

# SISHEN IRON ORE COMPANY (PTY) LTD

## APPLICATION FOR ENVIRONMENTAL AUTHORISATION DEVELOPMENT AND OPERATION OF WASTE TYRE MANAGEMENT FACILITY NEAR KATHU IN THE NORTHERN CAPE PROVINCE

### Draft Basic Assessment Report (BAR)

March 2022

Revision 00

**DENC REF:** NC/BA/06/JTG/GAM/KAT1/2022

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Environment & Nature Conservation  
NORTHERN CAPE PROVINCE  
REPUBLIC OF SOUTH AFRICA

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**File Reference Number:**

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**Date Received:**


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**Basic Assessment Report in terms of the Environmental Impact Assessment Regulations, 2014, promulgated in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended.**

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**Kindly note that:**

1. This **basic assessment report** is a standard report that may be required by a competent authority in terms of the EIA Regulations, 2014 and is meant to streamline applications. Please make sure that it is the report used by the particular competent authority for the activity that is being applied for.
2. This report format is current as of 07 April 2017. It is the responsibility of the applicant to ascertain whether subsequent versions of the form have been published or produced by the competent authority
3. The report must be typed within the spaces provided in the form. The size of the spaces provided is not necessarily indicative of the amount of information to be provided. The report is in the form of a table that can extend itself as each space is filled with typing.
4. Where applicable **tick** the boxes that are applicable in the report.
5. An incomplete report may be returned to the applicant for revision.
6. The use of “not applicable” in the report must be done with circumspection because if it is used in respect of material information that is required by the competent authority for assessing the application, it may result in the rejection of the application as provided for in the regulations.
7. This report must be handed in at offices of the relevant competent authority as determined by each authority.
8. No faxed or e-mailed reports will be accepted.
9. The signature of the EAP on the report must be an original signature.
10. The report must be compiled by an independent environmental assessment practitioner.
11. Unless protected by law, all information in the report will become public information on receipt by the competent authority. Any interested and affected party should be provided with the information contained in this report on request, during any stage of the application process.
12. A competent authority may require that for specified types of activities in defined situations only parts of this report need to be completed.
13. Should a specialist report or report on a specialised process be submitted at any stage for any part of this application, the terms of reference for such report must also be submitted.

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**SECTION A: ACTIVITY INFORMATION**

Has a specialist been consulted to assist with the completion of this section?

YES  NO

If YES, please complete the form entitled "Details of specialist and declaration of interest" for the specialist appointed and attach in Appendix I.

**1. ACTIVITY DESCRIPTION****a) Describe the project associated with the listed activities applied for****1. Background**

Sishen Iron Ore Company (Pty) Ltd ("SIOC") proposes to develop a facility for the storage and mechanical downsizing (cutting, shredding and granulation) of waste tyres on the Remaining Extent of farm Sekgame 461 Kuruman RD. The site is located 1.7km south-west of the centre of Kathu in the Gamagara Local Municipality, adjacent (south) to an existing industrial area. The closest residential area is located 460m north-east of the site.

Waste tyres will be transported to the site and downsized to approximately 30-60mm, or smaller. The product will be transported to offsite facilities for further processing. No further processing (recycling or recovery) of the processed material will be undertaken and therefore no Waste Management Licence (WML) is required in terms of the National Environmental Management: Waste Act (No. 59 of 2008).

The facility will however require registration in terms of the Norms and Standards for the Storage of Waste (GN 926) as well as the Norms and Standards for the Sorting, Shredding, Grinding, Crushing, Screening or Baling of General Waste (GN 1093). The facility will be located approximately 320m from a cryptic wetland and therefore requires a General Authorisation registration in terms of Government Notice (GN) 509 of 2016 for Activities listed in Section 21(c)& (i) of the National Water Act (No. 36 of 1998).

**2. Infrastructure required**

The proposed facility including the associated infrastructure will require the clearance of indigenous vegetation (mostly previously disturbed) of approximately 8.4 hectares and will entail the development of the following structures/infrastructure.

- A building which contains equipment for shredding/cutting of waste tyres;
- Security office;
- Staff building with cafeteria;
- Admin and finance building;
- Diesel storage area (approximately 10m<sup>3</sup>);
- Refuelling station;
- Small water tank for firefighting purposes;
- Waste tyre storage area;
- Product storage area;

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- Workshop and parking areas; and
- Perimeter fence.

Water (potable as well as operational) will be obtained from an existing municipal connection and the site will also connect to the municipal sewer system. Electricity will also be obtained from a municipal connection.

### 3. Process Description

The following provides an overview of the process that will be utilised for the processing of the waste tyres.

#### i. Collection and transportation

The tyres will be collected from suppliers and transported with large trucks on existing roads to the tyre management facility for processing.

#### ii. Sorting and storage

The tyres received at the site will be sorted and placed in different categories at a dedicated storage area according to size and composition. From the storage stockpile, tyres will be transferred via a conveyor or with a loader to the shredder.

#### iii. Shredding

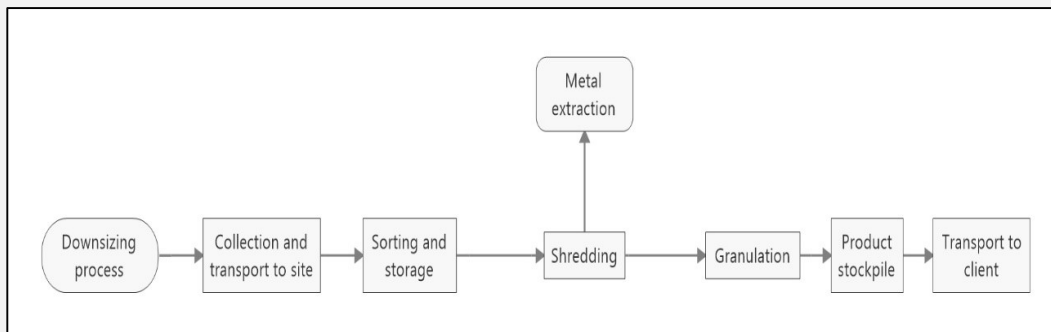
The waste tyres will then be inserted into the primary shredder, which will shred the tyre into small pieces of approximately 30-60mm. Depending on the client's specifications, the size of the shredded pieces will then be further reduced by a granulator (as described in step v).

#### iv. Steel removal

During the shredding process, steel contained in each tyre will be recovered for re-use/recycling off site. The steel wires will be removed by using powerful magnets. Recent development in technology entails the utilisation of "debeading" machines that can remove the steel prior to the shredding process. This preserves the shape and integrity of the steel as it does not pass through a shredder. The steel free tyre "pieces" will then be stored in large hoppers in preparation for the next stage.

#### v. Granulation

Depending on the product size required by the respective clients, the tyre "pieces" can further be cut by tips and blades.



**Figure 1: Process Diagram**

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### 4. Products

Rubber products produced as part of the process include the following:

- Shreds (used in matting, sport surfaces, turf and playgrounds);
- Granules and chips (used in athletic tracks, playgrounds, horse arenas and asphalt);
- Crumbs and powders (used in new tyres, brake pads, road sealing, adhesives and paints); and
- Large shredded tyre chips (used in civil engineering and fuel derivatives).

### 5. Supporting services

The findings from the Civil Engineering Report undertaken by iX Engineers (2021) indicated that the tyre management facility can be accommodated within the existing bulk infrastructure for civil services. The electrical services are however at capacity and the existing mini substation will require an additional 60 Amp pole to supply the facility.

The access roads to the proposed site are existing municipal tarred roads with traffic signs in place. Access to the site will be obtained from Mangaan Street which can be extended to provide an entry point for the site. Generated traffic movements will coincide with industrial flow within the existing area and no additional peak traffic is expected to be generated by the rezoning process. All access roads up to the proposed erven are surfaced with traffic signs in place.

There is an existing 160mm diameter municipal sewer line running along the north-western boundary. A new municipal connection to the existing line will be required for the site.

A 110mm diameter raw water supply pipeline and a 75mm domestic water pipeline of same type are located within the Mangaan Street reserve opposite the south-western boundary of the site. An extension of the existing water reticulation within Mangaan Street will need to be undertaken to provide both raw and domestic water to the site. An existing electricity supply line adjacent to the site will be used for electricity supply.

Services required are therefore available in close proximity to the site and they will not be impacted on by the proposed tyre management facility.

### 6. Specialist studies

The following specialist studies (**Appendix H**) have been undertaken in support of the EA application:

- Terrestrial Biodiversity Assessment (Fauna and Flora)
- Freshwater Aquatic Assessment
- Heritage Impact Assessment
- Desktop Palaeontological Assessment

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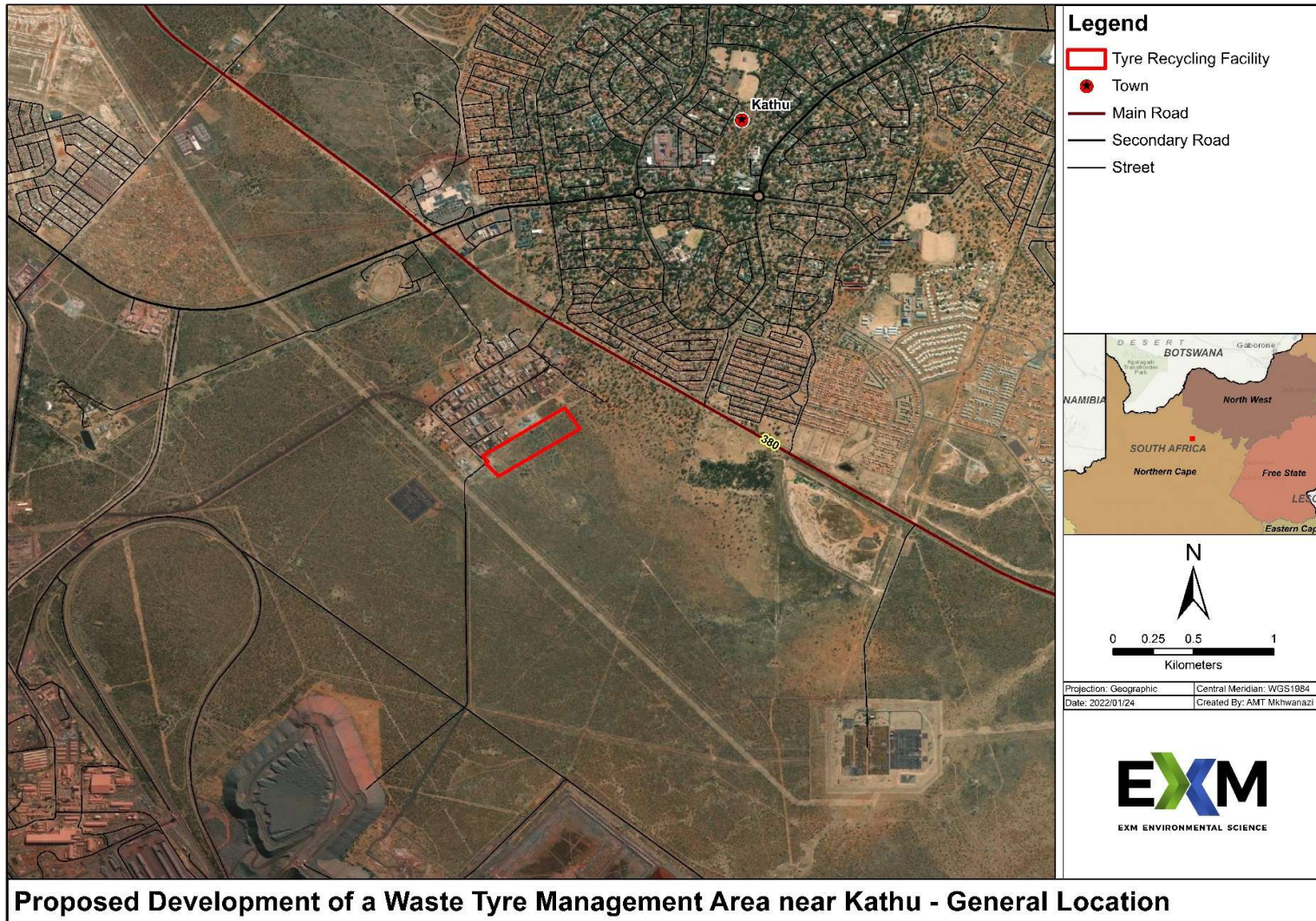


Figure 2: Locality of the Proposed Tyre Management Facility

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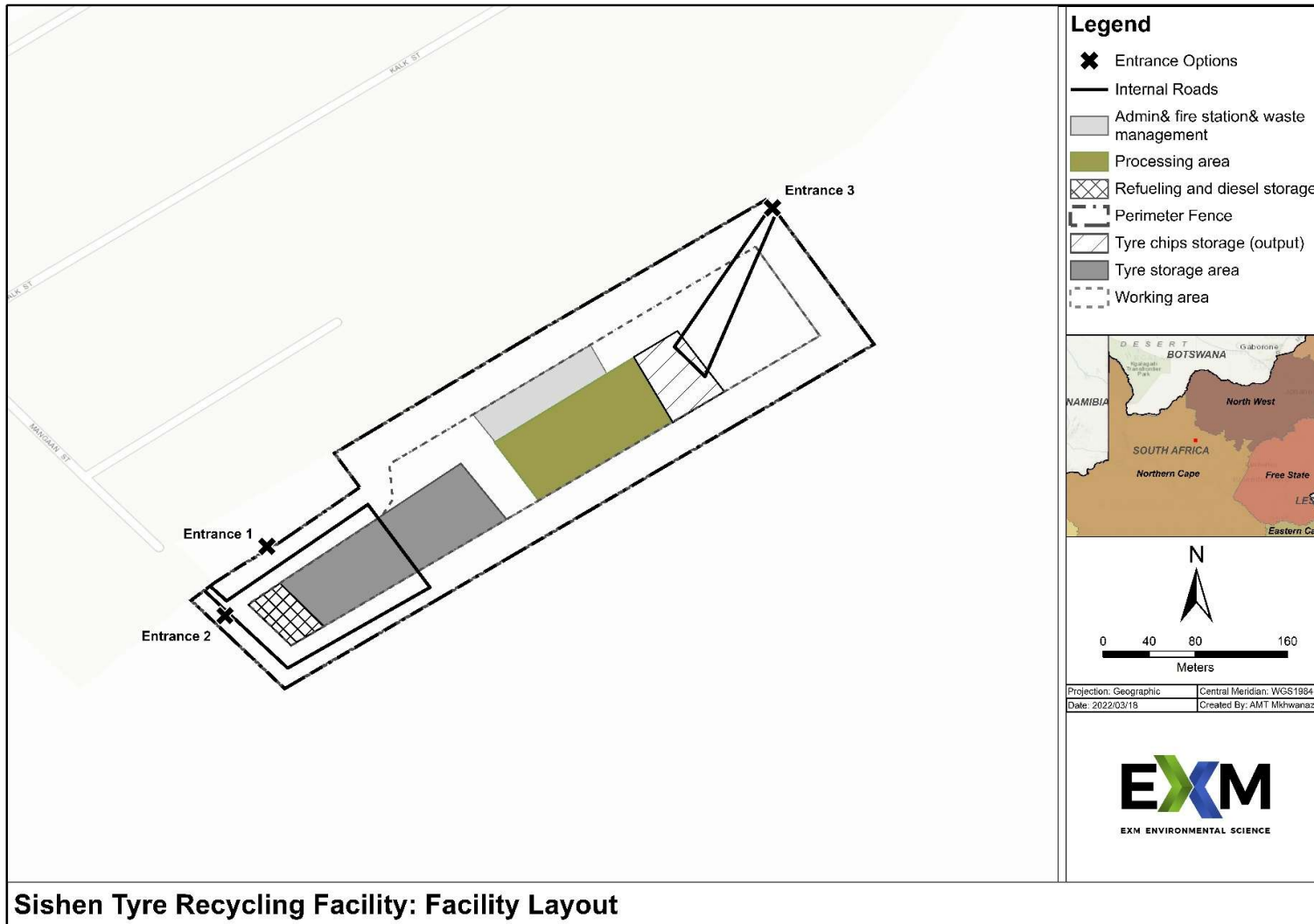


Figure 3: Master Layout of the Tyre Recycling Facility



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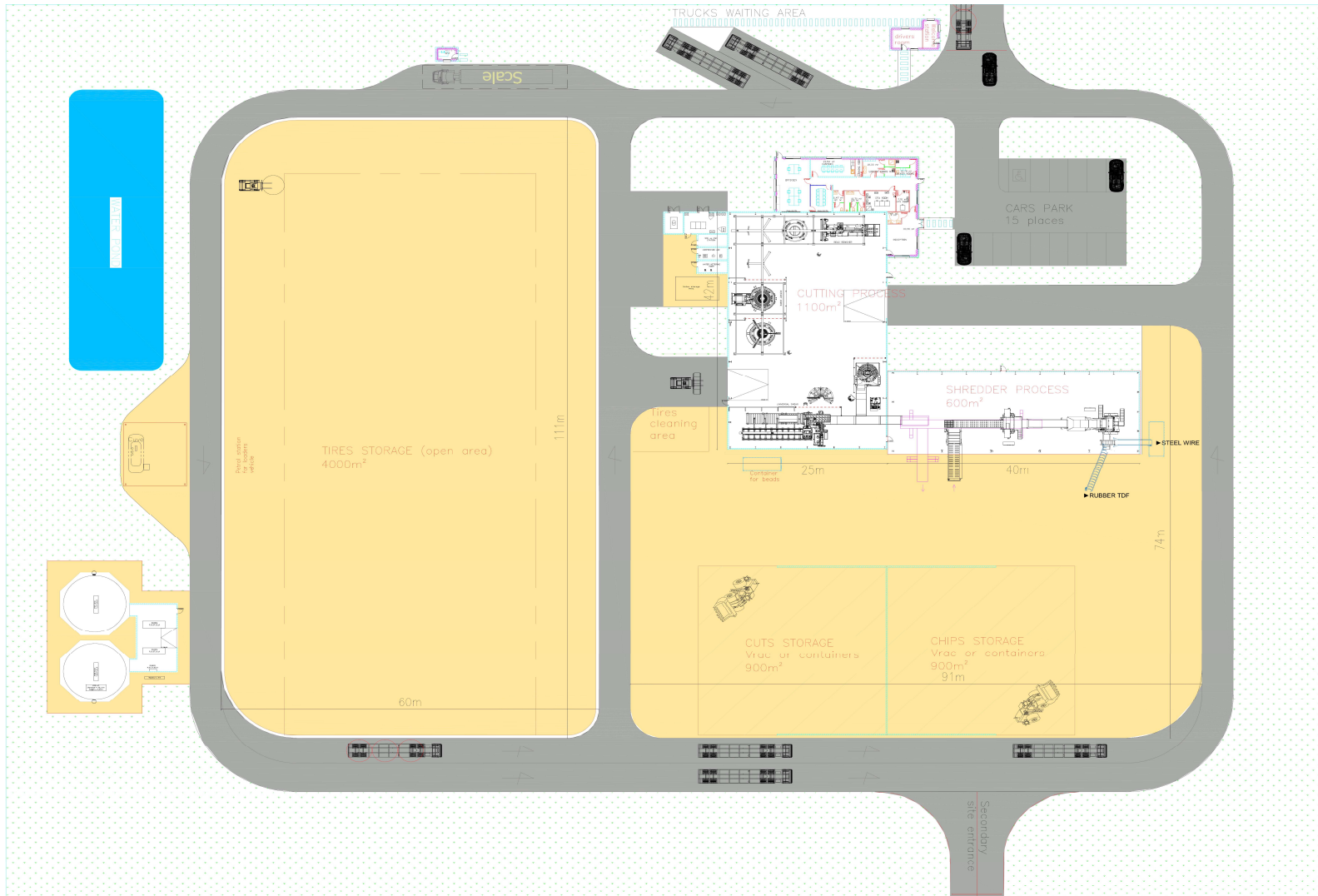


