

DE BEERS
A DIAMOND IS FOREVER

De Beers Consolidated Mines Ltd

**Draft Scoping Report
Waste Management of All Waste
Streams for the Existing Open
Pit Mine and the Proposed
Underground Operations at the
Venetia Mine, Limpopo Province**

26 September 2014

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EXECUTIVE SUMMARY

The De Beers Consolidated Mines Limited (DBCM) Venetia Mine (Venetia) is situated on the farm Venetia 103MS, which lies approximately 80km west of Musina and 40km north-east of Alldays in the Limpopo Province. The mine is located within the Musina Local Municipality of the Vhembe District Municipality in the Limpopo Province of South Africa.

The mining rights extent of the Venetia Mine is approximately 3,000ha. Adjacent to the mine, to the north, east and west; is the 36,000ha DBCM owned Venetia Limpopo Nature Reserve (VLNR) whilst the Gotha Farm which conducts stock and game farming lies to the south of the Mine .

The first environmental approval was granted in 1990 with open-pit mining operations commencing in 1992 . DBCM anticipates that the current open pit mining operations will cease between 2020 and 2023 subject to market conditions, production targets and open pit mining scenarios.

The Environmental Management Programme (EMP) for the existing operations includes the open pit operation as well as waste disposal on the Fine Residue Disposal Area 1 (FRD1) and waste rock on two areas namely Rugen and Venetia. In 2000 the EMP was updated as to include a further extension of waste disposal to include the Krone Waste Rock Dump. A further amendment to the EMP was drafted in 2004 for the extension of the fine residue disposal to a new dam (FRD2). The relevant Environmental Authorisations (EA) for the development of the underground mining operations as well as the EMP Amendment for all open pit operations (and including the underground operations), was issued by the Department of Mineral Resources (DMR) Ref: LP 30/5/1/3/2/1 (58) EM) on 1 October 2012 under the Mineral and Petroleum resources Development Act (MPRDA). The Environmental Authorisation was granted by LDEDET on the 13 of July 2012 (Ref: 12/1/9-7/2-V49-W109).

A Water Use Licence was issued by the Department of Water Affairs on 21 November 2011 – Licence No 16/2/7/A600/C23/3 for all existing water uses on site. A Water Use License Application (WULA) process is currently underway with regard to additional activities that have yet to be authorised by the Department of Water Affairs.

DBCM are currently operating a Waste Management Facility (WMF), which was previously referred to as the Salvage Yard. The proposed project involves the upgrade of this facility to a more formalised disposal area which is in line with waste management best practises and the waste management hierarchy. The waste streams generated in the Blue and Red areas of the mine include general, industrial and hazardous wastes which will be transported to the WMF for sorting, temporary storage and disposal.

This Scoping report has been compiled according to the applicable regulations and is in line with the National Environmental Management Act (Act No 107

of 1998) as amended and the National Environmental Management: Waste Act (Act No. 59 of 2008) as amended. The initial public participation activities conducted to date include newspaper advertisements in English, Zulu and Afrikaans, notification letters sent to surrounding I&APs, placing of site notices around the area, Background Information Documents (BIDs) made available at public places, and identification and registration of I&APs and stakeholders.

The Draft Scoping Report is made available for the stipulated comments period and I&APs are invited to comment throughout the EIA process. Once the comment period lapses, a Final Scoping Report will be compiled; inclusive of comments received from I&APs and responses provided thereto. The Final Scoping Report will be submitted to the Department of Environmental Affairs.

CONTENTS

1	INTRODUCTION	1
1.1	PROJECT OVERVIEW	1
1.2	PROJECT APPROACH	1
1.3	STRUCTURE OF THIS SCOPING REPORT	2
1.4	ENVIRONMENTAL ASSESSMENT PRACTITIONER (EAP)	4
1.5	DETAILS OF THE APPLICANT	5
1.6	RELEVANT AUTHORITIES	6
1.7	OPPORTUNITY TO COMMENT ON THIS DRAFT SCOPING REPORT	7
2	PROJECT DESCRIPTION	8
2.1	INTRODUCTION	8
2.2	SITE LOCATION	8
2.3	CURRENT OPERATIONS	11
2.4	NEED AND DESIRABILITY OF THE PROJECT	12
2.5	CURRENT WASTE GENERATING/ HANDLING AREAS	13
2.6	THE WASTE MANAGEMENT FACILITY (WMF)	20
2.7	AREA ON WRD FOR CONSTRUCTION, DEMOLITION AND BUILDING WASTES	23
2.8	DESCRIPTION OF WASTES	25
2.9	PROJECT ALTERNATIVES CONSIDERED	26
3	ADMINISTRATIVE FRAMEWORK (INCLUDING LEGAL & REGULATORY)	29
3.1	LEGISLATIVE FRAMEWORK	29
3.2	RELEVANT ENVIRONMENTAL LEGISLATION	29
3.3	HEALTH AND SAFETY LEGISLATION	34
4	ENVIRONMENTAL AND SOCIO-ECONOMIC BASELINE	35
4.1	BIO-PHYSICAL RECEIVING ENVIRONMENT	35
5	STAKEHOLDER ENGAGEMENT, CONSULTATION AND DISCLOSURE	40
5.1	OBJECTIVES OF THE PUBLIC PARTICIPATION PROCESS	40
5.2	PHASE 1- PRE-SCOPING PHASE	41
5.3	PHASE 2- SCOPING PHASE	41
5.4	PHASE 3- IMPACT ASSESSMENT PHASE	42
5.5	PHASE 4- DECISION MAKING PHASE	42
5.6	WHO ARE THE I&APs	42
5.7	PUBLIC PARTICIPATION ACTIVITIES	43
5.8	NEXT STEPS IN THE EIA PROCESS	47
5.9	COMPETENT AUTHORITIES DECISION	47
6	POTENTIAL IMPACTS ASSOCIATED WITH THE PROPOSED PROJECT	48
6.1	INTRODUCTION	48

6.2	<i>KEY POTENTIAL IMPACTS</i>	48
7	<i>PLAN OF STUDY FOR EIA</i>	57
7.1	<i>TERMS OF REFERENCE FOR SPECIALIST STUDIES</i>	57
7.2	<i>STAKEHOLDER ENGAGEMENT</i>	59
7.3	<i>EIA IMPACT ASSESMENT METHODOLOGY</i>	60
7.4	<i>PROPOSED STRUCTURE OF THE EIA REPORT</i>	67
7.5	<i>ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN</i>	69
7.6	<i>REPORTING AND PUBLIC PARTICIPATION</i>	69
8	<i>CONCLUSION AND WAY FORWARD</i>	70
8.1	<i>CONCLUSION</i>	70
8.2	<i>WAY FORWARD</i>	70
9	<i>REFERENCES</i>	71

LIST OF TABLES

<i>Table 1.1</i>	<i>NEMA Requirements for a Scoping Report</i>	3
<i>Table 1.2</i>	<i>Draft Scoping Report Viewing Locations</i>	7
<i>Table 2.1</i>	<i>Proclaimed Mining Area (mining and surface rights)</i>	11
<i>Table 2.2</i>	<i>Co-ordinates of Current Waste Generating/ Storage Areas</i>	14
<i>Table 2.3</i>	<i>Current Waste Streams in the Blue Area</i>	16
<i>Table 2.4</i>	<i>Current Waste Streams in the Red Area</i>	19
<i>Table 2.5</i>	<i>Existing Drizit Sumps</i>	26
<i>Table 2.6</i>	<i>NEMA alternatives applicable to the proposed project</i>	28
<i>Table 3.1</i>	<i>Applicable Listed Activities from GN 921</i>	33
<i>Table 4.1</i>	<i>Bio-physical and Terrestrial Receiving Environment</i>	36
<i>Table 4.2</i>	<i>Socio-economic Receiving Environment</i>	39
<i>Table 5.1</i>	<i>Public Participation Activities</i>	44
<i>Table 6.1</i>	<i>Potential Impacts</i>	49
<i>Table 7.1</i>	<i>Impact Characteristic Terminology</i>	61
<i>Table 7.2</i>	<i>Definitions for Likelihood</i>	62
<i>Table 7.3</i>	<i>Biological and Species Value / Sensitivity Criteria</i>	64
<i>Table 7.4</i>	<i>Socio-economic Sensitivity Criteria</i>	65
<i>Table 7.5</i>	<i>Mitigation Hierarchy</i>	67
<i>Table 7.6</i>	<i>Proposed EIA Report Structure</i>	68

LIST OF FIGURES

<i>Figure 2.1</i>	<i>Regional Locality Map</i>	9
<i>Figure 2.2</i>	<i>Site Locality Map</i>	10
<i>Figure 2.3</i>	<i>Waste Generating and Handling Areas</i>	15
<i>Figure 2.4</i>	<i>Existing WMF (Salvage Yard)</i>	21
<i>Figure 2.5</i>	<i>Conceptual layout of the WMF</i>	22
<i>Figure 2.6</i>	<i>Waste Rock Dumps on Site</i>	24
<i>Figure 4.1</i>	<i>District and Local Municipalities of the Limpopo Province</i>	38
<i>Figure 7.1</i>	<i>Impact Significance</i>	65

LIST OF ANNEXES

Annex A: Acknowledgement of Application Receipt from DEA

Annex B: Notification and Registration Public Participation Material

- **B1 – Background Information Documents**
- **B2 – Photolog**
- **B3 – Site Notices & Registration**
- **B4 – Notification Letters**
- **B5 – Newspaper Advertisements**

Annex C: Preliminary Stakeholder Database

Annex D: Scoping Phase Public Participation Material

- **D1 – Background Information Documents**
- **D2 – Photolog**
- **D3– Notification Letters**
- **D4 – Newspaper Advertisements**

Annex E: Comments and Responses Report (CRR)

Annex F: Site Photolog

ACRONYMS

Acronym	Description
ABET	Adult Basic Education and Training
BID	Background Information Document
CBA	Cost Benefit Analysis
CRD	Coarse Residue Deposit
DBCM	De Beers Consolidated Mines
DEA	Department of Environmental Affairs
DMR	Department of Mineral Resources
DMS	Dense Medium Separation
DSR	Draft Scoping Report
EA	Environmental Authorisation
EAP	Environmental Assessment Practitioner
EIA	Environmental Impact Assessment
EIR	Environmental Impact Report
EMP	Environmental Management Plan
EMV	Earth Moving Vehicle
ERM	Environmental Resources Management
FRD	Fines Residue Deposit
FSR	Final Scoping Report
GDP	Gross Domestic Product
GN	Government Notice
HCS	Hazardous Chemical Substances
I&APs	Interested and Affected Parties
LDV	Light Duty Vehicle
LEDET	Limpopo Department of Economic Development, Environment and Tourism
LEMA	Limpopo Environmental Management Act
MAMSL	Metres Above Mean Sea Level
MPRDA	Mineral and Petroleum Resources Development Act
MSA	Middle Stone Age
NEMA	National Environmental Management Act
NEMWA	National Environmental Management: Waste Act
NEMWAA	National Environmental Management: Waste Amendment Act
NFA	National Forest Act
NWA	National Water Act
OHSA	Occupational Health and Safety Act
PoS	Plan of Study
PPE	Personal Protective Equipment
RDP	Reconstruction and Development Programme
SETA	Skills Education Training Authorities
SWMP	Storm Water Management Plan
VLNR	Venetia Limpopo Nature Reserve
WMA	Water Management Area
WMF	Waste Management Facility
WML	Waste Management Licence
WMP	Waste Management Plan
WMS	Waste Management Strategy
WRD	Waste Rock Dump

GLOSSARY

“alternative” a possible course of action, in place of another, that would meet the same purpose and need (of the proposal). Alternatives can refer to any of the following but are not limited to: alternative sites for development, alternative projects for a particular site, alternative site layouts, alternative designs, alternative processes and alternative materials.

“biodiversity” the structural, functional and compositional attributes of an area, ranging from genes to landscapes.

“building and demolition waste” waste, excluding hazardous waste, produced during the construction, alteration, repair or demolition of any structure, and includes rubble, earth, rock and wood displaced during that construction, alteration, repair or demolition.

“catchment” The area from which any rainfall will drain into the watercourse or watercourses or part of the water course, through surface flow to a common point or common points

“construction” means the building, erection or establishment of a facility, structure or infrastructure that is necessary for the undertaking of a listed or specified activity but excludes any modification, alteration or expansion of such a facility, structure or infrastructure and excluding the reconstruction of the same facility in the same location, with the same capacity and footprint.

“contaminated” The presence in or under any land, site, buildings or structures of a substance or micro-organism above the concentration that is normally present in or under that land, which substance or micro-organism directly or indirectly affects or may affect the quality of soil or the environment adversely.

“cost benefit analysis (CBA)” An economic analysis of an undertaking, involving the conversion of all positive and negative aspects into common units (e.g. money), so that the total benefits and total costs can be compared. This includes estimates and comparisons of short-term and long-term costs (losses) and benefits (gains).

“disposal” the burial, deposit, discharge, abandoning, dumping, placing or release of any waste into, or onto, any land.

“domestic waste” waste, excluding hazardous waste that emanates from premises that are used wholly or mainly for residential, educational, health care, sport or recreation purposes.

“duty of care and remediation of environmental damage” every person who causes, has caused or may cause significant pollution or degradation of the environment must take reasonable measures to prevent such pollution or degradation from occurring, continuing or recurring, or, in so far as such

harm to the environment is authorised by law or cannot reasonably be avoided or stopped, to minimise and rectify such pollution or degradation of the environment.

“environment” The surroundings within which humans exist and that are made up of:

- i. the land, water and atmosphere of the earth;
- ii. micro-organisms, plant and animal life;
- iii. any part or combination of (i) and (ii) and the interrelationships among and between them; and
- iv. the physical, chemical, aesthetic and cultural properties and conditions of the foregoing that influence human health and well-being. This includes the economic, social, cultural, historical and political circumstances, conditions and objects that affect the existence and development of an individual, organism or group.

“environmental impact assessment” An Environmental Impact Assessment (EIA) refers to the process of identifying, predicting and assessing the potential positive and negative social, economic and biophysical impacts of any proposed project, plan, programme or policy which requires authorisation of permission by law and which may significantly affect the environment. The EIA includes an evaluation of alternatives. As well as recommendations for appropriate mitigation measures for minimising or avoiding negative impacts, measures enhancing the positive aspects of the proposal and environmental management and monitoring measures.

“expansion” means the modification, extension, alteration or upgrading of a facility, structure or infrastructure at which an activity takes place in such a manner that the capacity of the facility or the footprint of the activity is increased.

“general waste” waste that does not pose an immediate hazard or threat to health or to the environment, and includes—

- i. domestic waste;
- ii. building and demolition waste;
- iii. business waste;
- iv. inert waste; or
- v. any waste classified as non-hazardous waste in terms of the regulations made under section 69;

and includes non-hazardous substances, materials or objects within business, domestic, inert, building and demolition wastes.

“green waste” green waste refers to the vegetative biodegradable portion of the waste stream. It can biodegrade (decompose) naturally and organically and includes leaves, tree pruning, branches, etc.

“habitat” An ecological or environmental area inhabited by a particular species or that which supports a typical community of species

“handling” means the functions associated with the movement of waste, including storage, treatment and ultimate disposal, by the use of manual systems and automated systems.

“hazard” means the intrinsic potential property or the ability of any agent, equipment, material or process to cause harm.

“hazardous waste” any waste that contains organic or inorganic elements or compounds that may, owing to the inherent physical, chemical or toxicological characteristics of that waste, have a detrimental impact on health and the environment and includes hazardous substances, materials or objects within business waste, residue deposits and residue stockpiles.

“hydrogeological” The study of distribution and movement of groundwater;

“hydrological” The study of movement, distribution and quality of surface water and groundwater;

“impact” The positive or negative effects on human well-being and / or on the environment.

“incineration” any method, technique or process to convert waste to flue gases and residues by means of oxidation.

“inert waste” means waste that:

- i. does not undergo any significant physical, chemical or biological transformation after disposal;
- ii. does not burn, react physically or chemically biodegrade or otherwise adversely affect any other matter or environment with which it may come into contact; and
- iii. does not impact negatively on the environment, because of its pollutant content and because the toxicity of its leachate is insignificant.

According to NEMWAA inert waste includes:

- i. discarded concrete, bricks, tiles and ceramics;
- ii. discarded glass; and
- iii. discarded soil, stones and dredging spoil.

“interested and affected parties” Individuals, communities or groups, other than the proponent or the authorities, whose interests may be positively or negatively affected by the proposal or activity and/ or who are concerned with a proposal or activity and its consequences.

“landfill” a commonly used method of final disposal of solid waste to land. The waste is spread on the land, compacted, and a soil cover applied so that impacts on the environment are minimised.

“mitigate” The implementation of practical measures to reduce adverse impacts or enhance beneficial impacts of an action.

“pollution” any change in the environment caused by -

- i. substances;
- ii. radioactive or other waves; or
- iii. noise, odours, dust or heat emitted from any activity, including the storage or treatment of waste or substances, construction and the provision of services, whether engaged in by any person or an organ of state, where that change has an adverse effect on human health or well-being or on the composition, resilience and productivity of natural or managed ecosystems, or on materials useful to people, or will have such an effect in the future.

“pollution prevention” any activity that reduces or eliminates pollutants prior to recycling, treatment, control or disposal.

“proponent” De Beers Consolidated Mines (Pty) Ltd who is applying for an environmental authorisation in terms of the relevant environmental legislation.

“public participation process” A process of involving the public in order to identify issues and concerns, and obtain feedback on options and impacts associated with a proposed project, programme or development. Public Participation Process in terms of NEMA refers to: a process in which potential interested and affected parties are given an opportunity to comment on, or raise issues relevant to specific matters

“reasonable measures” - The measures that a reasonable (ordinary) person would regard necessary for the specific purpose. Reasonable person in this case would refer to a person with expertise in the specific field.

“recycle” a process where waste is reclaimed for further use, which process involves the separation of waste from a waste stream for further use and the processing of that separated material as a product or raw material.

“reduce” the first and most effective component of the waste hierarchy is reducing the waste created. Consumers are encouraged to reduce their waste by purchasing in bulk, buying items with less packaging and switching to reusable instead of single-use items. Businesses can adopt manufacturing methods that require fewer resources and generate less waste. In addition to benefiting the environment, these efforts often offer consumers and businesses a financial incentive of lower expenses in purchases.

“residue” includes any debris, discard, tailings, slimes, screenings, slurry, waste rock, foundry sand, beneficiation plant waste, ash and any other waste product derived from or incidental to the operation of a mine or activity and which is stockpiled, stored or accumulated for potential re-use or recycling or which is disposed of;

“residue deposit” includes any dump, tailings dam, slimes dam, ash dump, waste rock dump, in-pit deposit and any other heap, pile or accumulation of residue.

“re-use” to utilise articles from the waste stream again for a similar or different purpose without changing the form or properties of the articles.

“scoping” the process of determining the spatial and temporal boundaries (i.e. extent) and key issues to be addressed in an environmental assessment. The main purpose of scoping is to focus the environmental assessment on a manageable number of important questions. Scoping should also ensure that only significant issues and reasonable alternatives are examined.

