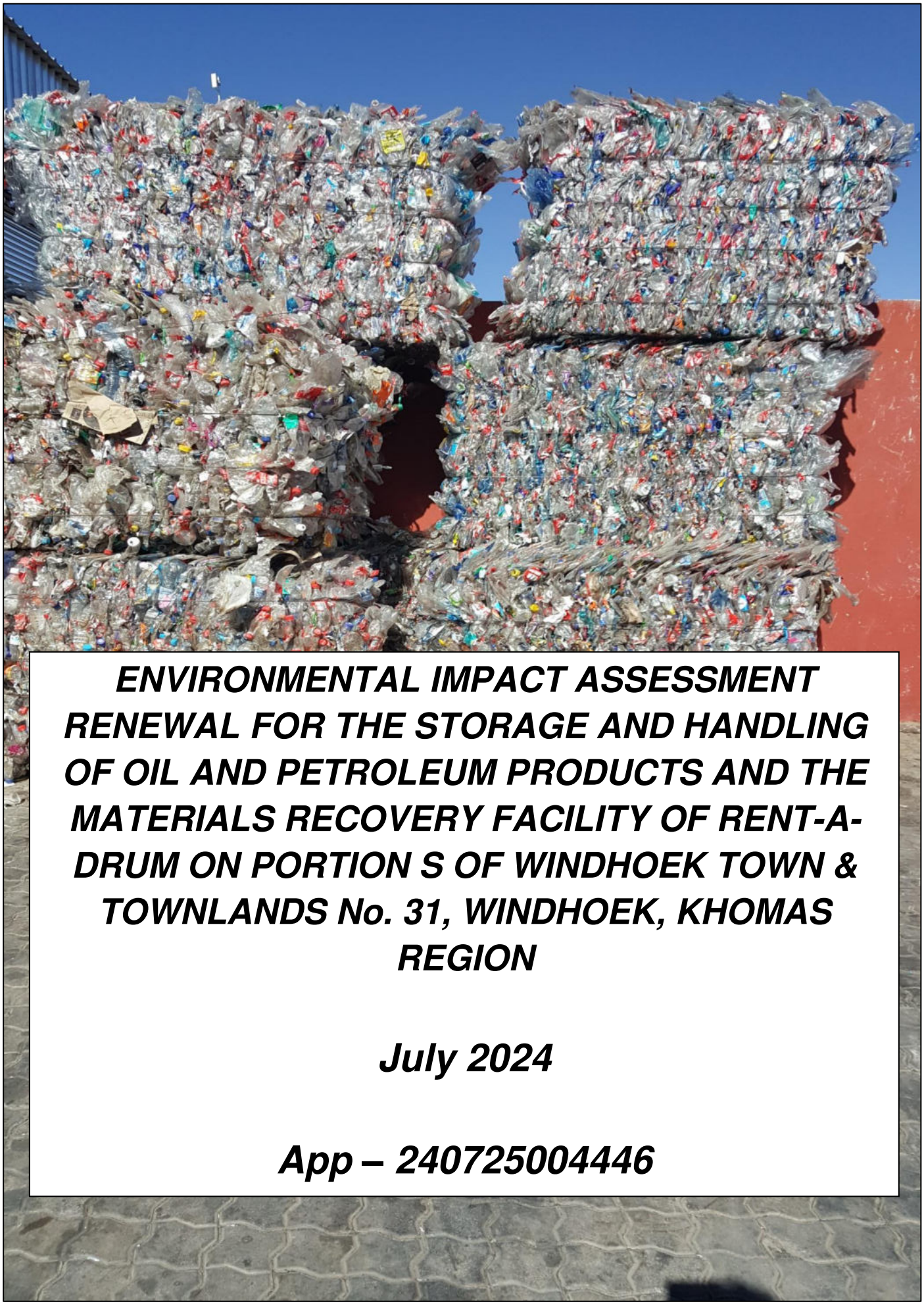


ENVIRONMENTAL IMPACT ASSESSMENT RENEWAL FOR THE STORAGE AND HANDLING OF OIL AND PETROLEUM PRODUCTS AND THE MATERIALS RECOVERY FACILITY OF RENT-A-DRUM ON PORTION S OF WINDHOEK TOWN & TOWNLANDS No. 31, WINDHOEK, KHOMAS REGION

July 2024

App – 240725004446

Project Name:	***ENVIRONMENTAL IMPACT ASSESSMENT RENEWAL FOR THE STORAGE AND HANDLING OF OIL AND PETROLEUM PRODUCTS AND THE MATERIALS RECOVERY FACILITY OF RENT-A-DRUM ON PORTION S OF WINDHOEK TOWN & TOWNLANDS No. 31, WINDHOEK, KHOMAS REGION***
The Proponent:	RENT-A-DRUM (Pty) Ltd PO BOX 30735 PIONIERSPARK
Prepared by:	Green Earth ENVIRONMENTAL CONSULTANTS 1st floor Bridgeview Offices & Apartments, No. 4 Dr Kwame Nkrumah Avenue, Klein Windhoek, Namibia PO Box 6871, Ausspannplatz, Windhoek
Release Date:	July 2024
Consultant:	C. Du Toit C. Van Der Walt Tel: 061 248 010 Email: charlie@greenearthnamibia.com

EXECUTIVE SUMMARY

Green Earth Environmental Consultants have been appointed by Rent-A-Drum (Pty) Ltd (RAD) to attend to and complete an Environmental Impact Assessment (EIA) Renewal and Environmental Management Plan (EMP) Renewal for the storage and handling of oil and petroleum products and for the materials recovery facility of Rent-A-Drum on Portion S of Windhoek Town & Townlands No. 31, Windhoek, Khomas Region in order to obtain an Environmental Clearance as per the requirements of the Environmental Management Act (No. 7 of 2007) and the Environmental Impact Assessment Regulations (GN 30 in GG 4878 of 6 February 2012).

The activities listed below, which forms part of the proposed operations, may not be undertaken without an Environmental Clearance Renewal:

ENERGY GENERATION, TRANSMISSION AND STORAGE ACTIVITIES

- *The construction of facilities for the refining of gas, oil and petroleum products.*

HAZARDOUS SUBSTANCE TREATMENT, HANDLING AND STORAGE

- *The storage and handling of dangerous goods, including petrol, diesel, liquid petroleum gas or paraffin, in containers with a combined capacity of more than 30 cubic meters at any one location.*
- *Construction of filling stations or any other facility for the underground and aboveground storage of dangerous goods, including petrol, diesel, liquid, petroleum, gas or paraffin.*

WASTE MANAGEMENT, TREATMENT, HANDLING AND DISPOSAL ACTIVITIES

- *The construction of facilities for waste sites, treatment of waste and disposal of waste.*
- *The import, processing, use and recycling, temporary storage, transit or export of waste.*

The preparation and operation of the proposed facility involves the following activities:

Operational activities:
Receiving, sorting, baling, packaging, and storage of waste
Offloading, loading, and parking of vehicles
Cleaning of vehicles and equipment
Handling (receiving and dispensing) of petroleum products
Storage of petroleum products
Filling of vehicles
Safety and security activities
Administrative activities

The key characteristics/environmental impacts of the proposed project are as follows:

Impact on environment:	Nature of impact:
Reduction of waste to be dumped on landfill site.	Positive for Windhoek and Namibia.
Creation of employment and transfer of skills.	Positive as employment is created during operations which also result in the transfer of skills which is important in the current economic climate.
Lengthening of the lifespan of the municipal landfill site.	Positive as the landfill site will last longer with less land required for dumping of waste.
Limit plastic and paper to be blown into the immediate environment of the landfill site.	Waste blown into the neighbouring land is limited and reduced.
Dust and noise from the vehicles transporting and collecting waste.	Mitigated as the facility is accessed via a tar and paved road. Vehicles only operate during the day. The site is located far away from residential areas. The diesel tank will be above ground which means limited groundworks are required.
Fire hazards associated with storage and handling of products.	The unlikely event of a fire from operations or products stored onsite will have a limited impact on neighbouring properties as there is a large buffer area between the site and neighbouring properties. The site is also equipped with fire hydrants and extinguishers regularly inspected by COW's Fire Department.
Impact on traffic.	Limited as the site is outside Windhoek however the major arterials in the city can easily be accessed.
Cultural/Heritage.	No items of archeologic value or graves were observed during the site visit.
Visual impact.	Low as the facility is located outside Windhoek. The waste recycling operations take place in a large warehouse and the site is surrounded by large walls, therefore activities are not visible from the outside.
Impact on groundwater, surface water and soil.	The impact will be negative in case of spilling of petroleum products during handling and storage, the risk is mitigated through the installation of spilling control infrastructure and equipment.
Health and safety.	Low if mitigated during operation.

The environmental impacts during the operational phase of the proposed project:

IMPACTS DURING OPERATIONAL PHASE			
Aspect	**Impact Type**	**Significance of impacts Unmitigated**	**Significance of impacts Mitigated**
Ecology Impacts	-	L	L
Dust and Air Quality	-	M	L
Groundwater Contamination	-	L	L
Waste Generation	-	M	L
Failure of Reticulation Pipeline	-	L	L
Fires and Explosions	-	L	L
Safety and Security	-	M	L

IMPACT EVALUATION CRITERION (*DEAT 2006*):		
Criteria	**Rating (Severity)**	
Impact Type	+	Positive
	O	No Impact
	-	Negative
Significance of impacts	L	Low (Little or no impact)
	M	Medium (Manageable impacts)
	H	High (Adverse impact)

The type of activities that will be carried out on the site does not negatively affect the amenity of the locality and the activities do not adversely affect the environmental quality of the area. None of the potential impacts identified are regarded as having a significant impact to the extent that the proposed project should not be allowed. However, the operational activities further on need to be controlled and monitored by the assigned managers and the Proponent (Rent-A-Drum (Pty) Ltd).

The Environmental Impact Assessment Renewal which follows upon this paragraph was conducted in accordance with the guidelines and stipulations of the Environmental Management Act (No 7 of 2007) meaning that all possible impacts have been considered and the details are presented in the report.

Based upon the conclusions and recommendations of the Environmental Impact Assessment Report and Environmental Management Plan following this paragraph, the Environmental Commissioner of the Ministry of Environment, Forestry and Tourism is herewith requested to:

1. Accept the Environmental Impact Assessment Renewal.
2. Approve the Environmental Management Plan Renewal.
3. Issue an Environmental Clearance Certificate Renewal for the operation of facilities and storage and handling of oil and petroleum products and for the materials recovery facility of Rent-A-Drum on Portion S of Windhoek Town & Townlands No. 31, Windhoek, Khomas Region and for the following “listed activities”:

ENERGY GENERATION, TRANSMISSION AND STORAGE ACTIVITIES

- *The construction of facilities for the refining of gas, oil and petroleum products.*

HAZARDOUS SUBSTANCE TREATMENT, HANDLING AND STORAGE

- *The storage and handling of dangerous goods, including petrol, diesel, liquid petroleum gas or paraffin, in containers with a combined capacity of more than 30 cubic meters at any one location.*
- *Construction of filling stations or any other facility for the underground and aboveground storage of dangerous goods, including petrol, diesel, liquid, petroleum, gas or paraffin.*

WASTE MANAGEMENT, TREATMENT, HANDLING AND DISPOSAL ACTIVITIES

- *The construction of facilities for waste sites, treatment of waste and disposal of waste.*
- *The import, processing, use and recycling, temporary storage, transit or export of waste.*

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF ACRONYMS

EC	Environmental Clearance
ECO	Environment Control Officer
EIA	Environmental Impact Assessment
EMA	Environmental Management Act
EMP	Environmental Management Plan
HDPE	Bottles and Mix High Density Polyethylene
I&APs	Interested and Affected Parties
LDPE	Bottles and Low Density Polyethylene
LLDPE	Plastics and Linear Low Density Polyethylene
MEFT	Ministry of Environment, Forestry and Tourism
MRF	Material Recovery Facility
PET	Polyethylene Terephthalate
RAD	Rent-A-Drum
SQM	Square Meters
UBC	Used Beverage Cans

1. INTRODUCTION

Rent-A-Drum was established 23 December 2012. They moved to the current site in 2012 and obtained approval from City of Windhoek to construct and operate the Materials Recycling Facility (MRF) from this site on 13 December 2012. The Proponent appointed *Green Earth Environmental Consultants* to conduct an Environmental Impact Assessment (EIA) Renewal and prepare an Environmental Management Plan (EMP) Renewal for the storage and handling of oil and petroleum products and for the materials recovery facility (MRF) of Rent-A-Drum on Portion S of Windhoek Town & Townlands No. 31, Windhoek, Khomas Region. The Environmental Management Act (No 7 of 2007) requires that an Environmental Impact Assessment Renewal be conducted to request a Clearance Certificate Renewal for the following "listed activities":

ENERGY GENERATION, TRANSMISSION AND STORAGE ACTIVITIES

- *The construction of facilities for the refining of gas, oil and petroleum products.*

HAZARDOUS SUBSTANCE TREATMENT, HANDLING AND STORAGE

- *The storage and handling of dangerous goods, including petrol, diesel, liquid petroleum gas or paraffin, in containers with a combined capacity of more than 30 cubic meters at any one location.*
- *Construction of filling stations or any other facility for the underground and aboveground storage of dangerous goods, including petrol, diesel, liquid, petroleum, gas or paraffin.*
-

WASTE MANAGEMENT, TREATMENT, HANDLING AND DISPOSAL ACTIVITIES

- *The construction of facilities for waste sites, treatment of waste and disposal of waste.*
- *The import, processing, use and recycling, temporary storage, transit or export of waste.*

The Environmental Impact Assessment Renewal below contains information on the proposed project and the surrounding areas, the proposed operations and activities, the applicable legislation to the study conducted, the methodology that was followed, the public consultation that was conducted, and the receiving environment's sensitivity, any potential ecological, environmental, and social impacts.