Figure 4: Preliminary Layout of the Tyre Management Facility

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b) Provide a detailed description of the listed activities associated with the project as applied for

National Environmental Management Act (No. 107 of 1998) (NEMA)	Description of project activity
<p><b>GNR 983 of 2014 (as amended by GNR 327 and GNR 517)</b></p> <p><b>Activity 27:</b></p> <p>The clearance of an area of 1 hectare or more, but less than 20 hectares of indigenous vegetation, except where such clearance of indigenous vegetation is required for –</p> <p>i the undertaking of a linear activity; or</p> <p>ii.maintenance purposes undertaken in accordance with a maintenance management plan.</p>	<p>Development of a facility for the storage and mechanical downsizing (cutting, shredding and granulation) of waste tyres. The proposed facility including the associated infrastructure will require the clearance of indigenous vegetation of approximately 8.4 hectares.</p>
<p><b>Activity 28:</b></p> <p>Residential, mixed, retail, commercial, industrial or institutional developments where such land was used for agriculture, game farming, equestrian purposes or afforestation on or after 01 April 1998 and where such development:</p> <p>i.will occur inside an urban area, where the total land to be developed is bigger than 5 hectares; or</p> <p>ii.will occur outside an urban area, where the total land to be developed is bigger than 1 hectare; excluding where such land has already been developed for residential, mixed, retail, commercial, industrial or institutional purposes.</p>	<p>The proposed waste tyre management facility including the associated infrastructure will require the clearance of indigenous vegetation, on land previously used for agriculture, of approximately 8.4 hectares</p>

## 2. FEASIBLE AND REASONABLE ALTERNATIVES

**“alternatives”**, in relation to a proposed activity, means different means of meeting the general purpose and requirements of the activity, which may include alternatives to—

- (a) the property on which or location where it is proposed to undertake the activity;
- (b) the type of activity to be undertaken;
- (c) the design or layout of the activity;
- (d) the technology to be used in the activity;
- (e) the operational aspects of the activity; and

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- (f) the option of not implementing the activity.

Describe alternatives that are considered in this application as required by Appendix 1 (3)(h), Regulation 2014. Alternatives should include a consideration of all possible means by which the purpose and need of the proposed activity (NOT PROJECT) could be accomplished in the specific instance taking account of the interest of the applicant in the activity. The no-go alternative must in all cases be included in the assessment phase as the baseline against which the impacts of the other alternatives are assessed.

The determination of whether site or activity (including different processes, etc.) or both is appropriate needs to be informed by the specific circumstances of the activity and its environment. After receipt of this report the, competent authority may also request the applicant to assess additional alternatives that could possibly accomplish the purpose and need of the proposed activity if it is clear that realistic alternatives have not been considered to a reasonable extent.

Indicate the position of the activity using the latitude and longitude of the centre point of the site for each alternative site. The co-ordinates should be in degrees, minutes and seconds. The projection that must be used in all cases is the WGS84 spheroid in a national or local projection.

a) **Site alternatives**

<b>Alternative 1</b>		
Description	Lat (DDMMSS)	Long (DDMMSS)
<p>The preferred site is approximately 8.4 ha in extent and is located ~1.7km south-west of Kathu. The footprint of the site is rectangular in shape and lies to the south of the existing Kathu industrial area.</p> <p><b>No alternative locations were considered for the development of the proposed facility.</b> The site is situated adjacent to an existing industrial area and is ideally located in terms of the availability of municipal services (water, electricity and sewage) and access to the facility is readily available. The proposed site has been disturbed by historic activities and the majority of the area do not represent the baseline vegetation type, and therefore impacts on biodiversity will be low. The biodiversity study concluded that a low to very low impact significance is anticipated on both fauna and flora in the study area. No impacts are anticipated on residents as the closest residential area is located 460m from the site.</p>	27° 42' 50.98" S	23° 02' 16.09" E
<b>Alternative 2</b>		
Description	Lat (DDMMSS)	Long (DDMMSS)
N/A	N/A	N/A
<b>Alternative 3</b>		
Description	Lat (DDMMSS)	Long (DDMMSS)
N/A	N/A	N/A

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In the case of linear activities:

**Not applicable as no linear listed activities are being applied for.**

<del>Alternative:</del>	<del>Latitude (S):</del>	<del>Longitude (E):</del>
<del>Alternative S1 (preferred)</del>	<del></del>	<del></del>
<del>• Starting point of the activity</del>	<del></del>	<del></del>
<del>• Middle/Additional point of the activity</del>	<del></del>	<del></del>
<del>• End point of the activity</del>	<del></del>	<del></del>
<del>Alternative S2 (if any)</del>	<del></del>	<del></del>
<del>• Starting point of the activity</del>	<del></del>	<del></del>
<del>• Middle/Additional point of the activity</del>	<del></del>	<del></del>
<del>• End point of the activity</del>	<del></del>	<del></del>
<del>Alternative S3 (if any)</del>	<del></del>	<del></del>
<del>• Starting point of the activity</del>	<del></del>	<del></del>
<del>• Middle/Additional point of the activity</del>	<del></del>	<del></del>
<del>• End point of the activity</del>	<del></del>	<del></del>

For route alternatives that are longer than 500m, please provide an addendum with co-ordinates taken every 250 meters along the route for each alternative alignment.

In the case of an area being under application, please provide the co-ordinates of the corners of the site as indicated on the lay-out map provided in Appendix A of this form.

**b) Lay out alternatives**

<b>Alternative 1 (preferred alternative)</b>		
Description	Lat (DDMMSS)	Long (DDMMSS)
The preferred alternative is located adjacent to the Kathu industrial area, to the south-west of Kathu. The layout of the facility is rectangular in shape and approximately 8.4 ha in extent. The footprint includes vacant land as well as some buildings and infrastructure located in the north-western corner of the site.	A: 27° 42' 52.67" S	A: 23° 02' 07.84" E
No alternative layouts were considered as the layout is restricted to the location of the existing access points and municipal (water, electricity and sewage) connections. The layout also takes into account 30 meter buffers to the fence according to internal standards for fire management, as well as buffers between the tyre stockpiles. Any alternative layouts would not result in less significant environmental impacts.	B: 27° 42' 42.94" S	B: 23° 02' 24.47" E
	C: 27° 42' 47.02" S	C: 23° 02' 27.47" E
	D: 27° 42' 56.71" S	D: 23° 02' 10.90" E
	E: 27° 42' 54.21" S	E: 23° 02' 08.28" E
<b>Alternative 2</b>		
Description	Lat (DDMMSS)	Long (DDMMSS)
N/A	N/A	N/A
(N/A)		
<b>Alternative 3</b>		
Description	Lat (DDMMSS)	Long (DDMMSS)
N/A	N/A	N/A

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## c) Technology alternatives

<b>Alternative 1: Mechanical Downsizing (preferred alternative)</b>
The proposed process includes the storage and mechanical downsizing (cutting, shredding and granulation) of waste tyres. The process includes the mechanical shredding of tyres into small pieces of between 30-60mm, the steel will then be removed from the tyres whereafter granulation will be utilised to make the pieces even smaller, if required. No water or other chemicals is required for this process and the input cost is relatively low. This method also produces products with a high surface area and volume ratio. No drying of product is necessary.
<b>Alternative 2: Cryogenic Grinding</b>
In the cryogenic method, the tyre is frozen up to –100 degrees Celsius using liquid nitrogen and crushed into smaller particles. Steel and textile are then removed (like in the mechanical grinding method). A disadvantage of the cryogenic method is the presence of moisture after the whole tyres are ground and needs to be dried. This method also requires high input and operational cost due to the purchasing of the initial equipment and the liquid nitrogen during operations. Liquid nitrogen availability in the Kathu region could also be problematic.
<b>Alternative 3: Wet Grinding</b>
In order for tyres to be processed through the wet grinding method, it needs to be pre-shredded. Then grindstones are used. The continuous water cools the product and grindstones, and the products enter a drying step. The wet grinding method can deliver a very fine grain with high surface and volume and with a low level of granulate degradation. However, water is needed as input to the process and this method also requires a drying process.
<b>Conclusion</b>
The proposed alternative entails the mechanical processing (cutting, shredding and granulation) of waste tyres. No water is required and it does not entail a drying process. The input cost for mechanical processing is also relatively low. The Cryogenic Grinding method requires a drying process and has high input and operational cost due to the use of liquid nitrogen. The Wet Grinding process requires water during processing and also a drying process. Additional water requirements will put increased pressure on the municipal supply and surface water resources. Mechanical processing is therefore the preferred alternative from a cost-effective and environmental perspective.

## d) Other alternatives (e.g. scheduling, demand, input, scale and design alternatives)

<b>Alternative 1 (preferred alternative)</b>
The waste tyres will be transported to the waste tyre management facility, where mechanical downsizing (cutting, shredding and granulation) will be undertaken on the tyres. These can be used in various applications such as matting, playgrounds, asphalt, new tyres and brake pads. Further processing, pyrolysis and moulding, on site may be a consideration in the future
<b>Alternative 2</b>
Disposal of the waste tyres to a licensed landfill site. This is however prohibited in terms of the National Norms and Standards for Disposal of Waste to Landfill, which prohibits disposal of a waste tyre at a waste disposal facility. This alternative is therefore illegal and constitutes a fatal flaw and was consequently not investigated further.

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e) **No-go alternative**

In accordance with the NEMA EIA Regulations, the no-go alternative is required to be investigated and assessed. The no-go option refers to the alternative of the proposed development not proceeding. This alternative generally avoids potential positive and negative impacts on the environment, as the current status quo will remain.

Should the no-go alternative be implemented, the proposed waste tyre management facility will not be constructed as planned. SIOC and other mines in the area will continue to stockpile large volume of waste tyres without a means to manage the tyres. The “indefinite” stockpiling of tyres is not ideal as increasingly new areas will have to be developed for such stockpiles which will result in additional greenfield development and associated biodiversity impacts. Employment opportunities and local procurement associated with the tyre management facility will not be realised.

The impacts associated with the proposed facility will not materialise, should the no-go alternative be implemented. There would be no disturbance to the land, no vegetation clearance and no noise due to construction activities and operations at the facility. The site is however already disturbed and is also located adjacent to an industrial area. The bio-physical impacts associated with the proposed facility are therefore considered minimal. The proposed facility is viewed as an improvement of the land use as degraded land will be converted to industrial land.

The benefits of implementing the project far outweigh the cons from an environmental, social and economic perspective and therefore the no-go alternative is not a preferred option.

Paragraphs 3 – 13 below should be completed for each alternative.

3. **PHYSICAL SIZE OF THE ACTIVITY**

a) **Indicate the physical size of the preferred activity/technology as well as alternative activities/technologies (footprints):**

**Alternative:**

Alternative A1<sup>1</sup> (preferred activity alternative)

Alternative A2 (if any)

Alternative A3 (if any)

**Size of the activity:**

8.4 ha
N/A
N/A

or, for linear activities: **Not Applicable**

**Alternative:**

Alternative A1 (preferred activity alternative)

Alternative A2 (if any)

Alternative A3 (if any)

**Length of the activity:**

m
m
m

<sup>1</sup> “Alternative A..” refer to activity, process, technology or other alternatives.

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- b) Indicate the size of the alternative sites or servitudes (within which the above footprints will occur):

**Alternative:**

Alternative A1 (preferred activity alternative)

Alternative A2 (if any)

Alternative A3 (if any)

**Size of the site/servitude:**

	8.4 ha
	N/A
	N/A

**4. SITE ACCESS**

Does ready access to the site exist?

<b>YES</b> ✓ <b>Surfaced road until the boundary of the site</b>	<b>NO</b>
<b>N/A</b>	

If NO, what is the distance over which a new access road will be built

Describe the type of access road planned:

N/A

Include the position of the access road on the site plan and required map, as well as an indication of the road in relation to the site.

**5. LOCALITY MAP**

An A3 locality map must be attached to the back of this document, as **Appendix A**. The scale of the locality map must be relevant to the size of the development (at least 1:50 000. For linear activities of more than 25 kilometres, a smaller scale e.g. 1:250 000 can be used. The scale must be indicated on the map.). The map must indicate the following:

- an accurate indication of the project site position as well as the positions of the alternative sites, if any;
- indication of all the alternatives identified;
- closest town(s);
- road access from all major roads in the area;
- road names or numbers of all major roads as well as the roads that provide access to the site(s);
- all roads within a 1km radius of the site or alternative sites; and
- a north arrow;
- a legend; and
- locality GPS co-ordinates (Indicate the position of the activity using the latitude and longitude of the centre point of the site for each alternative site. The co-ordinates should be in degrees and decimal minutes. The minutes should have at least three decimals to ensure adequate accuracy. The projection that must be used in all cases is the WGS84 spheroid in a national or local projection).

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### 6. LAYOUT/ROUTE PLAN

A detailed site or route plan(s) must be prepared for each alternative site or alternative activity. It must be attached as **Appendix A** to this document.

The site or route plans must indicate the following:

- the property boundaries and numbers of all the properties within 50 metres of the site;
- the current land use as well as the land use zoning of the site;
- the current land use as well as the land use zoning each of the properties adjoining the site or sites;
- the exact position of each listed activity applied for (including alternatives);
- servitude(s) indicating the purpose of the servitude;
- a legend; and
- a north arrow.

### 7. SENSITIVITY MAP

The layout/route plan as indicated above must be overlain with a sensitivity map that indicates all the sensitive areas associated with the site, including, but not limited to:

- watercourses;
- the 1:100 year flood line (where available or where it is required by DWS);
- ridges;
- cultural and historical features;
- areas with indigenous vegetation (even if it is degraded or infested with alien species); and
- critical biodiversity areas.

The sensitivity map must also cover areas within 100m of the site and must be attached in **Appendix A**.

### 8. SITE PHOTOGRAPHS

Colour photographs from the centre of the site must be taken in at least the eight major compass directions with a description of each photograph. Photographs must be attached under **Appendix B** to this report. It must be supplemented with additional photographs of relevant features on the site, if applicable.

### 9. FACILITY ILLUSTRATION

A detailed illustration of the activity must be provided at a scale of at least 1:200 as **Appendix C** for activities that include structures. The illustrations must be to scale and must represent a realistic image of the planned activity. The illustration must give a representative view of the activity.



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10. ACTIVITY MOTIVATION

Motivate and explain the need and desirability of the activity (including demand for the activity):

<p><b>1. Is the activity permitted in terms of the property's existing land use rights?</b></p>	<p>YES ✓</p>	<p>NO</p>	<p>Please explain</p>
<p>The land is owned by Sishen Iron Ore Company (SIOC). An application to amend the zoning from agricultural use to special use: mining to industrial zone III (pink below) and Transport zone II (grey below) is underway as per the layout below.</p>			

Figure 5: Proposed zoning of the site

<p><b>2. Will the activity be in line with the following?</b></p>			
<p><b>(a) Provincial Spatial Development Framework (PSDF)</b></p>	<p>YES ✓</p>	<p>NO</p>	<p>Please explain</p>
<p>The Goals and Objectives of the Provincial Spatial Development Framework relating to sustainability and sustainable development are premised on the National Directives put forward in the National Framework on Sustainable Development (DEA, 2008) and the National Strategy for sustainable development and Action Plan 2011-2014 (NSSD) (DEA, 2011). The Northern Cape PSDF functions as an innovative strategy that will apply sustainability principles to all spheres of land use management throughout the Northern Cape and which is to facilitate practical results, as it relates to the eradication of poverty and inequality and the protection of the integrity of the environment. The tyre management facility is aligned with the PSDF regarding recycling and sustainability, as the waste tyres will be mechanically downsized for further recycling off site.</p>			
<p><b>(b) Urban edge / Edge of Built environment for the area</b></p>	<p>YES</p>	<p>NO ✓</p>	<p>Please explain</p>
<p>The proposed facility will not be located within the urban edge.</p>			

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<b>(c) Integrated Development Plan (IDP) and Spatial Development Framework (SDF) of the Local Municipality (e.g. would the approval of this application compromise the integrity of the existing approved and credible municipal IDP and SDF?).</b>	YES	NO <input checked="" type="checkbox"/>	Please explain
<p>The IDP and SDF related initiatives are by default required to be integrated into the Local Municipality planning tools and given their national significance are seen to override/ form part of the local planning. The John Taolo Gaetsewe District Spatial Development Framework (SDF) has a mid to higher level strategic spatial framework that provides the municipality with objectives as set out in the national and provincial spheres regarding sustainable development, natural resources management, regional economic investment, job creation and eradication of poverty. The tyre management facility is aligned with the objectives of sustainability and recycling as well job creation and poverty alleviation. A Waste Management Plan and the Integrated Environmental Management Plan (IWMP) are mentioned as some of the strategic documents that the Gamagara Local Municipality has adopted as part of the sectoral plans and policies to guide the management of waste within the Municipality.</p>			
<b>(d) Approved Structure Plan of the Municipality</b>	YES	NO <input checked="" type="checkbox"/>	Please explain
<p>There are existing water and sewer services located on the north-western and south-western boundary of the property. A new connection from the existing services will be required for the tyre management facility. The impact on municipal services will be minimal, as it is anticipated that employment on site will be approximately 15-20 people. It is not anticipated that the project will impact on the approved structure plan of the municipality.</p>			
<b>(e) An Environmental Management Framework (EMF) adopted by the Department (e.g. Would the approval of this application compromise the integrity of the existing environmental management priorities for the area and if so, can it be justified in terms of sustainability considerations?)</b>	YES	NO <input checked="" type="checkbox"/>	Please explain
<p>The general aim of an Environmental Management Framework is to improve the integration of biodiversity into land use planning and decision making through a combination of activities such as engaging in institutional co-ordination mechanisms, providing accurate, relevant information and reference materials, providing appropriate training and targeted awareness raising; and guiding future land use and development within the municipality.</p> <p>The proposed tyre management facility will assist SIOC in taking a product considered to be a waste source and re-purposing it for additional beneficial uses. It will allow for an effective management method for the reduction of current waste tyre stockpiles and future waste tyre generation. The plan is to allow other private entities to provide tyres to the facility for downsizing.</p>			
<b>(f) Any other Plans (e.g. Guide Plan)</b>	YES	NO <input checked="" type="checkbox"/>	Please explain
N/A			

