Western Cape Government
Environmental Affairs and Development Planning

BETTER TOGETHER.

DIRECTORATE: WASTE MANAGEMENT

Waste Management Licence Application Additional Information Annexure (application for new facilities, expansion of existing facilities or decommissioning / closure of existing facilities.)

DECEMBER 2013

DEPARTMENTAL REFERENCE NUMBER(S)

File reference number (EIA):	16/3/3/6/7/1/D6/17/0193/19
File reference number (Waste):	19/2/5/1/D6/29/WL0096/20
File reference number (Other):	N/A

PROJECT TITLE

PROPOSED DEVELOPMENT OF A PILOT DEPOLYMERISATION PROCESSING PLANT ON PORTION 21 OF THE REMAINDER OF THE FARM RHEEBOKSFONTEIN NO.142 IN MOSSEL BAY, WESTERN CAPE

Kindly note that:

1. For an application for a waste management licence that must subjected to a Basic Assessment or Scoping & Environmental Impact Reporting process, this Annexure must be submitted together with the Basic Assessment Report or Environmental Impact Report. Note that when applying for decommissioning/closure of existing facility only the following sections must be completed 2, 3, 15 and 16.
2. This annexure is current as of December 2013. It is the responsibility of the Applicant / EAP to ascertain whether subsequent versions of the appendix have been published or produced by the competent authority.
3. The required information must be typed within the spaces provided in the report. The sizes of the spaces provided are not necessarily indicative of the amount of information to be provided. It is in the form of a table that will expand as each space is filled with typing.
4. An incomplete annexure may result in the rejection of the Basic Assessment Report or Environmental Impact Report.
5. The use of "not applicable" in the document must be done with circumspection. Where it is used in respect of material information that is required by the Department for assessing the application, this may result in the rejection of the Basic Assessment Report or Environmental impact Report.
6. **While the different sections of the annexure report only provide space for provision of information related to one alternative, if more than one feasible and reasonable alternative is considered, the relevant section must be copied and completed for each alternative**.
7. Unless protected by law all information contained in, and attached to this report, will become public information on receipt by the competent authority. If information is not submitted with this report due to such information being protected by law, the applicant and/or EAP must declare such non-disclosure and provide the reasons for the belief that the information is protected.
8. This annexure must be submitted together with the Basic Assessment Report or Environmental Impact Report to the Department at the postal address given below or by delivery thereof to the Registry Office of the Department. No faxed or e-mailed reports will be accepted. **Please note that for waste management licence applications, this report must be submitted for the attention of the Department's Waste Management Directorate (tel: 021-483-2756 and fax: 021-483-4425) at the same postal address as the Cape Town Office Region A.**

DEPARTMENTAL DETAILS

DIRECTORATE WASTE MANAGEMENT
Department of Environmental Affairs and Development Planning Attention: Directorate Waste Management Private Bag X 9086 Cape Town, 8000 Registry Office 1st Floor Utilitas Building 1 Dorp Street, Cape Town Queries should be directed to: Tel (021) 483-2756 Fax (021) 483-4425

View the Department's website at http://www.westerncape.gov.za/dept/eadp for the latest version of this document.

Highlight the type of project:	**Recycling and/or recovery facility**	**Treatment facility**	Disposal facility	Other

Please provide a general description of the project and associated infrastructure:

Rooikat Recycling proposes to construct a Pilot Depolymerisation Processing Plant on Portion 21 of the Remainder of the Farm Rheeboksfontein No.142 in Mossel Bay.

Rooikat Recycling are proposing to develop a robust, fit for purpose thermal depolymerisation technology consisting of depolymerization and separation sections. This technology will allow the treatment of domestic plastic and tyres at a large scale to produce a basket of fuels that can be successfully placed in the existing market.

To demonstrate the technology, it is required to construct a pilot plant to demonstrate and refine the technology. A test/pilot facility that can process 10 to 20 tons a day of either residential plastic or tyres, or a combination of both, is required. The data collected during the operation of the plant will be used to develop and optimize the technology.

THERMAL DEPOLYMERISATION is a process which reduces complex organic materials (usually waste products of various sorts, often biomass and plastic) into light crude oil. It mimics the natural geological processes thought to be involved in the production of fossil fuels. Under pressure and heat, long chain polymers of hydrogen, oxygen, and carbon decompose into short-chain petroleum hydrocarbons.

The plastic would not have to be separated into the different types of plastic and typically non-recyclable plastics could now be converted into fuel without adding strain on the environment. The process would be a closed loop system and the generated off gasses would be used internally for energy production. Two products would be produced, heavy fuel oil (HFO) and minimal amounts of carbon black (which is a substitute for coal and can be used as a pigment).

Plastics and tyres as an energy source

Alternative fuel is fuel which is obtained in the process of recovery of waste with a calorific value. Post-consumer plastics and used tyres are among the wastes with the highest calorific values, being 40-46MJ/kg and 29.2MJ.kg respectively. These high calorific values make them an ideal feedstock for the depolymerisation process.

Process breakdown

Feedstock will be received at the facility by road. The facility will not serve as a long-term storage site, but will only store the feed to be processed by the facility. The feed will be manually loaded into the auto feeder from where it will be loaded into the reactor. The reactor will operate on the gas and HFO produced by the process.