2. CURRENT ENVIRONMENTAL CLEARANCE CERTIFICATE

The current Environmental Clearance Certificate was issued by the Ministry of Environment, Forestry and Tourism on 13 September 2021 which expired on 13 September 2024. See below a copy of the current Certificate:

:CC – 01627 Serial: w43Xcu1627

REPUBLIC OF NAMIBIA

MINISTRY OF ENVIRONMENT, FORESTRY AND TOURISM

OFFICE OF THE ENVIRONMENTAL COMMISSIONER

ENVIRONMENTAL CLEARANCE CERTIFICATE

ISSUED

In accordance with Section 37(2) of the Environmental Management Act (Act No. 7 of 2007)

TO

Rent-A-Drum (Pty) Ltd
P. O. Box 30735, Windhoek.

TO UNDERTAKE THE FOLLOWING LISTED ACTIVITY

STORAGE AND HANDLING OF OIL AND PETROLEUM PRODUCTS AND THE MATERIALS RECOVERY FACILITY OF RENT-A-DRUM ON PORTION S OF WINDHOEK TOWN & TOWNLANDS No. 31, WINDHOEK, KHOMAS REGION.

MINISTRY OF ENVIRONMENT, FORESTRY AND TOURISM Private Bag 13306 WINDHOEK NAMIBIA 14 SEP 2021

ENVIRONMENTAL COMMISSIONER

Issued on the date: 2021-09-13

Expires on this date: 2024-09-13

(See conditions printed over leaf)

Reduce
Reuse
Recycle

NAMIBIA IS NOT A TRASH BIN DO THE RIGHT THING

This certificate is printed without erasures or alterations

The purpose of this submission is to renew the Environmental Clearance for a further 3 years to allow the Proponent to continue with the implementation of the project.

3. BACKGROUND INFORMATION ON PROJECT

3.1. PROJECT LOCATION AND SITE INFORMATION

The Proponent operates facilities for the storage and handling of oil and petroleum products and the materials recovery facility of Rent-A-Drum on Portion S of Windhoek Town & Townlands No. 31, Windhoek, Khomas Region. Consent to use Portion S of Windhoek Town and Townlands No. 31, Daan Viljoen Road, to be used for a Waste Management Plant including offices, and the servicing of related vehicles has been granted to the Proponent by City of Windhoek (see council letter/approval in this report).
Portion S of Windhoek Town and Townlands No. 31, Windhoek is located south of the MR52 (C28/Sam Nujoma Drive) and is 26,3963 ha in extent and zoned 'undetermined'. The Portion is bordered by the Aub River on the western side and is sloping gradually in a westerly direction. Some veldt grasses and Blackthorn Trees with a few Umbrella Thorn Trees and Sheppard Trees are present on the portion. Large areas of the Portion have been cleared and levelled for previous uses as well as the operations of the MRF.

The Tony Rust Racetrack is located to the west of the portion, Otjomuise Township to the north opposite Road MR52 and Portion B of Windhoek Town and Townlands No. 31 to the east. The Portion is currently accessed directly from the MR52.

The Portion was previously used as a dairy. Since 2015 it is used by Rent-A-Drum for their Waste Recycling Plant, which include related offices, sorting, recycling, and baling of waste recyclables, parking and servicing of related vehicles and trucks and the storage and handling of diesel for their fleet. See below *Maps* showing the locality of the site:

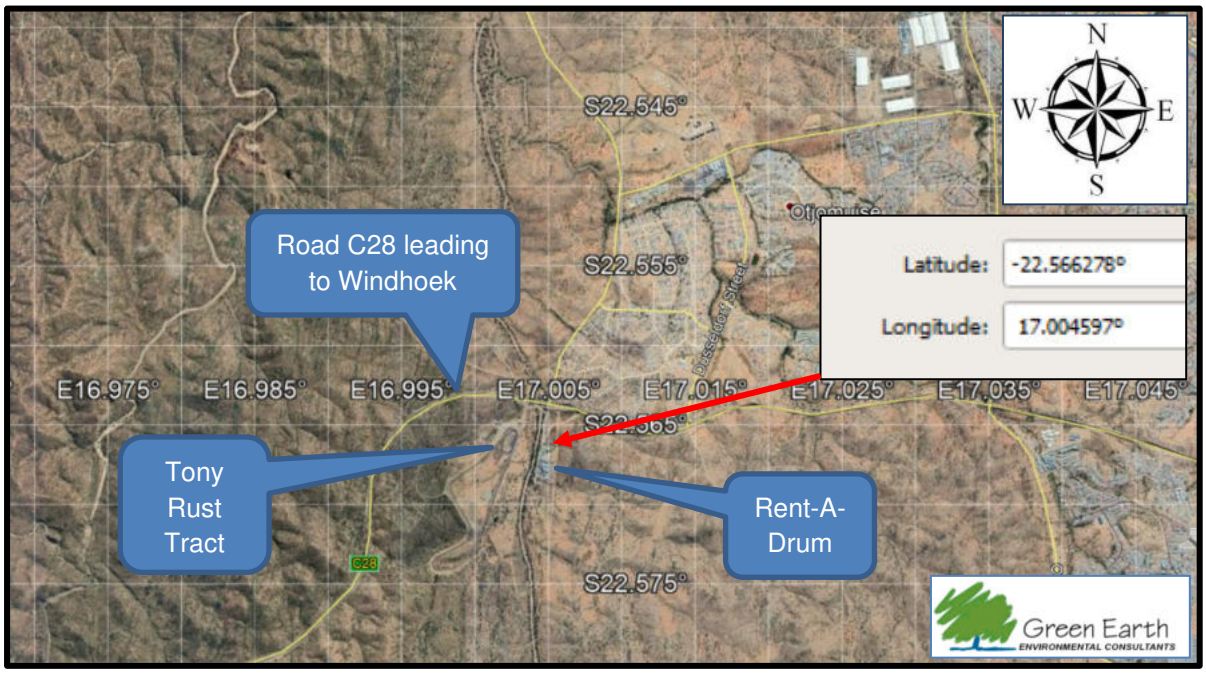


Figure 1: Portion S of Windhoek Town and Townlands No. 31 location

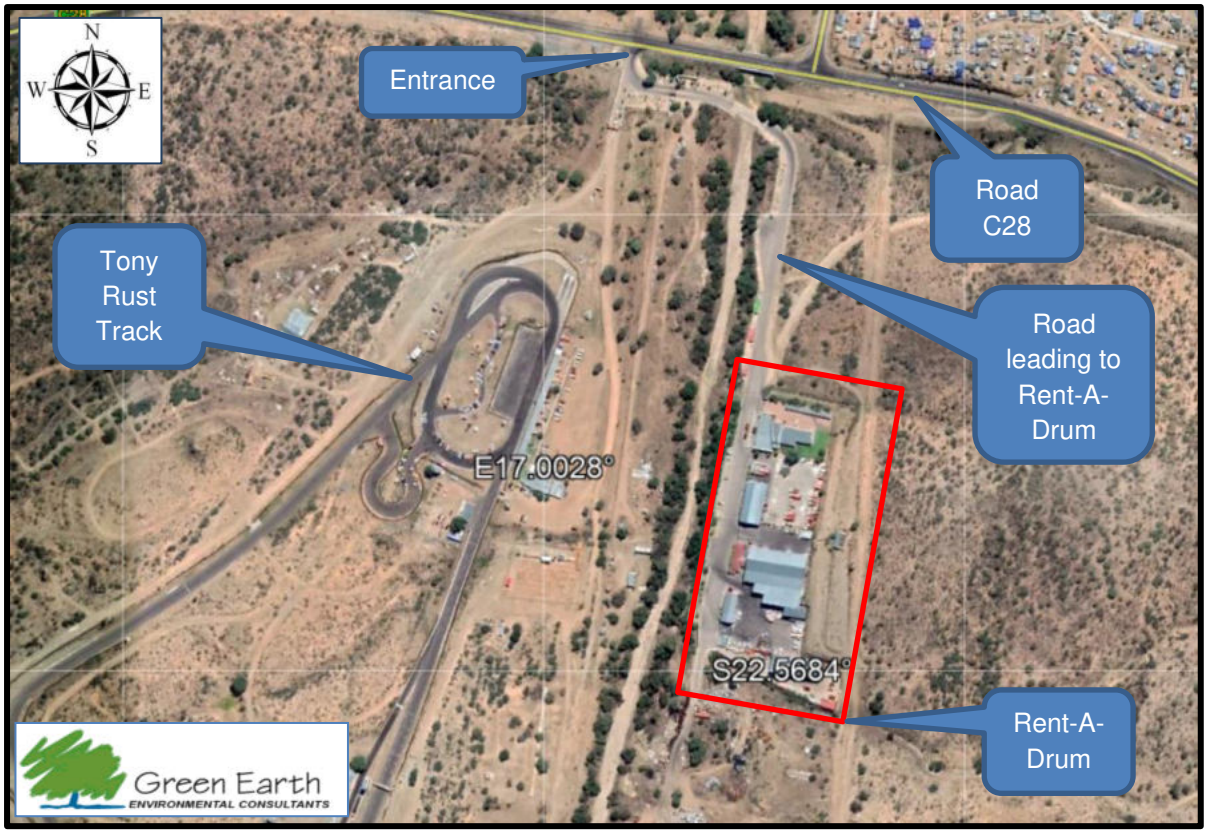


Figure 2: Project site in relation to other sites

Figure 3: Site Layout and Utilization Plan

3.2. PROJECT PROPOSAL

The following information was obtained from *Du Toit Town Planning Consultants*:

Portion S of Windhoek Town and Townlands No. 31 is zoned 'undetermined'. Rent-A-Drum specialise in the removal, sorting, baling, and recycling of waste from residential, business and industrial areas in Windhoek. Rent-A-Drum is a licensed Waste Management Contractor of the City of Windhoek, Rent-A-Drum intends to have the following operations with Portion S as basis:

<u>Collection and transportation of waste</u>

This includes services where wheelie bins and skip containers are distributed to households, businesses, and industries in order to store waste which is then collected on a daily or weekly

basis. Special collection services including fat trap removal, medical waste removal and the collection of hazardous waste form part of the services of Rent-A-Drum.

Purpose built Rent-A-Drum trucks with specialised equipment and machinery is used to transport the various types of waste to landfill or dumping sites and the Rent-A-Drum recycling site pending on the nature and composition of the waste.

Recycling of waste

Rent-A-Drum started with an initiative in conjunction with the City of Windhoek and other organisations where waste is recycled. Businesses, households and schools are encouraged to separate recyclables from general waste at source in order to minimise the contamination of the recyclables and to optimize the use of space at landfill and dumping sites. Special collection sites have been established throughout the City of Windhoek where the public can deliver recyclable waste like tins, paper, glass, and plastic. More sites will be created as people becomes more aware of this initiative and as the demand grows for it.

Rent-A-Drum collects these recyclables at source free of charge and transports it at their own cost to the Rent-A-Drum recycling plant for sorting, baling, and transporting to recycling processing factories. Rent-A-Drum also has buy-back agreements with independent contractors that recover recyclables from landfill and dumping sites from where they collect and transport the products to the Rent-A-Drum recycling plant for further sorting and bailing.

The recycling plant

Recyclables received are sorted per commodity (mainly tin, glass, paper, and plastic) for further processing. The bulk of this sorting is done manually by hand. Sophisticated baling and shredding equipment and machinery is then used to process the recyclables to be compacted and baled for transport by interlinked trucks to recycling factories in Namibia and South Africa.

The workshop

Rent-A-Drum operates a large fleet of vehicles for the collection and transportation of waste and recyclables. Vehicles are parked, repaired, and serviced by Rent-A-Drum's own mechanics on site. They also maintain their own machinery and equipment which is used in their operations.

Other activities on the premises

An office complex was constructed which houses Rent-A-Drum's management and admin staff and provide for ablution and recreational facilities for drivers and the staff handling and sorting the materials as well as a house for a caretaker which will look after the place after hours.

