or (ii) a ... Mining Right ..., where the throughput of the activity has reduced by 90% or more over a period of 5 years excluding ...</p> <p>NEMWA 2014, GNR 449, Category B (Hazardous Waste, Activity 12 – Oil wastes and wastes of liquid fuels (except edible oils) – (a) waste hydraulic oils, (b) waste engine, gear and lubricating oils, (c) waste insulating and heat transmission oils, ..., (e) waste of liquid fuels, (f) hazardous portion of other oil wastes</p> <p>NEMWA 2014, GNR 449, Category B (General Waste), Activity 11 – Building and demolition waste ... (e) other discarded building and demolition waste</p>
Water reticulation dam		<p>NEMA 2017, GNR 325, Listed 2, Activity 17: 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 ..., including (a) associated infrastructure, structures and earthworks, directly related to the extraction of a mineral resource ...</p> <p>NEMA 2017, GNR 327, Listed 1, Activity 22: the decommissioning of any activity requiring – (i) a closure certificate in terms of Section 43 of the Mineral and Petroleum Resources Development Act, 2002 ...</p>
Ablution facility	0.0016 ha	<p>NEMA 2017, GNR 325, Listed 2, Activity 17: 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 ..., including (a) associated infrastructure, structures and earthworks, directly related to the extraction of a mineral resource ...</p>

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Vehicle parking	0.0358 ha	
<p>Parking lot</p> <p>Wash bay</p> <p>Parts storeroom</p> <p>Scrap yard</p>	<p>0.02 ha</p> <p>0.006 ha</p> <p>0.0048 ha</p> <p>0.005 ha</p>	<p>NEMA 2017, GNR 325, Listed 2, Activity 17: 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 ..., including (a) associated infrastructure, structures and earthworks, directly related to the extraction of a mineral resource ...</p> <p>NEMA 2017, GNR 327, Listed 1, Activity 22: the decommissioning of any activity requiring – (i) a closure certificate in terms of Section 43 of the Mineral and Petroleum Resources Development Act, 2002 ...</p> <p>NEMWA 2014, GNR 449, Category B (Hazardous Waste), Activity 12 – Oil waste and wastes of liquid fuels (except edible oils) – (a) waste hydraulic oils, (b) waste engine, gear and lubricating oils, (c) waste insulating and heat transmission oils, (d) oil/water separator contents, ...</p> <p>NEMWA 2014, GNR 449, Category B (General Waste), Activity 12 – Domestic wastes: ... (b) municipal waste ...</p> <p>NEMWA 2014, GNR 449, Category B (General waste), Activity 13: Inert waste ... (a) discarded concrete ...</p>
Workshop facility	00.005 ha	<p>NEMA 2017, GNR 325, Listed 2, Activity 17: 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 ..., including (a) associated infrastructure, structures and earthworks, directly related to the extraction of a mineral resource ...</p>

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Chemical and hydrocarbon fluid storage	0.0025 ha	<p>NEMA 2017, GNR 325, Listed 2, Activity 17: 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 ..., including (a) associated infrastructure, structures and earthworks, directly related to the extraction of a mineral resource ...</p> <p>NEMA 2017, GNR 327, Listed 1, Activity 22: the decommissioning of any activity requiring – (i) a closure certificate in terms of Section 43 of the Mineral and Petroleum Resources Development Act, 2002 ...</p> <p>NEMWA 2014, GNR 449, Category B (Hazardous Waste), Activity 12 – Oil wastes and wastes of liquid fuels (except edible oils) – (a) waste hydraulic oils, (b) waste engine, gear and lubricating oils, (c) waste insulating and heat transmission oils, (d) oil/water separator contents, (e) waste of liquid fuels, (f) hazardous portion of other oil wastes</p> <p>NEMWA 2014, GNR 449, Category B (General waste), Activity 13: Inert waste ... (a) discarded concrete ...</p>