The reactor product will be cooled and separated into three streams. The gas stream will be routed to back to the reactor for energy generation and the resulting HFO and carbon black will be sold as products. The process thus has no discernible waste streams.

The depolymerization process will produce two product streams, i.e. high-carbon solids (carbon black) and a gas stream. The gas stream will pass through a condensing stage to produce heavy fuel oil (HFO). All non-condensable gases will be returned to the reactor to serve as heating fuel and may be supplemented with some of the HFO, should this be required.

The reactor would run for approximately 10 hours to provide heating for the process. The pilot plant, however, would be run in batches throughout the day. Based on the production and loading rates, as well as the cooling steps, the facility may be operational over a 24 hour period.

According to the newly promulgated South African Biofuels Regulatory Framework (GN: 116 of 07 February 2020), any fuel produced from solid municipal waste is classified as a second-generation biofuel. The National Biofuels Feedstock Protocol defines second-generation biofuels as advanced biofuels, being derived from technologically advanced manufacturing methods. They differ from first-generation biofuels with regard to the fact that the feedstocks used in producing second-generation biofuels are generally not food crops. These include biomass, used cooking oil and solid municipal waste.

Receiving of General waste

All waste will be delivered to the site for processing. Loads will be weighed in order to ensure that complete batch sizes are ready for processing. All waste made ready for process will be stored on cemented surfaces.

Storage of waste

- Tyres will be stored in accordance with the National Waste Regulations. Note that this will not be a long term storage site and that only waste to be processed will be on site.
- All waste will be stacked in skips in a central area where the stock of at least 1 – 2 days may be accumulated (approximately 40 tons).
- All general waste stored will be cleaned offsite prior to delivery to avoid contaminated run-off water accumulating.
- All tyres to be used will be cut up into smaller pieces prior to being loaded into the reactor chamber. Encased steel will be recovered and sold to recycling companies.
- The various waste product streams destined for depolymerization will be blended to provide a stable feed composition into the reactor, thus contributing to stable operating conditions.

Plant Infrastructure

The proposed plant layout is shown below. The entire plant will be fenced with separate entrance and exit gates to allow for one way traffic through the facility.

The plant will consist of the following:

- Raw Material temporary storage area – approx. 96m^2
- Dormitory Building – approx. 122m^2
- Office Block – approx. 100m^2
- Processing Plant – approx. 400m^2
- Product storage area for steel wire, heavy fuel oil and carbon black – approx. 135^2

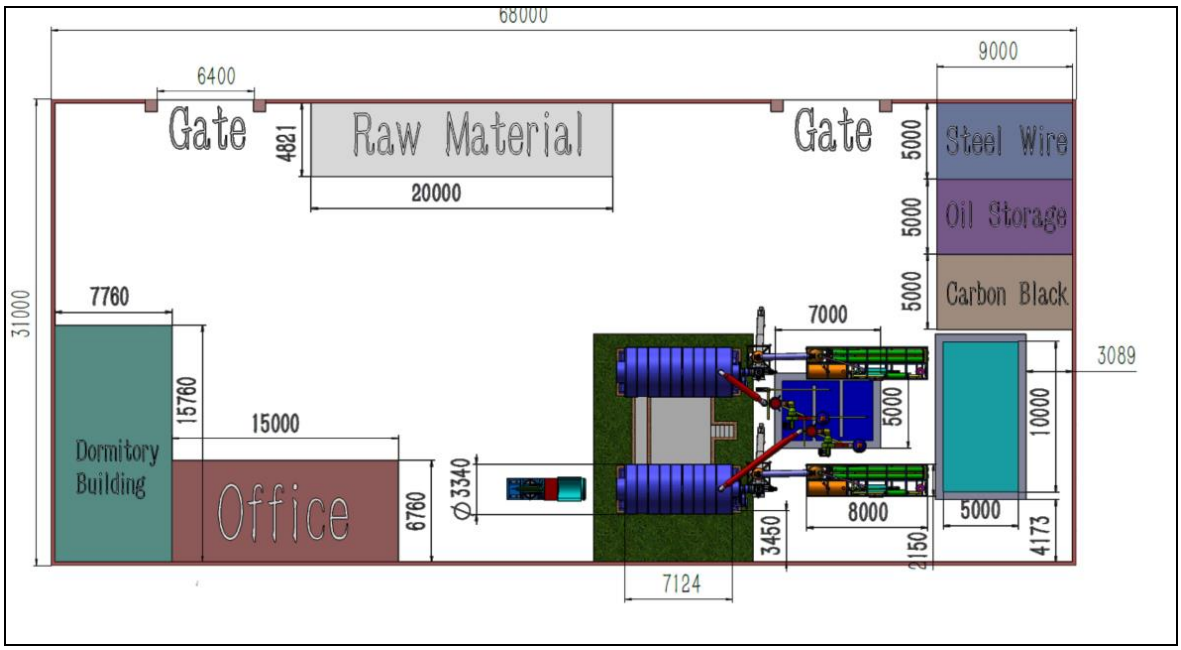


Figure 1: Rooikat Recycling Plastic depolymerization Pilot plant layout

Stormwater

Storm water will be collected in a storm water sump with an oil separation weir to ensure no contaminated water runoff. All process equipment will be on concreted surfaces with sumps around them.