“significance” significance can be differentiated into impact magnitude and impact significance. Impact magnitude is the measurable change (i.e. intensity, duration and likelihood). Impact significance is the value placed on the change by different affected parties (i.e. level of significance and acceptability). It is an anthropocentric concept, which makes use of value judgements and science-based criteria (i.e. biophysical, social and economic).

“stockpile” includes any heap, pile, slurry pond and accumulation of any substance where such substance is stored as a product or stored for use at any mine or activity.

“treatment of waste” any method, technique or process that is designed to -

- i. change the physical, biological or chemical character or composition of a waste; or
- ii. remove, separate, concentrate or recover a hazardous or toxic component of a waste; or
- iii. destroy or reduce the toxicity of a waste, in order to minimise the impact of the waste on the environment prior to further use or disposal.

“waste” includes:

- i. any substance, material or object, that is unwanted, rejected, abandoned, discarded or disposed of, or that is intended or required to be discarded or disposed of, by the holder of that substance, material or object, whether or not such substance, material or object can be re-used, recycled or recovered and includes all wastes as defined in Schedule 3 to this Act; or
- ii. any other substance, material or object that is not included in Schedule 3 that may be defined as a waste by the Minister by notice in the Gazette,

“waste classification” means establishing-

- i. whether a waste is hazardous based on the nature of its physical, health and environmental hazardous properties (hazard classes); and
- ii. the degree or severity of hazard posed (hazard categories).

“waste management facility” means a place, infrastructure, structure or containment of any kind, wherein, upon or at, a waste management activity takes place and includes a waste transfer station, container yard, landfill site, incinerator, a lagoon, recycling or a composting facility.

De Beers Consolidated Mines (Pty) Ltd (DBCM) has appointed Environmental Resources Management Southern Africa (Pty) Ltd (ERM), as the independent environmental consultants to undertake the Environmental Impact Assessment (EIA) process for the Waste Management Licence (WML) Application at their Venetia Mine (Venetia), Limpopo Province in terms of National Environmental Management: Waste Amendment Act (Act 26 of 2014) (NEM:WAA). The activities for which a WML is being sought, is related to the non-mineral waste (solid and liquid) at the Venetia Mine and are detailed in *Table 3.1*. Other waste streams and activities at the Mine that are not listed in this table, are subject to existing licenses and/ or other legislation and processes.

1.1 PROJECT OVERVIEW

The Venetia Mine is an existing mine which currently consists of open pit mining operations and the associated facilities. The construction of underground mining facilities is currently underway and should be operational from 2022. The existing waste management facilities at the site will serve both the existing open pit operations and the underground operations.

There are two waste management areas on site, and this WML application involves the licensing of listed activities associated with both these areas namely, the Waste Management Facility (WMF) and a designated area on the WRD for the disposal of demolition/ construction and building materials.

1.2 PROJECT APPROACH

In terms of the NEM:WAA and associated Government Notice 921; both Category A ⁽¹⁾ and Category B ⁽²⁾ activities (See *Section 3.2.2*) are planned for the Venetia Mine, therefore necessitating that a full EIA process be followed to support the Waste Management Licence (WML) application process. The licensing/ competent authority for activities involving hazardous waste is the National Department of Environmental Affairs (DEA). Since the waste management activities at Venetia are associated with both general and hazardous waste streams, an application for an Integrated WML in terms of Section 44 of the NEMWA has been applied for and the competent authority is

(1) According to Government Notice 921, a person who wishes to commence, undertake or conduct an activity listed under Category A, must conduct a Basic Assessment process.

(2) According to Government Notice 921, a person who wishes to commence, undertake or conduct an activity listed under Category B, must conduct a Scoping and EIA process.

the National DEA, whilst the local authorities will be included in the process as a key stakeholder.

The application for this integrated WML was submitted to the DEA on 10 June 2014 (Reference No. 12/9/11/L43049/5) and it is important to note that this application does not include any mineral waste streams.

1.2.1 *Scoping Phase*

The scoping phase of the Project is designed to determine the “scope” of the subsequent Environmental Impact Assessment (EIA), conducted in fulfilment of the application for authorisation.

The scoping procedure also identifies potential:

- Issues;
- Impacts; and
- Alternatives.

An integral part of the scoping phase is the initial public participation process, which ensures that all possible interested and affected parties (I&APs) are informed of the proposed Project and provided with an opportunity to comment.

1.3 *STRUCTURE OF THIS SCOPING REPORT*

This report fulfils the requirement of the National Environmental Management Act (Act No. 107 of 1998) (NEMA) and NEM:WAA for the documentation of the scoping phase. The structure of this report has been based on the following requirements.

This Draft Scoping Report (DSR) has been compiled as part of the EIA process in accordance with the regulatory requirements as stipulated in:

- the EIA Regulations (Government Notice R543) promulgated in terms of Section 24(5) of the National Environmental Management Act (NEMA) (Act No. 107 of 1998), as amended; and
- the National Environmental Management: Waste Act (Act No. 59 of 2008), the National Environmental Management: Waste Amendment Act (NEMWAA) (Act 26 of 2014) and the relevant list of waste management activities that have, or are likely to have, a detrimental effect on the environment as published in Government Gazette 37083 on 29 November 2013 (Government Notice 921).

According to NEMA there are specific requirements to be included in a Scoping Report. These requirements and where they can be found in the document are included in *Table 1.1* below.

Table 1.1 NEMA Requirements for a Scoping Report

No.	Description	Reference
a)	details of: (i) the EAP who prepared the report; (ii) the expertise of the EAP to carry out scoping procedures.	<i>Section 1.5</i>
b)	a description of the proposed activity.	<i>Sections 1.2 and Chapter 2</i>
c)	a description of any feasible and reasonable alternatives that have been identified.	<i>Section 2.6</i>
d)	a description of the property on which the activity is to be undertaken and the location of the activity on the property, or if it is: (iii) a linear activity, a description of the route of the activity; (iv) an ocean based activity, the coordinates where the activity is to be undertaken.	<i>Sections 1.3 and 2.2</i>
e)	a description of the environment that may be affected by the activity and the manner in which activity may be affected by the environment.	<i>Chapter 4</i>
f)	an identification of all legislation and guidelines that have been considered in the preparation of the scoping report.	<i>Chapter 3</i>
g)	a description of environmental issues and potential impacts, including cumulative impacts, that have been identified.	<i>Section 6.2</i>
h)	details of the public participation process conducted in terms of regulation 27(a), including: (v) the steps that were taken to notify potentially interested and affected parties of the application; (vi) proof that notice boards, advertisements and notices; (vii) notifying potentially interested and affected parties of the application have been displayed, placed or given; (viii) a list of all persons or organisations that were identified and registered in terms of regulation 55 as interested and affected parties in relation to the application; (ix) a summary of the issues raised by interested and affected parties, the date of receipt of and the response of the EAP to those issues.	<i>Chapter 5</i>
i)	a description of the need and desirability of the proposed activity	<i>Section 2.3</i>
j)	a description of identified potential alternatives to the proposed activity, including advantages and disadvantages that the proposed activity or alternatives may have on the environment and the community that may be affected by the activity.	<i>Section 2.6</i>
k)	copies of any representations, and comments received in connection with the application or the scoping report from interested and affected parties	<i>Chapter 5</i>
l)	copies of the minutes of any meetings held by the EAP with interested and affected parties and other role players which record the views of the participants	<i>Chapter 5</i>
m)	any responses by the EAP to those representations and comments and views	<i>Chapter 5</i>

n)	a plan of study for environmental impact assessment which sets out the proposed approach to the environmental impact assessment of the application, which must include: (x) a description of the tasks that will be undertaken as part of the environmental impact assessment process, including any specialist reports or specialised processes, and the manner in which such tasks will be undertaken; (xi) an indication of the stages at which the competent authority will be consulted; (xii) description of the proposed method of assessing the environmental issues and alternatives, including the option of not proceeding with the activity; (xiii) particulars of the public participation process that will be conducted during the environmental impact assessment process	Section 6.3
o)	any specific information required by the competent authority	
p)	any other matters required in terms of sections 24(4)(a) and (b) of the Act	
In addition, a scoping report must take into account any guidelines applicable to the kind of activity which is the subject of the application.		
The EAP managing the application must provide the competent authority with detailed, written proof of an investigation as required by section 24(4)(b)(i) (Activities that require authorisation from more than one organ of state) of the Act and motivation if no reasonable or feasible alternatives, as contemplated in sub-regulation (1)(c) (draft regulation must be approved by the Committee and procures followed), exist		

All comments received on the Draft Scoping Report (this document) will be included in the Comments and Responses Report in the Final Scoping Report for submission to the national Department of Environmental Affairs (DEA). Section 1.7 provides further detail on how project stakeholders can comment on this DSR.

1.4

ENVIRONMENTAL ASSESSMENT PRACTITIONER (EAP)

ERM was appointed by DBCM to undertake the EIA for the proposed Waste Management Licence Application. ERM is a global environmental consulting organisation employing over 5,000 specialists in over 150 offices in more than 40 countries. ERM Southern Africa is one of the largest environmental consulting firms in the African region, with extensive experience in South Africa particularly and has been providing businesses and governments with specialist advice on all aspects of the environment globally since 1971.

The requirement for environmental consultants to act independently and objectively is a well established principle in South African law and elsewhere. The EIA regulations (GN R.543), specifically state:

“that an EAP (environmental assessment practitioner) (must have) no business, financial, personal or other interest in the activity, application or appeal in respect of which that EAP is appointed in terms of these Regulations other than fair remuneration for work performed in connection with that

activity; or that there are no circumstances that may compromise the objectivity of that EAP in performing such work.”

ERM have no financial ties to, nor are they a subsidiary, legally or financially, of DBCM. Remuneration for the services by the applicant (DBCM) in relation to this EIA is not linked to an approval by the decision-making authority. Furthermore, ERM has no secondary or downstream interest in the development.

The role of the environmental consultants is to provide credible, objective and accessible information to government and other stakeholders, so that an informed decision can be made about whether to proceed or not.

The ERM team selected for this Project possess all the relevant expertise and experience to undertake this EIA. As such, ERM has signed the legally required declaration of independence to function as an objective Environmental Assessment Practitioner (EAP).

The EAP for the application is:

Box 1.1 **Contact Details of the EAP**

Environmental Resources Management Southern Africa (Pty) Ltd.

Postnet Suite 10301
Private Bag X1005
Hillcrest
3650

Contact Person:

Mrs. Stephanie Gopaul
Unit 6, St Heliers Office Park
Cnr. St Helier Road and Forbes Drive
Gillitts, KwaZulu-Natal
3610

Tel: +27 (0)31 767 2080

Fax: +27 (0)31 764 3643

Email: stephanie.gopaul@erm.com

1.5 **DETAILS OF THE APPLICANT**

De Beers Consolidated Mines Limited (DBCM) is the Project applicant and their contact details are as follows:

Box 1.2 *Contact Details for the Mine*

De Beers Consolidated Mines Limited – Venetia Mine
P O Box 668
Musina
0900
Registration Number: 1888/000007/06

Contact Person:
Mr. Gavin Anderson
Tel: (015) 575 2710
Fax: (015) 534 2019

Box 1.3 *Contact Details for the Owner*

De Beers Consolidated Mines Limited
P O Box 616
Kimberley
8300

Contact Person:
Mr. Ludwig von Maltitz
Tel: (015) 534 9000/ Tel: (053) 838 4111
Fax: (015) 534 2019/ Fax: (053) 839 4210

1.6 **RELEVANT AUTHORITIES**

The competent authority (CA) for the proposed Project is the National Department of Environmental Affairs (DEA).

Box 1.4 *Contact Details for the Owner*

National Department of Environmental Affairs (DEA)
Fedsure Building
315 Pretorius Street
Pretoria
0002

Contact Person:
Mr. Lucas Mahlangu
Tel (w): (012) 310 3741
Email: lmahlangu@environment.gov.za

WML Application Reference Number: 12/9/11/L43049/5

1.7 OPPORTUNITY TO COMMENT ON THIS DRAFT SCOPING REPORT

The 40 day public commenting period for this Draft Scoping Report commences on **26 September 2014** and concludes on 05 **October 2014**.

This Draft Scoping Report has been placed at the venues listed in *Table 1.2* for public review. Comments provided by all Interested and Affected Parties will be collated into a Comments and Response Report in the Final Scoping Report.

Table 1.2 *Draft Scoping Report Viewing Locations*

Location	Contact
Local Musina Municipal Library	(015) 534 6100
Blouberg Municipality Alldays Satellite Library	(015) 5751144
Mapungubwe entrance gate/visitors centre	(015) 534 7923/24
Venetia Reception	(015) 575 2710
ERM Project Website	http://www.erm.com/VenetiaMineWML-EIA

Please remember to submit your comments on the Draft Scoping Report by latest **05 October 2014**. All comments must be forwarded to the following:

Box 1.5 *Where to Send Comments*

Attention: Tougheeda Aspelung
The Great Westford
Second Floor
240 Main Road
Rondebosch, Cape Town
Email: venetiamineeia@erm.com

Please use the following reference numbers on all correspondence:
ERM: 0212120
DEA: 12/9/11/L43049/5

2 PROJECT DESCRIPTION

2.1 INTRODUCTION

This Chapter provides a technical description of the existing waste management facilities and the proposed changes and upgrades to the system at Venetia Mine as well as a general description of the Project setting. Additional detail on the baseline environmental and social conditions is provided in *Chapter 4*.

2.2 SITE LOCATION

The Venetia Mine is situated on the farm Venetia 103MS, which lies approximately 80km west of Musina and 40km north east of Alldays in the Limpopo Province. Venetia is situated off the R521 between Alldays and Pontdrift, approximately 550 km north of Johannesburg (*Figure 2.2*).

The mine is located within the Musina Local Municipality of the Vhembe District Municipality in the Limpopo Province of South Africa. The border with Botswana and Zimbabwe is situated approximately 30km to the north.

The border with Botswana and Zimbabwe is situated approximately 30km to the north. The mining right area of Venetia Mine is approximately 3,000ha. Adjacent to the mine to the north, east and west is the DBCM owned Venetia Limpopo Nature Reserve (VLNR) comprising 36,000ha. To the south lies Gotha Farm which conducts stock and game farming.

Refer to *Figure 2.1* for the 1:50 000 cadastral map of the area and *Figure 2.2* for a regional map illustrating the position of the Mine.

Figure 2.1 Regional Locality Map

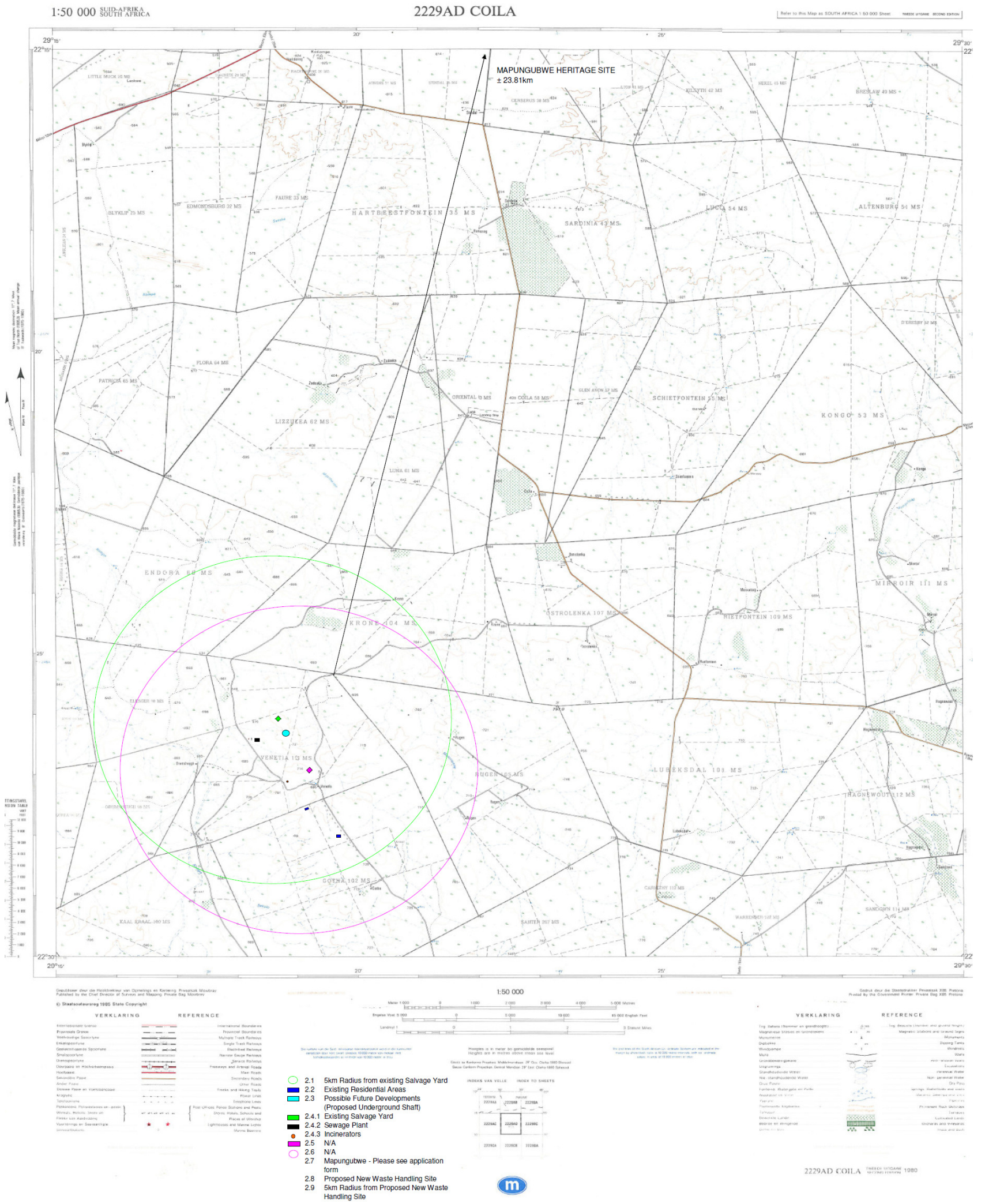
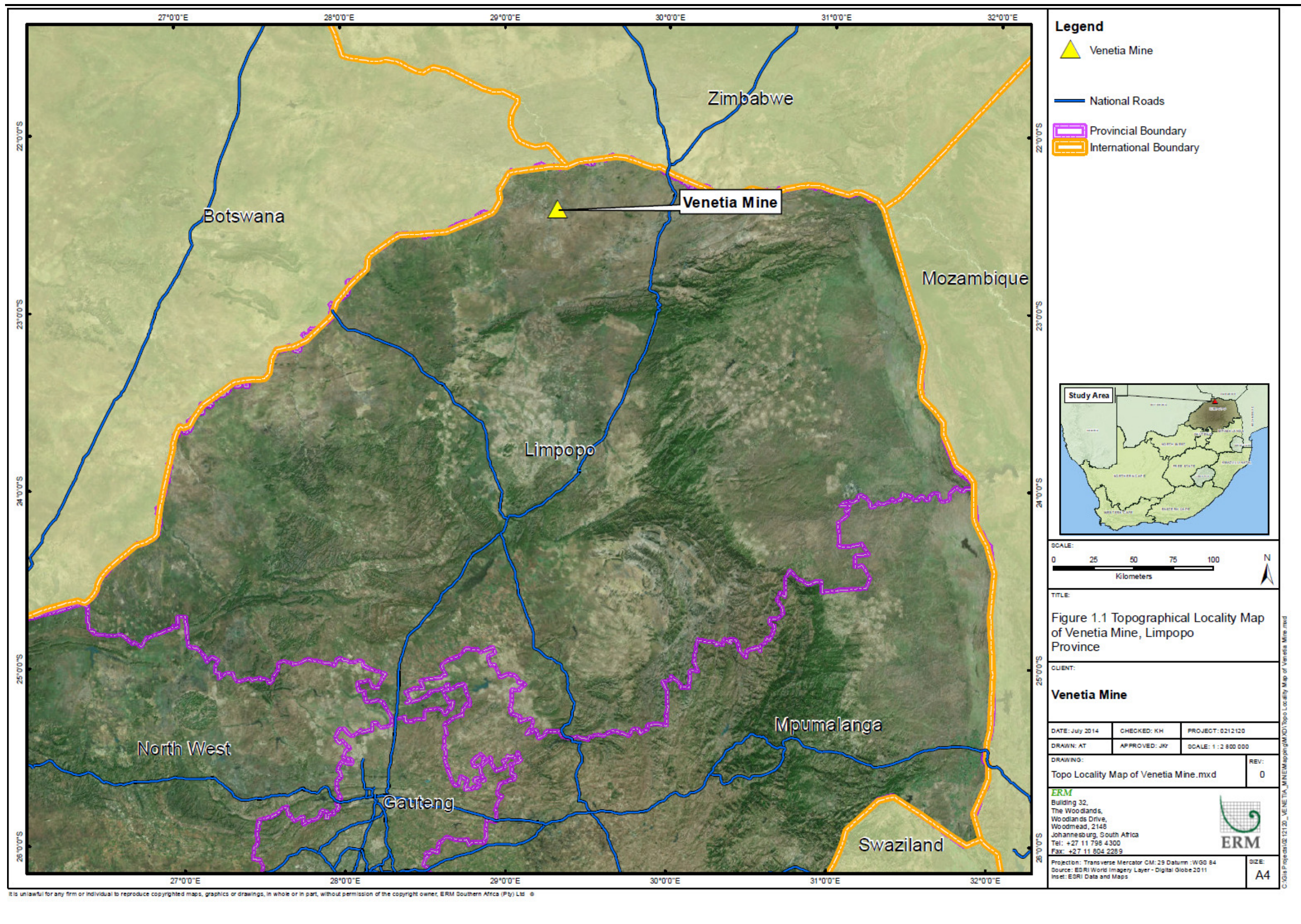