Diesel storage	0.0025 ha	<p>NEMA 2017, GNR 325, Listed 2, Activity 17: 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 ..., including (a) associated infrastructure, structures and earthworks, directly related to the extraction of a mineral resource ...</p> <p>NEMA 2017, GNR 327, Listed 1, Activity 22: the decommissioning of any activity requiring – (i) a closure certificate in terms of Section 43 of the Mineral and Petroleum Resources Development Act, 2002 ...</p> <p>NEMWA 2014, GNR 449, Category B (Hazardous Waste), Activity 12 – Oil wastes and wastes of liquid fuels (except edible oils) - ... (d) oil/water separator contents, (e) waste of liquid fuels ...</p> <p>NEMWA 2014, GNR 449, Category B (General Waste), Activity 13: Inert waste ... (a) discarded concrete</p>
Domestic waste facility	0.0008 ha	<p>NEMA 2017, GNR 325, Listed 2, Activity 17: 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 ..., including (a) associated infrastructure, structures and earthworks, directly related to the extraction of a mineral resource ...</p> <p>NEMA 2017, GNR 327, Listed 1, Activity 22: the decommissioning of any activity requiring – (i) a closure certificate in terms of Section 43 of the Mineral and Petroleum Resources Development Act, 2002 ...</p> <p>NEWA 2014, GNR 449, Category b (General Waste), Activity 12 – Domestic wastes: ... (b) municipal waste, (c) food waste</p>
Generator and power lines	0.001 ha	<p>NEMA 2017, GNR 325, Listed 2, Activity 17: 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 ..., including (a) associated infrastructure, structures and earthworks, directly related to the extraction of a mineral resource ...</p>

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Security points		<p>NEMA 2017, GNR 325, Listed 2, Activity 17: 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 ..., including (a) associated infrastructure, structures and earthworks, directly related to the extraction of a mineral resource ...</p> <p>NEMA 2017, GNR 327, Listed 1, Activity 22: the decommissioning of any activity requiring – (i) a closure certificate in terms of Section 43 of the Mineral and Petroleum Resources Development Act, 2002 ...</p>
Storm water control		<p>NEMA 2017, GNR 325, Listed 2, Activity 17: 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 ..., including (a) associated infrastructure, structures and earthworks, directly related to the extraction of a mineral resource ...</p> <p>NEMA 2017, GNR 327, Listed 1, Activity 22: the decommissioning of any activity requiring – (i) a closure certificate in terms of Section 43 of the Mineral and Petroleum Resources Development Act, 2002 ...</p>
Access and hauling roads	3 ha	<p>NEMA 2017, GNR 325, Listed 2, Activity 17: 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 ..., including (a) associated infrastructure, structures and earthworks, directly related to the extraction of a mineral resource ...</p>



		<p>NEMA 2017, GNR 327, Listed 1, Activity 22: the decommissioning of any activity requiring – (i) a closure certificate in terms of Section 43 of the Mineral and Petroleum Resources Development Act, 2002 ...</p> <p>NEMA 2017, GNR 327, Listed 1, Activity 24: The development of a road - ... (ii) ... where no reserve exists where the road is wider than 8 meters</p> <p>NEMA 2017, GNR 327, Listed 1, Activity 56: The widening of a road by more than 6 meters, or the lengthening of a road by more than 1 kilometer - ... (ii) where no reserve exists ...</p>
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	Activity total
	Grouped activity
	Information unknown / Cannot be determined

## 2. Typical impacts of activities

- Vegetation loss – a total area of < 2 692 200 m<sup>2</sup> will be cleared for mining related structures (topsoil, overburden, ore dumps, waste dump and stock piles) and ± 10 025 m<sup>2</sup> for plant, and office site establishment. The impact can be regarded as medium, with minimum long term effects. If rehabilitation of these areas is done correctly adequate recovery of the environment is possible.
- Noise disturbance – during excavation, hauling and mineral processing activities is noise generated by the machinery. Again the noise will be much localized and should have no impact on the surrounding environment.
- Air quality loss – dust will be generated during the excavating and hauling activities. The dust generated may have an impact on the air quality, but with localized effects and should not have an effect on the surrounding environment. For this the impact can be regarded as low.
- Soil pollution – chemical soil pollution is always a possibility during mechanical mining operations. Working machinery and storage facilities bears a risk for chemical spillage and the impact thereof may be very severe.
- Soil compaction – heavy vehicles driving off-road bears a great risk to the trampling of vegetation and the compaction of the soil. The plant site area will also become compacted during the duration of the mine. If not rehabilitated vegetation re-growth is unforeseen and poses a medium risk to the environment.
- Littering pollution – littering during the mining activities can happen and may have a low to medium impact on the environment depending on the type of littering and the remediation thereof.