## BASIC ASSESSMENT REPORT

<p><b>3. Is the land use (associated with the activity being applied for) considered within the timeframe intended by the existing approved SDF agreed to by the relevant environmental authority (i.e. is the proposed development in line with the projects and programmes identified as priorities within the credible IDP)?</b></p>	YES ✓	NO	Please explain
<p>At regional level, the project is deemed consistent with the Northern Cape Provincial SDF and the SDF of the John Taolo Gaetsewe District Municipality. The priorities of the Gamagara Local Municipality's IDP and the John Taolo Gaetsewe District Municipality's SDF focus on the reduction of unemployment and poverty in the area. The tyre management facility will provide temporary employment opportunities during the construction phase and approximately 15-20 permanent employment opportunities during operation of the facility.</p> <p>The John Taolo Gaetsewe District Municipality have an approved Integrated Waste Management Plan which includes the identification of waste management strategies to alleviate challenges within the Municipality associated with landfill sites, refuse removal and recycling.</p>			
<p><b>4. Does the community/area need the activity and the associated land use concerned (is it a societal priority)? (This refers to the strategic as well as local level (e.g. development is a national priority, but within a specific local context it could be inappropriate.)</b></p>	YES ✓	NO	Please explain
<p>There are various mines and industries situated in and around Kathu which produce large volumes of waste tyres. There is currently no centralised facility located in the region for the management of waste tyres and waste tyres can legally not be disposed. Therefore, waste tyres are stockpiled with no means of effective/legal management thereof. The proposed facility will provide centralised location where waste tyres can be taken and prevent indefinite stockpiling/illegal disposal thereof.</p>			
<p><b>5. Are the necessary services with adequate capacity currently available (at the time of application), or must additional capacity be created to cater for the development? (Confirmation by the relevant Municipality in this regard must be attached to the final Basic Assessment Report as Appendix I.)</b></p>	YES ✓	NO	Please explain
<p>The potential impact on municipal services will be minimal, as it is anticipated that employment on site will be approximately 15-20 people. Water, sewer and road infrastructure services are in existence up until the boundary of the site, a new connection for water and sewer pipelines to join the existing services will be required. The gravel road into site will most likely be surfaced.</p> <p>The findings of the Civil Engineering Report undertaken by iX Engineers (2021,) indicate that the tyre management facility can be accommodated within the existing bulk infrastructure for civil services. The electrical services are however at capacity and the existing mini substation will require minor upgrades.</p>			

## BASIC ASSESSMENT REPORT

<p><b>6. Is this development provided for in the infrastructure planning of the municipality, and if not what will the implication be on the infrastructure planning of the municipality (priority and placement of services and opportunity costs)? (Comment by the relevant Municipality in this regard must be attached to the final Basic Assessment Report as Appendix I.)</b></p>	YES	NO ✓	Please explain
<p>All funds and operations required will be provided by SIOC. The required services will not impact on the capacity of existing services, but memorandums of understanding with the municipality will be undertaken. The development of the waste tyre management facility is in line with the municipality's waste management plan to promote recycling of waste and reduction of waste that is disposed at a landfill site.</p>			
<p><b>7. Is this project part of a national programme to address an issue of national concern or importance?</b></p>	YES	NO ✓	Please explain
<p>According to the South African State of Waste Report (2018), in 2017 South Africa generated 55 million tonnes of general waste, with only 11% being diverted from landfill. These trends, coupled with limited growth in the Gross Domestic Product (GDP), are associated with increases in waste generation. South Africa is experiencing severe constraints in terms of the availability of landfill space, as well as challenges in operating and decommissioning landfills in a manner that is compliant with licensing conditions. The National Waste Management Strategy (2020) (NWMS) emphasises the importance of a waste management hierarchy approach that must be followed to prevent disposal of waste to landfill. The proposed facility is in line with the NWMS and will provide an effective means for the management of waste tyres.</p>			
<p><b>8. Do location factors favour this land use (associated with the activity applied for) at this place? (This relates to the contextualisation of the proposed land use on this site within its broader context.)</b></p>	YES ✓	NO	Please explain
<p>There are various mines and industries situated in and around Kathu which produce large volumes of waste tyres. There is currently no centralised facility located in the region for the management of waste tyres and waste tyres can legally not be disposed. Therefore, waste tyres are stockpiled with no means of effective/legal management thereof. The proposed facility will provide a centralised location where waste tyres can be taken and prevent indefinite stockpiling/illegal disposal thereof.</p> <p>The site is situated adjacent to an existing industrial area and is ideally located in terms of the availability of municipal services (water, electricity and sewage) and access to the facility is readily available. The proposed site has been disturbed by historic activities and the majority of the area does not represent the baseline vegetation type, and therefore impacts on biodiversity will be low. The biodiversity study concluded that a low to very low impact significance is anticipated on both fauna and flora in the study area.</p>			
<p><b>9. Is the development the best practicable environmental option for this land/site?</b></p>	YES ✓	NO	Please explain
<p>According to NEMA, the best practicable environmental option, <i>means the option that provides the most benefit or causes the least damage to the environment as a whole, at a cost acceptable to society, in the long term as well as in the short term.</i> It is not anticipated that the proposed facility will result in any significant environmental impacts and the facility will be situated in an area that is already disturbed. Insignificant impacts on biodiversity are expected. The downsizing of waste tyres will provide an effective method for the management of such a waste stream without causing significant impacts and is in line with the waste management hierarchy. The facility will provide long term benefit for society in general in terms of waste management and job creation.</p>			

## BASIC ASSESSMENT REPORT

<b>10. Will the benefits of the proposed land use/development outweigh the negative impacts of it?</b>	YES ✓	NO	Please explain
The benefits of downsizing of waste tyres for further off site recycling and re-purposing will outweigh the minimal environmental impacts resulting from the development and operation of the tyre management facility.			
<b>11. Will the proposed land use/development set a precedent for similar activities in the area (local municipality)?</b>	YES	NO ✓	Please explain
Recycling of waste is a favourable land use and the establishment of similar facilities for other waste streams in the area will be beneficial for the community in general.			
<b>12. Will any person's rights be negatively affected by the proposed activity/ies?</b>	YES	NO ✓	Please explain
It is not anticipated that any person's rights will be negatively affected by the proposed development.			
<b>13. Will the proposed activity/ies compromise the "urban edge" as defined by the local municipality?</b>	YES	NO ✓	Please explain
The proposed activities will not be located within the urban edge.			
<b>14. Will the proposed activity/ies contribute to any of the 17 Strategic Integrated Projects (SIPs)?</b>	YES	NO ✓	Please explain
The proposed activities will not directly contribute to the 17 SIP's, but the waste tyre management facility will assist in promoting effective waste management. The tyre management facility will also provide employment opportunities during the construction and operational phases.			
<b>15. What will the benefits be to society in general and to the local communities?</b>	Please explain		
There are various mines and industries situated in and around Kathu which produce large volumes of waste tyres. There is currently no centralised facility located in the region for the management of waste tyres and waste tyres can legally not be disposed to landfill. Therefore, waste tyres are stockpiled with no means of effective/legal management thereof. The proposed facility will provide a centralised location where waste tyres can be taken and prevent indefinite stockpiling/illegal disposal thereof. A decrease in the volume of waste will benefit the broader society as waste management is increasingly becoming a bigger challenge in South Africa.			
<b>16. Any other need and desirability considerations related to the proposed activity?</b>	Please explain		
The benefits of the proposed development will outweigh the minimal negative impacts. The benefits include effective management and will decrease waste tyre volumes that are stockpiled in the surrounding areas.			
<b>17. How does the project fit into the National Development Plan for 2030?</b>	Please explain		
The National Development Plan aims to eliminate poverty and reduce inequality by 2030. The project does not directly fit into the NDP, although the facility will provide some employment opportunities during construction and operational phases. The tyres that will be managed are also largely generated due to mining activities in the area. Mining provides a large source of employment and economic benefits to the surrounding areas.			

## BASIC ASSESSMENT REPORT

**18. Please describe how the general objectives of Integrated Environmental Management as set out in section 23 of NEMA have been taken into account.**

Section 23 of NEMA determines that the application of appropriate environmental management tools must ensure the integration of environmental management in activities. The principles of environmental management must be integrated into all decisions which may have a significant effect on the environment. Procedures for the investigation, assessment and communication of the potential impact of activities must be effective.

The process of recycling the tyres is in itself an environmental management tool to minimise impacts associated with the disposal of waste tyres. The Impact Assessment undertaken as part of this Basic Environmental Assessment conforms to the principles of Integrated Environmental Management (IEM). The assessment aims to identify any potential negative impacts associated with the process as well as the positive impacts which will result from recycling and repurposing. The process has identified potential impacts and these have been evaluated to determine the actual impact on the environment. A triple bottom approach was taken into account whereby the socio, economic and environmental impacts have been assessed. This has also ensured that Section 2(3) of NEMA was adhered to.

A public consultation process is undertaken and the comments received will be communicated to the CA which will then be considered during decision making purposes.

**19. Please describe how the principles of environmental management as set out in section 2 of NEMA have been taken into account.**

SIOC is mindful of the NEMA principles, broad liability and implications associated with them, and it is furthermore SIOC's intention to align with these principals on projects.

Section 2 (4) of NEMA states the following:

- (a) Sustainable development requires the consideration of all relevant factors including the following:
- (i) That the disturbance of ecosystems and loss of biological diversity are avoided, or, where they cannot be altogether avoided, are minimised and remedied;
  - (viii) that negative impacts on the environment and on people's environmental rights be anticipated and prevented, and where they cannot be altogether prevented, are minimised and remedied

The site is located in a disturbed area, adjacent to an industrial area and although impacts to the biophysical environment will be minimal, management measures to reduce and mitigate these impacts have been included in the EMPr and will be implemented by SIOC.

Section 2 (4) also states that sustainable development requires the consideration of all relevant factors including that waste is avoided, or where it cannot be altogether avoided, minimised and re-used or recycled where possible and otherwise disposed of in a responsible manner. The proposed facility is in line with NEMA and the NWMS and will provide an effective means for the management of waste tyres.

## BASIC ASSESSMENT REPORT

**11. APPLICABLE LEGISLATION, POLICIES AND/OR GUIDELINES**

List all legislation, policies and/or guidelines of any sphere of government that are applicable to the application as contemplated in the EIA regulations, if applicable:

<b>Title of legislation, policy or guideline</b>	<b>Applicability to the project</b>	<b>Administering authority</b>	<b>Date</b>
EIA Regulations 2014 (as amended in 2021): Listing Notice 1 (GNR 983 of 2014) (as amended in 2021)	Activities 27 and 28 of Listing Notice 1 are triggered. The project therefore requires a Basic Environmental Assessment be undertaken and Environmental Authorisation be obtained prior to the project proceeding.	Northern Cape Department of Environment & Nature Conservation (DENC)	2014 (as amended)
National Environmental Management: Waste Act (No. 59 of 2008) (as amended)	Listed activities in Category C of GNR 921 are triggered and the following are applicable: <ul style="list-style-type: none"> <li>National Norms and Standards for the Storage of Waste (2013); and</li> <li>National Norms and Standards for sorting, shredding, grinding, crushing, screening or baling of general waste (2017)</li> </ul> The facility will be registered in terms of the relevant norms and standards.	Northern Cape Department of Environment & Nature Conservation (DENC)	2013 and 2017
National Heritage Resources Act (No. 25 of 1999)	In Terms of Section 38, the Project Requires approval from the South African Heritage Resource Agency (SAHRA). The project has been uploaded onto SAHRIS.	South African Heritage Resource Agency (SAHRA)	1999
National Water Act (No. 36 of 1998) (NWA)	According to GN 509, all activities within 500 meter from a delineated boundary (extent) of any wetland or pan is regulated in terms of Section 21(c) and 21(i) of the National Water Act (NWA) and requires authorisation, either	Northern Cape Department of Water and Sanitation	1998

## BASIC ASSESSMENT REPORT

Title of legislation, policy or guideline	Applicability to the project	Administering authority	Date
	a Water Use Licence or a General Authorisation (GA).		
National Environmental Management: Biodiversity Act (No. 10 of 2004) (NEMBA)	Section 57 of NEMBA restricts certain activities involving threatened and protected species (as listed in Regulation GN. 151 and 152, February 2007) without a permit. Restricted activities applicable to the project are limited to the potential removal of Threatened or Protected Species (TOPS) plants during rehabilitation activities. The relevant permits will be obtained for the removal of such plants, if required.	Northern Cape Department of Environment & Nature Conservation	2004
Northern Cape Nature Conservation Act (No. 9 of 2009) (NCNCA)	In terms of Section 50 of NCNCA a permit is required for the removal of TOPS.	Northern Cape Department of Environment & Nature Conservation	2009
National Forest Act 1998 (NFA)	Tree species listed as Protected in Section 15 (1) of the NFA will require permits prior to disturbance or removal of the trees.	Department of Environment, Forestry and Fisheries	1998
Conservation of Agricultural Resources Act (No. 43 of 1983) (CARA)	Removal of the alien and weed species encountered in the area must be undertaken in accordance with CARA and GNR1048 in GG 9238 of 25 May 1984. Removal of species should take place throughout the construction and operation, phases.	Northern Cape Department of Environment & Nature Conservation	1983
National Waste Management Strategy 2011 (as amended in 2020)	The NWMS 2020 gives effect to the objective and implementation of the Waste Act . It also provides details on the Institutional arrangements and planning	Northern Cape Department of Environment, Forestry and Fisheries (DEFF)	2011 (as amended)



## BASIC ASSESSMENT REPORT

Title of legislation, policy or guideline	Applicability to the project	Administering authority	Date
	matters for waste management as well as the National norms and standards that regulate waste management by all spheres of government.		

**12. WASTE, EFFLUENT, EMISSION AND NOISE MANAGEMENT****a) Solid waste management**

Will the activity produce solid construction waste during the construction/initiation phase?

<b>YES</b> √	<b>NO</b>
Unknown	

If YES, what estimated quantity will be produced per month?

How will the construction solid waste be disposed of (describe)?

Construction waste will be placed in marked skips on site. All construction solid waste will be removed from the site with loading vehicles and disposed at a licenced disposal site.

Where will the construction solid waste be disposed of (describe)?

Solid waste originating from construction activities will be consolidated on site and removed as often as possible to the nearest licenced landfill site.

Will the activity produce solid waste during its operational phase?

<b>YES</b> √	<b>NO</b>
~ 30m <sup>3</sup>	

If YES, what estimated quantity will be produced per month?

How will the solid waste be disposed of (describe)?

General waste (i.e. domestic waste, plastics, paper, rubber etc.), hazardous waste (i.e. electronic waste, machinery oil) and sanitary waste will be produced during the operational phase. The waste will be separated at source through the implementation of marked and colour coded skips and bins. Non-recyclable general waste will either be collected by an external contractor for recycling or taken to the nearest registered landfill site.

The following waste types will be recycled where possible:

- Packaging materials (corrugated cartons) and paper;
- Used batteries;
- Electrical components;
- Wooden pallets; and
- Plastic.

Waste shall be disposed according to type and amount of waste at the nearest registered landfill sites, these being in Kathu and/or Kuruman. The option is also available to dispose of waste at the Sishen Mine licenced landfill site.

## BASIC ASSESSMENT REPORT

Where will the solid waste be disposed of if it does not feed into a municipal waste stream (describe)?

Waste will be disposed of at suitable, authorised waste disposal facilities. Recyclable waste will potentially be removed by an external contractor and recycled.

*If the solid waste (construction or operational phases) will not be disposed of in a registered landfill site or be taken up in a municipal waste stream, then the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.*

Can any part of the solid waste be classified as hazardous in terms of the NEM:WA?  YES  NO

If YES, inform the competent authority and request a change to an application for scoping and EIA. An application for a waste permit in terms of the NEM:WA must also be submitted with this application.

Is the activity that is being applied for a solid waste handling or treatment facility?  YES  NO

If YES, then the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA. An application for a waste permit in terms of the NEM:WA must also be submitted with this application.

## b) Liquid effluent

Will the activity produce effluent, other than normal sewage, that will be disposed of in a municipal sewage system?  YES  NO

If YES, what estimated quantity will be produced per month?

Will the activity produce any effluent that will be treated and/or disposed of on site?  YES  NO

*If YES, the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.*

Will the activity produce effluent that will be treated and/or disposed of at another facility?  YES  NO

If YES, provide the particulars of the facility:

<b>Facility name:</b>	N/A	
<b>Contact person:</b>		
<b>Postal address:</b>		
<b>Postal code:</b>		
<b>Telephone:</b>	Cell:	
<b>E-mail:</b>	Fax:	

Describe the measures that will be taken to ensure the optimal reuse or recycling of waste water, if any:

No wastewater will be recycled on site.

## c) Emissions into the atmosphere

Will the activity release emissions into the atmosphere other than exhaust emissions and dust associated with construction phase activities?  YES  NO

If YES, is it controlled by any legislation of any sphere of government?  YES  NO

## BASIC ASSESSMENT REPORT

If YES, the applicant must consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

If NO, describe the emissions in terms of type and concentration:

Dust and exhaust emissions during the construction and operational phases will primarily be generated by vehicles on access roads and within the tyre management site.

**d) Waste permit**

Will any aspect of the activity produce waste that will require a waste permit in terms of the NEM:WA?

YES	NO <input checked="" type="checkbox"/>
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If YES, please submit evidence that an application for a waste permit has been submitted to the competent authority

**e) Generation of noise**

Will the activity generate noise?

YES <input checked="" type="checkbox"/>	NO
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If YES, is it controlled by any legislation of any sphere of government?

YES	NO <input checked="" type="checkbox"/>
-----	--

Describe the noise in terms of type and level:

Noise will be generated during the construction phase by vehicle movement on roads and earth movement equipment. Noise during the operational phase will be primarily due to vehicle movement, off-loading of tyres and machinery associated with the cutting and shredding of the waste tyres.