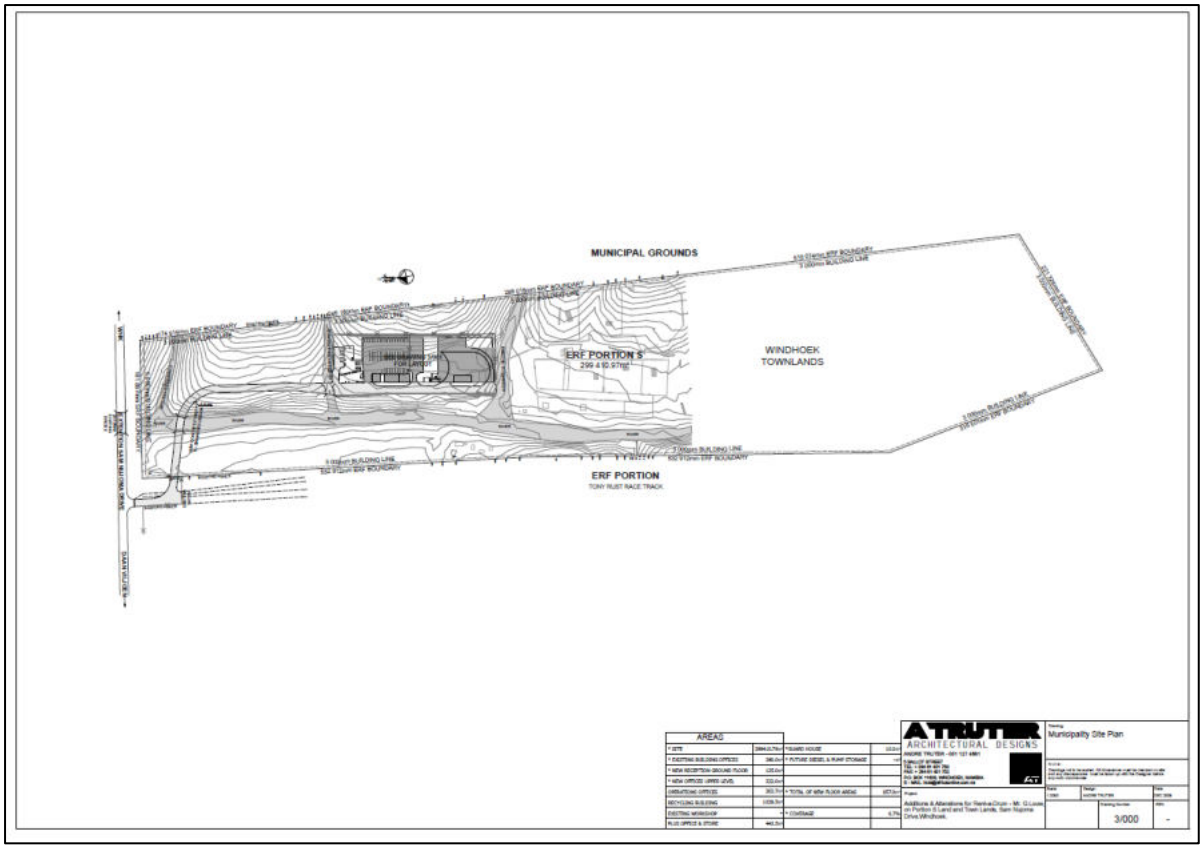


Figure 4: Municipality Site Layout

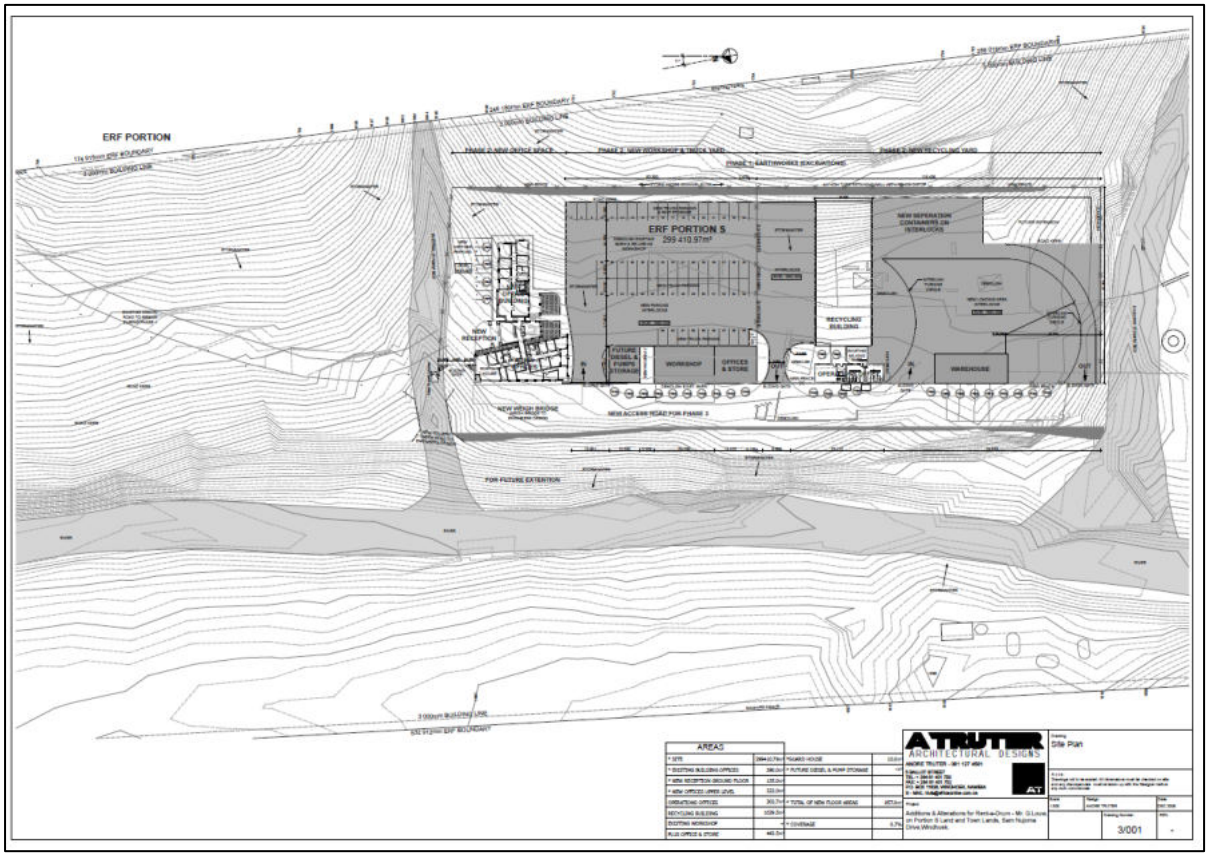


Figure 5: Site Plan

3.3. RENT-A-DRUM INFORMATION

The following information was obtained from *Rent-A-Drum (Pty) Ltd*:

Since its establishment, Rent-A-Drum has grown into the biggest private recycling enterprise of its kind in Namibia. Rent-A-Drum is the leading organization in waste management and recycling in Namibia and offers the most comprehensive services to Namibian corporations, mines, and smaller companies, including the citizens of the capital city, Windhoek, Swakopmund, Walvis Bay, Oshakati, Oranjemund and Rundu (*Rent-A-Drum (Pty) Ltd*).

The company's equipment and resources are supported by an extremely focused, well experienced and committed management team who constantly aim to source more cost-effective and environmentally friendly solutions (*Rent-A-Drum (Pty) Ltd*).

Rent-A-Drum's mission is to drive the change of community standard for waste management and future environmental sustainability. Zero waste to landfill is their vision to guide people in changing their lifestyle and practices to emulate sustainable natural cycles, where all discarded materials are designed to become resources for others to use (*Rent-A-Drum (Pty) Ltd*).

The company has a strong environmental and safety focus and aims to reduce and control pollution and incidents to the absolute minimum.

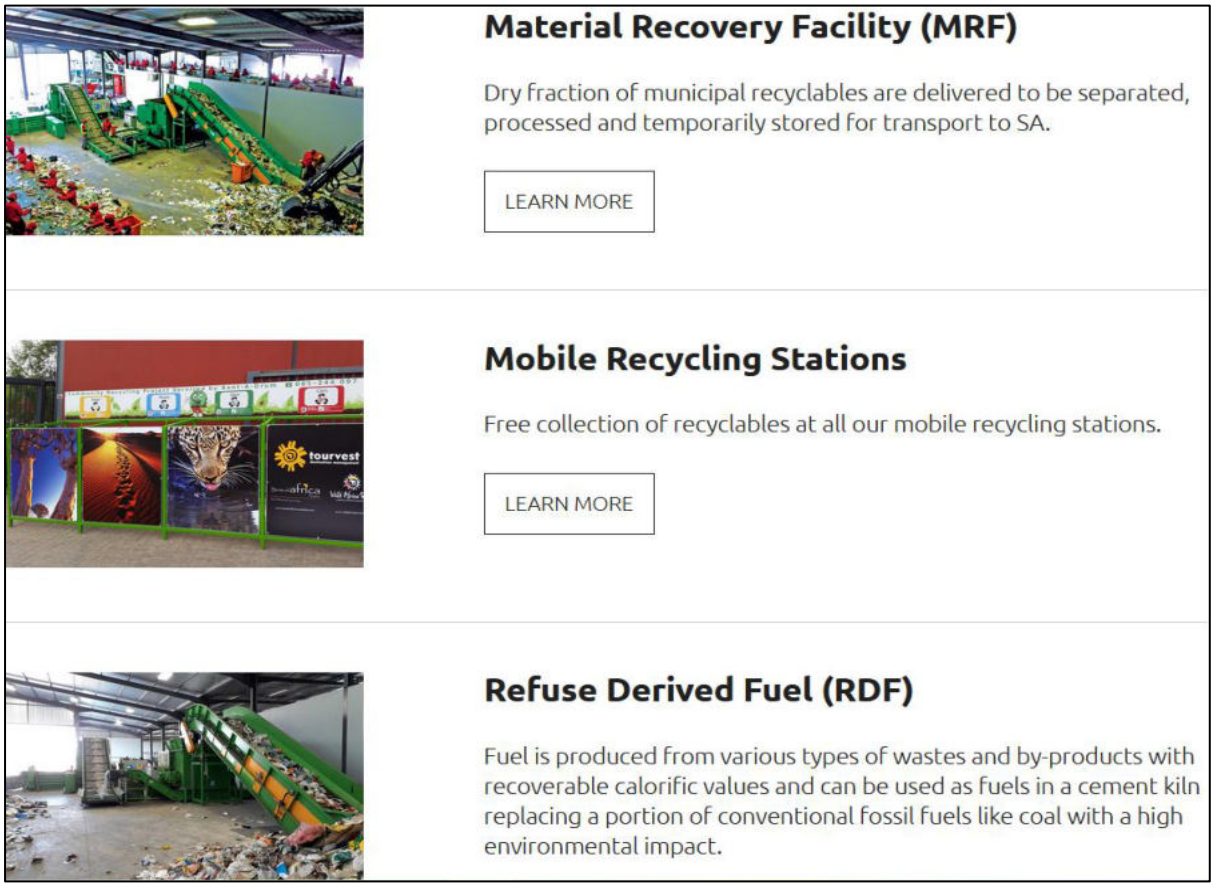
Rent-A-Drum sort and bale the following recyclables at their Material Recovery Facility: cans aluminium, used beverage cans (UBC) steel, food and aerosol cans, carton boxes, super mix paper, newspaper and tetra pack, glass bottles, polyethylene terephthalate (PET) bottles and mix high density polyethylene (HDPE) bottles, low density polyethylene (LDPE) plastics and Linear Low-Density Polyethylene (LLDPE) clingwrap plastic. Rent-A-Drum dispatch an average of 2500 tons of recyclables per month to South Africa where the process of recycling it back into new products begins (*Rent-A-Drum (Pty) Ltd*).

Rent-A-Drum's expertise and services also extends to several areas in Waste Management such as deep collection systems, wheelie bin services, cleaning & sanitizing, skip removals, on site waste management, clean-ups and cargo spills, destructions, waste audits, event waste management, landfill management, rehabilitation and hazardous waste that includes – medical waste, fat trap, grease & sewage maintenance, bioremediation, and demolition (*Rent-A-Drum (Pty) Ltd*).

Rent-A-Drum facts:
• Rent-A-Drum generates employment for over 500 Namibian employees.
• 96% of their staff is from disadvantage groups.
• They have a 100% Namibian Workforce and 42% of their workforce are women.
• Over 80 waste collecting and removal vehicles.
• Branches in Windhoek, Swakopmund, Walvis Bay, Husab Mine, Rossing Mine, Langer Heinrich Mine, Oshakati, Rundu and Oranjemund.

• First and only Material Recovery Facility in Namibia.
• First Refuse Derived Fuel Plant in Namibia inaugurated on 15 March 2017.
• Second Material Recovery Facility in Namibia – Installed in Swakopmund in August 2019.
• Rent-A-Drum recycles an average total of 1,800 tons per month.
• We sort 22 different commodities before baling and dispatching the different commodities to different recycling plants in South Africa.

See below the different divisions that Rent-A-Drum has:



Confidential Shredding

Confidential shredding in a secure area where all your confidential documents will be shredded and baled for recycling purposes.

LEARN MORE

Household and Industrial Collections

Help us start a recycling revolution by recycling at home with three easy steps.

LEARN MORE

3.4. CURRENT PROJECT SITE DETAILS

The following information was received from *Rent-A-Drum (Pty) Ltd)*:

Project Site Details:
• Rent-A-Drum was established on 23 October 2010.
• Volume/weight of product in and out: - Monthly average: 1,100 (ton) - Yearly average: 13,200 (ton)
• What happens to the product that is recycled: - Plastic – soft LDPE plastic can be recycled more than once in order to make pellets. Pellets is used to make plastic bags and also to make Rent-A-Drum's clear bags. Plastic PET bottles can be used to make performs after it is fluffed and can also be used to make plastic bricks and garden furniture. - Paper – white paper can be recycled to make tissue paper and toilet paper. Newspapers can be recycled to make egg boxes/containers. - Glass – mixed colours/see through/green/brown glass will be crushed and melted on a high temperature in order to make new glass bottles. Glass can also be crushed very finely in order to be used for sandblasting or to mix it in with paint products. - Metal – aluminum/UBC cans/food cans can be cleaned and melted in order to form the same cans. Aluminum aerosol can's material can be used to make airplane aluminum parts.
• The site is fenced and under 24h security. The site has a wash bay, a canteen and training center. • There is a dedicated area where glass is crushed. • Spray painting of bulk bags takes place in another area/spraying booths. • There is also a Molok assembly plant and welding area with skips. • Mobile Recycling Stations is ready to be distributed.

3.5. PROCESS DESCRIPTION

The Material Recovery Facility (MRF) consists of a building which accommodates the processes and machinery for receiving, separating and/or processing of different recyclable materials from waste collected straight from households and businesses. The facility has a weighbridge enabling the recording of the volume of recyclable materials received, processed and dispatched from the MRF. This MRF enables Rent-A-Drum to sort and bale mixed recyclables in large volumes.

The materials being recycled are soft plastics, bottles, bottle caps, hard plastics, cans, tins, glass, carton, and papers. Individuals and businesses, under the supervision and with support from Rent-A-Drum, sort the waste on-site through the following means: Molok Deep Collection System, File 13 Box at the office, Recycling Stations, Box Cage and on-site separation.

The MRF consists of the following components and structures:

- **Structures:** Off-loading areas, sorting, and baling area, preparation area, stockholding areas, offices, ablution facilities, kiosk area, vehicle parking and wash bay. All areas have a solid concrete floor or is paved with heavy duty pavers.

- **Equipment**: various balers with conveyor feed, sorting conveyors with sorting bays, storage cages, tailings conveyor, tailings skips, industrial shredder, granulator, glass crusher and band saw.