The Process

The reactor chamber will be loaded by a hydraulic loader to ensure a firm stacking and avoid space being underutilized. Heating to approximately 350 °C will initially be by LP gas or heavy fuel oil until the depolymerization process generates its own gas and fuel oil. This gas and oil will then be piped to the heating chamber and used as heating fuel.

Carbon black will be dumped in an underground bunker from where it will be moved mechanically to be bagged for use off site. Gases from the reactor will be passed to a condenser where the condensable fraction will be converted to liquid to form combustion oil.

Non-condensable gases will be returned to the reactor to serve as an energy source for heating of the reactor. The system will not use flare-off to rid the system of unwanted gases, however emergency instances the off gases will be flared.

After combustion in the reactor, all off-gas will pass through a wet scrubber system prior to being emitted to atmosphere. Due to the heat, steam will be formed that will be released.

Products of the Pyrolysis Process

Steel: The steel would be high quality steel rings that make up around 10% of the total make-up of tyres. Steel will be stored in skips on-site in a designated area for regular collection by a reputable scrap metal dealer.

Carbon Black: Carbon black will be moved from the reactor chamber into an underground bunker from where it will be mechanically lifted to be bagged/pelletized and sold off. Carbon Black is used extensively in the rubber, plastics and ink industries. It can also be sold as a coal alternative.

Oil / HFO: Condensable gases are passed through the condensers and form oil. These oils are sought after as industrial or heating oil. Further processing will be required to yield high value oil or fuel. The oil will be stored temporarily in an above ground storage facility, however there will be no long term storage.

Gases: Condensable gases are passed through the condensers and are condensed into oil. The non-condensable gases are re-routed back to the heating chamber and are used to heat the process and replace the use of LPG gas. After burning the off gas is cooled, scrubbed and released into the atmosphere.

NOTE: Gases will only be flared in the unlikely event of an emergency being detected by the computerised control system.

1. SIZE OF SITE AND FACILITY, AND CLASSIFICATION OF FACILITY

Size of facility for a waste management activity	2 108m²
Area where the waste management activity takes place	496m²
In terms of waste disposal and composting facilities: Classification of facility in terms of climatic water balance	N/A
In terms of waste disposal facilities: Classification of Facility in terms of the type and the quantity of waste received	N/A

2. GEOGRAPHICAL COORDINATES OF ALL EXTERNAL CORNER POINTS OF FOOTPRINT OF THE WASTE MANAGEMENT FACILITY

Number of corner	Latitude (S):			Longitude (E):		
1	34°	2‘	44.45“	22°	11‘	8.74“
2	34°	2‘	43.91“	22°	11‘	10.77“
3	34°	2‘	44.95“	22°	11‘	11.25“
4	34°	2‘	45.47“	22°	11‘	9.13“

Please note: The corner numbers must be indicate on a site map to be attached to this annexure.

3. DETAILS OF THE PERSON WISHING TO HOLD THE WASTE MANAGEMENT LICENCE

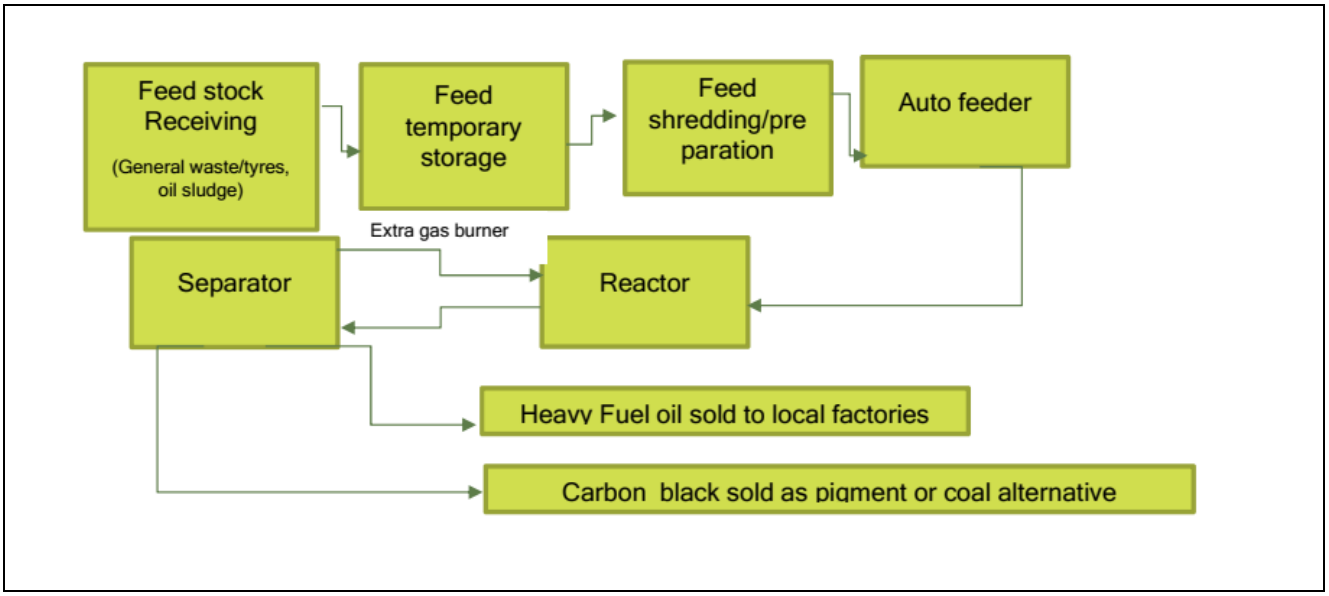
First name and surname:	Krizelda Human / Mark Hobbs		
Company Name (if any):	Rooikat Recycling Pty Ltd		
Identity and/or Company Registration number:	2019/271867/07		
Physical address:			
Postal address:	PO Box 308, Mossel Bay		
		Postal code:	6500
Telephone:	( )	Cell:	072 218 9196 / 083 267 7263
E-mail:	rooikatrecycling@gmail.com	Fax:	( )
EAP Qualifications	BSc Hons in Wildlife Management (University Pretoria); BSc in Zoology and Ecology (University of Cape Town)		
EAP Registrations/Associations	EAPASA: 2020/1480		