- Water pollution – chemical contaminated water from the storage facilities bears a risk to the environment. This impact should always be regarded as high and proper mitigation and/or remediation measures should be in place.

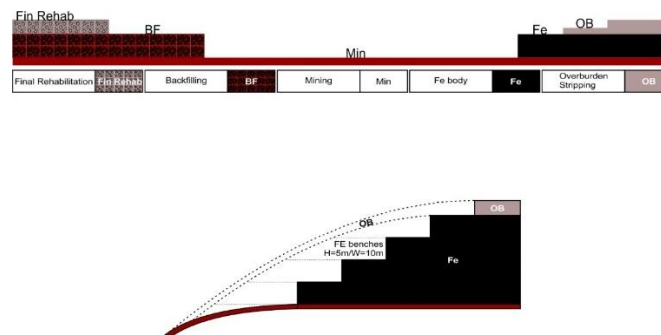
### 3. Duration of each activity

All of the listed activities will be occurring concurrently and the time frame applied for at the Department of Mineral Resources is 30 years which is the duration of the right.

### 4. Details regarding intended operation

The method of mining to be applied in opencast bench mining. Against the hills it will be mine from the top and on the flats, once overburden is stripped, as a single bench varying in thickness up to 5 m.

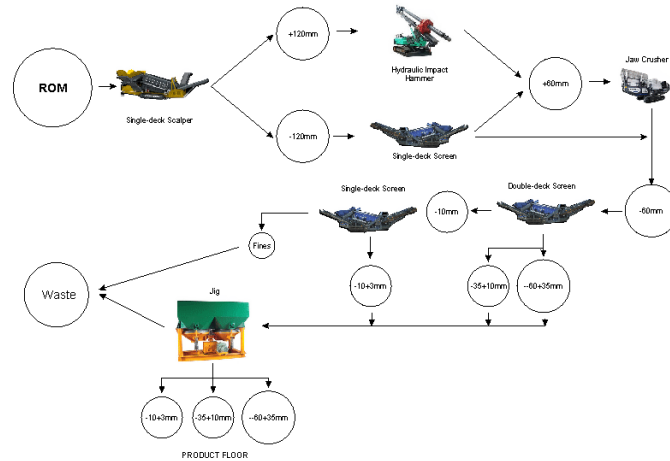
Due to the competency of the iron ore benches of 5 m high and 10 m wide is envisaged to allow loading, hauling and safe transport. The bench slope angle should be 80°. Overburden and topsoil layers would be removed with bench heights of 3 m and slope angles of 60°



The ore material removed and transported to the plant site will be scalped to remove all +120 mm material. This material will be broken up to -120 mm with a hydraulic Impact hammer mounted onto a 30 to 35 ton excavator.

The scalped material will then be screened to remove all -60 mm material. The +60 mm will be crushed down to -60 mm to break loose the -40 mm Fe (interlayered waste) material. The initial -60 mm material will be added and screened into -60+35 mm, -35+10 mm and -10+3 mm fractions. Each fraction will be stockpiled independently for washing purposes by using a jig. The jig will be used to separate the -40% Fe, in the process upgrading the material to ±55% Fe.

The +40% Fe will be transferred back to the mining areas on the flats where the mining is below the surrounding surfaces for backfilling purposes, together with the fine generated in the plant. The +55% Fe will be stockpiled on the product floors from where it will be sold in the fractions as initially screened.



Rehabilitation is planned to occur in the following manner:

- All areas mined below the surrounding surface of the land will be backfilled as part of the mining operation, then covered with the initial topsoil removed as rehabilitation material to encourage plant growth as final part of rehabilitation
- Once the specific pit on the flats has been mined out the mining roads will be lifted if it was made with fines, else it will be ripped to encourage vegetation growth.
- The rehabilitated area will be continuously inspected against invader plant species and to monitor the indigenous vegetation regrowth

During the decommissioning of the project the following will be done to ensure a successful closure

- All mining and mining related infrastructure will be removed from the area and the compacted ground ripped and rehabilitated.
- Mine roads will also be ripped and rehabilitated.
- All rehabilitated areas will be monitored and regularly inspected against invader species as well as monitoring the indigenous vegetation regrowth rate.

The end-land use after final rehabilitation would probably the continuation of farming activities, but is dependable on the decision of the land owner.