- **Weighbridge functions:** the weighbridge forms part of the controlled access to landfill site, records all waste and recyclables dumped and removed from the landfill site, weighing facility for transport contracts and other public needs and income generating potential (dumping levies and weighbridge fees).

The flowchart below explains the recycling process at the MRF facility:

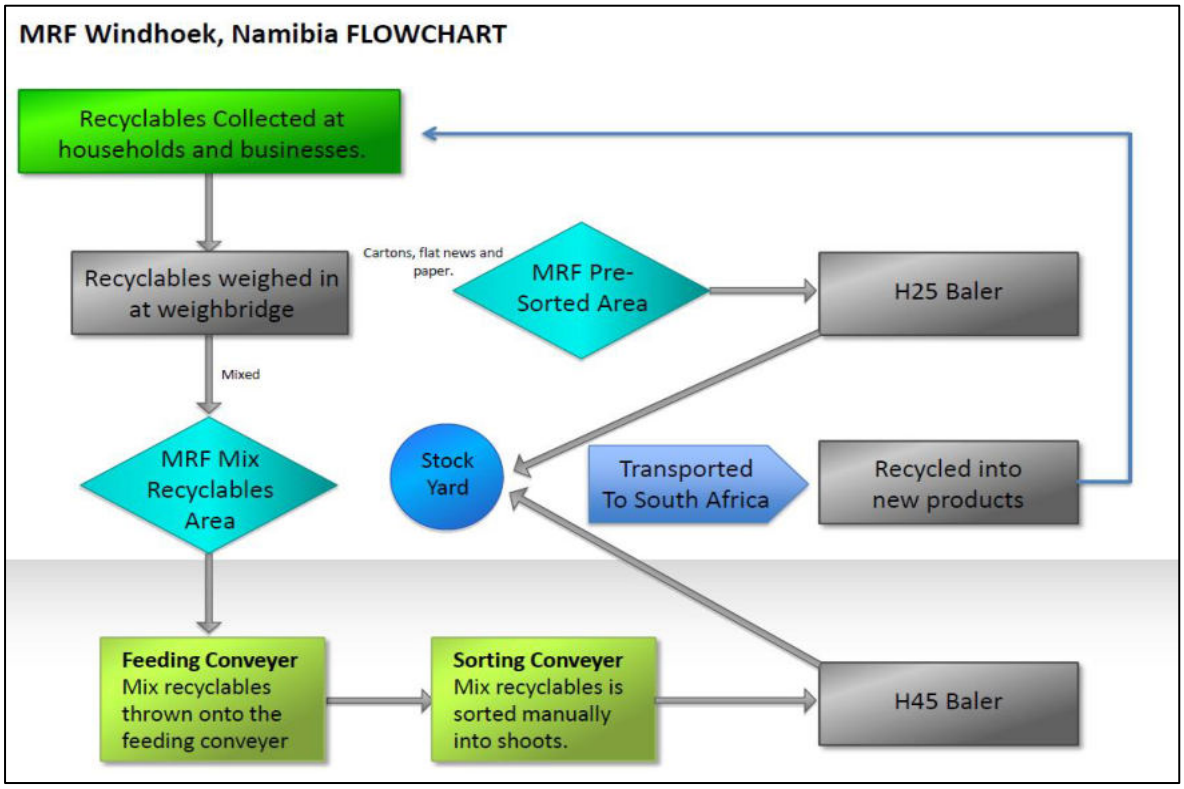


Figure 6: Flowchart of recycling process

Figure 7: Waste from households and businesses is received

Figure 8: Waste is combined and lifted onto conveyor belt

Figure 9: Conveyor belt transporting waste

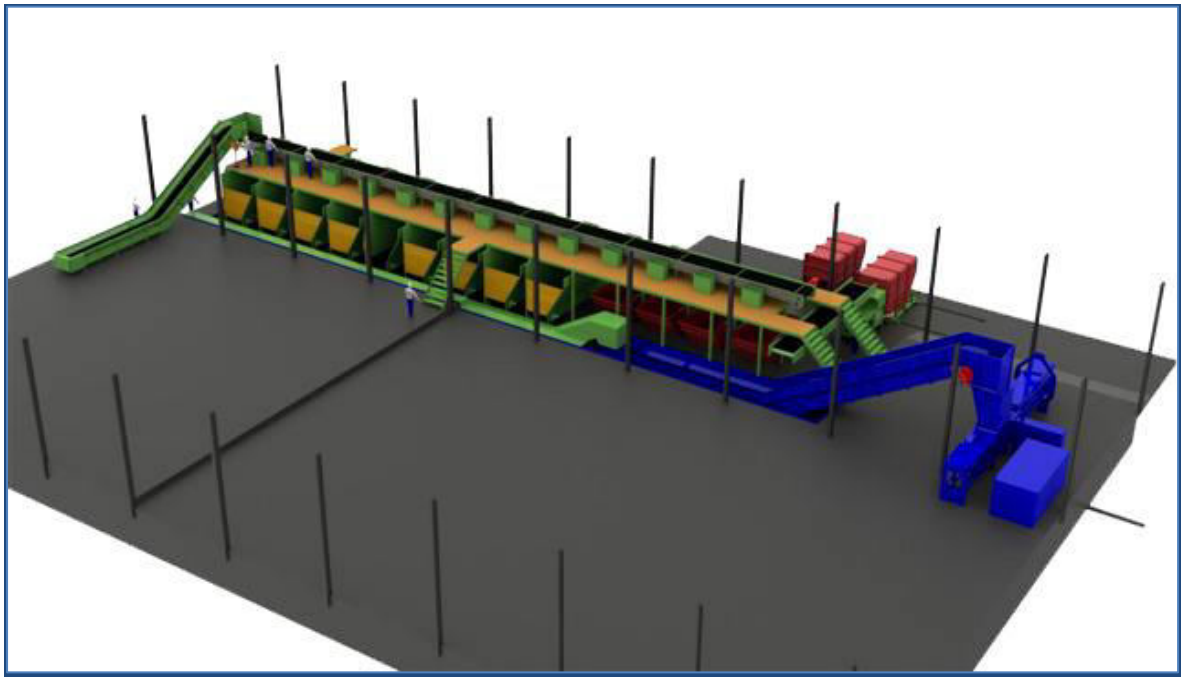


Figure 10: MRF Conceptual Layout of the sorting Facility

Figure 11: Example of sorting of different waste into recyclables

Figure 12: Compressing and baling equipment

Figure 13: Recycled waste ready for dispatch to client for processing

Figure 14: End product ready for transport

4. FUEL STORAGE AND HANDLING FACILITIES

Rent-A-Drum operates its own fleet of vehicles for the collection of waste from clients as well as the strategically located collection points in Windhoek. The vehicles are parked at the MRF site and operate from there. To fill up their own vehicles, a fuel storage and handling facility for diesel has been installed and is operated on the site as it saves costs, improves the safety of operations as well as control over the fleet.

The following information was received from *Rent-A-Drum (Pty) Ltd)*:

Fuel Storage and Handling Facility:
• Oil and petroleum average volumes on site: - Diesel - Main Diesel storage capacity is 23 000lt, Rent-A-Drum reorder 10 000lt when the level reaches 5000lt. There is usually between 5 000 - 15 000lt in the tank weekly. - The tank is installed above ground in a bunded area to prevent spillages from getting into the groundwater or the surrounding surface drainage area as per the specifications of the MME. - Petrol - 70 to 100lt in drums. - Oil - Engine oil 15W40, Rent- A-Drum usually carry 416lt / Automatic transmission oil 80W90 416lt/Transmission XS 75W80 usually carry 20lt/ 2 stroke oil 5lt. - Hydraulic Oil - Azzola ZS 68 usually carry 416lt. - Other noxious products on site - Antifreeze 40lt/K2 soap 50lt/Dosing liquid 23lt/ Thinners 30lt/Green Paint 20lt / Black Paint 10lt / Yellow paint 10lt / Red Paint 30lt/Tyre shine 25lt/Brake fluid 10lt. - All oils are stored in lockable facilities with concrete floors.
• Rent-A-Drum Windhoek have 40 vehicles not including trailers/Caterpillar 816 and gen sets as listed below: - Total Fleet: 85 vehicles, Trailers (17), Vacuum tankers (3), Tin press (2), Gen sets (2), Bakkies (10), Bus (2), Box Body (1), Cage trucks (4), Compactor Trucks (7), Compactor Trucks with Crane (2), Forklifts (3), Skip Trucks (4), Rolon Trucks (3), Trailers (6), Tipper Truck (1), Main Gen set (1) and Small Gen set (1).

Figure 15: Workshop and Wash Bay area

Figure 16: Fuel Storage Tank

Figure 17: One of Rent-A-Drum's Vehicles

Figure 18: Waste collection truck

5. NEED AND DESIRABILITY AND MOTIVATION

The following information was obtained from *Du Toit Town Planning Consultants*: The establishment of the Rent-A-Drum recycling facility can be motivated in terms of the need and desirability for such a facility as well as the suitability of the site.

Need and desirability

- The City is faced with various challenges related to waste management activities and processes because of the ever growing population and industrial activities within the City. The City therefore developed a Draft Waste Management Policy through the involvement, consultation and participation of various internal departments within the City of Windhoek, Local and Regional Councillors and Industries, Government Ministries and Waste Management Contractors. The purpose and aim of this Policy are to establish a uniform approach to waste management which would be known and followed by all relevant stakeholders. At the heart of the policy is the waste management hierarchy which favours waste prevention and minimization first, recycling and reuse in second place and disposal only as the last resort. Rent-A-Drum is one of the licensed Waste Management Contractors which is focusing on the recycling and reuse of waste through the activities of the Rent-A-Drum recycling plant as is provided for in the Draft Policy.
- The establishment of the Recycling Plant also supports the following principles which govern the Waste Management Policy:
    - Integrated waste management hierarchy. The creation of waste should be avoided through the prevention and minimization thereof ahead of recycling treatment and disposal. The establishment of collection points for the disposal of pre-sorted waste by Rent-A-Drum supports this principle which prevents that reusable items becomes waste or that it is made obsolete through further pollution.
    - The polluter pays principle. According to this principle whoever creates the waste should be responsible for managing such waste in terms of cost and rehabilitation of the natural environment caused by pollution. The Rent-A-Drum recycling initiative puts the burden on the generator of the waste (household or business) to pre-sort the waste and to dispose it in dedicated containers in order to simplify sorting and reuse and to prevent reusable items becoming waste.
    - Duty of care. This concept requires the generator of the waste to be responsible for the waste from the point of generation all the way to the point of safe disposal. The Rent-A-Drum recycling initiative creates the opportunity for creators of waste to take responsibility for that waste by sorting it where it is generated and by disposing of it responsibly by putting it in special dedicated containers as supplied by Rent-A-Drum.
    - Best practical environmental option. This waste management initiative utilizes the options which are the most beneficial at the least cost and the least damage to the environment both in the long and short term especially by focusing on recycling plastic, glass and paper which is currently the main sources of pollution in the City of Windhoek.
- The action of collection, sorting, baling and disposal of the waste materials is very labour intensive and plays a major role in creating jobs especially for untrained or uneducated people where the need for job creation is at its highest.
- Recycling of waste creates opportunities for further processing and manufacturing in Namibia which will create more employment and add value to the Country's economy.
- Recycling of waste will reduce the burden on the landfills and dumping sites of the City as less material will end up there.

Suitability of the site

- Portion S is ideally suited for this purpose. It is relatively far away from any residential areas, although near enough so that it can be reached by people working there. The plant will not be visible from the main road or residential areas as it is located behind a hill basically in the middle of the Portion. The current operation, although it is still small is clean and odour free. The only noise generated on the site is that of the trucks delivering materials and removing product to and from the site.
- The Portion is large enough to allow for the future expansion of operations if required.
- The Portion has a safe access and is within easy reach of all the City neighbourhoods and Townships. It can be reached via the Daan Viljoen Road which intersects with the Western Bypass which intersects with all the major arteries of the City.
- The current zoning of the portion is 'undetermined' which means that 'consent' can be granted for this specific use.
- The intended use had been advertised and no objections were received which is an indication that the intended use is supported by the public and neighbours in general.

The Recycling initiative from Rent-A-Drum is in line with Council's Waste Management Policy and the governing principles thereof.

6. BULK SERVICES AND INFRASTRUCTURE

The site is supported by the following municipal/bulk services:

6.1. ACCESS AND INTERNAL ROADS

The Portion is accessed from MR 52 (C28/Sam Nujoma Drive). A road was constructed via a concrete drift through the river to link up with the road connecting Tony Rust Race Track with Road C28.

Figure 19: Entrance Gate

Figure 20: Access Road to Project Site

6.2. PARKING REQUIREMENTS

Portion S of Windhoek Town and Townlands No. 31, Windhoek is 26,3963 ha in extent. Only a small portion of Portion S (less than 1 third of the total area) is used for the plant, office, and workshop purposes. The rest is available for parking purposes. Parking is provided on site as per the requirements of the Windhoek Town Panning Scheme.

6.3. WATER SUPPLY

Water is supplied to the site from onsite boreholes that supply ±10 000l water per day. The site is not linked to the COW water reticulation network as it is self sufficient in supply.

6.4. ELECTRICITY RETICULATION

Electricity is supplied by the municipal electrical distribution network and supplemented from solar panels on the rooftops of the buildings on site. A 300KVA solar system has been installed.

6.5. SEWAGE TREATMENT AND DISPOSAL

The site is not connected to the municipal sewer network as no infrastructure is available in this part of the City. The sewer generated on site is collected in an onsite concrete subsurface bulk tank. This tank is emptied by a honeysuckle pump vehicle on a weekly basis and the sewer is disposed into the Municipal sewer network under the supervision of City of Windhoek at an approved point. It is the intension to install a green sewer management system to recycle the effluent to the required standards for reuse. The system to be installed will be subject to

obtaining the required permits and the approval of City of Windhoek. The future sewage water will be recycled. The sewage volumes at this stage are between 180,000 and 200,000 litre per month.