4. DETAILS OF THE OPERATIONAL TIMES

PERIOD	FROM	UNTIL
Weekdays	04h00	23h00 (19h)
Saturdays	04h00	23h00 (19h)
Sunday	n/a	n/a
Public holidays	n/a	n/a

5. DESCRIPTION OF THE WASTE MANAGEMENT ACTIVITIES AND THE WASTE MANAGEMENT OPERATIONS

5.1 Provide a flow chart of the operation showing all inputs and outputs of the process.



5.2 Give particulars of the source, location, nature, composition and quantity of emission to the atmosphere, surface water, sewer, and ground-water including noise emissions. Solid waste must be in cubic metres (m^3) or tons (t) and specify units for liquids and gases.

Emissions:
LAQS modelled the dispersion of particulate emissions from the planned operations to estimate ground-level concentrations of particulates and compared the outcome with official ambient air quality standards. In addition, LAQS modelled the dispersion of emission together with other known sources near the planned site of operations to show the cumulative impact of all emissions on the surrounding area.

PM10 Particulate Matter
The highest annual average concentration of PM10 is estimated to be less than 0.1 µg/m3 and was modelled to occur approximately 180 metres north-west of the site. This value is well below the ambient air quality standard of 40 µg/m3.

The highest annual average concentration of PM10 at the residential area to the northeast is estimated to be also less than 0.1 µg/m3. The maximum 99-percentile daily concentration of PM10 was shown to be 0.8 µg/m3 and was modelled to occur along the south-western fence line. The concentration is well below the maximum daily standard of 75 µg/m3.

The highest 99-percentile daily concentration of PM10 at the residential area to the north-east is estimated to be less than 0.1 µg/m3.

Sulphur Dioxide
The highest annual average concentration of SO2 is estimated to be 0.4 µg/m3 and was modelled to occur approximately 180 metres north-west of RR's premises. This value is well below the ambient air quality standard of 50 µg/m3.

The highest annual average concentration of SO2 at the residential area to the north-east is estimated to be less than 0.1 µg/m3.
The maximum 99-percentile hourly concentration of SO2 was shown to be 5.6 µg/m3 and was modelled to occur along the south-western fence-line of RR's premises. The concentration is well below the maximum daily standard of 350 µg/m3.

The highest 99-percentile concentration of SO2 at the residential area to the north-east is estimated to be less than 0.1 µg/m3.

Nitrogen Dioxide
The highest annual average concentration of NO2 is estimated to be 1.5 µg/m3 and was modelled to occur approximately 180 metres north-west of RR's premises. This value is well below the ambient air quality standard of 50 µg/m3.

The highest annual average concentration of NO2 at the residential area to the north-east is estimated to be less than 0.1 µg/m3.
The maximum 99-percentile hourly concentration of NO2 was shown to be 20.6 µg/m3 and was modelled to occur along the south-western fence-line of RR's premises. The concentration is well below the maximum daily standard of 350 µg/m3.

The highest 99-percentile concentration of NO2 at the residential area to the north-east is estimated to be 0.2 µg/m3.

Carbon Monoxide
The highest 8-hour average concentration of CO is estimated to be 0.3 µg/m3 and was modelled to occur approximately 180

metres north-west of RR's premises. This value is well below the ambient air quality standard of 10 mg/m3.

The highest 8-hour average concentration of CO at the residential area to the north-east is estimated to be less than 0.1 µg/m3.
The maximum 99-percentile hourly concentration of NO2 was shown to be 5.1 µg/m3 and was modelled to occur along the south-western fence-line of RR's premises. The concentration is well below the maximum daily standard of 30 mg/m3.

The highest 99-percentile concentration of NO2 at the residential area to the north-east is estimated to be less than 0.1 µg/m3.

Lead
The highest annual average concentration of Pb is estimated to be 2.2 ng/m3 and was modelled to occur approximately 180 metres north-west of RR's premises. This value is well below the ambient air quality standard of 50 µg/m3.

The highest annual average concentration of Pb at the residential area to the north-east is estimated to be less than less than 0.1 ng/m3.

Benzene
The highest annual average concentration of C6H6 is estimated to be 0.04 ng/m3 and was modelled to occur approximately 180 metres north-west of RR's premises. This value is well below the ambient air quality standard of 50 µg/m3.