Figure 2.2 Site Locality Map



The Venetia Mine is an existing open pit diamond mine, which recently (October 2012) received an Environmental Authorisation (EA) from the Limpopo Department of Economic Development, Environment and Tourism (LEDET) for the consolidation of existing operations and the development of underground workings. DBCM anticipates that the current open pit mining operations will cease between 2020 and 2023 subject to market conditions, production targets and open pit mining scenarios, after which only underground operations will continue. The proposed underground mine development schedule is indicated below.

- 2011 - 2022: Construction Phase;
- 2022 – 2042/2050: Main Operational Phase; and
- 2042/2050 and beyond: Planned Closure Phase.

The first environmental approval was granted in 1990 with commencement of the construction activities. The Environmental Management Programme (EMP) included the open pit operation as well as waste disposal on the Fine Residue Disposal Area 1 (FRD1) and waste rock on two areas namely Rugen and Venetia. In 2000 the EMP was updated to include a further extension of waste disposal to include the Krone Waste Rock Dump. An amendment to the EMP was drafted in 2004 for the extension of the fine residue disposal to a new dam (FRD2). In 2012 the EMP was approved for the inclusion of the underground workings and various additional storm water control infrastructure.

The mining right area of Venetia is approximately 3 000 ha in extent. Adjacent to Venetia to the north, east and west, is the DBCM owned Venetia Limpopo Nature Reserve (VLNR) comprising 36,000 ha. To the south lies Gotha Farm where stock and game farming is conducted. *Table 2.1* lists the farms that form part of the proclaimed mining area of Venetia:

Table 2.1 *Proclaimed Mining Area (mining and surface rights)*

Farm and Portion	Title Deed Number
Portion 1 of the farm Venetia 103MS	MS T2209/1981
Portion 2 of the farm Venetia 103MS	MS T17958/1981
Portion 3 of the farm Venetia 103MS	MS T15902/1981
Portion 4 of the farm Venetia 103MS	MS T15902/1981
Portion 5 of the farm Venetia 103MS	MS T15902/1981
Remaining extent of Venetia 103MS	MS T15902/1981
Portion 1 of the farm Krone 104MS	MS T7038/1983
Remaining extent of Krone 104MS	MS T 17958/1981
Remaining extent of Rugen 105MS	MS T34207/1989
The farm Drumsheugh 99MS	MS T73117/1990

2.3.1 *Open Pit Operations*

The Venetia Mine is an open pit operation, mining a diamond bearing kimberlite cluster consisting of a series of pipes and dykes with a vertical displacement. This cluster consists of three kimberlite ore bodies namely K1, K2 and K3 and various satellite ore bodies. The open pit will be mined to a depth of approximately 450m. Waste rock is removed and deposited by means of drill, blast, load and haul technology. The ore is hauled to the main treatment plant where it is processed and diamonds are liberated through crushing, scrubbing, screening, dense media separation and x-ray processes. The main treatment plant produces and deposits two major waste streams, namely course and fine tailings. Venetia Mine activities also include all related engineering support services and infrastructure.

DBCM anticipates that the current open pit mining operations will cease between 2020 and 2023 subject to market conditions, production targets and open pit mining scenarios.

2.3.2 *Underground Operations*

From a depth of below 450m, open pit mining becomes uneconomical due to the amount of waste rock to be removed. As part of Venetia Mine's long term strategy, the mine intends to exploit resources deeper than the current open pit horizons by changing the current mining method from an open pit mining process to an underground mining process, utilising sublevel caving, open benching and incline caving mining methodologies.

2.4 *NEED AND DESIRABILITY OF THE PROJECT*

The waste management activities currently performed at Venetia, as well as the proposed upgrades to these activities, vary and include waste management activities listed in GN R.921:

- construction and expansion of a facility for waste management;
- sorting, shredding, grinding, crushing, screening or baling of general waste;
- recycling of general waste;
- recovery of waste including the refining, utilisation, or co-processing of waste;
- reuse or recycling of hazardous waste;
- treatment of hazardous waste; and
- disposal of waste to land.

As mentioned in Section 1.1, there are 2 specific areas at which the activities listed above will be undertaken. The disposal of inert waste (demolition, construction and building wastes) will be on a designated area on the WRD, whilst all other activities listed above will be undertaken at the WMF.

These waste related activities are necessary to responsibly manage the various types of waste that are generated at Venetia and all the associated on-site facilities. The key objective of the Integrated Waste Licensing is for Venetia Mine to reach a state of full compliance in respect of the various waste management activities as soon as practically possible.

Since the Venetia Mine is a “holder of waste” as defined in the NEMWA, Venetia needs to comply with Section 16 of NEMWA, which introduces a general duty in respect of a holder of waste to take all reasonable measures to avoid the generation of waste and where such generation cannot be avoided, to minimise the toxicity and amounts of waste that are generated. It further provides that a holder of waste must prevent any employee or any person under his or her supervision from contravening the NEMWA; and prevent the waste from being used for any unauthorised purpose.

To ensure that Venetia could achieve the desired standard of waste management incrementally and in a phased manner, the following improvement objectives and targets have been identified:

- Adequate waste management awareness and training;
- Functional waste management system procedures;
- Optimal waste management operations:
 - Separation;
 - Minimisation (reduce, re-use, recycle);
 - Storage;
 - Transfer; and
 - Disposal;
- Meeting legal requirements; and
- Ensuring natural- and socio-economic viability.

The final desired outcome of this process would be that both waste management areas at Venetia are fully compliant with all the relevant legislation as described in *Chapter 3*.

The waste management areas where waste produced by both the open pit and underground operations, will be taken to include the WMF and an area on the WRD for the disposal of construction, demolition and building materials. These areas and the activities associated with each, are described in *Section 2.5*.

2.5

CURRENT WASTE GENERATING/ HANDLING AREAS

Waste is currently generated in a few areas around Venetia but the bulk of the handling is conducted at the Waste Management Facility (WMF); also referred to as the Salvage Yard. This WML application seeks to formalise this area as

well as to ensure that all areas where waste is generated are managed in the best way possible in order to minimise waste where possible and prevent pollution or contamination of the surrounding environment.

In terms of GN R. 634, Waste Classification and Management Regulations, 23 August 2013, waste handling is defined as “the functions associated with the movement of waste, including storage, treatment and ultimate disposal, by the use of manual systems and automated systems”.

Throughout Venetia there are different functions and activities that occur, all handling non-mineral waste in some way or another. For the purpose of this study Venetia was divided into focus areas where waste handling would be associated with a specific process or activity (*Table 2.2* and *Figure 2.3*). The waste generating areas on the mine are divided into the Blue Area which consists of the general plant, mining areas (open pit and shaft areas), waste management facility (WMF), offices etc, and the Red Area, which is the high security area where diamond sorting is carried out.

As such, the waste generating areas that are considered for this study are:

- The Blue Area including:
 - The mining engineering workshop;
 - Processing plant area and associated engineering workshop;
 - Sewage treatment plant;
 - Wellness centre; and
 - Current waste tyre stockpile; and
- The Red Area:
 - Dense Medium Separation (DMS) Concentrate Treatment (Diamond Recovery).

Table 2.2 *Co-ordinates of Current Waste Generating/ Storage Areas*

Waste Generating/ Storage Areas	Co-ordinates
Blue Area	
Waste Management Facility (Salvage Yard)	22°26'7.02"S; 29°18'39.91"E
Mining Engineering Workshops	22°26'40.97"S; 29°19'43.47"E
Plant area and Engineering Workshops	22°26'50.49"S; 29°18'46.36"E
Sewage Treatment plant	22°26'31.41"S; 29°18'24.41"E
Wellness Centre	22°26'54.97"S; 29°19'08.20"E
Current Waste tyre stockpiles (not part of this WML application)	22°26'3.49"S; 29°18'41.51"E and 22°26'38.60"S; 29°19'40.92"E and 22°26'20.20"S; 29°20'22.14"E
Red Area	
Red Area	22°27'5.67"S; 29°18'48.33"E

Details on the waste streams for the Blue Area and Red Area are presented in *Table 2.3* and *Table 2.4* respectively.

Figure 2.3 Waste Generating and Handling Areas

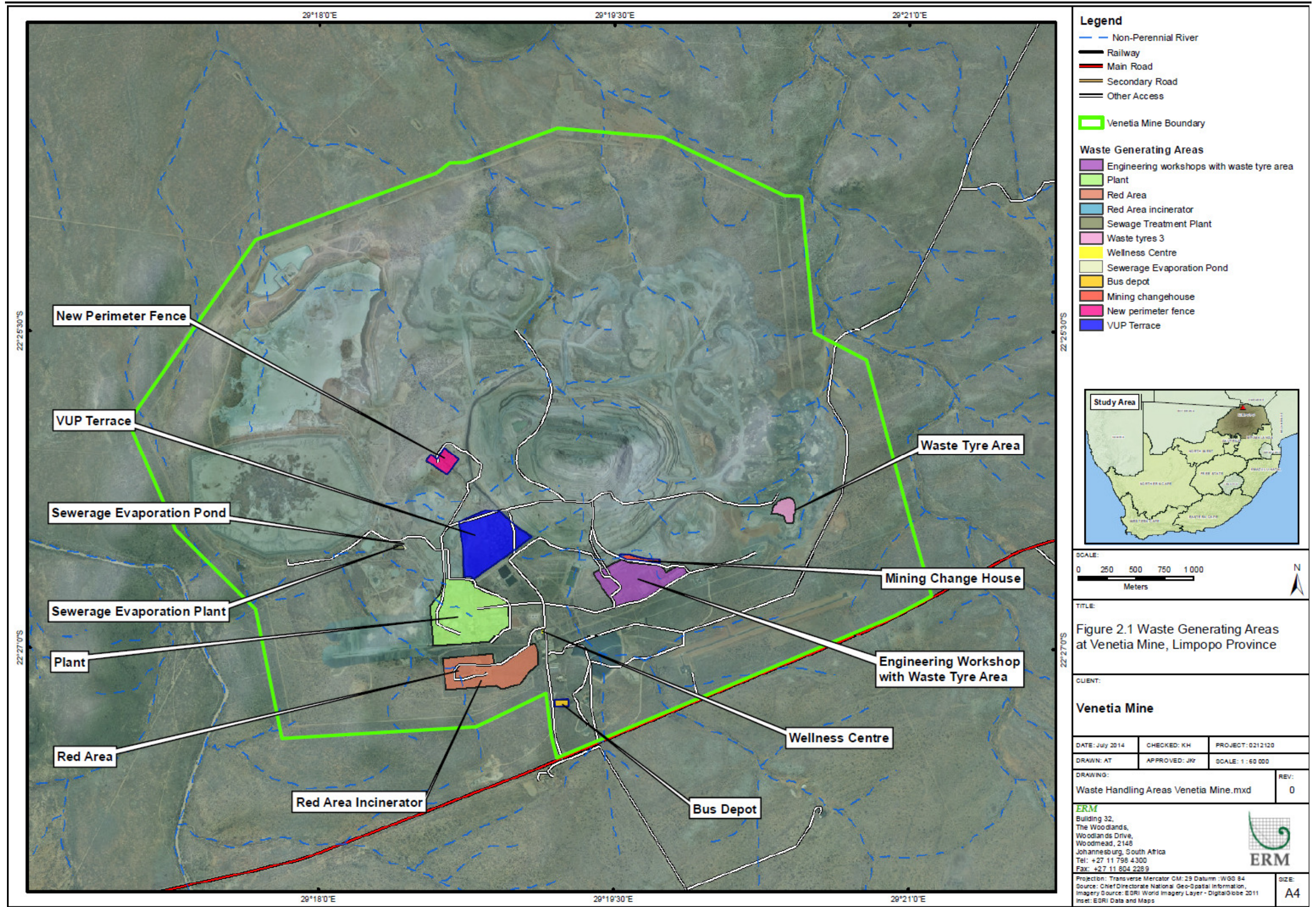


Table 2.3

Current Waste Streams in the Blue Area

Waste Type and Category	Waste Stream	Volumes (maximum monthly volume generated / removed during 2012)	Current waste management Practice	
Recyclable general waste	General waste- To be stored at the WMF			
	Paper	6.97 tonnes		
	Plastic	4.65 tonnes		
	Cardboard	9,683 tonnes	Waste recycling contractor separates recyclable domestic waste and makes bales in the waste management facility. Bales are then removed from the mine site by the contractor under security escort.	
	Cans	2.96 tonnes (only one removal for 2012)		
Non-recyclable general waste	Glass	Unknown	Glass is stored in 210 litre drums in the waste management facility and is currently not removed from the mine site.	
	Non- recyclable waste to landfill	3.99 tons	The waste is stored in FeSi bulk bags in the waste management facility. It is removed, under security escort, by the waste contractor in 28 m ³ skips or Ro-Ro containers to a licensed domestic waste landfill site in Pretoria.	
	Food waste	Unknown	Food waste is placed into a 6m ³ skip to "decompose" and is removed every 2-3 months for off-site disposal by a waste contractor.	
Non-recyclable general waste	Green waste	Unknown	Green waste is removed from site by the waste contractor to a domestic/general landfill site.	
Industrial waste in the Blue Area- To be stored at the WMF				
Recyclable Industrial	Used Screen Panels	Unknown	Used screen panels are stored at the waste management facility and elsewhere on the mine and are removed off the mine site by a contractor for recycling.	
	Ferrous and non-ferrous metals	474.31 tonnes	Metals are stockpiled at the waste management facility and removed for recycling by the waste contractor.	
	Wood (pallets and boxes)	Unknown	Wood is stacked in the waste management facility and is crushed using a dozer. It is not currently removed from the mine site.	
	Conveyor belting	Unknown	Conveyor belts are stored at source and the auction yard and are not currently removed from the mine site.	
	Hard hats	Unknown	Hard hats are stored at source, the waste management facility and the auction yard. They are not currently removed from the mine site.	
	Safety boots	Unknown	Safety boots are stored at the waste management facility and are not currently removed from the mine site.	
	Overalls	Unknown	Overalls are stored at the waste management facility and are not currently removed from the mine site.	
	Plastic water containers	Unknown	Containers are stored at the waste management facility and are not currently removed from the mine site.	
	Blasting wire	Unknown	Blasting wire is stored at the waste management facility and is not currently removed from the mine site.	
	All cabling	Unknown	Cables are stored at the waste management facility and are not currently removed from the mine site.	
	Windscreen glass	Unknown	Windscreen glass is stored (sometimes in blue skips and 210 litre drums) at the waste management facility and is not currently removed from the mine site.	
	Non-recyclable industrial	Rubber	Unknown	Rubber is stored at the waste management facility and is not currently removed from the mine site.
		Air filters	Unknown	Air filters are stored at the waste management facility and are not currently removed from the mine site.
Redundant furniture		Unknown	Redundant furniture is stored at the waste management facility and is not currently removed from the mine site.	
Waste tyres in the Blue Area- To be stored at the WMF				
Non-recyclable industrial	LDV and EMV tyres	Approximately 500 EMV tyres and 120 LDV tyres at the mine currently	Tyres are stockpiled at the waste management facility, mining engineering workshops and WRD. The tyres are not currently removed from the mine site.	
Building waste, construction waste and demolition waste- To be stored on the WRD				
Non-recyclable industrial	Building rubble, demolition	Unknown	The waste is stored at the waste management facility and is not currently removed from the mine site.	