6.6. SOLID WASTE DISPOSAL/REFUSE REMOVAL

Solid waste generated on site is sorted for recycling and the non-recyclables are disposed of in accordance with the regulations of the municipality. The recyclables are transported to various sites for reuse.

6.7. STORMWATER MANAGEMENT

The stormwater management system has been designed and constructed in accordance with the municipal building regulations.

6.8. FIRE PROTECTION

The site's fire protection has been set up in accordance with the Windhoek municipal building regulations. Two (2) fire brigade water cranes, seven (7) water house rolls and one (1) mobile fire fighter are available on site. Fire extinguishers will also be installed at the fuel storage tank and filling points.

7. APPROVALS OBTAINED

The following approvals have been obtained:

7.1. CITY OF WINDHOEK CONSENT APPROVAL

Consent to use Portion S of Windhoek Town and Townlands No. 31, Sam Nujoma Drive, to be used for a Waste Management Plant including offices, and the servicing of related vehicles was requested and obtained from council. See council letter/approval below:

Department of Urban, Planning and Property Management

✉ 59
80 Independence Avenue
WINDHOEK, NAMIBIA

Tel: (+264) 61 290 2482 • Fax. (+264) 61 290 2060 •

Enq: Mr H Rust
Tel: 290 2378

Ref: L/s/WTTL31
Date: 13 December 2012

Messrs.Elmarie Du Toit Town Planning Consultant
P. O. Box 6871
Ausspannplatz

Dear Madam,

CONSENT TO USE PORTION S OF THE FARM WINDHOEK TOWN AND TOWNLANDS NO. 31 FOR A WASTE MANAGEMENT PLANT, INCLUDING OFFICES

Your application in the above regard refers.

Attached please find Council Resolution **377/10/2012** stipulating the conditions concerning the consent use application.

You are requested to accept these conditions in writing.

Yours faithfully,

Urban Planner

11

[Municipal Council Minutes: 2012-10-24]

8.3.10 HEW.1 [PLA] CONSENT TO USE PORTION S OF THE FARM WINDHOEK TOWN AND TOWNLANDS NO. 31 FOR A WASTE MANAGEMENT PLANT, INCLUDING OFFICES
(L/S/T&TL/31)

On proposal by Councillor M Shiikwa, it was

RESOLVED

1 That consent be granted to Rent-a-Drum to use Portion S of Windhoek Town and Town Lands No. 31 for a waste management plant to include related offices, sorting, recycling and baling of waste recyclables, parking, cleaning and servicing of related vehicles and trucks.

2 That, under the new Environmental Management Act, 2007 (Act 7 of 2007), read with the Promulgated Regulations under Government Notice 29 of 2012, paragraph 5.1, a waste management plant is a listed activity for which an Environmental Management Clearance Certificate be obtained as it is a pre-requisite from the Environmental Commissioner.

3 That an alternative access be created from the existing Tony Rust Race Track access from the MR52 (C28/Daan Viljoen Road) over the Windhoek Town and Townlands No. 31 to Portion S, to the standards and conditions of the City.

4 That the existing access onto the MR52 (C28/Daan Viljoen Road) be closed and the existing access to the Tony Rust Racing Track be utilised.

5 That surface stormwater run-off be accommodated according to clause 35 of the Town Planning Scheme (see Info 35 of the Town Planning Scheme) stating:

5.1 That no stormwater drainage pipe, canal, work or obstruction (except stormwater drain pipes, canal or work which have been authorised in writing by the local authority or which have been or may be built, laid or erected in terms of any law) be constructed on or over the property or located in such a way that:

- The flow of stormwater from higher lying property to lower lying property is impeded or obstructed and through which any property is or may be endangered; or

- The flow of a natural watercourse (in which the local authority allow flood water to run-off, be discharged or to be canalised) is or can be changed, canalised or impeded.

5.2 That the maintenance of such stormwater pipe, channel or work be the responsibility of the owner of the concerned property.

5.3 That prior approval be obtained from the Strategic Executive: Infrastructure, Water and Technical Services if the accommodation of the stormwater on the erf is contemplated.

5.4 That engineering drawings on how the stormwater would be accommodated to

5.5 That all existing stormwater pipes, outlets and inlets or any other stormwater system be clearly indicated on all building plans submitted, prior to the approval thereof.

5.6 That no building plans be approved until the stormwater conditions are met.

6 That no further developments take place in the 1:50 year flood line of the Aub River.

7 That engineering drawings be submitted on the accommodation of the 1:50 year flood line and the accommodation of the flood line for the existing structures that are within the 1:50 year flood line.

8 That the applicant take note that no municipal services are available.

9 That a professional consultant be appointed to propose an acceptable waste water disposal system, subject to the following conditions:

9.1 That no pollution of ground water occur.

9.2 That there be no health risk to the users and the surrounding residents.

9.3 That the possibility to re-use the purified effluent be addressed.

9.4 That the costs involved be for the applicant's own account.

9.5 That details on the proposed sewer system and treatment of waste water be submitted and approved by the Strategic Executive: Infrastructure, Water and Technical Services, before approval of any building plans.

10 That the applicant further note that the City of Windhoek is subject to the issuing of a wastewater discharge permit and that the applicant have to observe all conditions applicable to the application of such permit.

11 That only full waterborne waste water systems be accepted.

12 That all service standards comply with the City of Windhoek standards.

13 That a waste water treatment plant form part of the development.

13.1 That the operation and maintenance of such a plant be the responsibility of the developer for a period of five (5) years.

14 That the proponent be made aware of the fact that the land is lying on or abutting the groundwater protection zone and that the Town Planning Scheme limitations on this type of land use activities, and limitations on storage of hazardous materials, be applicable to areas within the protection zone.

RESOLUTION 377/10/2012

---

8. APPROACH TO THE STUDY

The assessment included the following activities:

a) Desktop sensitivity assessment

Literature, legislation and guidance documents related to the natural environment and land use activities available on the site and area in general were reviewed to determine potential environmental issues and concerns.

b) Site assessment (site visit)

The project site and the immediate neighbourhood and surrounding area were assessed through several site visits to investigate the environmental parameters on site to enable further understanding of the potential impacts on site. Meetings were conducted with the Town Planner and the Proponent to obtain specific information regarding the site and project proposed.

c) Scoping

Based on the desk top study and site visits, the environmental impacts were determined in five categories: nature of project, expected duration of impact, geographical extent of the event, probability of occurring and the expected intensity. The findings of the scoping have been incorporated in the environmental impact assessment report below.

d) Environmental Management Plan (EMP)

To minimize the impact on the environment, mitigation measures have been identified to be implemented during planning, construction, and implementation. These measures have been included in the Environmental Management Plan to guide the planning, construction and operation of the project which can also be used by the relevant authorities to ensure that the project is planned, developed, and operated with the minimum impact on the environment.

9. ASSUMPTIONS AND LIMITATIONS

It is assumed that the information provided by the Proponent, Windhoek Municipality, the Town Planner and other relevant parties is accurate. The site was visited several times and any happenings after this are not mentioned in this report. (The assessment was based on the prevailing environmental conditions and not on future happenings on the site.) However, it is assumed that there will be no significant changes to the proposed project, and the environment will not adversely be affected between the compilation of the assessment and the implementation of the proposed activities.

10. ADMINISTRATIVE, LEGAL AND POLICY REQUIREMENTS

To protect the environment and achieve sustainable development, all projects, plans, programs and policies deemed to have adverse impacts on the environment require an EIA

according to Namibian legislation. The administrative, legal and policy requirements to be considered during the Environmental Assessment for the project are the following:

- The Namibian Constitution
- The Environmental Management Act (No. 7 of 2007) and Regulations (2012)
- The Windhoek Town Planning Scheme
- Other Laws, Acts, Regulations and Policies

ENVIRONMENTAL MANAGEMENT ACT (NO. 7 OF 2007) AND REGULATIONS (2012)

The Environmental Impact Assessment Regulations (GN 30 in GG 4878 of 6 February 2012) of the Environmental Management Act (No. 7 of 2007) that came into effect in 2012 requires/recommends that an Environmental Impact Assessment and an Environmental Management Plan (EMP) be conducted for the following listed activities to obtain an Environmental Clearance Certificate:

ENERGY GENERATION, TRANSMISSION AND STORAGE ACTIVITIES

- *The construction of facilities for the refining of gas, oil and petroleum products.*

HAZARDOUS SUBSTANCE TREATMENT, HANDLING AND STORAGE

- *The storage and handling of dangerous goods, including petrol, diesel, liquid petroleum gas or paraffin, in containers with a combined capacity of more than 30 cubic meters at any one location.*
- *Construction of filling stations or any other facility for the underground and aboveground storage of dangerous goods, including petrol, diesel, liquid, petroleum, gas or paraffin.*

WASTE MANAGEMENT, TREATMENT, HANDLING AND DISPOSAL ACTIVITIES

- *The construction of facilities for waste sites, treatment of waste and disposal of waste.*
- *The import, processing, use and recycling, temporary storage, transit or export of waste.*

Cumulative impacts associated with the project must be included as well as the public consultation. The Act further requires all major industries and developers to prepare waste management plans and present these to the local authorities for approval.

The Act, Regulations, Procedures and Guidelines have integrated the following sustainability principles. They need to be given due consideration, particularly to achieve proper waste management and pollution control:

Cradle to Grave Responsibility

This principle provides that those who handle or manufacture potentially harmful products must be liable for their safe production, use and disposal and that those who initiate potentially polluting activities must be liable for their commissioning, operation and decommissioning.

Precautionary Principle

It provides that if there is any doubt about the effects of a potentially polluting activity, a cautious approach must be adopted.

The Polluter Pays Principle

A person who generates waste or causes pollution must, in theory, pay the full costs of its treatment or of the harm, which it causes to the environment.

Public Participation and Access to Information

In the context of environmental management, citizens must have access to information and the right to participate in decisions making.

THE WINDHOEK TOWN PLANNING SCHEME AND COUNCIL'S POLICIES

The Windhoek Town Planning Scheme (as amended in Windhoek Amendment Scheme No. 100 – promulgated 31 July 2020) applies to the area as indicated on the scheme maps and corresponds with the Townlands Diagram for Windhoek Town and Townlands. Portion S of Windhoek Town and Townlands No. 31, Daan Viljoen Road falls under/within the area of the Scheme.

The general purpose of this Scheme is the coordinated and harmonious development of the area of Windhoek (including, where necessary, the reconstruction and redevelopment of any part which has already been subdivided whether there are buildings on it or not) in such a way as will most effectively tend to promote health, safety, order, amenity, convenience and general welfare as well as efficiency and economy in the process of development and improvement of communications, and where it is expedient in order to promote proper planning or development, may provide for the suspending the operation of any provision of law or any bylaw or regulation made under such law, in so far as such provision is similar to or inconsistent with any of the provisions so the Scheme.

In terms of the Town Planning Scheme's provisions as well as other supporting policies, the City of Windhoek supports the proposed uses on the portion. Council has various Policies guiding the development in Windhoek which will be consulted in the assessment process.

In Council's approval and resolution (No. 377/10/2012), the terms and conditions are listed regarding the Waste Management Plant on the Portion as well as how it must be provided with services.

CONCLUSION AND IMPACT

The Materials Recycling Facility has been considered under the stipulations of the Windhoek Town Planning Scheme and the Local Authorities Act. City of Windhoek already granted consent for the construction and operation of the MRF on this site. The proposed use of the

portion is in line with City of Windhoek's Town Planning Scheme and will not have a negative impact on the surrounding environment.

OTHER LAWS, ACTS, REGULATIONS AND POLICIES

Table 1: Laws. Acts, Regulations and Policies

Act/Regulation/Policy	Purpose	Implication for Proponent
The Local Authorities Act (No 23 of 1992)	The purpose of the **Local Authorities Act** is to provide for the determination, for purposes of local government, of local authority councils; the establishment of such local authority councils; and to define the powers, duties and functions of local authority councils; and to provide for incidental matters.	The Proponent must abide to the stipulations of the Local Authorities Act.
Electricity Act (No. 4 of 2007)	In accordance with the Electricity Act (No. 4 of 2007) which provides for the establishment of the Electricity Control Board and provide for its powers and functions; to provide for the requirements and conditions for obtaining licenses for the provision of electricity; to provide for the powers and obligations of licenses; and to provide for incidental matters: the necessary permits and licenses will be obtained.	The Proponent must abide to the Electricity Act.
Petroleum Products and Energy Act of Namibia (No 13 of 1990	The **Petroleum Products and Energy Act of Namibia (No 13 of 1990)** makes provision for impact assessment for new proposed fuel facilities and petroleum products known to have detrimental effects on the environment. It specifies that petroleum facilities must comply with relevant SANS specifications. The specific important Petroleum Products Regulations promulgated in terms of the Petroleum Products and	The Proponent must comply with the relevant SANS specifications Petroleum Products Regulations.