The highest annual average concentration of C6H6 at the residential area to the northeast is estimated to be less than less than 0.01 ng/m3.

Wastewater:
All gasses are scrubbed and will produce a sediment in the wastewater on site. This sediment will be removed on a regular basis and used back into the heating process of the system. A secondary condenser will turn steam back to water that will be reused in the process. All water will follow a close looped system in order to facilitate optimal reuse practices.

Stormwater:
Storm water will be collected in a storm water sump with an oil separation weir to ensure no contaminated water runoff. All process equipment will be on impermeable surfaces with sumps around them.

Noise:
The Plastic Depolymerisation plant will be designed to minimise the excessive generation of noise.

Solid Waste:
Small volumes of office related waste would be generated.

6. WASTE QUANTITIES

6.1 Indicate or specify types of waste and list the estimated in cubic meters (m^3) or tons (t) expected to be managed daily (in cubic meters or tons):

Hazardous waste	Non hazardous waste	Total
	Mixed Plastic / tyres	10-20 tons

6.2 Indicate the source of information supplied in the table above:

Determined from volumes	Determined with weighbridge/scale	Estimated
The volumes of waste treated daily is based on the capacity of the Pilot Depolymerisation Processing Plant and the availability of feedstock from the surrounding area.		

7. RECOVERY, REUSE, RECYCLING, TREATMENT AND DISPOSAL QUANTITIES (NOT APPLICABLE FOR DECOMMISSIONING / CLOSURE APPLICATIONS):

7.1 Indicate the applicable waste types and quantities expected to be recovered, reused, recycled, treated and disposed of annually.

Types of waste **(see page 13 for waste classification)**	**Main source (name of company)**	**Quantities (tons or m³)**		**On-site recovery reuse recycling treatment or disposal**	**Offsite recovery reuse recycling treatment or disposal**	**Offsite disposal**
		Quantities /day	**Quantities /month**	**Method & location**	**Method location and contractor details**	
General waste						
Municipal Waste	South Cape Waste & Recycling		200	Thermal Depolymerisation	N/A	N/A
Tyres	tbc		tbc	Shredding / Thermal Depolymerisation	N/A	N/A
Hazardous waste						
N/A	N/A	N/A	N/A	N/A	N/A	N/A

8. SIZE OF THE POPULATION TO BE SERVED BY THE FACILITY

8.1 Indicate the size of the population to be served by the waste management facility:

Size of population	**Comment**
0-499	
500-9,999	
10,000-199,999	According to the forecasts of the Western Cape Department of Social Development, the population in Mossel Bay is estimated to reach 101 680 in 2021, when the plant would be operational.
200,000 upwards	

9. WASTE DISPOSAL FACILITY PARAMETERS (ONLY APPLCABLE TO WASTE DISPOSAL FACILITIES)

9.1 It is imperative that the holder of the waste licence is a fit and proper person in terms of section 59 of the National Environment Management: Waste Act, 2008 (Act No. 59 of 2008). Please disclose the following:

a) The method of disposal of waste (only applicable to waste disposal facilities):

Land-building	
Land-filling	
Both	

b) The dimensions of the disposal site in metres:

	At commencement	After rehabilitation
Height/Depth		
Length		
Breadth		

c) The total volume available for the disposal of waste on the site:

Volume Available	Mark with "x"	Source of information (determined by surveyor/estimated

Up to 99		
100 – 34 999		
35 000 – 3,5 million		
> 3,5 million		

d) Compacting and covering of the waste body:

Confirm that the waste body will be covered daily	Yes	No	If no, please explain
Confirm that that sufficient cover material is available		No	If no, please explain
Give an indication of where the cover material will be sourced and indicate the distance in kilometres/metres from waste disposal facility.			
Confirm that the waste will be compacted daily		No	If no, please explain

10. THE RECLAMATION/DIVERSION METHOD AT THE WASTE DISPOSAL FACILITY

10.1 Mark with an "x" the method to be used (reclamation not allowed at the working face of the disposal facility):

At source	
Recycling installation	
No reclamation/diversion planned	
Estimate the planned diversion rate in percentage	

11. FATAL FLAWS FOR THE SITE (ONLY APPLICABLE TO WASTE DISPOSAL FACILITIES):

Indicate which of the following apply to the facility for a waste management activity:

Within a 3000m radius of the end of an airport landing strip	Yes	No
Within the 1 in 50 year flood line of any watercourse	Yes	No
Within an unstable area(fault zone, seismic zone, dolomitic area, sinkholes)	Yes	No
Within the drainage area or within 5 km of water source	Yes	No
Within an area with shallow and/or visible water table	Yes	No
Within an area adjacent to or above an aquifer	Yes	No
Within an area with shallow bedrock and limited available cover material	Yes	No
Within 100 m of the source of surface water	Yes	No
Within 1km from the wetland	Yes	No
Indicate the distance to the boundary of the nearest residential area	..... **metres**	
Indicate the distance to the boundary of the industrial area	..... **metres**	

12. RAINFALL (ONLY APPLICABLE TO WASTE DISPOSAL FACILITIES):

a) Indicate the wettest 6 months of the year:

November – April	
May - October	

For the wettest six month period indicated above, indicate the following for the preceding 30 years

	Total rainfall for 6 months	**Total A-pan evaporation for 6 months**	**Climatic water balance**
For the 1st wettest year			
For the 2nd wettest year			