**13. WATER USE**

Please indicate the source(s) of water that will be used for the activity by ticking the appropriate box(es):

Municipal <input checked="" type="checkbox"/>	Water board	Groundwater	River, stream, dam or lake	Other	The activity will not use water
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If water is to be extracted from groundwater, river, stream, dam, lake or any other natural feature, please indicate the volume that will be extracted per month:

N/A
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Does the activity require a water use authorisation (general authorisation or water use license) from the Department of Water Affairs?

YES <input checked="" type="checkbox"/>	NO
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If YES, please provide proof that the application has been submitted to the Department of Water Affairs.

An application for a General Authorisation in terms of Section 21 (c) and (i) due to the proximity of a wetland within 500 m of the site, is in process on the electronic EWULAAS system. The application has the following ref number: WU22978.

**14. ENERGY EFFICIENCY**

Describe the design measures, if any, which have been taken to ensure that the activity is energy efficient:

Energy saving light bulbs will be used in offices and buildings at the facility. SIOC will investigate the use of other energy saving devices.

Describe how alternative energy sources have been taken into account or been built into the design of the activity, if any:

The option of using solar power to power some devices will be investigated and if feasible and a practical option for the location and facility will be implemented.

## BASIC ASSESSMENT REPORT

**SECTION B: SITE/AREA/PROPERTY DESCRIPTION****Important notes:**

1. For linear activities (pipelines, etc) as well as activities that cover very large sites, it may be necessary to complete this section for each part of the site that has a significantly different environment. In such cases please complete copies of Section B and indicate the area, which is covered by each copy No. on the Site Plan.

Section B Copy No. (e.g. A):

N/A

2. Paragraphs 1 - 6 below must be completed for each alternative.

3. Has a specialist been consulted to assist with the completion of this section?

<b>YES</b> √	<b>NO</b>
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If YES, please complete the form entitled "Details of specialist and declaration of interest" for each specialist thus appointed and attach it in Appendix I. All specialist reports must be contained in Appendix D.

**Property description/physical address:**

<b>Province</b>	Northern Cape
<b>District Municipality</b>	John Taolo Gaetsewe District Municipality,
<b>Local Municipality</b>	Gamagara Local Municipality
<b>Ward Number(s)</b>	Ward 5 and 6
<b>Farm name and number</b>	Remaining Extent of farm Sekgame 461
<b>Portion number</b>	Remaining Extent
<b>SG Code</b>	C0410000000046100000

Where a large number of properties are involved (e.g. linear activities), please attach a full list to this application including the same information as indicated above.

**Current land-use zoning as per local municipality IDP/records:**

Special Zone – Mining (rezoning in process)
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In instances where there is more than one current land-use zoning, please attach a list of current land use zonings that also indicate which portions each use pertains to, to this application.

Is a change of land-use or a consent use application required?

<b>YES</b> √	<b>NO</b>
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## BASIC ASSESSMENT REPORT

### 1. GRADIENT OF THE SITE

Indicate the general gradient of the site.

#### Alternative S1:

Flat ✓	1:50 — 1:20	1:20 — 1:15	1:15 — 1:10	1:10 — 1:7,5	1:7,5 — 1:5	Steeper than 1:5
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#### Alternative S2 (if any):

Flat	1:50 — 1:20	1:20 — 1:15	1:15 — 1:10	1:10 — 1:7,5	1:7,5 — 1:5	Steeper than 1:5
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#### Alternative S3 (if any):

Flat	1:50 — 1:20	1:20 — 1:15	1:15 — 1:10	1:10 — 1:7,5	1:7,5 — 1:5	Steeper than 1:5
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### 2. LOCATION IN LANDSCAPE

Indicate the landform(s) that best describes the site:

2.1 Ridgeline	<input type="checkbox"/>	2.4 Closed valley	<input type="checkbox"/>	2.7 Undulating plain / low hills	<input type="checkbox"/>
2.2 Plateau	<input type="checkbox"/>	2.5 Open valley	<input type="checkbox"/>	2.8 Dune	<input type="checkbox"/>
2.3 Side slope of hill/mountain	<input type="checkbox"/>	2.6 Plain	<input checked="" type="checkbox"/>	2.9 Seafront	<input type="checkbox"/>
2.10 At sea	<input type="checkbox"/>				

### 3. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE

Is the site(s) located on any of the following?

	Alternative S1:		Alternative S2 (if any):		Alternative S3 (if any):	
Shallow water table (less than 1.5m deep)	YES	NO ✓	YES	NO	YES	NO
Dolomite, sinkhole or doline areas	YES	NO ✓	YES	NO	YES	NO
Seasonally wet soils (often close to water bodies)	YES	NO ✓	YES	NO	YES	NO
Unstable rocky slopes or steep slopes with loose soil	YES	NO ✓	YES	NO	YES	NO
Dispersive soils (soils that dissolve in water)	YES	NO ✓	YES	NO	YES	NO
Soils with high clay content (clay fraction more than 40%)	YES	NO ✓	YES	NO	YES	NO
Any other unstable soil or geological feature	YES	NO ✓	YES	NO	YES	NO
An area sensitive to erosion	YES	NO ✓	YES	NO	YES	NO

If you are unsure about any of the above or if you are concerned that any of the above aspects may be an issue of concern in the application, an appropriate specialist should be appointed to assist in the completion of this section. Information in respect of the above will often be available as part of the project information or at the planning sections of local authorities. Where it exists, the 1:50 000 scale Regional Geotechnical Maps prepared by the Council for Geo Science may also be consulted.

## BASIC ASSESSMENT REPORT

**4. GROUNDCOVER**

Indicate the types of groundcover present on the site. The location of all identified rare or endangered species or other elements should be accurately indicated on the site plan(s).

Natural veld - good condition <sup>E</sup>	<b>Natural veld with scattered aliens<sup>E</sup></b>	Natural veld with heavy alien infestation <sup>E</sup>	Veld dominated by alien species <sup>E</sup>	Gardens
Sport field	Cultivated land	Paved surface	<b>Building or other structure</b>	<b>Bare soil</b>

If any of the boxes marked with an "E" is ticked, please consult an appropriate specialist to assist in the completion of this section if the environmental assessment practitioner doesn't have the necessary expertise.

**5. SURFACE WATER**

Indicate the surface water present on and or adjacent to the site and alternative sites?

Perennial River	YES	<b>NO</b> ✓	UNSURE
Non-Perennial River	YES	<b>NO</b> ✓	UNSURE
Permanent Wetland	YES	<b>NO</b> ✓	UNSURE
Seasonal Wetland	YES	<b>NO</b> ✓	UNSURE
Artificial Wetland	YES	<b>NO</b> ✓	UNSURE
Estuarine / Lagoonal wetland	YES	<b>NO</b> ✓	UNSURE

If any of the boxes marked YES or UNSURE is ticked, please provide a description of the relevant watercourse.

The Freshwater Aquatic Assessment undertaken identified a depression wetland located 320 m south of the site.

**6. LAND USE CHARACTER OF SURROUNDING AREA**

Indicate land uses and/or prominent features that currently occur within a 500m radius of the site and give description of how this influences the application or may be impacted upon by the application:

<b>Natural area</b> ✓	Dam or reservoir	Polo fields
Low density residential	Hospital/medical centre	Filling station <sup>H</sup>
<b>Medium density residential</b> ✓	School	Landfill or waste treatment site
High density residential	Tertiary education facility	Plantation
Informal residential	Church	Agriculture
Retail commercial & warehousing	Old age home	<b>River, stream or wetland</b> ✓
<b>Light industrial</b> ✓	Sewage treatment plant <sup>A</sup>	Nature conservation area
Medium industrial <sup>AN</sup>	Train station or shunting yard <sup>N</sup>	Mountain, Koppie or ridge
Heavy industrial <sup>AN</sup>	Railway line <sup>N</sup>	Museum
Power station	Major road (4 lanes or more) <sup>N</sup>	Historical building

## BASIC ASSESSMENT REPORT

Office/consulting room	Airport <sup>N</sup>	Protected Area
Military or police base/station/compound	Harbour	Graveyard
Spoil heap or slimes dam <sup>A</sup>	Sport facilities	Archaeological site
Quarry, sand or borrow pit	Golf course	Other land uses (describe)

If any of the boxes marked with an "N" are ticked, how this impact will / be impacted upon by the proposed activity? Specify and explain:

N/A

If any of the boxes marked with an "An" are ticked, how will this impact / be impacted upon by the proposed activity? Specify and explain:

N/A

If any of the boxes marked with an "H" are ticked, how will this impact / be impacted upon by the proposed activity? Specify and explain:

N/A

Does the proposed site (including any alternative sites) fall within any of the following:

Critical Biodiversity Area (as per provincial conservation plan)	YES	NO ✓
Core area of a protected area?	YES	NO ✓
Buffer area of a protected area?	YES	NO ✓
Planned expansion area of an existing protected area?	YES	NO ✓
Existing offset area associated with a previous Environmental Authorisation?	YES	NO ✓
Buffer area of the SKA?	YES	NO ✓

If the answer to any of these questions was YES, a map indicating the affected area must be included in Appendix A.

### 7. CULTURAL/HISTORICAL FEATURES

Are there any signs of culturally or historically significant elements, as defined in section 2 of the National Heritage Resources Act, 1999, (Act No. 25 of 1999), including Archaeological or paleontological sites, on or close (within 20m) to the site? If YES, explain:

YES

NO ✓

Uncertain

N/A

If uncertain, conduct a specialist investigation by a recognised specialist in the field (archaeology or palaeontology) to establish whether there is such a feature(s) present on or close to the site. Briefly explain the findings of the specialist:

## BASIC ASSESSMENT REPORT

A Heritage Impact Assessment (HIA) and Phase 1 Palaeontological Desktop Assessment was undertaken by PGS Heritage (Pty) Ltd. Their findings are summarised below.

### Palaeontology

The area where the tyre management facility will be located is underlain by surface limestone. These sediments are in turn underlain by the Griqualand West rocks of the Transvaal Supergroup. According to the PalaeoMap of the South African Heritage Resources Information System, the Palaeontological Sensitivity of the Tertiary surface limestone is High. However, in the Sishen area the Late Caenozoic superficial sediments overlying the Transvaal Supergroup are rarely fossiliferous (Butler, 2021).

The general low palaeontological sensitivity of the bedrocks and superficial sediments in the proposed development footprint indicates that the proposed development will have an overall LOW impact significance in terms of palaeontological heritage post-mitigation. It is therefore considered that the development will not lead to detrimental impacts on the palaeontological resources of the area. It is consequently recommended that no further palaeontological heritage studies, ground-truthing and/or specialist mitigation are required pending the discovery of newly discovered fossils.

### Cultural Heritage and Artefacts

A desktop and field assessment was undertaken as part of the Heritage Impact Assessment (HIA). The fieldwork was undertaken on 10 November 2021. Throughout the fieldwork, hand-held GPS devices were used to record tracklogs showing the routes followed by the fieldwork team. One findspot (FS-01) was identified adjacent to a track. There were no identified scatters of artefacts dense enough to be classified as archaeological sites.

The findings of the HIA concluded that the proposed tyre management facility will have a minimal impact on heritage resources due to the extensive disturbance of the footprint.

Will any building or structure older than 60 years be affected in any way?

YES	NO ✓
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Is it necessary to apply for a permit in terms of the National Heritage Resources Act, 1999 (Act 25 of 1999)?

YES	NO ✓
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If YES, please provide proof that this permit application has been submitted to SAHRA or the relevant provincial authority.

## 8. SOCIO-ECONOMIC CHARACTER

### a) Local Municipality

Please provide details on the socio-economic character of the local municipality in which the proposed site(s) are situated.

#### Level of unemployment:

The Northern Cape Province is geographically the largest province in South Africa, covering an area of 372 889 km<sup>2</sup>, which constitutes approximately 30% of the country's total area. Despite having the largest land mass, the province is the least populated of all nine provinces. The province is bordered by Namibia and Botswana in the north; while domestically, it is bordered by the North-West Province in the north-east, the Free State Province in the east, the Eastern Cape Province in the south-east, and the Western Cape Province to



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the south and south-west. The Northern Cape consists of five districts, namely Frances Baard, Pixley ka Seme, Namakwa, ZF Mgcawu (previously known as Siyanda) and John Taolo Gaetsewe.

The John Taolo Gaetsewe DM (JTGDM), which lies in the north-east of the province, is geographically the second smallest of the five district municipalities in the province, covering a surface area 27 293 km<sup>2</sup> (6% of the province). It is bordered by the Siyanda District in the east, Botswana in the north, Francis Baard District to the south, and the North-West Province in the west. The JTGDM accounts for about 16% of the provincial population.

The Gamagara LM covers a surface area of 2 619 km<sup>2</sup>, which is approximately 10% of the district's total surface area. It is located in the north-eastern sector of the Northern Cape, bordered by Ga-Segonyana LM in the east, Joe Morolong LM in the north, while Tsantsabane LM forms its south and west borders. Kathu serves as the LM's administrative centre, and it is primarily an iron ore and manganese mining area. The municipality has four major urban settlements - Kathu, Olifantshoek, Dibeng and Mapoteng/Sesheng. Dingleton was previously the fifth major settlement, but with the expansion of Sishen Mine, residents have had to be relocated, a process that began in 2014.

The region is dominated by mining activities to such an extent that the mines themselves - and the giant iron ore trucks at the mines - are considered a tourist attraction and a local landmark. Other major landmarks are the Kalahari Golf Estate close to Kathu, the Kathu Forest (declared a protected Woodland and registered as a national heritage site in 1995); the Gamagara River that runs through the region; the portion of Langeberg running through Olifantshoek; and the dam at the southern entrance of Olifantshoek with the potential of developing into a major tourism attraction.

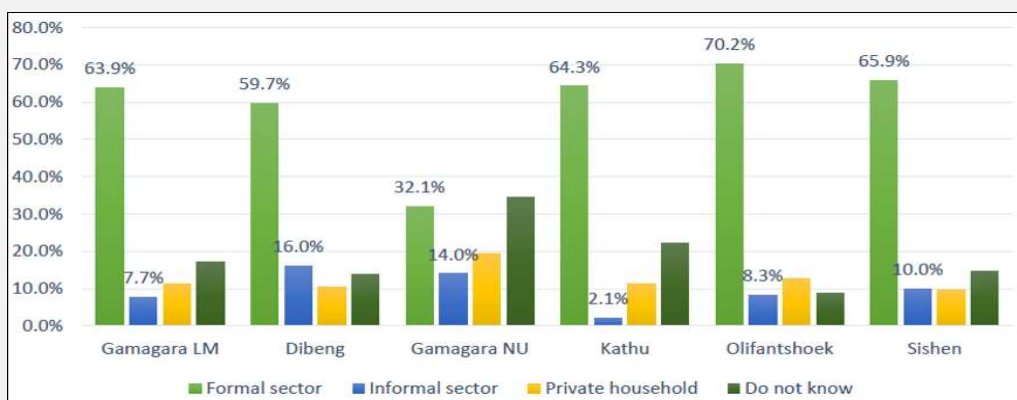
An estimated, 18.5% of the district's population of 224 797 individuals reside in the Gamagara LM. Of these individuals 72%, or 29 969 people, constitute the Working Age Population (WAP); i.e. people between 15 and 64 years of age. However, only about two thirds (65.8%) of this group of people represent the Economically Active Population (EAP), while the rest are either not economically active (32%) or discouraged job seekers (3%). However, the municipality's labour force participation (LFP) or EAP rate is about 10 percentage points higher than that of the country and province, and close to 20 percentage points higher than that of the JTG DM, which has a labour force participation rate of 45.9%. Regarding the settlements within the local municipality, it is interesting to note that towns closer to the mine have a better EAP than those further away. Dibeng and Olifantshoek both record EAP rates of about 55%, while Kathu's and Sishen's EAP rates reach 76% and 67.2%, respectively.

The unemployment rate in the municipality was 17.7% as recorded during 2011 Census. This is significantly lower than the national average of 29.7%, the provincial average of 27.4%, and the district average of 30% recorded for the same year. Among the towns, the lowest unemployment rates were observed in Kathu (unemployment rate of 10.9%) and Gamagara NU (only 8.6%), which is characterised by farming activities and where the majority of residents are employed at farms or at the mine. The highest levels of unemployment were observed in Dibeng and Olifantshoek, where the unemployment rates were 26.4% and 26%, respectively, but these are still lower than the national average. Table 1 provides the labour force composition.

The formal sector provides for the majority of employment opportunities (63.9%) in the municipality, and this is higher than in the province (55.3%) and district (54.5%). However, as suggested by information presented

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in Figure 8, the informal sector also plays an important role in job creation in the municipality (7.7%), but still to a lesser extent than in the province (10.2%).



**Figure 6: Employment Status**

Private households in the municipality also create a notable number of employment opportunities, although they primarily provide unskilled and semi-skilled jobs and hire people as gardeners, housekeepers or child minders. Within the Gamagara LM, 13.3% of employment opportunities in both the formal and informal sectors stem from the primary sector, with 38% of these opportunities provided by the mining industry. However, 40.3% of all employment opportunities within the LM are as a result of the community and personal services, making the industry the single biggest employment creator within the Gamagara LM, followed by trade (18%) and agriculture (8.3%).

### Economic profile of local municipality:

The structure of the economy and the composition of its employment provide valuable insight into the dependency of an area on specific sectors and its sensitivity to fluctuations of global and regional markets. Knowledge of the structure and the size of each sector are also important for the economic impact results' interpretation, as it allows for the assessment of the extent to which the proposed activity would change the economy, its structure, and trends of specific sectors.

#### 1) Size and contribution of the local economy

The economy of the JTG District Municipality is based on mining (68% of provincial Gross Value Added (GVA)), followed by community, social and personal services at 12%. Agriculture and manufacturing, which are strong growth sectors and job creators, play a very insignificant role in the local economy of the district, at 1% and 1.4% respectively (JTG District Municipality 2011: 68). The strong reliance on mining makes the district's economy undiversified and vulnerable. The towns of Kathu and Kuruman grew rapidly due to new mining activities, while many of the villages in Joe Morolong have no economic base to build from and also very little expectation of any new developments or investments. Most services and transport are tied to the mining sector.

Retail activities increased significantly as a result of this increase in mining activities in the area in the past three years in Kathu and essentially fed off population size and available disposable income. Retail and financial services will grow further in Kuruman and Kathu as the population and job opportunities grow but will

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remain locally orientated for a long time to come as Kimberley and Upington are too strong to be challenged in the near future as regional service centres.

The number of households involved in agriculture contracted between 2001 and 2011. A total of 48% of all households in Joe Morolong depend on agriculture – often subsistence farming for an income. The percentages of households involved in agriculture for Ga-Segonyana and Gamagara are 22.3% and 11.11% respectively and tend to include commercial farms.