Waste Type and Category	Waste Stream	Volumes (maximum monthly volume generated /removed during 2012)	Current waste management Practice
Hazardous waste in the Blue Area-To be stored at the WMF			
Recyclable hazardous liquids	Used oil	85 838 litres used oil and grease	Used oil is stored in tanks outside of the mine after passing through a diamond trap. The oil is collected by OILKOL for recycling at the OILKOL refinery off site.
Non-recyclable hazardous liquids	Grease	85838 litres used oil and grease	Grease is stored in 210 litre drums and is not currently removed from the mine site for off-site disposal at an appropriately licensed disposal facility on a regular basis (only during clean ups)
Non-recyclable hazardous liquids	Contaminated diesel	Unknown	Contaminated diesel is stored in 1 000litre IBC Containers at various locations and is currently not removed from the mine site.
Non-recyclable hazardous liquids	Engine coolant	Unknown	Engine coolant is stored in 1 000litre IBC Containers at various locations and is currently not removed from the mine site.
Non-recyclable hazardous liquids	Hydrocarbon sludge	Unknown - removed as part of "total hazardous waste" - up to 44m ³ per month for all hazardous waste	Hydrocarbon sludge is present in the Drizit sumps, workshop sumps and IBC containers at various locations. The removal of sludge does not occur pro- actively or as per a procedure. It is removed by a supersucker on an <i>ad hoc</i> basis by the waste contractor for off-site disposal when the risks are acknowledged and/or materialise.
Recyclable hazardous liquids	Old cooking oil	Unknown	Old cooking oil is stored in 210 litre and other small drums and is currently not removed from the mine site.
Non-recyclable hazardous liquids	Battery Acid	Unknown	Battery acid is stored in 210 litre drums and washed into drains. It is not currently removed from the mine site.
Non-recyclable hazardous solids	Chemical containers with redundant chemicals -	Unknown	Containers with redundant chemicals and stored at various locations and the waste management facility. They are not currently removed from the mine site.
Non-recyclable hazardous solids	Expired medicine	Unknown	Expired medicine is stored at the Wellness Centre.
Recyclable hazardous solids	Sewage treatment plant sludge	Unknown	The sludge is currently placed into an unlined evaporation pond to the east of the sewage treatment plant.
Recyclable hazardous solids	Used ink cartridges	130 cartridges	De Beers' used ink cartridges are returned to the contractor after being scanned (x-ray). Contractor's cartridges are stored at the waste management facility.
Recyclable hazardous solids	Sealed batteries	183 lead acid batteries	Sealed batteries are stored at various source locations and stores and are not currently removed from the mine site.
Recyclable hazardous solids	Un-sealed batteries	Unknown	Unsealed batteries are stored at various source locations and stores and are not currently removed from the mine site.
Recyclable hazardous solids	Empty (mostly 25l) chemical containers	Unknown - removed as part of "total hazardous waste" - up to 44m ³ per month for all hazardous waste	Chemical containers are stacked in the waste management facility and are removed by the waste recycling contractor under security escort to a hazardous waste disposal facility.
Recyclable hazardous solids	Empty 210l oil drums	Unknown	Drums are stored at the waste management facility and used as demarcation. They are not currently removed from the mine site.
Non-recyclable hazardous solids	Oily rags, material contaminated with oil, diesel or grease, oil filters, empty oil/chemical containers	Unknown - removed as part of "total hazardous waste" - up to 44m ³ per month for all hazardous waste	The material is stored in 11 m ³ skips in the waste management facility and is removed under security escort by the waste contractor to a hazardous waste disposal facility (Holfontein).
Non-recyclable hazardous solids	Contaminated spillsorb	Unknown	The contaminated spillsorb is stored in various containers, including 210 litre drums and IBC containers, at various source locations and the waste management facility. It is currently not removed from the mine site.
Non-recyclable hazardous solids	Hardened Sludge	Unknown - removed as part of "total hazardous waste" - up to 44m ³ per month for all hazardous waste	Hardened sludge is stored in various containers, including 210 litre drums and IBC containers, at various source locations and the waste management facility. The removal of sludge does not occur pro-actively or as per a procedure. It is removed using a supersucker by the waste contractor for off-site disposal at an appropriately licenced landfill site on an <i>ad hoc</i> basis when the risks are acknowledged and/or materialise.
Non-recyclable hazardous solids	Contaminated soil not suitable for	Unknown	Contaminated soil is stored in various containers, including 210 litre drums and IBC containers, at various source locations and the waste management facility. It is not currently removed from the mine site.

Waste Type and Category	Waste Stream	Volumes (maximum monthly volume generated / removed during 2012)	Current waste management Practice
	bioremediation (due to levels of contamination)		
Non-recyclable hazardous solids	Laundry grease	Unknown	Laundry grease is stored in 210 litre drums or skips in the waste management facility. It is not currently removed from the mine site.
Non-recyclable hazardous solids	Medical waste	Unknown	Medical waste is stored in waste boxes and containers (provided by the waste contractor) at the Wellness Centre prior to removal by the contractor for incineration at a licensed facility off site.
Non-recyclable hazardous solids	Sanitary waste generated in bathrooms and 'SHE' bins	Unknown	Sanitary waste is stored in waste boxes and containers (provided by the waste contractor) at the Wellness Centre prior to removal by the contractor for incineration at a licensed facility off site.
Non-recyclable hazardous solids	Fluorescent tubes, mercury vapour lamps and sodium lamps	Unknown	Crushed tubes are stored in 210 litre drums at electrical workshops and the waste management facility. They are not currently removed from the mine site.
Non-recyclable hazardous solids	Chemical containers with redundant chemicals - Solid	Unknown	The containers are stored at source and the waste management facility and are currently not removed from the mine site.
Non-recyclable hazardous solids	Electronic waste	Unknown	Electronic waste is stored at source and the waste management facility and is currently not removed from the mine site.
Non-recyclable hazardous solids	Sandblasting grit	Unknown	Sandblasting grit is stored at source and is currently not removed from the mine site.
Non-recyclable hazardous solids	Incinerator ash	Unknown	Stored in skips at the waste management facility and not currently removed from the mine site.

Table 2.4

Current Waste Streams in the Red Area

Waste Type and Category	Waste stream	Volumes (maximum Monthly volume generated /removed during 2012)	Current waste management practice	
General Waste in the Red Area- To be stored at the WMF				
Recyclable general waste	Paper	Unknown	Incinerated in the Red Area incinerator.	
	Plastic	Unknown	Incinerated in the Red Area incinerator.	
	Cardboard	Unknown	Incinerated in the Red Area incinerator.	
	Cans	Unknown	Cans are stored in the Red Area and are not removed from the Red Area or mine site.	
	Glass	Unknown	Glass is stored in the Red Area and is not removed from the Red Area or mine site.	
	Food waste	Unknown	Incinerated in the Red Area incinerator.	
Non-recyclable general waste	Green waste	Unknown	Stored within the red area and periodically burned (once every couple of years)	
Industrial Waste in the Red Area-To be stored at the WMF				
Recyclable Industrial	Used Screen Panels	Unknown	Used screen panels are stacked in the red area and are not currently removed from the mine site.	
	Ferrous and non-ferrous metals	Unknown	Metal is stockpiled in the red area and <i>ad hoc</i> removals for recycling occurs through the waste contractor.	
	Conveyor belting	Unknown	Conveyor belts are stored in the red area and are not currently removed from the mine site.	
	Hard hats	Unknown	Hard hats are stored in the red area and are not currently removed from the mine site.	
	Safety boots	Unknown	Safety boots are stored in the red area and are not currently removed from the mine site.	
	Overalls	Unknown	Overalls are stored in the red area and are not currently removed from the mine site.	
	Cabling	Unknown	Cables are stored in the Red Area and are not currently removed from the Red Area or mine site.	
	Building Rubble, Demolition and Construction Waste in the Red Area-To be stored on the WRD			
	Non-recyclable Industrial	Building rubble, demolition and construction waste	Unknown	The waste is stockpiled in the red area and is not currently removed from the mine site.
Hazardous Waste in the Red Area- To be stored at the WMF				
Recyclable hazardous solids	Batteries (sealed or unsealed)	Unknown	Stored within the Red Area on a concrete slab.	
Recyclable Hazardous - Liquid	Used oil	Unknown	Used oil is stored in 210 litre drums within the red area and is not currently removed from the mine site.	
Non-recyclable Hazardous - Liquid	Grease	Unknown	Grease is stored in 210 litre drums within the red area and is not currently removed from the mine site.	
Non-recyclable Hazardous - Liquid	Chemical containers with redundant chemicals - Liquid	Unknown	Containers are stacked in the chemical store and are not currently removed from the mine site.	
Non-recyclable Hazardous - Solid	Contaminated soil not suitable for bioremediation (due to levels of contamination)	Unknown	Contaminated soil is stored in the Red Area and is not removed from the Red Area or mine site.	
Non-recyclable Hazardous - Solid	Oily rags, material contaminated with oil, diesel or grease, oil filters, empty oil/chemical containers	Unknown	The material is stored in drums in the Red Area and is not currently removed from the mine site.	
Non-recyclable Hazardous - Solid	Contaminated spillsorb	Unknown	Contaminated spillsorb is stored in various containers, including 210 litre drums, in thRed Area and is not currently removed from the mine site.	
Non-recyclable Hazardous - Solid	Fluorescent tubes, Mercury Vapour lamps and Sodium lamps	Unknown	The material is stored in open 210 litre drums in the Red Area and is not currently removed from the mine site.	
Recyclable Hazardous - Solid	Used ink cartridges	Unknown	Used ink cartridges are stored within the Red Area and are not currently removed from the mine site.	
Recyclable Hazardous - Solid	Empty chemical containers	Unknown	Containers are stacked in the chemical store and are not currently removed from the mine site.	
Non-recyclable Hazardous - Solid	Chemical containers with redundant chemicals - Solid	Unknown	Containers are stacked in the chemical store and are not currently removed from the mine site.	
Non-recyclable Hazardous - Solid	Electronic waste	Unknown	Electronic waste is stored in the Red Area and is not currently removed from the mine site.	
Recyclable Hazardous - Solid	Empty oil drums	Unknown	Empty oil drums are stored and re-used within the Red Area and are not currently removed from the mine site.	

This WMF is historically known as the salvage yard because of its partial function to collect waste for sorting, laydown, re-use, recycling and screening before final disposal. The WMF is currently located in an area north of the primary crusher and main treatment plant, to the west of the main haul road around the open pit. It is intended for the WMF to be relocated during the life of mine, the precise location subject to further specialist investigation and detailed design.

At the existing WMF, general as well as hazardous waste is currently received, stored, sorted, recycled and finally (where possible) transferred off the mine site for final disposal. Currently, most waste streams collected at the mine pass through this facility (with the exception of the hydrocarbon sumps indicted in *Table 2.5* and LDV & EMV tyres). Waste streams typically include:

- Recyclable domestic waste that include paper, plastic, cardboard, cans and glass;
- Non-recyclable domestic waste that include non-recyclable dry waste to landfill and food waste;
- Recyclable or non-recyclable general waste such as green waste;
- Recyclable hazardous liquids – used oil;
- Non-recyclable hazardous liquids such as grease, contaminated diesel, engine coolant, hydrocarbon sludge, old cooking oil, battery acid, chemical containers with redundant chemicals (majority are removed);
- Recyclable hazardous solids that include used ink cartridges, sealed batteries, un-sealed batteries, empty (mostly 25l) chemical containers;
- Non-recyclable hazardous solids such as oily rags, material contaminated with oil, diesel or grease, oil filters, empty oil/chemical containers, contaminated spill sorb, hardened sludge, contaminated soil not suitable for bioremediation (due to levels of contamination), launder grease, fluorescent tubes, mercury vapour lamps and sodium lamps, empty chemical containers, chemical containers with redundant chemicals – solid, electronic waste, sandblasting grit, incinerator ash;
- Recyclable industrial waste including used screen panels, ferrous and non-ferrous metals, wood (pallets and boxes), conveyor belting, hard hats, safety boots, overalls, plastic water containers, blasting wire, all cabling; and
- Non-recyclable industrial including LDV and EMV tyres (do not enter the WMF), building rubble, demolition and construction waste, rubber, air filters and redundant furniture.

The WMF is an existing facility but expansion is proposed. Further details on the expansion will provided in the EIA Report. The waste streams that are proposed to feed into the WMF for *both the Blue and Red Areas* are listed in *Table 2.3* and *Table 2.4* respectively. Refer to *Figure 2.4* for an illustration of the existing WMF (also referred to as the Salvage Yard) and to *Figure 2.5* for a preliminary illustration of the layout of the proposed upgrade to the WMF.

Figure 2.4 Existing WMF (Salvage Yard)

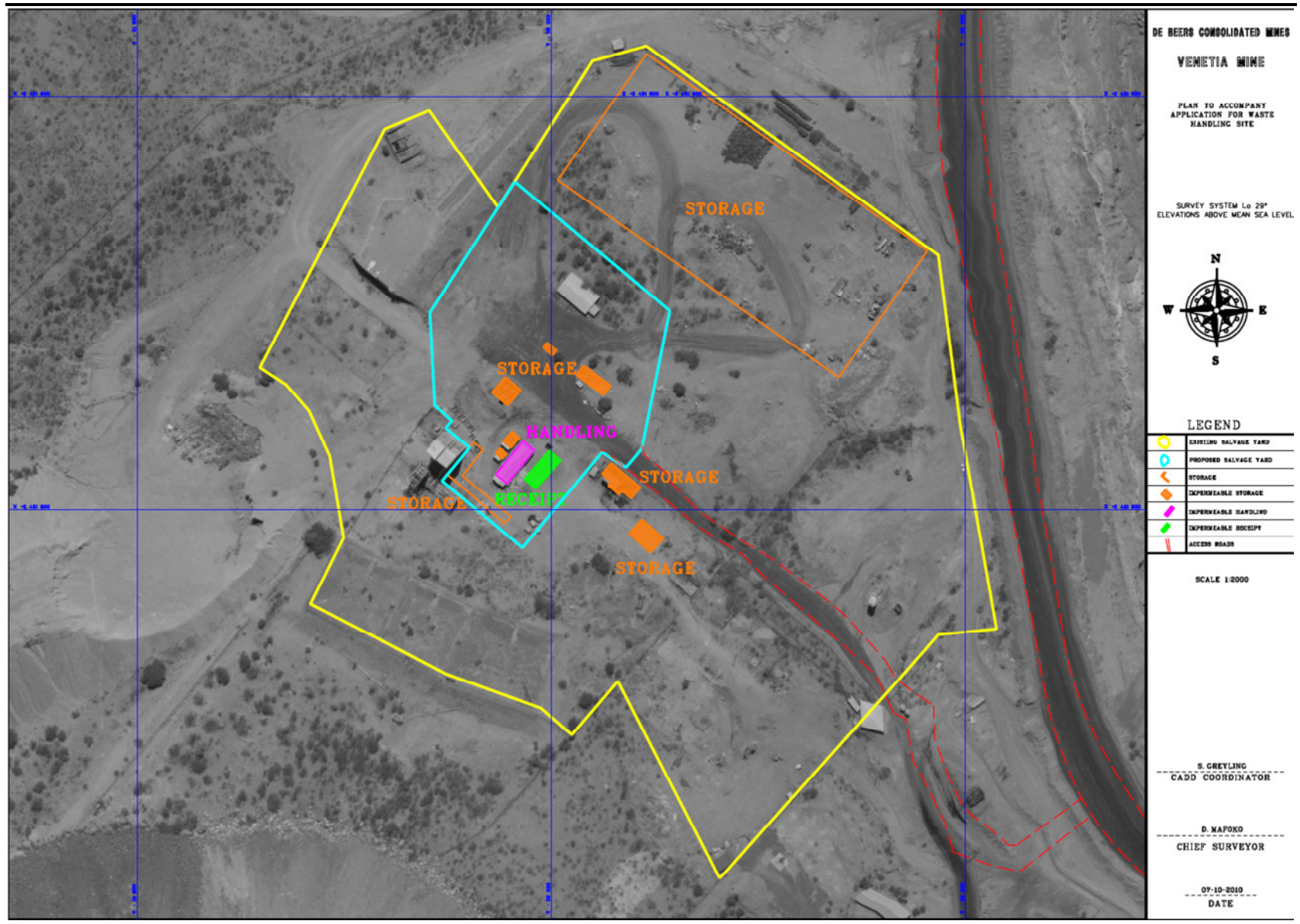
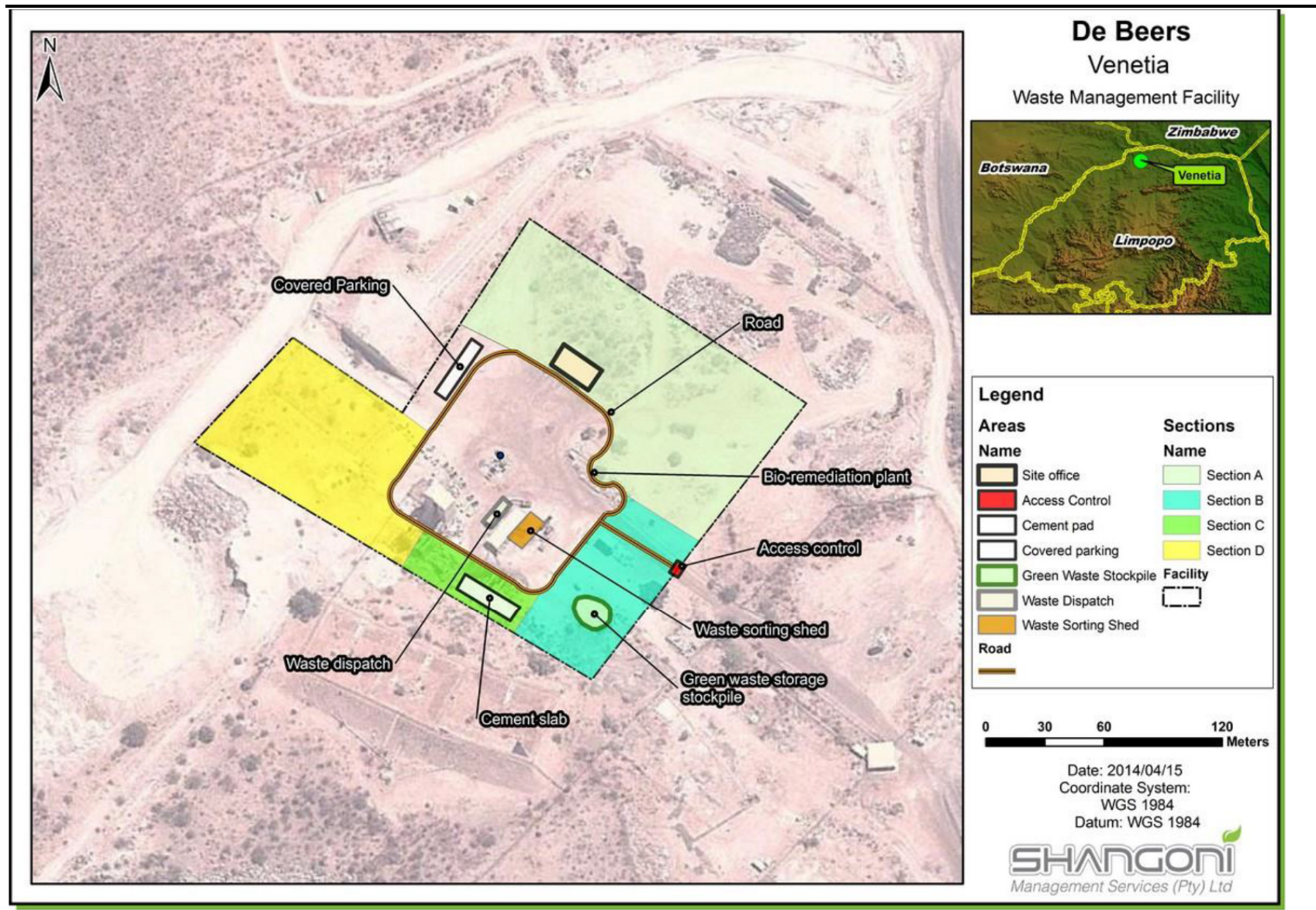