For the 3rd wettest year			
For the 4th wettest year			
For the 5th wettest year			
For the 6th wettest year			
For the 7th wettest year			
For the 8th wettest year			
For the 9th wettest year			
For the 10th wettest year			

13. LOCATION AND DEPTH OF GROUND WATER MONITORING BOREHOLES (ONLY APPLICABLE TO WASTE DISPOSAL FACILITIES):

Codes of boreholes	Borehole locality	Depth (m)	Latitude			Longitude		
.....	.....		°	'	"	°	'	"
.....	.....		°	'	"	°	'	"
.....	.....		°	'	"	°	'	"
.....	.....		°	'	"	°	'	"

14. LOCATION AND DEPTH OF LANDFILL GAS MONITORING TEST PIT (ONLY APPLICABLE TO WASTE DISPOSAL FACILITIES):

Codes of boreholes	Borehole locality	Latitude			Longitude		
.....	.....	°	'	"	°	'	"
.....	.....	°	'	"	°	'	"
.....	.....	°	'	"	°	'	"

15. EVERY CLOSURE APPLICATION FOR FACILITIES SHOWN IN THE TABLE BELOW MUST AS A MINIMUM BE ACCOMPANIED BY DOCUMENTATION AS INDICATED HEREAFTER:

Requirements	Recycling &/ recovery Facility	Treatment facility	Disposal facility
Design of storm-water management	X	X	X
Design of leachate management			X
Design & duration of landfill gas monitoring and management			X
Design of settlement/surface pondage			X
Design of access roads			X
Topographic Map indicating the property	X	X	
Topographic Map indicating the landfill property boundary, cells (fill areas), wells, and structures within and surrounding the landfill site			X
Plan Drawings (including Final Contour Grade Map) indicating (a) the final contours and vegetation in relationship to the			X

surrounding land and any run-off control structures			
Plan Drawings (including Final Contour Grade Map) indicating (b) well location(s), depth to groundwater and flow direction			X
Plan Drawings (including Final Contour Grade Map) indicating (c) the locations at which gas monitoring takes place			X
Drawings showing the proposed final restored profile for the landfill accompanied by calculations of the remaining tonnages of waste (void space) and materials necessary to close, cap and restore the landfill			X
Provision of services that were provided by the facility being closed	X	X	X
Post Closure Site management & Operation	X	X	X
Monitoring Plan	X	X	X
Emergency Preparedness plan	X	X	X
Rehabilitation measures including removal of site structures,	X	X	X
Rehabilitation measures including waste compaction and capping; application of topsoil & vegetation establishment			X
Procedures for the inspection or auditing of the rehabilitation process and mechanisms for reporting to the licensing authority.	X	X	X
Long and short term stability			X
Procedures and timescales for ensuring final levels are achieved			X

16. INFORMATION NEEDED WHEN APPLYING FOR ACTIVITIES LISTED UNDER CATEGORY A AND B, BUT IS NOT LIMITED THERETO:

The following MUST be included in the application as supporting documentation and the applicant must indicate specific section(s) where they are appended in the reports.

REQUIRED PIECE OF INFORMATION	SECTION IN THE REPORTS WHERE IT CAN BE FOUND	COMMENTS (If any)
1. 1:50 000 topography /topo-cadastral map of the area showing:	**Appendix A1 of the BAR**	
1.1 The site and 5km radius	**Appendix B1 of the BAR**	
1.2 Existing neighbouring residential and industrial areas	**Appendix B1 of the BAR**	
1.3 Possible future development (indicate the type of development)	**N/A**	
1.4 Other waste handling facilities (existing or closed) in the area	**Appendix B1 of the BAR**	
1.5 Existing and possible future neighbouring residential areas.	**Appendix B1 of the BAR**	
2. The site plan drawn to scale showing the site's boundary showing:	**Appendix B1 of the BAR**	
2.1 Activities or development existing on all 4 directions of the facility.	**Appendix B1 of the BAR**	
2.2 Waste receipt, storage and handling areas	**Appendix B1 of the BAR**	
2.3 Impermeable surfaces	**Appendix B1 of the BAR**	
2.4 Sealed drainage systems	**N/A**	
2.5 Drainage system for the facility including sumps and discharge points	**N/A**	
2.6 Road names and access from all major roads in the area	**Appendix B1 of the BAR**	
2.7 Buffersone (waste disposal and composting facilities)	N/A	
3. Security and access aspects of the facility	**Appendix B1 of the BAR**	
4. Emergency preparedness plan	**BAR – Appendix H (EMPr)**	
5. Waste hierarchy implementation plan	**Section I.8 of the BAR**	
6. Operational plan	**BAR – Appendix H (EMPr)**	
7. Latest external audit report (only apply for permit/licence amendment)	N/A	
8. Geo-hydrological report (only apply to waste disposal facilities , storage facilities and treatment of waste)	N/A	
7. Description risk assessment	**Section H of the BAR**	

17. ANY OTHER REQUIREMENTS IN TERMS OF THE WASTE ACT

Please describe how the principles of waste management as set out in section 16 of National Environment Management: Waste Act, 2008 (Act No. 59 of 2008) have been taken into account:

The principles (objectives) of the National Environmental Management: Waste Act (NEM:WA), Act 59 of 2008, as stated in Section 2 of the Act include:

"…To protect health, well-being and the environment by providing reasonable measures for –
(i) Minimizing the consumption of natural resources;
(ii) Avoiding and minimizing the generation of waste;
(iii) Reducing, re-using, recycling and recovery waste;
(iv) Treating and safely disposing of waste as a last resort;
(v) Preventing pollution & ecological degradation;
(vi) Securing ecologically sustainable development while promoting justifiable economic and social development;
(vii) Promoting and ensuring the effective delivery of waste services;
(viii) Remediating land where contamination presents or may present, a significant risk of harm to health or the environment….."