Cattle and game farming are the mainstay of the agricultural sector. Diversification of the local economy will be focused on agriculture, agro-processing, tourism and manufacturing. Kuruman has a strong base in government services, reflected in the fact that Ga-Segonyana Local Municipality generates 60.6% of JTG District Municipality's GVA for community, social and personal services GVA. In contrast, Kathu's local economy is totally dominated by the mining sector: 71.4% of GVA in the district comes from mines in Gamagara Local Municipality.

In the JTG district area, some ~416 beneficiaries have benefited from land reform schemes covering almost 28,000 ha. In many cases, the economic potential of land is inadequate as a source for economic livelihoods and this will have to be addressed in any future consideration of infrastructure investment and development. As a result, the development priorities should be maximisation of LED opportunities, promoting integration and linkages with the surrounding economy and providing appropriate levels of service.

The mining sector is the largest contributor to the Northern Cape's GDP and accounts for approximately 50% of the GDP of the JTG district area. Sishen Mine is the largest private sector employer in the Northern Cape and around 80% of Sishen mine's permanent employees are local; in other words they are recruited from the host or labour-sending municipalities in the JTG district. Some of these employees are from far-off areas in the rural Joe Morolong Local Municipality and have to relocate to Kathu, Sesheng or Mapoteng when taking up positions at the mine. Local employment from the district does not always mean that employees work close to home.

In addition to direct employment, regional mines offers indirect employment to employees working for suppliers or sub-contractors whose employment is attributable to business generated by mines. Induced employment means mining-related salaries (from direct and indirect employees) are being spent in the local economy and that leads to growth of local businesses and the employment of more people. Sishen mine specifically plays an important role in the economy, both in terms of local job creation and in the procurement of goods and services. In addition, Sishen mine regards its sustainable development efforts, with their strong focus on skills upliftment and enterprise development as playing a crucial role in addressing the issues of local unemployment and poverty alleviation.

In 2015, the economy of the Gamagara LM was valued at R4 385 million (current prices) and contributed 33.7% to the District's economy as well as 5.9% to the economy of the Northern Cape. A third of the local economy's GDP is generated by the mining sector, and specifically activities of the Kumba Iron Ore at its Sishen Mine. In 2016, the mine produced 28.4 million tonnes of iron ore; this was a decrease from 31.4 million tonnes in the previous year. Of the iron ore produced, 2.7 million tonnes were supplied to ArcelorMittal SA while the rest was exported. During the same year, South Africa exported approximately 58 million tons of iron ore, meaning that SIOM alone contributed about 43% towards the volume of exported iron ore. It is estimated that the total iron-ore export value for South Africa amounted to R37.8 billion in the same year, which in turn

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accounted for about 13% of the total value of exported minerals and 3.6% of the country's total export value. Considering the above, total export revenue from the Sishen in 2016 can thus be estimated at R28 billion, which equates to 2.7% of national exports, and clearly illustrates the macroeconomic significance of the SIOC operations.

High dependence on iron ore mining activities in the municipality targeting international commodity markets resulted in the local economy being highly susceptible to economic dynamics globally. This is largely due to the dependency of the local economy on the global demand for iron ore and to some degree, on the stability of the industry internally (i.e. from a labour issue perspective).



**Figure 7: GDP Growth Rates for Gamagara LM and South Africa**

The SIOM is clearly the main economic driver of the local municipalities. According to Kumba Iron Ore, SIOM has sufficient reserves to sustain operations until 2040. This means that the mine will continue supporting the local economy for that period; however, considering the sensitivity of the mine's performance towards the indigenous (i.e. labour issues) and exogenous (i.e. global demand for commodities) factors, the future growth of the local municipality will most likely be reflective of the historical trends with years characterised by high growth and years characterised by declining production.

## 2) Structure of the economy and dynamics

As mentioned previously, the local economy is largely dependent on the mining sector, which contributed 32.9% or R1 433 million towards the Gamagara LM economy in 2015. The rest of the municipal economy comprises largely of the tertiary sector, aimed at servicing the local population and businesses, including Sishen Mine. Contributions from the retail trade (17.1%), personal services (13.6%) and transport (11.6%) industries carry the most weight in this sector. Retail activity has increased significantly over the past decade, as it is reliant on the population size and available disposable income. Agriculture's contribution to the local GDP was limited to 2.0% in 2015, and it is expected that it will not change significantly in the future. The regions climate as well water scarcity limits the type of agricultural activities that can be carried out in the area. The municipality's manufacturing sector is very weak (3.1% of the local economy), and while the contribution of the manufacturing sector to the local economy has been declining over the years, that of the construction sector has been growing.

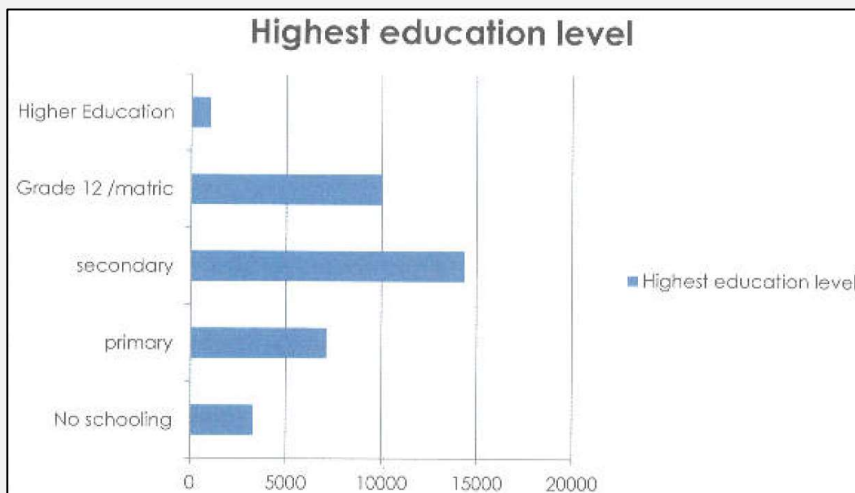
High dependency on mining activities leaves the economy of Gamagara and its communities vulnerable to the volatile factors discussed above. While local government acknowledges the importance of the mining industry

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in the local economy, it also promotes diversification of local economic activities in order to reduce the risks and reliance and performance of the mining industry.

**Level of education:**

From the figure below it is clear that there are a large number of people who have secondary school education, followed by those who have matric. The number of those with no schooling has increased from the 2007 survey to 2011. The implication of the level of education indicates the type of job opportunities that can be accessed by the local communities. The figure below shows the various levels of education within the municipality.



**Figure 8: Highest Education Level**

**b) Socio-economic value of the activity**

The following values are rough estimates based on the current information available and the values will be finalised prior to project implementation

What is the expected capital value of the activity on completion?  
 What is the expected yearly income that will be generated by or as a result of the activity?  
 Will the activity contribute to service infrastructure?  
 Is the activity a public amenity?  
 How many new employment opportunities will be created in the development and construction phase of the activity/ies?

~ R175 million	
R 48 million	
YES	NO ✓
YES	NO ✓
<b>There will be approximately 50 people employed temporarily during the construction phase.</b>	
~ R8 million per annum	
~75%	
~15-20	
~R8 million per annum	
70%	

What is the expected value of the employment opportunities during the development and construction phase?  
 What percentage of this will accrue to previously disadvantaged individuals?  
 How many permanent new employment opportunities will be created during the operational phase of the activity?  
 What is the expected current value of the employment opportunities during the first 10 years?  
 What percentage of this will accrue to previously disadvantaged individuals?

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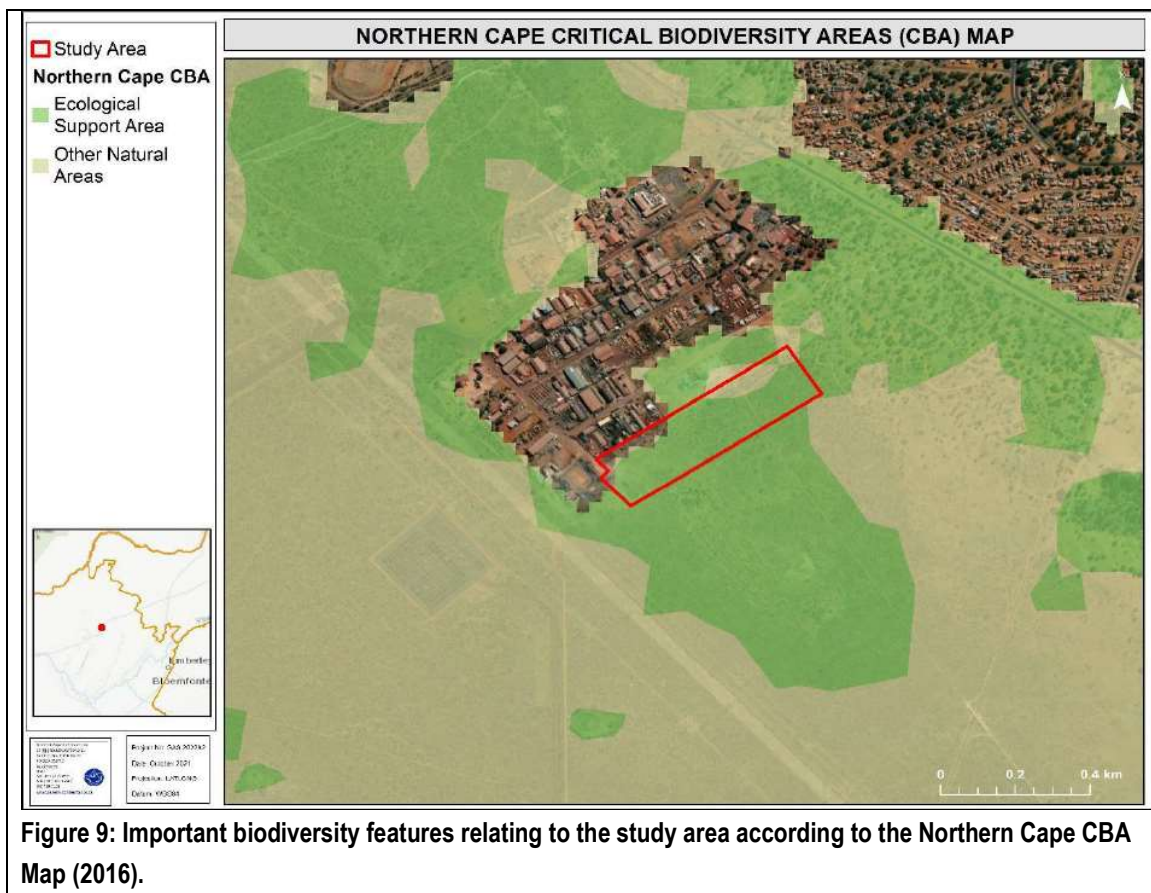
**9. BIODIVERSITY**

Please note: The Department may request specialist input/studies depending on the nature of the biodiversity occurring on the site and potential impact(s) of the proposed activity/ies. To assist with the identification of the biodiversity occurring on site and the ecosystem status consult <http://bgis.sanbi.org> or [BGIShelp@sanbi.org](mailto:BGIShelp@sanbi.org). Information is also available on compact disc (cd) from the Biodiversity-GIS Unit, Ph (021) 799 8698. This information may be updated from time to time and it is the applicant/ EAP's responsibility to ensure that the latest version is used. A map of the relevant biodiversity information (including an indication of the habitat conditions as per (b) below) and must be provided as an overlay map to the property/site plan as Appendix D A to this report.

- a) **Indicate the applicable biodiversity planning categories of all areas on site and indicate the reason(s) provided in the biodiversity plan for the selection of the specific area as part of the specific category)**

<b>Systematic Biodiversity Planning Category</b>				<b>If CBA or ESA, indicate the reason(s) for its selection in biodiversity plan</b>
Critical Biodiversity Area (CBA)	<b>Ecological Support Area (ESA) ✓</b>	<b>Other Natural Area (ONA) ✓</b>	No Natural Area Remaining (NNR)	<p>Information below, relating to biodiversity and ecological aspects of the site have been extracted from the Terrestrial Biodiversity Assessment undertaken by Scientific Terrestrial Services (STS).</p> <p>The proposed tyre management facility is not located within a Critical Biodiversity Area (CBA) as per information obtained from the Northern Cape Critical Biodiversity Areas (2016) database.</p> <p>Approximately 90% of the site is located within an Ecological Support Area (ESA) and the remaining land is classified as Other Natural Area (ONA).</p> <p>The specialist assessment also indicated that the degraded habitat, due to disturbances and alteration of vegetation structure and species composition, no longer meets the requirements for an ESA. The degraded habitat is found on approximately 80% of the site.</p>

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b) Indicate and describe the habitat condition on site

Habitat Condition	Percentage of habitat condition class (adding up to 100%)	Description and additional Comments and Observations (including additional insight into condition, e.g. poor land management practises, presence of quarries, grazing, harvesting regimes etc).
Near Natural (includes areas with low to moderate level of alien invasive plants)	20%	<p><u>Kathu Bushveld Habitat:</u> Habitat associated with the more intact and natural veld conditions observed in the eastern portion of the study area. Th near natural habitat area was approximately 1.9 ha in extent.</p> <p>The area had been completely burnt at the time of assessment, however data from previous assessments in the neighbouring areas combined with the data obtained during the site assessment indicated that the overall species diversity of this habitat unit has been impacted upon. Although ecological processes have been altered, this habitat unit still contains floral species that are considered representative of the vegetation type as described by Mucina and Rutherford (2006).</p> <p><u>Vegetation structure:</u> This habitat unit is characterised by a scattered shrub layer subtended by a continuous grassy layer.</p>

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		<p><u>Dominant Indigenous Vegetation</u> includes the following:</p> <ul style="list-style-type: none"> <li>• Trees and Shrubs: <i>Grewia flava</i>, <i>Tarconanthus camphoratus</i>, <i>Elephantorrhiza elephantina</i>, <i>Acacia mellifera</i>.</li> <li>• Herbs and Forbs: <i>Acanthosicyos naudinianus</i>, <i>Senna italica</i>; and</li> <li>• Graminoids: <i>Aristida meridionalis</i>, <i>Aristida congesta subsp. congesta</i>, <i>Heteropogon contortus</i> and <i>Eragrostis lehmanniana</i>.</li> </ul> <p>There was no dominant alien vegetation observed on site at the time of the assessment.</p>
<p>Degraded (includes areas heavily invaded by alien plants)</p>	<p>80%</p>	<p><u>Degraded Habitat:</u> The proximity of the study area to the industrial area has resulted in the alteration of natural ecological processes as well as increased anthropogenic activities and impacts. Approximately 6.3 ha of the study area, predominantly in the central and western portions of the site, is in a degraded state.</p> <p>The vegetation associated with this habitat unit has been significantly disturbed as a result of earthmoving activities and the dumping of construction rubble and refuse within the area. Informal waste pickers further collect and sort this material for recycling / scrap metal in various smaller localities in the western corner of the study area.</p> <p>Floral species diversity is low and the vegetation is dominated by grass species often associated with areas of disturbance.</p> <p><u>Vegetation structure:</u> Scattered grass layer amongst building rubble and refuse with a scattered shrub and tree layer.</p> <p><u>Dominant Indigenous Vegetation</u> includes the following:</p> <ul style="list-style-type: none"> <li>• Trees and Shrubs: <i>Grewia flava</i> and <i>Acacia mellifera</i>;</li> <li>• Herbs and Forbs: None observed; and</li> <li>• Graminoids: <i>Aristida congesta subsp. congesta</i>, <i>Aristida meridionalis</i>, <i>Melinis repens</i>.</li> </ul> <p><u>Dominant Alien Vegetation</u> was <i>Prosopis glandulosa</i></p>



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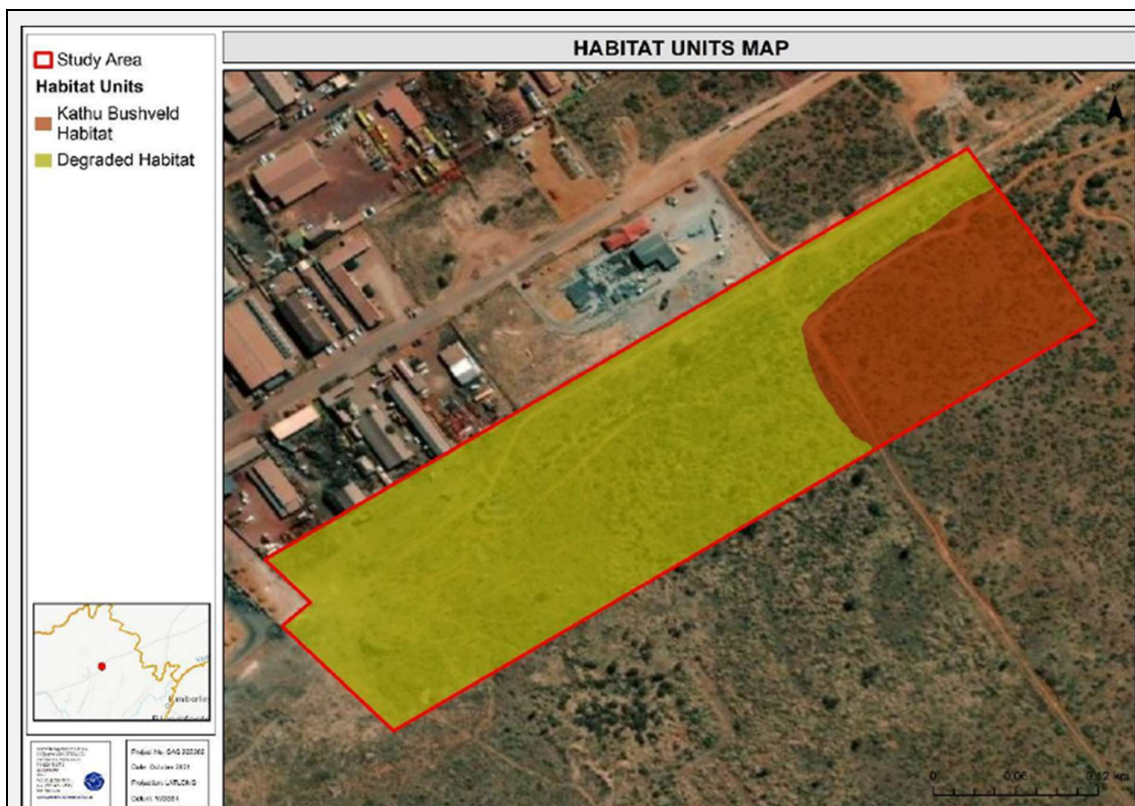


Figure 10: Habitat Units Associated with the site

- c) Complete the table to indicate:
- (i) the type of vegetation, including its ecosystem status, present on the site; and
  - (ii) whether an aquatic ecosystem is present on site.