Figure 2.5 Conceptual layout of the WMF

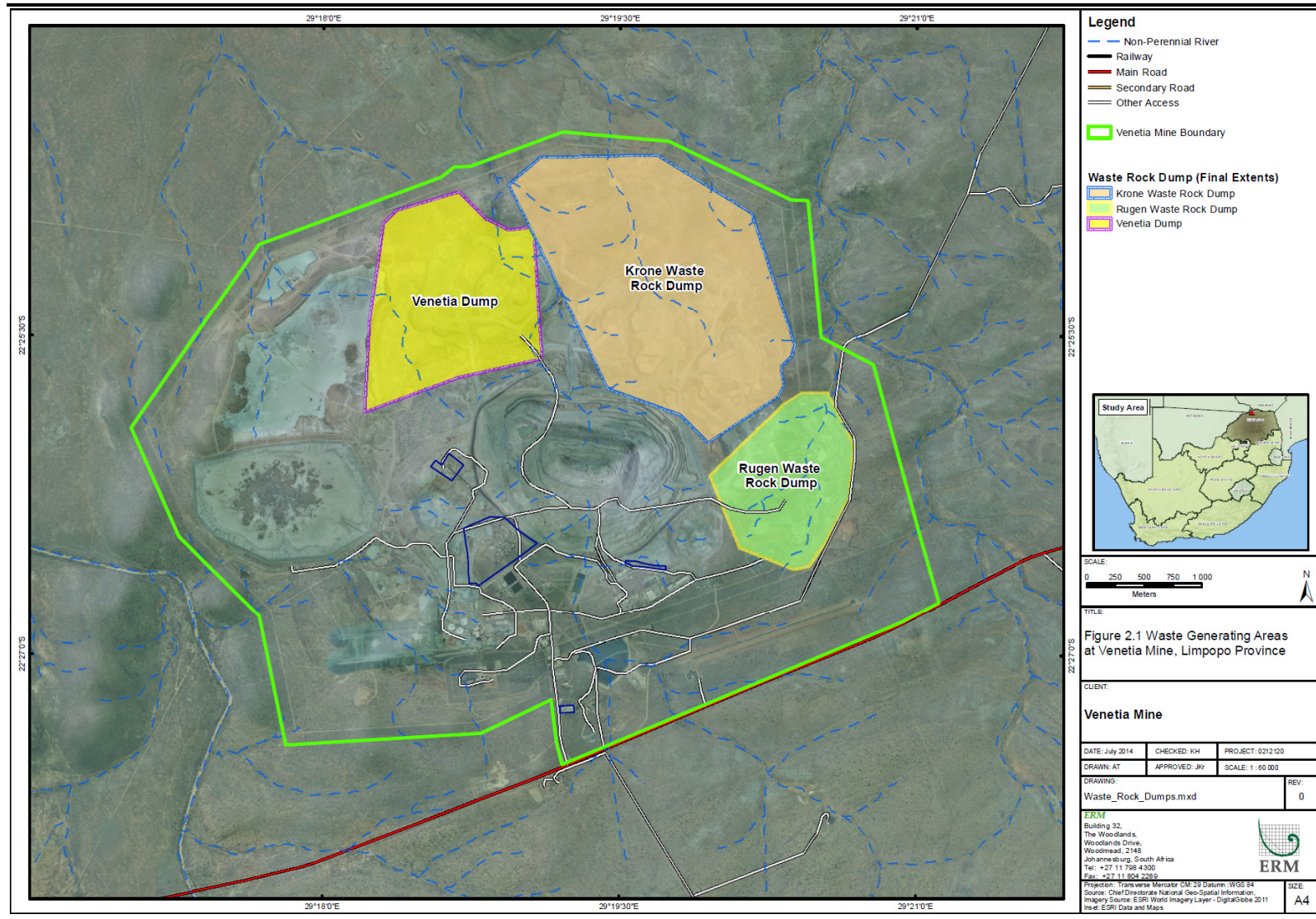


2.7

AREA ON WRD FOR CONSTRUCTION, DEMOLITION AND BUILDING WASTES

As mentioned previously, an area on the existing WRD is to be designated for the storage of construction, demolition and building wastes from both the Blue and red areas as listed in *Table 2.3* and *Table 2.4*. Refer to *Figure 2.6* for an illustration of the existing waste rock dumps at the mine.

Figure 2.6 Waste Rock Dumps on Site



2.8 DESCRIPTION OF WASTES

2.8.1 General waste

General waste comprises domestic and industrial waste. Domestic waste includes food waste, paper, glass, tins/cans, plastic, other waste derived from offices and kitchens, and garden refuse. Industrial waste includes empty containers, scrap steel, building rubble, electrical waste, rubber, wood, and cardboard.

General waste is received, classified, segregated and handled in the waste management facility, from where it is collected to be recycled or disposed. General waste is disposed of in a combination of wheelie bins and/or waste skips situated throughout the mine. A licensed waste contractor is responsible for sorting and baling of recyclable waste and/or the disposal of waste at a licensed facility.

General waste within the recovery Red Area is incinerated using a licensed incinerator, known as the Red Area incinerator.

Industrial waste is collected by a licensed waste contractor. Recyclable material is sold and non-recyclable material is disposed of at a licensed waste disposal facility.

2.8.2 Hazardous waste

- Hazardous waste includes both solid and liquid streams including:
 - Oil, grease, lubricant wastes (used oil is sold to a licensed operator);
 - Other hydrocarbon and hydrocarbon contaminated wastes;
 - Fluorescent lights, sodium lamps and mercury vapour lamps;
 - Empty hazardous reagent containers;
 - Non-recyclable electronic waste
 - Incinerator ash
 - Engine coolant
 - Paints, solvents, cleaning chemicals; and
 - Batteries.
- Hazardous waste is disposed of in a combination of wheelie bins and/or waste skips situated throughout the mine. Most hazardous waste streams are received, classified, segregated and handled in the waste management facility, from where it is collected to be disposed.
- Some hazardous waste streams are stored and collected for off-site disposal at the source of the waste generation (e.g. hydrocarbon contaminated sumps at facilities as listed in *Table 2.5*). Hazardous waste is then collected by a licensed waste management contractor from the WMF or waste source area on the mine and transported to a licensed hazardous waste disposal facility.

Table 2.5 Existing Drizit Sumps

Description	Volume (m ³)	Co-ordinates Y	Co-ordinates X
EMV Workshop - East	110	-34056.192	2482656.744
EMV Workshop - West	60	-33938.098	2482733.413
EMV Washbay - Existing	140	-33470.161	2482582.725
One Stop	60	-33331.851	2482700.61
Mechanical Workshop	5	-32468.469	2483024.253
Vaal Maseru - East	20	-33090.66	2483830.013
Vaal Maseru - West	40	-32979.19	2483828.969
Diesel Offloading Bay - Outside	20	-33600.396	2483181.536
EMV Washbay - New Project	850	-34130.817	2482627.184
Tyre Repair Bay - New Project	60	-33835.201	2482671.203
LDV Washbay	80	-33484.972	2482908.501
Primary Crusher	10	-32245.072	2482383.927

Sanitary waste found in the sewage plant waste stream is extracted and incinerated. The incinerator is located in the sewage treatment plant area.

2.8.3 *Building and Demolition Waste*

Building and demolition waste will be managed in a designated area within the existing WRD in the future.

2.8.4 *Medical waste*

Medical waste, including pathogenically contaminated wastes, sharps, and medicines that have expired are stored at the Wellness Centre and collected, transported and legally disposed of at a licensed facility by a licensed medical waste contractor.

2.9 *PROJECT ALTERNATIVES CONSIDERED*

Section 28(1) of the EIA Regulations GN R543, dated 18 June 2010, under the National Environmental Management Act, 1998 (Act 107 of 1998) (as amended) stipulates that a Scoping Report must contain (j) *“a description of identified potential alternatives to the proposed activity, including advantages and disadvantages that the proposed activity or alternatives may have in the environment and the community that may be affected by the activity”*.

The identification of alternatives is an integral part of the EIA/EMP and is required in terms of NEMA and NEMWA as described above. As part of the scoping phase project alternatives have been identified which are presented in Table 2.6. These are presented according to alternative categories required in terms of the legislation. It is intended through the scoping study, as documented in this report, to undertake a level of evaluation of these alternatives so that only those that are feasible are considered further during

the impact assessment phase of the project. The preferred alternative is identified during the scoping phase and taken forward into the EIA phase. For this reason further descriptions of the various alternatives are provided in this section of the report.

The following categories of alternatives can be identified:

- **Activity:** these are sometimes referred to as project alternatives, although the term activity can be used in a broad sense to embrace policies, plans and programmes as well as projects. Consideration of such alternatives requires a change in the nature of the proposed activity.
- **Location alternatives** could be considered, for example, for the location of the Waste Management Facility. This is sometimes considered under site layout alternatives. A distinction should also be drawn between alternative locations that are geographically quite separate and alternative locations that are in close proximity. Alternative locations would mean additional surface area requirements and bush clearing in Venetia Mine.
- **Process:** various terms are used for this category, including technological alternative and equipment alternative. The purpose of considering such alternatives is to include the option of achieving the same goal by using a different method or process.
- **Demand alternatives** arise when a demand for a certain product or service can be met by some alternative means.
- **Scheduling:** these are sometimes known as sequencing or phasing alternatives. In this case an activity may comprise a number of components, which can be scheduled in a different order or at different times and as such produce different impacts.
- **Input:** by their nature, input alternatives are most applicable to industrial applications that may use different raw materials or energy sources in their processes.
- **Routing:** consideration of alternative routes generally applies to linear developments such as power lines, transport and pipeline routes.
- **Site layout alternatives** permit consideration of different spatial configurations of an activity on a particular site.
- **Scale:** in some cases, activities that can be broken down into smaller units can be undertaken on different scales.
- **Design:** consideration of different designs for aesthetic purposes or different construction materials in an attempt to optimise local benefits and sustainability would constitute design alternatives.

Table 2.6 identifies the possible alternatives that may exist and describes the potential alternatives that were or could be assessed.

Table 2.6 NEMA alternatives applicable to the proposed project

Alternative	Definition of Alternative
Activity	The sites being applied for for licensing are already existing and as such the activities are already being undertaken. There is some potential for these activities to be more streamlined and this will be assessed in the Waste Management Strategy and in the EIA.
Location	The activities are already being undertaken and as such there is little scope for assessing alternative locations.
Process	There is the potential for alternative technologies to be used in various processes within the WMF eg tyre pyrolysis which could significantly reduce tyre volumes on site in the future. This will however require further investigation and has not been included in this application.
Demand	There is an existing legislative and policy demand at Venetia to deal with waste generated by their activities and this demand will remain unchanged during the life of mine.
Scheduling	Due to the nature of the high security associated with diamond mining the ability to look at alternate scheduling is very limited. Removal of waste thus has to remain on an <i>ad hoc</i> basis in order to maintain diamond security.
Input	There are no input alternatives in the process of waste management as the type of waste generated on the site will remain constant. There is, however, the potential to try and purchase various materials that are more 'environmentally friendly' and easier to process on site thus promoting their reuse or recycling and resulting in less waste, eg using wooden pallets rather than plastic.
Routing	The sites to be licenced for the WMF and the disposal of inert waste are not routing options and will be a specific site. It should, however, be assessed as to whether the routes for transporting the waste to the WMF or WRDs is the most efficient route.
Site Layout and Design	Various layout and design alternatives have been considered and this was as a result of internal process description changes. The initial site layout did not include a designated area for building and demolition rubble within the WMF. A subsequent revision of the site layout included an area for the disposal of tyres. The current site layout is provided as <i>Figure 2.5</i> .
Scale	The volume of waste on site for the same number of workers and unchanged operations would remain constant and as such it would not be possible to manage waste on a smaller scale. The potential for off-site disposal could be considered, ie disposal to a municipal landfill. However, the distances from any municipal sites and the security measures associated with an operational diamond mine make this quite difficult.
No-go alternative	Many of the facilities are existing facilities, and should the no-go option be implemented, Venetia Mine will no longer be able to conduct waste management activities; and would need to curtail/ stop operations until a solution was found. Furthermore, most of the facilities / activities are aimed at pollution prevention / mitigation. Should the no-go option for these facilities / activities be implemented, this would result in Venetia not achieving pollution prevention / mitigation and hence fundamental compliance to both legislative and duty of care requirements. It will also not provide Venetia with the ability to recycle and reuse waste and to implement waste reduction initiatives as per the waste management hierarchy.

Based on the information presented in the table above, only one site location (for the WMF and area on WRD) and layout alternative will be assessed in the EIA phase.

3.1 LEGISLATIVE FRAMEWORK

The proposed activity is subject to legislative and policy requirements at a provincial, regional and local level. These include the following:

- National Environmental Management Act (NEMA) (Act No. 107 of 1998), as amended;
- National Environmental Management: Waste Act (NEMWA) (Act No. 59 of 2008), the National Environmental Management: Waste Amendment Act (NEMWAA) (Act 26 of 2014) and the list of waste management activities that have, or are likely to have a detrimental effect on the environment was published in Government Gazette 37083 on 29 November 2013 (GN 921);
- National Water Act (NWA) (Act No. 36 of 1998);
- Occupational Health and Safety Act (OHSA) (Act No. 85 of 1993);
- Hazardous Substances Act (Act No. 15 of 1973); and
- The relevant national Regulations and Norms and Standards (GN634, GN635, GN636, GN921 and GN926).

Further information on the applicable legislation is provided below.

It should be noted that the relevant Environmental Authorisations (EA) for the development of the underground mining operations as well as the EMP Amendment for all open pit operations (and including the proposed underground operations), was issued by the Limpopo Department of Economic Development, Environment and Tourism (LEDET) (Ref: 12/1/9/2-V9) on 13 July 2012 under NEMA, and by the Department of Mineral Resources (DMR) (Ref: LP 30/5/1/3/2/1 (58) EM) on 1 October 2012 under the Mineral and Petroleum Resources Development Act (MPRDA).

3.2 RELEVANT ENVIRONMENTAL LEGISLATION**3.2.1 *National Environmental Management Act (No 107 of 1998) and the National Environmental Management Laws Second Amendment Act (Act No 30 of 2013)***

The National Environmental Management Act (No 107 of 1998), as amended (NEMA), requires that the potential impact on the environment, socio-economic conditions, and cultural heritage of activities that require authorisation or permission by law must be considered, investigated and assessed prior to implementation, and reported to the relevant authority.

On 18 December 2013, the President assented to the National Environmental Management Laws Second Amendment Act 30 of 2013, which was published in Government Gazette 37170 Notice Number 1019 and amends the National Environmental Management Act 107 of 1998. All the sections of the Amendment Act come into effect on the date of publication of the (i.e. 18 December 2013) with the exception of sections 3, 4, 5 and 14.

NEMA introduces the duty of care concept which is based on the policy of strict liability. This duty of care extends to the prevention, control and rehabilitation of significant pollution and environmental degradation. It also dictates a duty of care to address emergency incidents of pollution. Failure to perform this duty of care may lead to criminal prosecution, and may lead to the incarceration of managers or directors of companies for the conduct of the legal persons.

An Application Form for the EIA for the Waste Management Licence (WML) was submitted to the national Department of Environmental Affairs (DEA) on 10 June 2014 and a Reference Number (12/9/11/L43049/5) received from the department on 18 June 2014 (See Annex A).

3.2.2 *National Environmental Management: Waste Act (Act 59 of 2008) and the National Environmental Management: Waste Amendment Act (NEMWAA) (Act 26 of 2014)*

The National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) came into effect on 1 July 2010 and repealed Section 20 of the Environmental Conservation Act, 1989 (Act No. 73 of 1989), introducing new provisions with regards to the licensing of waste management activities. The National Environmental Management: Waste Amendment Act (Act 26 of 2014) was promulgated on 2 June 2014 and repealed or replaced various sections of NEMWA.

In terms of the Waste Act, the Minister may publish a list of waste management activities that have, or are likely to have, a detrimental effect on the environment. In terms of the Waste Act no person may commence, undertake or conduct a waste management activity except in accordance with:

- the requirements or standards determined in terms of the Waste Act for that activity; or
- a waste management licence issued in respect of that activity, if a licence is required.

The list of waste management activities that have, or are likely to have, a detrimental effect on the environment were promulgated on 29 November 2013 (Government Notice 921). According to Government Notice 921, a person who wishes to commence, undertake or conduct:

- an activity listed under Category A, must conduct a Basic Assessment process; or
- an activity listed under Category B, must conduct a Scoping and EIA process.

As can be seen in *Table 3.1* there are a number of both Category A and Category B listed activities at Venetia and, as such, a full Scoping and EIA is required for this Waste Management Licence application. The processes to be followed for this EIA are stipulated in the environmental impact assessment regulations promulgated under Section 24(5) of the NEMA.

The NEMA EIA Regulations must be followed, with a successful application resulting in the issuing of a **Waste Management Licence** (or WML as opposed to an Environmental Authorisation). It must, however, be noted that the Waste Act specifies additional requirements that must be met in addition to the requirements specified in NEMA and the EIA Regulations for a Basic Assessment or Scoping/EIA process (namely, in taking steps to bring the application to the attention of the relevant organs of state, interested persons and the public, one of the steps must include the publication of a notice in at least two newspapers circulating in the area in which the waste management activity applied for is to be carried out).

The listed activities in *Table 3.1* as contained in Government Notice 921 are applicable to the project:

Norms and standards

As of 23 August 2013 the Minister of Environmental Affairs published the following regulations for immediate implementation in Government Gazette No 36784:

- R634 Waste Classification & Management Regulations;
- R635 National Norms & Standards for the Assessment of Waste for Landfill Disposal; and
- R636 National Norms & Standards for Disposal of Waste to Landfill.

These will also be considered.

Box 3.1

GN 926: National Norms and Standards for the Storage of Waste

The NEMA introduced a number of guiding principles into the South African environmental legislation, including the life-cycle approach to waste management, producer responsibility, the precautionary principle and the polluter pays principle. NEMA also places a duty of care on any person who causes significant pollution or degradation to the environment, requiring them to institute measures to prevent pollution from occurring, or to minimise and rectify the pollution or degradation where it cannot reasonably be avoided. The development of the norms and standards is the foundation of the regulatory system established in terms of Section 7(1)(c) of the NEM: WA.

These norms and standards apply to any person who stores general or hazardous waste in a waste storage facility.