	Energy Act 13 of 1990 (3 July 2000) that should be referred to are: Regulation 3, 16, 20, 21, 24, 27, 29, 32, 40(2), 49 & 50.	
Pollution Control and Waste Management Bill (guideline only)	The **Pollution Control and Waste Management Bill** is currently in preparation and is therefore included as a guideline only. Of reference to the mining, Parts 2, 7 and 8 apply. Part 2 provides that no person shall discharge or cause to be discharged, any pollutant to the air from a process except under and in accordance with the provisions of an air pollution license issued under section 23. Part 2 also further provides for procedures to be followed in license application, fees to be paid and required terms of conditions for air pollution licenses. Part 7 states that any person who sells, stores, transports or uses any hazardous substances or products containing hazardous substances shall notify the competent authority, in accordance with sub-section (2), of the presence and quantity of those substances. The competent authority for the purposes of section 74 shall maintain a register of substances notified in accordance with that section and the register shall be maintained in accordance with the provisions. Part 8 provides for emergency preparedness by the person handling hazardous substances, through emergency response plans.	The Proponent must adhere to the Pollution Control and Waste Management Bill.
Water Resources Management Act	The **Water Resources Management Act (No. 11 of 2013)** stipulates conditions that ensure effluent that is produced to be of a certain	The Ministry of Agriculture, Water and Land Reform must be consulted. Fresh water abstraction and waste-water discharge permits

	standard. There should also be controls on the disposal of sewage, the purification of effluent, measures should be taken to ensure the prevention of surface and groundwater pollution and water resources should be used in a sustainable manner.	should be obtained when required.
Solid and Hazardous Waste Management Regulations: Local Authorities 1992	Provides for management and handling of industrial, business and domestic waste.	The Proponent must abide to the solid waste management provisions.
Hazardous Substances Ordinance (No. 14 of 1974)	The **Ordinance** applies to the manufacture, sale, use, disposal and dumping of hazardous substances, as well as their import and export and is administered by the Minister of Health and Social Welfare. Its primary purpose is to prevent hazardous substances from causing injury, ill-health or the death of human beings.	The Proponent must abide to the Ordinance's provisions.
Atmospheric Pollution Prevention Ordinance of Namibia (No. 11 of 1976)	Part 2 of the **Ordinance** governs the control of noxious or offensive gases. The Ordinance prohibits anyone from carrying on a scheduled process without a registration certificate in a controlled area. The registration certificate must be issued if it can be demonstrated that the best practical means are being adopted for preventing or reducing the escape into the atmosphere of noxious or offensive gases produced by the scheduled process.	The proponent should adhere to the stipulations of the Atmospheric Pollution Prevention Ordinance.
Nature Conservation Ordinance	The **Nature Conservation Ordinance (No. 4 of 1975)** covers game parks and nature reserves, the hunting and protection of wild animals, problem animals, fish and indigenous plant species. The Ministry of Environment, Forestry	The proposed project is not located in a demarcated conservation area or national park.

	and Tourism (MEFT) administer it and provides for the establishment of the Nature Conservation Board.	
Forestry Act	The **Forestry Act (No. 12 of 2001)** specifies that there be a general protection of the receiving and surrounding environment. The protection of natural vegetation is of great importance, the Forestry Act especially stipulates that no living tree, bush, shrub or indigenous plants within 100m from any river, stream or watercourse, may be removed without the necessary license.	The area utilised for the MRF has been cleared and fenced. No removal of protected tree species or removal of mature trees should happen. The Ministry of Environment, Forestry and Tourism should be consulted when required.
Labour Act	The **Labour Act of 2007 (No 11)** contains regulations relating to the Health, Safety and Welfare of employees at work. These regulations are prescribed for among others safety relating to hazardous substances, exposure limits and physical hazards. Regulations relating to the Health and Safety of Employees at Work promulgated in terms of the Labour Act 6 of 1992 (GN156, GG1617 of 1 August 1997):- **Regulation 178(2) (d), 180** refers to Chemical safety data sheets (CSDS) for all hazardous chemical substances must be prepared by the manufacturer or supplier thereof. These must be provided to every employer using such substances. The CSDS must contain essential health and safety information. **Regulation 178(2)(d), 182** refers to hazardous substances must at any time be stored in such a manner that they do not create a risk to the health and safety of	The proponent and contractor should adhere to the Labour Act.

	employees or other persons, nor any risk of contamination of the environment, due to seeping, leaking, fire or accidental release. **Regulation 183** states amongst other things that hazardous waste and deposits must be removed at intervals and by methods appropriate to the type of hazard which they constitute.	
Public and Environmental Health Act	The Public and Environmental Health Act (No. 1 of 2015) provides with respect to matters of public health in Namibia. The objects of this Act are to: (a) promote public health and wellbeing; (b) prevent injuries, diseases and disabilities; (c) protect individuals and communities from public health risks; (d) encourage community participation in order to create a healthy environment; and (e) provide for early detection of diseases and public health risks.	The proponent and contractor should adhere to the Public and Environmental Health Act.
National Heritage Act (No. 27 of 2004)	All protected heritage resources discovered need to be reported immediately to the National Heritage Council (NHC) and require a permit from the NHC before it may be relocated. This should be applied from the NHC.	The National Heritage Council should be consulted when required.
National Monuments Act of Namibia (No. 28 of 1969) as amended until 1979	No person shall destroy, damage, excavate, alter, remove from its original site or export from Namibia: (a) any meteorite or fossil; or (b) any drawing or painting on stone or a petroglyph known or commonly believed to have been executed by any people who inhabited or visited Namibia before the year 1900 AD; or (c) any implement, ornament or structure known or commonly believed to have been used as a	The proposed site for development is not within any known monument site both movable or immovable as specified in the Act, however in such an instance that any material or sites or archeologic importance are identified, it will be the responsibility of the developer to take the required route and notify the relevant commission.

	mace, used or erected by people referred to in paragraph (b); or (d) the anthropological or archaeological contents of graves, caves, rock shelters, middens, shell mounds or other sites used by such people; or (e) any other archaeological or palaeontological finds, material or object; except under the authority of and in accordance with a permit issued under this section.	
Public Health Act (No. 36 of 1919)	Under this act, in section 119: "No person shall cause a nuisance or shall suffer to exist on any land or premises owned or occupied by him or of which he is in charge any nuisance or other condition liable to be injurious or dangerous to health."	The proponent will ensure that all legal requirements of the project in relation to protection of the health of their employees and surrounding residents is protected and will be included in the EMP. Relevant protective equipment shall be provided for employees. The development shall follow requirements and specifications in relation to water supply and sewerage handling and solid waste management so as not to threaten public health of future residents on this piece of land.
Soil Conservation Act (No. 76 of 1969)	The objectives of this Act are to: Make provisions for the combating and prevention of soil erosion; Promote the conservation, protection and improvement of the soil, vegetation, sources and resources of the Republic;	Only the area required for the operations should be cleared from vegetation to ensure the minimum impact on the soil.
Air Quality Act (N0. 39 of 2004)	The **Air Quality Act (No. 39 of 2004)** intends to provide for national norms and standards regulating air quality monitoring, management and control by all spheres of government; for	The proponent and contractor should adhere to the Air Quality Act.

	specific air quality measures; and for matters incidental thereto.	
Vision 2030 and National Development Plans	Namibia's overall development ambitions are articulated in the Nation's Vision 2030. At the operational level, five-yearly national development plans (NDP's) are prepared in extensive consultations led by the National Planning Commission in the Office of the President. Currently the Government has so far launched a 4th NDP which pursues three overarching goals for the Namibian nation: high and sustained economic growth; increased income equality; and employment creation.	The proposed project is an important element in employment creation.

CONCLUSION AND IMPACT

Green Earth Environmental Consultants believe the above administrative, legal and policy requirements which specifically guide and governs the creation of a waste handling and processing and fuel handling and storage facility will be followed and complied with in the operations of the MRF.

A flowchart indicating the entire EIA process is shown in the *Figure* below:

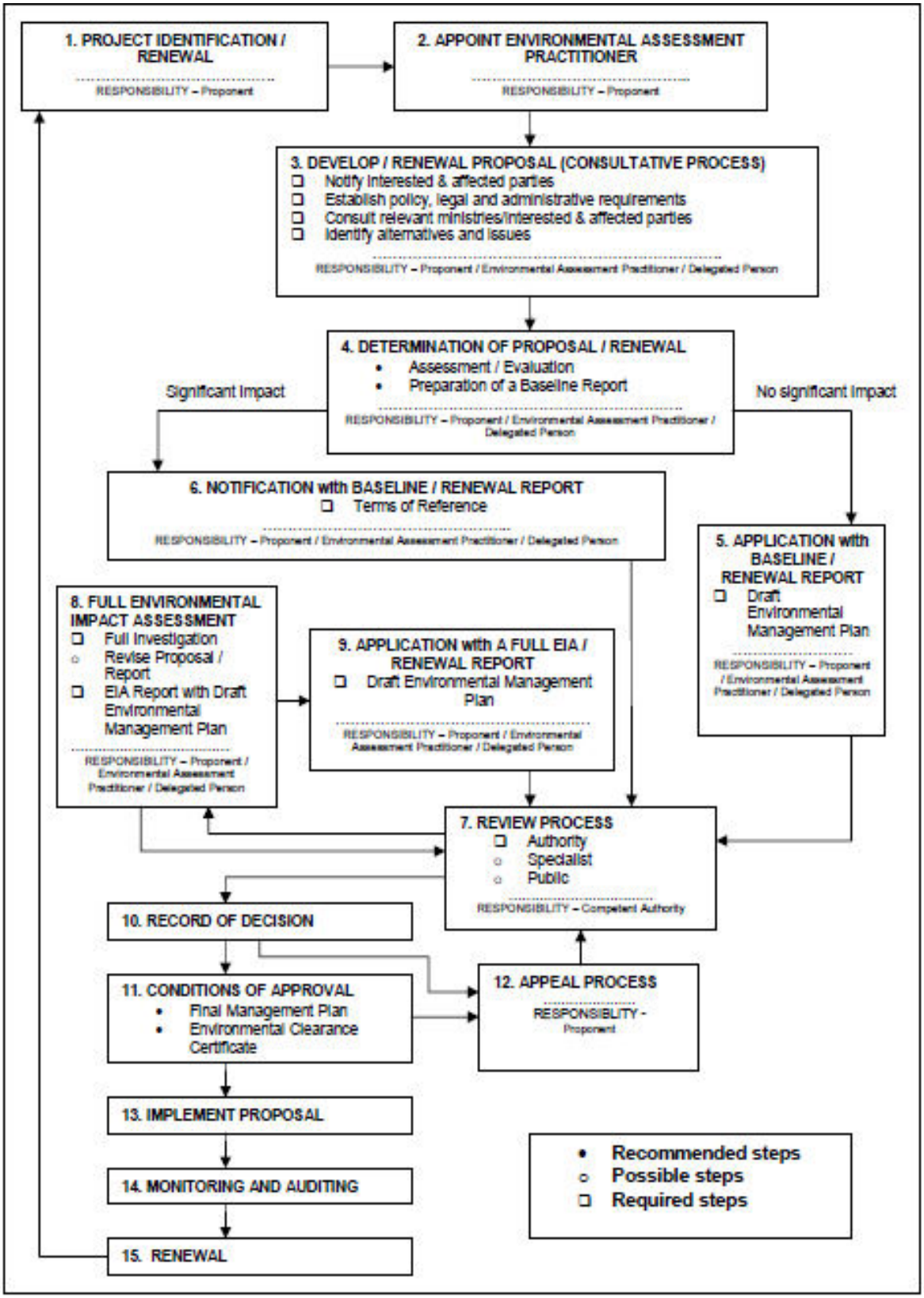


Figure 21: EIA Process

11. ASSESSMENT OF THE RECEIVING ENVIRONMENT

An impact is any change to the existing condition of the environment caused by human activity or external influences. Impacts therefore may be positive (beneficial) or negative (adverse). It may also be direct or indirect, long-term or short-term and extensive or local in effect. Impacts are termed cumulative when added to existing impacts. Both positive and adverse environmental impacts could arise during the site preparation and the operational phase of the MRF development. These are discussed in this section:

11.1. CLIMATE

Windhoek and surroundings in general are characterized with a semi-arid highland savannah climate typified as extremely hot in summer and moderate dry in winter. The highest temperatures are measured in December with an average daily temperature of maximum 31ºC and a minimum of 17ºC. The coldest temperatures, conversely, are measured in July with an average daily maximum of 20ºC and minimum 6ºC (*Weather - the Climate in Namibia*, 1998 – 2012). The area therefore has low frost potential.

Rainfall in the form of thunderstorms is experienced in the area during the summer months between October and April. The annual average rainfall for Windhoek and surroundings is 350mm to 400mm however the average evaporation rate is 3 400mm a year (*Weather - the Climate in Namibia*, 1998 – 2012). Over 70% of the rainfall occurs in the in the summer months' period between November and March. Rainfall in the area is typically sporadic and unpredictable however the average highest rainfall months are January to March.

The prevailing wind direction is expected to prevent the spread of any nuisance namely noise and smell. The predominant wind in the region is easterly with westerly winds from September to December (*Weather - the Climate in Namibia*, 1998 – 2012). Extreme winds are experienced in the months of August and September and thus significant wind erosion on disturbed areas is visible.

Figure: Average annual temperatures in Namibia (Atlas of Namibia Project, 2002)

CONCLUSION AND IMPACT

The development will not have an impact on the climate.

11.2. HYDROLOGY AND GEOLOGY

Portion S is located in the Khomas Trough on a geological area classified as Damara Supergroup and Gariep Complex. See Map below:

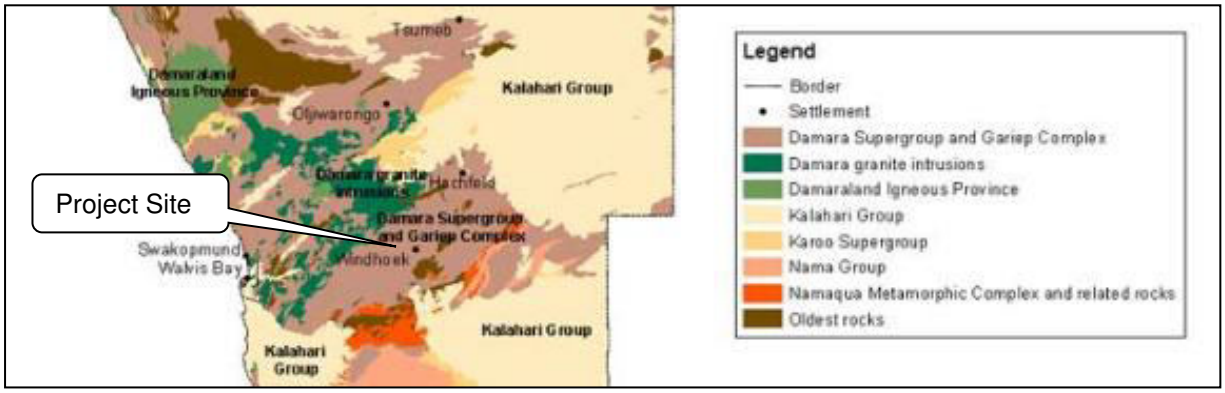


Figure 22: Geology of Namibia (Atlas of Namibia Project, 2002)

The Khomas Trough was formed during sedimentation of the Late Proterozoic Damara Sequence. The basin that was filled by a thick sequence, now preserved as metagreywackes and pelites of the Kuiseb Formation, which were subsequently multiply deformed and thrusted during the Damaran Orogeny. Minor lithologies included are graphite schists, calc-silicates and scapolite schists.