Chapter 16 of the NEM:WA states the general duty of care in respect of waste management, which includes avoidance or minimisation of waste generation; promotion of waste recovery, re-use and recycling; ensuring waste treatment & disposal is environmentally friendly; and to ensure that waste is managed in such a way that will not endanger health or the environment or cause a nuisance through noise, odour, or visual impacts.

The proposed Pilot Depolymerisation Processing Plant is aligned with the objectives of NEM:WA as stated in Section 2 and the general duty stated in Section 16 of the Act, as the project itself is focused on recovering materials from an existing waste disposal facility, and putting the recovered materials to productive re-use. Through the treatment of mixed plastic and tyres, Rooikat Recycling will aid the Municipality with reducing waste to landfill, while producing a fuel which can be used by local industries, reducing the demand/consumption of virgin fuel.

Management, mitigation and monitoring measures have been integrated into the EMPr to ensure that potential dust, noise and visual impacts are avoided as far as possible – and where complete avoidance is not possible, that those impacts are minimized and mitigated appropriately.

In this section please describe how any other requirements in terms of the National Environment Management: Waste Act, 2008 (Act No. 59 of 2008), not dealt with above, have been complied with/addressed:

No other requirements were identified.

18. COMPETENCE OF THE PERSON/COMPANY THAT WILL HOLD THE WASTE MANAGEMENT LICENCE

It is imperative that the holder of the waste management licence is a fit and proper person in terms of section 59 of the National Environment Management: Waste Act, 2008 (Act No. 59 of 2008). Please disclose the following:

(a) Legal compliance:

	Yes / No	Describe
Has the applicant ever been found guilty or issued with a non compliance notice in terms of any national environmental management legislation?	No	The EAP is not aware of any convictions or non-compliance notices relating to this project or the subject site
Has the applicant's licence in terms of the Waste Act 2008 ever been revoked?	No	
Has the applicant ever been issued with a non compliance notice or letter in terms of any South African Law?	No	The EAP is not aware of any convictions or non-compliance notices relating to this project or the subject site

Please note: Details required above include any information that the applicant wants the Department to take into consideration in determining whether they are a "fit person" and this includes reasons why the offence happened and measures in place to prevent recurrence.

(b) Technical competence:

What technical skills are required to operate the site?	*Matric qualification plus basic skills to take samples and measurements.* *Must be able to* interpret results obtained from samples and measurements in order to take decisions to adjust the plant equipment accordingly. Must also have basic skills of polymerization, electricity, pumps and associated equipment.
How will the applicant ensure and maintain technical competency in the operation of the site?	The Applicant will ensure that employees with the necessary skills and experience are appointed for the operation of the site. The

	Applicant has sufficient knowledge, skills and experience to oversee and manage the appointed employees. The opportunity would be created for the "plant operator" to obtain formal qualification as a Plant Operator. This position or person would be monitored by a senior / qualified person on a regular basis.
Qualifications of person and relevant employees?	*Details of applicant's experience and qualification along with that of relevant employees is summarised as shown in the table below:*
Experience of person and relevant employees? (highlight the persons/employees duties and responsibilities in terms of the experience)	

NAME	POSITION	DUTIES AND RESPONSIBILITIES	QUALIFICATIONS AND EXPERIENCE
To be appointed	Plant Operator	See to day to day operation and management of plant	Basic Operators Training
To be appointed	Technical Officer / Manager	Oversee all technical duties and maintenance of plant	Degree or diploma. Minimum 10 years Petrochemical operating experience
To be appointed	Technical Services	Help and advise Technical Officer / Manager in consulting capacity	BSc Chemical. Minimum 10 years Petrochemical operating experience

(c) Financial Provisions:

Attach to this annexure a plan of estimated expenditure for the following:

Environmental Monitoring
Provision and replacement of infrastructure
Provision for appropriate equipment
Closure/decommissioning/rehabilitation and aftercare
Confirmation that adequate funds have been budgeted for the above aspects

19. INFORMATION FOR WASTE DISPOSAL FACILITIES

The following aspects MUST be addressed and included in the application documentation for waste disposal facilities and the applicant must indicate specific section(s) where they are appended in the reports.