Table 3.1

Applicable Listed Activities from GN 921

GN 921 Listing Category	Activity to be Licensed	Description
Waste Management Activities: Waste Management Facility (WMF)		
Category A, No. 2	The sorting, shredding, grinding, crushing, screening or baling of general waste at a facility that has an operational area in excess of 1,000m ² .	The sorting and baling of general waste: <ul style="list-style-type: none"> • Cardboard; • Paper; • Glass; • Cans; • Plastic; and • Non-recyclable domestic waste, including food waste.
Category A, No. 3	The recycling of general waste at a facility that has an operational area in excess of 500m ² , excluding recycling that takes place as an integral part of an internal manufacturing process within the same premises.	Recycling and/or re-use of waste: Manual and/or mechanical sorting, dismantling, baling, stripping, shredding, crushing and compaction of any of the following wastes: Used screen panels, metals, conveyor belts, hard hats, safety boots, overalls, plastic water containers, blasting wire, electrical cabling, redundant furniture, windscreen glass, rubber and air filters.
Category A, No. 5	The recovery of waste including the refining, utilisation, or co-processing of waste in excess of 10 tons but less than 100 tons of general waste per day or in excess of 500kg but less than 1 ton of hazardous waste per day, excluding recovery that takes place as an integral part of an internal manufacturing process within the same premises.	Recovery of wood (chipping and hammer mill).
Category A, No. 12	The construction of a facility for a waste management activity listed in Category A of this Schedule (not in isolation to associated waste management activity).	All construction and associated activities relating to the upgrade of the WMF.
Category A, No. 13	The expansion of a waste management activity listed in Category A or B of this Schedule which does not trigger an additional waste management activity in terms of this Schedule.	All construction and associated activities relating to the upgrade of the WMF.
Category B, No. 2	The reuse or recycling of hazardous waste in excess of 1 ton per day, excluding reuse or recycling that takes place as an integral part of an internal manufacturing process within the same premises.	<i>Ex situ</i> bio-remediation of hydrocarbon contaminated soil, with the potential addition of sewage sludge.
Category B, No. 3	The recovery of waste including the refining, utilisation, or co-processing of the waste at a facility that processes in excess of 100 tons of general waste per day or in excess of 1 ton of hazardous waste per day, excluding recovery that takes place as an integral part of an internal manufacturing process within the same premises.	<i>Ex situ</i> bio-remediation of hydrocarbon contaminated soil, with the potential addition of sewage sludge.
Category B, No. 4	The treatment of hazardous waste in excess of 1 ton per day calculated as a monthly average; using any form of treatment excluding the treatment of effluent, wastewater or sewage.	<i>Ex situ</i> bio-remediation of hydrocarbon contaminated soil, with the potential addition of sewage sludge.
Category B, No. 10	The construction of a facility for a waste management activity listed in Category B of this Schedule (not in isolation to associated waste management activity).	All construction and associated activities relating to the upgrade of the WMF.
Category C	GN R. 926 National Environmental Management: Waste Act (59/2008): National norms and standards for the storage of waste.	Registration for Storage of waste under Category C of GN R. 921.
Waste Activities: Demolition and Building Rubble Dump		
Category B, No. 9	The disposal of inert waste to land in excess of 25 000 tons, excluding the disposal of such waste for the purposes of levelling and building which has been authorised by or under other legislation.	Disposal of inert waste (demolition and building rubble) used for levelling and building (infilling).

3.2.3 *National Water Act (Act 36 of 1998)*

The purpose of this Act is to ensure that the nation's water resources are protected, used, developed, conserved, managed and controlled in an environmentally sustainable way. Of relevance to the proposed activity is Section 19 of this Act which deals with Pollution Prevention (Part 4). Part 4 deals with pollution prevention and in particular the situation where pollution of a water resource occurs or might occur as a result of activities on land. The person, who owns, controls, occupies or uses the land in question, is responsible for taking reasonable measures to prevent pollution of water resources. If the measures are not taken, the catchment management agency concerned, may itself do whatever is necessary to prevent the pollution or remedy its effects and recover all reasonable costs from the persons responsible for the pollution.

A Water Use Licence was issued by the Department of Water Affairs on 21 November 2011 – Licence No 16/2/7/A600/C23/3 for all existing water uses on site. In order to address all the required amendments as well new proposed infrastructure, an amendment application has been submitted to the Department at the end of July 2014. A Water Use License Application (WULA) process is currently being conducted with regard to additional activities that have yet to be authorised by the Department of Water Affairs.

3.3 *HEALTH AND SAFETY LEGISLATION*

3.3.1 *Occupational Health and Safety Act (Act 85 of 1993)*

In terms of Section 8 (1), of the Occupational Health and Safety Act (OHSA), every employer shall provide and maintain, as far as reasonably practicable, a working environment that is safe and without risk to the health of his employees. Regulation 15 of the Act provides for the recycling, safe handling and disposal of hazardous chemical substances (HCS) waste, as well as Personal Protective Equipment (PPE) requirements and requirements for contracts with waste management service providers. Industries need to ensure that waste activities and waste management procedures consider the requirements of this regulation as far as is reasonably practicable. Industries also need to ensure that if bulk storage tanks are stored on site, and the materials are of a hazardous nature, that they are compliant in terms of the Major Hazardous Installations Regulations within the OHS Act of 1993.

3.3.2 *Hazardous Substances Act (Act No. 15 of 1973)*

The Hazardous Substances Act (15 of 1973) is regulated by the Department of Health. The Act and its regulations regulate the transportation of defined hazardous substances (including hazardous waste) and also the disposal of containers of Group 1 substances. It is the duty of DBCM to ensure that all staff and/ or contractors transporting waste from the site are appropriately licensed.

This chapter summarises the bio-physical and terrestrial environment and the socioeconomic baseline conditions in the Study Area.

4.1 *BIO-PHYSICAL RECEIVING ENVIRONMENT*

The table below summarises the bio-physical and terrestrial environment for the Venetia Mine.

It is important to note that the proposed activities are in an area that is already disturbed by current mining activities and within the mining lease area and footprint of the existing Mine and its associated activities.

Table 4.1 Bio-physical and Terrestrial Receiving Environment

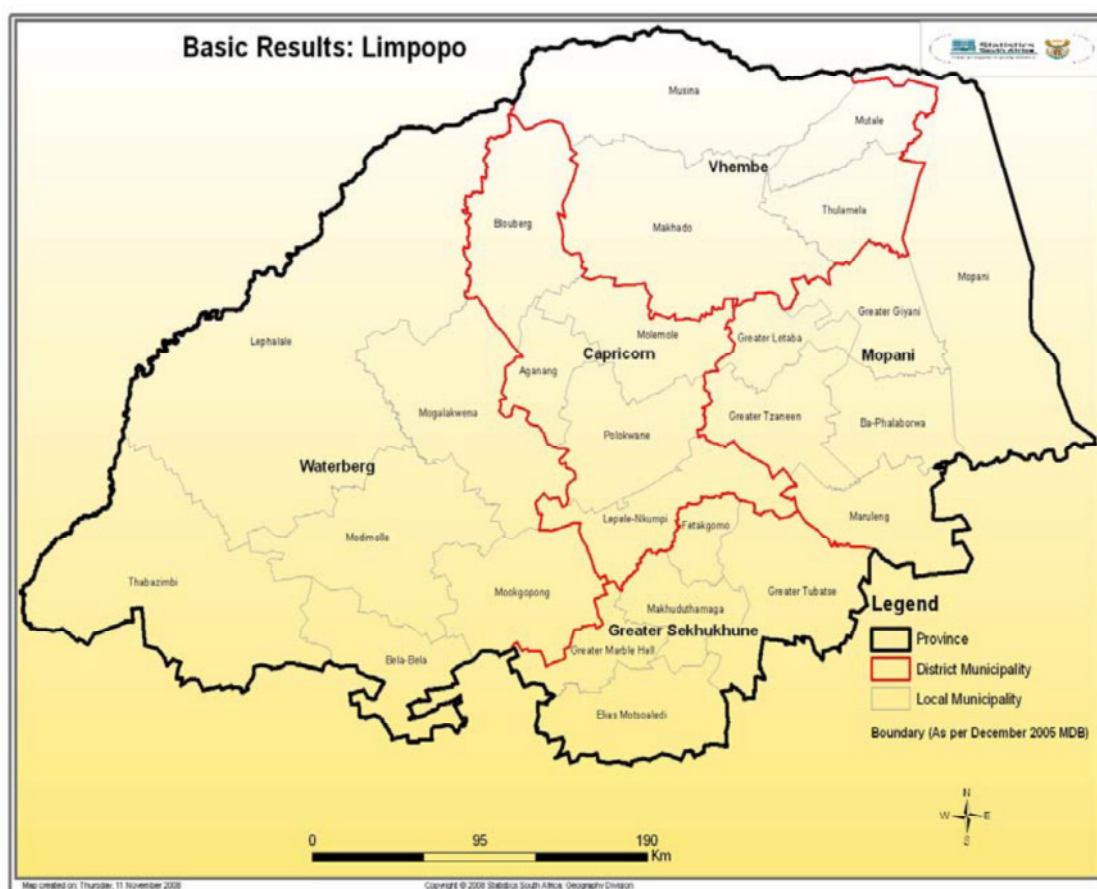
Aspect	Description
Climate	<ul style="list-style-type: none"> • Limpopo Province experiences a sub-tropical climate in most of the province. • Rainfall is highly unpredictable and shows a seasonal pattern, with the highest rainfall between November and March. • The average annual rainfall for Venetia mine is calculated as 168mm (based on data from the on-site weather station) and the highest average rainfall is recorded in January as 47mm. • The maximum temperature at Venetia occur during the month of October with the temperature reaching 41.5°C which occurs during spring. The minimum temperature recorded was during the month of July (2.7°C). The average temperatures are variable in the project area, ranging from 16.9 to 26.4 °C. • The prevailing winds are relatively consistent throughout the year at Venetia. The prevailing winds are from the east, with an occurrence of winds from the east-northeast, east-southeast and north.
Topography	<ul style="list-style-type: none"> • The Venetia area identified for this study forms part of the Limpopo Plain Eco-region (Henning, 2011) and is situated to the north of the Soutpansberg and to the south of the Limpopo River. The topography of the area is a mixture of terrains and consists of low hills and wide valleys varying in elevation from 600 metres above mean sea level (mamsl) at the valley bottom to 710 mamsl at the hill peaks in the south. • The surface topography and associated landscape has been and will further be altered by the mining activities. The remains of the following have lasting effects on the surface topography: <ul style="list-style-type: none"> • Waste Rock Deposit (WRD); • Coarse Residue Deposit (CRD); • Fines Residue Deposits (FRD's); and • Open pit.
Geology	<ul style="list-style-type: none"> • Venetia area itself contains kimberlites, dolerite sills and rocks belonging to Malala Drift and Gumbu groups of the Beitbridge Complex. • One large fault (Tina Fault) and splay (Lezel Shear) is displaced along its length from 150 to 200m. Minor faults in Venetia vicinity strike west-northwest. At the axis of the main fold lies the Gloudina Fault which strikes east-west. • Thin residual soils interspersed with patchy calcrete and less dominant alluvial soils prevail in the lower-lying site areas. Soil depths vary from 100mm to about 2 500mm.
Surface Water	<ul style="list-style-type: none"> • The study area is within the A63E (Mogalakwena) quaternary catchment of the Limpopo Water Management Area (WMA). On a local scale, Venetia is situated in its own sub-catchment as it is within a large basin formed by a dolerite ridge to the north and the west. The mean annual run-off for the Venetia site is 1.5 Million m³/a (De Beers, EMP, 2000). • The local catchment area consists of the Kolope River which is located to the west of Venetia (and flows northwards) and a tributary of the Kolope River, the Matotwane River, located to the east of Venetia (also flowing northwards). The confluence of the Kolope and Matotwane rivers is about 10 km north of Venetia. A further 10km north-east, the Kolope River joins with the Limpopo River. • Currently water is obtained from two well fields, Schroda and Greefswald, located in alluvial deposits along the banks of the Limpopo River, approximately 30km north of Venetia site.
Groundwater	<ul style="list-style-type: none"> • The Mogalakwena A63E catchment is water stressed and, although the aquifers are considered minor, it is the sole source of water for local farmers and communities using the groundwater for domestic use and livestock watering. • The Limpopo River is shared by numerous surface and groundwater users in South Africa as well as with Zimbabwe, Botswana and Mozambique. • Upstream, the maximum aquifer width reduces to approximately 50 m near the Limpopo/Crocodile confluence. The mean saturated thickness is 6 m (maximum 24 m) for a 40 km reach either side of the Limpopo/Shashe confluence, and sporadically developed thicknesses of 10 to 12 m (maximum 30 m) occur in the upper reaches. The aquifer is tapped by a variety of methods including hand-dug wells, wellpoint systems, infiltration galleries and boreholes.
Flora	<ul style="list-style-type: none"> • The mine site lies within the Savanna biome which is the largest biome in Southern Africa. It is characterized by a grassy ground layer and a distinct upper layer of woody plants (trees and shrubs). • The study area is more particularly, within the Mopane Bioregion. The natural vegetation at Venetia comprises two ecological types namely Limpopo Ridge Bushveld and Musina Mopane Bushveld (Mucina & Rutherford, 2006). • 6 tree species observed in the study area are listed as protected under the national list of declared protected tree species as promulgated by the National Forest Act (NFA), 1998 (No. 84 of 1998). • The baobab trees occurring throughout the Musina area to the north of the Soutpansberg, and specifically also on the Venetia Mining site, are declared national monuments. • 10 plant species have been listed as protected under Schedule 12 of the Limpopo Environmental Management (LEMA) Act (no. 7 of 2003).
Fauna	<ul style="list-style-type: none"> • Fauna such as impala, kudu, waterbuck and warthog within Venetia lease area have been afforded a degree of protection from predators and are relatively tame. More recently other mammal species such as baboons, banded mongoose and even leopard have been sighted on the mining premises and in some instances have become problematic for Venetia. It must be noted that the entire mine area is secured by a double layer of electrified fence, which is near-impenetrable for large game and meta-carnivores and therefore acts as an effective dispersal barrier preventing game access to Venetia area, while also preventing larger herbivores such as kudu, waterbuck and impala from exiting the area. • Species such as warthog, baboon and leopard migrate into the area according to their feeding behaviour. • A survey by Henning (2011) indicated that a total of 71 species could potentially occur on the study sites based on their geographic distribution patterns and habitat preference. However, this is a conservative estimate, especially when considering the prevalence of mining disturbances and fragmentation of available habitat types. A realistic prediction of the expected number of species likely to occur is approximately 47, of which 12 (25%) were confirmed during the study visit. • A total of 70 bird species were observed over a 5-day period within the study area. A total of 123 bird species was previously recorded for the area observed. The bird list for the VLNR that borders the mining area includes a total of 321 bird species. • The presence and accumulation of surface water on the mining premises has contributed to the range expansion of waterfowl species and wading bird taxa, whereas the dead mopane trees in some areas where silt accumulates provide optimal habitat for hole-nesting bird species including the "near-threatened" Redbilled Oxpecker (Buphagus erythrorhynchus). • Three reptile species were recorded during the ecological survey of the study area. • Approximately 21 amphibian (frog) species could occur on the study site. However, only 13 of these are likely to be common on the site, while another five are peripheral to the study area and are believed to be either sporadic or their status is unknown (Henning, 2011). • Eleven Red Data mammal species were previously identified in the amended EMP (Knight Priesold, 2007) as being threatened, although a recent update by the IUCN red data species list for mammals indicate that many of these species such as Aardwolf, Leopard and Antbear are not considered rare any longer.
Air Quality	<ul style="list-style-type: none"> • The project area and surrounding land can be described as being rural with no other large scale industrial or mining activity in the area (< 5km away from the project area), except for the current mining operations at Venetia. • The area is characterised as an area that is sparsely populated with the closest town being Musina (± 75km east) and Alldays (± 40 km west). • Some of the existing impacts on air quality include: incinerators; power generation; windblown dust; vehicle tailpipe emissions; and agricultural activities.

Aspect	Description
Noise	<ul style="list-style-type: none"> • The environment in which Venetia is located has the topography of an undulating landscape interspersed with some hills in the closer vicinity of the mining operation. Furthermore, there are numerous dumps which together with the natural topography of the area provide significant screening against the propagation of noise. • Venetia is by far the largest source of noise in the area, with the contribution of road traffic on the passing road restricted to the immediate vicinity of the road. Further away from Venetia natural sound sources, e.g. insects, birds and wind in the foliage of the vegetation become dominant.
Archaeology and Heritage	<ul style="list-style-type: none"> • The Phase I HIA study (Pistorius, 2011) revealed the following heritage resources as outlined in Section 3 of the National Heritage Resources Act (No 25 of 1999) for the Project Area, namely: <ul style="list-style-type: none"> • A Middle Stone Age (MSA) site and two Iron Age sites (villages). The two Iron Age sites are respectively composed of two and four smaller sites each (These sites were identified during the 1989 survey); • Stone walls which may be part of an Iron Age village composed of one or more smaller sites; and • A historical graveyard belonging to the Venter family.

The Venetia Mine is within the Limpopo Province of South Africa which shares borders with Botswana, Mozambique and Zimbabwe. Census 2001 reflects a total population for Limpopo of 5.2 million, which represents 11.8% of the entire population of South Africa.

The province is predominantly rural, and the primary economic activities include electricity production, water, agriculture and mining. Limpopo Province has five district municipalities, namely Capricorn, Mopani, Sekhukhune, Vhembe and Waterberg District Municipalities. Venetia is located in the Vhembe District Municipality but the Capricorn District Municipality is an important labour sending area. These district municipalities are portrayed in *Figure 4.1* below.

Figure 4.1 District and Local Municipalities of the Limpopo Province



Source: Stats SA Community Survey, 2007

The table below summarises the socio-economic environment for Venetia.