The project site has been levelled and landscaped. Natural slopes are seen near natural drainage courses on the project site. The soil is suitable for development however the soil is also erodible and should not be cleared unnecessarily from vegetation if not required for the placement of buildings or roads. Unnecessary clearing of soil will lead to erosion.

CONCLUSION AND IMPACT

The development will not impact on the geology, soils and geohydrology of the area. The surface drainage canals have been kept open in order that water can flow through.

11.3. HYDROLOGICAL COMPONENT

The area where the project site is located has generally an average groundwater potential from a permeability and yield perspective (*Grunert, 2003*). However, groundwater is one of the important water sources and the protection thereof should be regarded as a high priority. The main uses of water in the area are for business, industrial and domestic purposes.

The site is located directly east of the Aub River which forms part of the Swakoppoort Catchment area. Special measures should be taken to prevent polluted surface water or untreated sewer from flowing into the river. Although most of the surface water evaporates, runoff can be expected due to the impermeability of soils (*Grunert, 2003*). The storage and accumulation of substances, which might pollute river courses or basins because of surface water drainage, should be prevented. No potential pollutants should be channelled or directed towards any rivers.

Surface storm water runoff should be accommodated according to Clause 35 of the Windhoek Town Planning Scheme. Thus, no stormwater drainage pipe, canal, work or obstruction may be constructed on or over property or located in such a way that:

- the flow of stormwater from higher lying property to lower lying property is impeded or obstructed and through which property is or may be endangered, or
- the flow of a natural watercourse is or can be changed, canalized or impeded.

From the hydrological assessment perspective, no major geological structures that will enhance groundwater recharge or flow are evident on the proposed project site and the development that will take place will not pose any long-term negative effects on the hydrological cycle (*Grunert, 2003*).

CONCLUSION AND IMPACT

The structures on site have been constructed as per City of Windhoek regulations and are in compliance with the stipulations on stormwater and sewer management. Water of wash bays and where waste is handled is channeled via an oil trap into the bulk sewer tank on site.

11.4. PUBLIC WATER SUPPLY

The central Area of Namibia (especially Windhoek) in times of drought rely on the 3-dam system (Von Bach, Omatako and Swakoppoort) as well as on groundwater as source of water for Windhoek. The Rent-A-Drum site is located to the north of the aquifer area but next to the Aub River which forms part of the Swakoppoort catchment area.

Public water supply to the Central Area of Namibia will be at risk if pollutants are not contained and can enter the catchment area and Windhoek Aquifer. The MRF and fuel storage and handling facility has been planned and constructed as per COW requirements to prevent the flow or seepage of water into the groundwater or the river.

CONCLUSION AND IMPACT

Poor management and/or upkeep of infrastructure might allow polluted water to enter the Aub River.

11.5. BIODIVERSITY AND VEGETATION

Portion S forms part of the Tree and Shrub Savannah Biome (specifically the Highland Savannah). The project site is showing evidence of some human interference namely vegetation was cleared on some areas of the Portion.

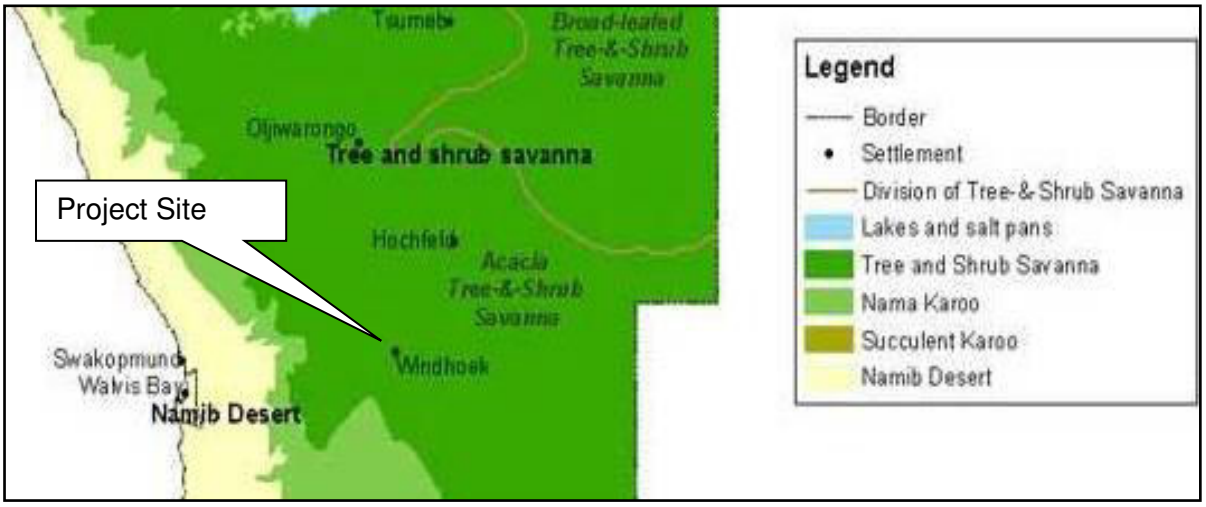


Figure 23: Biomes in Namibia (Atlas of Namibia, 2002)

According to Mannheimer and Curtis (2009), the area is home to *Prosopis* Trees especially near water courses namely small rivers/streams. *Acacia Mellifera* (Black Thorn), *Acacia erioloba* (Camelthorn), *Boscia Albitrunce*, *Albicia antihelmintica*, *Aloe Littorallis*, *Commiphera spp*. and *Acacia erubescens* are all found in the area and are protected plant species and are listed under the Forest Ordinance of 1952.

The project site is showing evidence of some human inference. Informal tracks are present and vegetation was cleared on some areas of the Portion. The natural characteristics of the project site namely the vegetation clearance and the destruction of habitats is expected to further on have a low impact on the environment before the mitigation measures are taken and after the mitigation measures are taken, the impact will be very low.

CONCLUSION AND IMPACT
The development will have a low impact on vegetation, shrubs and trees.

11.6. SOCIO ECONOMIC ENVIRONMENT

The proposed activities will have a positive impact on the socio-economic environment because this will create employment and divert waste away from the landfill site. The majority of land use around the area is characterised by open land, business, industrial and residential activities therefore the development will not have a negative impact on the environment. The operations have little disturbance to the environment and towards the individuals that are

residing near the area. The impacts will be little if mitigated by the Environmental Management Plan.

CONCLUSION AND IMPACT

The development will not have a negative impact on the environment.

11.7. CULTURAL HERITAGE

The proposed project site is not known to have any historical significance prior to or after Independence in 1990. The specific area does not have any National Monuments and the specific site has no record of any cultural or historical importance or on-site resemblance of any nature. No graveyard or related article was found on the site.

CONCLUSION AND IMPACT

No heritage resources or graveyards were observed on the site and in the area.

11.8. SENSE OF PLACE

The activity will not have a large/negative impact on the sense of place in the area. An untidy or badly managed site can detract from the ecological well-being and individuality of the area. Unnecessary disturbance to the surroundings could be caused by poorly planned or poorly managed operational activities. The project site should be kept neat and clean where possible. Vegetation should not be removed or harmed if not necessary since it covers topsoil which prevents erosion. Noise and dust should be limited.

CONCLUSION AND IMPACT

The impact on the sense of place will be low.

11.9. HEALTH

The safety, security and health of the labour force, employees and neighbours are of great importance, workers should be orientated with the maintenance of safety and health procedures and they should be provided with PPE (Personal Protective Equipment). A health and safety officer should be employed to manage, coordinate and monitor risk and hazard and report all health and safety related issues in the workplace. The introduction of external workers into the area is sometimes accompanied with criminal activities posing security risks for neighbours. However, the proponent will take certain measures to prevent any activity of this sort. The welfare and quality of life of the neighbours and workforce needs to be considered for the project to be a success on its environmental performance. Conversely, the

process should not affect the overall health of persons related to the project including the neighbours.

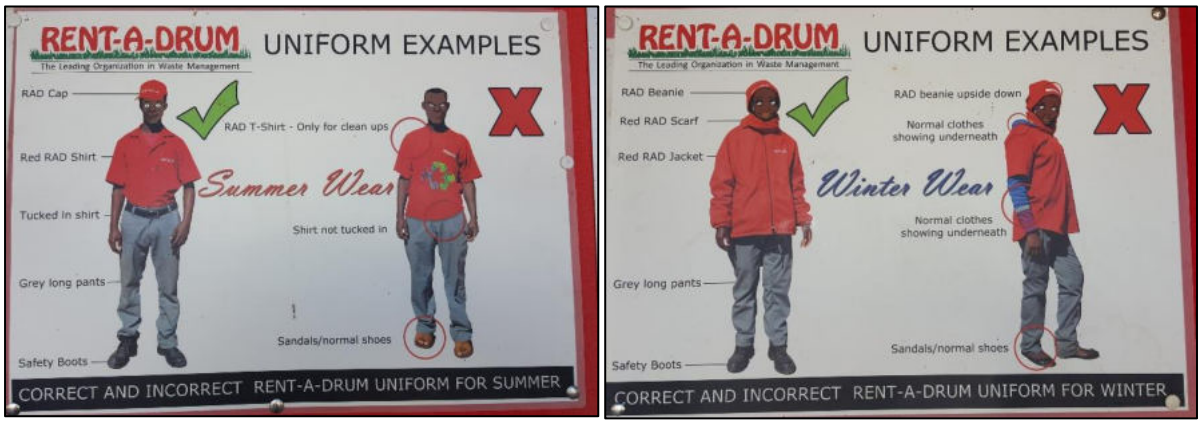


Figure 24: Example of protective factors namely safety boots

CONCLUSION AND IMPACT
The project will have a low impact on the health of the workers and community.

12. IMPACT ASSESSMENT AND EVALUATION

The Environmental Impact Assessment Renewal sets out potential positive and negative environmental impacts associated with the project site. The following assessment methodology will be used to examine each impact identified, see *Table* below:

Table 2: Impact Evaluation Criterion (DEAT 2006)

Criteria	**Rating (Severity)**	
Impact Type	**+**	**Positive**
	O	**No Impact**
	-	**Negative**
Significance of impact being either	**L**	**Low (Little or no impact)**
	M	**Medium (Manageable impacts)**
	H	**High (Adverse impact)**

Probability:	**Duration:**
5 – Definite/don't know	**5 - Permanent**

4 – Highly probable	**4 – Long-term (impact ceases)**
3 – Medium probability	**3 – Medium term (5 – 15 years)**
2 – Low probability	**2 – Short-term (0 – 5 years)**
1 – Improbable	**1 - Immediate**
0 - None	
Scale:	**Magnitude:**
5 – International	**10 – Very high/don't know**
4 – National	**8 - High**
3 – Regional	**6 - Moderate**
2 – Local	**4 - Low**
1 – Site only	**2 - Minor**
	0 - None

The impacts on the receiving environment are discussed in the paragraphs below:

12.1.IMPACTS DURING OPERATIONAL PHASE

12.1.1. ECOLOGICAL IMPACTS

Staff and visitors should only make use of walkways and existing roads to minimise the impact on vegetation. Minimise the area of disturbance by restricting movement to the designated working areas during maintenance.

Impact Evaluation

Aspect	Impact Type	Scale	Duration	Magnitude	Probability	Significance	
						Unmitigated	Mitigated
Ecology Impacts	-	2	2	4	2	L	L

12.1.2. DUST POLLUTION AND AIR QUALITY

Vehicles transporting goods and staff will contribute to the release of hydrocarbon vapours, carbon monoxide and sulphur oxides into the air. Possible release of sewer odour, due to sewer system failure of maintenance might also occur. All maintenance of bulk services and infrastructure at the project site has to be designed to enable environmental protection.

Impact Evaluation

Aspect	Impact Type	Scale	Duration	Magnitude	Probability	Significance	
						Unmitigated	Mitigated
Dust & Air Quality	-	2	2	4	3	M	L

12.1.3. CONTAMINATION OF GROUNDWATER

Spillages might also occur during maintenance. This could have impacts on groundwater especially in cases of large sewer spills. Proper containment should be used in cases of sewerage system maintenance. Oil and chemical spillages may have a health impact on groundwater users. Potential impact on the natural environment from possible polluted groundwater also exits.

Impact Evaluation

Aspect	Impact Type	Scale	Duration	Magnitude	Probability	Significance	
						Unmitigated	Mitigated
Groundwater contamination	-	2	2	4	2	L	L

12.1.4. GENERATION OF WASTE

Household waste from the activities at the site and from the staff working at the site will be generated. The waste will be collected, sorted to be recycled and stored in on site for transportation and disposal at an approved landfill site.

Impact Evaluation

Aspect	Impact Type	Scale	Duration	Magnitude	Probability	Significance	
						Unmitigated	Mitigated
Waste Generation	-	1	2	2	2	M	L

12.1.5. FAILURE IN RETICULATION PIPELINES

There may be a potential release of sewage, stormwater or water into the environment due to pipeline/system failure. As a result, the spillage could be released into the environment and could potentially be a health hazard to surface and groundwater. Proper reticulation pipelines and drainage systems should be installed. Regular bulk services infrastructure and system inspection should be conducted.