REQUIRED PIECE OF INFORMATION	SECTION IN THE REPORTS WHERE IT CAN BE FOUND	COMMENTS (If any)
Waste disposal facility designs		
Closure plan (report)		
Closure/Remedial designs		
Landfill conceptual designs (only apply for construction and decommissioning of waste disposal facilities		
End-use plan (only apply to waste disposal facility closure)		
Design for site roads		
The 1 in 50 year flood-line of all watercourses		
Laboratory facilities		

Design and location of fuel storage areas		
Design and location waste quarantine areas		
Design and location of waste Inspection areas		
Site's drainage system		
Site's emergency control system and plan		
Liner specifications		
Leak detection system and monitoring		
Leachate management plan		
Calculations of leachate generation		
Leachate collection and treatment		
Groundwater monitoring		
Gas management and/or harvesting		
Air quality monitoring and management		
Co-disposal ratio calculation		
Stability monitoring and management		
Daily and intermediate cover requirements		
Temporary and permanent capping requirements		

DECLARATIONS

THE APPLICANT

I ……., in my personal capacity or duly authorised (please circle the applicable

option) by …….…… thereto hereby declare that I:

- regard the information contained in this report to be true and correct, and
- am fully aware of my responsibilities in terms of the National Environmental Management Act of 1998 ("NEMA") (Act No. 107 of 1998), the Environmental Impact Assessment Regulations ("EIA Regulations") in terms of NEMA (Government Notice No. R. 543 refers), and the NEM: Waste Act (Act no 59 of 2008), and that failure to comply with these requirements may constitute an offence in terms of the environmental legislation;
- appointed the environmental assessment practitioner as indicated above, which meet all the requirements in terms of regulation 17 of GN No. R. 543, to act as the independent environmental assessment practitioner for this application;
- have provided the environmental assessment practitioner and the competent authority with access to all information at my disposal that is relevant to the application;
- will be responsible for the costs incurred in complying with the environmental legislation including but not limited to –
    - costs incurred in connection with the appointment of the environmental assessment practitioner or any person contracted by the environmental assessment practitioner;
    - costs incurred in respect of the undertaking of any process required in terms of the regulations;
    - costs in respect of any fee prescribed by the Minister or MEC in respect of the regulations;
    - costs in respect of specialist reviews, if the competent authority decides to recover costs; and
    - the provision of security to ensure compliance with the applicable management and mitigation measures;
- am responsible for complying with the conditions that might be attached to any decision(s) issued by the competent authority;
- have the ability to implement the applicable management, mitigation and monitoring measures;
- hereby indemnify, the government of the Republic, the competent authority and all its officers, agents and employees, from any liability arising out of, inter alia, the content of any report, any procedure or any action for which the applicant or environmental assessment practitioner is responsible; and
- am aware that a false declaration is an offence in terms of regulation 71 of GN No. R. 543.

> **Please Note:** If acting in a representative capacity, a certified copy of the resolution or power of attorney must be attached.

Signature of the applicant:

Name of company:

Date:

THE INDEPENDENT ENVIRONMENTAL ASSESSMENT PRACTITIONER (EAP)

I ....., as the appointed independent environmental practitioner ("EAP") hereby declare that I:

- act/ed as the independent EAP in this application;
- regard the information contained in this report to be true and correct, and
- do not have and will not have any financial interest in the undertaking of the activity, other than remuneration for work performed in terms of the NEMA, the Environmental Impact Assessment Regulations, 2010 and the NEM: Waste Act (Act no 59 of 2008);
- have and will not have no vested interest in the proposed activity proceeding;
- have disclosed, to the applicant and competent authority, any material information that have or may have the potential to influence the decision of the competent authority or the objectivity of any report, plan or document required in terms of the NEMA, the Environmental Impact Assessment Regulations, 2010 and the NEM: Waste Act (Act no 59 of 2008);
- am fully aware of and meet the responsibilities in terms of NEMA, the Environmental Impact Assessment Regulations, 2010 (specifically in terms of regulation 17 of GN No. R. 543) and the NEM: Waste Act (Act no 59 of 2008), and that failure to comply with these requirements may constitute and result in disqualification;
- have ensured that information containing all relevant facts in respect of the application was distributed or made available to interested and affected parties and the public and that participation by interested and affected parties was facilitated in such a manner that all interested and affected parties were provided with a reasonable opportunity to participate and to provide comments;
- have ensured that the comments of all interested and affected parties were considered, recorded and submitted to the competent authority in respect of the application;
- have kept a register of all interested and affected parties that participated in the public participation process;
- have provide the competent authority with access to all information at my disposal regarding the application, whether such information is favourable to the applicant or not; and
- am aware that a false declaration is an offence in terms of regulation 71 of GN No. R. 543.

Note: The terms of reference must be attached.

Signature of the environmental assessment practitioner:

Name of company:

Date:

GENERAL WASTE CATEGORISATION

Municipal waste
Commercial and industrial waste
Brine
Fly ash and dust from miscellaneous filter sources
Bottom slag
Organic
Construction and demolition waste
Paper
Glass
Metal
Tyres
Other (specify)

HAZARDOUS WASTE CATEGORISATION

Gaseous waste
Mercury containing waste
Batteries
POP Waste
Pesticide containing waste
Inorganic chemical waste
Asbestos containing waste
Waste oils
Organic halogenated and/or sulphur containing solvents
Organic halogenated solids and compounds with sulphur
Organic solvents without halogens and sulphur
Other organic waste without halogens and sulphur
Tarry and bituminous waste
Brine
Fly ash and dust from miscellaneous filter sources
Bottom ash
Slag
Mineral waste
Waste of Electric and Electronic Equipment (WEEE)
Metal scrap
Health care risk waste
Miscellaneous