Table 4.2 Socio-economic Receiving Environment

Municipality	Description
Vhembe District Municipality	<ul style="list-style-type: none"> Vhembe is one of five districts of Limpopo Province and is the northernmost district sharing its borders with Zimbabwe in the north, Mozambique through Kruger National Park in the east and Botswana in the north west. The municipality covers an area of 25,597 km² and has a population of almost 1.3 million living in 335,276 households (1). The population is primarily Black, with smaller groupings of White, Indian and Coloured people. The majority of the population people speak Venda and Tsonga (2007 Community Survey). The district is characterised by high levels of unemployment and service delivery backlogs in many areas.
Musina Local Municipality	<ul style="list-style-type: none"> Musina Local Municipality, in which Venetia is situated and is the largest sending area for Venetia, falls within the Vhembe District Municipality. Musina Local Municipality covers an area of approximately 7,577 km². The municipal area consists mainly of commercial farms and only 0.08% of the total area is urban in nature, with Musina being the only urban centre in the municipality. The Musina local municipality has a population of approximately 68,359 (2), and makes it the smallest municipality in the Vhembe District.
Major Economic Activities and Sources of Income	<ul style="list-style-type: none"> Agriculture, services and mining are the main contributors to the economy of the Musina municipality, with the entire economy contributing 11% of GDP to the Vhembe District Municipality (Musina IDP, 2012/ 2011).
Housing	<ul style="list-style-type: none"> Musina local municipality comprises 14,203 households, a 23% increase from 2001. This increase can be attributed to rapid population growth in the area. The average household size is 4 people per dwelling (Community Census, 2007). Housing in the Musina municipality is extremely diverse in nature, with formal housing being dominant in urban areas such as Musina, and a mixture of formal RDP housing and informal structures being found in areas such as Harper, Campbell and Freedom Park. While there has been a significant increase in formal dwellings, mainly due to the development of RDP housing, the prevalence of informal housing has also increased. This is a reflection on the rapidly growing population and the emergence of informal settlements, the economic situation and the presence of numerous job/asylum seekers from Zimbabwe.
Education	<ul style="list-style-type: none"> There are 7 primary schools and 3 high schools in the Musina municipal area. Schools in the urban areas are generally well maintained and resourced.
Water Supply	<ul style="list-style-type: none"> The Community Survey 2007 found that the majority of households in the Musina Municipality have access to piped water. A total of 1,974 households in urban areas receive free basic water, due to a combined salary of less than R2,500 p/m, and all households in the villages of Madimbo, Domboni and Malale receive free basic water. All households in the municipality connected to water services systems get 6,000 kl per month for free. The majority of households do have access to piped water; however, there has only been a small overall improvement since 2001. Two percent of households still have to collect water from rivers and streams.
Sanitation	<ul style="list-style-type: none"> Due to the urban nature of the Musina Municipality, many households have access to good quality sanitation services such as a waterborne sewerage system.
Power Supply	<ul style="list-style-type: none"> The urban areas of the Musina Municipality have electricity with 7,710 households having metered (conventional and pre-paid) electrical house connections.
Transport and Roads	<ul style="list-style-type: none"> The main access route through the area is the existing N1 highway. The purpose of this road is for through traffic and as an access road to the municipality for the adjoining municipality to the south and Zimbabwe to the north.
Language	<ul style="list-style-type: none"> A diversity of ethnic groups is found in Musina with Sepedi, Tsonga, Tshivenda, English, Afrikaans, Shona, IsiXhosa and Nyasa being spoken in the area. A wide range of cultural ceremonies and events are observed.
Capricorn District Municipality	<ul style="list-style-type: none"> Capricorn District Municipality is one of five districts making up Limpopo, with an estimated population of 1,243,168 (Community Survey, 2007). The municipality covers an area of 16,970 km². It has five local municipalities under its jurisdiction, namely; Aganang, Blouberg, Lepelle-Nkumpi, Molemole and Polokwane. A total of 285,565 households live in the district municipal area with the average household comprising 6.1 persons. The Blouberg Local Municipality has about 16% (194,119) of the population.
Blouberg Local Municipality	<ul style="list-style-type: none"> The Blouberg Local Municipality, which is a labour sending area for Venetia, covers an area of approximately 5,054 km². Currently the Blouberg municipal area has a population of approximately 200,000. The inhabitants of the area are mostly the Bahanawa and Batlokwa people with a small percentage of Vha-Venda as well as Afrikaans and English speakers on the rural farms. Due to the country's migrant labour system the municipality comprises largely of females and children. A large number of males leave the municipality to seek employment in areas like Polokwane and other provinces like Gauteng. Due to this there is a general trend towards children headed households, as adult females also tend to leave their households and follow their male counterparts in search of work opportunities and to be near them.
Major Economic Activities and Sources of Income	<ul style="list-style-type: none"> The Blouberg Municipality has one of the highest unemployment rates in the Capricorn District. Agriculture, government and civil servants are among the top areas of employment in the Blouberg municipal area. There are also a small number of small business owners, particularly in the economic hubs of Senwabarwana and Alldays. Other categories of livelihood strategies include husbandry and informal trading. Due to the high unemployment rates and rural nature of the municipal area, many people rely on subsistence farming to survive.
Housing	<ul style="list-style-type: none"> The Blouberg municipal area consists of approximately 35,598 households, with an average household size of 5.5 people per dwelling (Community Survey, 2007) and is the highest out of all the municipalities in the Capricorn district. Housing in the Blouberg Municipality is diverse in nature, ranging from informal structures particularly in areas such as Ga-Kibi and Ga-Makgato to formal housing in areas such as Alldays.
Education	<ul style="list-style-type: none"> Education levels in the Blouberg municipal area are generally low, with a large percentage of the population being illiterate.
Water Supply	<ul style="list-style-type: none"> Various government sponsored programmes are available locally including the Skills Education Training Authorities (SETA) and Adult Basic Education and Training (ABET) programmes. A significant proportion of the population in the Blouberg area do not have access to clean drinking water while many areas are below RDP standards. Many people source their water from natural sources such as rivers and springs due to the lack of piped water.
Sanitation	<ul style="list-style-type: none"> The Blouberg area has a need for sanitation services as many households have no access to formal sanitation. Formal sanitation is found mostly in areas such as Senwabarwana and Alldays. Pit latrines are the dominant form of sanitation in the Blouberg municipal area.
Power Supply	<ul style="list-style-type: none"> The majority of houses in the Blouberg Municipality are serviced by Eskom electricity. Households have to pay for the electricity via a pre-paid system. While electricity is the primary source of energy in the area, other sources include the use of candles, wood, paraffin and even a small percentage of solar power.
Transport and Roads	<ul style="list-style-type: none"> The roads in the Blouberg municipal area are generally in poor condition, particularly in rural areas such as Ga-Kibi and Ga-Makgato, with many of the dirt roads becoming impassable after heavy rain. The municipality is prioritizing the tarring of roads that could potentially provide economic benefit. The majority of communities in the Blouberg area depend primarily on taxis for public transport due to a shortage of public bus services.
Language	<ul style="list-style-type: none"> Cultural diversity is very strong in Blouberg. It is likely that this diversity is also as a result of the town's proximity to the Zimbabwean border. Some of the languages spoken in Blouberg include Venda, Tsonga, Sepedi and English.

(1) <http://www.localgovernment.co.za/districts/view/29/vhembe-district-municipality> (accessed 3 June 2014)

(2) <http://www.localgovernment.co.za/locals/view/133/musina-local-municipality> (accessed 3 June 2014)

ERM is conducting the public participation process (PPP) as part of the Environmental Impact Assessment (EIA) that is associated with the application for a WML. The PPP will be conducted by ERM's experienced PPP team and has been designed to comply with the regulatory requirements set out in the NEMA (as amended).

Public participation in an EIA is not only a statutory requirement, but a process that is designed to provide Interested and Affected Parties (I&APs) with an opportunity to evaluate all aspects of the proposed Project, with the objective of improving the Project by maximising its benefits while minimising its adverse effects. I&APs represent relevant interests and sectors of society and the various relevant organs of state. Through informed and transparent public participation effective social and environmental management/mitigation measures can be established and implemented should the Project be authorised.

This section describes the activities undertaken to engage and consult with key stakeholders during the scoping phase. It describes:

- the process by which stakeholders were identified;
- the means by which they were consulted and the outcomes of the consultations to date;
- the actions taken to disclose pertinent information to stakeholders; and
- the intended approach to ensuring that stakeholders continue to be engaged during the EIA process.

5.1

OBJECTIVES OF THE PUBLIC PARTICIPATION PROCESS

Stakeholder engagement is an ongoing process of sharing project information, understanding stakeholder concerns, and building relationships based on collaboration. Stakeholder consultation is a key part of the EIA process and must be inclusive and culturally appropriate and provide stakeholders with opportunities to express their views. Effective consultation requires disclosure of relevant and adequate project information to enable stakeholders to understand the risks, impacts and opportunities associated with a proposed activity.

The PPP has been designed to achieve the following objectives:

- To ensure that I&APs are well informed about the proposed Project;

- To provide a broad set of I&APs sufficient opportunity to engage and provide input and suggestions on the proposed Project;
- To verify that I&APs' issues have been accurately recorded;
- To draw on local knowledge in the process of identifying environmental and social issues associated with the proposed Project, and to involve I&APs in identifying ways in which these can be addressed; and
- To comply with the legal requirements.

The PPP has been designed in four phases as described in the subsequent subsections, namely:

1. Pre-Scoping
2. Scoping
3. Impact Assessment
4. Decision Making
5. Disclosure

5.2 *PHASE 1- PRE-SCOPING PHASE*

- Introduces the proposed Project and its processes to key I&APs; and
- Identifies and consults with key I&APs (Mkhondo and Dr Pixley Kalsaka Seme Municipalities, relevant traditional, regional and national authorities and directly affected landowners).

5.3 *PHASE 2- SCOPING PHASE*

- Officially initiates and notifies the public of the formal ESIA process;
- Invites prospective I&APs to register as I&APs;
- Engages with I&APs to identify issues of concern, suggestions and comments about the proposed Project;
- Makes suggestions for enhanced Project benefits and reasonable alternatives;
- Verifies that issues raised by I&APs have been accurately recorded through a Draft Scoping Report; and
- Defines the Terms of Reference for the ESIA specialist studies to be undertaken in the impact assessment phase.

5.4 *PHASE 3- IMPACT ASSESSMENT PHASE*

This phase will allow I&APs to provide informed comment on the findings of the specialist assessments and proposed mitigation measures.

5.5 *PHASE 4- DECISION MAKING PHASE*

When the lead authority has made a decision stating whether or not the proposed Project may proceed, ERM will inform I&APs of the decision, and the opportunity to appeal the decision, should they wish to.

5.6 *WHO ARE THE I&APs*

One of the key principles informing the PPP is that it should be an inclusive process. Given the location of the proposed Project, as well as the location of the existing mine, it is important that new and existing I&APs are given the opportunity to participate in the process. Notification activities have been designed to ensure that I&APs are invited to be involved in the process.

I&APs were invited to become part of the process in two ways:

- Through notification activities, which were designed to ensure that the broader public were informed of the process and invited to be involved; and
- Through ERM proactively registering I&APs identified as potentially interested or affected through the pre-scoping phase.

Members of the public have been notified and invited to register as I&APs through a series of English, Afrikaans, SePedi, and Tshivenda notification materials as indicated in *Table 5.1*.

Key I&APs in the following I&AP groups have been pre-registered:

- **Government:** Authorising and commenting authorities from selected National, Provincial, District and Local Departments as well as relevant Ward Councillors and elected political representatives;
- **Traditional Authorities;**
- **Directly Affected I&APs:** Landowners and communities;
- **Neighbouring Landowners:** Neighbouring farm owners and communities; and
- **Community Based Organisations (CBOs) and Non-Governmental Organisations (NGOs):** Environmental organisations and social focused organisations.

An I&AP database has been compiled and will continue to be updated throughout the PPP. The existing detailed I&AP database is appended as *Annexure C*.

5.7 PUBLIC PARTICIPATION ACTIVITIES

Table 5.1 below provides details of the public participation activities undertaken during the Scoping Phase of the EIA. Where activities have already been completed, annexures of supporting material are indicated.

Table 5.1 Public Participation Activities

Activity	Details	Reference in DSR
<p>Pre-Scoping Phase</p> <p>Identification of I&APs</p>	<p>An I&AP database was compiled and includes the contact details of:</p> <ul style="list-style-type: none"> • Central and Provincial Government Representatives; • Local Authorities; • Affected and surrounding landowners; • Environmental NGOs; and • Community based organisations. <p>All stakeholder information, including contact details was gathered previously during the NEMA and MPRDA process that was undertaken in 2011 and 2012 and has been updated accordingly. This database will be updated on an on-going basis throughout the project, and will act as a record of the communication/ public involvement process.</p>	<p>Annexure C Stakeholder database</p>
<p>Putting up of site notices</p>	<p>Site notices were placed at a number of conspicuous locations on 19 and 20 September 2014 to announce the Project and advertise the availability of the draft Scoping Report for Public Comment. The notices were displayed for the duration of the 40-day comment period.</p> <p>Site Notices were placed at the following venues:</p> <ul style="list-style-type: none"> • Local Musina Municipal office; • Local Musina Municipal library; • Blouberg Municipality Alldays satellite library; • Musina Spar; • Pontdrift police station; and • Musina tourism centre. 	<p>Annexure B BID, letters, registration and comment sheet, adverts, photology, site notices and meeting minutes.</p>
<p>Project announcement letter and Background Information Document (BID)</p>	<p>A Background Information Document (BID) and notification letter were compiled and made available to I&APs at the following locations on 19-20 September 2014:</p> <ul style="list-style-type: none"> • Local Musina Municipal office; • Local Musina Municipal library; • Blouberg Municipality Alldays satellite library; • Musina Spar; • Pontdrift police station; • Musina tourism centre. <p>The purpose of the BID was to provide stakeholders with background information on the EIA process, the stakeholder engagement process, the rationale for the proposed project and where to find the DSR for comment. The BID included information about the project and invited people to register as stakeholders, and provide the consultants with written comments on the DSR.</p>	<p>Annexure B BID, letters, registration and comment sheet, adverts, photology, site notices and meeting minutes.</p>

Activity	Details	Reference in DSR
Placing of adverts	<p>In terms of the EIA Regulations, as published in 2010, the commencement of the EIA process for the project was advertised in the Northern Review, Limpopo Mirror, Northern Gazette and the Zoutpansberger and the Sowetan News Advert on 19 September 2014.</p> <p>This advert informed the public of the project, details of how to register as an Interested and Affected Party (I&AP) and where to view the DSR should they be interested in commenting.</p> <p>The primary aim of the advertisement was to ensure that the widest possible group of stakeholders were informed of the project, and to elicit comments from the public and the authorities regarding the proposed project.</p>	<p>Annexure B BID, letters, registration and comment sheet, adverts, photolog, site notices and meeting minutes.</p>
Meetings with relevant I&APs	<p>Two pre-scoping meetings were held with authorities, namely:</p> <ul style="list-style-type: none"> • A meeting with the DEA (Luca Mhlango) on 16 July 2014 to discuss the proposed project and understand the Department's requirements and opinion on the project (details of this meeting as well as the minutes thereof, will be presented in the Final Scoping report and EIA); • A meeting with DEDET (Tsepo Maselela) on 24 July 2014 to present the project to the department and discuss a feasible and sustainable approach. The disposal of non-hazardous industrial waste (excluding conveyor belts), such as building rubble, wood, glass etc. on the waste rock dump were also discussed at this meeting. <p>The DEA has also been consulted on numerous other occasions with regard to the WML application and will continue to be kept informed as well as be given the opportunity to comment on the DSR before the submission of the Final Scoping Report (FSR) for their final comment. Once, and only if the FSR is approved, the EIA will commence including a further round of consultation and submissions to the DEA for their comment and approval will be undertaken.</p> <p>The relevant district and local authorities within the vicinity of Venetia will also be consulted in writing with respect to this WML application.</p>	<p>Annexure B BID, letters, registration and comment sheet, adverts, photolog, site notices and meeting minutes.</p>
Obtained comments from I&APs	<p>Comments, issues of concern and suggestions received from I&APs were captured in the Comment and Response Report.</p>	<p>Annexure E CRR</p>
Scoping Phase		
Putting up of site notices	<p>Site notices were placed at a number of conspicuous locations to announce the availability of the draft Scoping Report for Public Comment. The notices were displayed for the duration of the 40-day comment period.</p> <p>Site Notices were placed at the following venues:</p> <ul style="list-style-type: none"> • Local Musina Municipal office; • Local Musina Municipal library; • Blouberg Municipality Alldays satellite library; • Musina Spar; • Pontdrift police station, and 	<p>Annexure D BID, letters, registration and comment sheet, adverts, photolog, site notices and meeting minutes.</p>

Activity	Details	Reference in DSR																																				
Announcement of DSR	<ul style="list-style-type: none"> Musina tourism centre. <p>A DSR announcement letter was sent to all I&APs on the database announcing the availability of the DSR.</p>	<i>Annexure D</i> Scoping phase public participation material																																				
Making DSR available to I&APs	<p>DSR and accompanying documents were placed at the following public places on 26 September 2014:</p> <table border="1" data-bbox="391 353 895 1644"> <thead> <tr> <th>VENUE</th> <th>CONTACT DETAILS</th> <th>CONTACT PERSON</th> <th>ADDRESS</th> </tr> </thead> <tbody> <tr> <td>Local Musina Municipal Library</td> <td>(015) 534 6100</td> <td>Tshepo Duba</td> <td>21 Irwin Street Musina 0900</td> </tr> <tr> <td>Blouberg Municipality Alldays Satellite Library</td> <td>(015) 5751144</td> <td>Vinola Boloka</td> <td>Allday Municipality 28 Serwituu Street All Days 0909</td> </tr> <tr> <td>Musina Post Office</td> <td>(015) 534 2003</td> <td>Ronald Manzere</td> <td>10 Harold Grenffel Street Musina</td> </tr> <tr> <td>Musina Spar</td> <td>(015) 534 0750</td> <td>Thea Muller/Martin</td> <td>6 National Road Musina 0900</td> </tr> <tr> <td>Pontdrift Police Station</td> <td>(015) 5759908</td> <td>Botha</td> <td>Pointdrift Border Post Limpopo</td> </tr> <tr> <td>Musina Municipal Offices</td> <td>(015) 534 6181</td> <td>Mimi Boa</td> <td>21 Irwin Street Musina 0900</td> </tr> <tr> <td>Tourism Center</td> <td>0736079904</td> <td>Milanzi William (Recipient of material)</td> <td>Harold Grenffel Street Musina</td> </tr> <tr> <td>ERM Project Website</td> <td>(021) 6845400</td> <td>Tougheeda Aspeling</td> <td>http://www.erm.com/VenetiaMineEIA</td> </tr> </tbody> </table>	VENUE	CONTACT DETAILS	CONTACT PERSON	ADDRESS	Local Musina Municipal Library	(015) 534 6100	Tshepo Duba	21 Irwin Street Musina 0900	Blouberg Municipality Alldays Satellite Library	(015) 5751144	Vinola Boloka	Allday Municipality 28 Serwituu Street All Days 0909	Musina Post Office	(015) 534 2003	Ronald Manzere	10 Harold Grenffel Street Musina	Musina Spar	(015) 534 0750	Thea Muller/Martin	6 National Road Musina 0900	Pontdrift Police Station	(015) 5759908	Botha	Pointdrift Border Post Limpopo	Musina Municipal Offices	(015) 534 6181	Mimi Boa	21 Irwin Street Musina 0900	Tourism Center	0736079904	Milanzi William (Recipient of material)	Harold Grenffel Street Musina	ERM Project Website	(021) 6845400	Tougheeda Aspeling	http://www.erm.com/VenetiaMineEIA	<i>Annexure D</i> DSR Public Participation material
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Obtain comments from I&APs	<p>DSR public review period: 26 September to 05 October 2014.</p> <p>Comments, issues of concern and suggestions received from I&APs are captured in the Comment and Response Report. Responses have been provided by the EAP, project engineers and DBCM.</p> <p>Any comments received will be included in the Final Scoping Report to be submitted to the Department of Environmental Affairs for their review and comment. Once the FSR is approved by the authorities, stakeholders will be informed of the next phase of stakeholder engagement. It should be noted that I&APs can register at any stage of the process.</p>	<i>Annexure E</i> Comment and Response Report																																				
Making FSR available to I&APs	<p>In line with the EIA Regulations the Final Scoping Report has to be made available for public comment for a period of 21 days before submission to the competent authority.</p> <p>Registered I&APs will be notified by mail/email/sms of the availability of the Final Scoping Report for public comment.</p>	<i>Annexure D</i> FSR Public Participation material																																				
On-going communications	<p>ERM's contact details have been provided on all communications to the public. I&AP's are encouraged to register, obtain information, to raise issues and provide comments on the DSR. These issues and comments will be recorded in the issues register to be included in the Final Scoping Report (FSR).</p>	<i>Not Applicable</i>																																				

The next steps in the process include:

- Submit the Final Scoping Report to the relevant authorities for approval (anticipated date- 10 November 2014) and make available to I&APs; and
- The initiation of the Impact Assessment phase and subsequent compilation of the Draft EIA and EMP (which will be made available for public comment prior to compilation of the Final EIA and EMP) which will be submitted to the DEA for decision- making.