Impact Evaluation

Aspect	Impact Type	Scale	Duration	Magnitude	Probability	Significance	
						Unmitigated	Mitigated
Failure of Reticulation Pipeline	-	2	2	4	2	L	L

12.1.6. FIRES AND EXPLOSIONS

Food will be prepared on gas fired stoves. There should be sufficient water available for firefighting purposes. Ensure that all fire-fighting devices are in good working order and are serviced. All personnel have to be trained about responsible fire protection measures and good housekeeping such as the removal of flammable materials on site. Regular inspections should be carried out to inspect and test firefighting equipment by the contractor.

Impact Evaluation

Aspect	Impact Type	Scale	Duration	Magnitude	Probability	Significance	
						Unmitigated	Mitigated
Fires and Explosions	-	2	2	4	2	L	L

12.1.7. HEALTH, SAFETY AND SECURITY

The safety, security and health of the labour force, employees and neighbours are of great importance, workers should be orientated with the maintenance of safety and health procedures and they should be provided with PPE (Personal Protective Equipment). No open flames, smoking or any potential sources of ignition should be allowed at the project location. Signs such as 'NO SMOKING' must be prominently displayed in parts where inflammable materials are stored on the premises.

Impact Evaluation

Aspect	Impact Type	Scale	Duration	Magnitude	Probability	Significance	
						Unmitigated	Mitigated
Safety & Security	-	1	2	4	2	M	L

12.2.CUMULATIVE IMPACTS

These are impacts on the environment, which results from the incremental impacts of the operation of the development when added to other past, present, and reasonably foreseeable future actions regardless of which person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. In relation to an activity, it means the impact of an activity that in it may not become significant when added to the existing and potential impacts resulting from similar or diverse activities or undertakings in the area.

These impacts could become significant especially if it is not properly supervised and controlled. This could collectively impact on the environmental conditions in the area.

Impact Evaluation

Aspect	Impact Type	Scale	Duration	Magnitude	Probability	Significance	
						Unmitigated	Mitigated
Cumulative Impacts	-	2	3	4	2	L	L

13. CONCLUSION

In line with the Environmental Management Act (No 7 of 2007), *Green Earth Environmental Consultants* have been appointed to conduct an Environmental Impact Assessment (EIA) Renewal and prepare an Environmental Management Plan (EMP) Renewal for the operation of facilities and storage and handling of oil and petroleum products and for the materials recovery facility of Rent-A-Drum on Portion S of Windhoek Town & Townlands No. 31, Windhoek, Khomas Region.

Portion S of Windhoek Town and Townlands No. 31 is ideally suited for the operation of a recycling plant. It is within easy reach from the City's residential, business and industrial areas via the Daan Viljoen Road which connects with the Western Bypass which again connects with all the main roads in Windhoek. It is also within easy reach of the Kupferberg Landfill which will be used for the disposal of waste from the sorting process which cannot be used for recycling. It is also close to the Otjomuise Township where some of the workers which will be employed on the site might reside.

The intended operation falls well within Council's Waste Management Policy objectives which are to favour waste prevention and minimization first, recycling and reuse in second place and disposal only as the last resort. Council already granted consent to Rent-A-Drum for the purpose of the recycling plant.

The specific site has the full potential to be used for the proposed activities. It is believed that the activities will not have a severe negative effect on the environment. It is also believed that this project can largely benefit the recycling and employment needs of the area.

The negative environmental impacts that may be visible in the operational phase of the project include increases in solid waste generation and wastewater generation, can result in an increase in traffic on the nearby roads and there can be an impact on the occupational health and safety of workers. As a result of the above-mentioned possible negative impacts on the receiving and surrounding environment, an Environmental Management Plan (EMP) Renewal is required to eliminate and guide the operational phase of the project. The operations are believed to be an asset to the residents of Windhoek and the Namibian citizens because employment will be made available and waste will be recycled.

After assessing all information available on this project, *Green Earth Environmental Consultants* are of the opinion that the project will not have a large impact on the environment. The accompanying EMP Renewal will focus on mitigation measures that will remediate or eradicate the negative or adverse impacts.

14. RECOMMENDATION

It is therefore recommended that the Ministry of Environment, Forestry and Tourism through the Environmental Commissioner support and approve the Environmental Clearance Renewal for the operation of facilities and storage and handling of oil and petroleum products and for the materials recovery facility of Rent-A-Drum on Portion S of Windhoek Town & Townlands No. 31, Windhoek, Khomas Region.

The list of activities that may not be undertaken without an Environmental Clearance Certificate Renewal includes:

ENERGY GENERATION, TRANSMISSION AND STORAGE ACTIVITIES

- *The construction of facilities for the refining of gas, oil and petroleum products.*

HAZARDOUS SUBSTANCE TREATMENT, HANDLING AND STORAGE

- *The storage and handling of dangerous goods, including petrol, diesel, liquid petroleum gas or paraffin, in containers with a combined capacity of more than 30 cubic meters at any one location.*
- *Construction of filling stations or any other facility for the underground and aboveground storage of dangerous goods, including petrol, diesel, liquid, petroleum, gas or paraffin.*

WASTE MANAGEMENT, TREATMENT, HANDLING AND DISPOSAL ACTIVITIES

- *The construction of facilities for waste sites, treatment of waste and disposal of waste.*
- *The import, processing, use and recycling, temporary storage, transit or export of waste.*

REFERENCES

Atlas of Namibia Project, 2002. *Directorate of Environmental Affairs, Ministry of Environment, Forestry and Tourism*. http://www.unikoeln.de/sfb389/e/e1/download/atlasnamibia/pics/climate/temperature-annual.jpg [accessed: February 19, 2014].

Christelis, G.M. & Struckmeier, W. 2001. Groundwater in Namibia, an Explanation of the Hydrogeological Map. *Ministry of Agriculture, Water and Rural Development*. Windhoek. Namibia, pp 128.

Commencement of the Environmental Management Act, 2012. *Ministry of Environment, Forestry and Tourism*. Windhoek. Namibia, pp. 3 – 22.

Constitution of the Republic of Namibia, 1990. National Legislative Bodies. Namibia, pp. 6 – 63.

Directorate of Environmental Affairs, 2002. Ministry of Environment, Forestry and Tourism, Atlas of Namibia Project.

Environmental Management Act, 2007. *Ministry of Environment, Forestry and Tourism*. Windhoek. Namibia, pp. 4 - 32.

Forestry Act, 2001. *Office of the Prime Minister*. Windhoek. Namibia, pp. 9 – 31.

Grunert, N. 2003. Namibia Fascination of Geology: A Travel Handbook. Windhoek. Klaus Hess Publishers. pp. 35 – 38.

Mannheimer, C. & Curtis, B. 2009. *Le Roux and Muller's Guide to the Trees & Shrubs of Namibia.* Windhoek: Macmillan Education Namibia, pp. 249 – 439.

Mendelsonh. B. 2002. Strategic Environmental Assessment of Uranium Rush. Central Namib.

Namibian Environmental Assessment Policy, 1995. *Ministry of Environment and Tourism*. Windhoek. Namibia, pp. 3 – 7.

Nature Conservation Ordinance, 1975. Windhoek. Namibia, pp. 4 – 47.

Soil Conservation Act, 1969. *Office of the Prime Minister*. Windhoek. Namibia, pp. 1 – 14.

The World Bank Group in collaboration with the United Nations Environment Programme and the United Nations Industrial Development Organization, 1999. Pollution Prevention and Abatement Handbook – Toward cleaner production, Washington DC.

Water Resource Management Act, 2004. *Office of the Prime Minister*. Windhoek. Namibia, pp. 6 – 67.

Weather - the Climate in Namibia, 2012. http://www.info-namibia.com/en/info/weather [accessed: June 24, 2013].

APPENDIX A: CURRICULUM VITAE OF CHARLIE DU TOIT

1. Position:	Environmental Practitioner	
2. Name/Surname:	Charl du Toit	
3. Date of Birth:	29 October 1960	
4. Nationality:	Namibian	
5. Education:	Name of Institution	University of Stellenbosch, South Africa
	Degree/Qualification	Hons B (B + A) in Business Administration and Management
	Date Obtained	1985-1987
	Name of Institution	University of Stellenbosch, South Africa
	Degree/Qualification	BSc Agric Hons (Chemistry, Agronomy and Soil Science)
	Date Obtained	1979-1982
	Name of Institution	Boland Agricultural High School, Paarl, South Africa
	Degree/Qualification	Grade 12
	Date Obtained	1974-1978
6. Membership of Professional Association:	EAPAN Member (Membership Number: 112)	

7. Languages:		Speaking	Reading	Writing
	English	Good	Good	Good
	Afrikaans	Good	Good	Good

8. Employment Record:	From	To	Employer	Position(s) held
	2009	Present	Green Earth Environmental Consultants	Environmental Practitioner
	2005	2008	Elmarie Du Toit Town Planning Consultants	Manager
	2003	2005	Pupkewitz Megabuild	General Manager
	1995	2003	Agra Cooperative Limited	Manager Trade

		Namibia	Chief Agricultural
1989	1995	Development	Consultant
		Corporation	
		Ministry of	Agricultural
1985	1988	Agriculture	Researcher

Certification:

I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes myself, my qualifications, and my experience. I understand that any wilful misstatement described herein may lead to my disqualification or dismissal, if engaged.

_____

Charl du Toit

APPENDIX B: CURRICULUM VITAE OF CARIEN VAN DER WALT

1. **Position:** Environmental Consultant
2. **Name/Surname:** Carien van der Walt
3. **Date of Birth:** 6 August 1990
4. **Nationality:** Namibian
5. **Education:**

Institution	Degree/Diploma	Years
University of Stellenbosch	B.A. (Degree) Environment and Development	2009 to 2011
University of South Africa	B.A. (Honours) Environmental Management	2012 to 2013

6. **Membership of Professional Associations:**

   EAPAN Member (Membership Number: 113)

7. **Languages:**

Language	Speaking	Reading	Writing
English	Good	Good	Good
Afrikaans	Good	Good	Good

8. **Employment Record:**

From	To	Employer	Positions Held
07/2013	Present	Green Earth Environmental Consultants	Environmental Consultant
06/2012	03/2013	Enviro Management Consultants Namibia	Environmental Consultant
12/2011	05/2012	Green Earth Environmental Consultants	Environmental Consultant

9. **Detailed Tasks Assigned:**

Conducting the Environmental Impact Assessment, Environmental Management Plan, Public Participation, Environmental Compliance and Environmental Control Officer

Certification:

I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes myself, my qualifications, and my experience. I understand that any wilful misstatement described herein may lead to my disqualification or dismissal, if engage.

_____

Carien van der Walt

APPENDIX C: REPORT FROM LITHON PROJECT CONSULTANTS

Windhoek Office:
PO Box 40902, Ausspannplatz
Windhoek, Namibia
Tel: +264 61 250 278
Fax: +264 61 250 279
E-mail: adriaan@lithon.com

Ongwediva Office:
PO Box 2367, Oshakati
Namibia
Tel: +264 65 231 509
Fax: +264 65 231 525
E-mail: gert@lithon.com

Swakopmund Office:
PO Box 2421, Swakopmund
Namibia
Tel: +264 64 406 123
Fax: +264 64 406 107
E-mail: frikkie@lithon.com

Lithon
Project Consultants (Pty) Ltd
Project Managers and Multi-Disciplinary Consulting Engineers
Company Reg. No 2003/359

Our reference: P0671 Portion S Windhoek Report Diesel Storage-121004-001.doc

Your reference:

Date: 04 October 2012

Elmarie du Toit Town Planning Consultants
Tel: 061-248010
Fax: 061-248608
Cell: 081 127 3145
e-mail: charlie@dutoitplan.com
Windhoek
Namibia

Dear Mr. du Toit

APPLICATION FOR APPROVAL OF DIESEL STORAGE FACILITY ON PORTION S, WINDHOEK

Lithon Project Consultants were requested by yourself on behalf of your client, Messrs Rent-A-Drum of Portion S, Windhoek Town and Townlands to investigate the safety of an existing Diesel Fuel storage facility on their premises located on Portion S of Windhoek Town.

The portion which is 29.941 ha in size is located approximately 4 Kilometers west of Windhoek along the C28 Road leading to the Daan Viljoen game reserve. Adjacent to the west of it is the portion known as the Tony Rust Race Track and north of it opposite the C 28 road lays the Otjomuise residential area.

As part of their infrastructure, Rent-a-Drum has constructed an above-ground diesel storage area. This consists of the following infrastructure:

- An 18,000 litre above-ground diesel tank
- A diesel pump for refilling of vehicles
- An emergency pump
- A bunding wall of 700mm high, enclosing a bunding area of 7.8m by 5.2m

Mr. Martin van der Merwe of our office inspected the infrastructure provided and we conclude as follows:

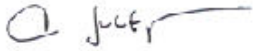
- The bunding area so designed will safely handle an event whereby the entire contents of the above-ground diesel tank is spilled, with some freeboard, since the volume of the bunding area exceeds the capacity of the tank by a factor of safety of 1.5. (Bunding area volume of 28.4 m^3 divided by tank capacity of 18 m^3 => 1.5). In the case of a fuel spill, all contaminant could be removed by connecting a removal vehicle up to the emergency pump already installed.

- The bund walls and floor are constructed from concrete with a suitable liner. Any spillage will therefore be contained by the concrete. The infrastructure installation is elevated by more than a meter higher than the previous natural ground level, and adjacent to a ramp. Any spillage within the bunded area would therefore be contained, and will not seep into and contaminate ground water.

It is therefore our conclusion that the installed infrastructure complies with the guidelines as laid down by *SANS 10087: The handling, storage, distribution and maintenance of liquefied petroleum gas in domestic, commercial, and industrial installations*, and we can recommend that the installation be approved by the relevant authority from the Ministry of Mines and Energy.

Please revert back to us should you require more input.

Yours sincerely



Frikkie Holtzhausen
Director
for **LITHON PROJECT CONSULTANTS (PTY) LTD**

APPENDIX D: ENVIRONMENTAL MANAGEMENT PLAN