Terrestrial Ecosystems		Aquatic Ecosystems						
Ecosystem threat status as per the National Environmental Management: Biodiversity Act (Act No. 10 of 2004)	Critical	Wetland (including rivers, depressions, channelled and unchannelled wetlands, flats, seeps pans, and artificial wetlands)			Estuary		Coastline	
	Endangered							
	Vulnerable							
	Least Threatened	YES	NO	UNSURE	YES	NO	YES	NO

- d) Please provide a description of the vegetation type and/or aquatic ecosystem present on site, including any important biodiversity features/information identified on site (e.g. threatened species and special habitats)

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**1. Vegetation types**

Scientific Aquatic Services CC (SAS) conducted a terrestrial biodiversity assessment of the site which comprised of a desktop assessment and field verification. The results of the field assessment identified two broad habitat units:

- Kathu Bushveld Habitat: Habitat associated with the more intact and natural veld conditions observed in the eastern portion of the study area (approx. 1.9 ha in extent); and
- Degraded Habitat: Covers the largest extent of the study area (central and western portion). It is associated with the dumping of building and waste material and increased levels of human foot and vehicle movement which has led to significant habitat alteration and degradation. A low number of informal squatters were also observed in the western portion of the study area.

The habitat units were determined based on species composition, vegetation structure, ecological function, biophysical environment, and habitat condition. Information regarding the two vegetation is contained in the table below.

**Table 1: Vegetation Description of the Site**

	Kathu Bushveld	Degraded Habitat
<b>Reference photos</b>		
<b>Habitat Overview</b>	<p>This habitat unit comprises the smallest extent of the study area, approximately 1.9 ha. This habitat had been completely burnt at the time of assessment, however data from previous assessments in the neighbouring areas combined with the data obtained during the site assessment indicated that the overall species diversity of this habitat unit has been impacted upon. Although ecological processes have been altered, this habitat unit still contains floral species that are considered representative of the vegetation type as described by Mucina and Rutherford (2006).</p> <p><u>Vegetation structure</u> This habitat unit is characterised by a scattered shrub layer subtended by a continuous grassy layer</p>	<p>The vegetation associated with this habitat unit has been significantly disturbed as a result of earthmoving activities and the dumping of construction rubble and as a result of anthropogenic activities such as the dumping of refuse within the area. Floral species diversity is low and the vegetation is dominated by grass species often associated with areas of disturbance.</p> <p><u>Vegetation structure</u> Scattered grass layer amongst building rubble and refuse with a scattered shrub and tree layer.</p>

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<b>Species of Conservation Concern and Presence of Unique Landscapes (CBAs, ESAs, Protected Areas, Indigenous Forest, etc)</b>	
<b>Presence of Unique Landscapes</b>	Much of the study area is indicated as an ESA, with smaller portions indicated as ONA. During the site assessment it was evident that for the most part, this designation is incorrect. The Degraded Habitat due to disturbances and alteration of vegetation structure and species composition no longer meets the requirements for an ESA. The remaining portion of the Kathu Bushveld however can still be considered representative of an ESA.
<b>Species of Conservation Concern</b>	<p>The following floral SCC (comprising of species under the NFA, NCNCA and NEM:BA) as per the national and provincial protected species regulations were observed within the study area:</p> <ul style="list-style-type: none"> <li>➤ The NFA: <ul style="list-style-type: none"> <li>• <i>Vachellia erioloba</i>;</li> </ul> </li> <li>➤ The NCNCA: <ul style="list-style-type: none"> <li>• Schedule 2 – Protected Species: <i>Aloe grandidentata</i>.</li> </ul> </li> </ul> <p>Additionally, the following floral SCC are considered to have an increased probability of occurring within the Kathu Bushveld Habitat:</p> <ul style="list-style-type: none"> <li>➤ <i>Boophone disticha</i> (NCNCA Schedule 2 – Protected);</li> <li>➤ <i>Harpagophytum procumbens</i> (NEM:BA TOPS - Protected); and</li> <li>➤ <i>Nerine laticoma</i> (NCNCA Schedule 2 – Protected Species).</li> </ul> <p>Prior to any ground clearing activities, permits must be obtained from the Department of Forestry, Fisheries and the Environment (DFFE) and the Northern Cape Department of Environment and Nature Conservation (NCDENC) for the removal or destruction of any protected species.</p>
<b>Concluding Remarks</b>	
<p>At the time of the site assessment, the whole study area had been recently burnt, however, data from previous assessments in vicinity as well as specialist knowledge of the area was used to infer site conditions. Although such inference is deemed to be sufficiently accurate to determine habitat conditions and site sensitivity, there remains the probability that some species may have been missed as they have yet to regenerate/regrow post burning. By far the largest impact to the receiving environment within the study area has been the dumping of rubble and household waste, with only a small portion of the study area not being impacted by such. The open areas to the south and the east of the Degraded Habitat have also been impacted in the same manor, as such, development in the Degraded Habitat is unlikely to have a significant impact on these adjacent areas. The open space areas to the north-east and the east of the Kathu Bushveld Habitat however are still considered to be intact, hosting an increased diversity of floral species. Management of edge effects will be important to ensure that the areas adjacent to the Kathu Bushveld are not impacted upon during the construction and operational phases.</p> <p><b>Important considerations:</b></p> <ul style="list-style-type: none"> <li>- Only the Kathu Bushveld habitat unit is considered to be representative of the reference vegetation type;</li> <li>- The habitat units are associated with two known floral SCC, and may provide habitat to three additional species, largely restricted to the Kathu Bushveld habitat unit;</li> <li>- Only one AIP was observed during the site assessment, however, the intense veld fire experienced in the study area made identification of additional AIPs impossible. AIPs are known to occur in the region and flourish in disturbed areas. As such, the areas must be monitored for AIPs and when such are found, they are to be removed / controlled as per an AIP control plan;</li> <li>- According to the Northern Cape CBA (2016) database, the assessment zone is located within an area classified as an ESA with smaller areas classified as ONA and is not associated with any CBAs; and</li> <li>- The Screening Tool output for the area indicated a low sensitivity for the plants theme and a very high sensitivity for the terrestrial biodiversity theme. Given the above data, the Degraded Habitat aligns with the indicated low sensitivity, however the Kathu Bushveld could be considered to be of a higher sensitivity listing. Similarly, the</li> </ul>	

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Degraded habitat does not align with the very high terrestrial biodiversity theme. The Kathu Bushveld habitat within the study area likely aligns with the terrestrial biodiversity theme as this habitat unit is considered representative of the ESA and the reference vegetation type.

### 2. Freshwater Resources

Scientific Aquatic Services (SAS) conducted an investigation considering the freshwater ecology of the study area. A field investigation was undertaken in October 2021, during which it was confirmed that no watercourses as defined by the National Water Act, 1998 (Act No. 36 of 1998) occur within the study area. One area of increased wet response was identified approximately **320 m south of the study area**. This feature possessed distinctive characteristics, in particular, topography and specific floral species as well as soil morphological characteristics which led to the classification thereof as a temporary depression wetland, or “cryptic wetland”. These cryptic wetlands are features which are often “hidden” in the landscape, due to their highly ephemeral nature caused by, for example, arid or semi-arid climatic conditions. In addition, the purpose of the study was to define the area deemed to be of increased Ecological Importance and Sensitivity (EIS), and to define the Present Ecological State (PES) of the cryptic wetland.

**Table 2: Aquatic Ecosystems within the study area**

<b>Watercourse drivers and receptors discussion (hydraulic regime, geomorphological processes, water quality and habitat and biota):</b>	
<p>Historical earthworks which have altered the topography surrounding the cryptic wetland, in turn altering the pattern and timing of flow in the immediate catchment, thus altering the hydraulic regime of the cryptic wetland. However, the surrounding urbanisation is unlikely to have had a significant effect on the hydraulic regime due to the permeability of the surrounding soil which will capture any runoff from the town.</p> <p>Geomorphological processes have been affected marginally as a result of the historical earthworks, and soil disturbances associated with grazing and trampling of domestic livestock in the catchment. This is likely to lead to wind-borne sediment or sediment transported in rainfall being deposited in the cryptic wetland, which over time (decades) could lead to decreased capacity for water retention as well as further alterations to the floral assemblage.</p> <p>At the time of assessment, no surface water was present and therefore water quality parameters could not be assessed. Since the wetland is driven by precipitation and surface water, when water is present it may be affected by increased sediment loads and potentially by pollution, but is likely to be relatively unimpaired.</p> <p>The vegetation community has undergone the greatest degree of modification. Whilst floral species which are considered indicative of increased moisture were present, species such as <i>Chrysocoma obtusata</i> were present, indicating disturbance. Nevertheless, the wetland is likely to provide some degree of biodiversity support, albeit reduced and may be an important seasonal source of water for migratory species although the proximity of anthropogenic activity is likely to negatively influence faunal utilisation.</p>	
<b>Extent of modification anticipated</b>	<p>None.</p> <p>The proposed waste tyre management facility is not expected to encroach directly on the cryptic wetland, nor are any indirect impacts anticipated, provided that appropriate mitigation measures are implemented throughout the life of the facility.</p>
<b>Risk Significance &amp; Business Case:</b>	
<b>With mitigation: Low</b>	<p>The risk significance of the proposed activity was assessed to be 'low', provided that the mitigation measures provided in this report are adhered to. No direct risk is posed to the cryptic wetland, and indirect risks are likely to be minimal especially if suitable measures are implemented to contain contaminated runoff within the premises, and to minimise dust and particulate matter generation. Key mitigation measures include:</p> <ul style="list-style-type: none"> <li>➤ Erection of sediment traps around the construction site to minimise the risk of sediment-laden runoff reaching the cryptic wetland;</li> <li>➤ Retention of as much indigenous vegetation as possible, particularly graminoid species around the southern boundary of the study area to assist in filtering runoff and trapping sediment;</li> <li>➤ Adequate stormwater management measures must be implemented for the study area to ensure no dirty water is released/directed into the downgradient areas where it could potentially impact the cryptic wetland. Although it is acknowledged that minimal space is available within the study area, it is strongly recommended that the proponent investigate the viability of Sustainable Urban Drainage Systems (SUDs), as a potential mitigation against the release of contaminated stormwater into the receiving environment;</li> <li>➤ Six-monthly inspections during the operational phase of stormwater discharge points for indications of discharge structure failure and/or areas of erosion and repair thereof within one month of detection; and</li> <li>➤ Appropriate alien vegetation controls within the study area are to be implemented to prevent the further proliferation of alien vegetation within the surrounding areas.</li> </ul>

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Ecological & socio-cultural service provision graph:

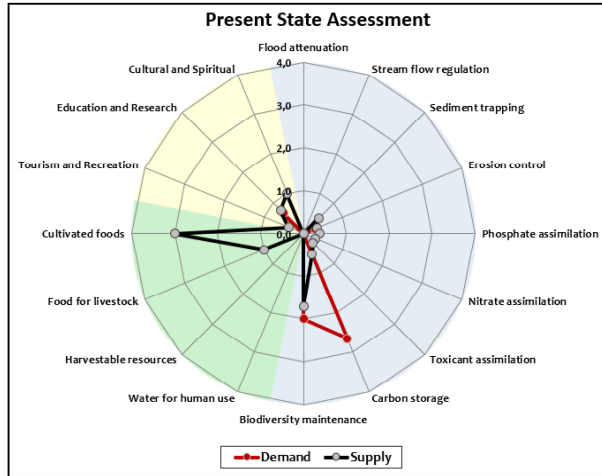


Figure 8: Representative photographs of the cryptic wetland and some of the observed impacts that have occurred.

<p><b>PES discussion</b></p>	<p><b>PES Category: C (2.03)</b>                  The cryptic wetland has been subjected to various impacts relating to urban development, including alterations to the local catchment caused by historical earthworks adjacent to the cryptic wetland, trampling and grazing by domestic livestock, indiscriminate disposal of waste products and encroachment of alien and invasive floral species.</p>	<p><b>Ecoservice provision</b></p>	<p><b>Moderately low</b>                  Ecological service provision by the cryptic wetland is limited, largely due to the absence of surface water for long periods of time. Additionally, the location of the wetland in close proximity to the town of Kathu (approximately 850 m from the southern-most extent of the town) reduces the reliance on the wetland by local communities, since goods that are often associated with wetlands such as provisioning of water for human use, or nutrient-enriched soils for cultivation of crops, are not required. Although the results of the assessment indicated 'high' importance for crop cultivation, this is a function of the soil properties and characteristics, and not indicative of actual demand.</p> <p>The cryptic wetland is likely to be of some importance for biodiversity support in the open area surrounding the cryptic wetland, although proximity of anthropogenic activity will discourage utilisation by fauna, with the exception of less sensitive species.</p>
<p><b>EIS discussion</b></p>	<p><b>EIS Category: Moderate</b>                  Although the ecological integrity of the cryptic wetland has been compromised, it nevertheless retains a level of ecological importance in terms of biodiversity support (most likely for migratory species, and therefore only on a seasonal basis and when surface water is present). It may also be of limited importance for the provision of certain direct benefits such as education and cultural significance.</p>	<p><b>REC, RMO &amp; BAS Category</b></p>	<p><b>REC Category: C</b>  <b>BAS: C (Maintain)</b>  <b>RMO: C (Maintain)</b>                  The proposed tyre reduction facility is unlikely to impact on the cryptic wetland, either directly or indirectly, provided that appropriate mitigation measures are implemented throughout the life of the facility. Thus, maintenance of the PES should be possible. However, since the wetland is situated within an open, accessible area, impacts unrelated to the proposed tyre reduction facility may occur which are beyond the control of the proponent.</p>

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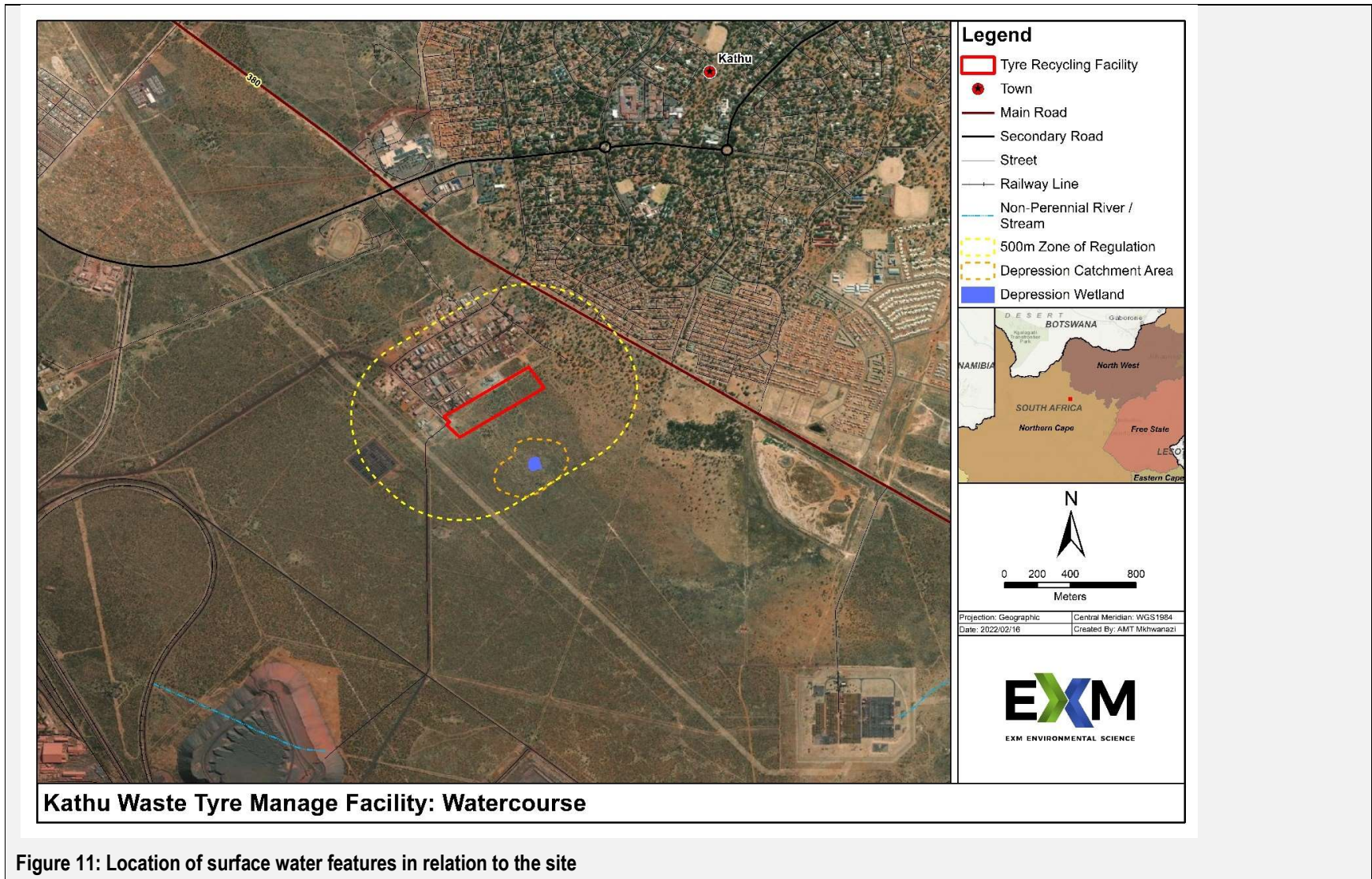


Figure 11: Location of surface water features in relation to the site

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**SECTION C: PUBLIC PARTICIPATION****1. ADVERTISEMENT AND NOTICE**

<b>Publication name</b>	Advertisements were placed in the Kathu Gazette and the Noordkaap Bulletin.	
<b>Date published</b>	Kathu Gazette: 12 February 2022 Noordkaap Bulletin: 11 February 2022	
<b>Site notice position</b>	<b>Latitude</b>	<b>Longitude</b>
<b>Site notice 1</b>	Industrial area: 27°42' 44.32"S 23° 1' 57.90"E	To be provided in final BAR
<b>Site Notice 2</b>		
<b>Site Notice 3</b>		
<b>Site Notice 4</b>		
<b>Date placed</b>	February 2022	

Site notices were placed at the following locations:

- Entrance to the industrial area on Mangaan Street;
- Gamagara Local Municipality;
- Kathu Post Office; and
- Foodzone bakery butchery and fast foods.

Include proof of the placement of the relevant advertisements and notices in **Appendix E1**.

**2. DETERMINATION OF APPROPRIATE MEASURES**

Provide details of the measures taken to include all potential I&APs as required by Regulation 41(2)(e) and 41(6) of GN 733.

Key stakeholders (other than organs of state) identified in terms of Regulation 41(2)(b) of GN 733

**The proposed Tyre Management Facility will be located on land owned by SIOC.**

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				mail@thehorns.co.za	
LOCK	JP	EDENVALE		admin@langebergstene.co.za	083 379 6126
MARITZ	KOOS	LANGLAAGTE		burger.maritz@gmail.com	078 237 0351
MARITZ	ERNEST	DINGLE		ehmaritz@gmail.com	084 513 1501
SPANGENBERG	THIENS	GELUK		makukukwe@lantic.net; krediteuremakuk@lantic.net	0828222531; 083 285 1907
JANSE VAN RENSBURG	DIHAN	DEMANENG		dihanjvrensborg@gmail.com	0826287552
JACOBS	M	TOMKINS		jemma01@webmail.com	082 821 5816
MARITZ	ABRIE	CURTIS		maritzsiviell@vodamail.co.za	082 926 9670

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KOORZEN	MARTIN	FOUROSS		martin.koorzen@vodamail.co.za	082 574 3033
MARITZ	GERHARD	GAPPEPIN; BEAUMONT		waaihoek@vodamail.co.za	082 782 4374
UYS	WILLIE			Willie.Uys66@gmail.com	084 517 4913
KOORZEN	DAAN	MINERAAL		daan.koorzen@vodamail.co.za	082 293 9880
VAN DER LINDE	TOPS	MURRAY		topsvdl@lantic.net	082 337 8722
DE JAGER	CORNIE			eldorado1@telkomsa.net	082 823 5694
OLIVIER	JAN	ROSCOE		jan.z.olivier@gmail.com	072 254 5702
VAN DER MERWE	HENDRIK	SCHOLTZRUS; LIMEBANK		lanavdm1971@gmail.com	079 890 0715
STEENKAMP	COBUS	SMYTHE		coubies@vodamail.co.za	082 829 9163
WIESE	HENK	HARTLEY		henk.wiese.hw@gmail.com	082 411 9741
HOEBEL	S			svelkahoebel@gmail.com	084 200 2026
TERBLANCHE	MARGARET			moselbos2000@gmail.com	073 626 6134
MCLEAN	JOHN			john.cinthy@gmail.com	083 998 9955

**Businesses in the industrial area adjacent to the site:**

Business	Affiliation	Phone	E-mail
Trysome Auto-Electrical Engineering (pty) Ltd	Neighbour	053 723 3415	<a href="mailto:trading@trysome.co">trading@trysome.co</a>
Corporate Tyre Repairs	Neighbour	076 604 8675	<a href="mailto:accounts@ctmc.co.za">accounts@ctmc.co.za</a>
Rand-Air Kathu	Neighbour	053 723 3042	<a href="mailto:info@randair.com">info@randair.com</a>
Pienaar brothers Kathu	Neighbour	053 723 2196	<a href="mailto:kathu@pienaarbrothers.co.za">kathu@pienaarbrothers.co.za</a>
ICT Link	Neighbour	085 300 0555	<a href="mailto:info@ictlink.co.za">info@ictlink.co.za</a>
Mass Hire Home Goods Store	Neighbour	053 723 2018	<a href="mailto:jacot@masshire.co.za">jacot@masshire.co.za</a>
Roxound	Neighbour	082 819 3260	<a href="mailto:manager@roxound.co.za">manager@roxound.co.za</a>
Kotumela Tax and Financial Accountant	Neighbour	053 244 0072	<a href="mailto:info@kotumela.co.za">info@kotumela.co.za</a>
Rema Tip Top Kathu	Neighbour	053 723 1150	
Acorn Projects 51 (Pty)	Neighbour	053 723 2140	
Kathu Profile	Neighbour	053 723 3069	
Poort Beton Kathu	Neighbour	072 533 9693	
Pride In Tyre	Neighbour	082 582 6939	
Roadlab Kathu	Neighbour	082 490 1656	<a href="mailto:william@roadlab.co.za">william@roadlab.co.za</a>
Booyesen Bore Drilling Co (Pty)	Neighbour	053 723 2666	
Traffic Department Kathu	Neighbour	053 723 1009	
Barloworld equipment	Neighbour	053 723 9900	
Record Engineering (Pty)	Neighbour	053 723 1245	<a href="mailto:info@record.co.za">info@record.co.za</a>
Macsteel VRN	Neighbour	053 723 1578	
Kalahari Gas	Neighbour	053 723 1936	
Rimex	Neighbour	011 972 6125	
Form-Scaff	Neighbour	053 723 2194	<a href="mailto:kathu@formscaff.com">kathu@formscaff.com</a>
Trentyre	Neighbour	021 506 2548	
Green Towing Svc	Neighbour	053 723 1518	
4Elements Siyaba (Pty) Ltd	Neighbour	053 723 1940	
ELB Equipments	Neighbour	053 723 1420	
Rebarworx (Pty) Ltd	Neighbour	053 723 1648	
Igloo Plant Hire	Neighbour	053 723 1514	

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Kathu Paint Shop	Neighbour	053 723 1904	
JP Vermeulen Konstruksie and Vervoer	Neighbour	053 723 1131	
Langeberg Bricks	Neighbour	082 807 8878	
Bakhidi Bricks & Paving	Neighbour	053 050 1139 / 063 343 8000	
Halsted	Neighbour	053 723 1276	
Kgalagadi Signs	Neighbour	053 723 1145	

Include proof that the key stakeholder received written notification of the proposed activities as **Appendix E2**. This proof may include any of the following:

- e-mail delivery reports;
- registered mail receipts;
- courier waybills;
- signed acknowledgements of receipt; and/or
- or any other proof as agreed upon by the competent authority.

### 3. ISSUES RAISED BY INTERESTED AND AFFECTED PARTIES

The following communications have been received from IAPs to date:

Date received	Name of commenting IAP	Summary of main issues raised by I&APs	Summary of response from EAP
23/02/2022	Melinda de Bruin	Requested additional project information	BID sent and dBAR will be sent to IAP for review and comment
24/02/2022	Mr C Samia	SRS Global trading provides OTR tyre management within the South African market.	Contact details for the stakeholder have been sent to SIOC.
06/03/2022	Moses Moalahi	Requested to be registered as an IAP	Moses Moalahi has been added to the stakeholder database.

### 4. COMMENTS AND RESPONSE REPORT

The practitioner must record all comments received from I&APs and respond to each comment before the Draft BAR is submitted. The comments and responses must be captured in a comments and response report as prescribed in the EIA regulations and be attached to the Final BAR as **Appendix E3**.

### 5. AUTHORITY PARTICIPATION

Authorities and organs of state identified as key stakeholders:

Authority/Organ of State	Contact person Name	Contact person Surname	Tel No	e-mail	Postal address
NORTHERN CAPE: DEPARTMENT OF WATER & SANITATION	ABE	ABRAHAMS	053 836 7600	AbrahamsA@dws.gov.za	PRIVATE BAG X6101, KIMBERLEY, 8301
VAAL RIVER PROTO - CAM	PHILANI	MSIMANGO	053 836 7649	MsimangoP@dws.gov.za	PRIVATE BAG X6101,

## BASIC ASSESSMENT REPORT

Authority/Organ of State	Contact person Name	Contact person Surname	Tel No	e-mail	Postal address
					KIMBERLEY, 8301
NORTHERN CAPE: DEPARTMENT OF AGRICULTURE, FORESTRY & FISHERIES	JACOLINE	MANS	054 338 5909	JacolineMa@daff.gov.za	PRIVATE BAG X5912, UPINGTON, 8800
NORTHERN CAPE: DEPARTMENT OF MINERAL RESOURCES	NTSUNDENI	RHAVUGHONI	053 807 1700	ntsundeni.ravhugoni@dmr.gov.za	PRIVATE BAG X6093, KIMBERLEY, 8300
NORTHERN CAPE: DEPARTMENT OF MINERAL RESOURCES	MALATJIE			livhuwani.malatjie@dmr.gov.za	PRIVATE BAG X6093, KIMBERLEY, 8301
NORTHERN CAPE: DEPARTMENT OF MINERAL RESOURCES	JOHANNES	NEMATATANI		Johannes.Nematatani@dmr.gov.za	PRIVATE BAG X6093, KIMBERLEY, 8301
NORTHERN CAPE: DEPARTMENT OF MINERAL RESOURCES	HUMBULANI	MASHAU		humbulani.mashau@dmre.gov.za	PRIVATE BAG X6093, KIMBERLEY, 8301
NORTHERN CAPE: DEPARTMENT OF MINERAL RESOURCES	VINCENT	MUILA		vincent.muila@dmre.gov.za	PRIVATE BAG X6093, KIMBERLEY, 8301
DEPARTMENT OF ENVIRONMENT AND NATURE CONSERVATION	DINEO	MOLEKO	053 807 7300	dmoleko@ncpg.gov.za	
NORTHERN CAPE: DEPARTMENT OF LAND REFORM AND RURAL DEVELOPMENT	W.	MOTHIBI	053 838 9100		
NORTHERN CAPE: DEPARTMENT OF ECONOMIC DEVELOPMENT AND TOURISM	DARIUS	BABUSENG	053 839 4000	dedat@ncpg.gov.za	
DEPARTMENT OF ROADS AND PUBLIC WORKS	KOLEKILE	NOGWILE	053 839 2100	drpw-info@ncpg.gov.za	
DEPARTMENT OF SOCIAL DEVELOPMENT	ELIZABETH	BOTES	053 874 9100		
SOUTH AFRICAN HERITAGE RESOURCES COUNCIL	SAHRIS		021 462 4502	info@sahra.org.za	
SOUTH AFRICAN HERITAGE RESOURCES AGENCY	REDELSTORFF	RAGAN	021 202 8651	rredelstorff@sahra.org.za	PO Box 4637, Cape Town 2000
DEPARTMENT OF DEFENCE	SM	DLAMINI	0123556365	siphiwe.dlamini@dod.mil.za	
LOHATLA	VELNE	LAKAY	053 321 2259	lohatla@sarmyfoundation.co.za	
SANBI	CRAIG	ALLENBY		C.Allenby@sanbi.org.za	
NORTHERN CAPE DEPARTMENT OF ENVIRONMENTAL AFFAIRS AND NATURE CONSERVATION	SYLVIA	LUCAS	053 832 1026	slucas@ncpg.gov.za	
DEPARTMENT OF TOURISM AND ENVIRONMENTAL CONSERVATION	SIBONELO	MBANJWA		smbanjwa@half.ncape.gov.za	
DEPARTMENT OF AGRICULTURE, LAND REFORM AND RURAL DEVELOPMENT	NJ	TOERINE	054 337 8000	ntoerien1@gmail.com	P O Box 52, Upington, 8800

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Authority/Organ of State	Contact person Name	Contact person Surname	Tel No	e-mail	Postal address
DEPARTMENT OF AGRICULTURE, LAND REFORM AND RURAL DEVELOPMENT	CHRISTO	SMIT	054 337 8000	jabu.smit@gmail.com	P O Box 52, Upington, 8800
GAMAGARA LOCAL MUNICIPALITY	PROTEA	LESERWANE	082 940 1876	protea@gamagara.co.za	PO BOX 1001, KATHU, 8446
GAMAGARA LOCAL MUNICIPALITY	EDWIN	HANTISE	0761199642	hantisee@gamagara.co.za	PO BOX 1001, KATHU, 8446
JOHN TAOLO GAETSEWE DISTRICT MUNICIPALITY	CLLR. SOPHIA	MOSIKATSI	082 777 1145	mosikatsis@taologaetsewe.gov.za	PO BOX 1480, KURUMAN, 8460
JOHN TAOLO GAETSEWE DISTRICT MUNICIPALITY	DISANG	MOLAOLE		molaoled@taologaetsewe.gov.za	PO BOX 1480, KURUMAN, 8460
JOE MOROLONG LOCAL MUNICIPALITY	DINEO	LEUTLWETSE	0796561938	dineoleu1@gmail.com	PRIVATE BAG X117, MOTHIBISTA D, 8474
JOE MOROLONG LOCAL MUNICIPALITY	TEBOGO	THLOALE	0823313477	mm@joemorolong.gov.za	PRIVATE BAG X117, MOTHIBISTA D, 8474
GA SEGONYANA LOCAL MUNICIPALITY	CLLR. NEO	MASEGALA	0537129300	ngmasegela@icloud.com	PRIVATE BAG X 1522, KURUMAN, 8460
GA SEGONYANA LOCAL MUNICIPALITY	MARTIN	TSATSIMPE	0827273823	mtsatsimpe@gmail.com	PRIVATE BAG X 1522, KURUMAN, 8460
JOHN TAOLO GAETSEWE DISTRICT MUNICIPALITY	BOTTSHOKO	SEGOJE	063 779 9828	segojeb@taologaetsewe.gov.za	
GAMAGARA WARD 6	WILLEM	AUCAMP	083 305 8892	willie@aucampstud.com	
GAMAGARA WARD 1	HENRIETTE	DU PLESSIS	0718028415	henrietteduplessis95@gmail.com	
GAMAGARA WARD 2	ABEL	BOOYSEN	0769431058	aboooyesen45@gmail.com	
GAMAGARA WARD 3	MONICA	OPERN	0783433375	orpenmonica@gmail.com; 2orpen.monica@gmail.com	
GAMAGARA WARD 4	BP	LEKGADI		lekgadibp90@gmail.com	
GAMAGARA WARD 5	N	MAGAGANE	0645450206	magaganen@gamagara.co.za	
GAMAGARA WARD 6	CHARLOTT	JOSEPH	0799447362	cvjoseph312@gmail.com	
GAMAGARA WARD 7	HENNIE	FOURIE	0723807214	hennie@ncts.co.za	
GAMAGARA LOCAL MUNICIPALITY	D	SEETILE		seetiled@gamagara.co.za	

Include proof that the Authorities and Organs of State received written notification of the proposed activities as **Appendix E4**.

In the case of renewable energy projects, Eskom and the SKA Project Office must be included in the list of Organs of State.

## 6. CONSULTATION WITH OTHER STAKEHOLDERS

Note that, for any activities (linear or other) where deviation from the public participation requirements may be appropriate, the person conducting the public participation process may deviate from the requirements of that sub-regulation to the extent and in the manner as may be agreed to by the competent authority.

Proof of any such agreement must be provided, where applicable. Application for any deviation from the regulations relating to the public participation process must be submitted prior to the commencement of the public participation process.

## BASIC ASSESSMENT REPORT

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A list of registered I&APs must be included as **Appendix E5**. Copies of any correspondence and minutes of any meetings held must be included in **Appendix E6**.



## BASIC ASSESSMENT REPORT

**SECTION D: IMPACT ASSESSMENT**

The assessment of impacts must adhere to the minimum requirements in the EIA Regulations, 2014 and should take applicable official guidelines into account. The issues raised by interested and affected parties should also be addressed in the assessment of impacts.

**1. IMPACTS THAT MAY RESULT FROM THE PLANNING AND DESIGN, CONSTRUCTION, OPERATIONAL, DECOMMISSIONING AND CLOSURE PHASES AS WELL AS PROPOSED MANAGEMENT OF IDENTIFIED IMPACTS AND PROPOSED MITIGATION MEASURES**

Provide a summary and anticipated significance of the potential direct, indirect and cumulative impacts that are likely to occur as a result of the planning and design phase, construction phase, operational phase, decommissioning and closure phase, including impacts relating to the choice of site/activity/technology alternatives as well as the mitigation measures that may eliminate or reduce the potential impacts listed. This impact assessment must be applied to all the identified alternatives to the activities identified in Section A(2) of this report.

**Note: The detailed impact assessment and methodology are included in Appendix F.  
A full set of mitigation measures is included in the EMPr (Appendix G).**

Potential impacts associated with the Construction and Operational phases:					
IMPACT CATEGORY	POTENTIAL IMPACT	PHASE	SIGNIFICANCE WITHOUT MITIGATION	MITIGATION	SIGNIFICANCE WITH MITIGATION
Soil					
Soil contamination	Oil and hydrocarbon spills from vehicles and machinery during the construction and operational phases. Soil contamination and loss of fertility.	C&O	Low	<ul style="list-style-type: none"> <li>Ensure that spill kits are available at the site during construction and operations. Spills must be cleaned timeously.</li> <li>Large spills must be dealt with as incidents.</li> <li>Remove any contaminated soil and dispose of at an appropriately licenced landfill site or transport to Sishen's bioremediation facility for treatment.</li> <li>Provide bunding for the storage of bulk hazardous substances containers/tanks.</li> <li>Maintenance to be conducted in a roofed building or in an area with appropriate containment measures in place.</li> <li>Appropriate containment measures must be implemented at the refuelling area.</li> </ul>	Very Low

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Soil erosion	The removal of natural vegetation and topsoil will increase the likelihood of stormwater runoff and erosion.	C&O	Medium	<ul style="list-style-type: none"> <li>Rehabilitate all areas not used for the establishment of infrastructure after construction has been completed, if required.</li> <li>Implement a Stormwater Management Plan (SWMP). System to be maintained, i.e. cleaning of culverts.</li> <li>Stripping of topsoil only allowed in demarcated and approved footprints.</li> <li>All available topsoil to be stripped from the footprint area and stockpiled for use during rehabilitation after construction has been completed</li> </ul>	Low
Soil compaction	Soil compaction due to the movement of heavy machinery along access roads and project footprint area.	C&O	Low	<ul style="list-style-type: none"> <li>Soil stockpiles should not exceed 2m. Protect soil stockpiles from erosion, if needed.</li> <li>Install dissipating structures (such as gabions) at stormwater discharge points, where necessary or where erosion is evident.</li> </ul>	Very Low
<b>Land Use</b>					
Change in land use	Loss of agricultural land capability	C&O	Very Low	<ul style="list-style-type: none"> <li>None proposed.</li> <li>The site should be rehabilitated upon the unlikely closure thereof.</li> </ul>	Very Low
Change in land use	Improvement in land use from degraded area to industrial development	C&O	Medium Positive	None proposed.	Medium Positive
<b>Biodiversity</b>					
Invasive alien plants	Proliferation of invasive alien vegetation	C&O	Medium	<ul style="list-style-type: none"> <li>Invasive plant species must be removed during construction.</li> <li>The fire management buffer areas and other areas not used for the establishment of infrastructure must be kept clear of Alien Invasive Plants (AIP) during operations.</li> <li>AIP control should be implemented by a qualified professional. No chemical control of AIPs to occur without a certified professional.</li> <li>Conduct follow up inspections of areas during the growing season to control any new growth.</li> </ul>	Low
Fauna	Loss of Faunal Habitat and Diversity	C&O	Low	<ul style="list-style-type: none"> <li>No vehicles are allowed to drive in the adjacent natural areas unless on an existing road.</li> <li>If detected, small faunal species such as reptiles and scorpions that are found during site clearance must be safely moved to an area of similar habitat outside of the disturbance footprint.</li> <li>Hunting or trapping of faunal species must be prohibited and must be communicated to all construction personnel.</li> <li>Vegetation clearance only allowed in demarcated and approved footprints.</li> </ul>	Very Low

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Flora	Impact on Floral Habitat, diversity and species of conservation concern	C&O	Low	<ul style="list-style-type: none"> <li>Obtain permits prior to the removal of protected trees.</li> <li>SIOC to integrate the removal of protected trees in the current strategy to plant saplings on designated locations.</li> <li>Vegetation clearance only allowed in demarcated and approved footprints. Footprint size must be restricted to what is absolutely necessary.</li> <li>Informal fires by any personnel will be prohibited.</li> <li>Landscaping should preferably be done with indigenous species.</li> <li>Restrict movement of vehicle and people to designated roads and footprints.</li> </ul>	Very Low
<b>Surface Water</b>					
Cryptic wetland	Impact on cryptic wetland	C&O	Very Low	<ul style="list-style-type: none"> <li>Adequate stormwater management measures must be implemented to ensure no contaminated water is released/directed into the downgradient areas where it could potentially impact the wetland.</li> <li>Separation of clean and dirty water within tyre management facility.</li> </ul>	Very Low
<b>Groundwater</b>					
Contamination of groundwater	Seepage or spillage of contaminants into groundwater during construction and operational activities.	C&O	Low	<ul style="list-style-type: none"> <li>Any fuels, contaminants and hazardous substances stored on site must be stored in sealed containers on an impervious surface.</li> <li>Drip trays and spill kits must be available on site at all times.</li> </ul>	Very Low
<b>Noise and Air Quality</b>					
Noise and dust due to vehicles and equipment	Increased noise levels. Dust generation Nuisance conditions for sensitive receptors in proximity to the facility.	C&O	Medium	<ul style="list-style-type: none"> <li>Implement strict speed limits on all roads.</li> <li>Implement dust suppression on roads and other unsurfaced areas</li> <li>Implement a complaints management procedure.</li> <li>Dust suppression on exposed areas during construction activities.</li> <li>Maintenance of processing equipment according to manufacturer's specifications.</li> <li>Dust fall monitoring during construction according to the National Dust Control Regulations.</li> </ul>	Low
<b>Traffic</b>					
Trucks driving to and from the site	Increased traffic and congestion on roads. Impact on road conditions.	C&O	Low	<ul style="list-style-type: none"> <li>Only use designated routes for the transportation of products.</li> </ul>	Low
<b>Fire Management</b>					

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Fire at the tyre management facility	Ignition of waste tyres and machinery	C&O	Medium	<ul style="list-style-type: none"> <li>Prohibit fires on site during construction and operations.</li> <li>A waste tyre stockpile abatement plan must be compiled in accordance with the Waste Tyre Regulations (2017).</li> <li>Fire fighting equipment must be available at strategic locations (including the refuelling area and tyre stockpiles) and must be maintained according to a strict schedule.</li> <li>Adequate fire fighting measures must be implemented at waste tyre storage area.</li> <li>Emergency contact details must be displayed at strategic location and communicated to staff members.</li> <li>The buffer areas/fire breaks must be maintained and kept clear of debris and not be overgrown by vegetation.</li> <li>An allocated staff member (such as a security guard) which is always on site must be trained in fire management.</li> <li>All control measures and equipment detailed in the fire abatement plan must be implemented, adhered to and regularly inspected.</li> </ul>	Low
<b>Waste Management</b>					
Littering and inadequate waste management practices	Contamination of soil, surface water and surrounding natural environment	C&O	Low	<ul style="list-style-type: none"> <li>Waste management to be integrated with Sishen mine's practices if practicable.</li> <li>Awareness training should be undertaken regarding waste management.</li> <li>No mixing of general and hazardous waste allowed.</li> <li>Provide designated labelled bins and skips at strategic positions for the placement of general and hazardous waste separately. These containers must not be overfilled</li> <li>All hydrocarbon contaminated material (rags, PPE, containers etc.) must be placed in a labelled, skip and disposed at a licenced facility.</li> <li>Waste batteries to be provided to the suppliers for recycling</li> <li>Fluorescent tubes must be provided to a licenced facility for treatment. Fluorescent tubes must be stored in appropriate containers.</li> <li>Implement good housekeeping practices at waste storage area</li> <li>Implement a waste manifest system for the management of hazardous waste</li> <li>Implement the requirements of the Norms and Standards for the Storage and Mechanical Processing of Waste – related to the storage and processing of waste tyres</li> <li>Implement a system for the separation and recycling of waste if practicable.</li> </ul>	Very Low

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Recycling of waste	Reduction in the use of natural resources	C&O	Medium Positive	<ul style="list-style-type: none"> <li>No mitigation required.</li> <li>Maximise processing of waste tyres.</li> </ul>	Medium Positive
<b>Cultural Heritage</b>					
	Damage or destruction to cultural heritage artefacts and palaeontological resources	C	Very Low	<ul style="list-style-type: none"> <li>Develop a chance find procedure, which outlines actions to be taken if heritage resources or palaeontological artefacts are encountered during project construction.</li> </ul>	Very Low
<b>Municipal Services</b>					
Municipal water supply	Additional potable and raw water use, due to the construction and operation of the tyre management facility	C&O	Low	<ul style="list-style-type: none"> <li>Awareness training.</li> <li>Water leaks must be reported and repaired timeously.</li> </ul>	Very Low
Electrical supply	Greenhouse gas emissions. Dependency on non-renewable resources	C&O	Low	<ul style="list-style-type: none"> <li>Investigate the use of energy efficient technology/ techniques, i.e. use of natural lighting, energy efficient bulbs, solar lights/cameras.</li> <li>Awareness training regarding electricity consumption.</li> </ul>	Very Low
<b>Socio-Economic</b>					
Job Creation and Skills Development	Employment opportunities	C&O	High Positive	<ul style="list-style-type: none"> <li>No mitigation required.</li> </ul>	High Positive
	Local procurement and enterprise development due to construction activities	C&O	Medium Positive	<ul style="list-style-type: none"> <li>No mitigation required</li> <li>Preferential procurement plan for local suppliers.</li> </ul>	Medium Positive
Nuisance impacts to adjacent businesses	Increased levels of noise, dust and traffic which can impact on surrounding businesses and receptors	C&O	Medium	<ul style="list-style-type: none"> <li>Engage with potentially affected parties</li> <li>Open communication with adjacent businesses</li> </ul>	Low
<b>Potential Cumulative and Rehabilitation related impacts:</b>					
IMPACT CATEGORY	POTENTIAL IMPACT	PHASE	SIGNIFICANCE WITHOUT MITIGATION	MITIGATION	SIGNIFICANCE WITH MITIGATION
Rehabilitation	Inadequate ripping of compacted soil areas which can impact on vegetation regrowth. .	R&C	Low	<ul style="list-style-type: none"> <li>Footprint should be thoroughly cleaned and ripped as soon as possible after closure of the facility.</li> </ul>	Low
Rehabilitation	Soil erosion and contamination	R&C	Low	<ul style="list-style-type: none"> <li>Implement stormwater management measures – ensure that the site is free draining.</li> <li>Rehabilitation plan to be compiled prior to closure and rehabilitation of the facility.</li> </ul>	Very Low
Rehabilitation	Establishment and spread of alien invasive plant species	R&C	Low	<ul style="list-style-type: none"> <li>Implement an Alien Invasive Plant (AIP) Management Plan during rehabilitation activities.</li> <li>Monitoring to be undertaken for a 1 year period after closure.</li> </ul>	Low

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Rehabilitation	Waste and Infrastructure removal	R&C	Medium	<ul style="list-style-type: none"> <li>All infrastructure and machinery to be removed during rehabilitation and closure.</li> <li>Soil to be inspected for pollution and contamination.</li> <li>All waste to be disposed of appropriately in accordance with applicable legislation.</li> </ul>	Very Low
<b>Cumulative Impacts</b>					
Climate change and Greenhouse Gas Emissions	Activities during construction and operations will entail the movement of heavy motor vehicles and the use of equipment which consume fuel, use electricity and produce greenhouse gas emissions.	Cumulative	Medium	<ul style="list-style-type: none"> <li>Regular maintenance of vehicles and equipment</li> </ul>	Low
Cumulative impact of noise and dust due to surrounding industrial businesses	Increased noise and dust levels	Cumulative	Medium	<ul style="list-style-type: none"> <li>Implement mitigation measures relating to Noise and Air Quality.</li> </ul>	Low
Roads and Traffic	Increase in vehicles on roads surrounding the industrial area	Cumulative	Medium	<ul style="list-style-type: none"> <li>Implement mitigation measures relating to Noise and Air Quality.</li> <li>SIOC to maintain access road into tyre management facility</li> </ul>	Low
<b>Alternatives</b>					
<p>No alternative locations were considered for the development of the proposed facility. The site is situated adjacent to an existing industrial area and is ideally located in terms of the availability of municipal services (water, electricity and sewage) and access to the facility is readily available. The proposed site has been disturbed by historic activities and the majority of the area do not represent the baseline vegetation type, and therefore impacts on biodiversity will be low. The biodiversity study concluded that a low to very low impact significance is anticipated on both fauna and flora in the study area. No impacts are anticipated on residents as the closest residential area is located 460m from the site. Furthermore, no alternative layouts were considered as the layout will be restricted to the location of the existing access points and municipal (water, electricity and sewage) connections. Any alternative layouts would not result in less significant environmental impacts.</p>					
<b>No-go Option</b>					
<p>In accordance with the NEMA EIA Regulations, the no-go alternative is required to be investigated and assessed. The no-go option refers to the alternative of the proposed development not proceeding. This alternative generally avoids potential positive and negative impacts on the environment, as the current status quo will remain.</p> <p>Should the no-go alternative be implemented, the proposed waste tyre management facility will not be constructed as planned. SIOC and other mines in the area will continue to stockpile large volume of waste tyres without a means to manage the tyres. The “indefinite” stockpiling of tyres is not ideal as increasingly new areas will have to be developed for such stockpiles which will result in additional greenfield development and associated biodiversity impacts. Employment opportunities and local procurement associated with the tyre management facility will not be realised.</p>					

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The impacts associated with the proposed facility will not materialise, should the no-go alternative be implemented. There would be no disturbance to the land, no vegetation clearance and no noise due to construction activities and operations at the facility. The site is however already disturbed and is also located adjacent to an industrial area. The bio-physical impacts associated with the proposed facility are therefore considered minimal. The proposed facility is viewed as an improvement of the land use as degraded land will be converted to industrial land.

The benefits of implementing the project far outweigh the cons from an environmental, social and economic perspective and therefore the no-go alternative is not a preferred option.

A complete impact assessment in terms of Regulation 19(3) of GN 733 must be included as **Appendix F**.

## 2. ENVIRONMENTAL IMPACT STATEMENT

Taking the assessment of potential impacts into account, please provide an environmental impact statement that summarises the impact that the proposed activity and its alternatives may have on the environment after the management and mitigation of impacts have been taken into account, with specific reference to types of impact, duration of impacts, likelihood of potential impacts actually occurring and the significance of impacts.

### **Alternative A (preferred alternative)**

Sishen Iron Ore Company (Pty) Ltd ("SIOC") is in the process of applying for an Environmental Authorisation (EA) for Activities 27 and 28 contained in Listing Notice 1 - GNR 983 of 2014 (as amended by GNR 327 in 2017) in terms of the NEMA.

#### **Positive impacts**

The proposed tyre management facility will enable SIOC and other mines in the area to legally store and dispose of their waste tyres at the tyre management facility. The mechanical downsizing of the tyres will allow further processing (recycling) of the tyres to produce various other products and be used in applications listed below.

- Shreds (used in matting, sport surfaces, turf and playgrounds);
- Granules and chips (used in athletic tracks, playgrounds, horse arenas and asphalt);
- Crumbs and powders (used in new tyres, brake pads, road sealing, adhesives and paints); and
- Large shredded tyre chips (used in civil engineering and fuel derivatives).

The proposed tyre management facility will assist SIOC in taking a product considered to be a waste source and re-purposing it for additional beneficial uses. It will allow for an effective management method for the reduction of current waste tyre stockpiles and future waste tyre generation. The use of downsized tyres in further processing activities reduces the dependency on natural resources and associated environmental impacts.

The proposed site is located adjacent to an existing industrial area and a large portion of the site has been previously disturbed due to illegal dumping. The change in land-use is a positive impact, as it will improve and

## BASIC ASSESSMENT REPORT

transform a degraded area into an industrial facility which will also have positive economic and employment benefits.

A cryptic wetland is located approximately 320 m south-east of the site and no impacts on the wetland are anticipated due to the distance from the tyre management facility and surrounding topography.

There are existing municipal services in close proximity and only minor connections will be required to provide services such as water, electricity and sewage removal.

**Negative impacts**

Negative impacts include the potential for dust and noise generation during the construction and operational phases. The clearance of the site will entail the removal of some indigenous vegetation and potential disturbance to faunal species. However the Terrestrial Biodiversity Assessment undertaken concluded that a large portion of the site is disturbed and impacts resulting from vegetation clearance are of a low to very low significance.

There is the potential for soil and water contamination due to spills or leaks from vehicles and machinery at the tyre management facility. Diesel will also be stored during the operational phase and vehicles will be services which may lead soil/stormwater contamination. These impacts were assessed to be of a low to very low significance after the implementation of mitigation measures. No heritage resources were identified and not impacts are anticipated depending on the implementation of a chance find procedure.

Tyres are flammable due to it's ability to retain heat. A fire at the facility would pose a large risk to both the tyre management facility and surrounding industries and receptors. It is therefore important that a fire break be maintained along the perimeter of the site and that a fire abatement plan be compiled and adhered to. The plan will detail all fighting management measure required on site as well as actions and emergency procedures to be undertaken in the event of a fire.

**Summary statement**

The project will result in an overall positive environmental status quo, as all potential negative impacts can be mitigated to a low or very low significance after the implementation of mitigation measures. The tyre management facility is aligned with the objectives of sustainability and recycling as well as job creation and poverty alleviation.

The proposed tyre management facility will assist SIOC and surrounding mines in taking a product considered to be a waste source and re-purposing it for additional beneficial uses. It will allow for an effective management method for the reduction of current waste tyre stockpiles and future waste tyre generation.

**Alternative B**

No alternative locations were considered for the development of the proposed facility. The site is situated adjacent to an existing industrial area and is ideally located in terms of the availability of municipal services (water, electricity and sewage) and access to the facility is readily available. The proposed site has been disturbed by historic activities and the majority of the area does not represent the baseline vegetation type. The biodiversity study concluded that a low to very low impact significance is anticipated on both fauna and flora in the study area. No impacts are anticipated on residents as the closest residential area is located 460m from the site.



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Furthermore, no alternative layouts were considered as the layout is restricted to the location of the existing access points and municipal (water, electricity and sewage) connections. Any alternative layouts would not result in less significant environmental impacts.

### Technology alternatives

The proposed alternative entails the mechanical processing (cutting, shredding and granulation) of waste tyres. No water is required and it does not entail a drying process. The input cost for mechanical processing is also relatively low. The Cryogenic Grinding method requires a drying process and has high input and operational cost due to the use of liquid nitrogen. The Wet Grinding process requires water during processing and also a drying process. Additional water requirements will put increased pressure on the municipal supply and surface water resources. Mechanical processing is therefore the preferred alternative from a cost-effective and environmental perspective.

### No-go alternative (compulsory)

Should the no-go alternative be implemented, the proposed waste tyre management facility will not be constructed as planned. SIOC and other mines in the area will continue to stockpile large volumes of waste tyres without a means to manage these tyres. The “indefinite” stockpiling of tyres is not ideal as increasingly new areas will have to be developed for such stockpiles.

Employment opportunities associated with the tyre management facility will not be realised.

The impacts associated with the tyre management facility will not materialise, should the no-go alternative be implemented. There would be no disturbance to the land, no vegetation clearance and no noise due to construction activities and operations at the facility.

The site is however already disturbed and is also located adjacent to an industrial area. The bio-physical impacts associated with the proposed facility are therefore considered minimal.

## SECTION E. RECOMMENDATION OF PRACTITIONER

Is the information contained in this report and the documentation attached hereto sufficient to make a decision in respect of the activity applied for (in the view of the environmental assessment practitioner)?

YES ✓	NO
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If “NO”, indicate the aspects that should be assessed further as part of a Scoping and EIA process before a decision can be made (list the aspects that require further assessment).

N/A

If “YES”, please list any recommended conditions, including mitigation measures that should be considered for inclusion in any authorisation that may be granted by the competent authority in respect of the application.

It is the Environmental Assessment Practitioners’ (EAP’s) opinion that the Basic Assessment (BA) process to date has been undertaken correctly and within the bounds of the applicable regulatory requirements. It is therefore recommended that the BA Report be accepted by the DENC. Furthermore, the EAP recommends that Environmental Authorisation (EA) be granted for the proposed tyre management facility and that the proposed mitigation and conditions contained in the EMP be implemented.

## BASIC ASSESSMENT REPORT

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The following conditions should be included in the Environmental Authorisation (EA):

- All mitigation measures detailed in the EMPr must be implemented.
- All required protected species permits must be obtained prior to project commencement.
- A fire abatement plan must be compiled and implemented at the facility.

Is an EMPr attached?

<b>YES</b> ✓	<b>NO</b>
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The EMPr must be attached as Appendix G.

The details of the EAP who compiled the BAR and the expertise of the EAP to perform the Basic Assessment process must be included as Appendix H.

If any specialist reports were used during the compilation of this BAR, please attach the declaration of interest for each specialist in Appendix I.

Any other information relevant to this application and not previously included must be attached in Appendix J.

### **Trevor Hallatt and Vivienne Vorster**

NAME OF EAP



SIGNATURE OF EAP - VIVIENNE VORSTER

28/02/2022



SIGNATURE OF EAP – TREVOR HALLATT

DATE

28/02/2022

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**BASIC ASSESSMENT REPORT**

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**SECTION F: APPENDIXES**

The following appendices must be attached:

**Appendix A: Maps**

- A1: Regional Locality Map
- A2: Sensitivity map
- A3: Critical Biodiversity Map

**Appendix B: Photographs****Appendix C: Facility illustration(s)****Appendix D: Specialist reports****Appendix E: Public Participation**

- E1: Adverts and Site notices
- E2: Proof of stakeholder notification
- E3: IAP comments
- E4: Background Information Document
- E5: Stakeholder database

**Appendix F: Impact Assessment**

- Appendix F1: Impact Assessment Methodology
- Appendix F2 Impact Assessment Tables

**Appendix G: EMPr****Appendix H: Details of EAP and expertise****Appendix I: Specialist declaration****Appendix J: N/A**