Once the DEA have taken a decision about the proposed Project, the public participation team will immediately notify I&APs of this decision and of the opportunity to appeal. This notification will be provided as follows:

A letter will be sent out to all registered I&APs, summarising the authority's decision and explaining how to lodge an appeal should they wish to; and

An advertisement to announce the Lead Authority's decision will be published in the the 2 pre-selected newspapers.

6.1 INTRODUCTION

A key part of the Scoping Process is a preliminary identification and consideration of the ways in which the project may interact (positively and negatively) with environmental and socio-economic resources or receptors. The impacts that are identified as potentially significant during the screening and scoping process provide focus for the studies for the full Environmental Impact Assessment (EIA).

The proposed project will result in some construction (expansion of the existing WMF), operational and decommissioning/ closure phase impacts. Furthermore, the “legacy” left behind upon decommissioning will also be included in the EIA process. Numerous specialist studies were carried out for the EIA which was approved in 2011/ 2012 and included an in depth analysis and assessment for each of the different phases associated with the Venetia operations and development and will thus also inform the impacts identified as part of the waste licensing application. Furthermore, cumulative impacts will also be identified and assessed, in light of current and reasonably foreseeable developments in the surrounding region.

This Chapter provides a preliminary discussion of the potential environmental and social impacts that may result from the WMF and the proposed disposal of building rubble at Venetia, and how these impacts will later be assessed in the EIA.

6.2 KEY POTENTIAL IMPACTS

The following is a preliminary list of potential impacts that may result from the interaction of waste management activities with environmental and social resources. Potential impacts were identified *without* consideration of mitigation and management actions that the developer will undertake (embedded controls). This was to be able to identify the full scope of potential impacts.

The list below will be further developed in terms of potential extent and magnitude through the EIA process. This will be followed by a detailed impact assessment (See *Section 6.6*). During the process, some impacts may be ‘scoped out’ and removed from the EIA process.

Table 6.1 provides an overview of likely impacts arising from each of the key Project areas and activities.

Table 6.1

Potential Impacts

POTENTIAL ENVIRONMENTAL IMPACT	ACTIVITY/ SOURCE OF POTENTIAL IMPACT		
	CONSTRUCTION PHASE	OPERATIONAL PHASE	Decommissioning Phase
Geology			
Permanent destruction of geological strata	Cut and fill operations		
Dolerite sills influence on groundwater storage, movement and compartmentalisation	Alteration of surface flows	Alteration of surface flows	Alteration of surface flows
Topography			
Alteration of surface topography	The construction of cut off drains and berms	Deposition surface over a large area	Off-site disposal of wastes and demolition/ construction materials
	Surface levelling and earthworks	Storage of wastes within the WMF	Rehabilitation of the WRD
	Soil stripping	Stockpiling of building wastes on the WRD	Rehabilitation of the WMF
	Construction of surface infrastructure		Surface reshaping
Soils			
Soil contamination	Construction of surface infrastructure	Tipping of building rubble	Decommissioning and removal of surface infrastructure from the WMF and WRD
	Surface levelling and earthworks	Spillage, leakage, incorrect storage and handling of chemicals, oils, lubricants, fuel and other hazardous material	Spillage, leakage, incorrect storage and handling of chemicals, oils, lubricants, fuel and other hazardous material
	Establishment of the facility over a large area	Oily rags, material contaminated with oil, diesel or grease, oil filters, empty oil/chemical containers stored in the Red Area.	Oily rags, material contaminated with oil, diesel or grease, oil filters, empty oil/chemical containers
	Spillage, leakage, incorrect storage and handling of chemicals, oils, lubricants, fuel and other hazardous material	Storage of hazardous wastes within the WMF	
	Oily rags, material contaminated with oil, diesel or grease, oil filters, empty oil/chemical containers	Storage of industrial wastes within the WMF	
		Storage of general wastes within the WMF	

POTENTIAL ENVIRONMENTAL IMPACT	ACTIVITY/ SOURCE OF POTENTIAL IMPACT		
	CONSTRUCTION PHASE	OPERATIONAL PHASE	Decommissioning Phase
Soil loss	Compaction of soils	Storage of hazardous wastes within the WMF	Compaction of soils
	Pollution of soils (i.e. hydrocarbons from construction / maintenance vehicles)	Storage of industrial wastes within the WMF	Pollution of soils (i.e. hydrocarbons from construction / maintenance vehicles)
Contaminated soil not suitable for bioremediation (due to levels of contamination)		Storage of general wastes within the WMF	
	Spillage, leakage, incorrect storage and handling of chemicals, oils, lubricants, fuel and other hazardous material	Storage of building wastes on WRD	Spillage, leakage, incorrect storage and handling of chemicals, oils, lubricants, fuel and other hazardous material
		Storage of contaminated spillsorb	
		Spillage, leakage, incorrect storage and handling of chemicals, oils, lubricants, fuel and other hazardous material	
Loss of topsoil	Topsoil stripping and stockpiling of the 'shallow' soils	Spillage, leakage, incorrect storage and handling of chemicals, oils, lubricants, fuel and other hazardous material	Contamination of soils to be used for backfilling of voids and reshaping activities
	Incorrect stockpiling of soils	Contamination of stockpiled soils	Spillage, leakage, incorrect storage and handling of chemicals, oils, lubricants, fuel and other hazardous material
	Contamination of stockpiled soils		
Temporary soil loss	Compaction of soils	Spillage, leakage, incorrect storage and handling of chemicals, oils, lubricants, fuel and other hazardous material	Spillage, leakage, incorrect storage and handling of chemicals, oils, lubricants, fuel and other hazardous material
	Incorrect stockpiling of soils		
	Contamination of stockpiled soils		
Soil erosion	Vegetation stripping	Vehicular movement to and from the WMF and WRD	Off-site disposal of wastes and demolition / construction materials

POTENTIAL ENVIRONMENTAL IMPACT	ACTIVITY/ SOURCE OF POTENTIAL IMPACT		
	CONSTRUCTION PHASE	OPERATIONAL PHASE	Decommissioning Phase
Land Use	Compaction of soils		Rehabilitation of the WRD
	Construction of surface infrastructure		Rehabilitation of the WMF
	Vehicular movement to and from the WMF and WRD		Vehicular movement to and from the WMF and WRD
Change in land use	Establishment of designated areas for the storage of general waste, hazardous waste, and industrial waste within the WMF	The storage of general waste, hazardous waste, and industrial waste within the WMF	Rehabilitation of the WMF and WRD
	Establishment of designated areas for the disposal of , building rubble, demolition and construction waste	The storage of building rubble, demolition and construction waste on the WRD	Return to pre-mining land use of "grazing"
	Upgrade of the WMF and WRD		
Land Capability			
		The storage of general waste, hazardous waste, and industrial waste within the WMF	Rehabilitation of the WMF and WRD
		The storage of building rubble, demolition and construction waste on the WRD	Return to pre-mining land capability of "Wilderness"
Hydrology			
	Alteration of surface water drainage patterns causing run-off to be impeded or entrained	Alteration of surface water drainage patterns causing run-off to be impeded or entrained	Alteration of surface water drainage patterns causing run-off to be impeded or entrained
	Dirty surface water runoff	Dirty surface water runoff	Dirty surface water runoff
	Spills/ leaks associated with vehicles	The storage of general waste, hazardous waste, and industrial waste within the WMF	Surface water contamination from spills/ leaks associated with construction vehicles

POTENTIAL ENVIRONMENTAL IMPACT	ACTIVITY/ SOURCE OF POTENTIAL IMPACT		
	CONSTRUCTION PHASE	OPERATIONAL PHASE	Decommissioning Phase
Reduction in catchment areas			
		The storage of building rubble, demolition and construction waste on the WRD	Spills/ leaks associated with vehicles
	Spillage, leakage, incorrect storage and handling of chemicals, oils, lubricants, fuel and other hazardous material	Spills/ leaks associated with maintenance vehicles	Spillage, leakage, incorrect storage and handling of chemicals, oils, lubricants, fuel and other hazardous material
	Contaminated seepage from pit latrines and septic tanks	Spillage, leakage, incorrect storage and handling of chemicals, oils, lubricants, fuel and other hazardous material.	Contaminated seepage from pit latrines and septic tanks
		Re-use and Recycling activities	Decommissioning and rehabilitation of the WMF
		Treatment of hazardous waste	Decommissioning and rehabilitation of the WRD
		Spillage, leakage, incorrect storage and handling of chemicals, oils, lubricants, fuel and other hazardous material	
		Sorting, shredding, grinding, crushing, screening or bailing of wastes	
		Contaminated seepage from pit latrines and septic tanks	
		Containment of runoff	
Increase in flood potential	Creation of new or changed landforms	The storage of general waste, hazardous waste, and industrial waste within the WMF	Decommissioning and rehabilitation of the WMF
	Temporary storage of building waste	The storage of building rubble, demolition and construction waste on the WRD	Decommissioning and rehabilitation of the WRD

POTENTIAL ENVIRONMENTAL IMPACT	ACTIVITY/ SOURCE OF POTENTIAL IMPACT		
	CONSTRUCTION PHASE	OPERATIONAL PHASE	Decommissioning Phase
Impact on wetlands	No potential negative impacts on the wetlands	No potential negative impacts on the wetlands	Creation of new or changed landforms No potential negative impacts on the wetlands
Hydrogeology			
Loss/ Contamination of groundwater for domestic use and livestock watering	Spillage, leakage, incorrect storage and handling of chemicals, oils, lubricants, fuel and other hazardous material	Spillage, leakage, incorrect storage and handling of chemicals, oils, lubricants, fuel and other hazardous material	Spillage, leakage, incorrect storage and handling of chemicals, oils, lubricants, fuel and other hazardous material
	Spills/ leaks associated with vehicles	The storage of general waste, hazardous waste, and industrial waste within the WMF	Spills/ leaks associated with vehicles
		The storage of building rubble, demolition and construction waste on the WRD	
		Spills/ leaks associated with maintenance vehicles	
Contamination of groundwater	Spillage, leakage, incorrect storage and handling of chemicals, oils, lubricants, fuel and other hazardous material.	Spillage, leakage, incorrect storage and handling of chemicals, oils, lubricants, fuel and other hazardous material.	Spillage, leakage, incorrect storage and handling of chemicals, oils, lubricants, fuel and other hazardous material.
	Spills/ leaks associated with vehicles	The storage of general waste, hazardous waste, and industrial waste within the WMF	Spills/ leaks associated with vehicles
		The storage of building rubble, demolition and construction waste on the WRD	
Flora			
Loss of vegetation and habitat loss	Clearing of vegetation	Liquid and aerial discharges	Demolition and decommissioning activities and vehicular movement on site
	Construction activities and vehicular movement on site	The storage of general waste, hazardous waste, and industrial waste within the WMF	

POTENTIAL ENVIRONMENTAL IMPACT	ACTIVITY/ SOURCE OF POTENTIAL IMPACT		
	CONSTRUCTION PHASE	OPERATIONAL PHASE	Decommissioning Phase
Propagation of alien invasive species			
		The storage of building rubble, demolition and construction waste on the WRD	
	Establishment of the WMF and associated infrastructure	The storage of general waste, hazardous waste, and industrial waste within the WMF	Demolition and decommissioning activities and vehicular movement on site
	Clearing of vegetation	The storage of building rubble, demolition and construction waste on the WRD	
Alien invasive species eradication	Establishment of the WMF and associated infrastructure	Site maintenance	Site rehabilitation and re-vegetation
	Clearing of vegetation		
Fauna			
Disturbance of avi-fauna/ mammals/ reptiles/ amphibians	Clearing of vegetation	Liquid and aerial discharges	Demolition and decommissioning activities and vehicular movement on site
	Construction activities	Shredding, chipping and mulching of wood in the hammer mill	Site rehabilitation and revegetation
		The storage of general waste, hazardous waste, and industrial waste within the WMF	
		The storage of building rubble, demolition and construction waste on the WRD	
	Clearing of vegetation	Liquid and aerial discharges	Spillage, leakage, incorrect storage and handling of chemicals, oils, lubricants, fuel and other hazardous material.
	Habitat destruction	Spillage, leakage, incorrect storage and handling of chemicals, oils, lubricants, fuel and other hazardous material.	Spills/ leaks associated with vehicles
	Spills/ leaks associated with vehicles		

POTENTIAL ENVIRONMENTAL IMPACT	ACTIVITY/ SOURCE OF POTENTIAL IMPACT		
	CONSTRUCTION PHASE	OPERATIONAL PHASE	Decommissioning Phase
Safety and security		The storage of general waste, hazardous waste, and industrial waste within the WMF	Change in land use
	Influx of people seeking employment	Percieved social ills	Influx of people seeking employment
	Percieved social ills	Transportation of wastes off-site	Percieved social ills
Odour	Chemical toilets on site	The storage of building rubble, demolition and construction waste on the WRD	Chemical toilets on site
		The storage of general waste, hazardous waste, and industrial waste within the WMF	
		Release of hazardous pollutant from clinical and chemical waste	
		Incineration activities	
Employment Opportunities	Temporary job creation	Job creation	Temporary job creation Job Losses
Population changes	Influx of people seeking employment		Influx of people seeking employment
Sites of Cultural and Archaeological Importance			
Disturbance of grave/ sites of cultural significance	Site preparation, earthworks and construction activities	The storage of building rubble, demolition and construction waste on the WRD	Demolition and rehabilitation of WRD and WMF
	Site preparation, earthworks and construction activities	The storage of general waste, hazardous waste, and industrial waste within the WMF	Surface reshaping

7 PLAN OF STUDY FOR EIA

This chapter describes the manner in which ERM intends to undertake the investigations necessary for the preparation of the EIA. The investigations will be structured around the issues examined in *Section 6.2*.

The purpose of the Impact Assessment Phase of an EIA is:

- to address issues that have been raised during the Scoping Phase;
- address alternatives to the proposed activity in a comparative manner;
- address all identified impacts and determine the significance of each impact; and
- formulate mitigation measures.

A number of acceptable approaches and methodologies exist according to which the above purposes can be achieved. Neither the South African EIA legislation, nor the accompanying guideline documents, prescribes a detailed methodology for the assessment of impacts. The framework guides practitioners by setting out the following general methodological requirements:

- a clear process for impact identification, prediction and evaluation;
- the specification of impact identification techniques;
- criteria for evaluating the significance of impacts;
- the design of mitigation measures to address impacts;
- defining types of impacts (direct, indirect, cumulative); and
- specification of uncertainties.

The following key potential impacts as identified in *Section 6.2* will be further assessed in the EIA.

7.1 TERMS OF REFERENCE FOR SPECIALIST STUDIES

7.1.1 *Surface Water*

There is the potential for an impact on the surface water quality due to contaminated run off carrying contamination from the waste management areas.

A desktop study will be conducted during the EIA phase to identify any potential sensitive surface water in the vicinity of either of the areas requiring licensing under the Waste Act. This will also be done in conjunction with the

engineering studies for the Stormwater Management Plan (SWMP) and any other relevant studies.

Existing hydrological data will be used and updated as required.

7.1.2 *Groundwater*

There is the potential for an impact on the groundwater quality due to the release/ spills of various hazardous and non-hazardous substances from the waste management areas.

The potential impacts will however, be assessed by carrying out a desktop study during the EIA phase to identify if there are any potentially significant impacts or potential sensitive groundwater/ aquifers in the vicinity of either of the areas requiring licensing under the Waste Act.

Existing hydrogeological data will be used and updated as required.

7.1.3 *Air Quality*

There is the potential for air quality impacts caused by the dispersal of various types of waste due to windy conditions as well as by various scavenging animals eg baboons, as well as the possibility of dust being generated by delivery vehicles moving the various waste streams from the point of generation to the WMF, including the dumping of rubble and other building materials.

The potential impacts will however, be assessed by carrying out a desktop study during the EIA phase to identify if there are any potentially significant impacts. Existing air quality data will be used and updated as required.

7.1.4 *Noise*

There is some potential for noise generation due to the use of various types of machinery that will be used at the WMF eg the hammer mill for wood chipping and mulching.

The potential impacts will however, be assessed by carrying out a desktop study during the EIA phase to identify if there are any potentially significant impacts. Existing noise data will be used and updated as required.

7.1.5 *Waste Management Strategy*

A Waste Management Strategy (WMS) will be generated for the Venetia WMF in which the best practical waste management options for the different waste streams will be considered. Reasonable targets and objectives will be set to realise immediate waste improvement objectives and to allow for continual waste management improvements in future.

The process for the Waste Management Strategy can be summarised as follows:

1. Establishing Venetia's needs and expectations in terms of waste management.
2. Review of the status quo situation at Venetia in terms of waste management. This includes:
 - identification of strategic waste areas;
 - confirmation of waste streams and volumes (waste survey/inventory); and
 - review of current management practices and procedures.
3. Review of applicable waste related legislation.
4. Review of waste management and mitigation options which includes identification of the following:
 - logistical implications;
 - human resource implications;
 - cost implications;
 - legislative implications; and
 - engineering implications.
5. Conducting a cost benefit analysis comprising of the following:
 - Cost Benefit Analysis (CBA);
 - Legal Compliance Improvement; and
 - Reputational benefit (for example, social upliftment projects).
6. Conducting a Gap Analysis. This entails a mitigatory session in order to address gaps identified during Steps 4 and 5.
7. Establishing waste management objectives, targets and implementation timeframes (short-term and long-term goals).
8. Developing waste management system components (i.e. updating waste management procedures).
9. Developing a Waste Management Plan (WMP) and internal waste audit checklist.
10. Compiling a Waste Management Strategy (WMS) Report.

7.2

STAKEHOLDER ENGAGEMENT

Once compiled, the Draft EIA document will be available for comment to registered stakeholders and the relevant authorities. The FEIA will then be compiled and submitted to the DEA for decision-making.

The adequate assessment and evaluation of the potential impacts and benefits that will be associated with the proposed Project necessitates the development of a methodology that will reduce the subjectivity involved in making such evaluations. A clearly defined methodology is used in order to accurately determine the significance of the predicted impact on, or benefit to, the surrounding natural and/or social environment. For this the Project must be considered in the context of the area and the people that will be affected. The Area of Influence will be defined in the EIA.

Nonetheless, an impact assessment will always contain a degree of subjectivity, as it is based on the value judgment of various specialists and EIA practitioners. The evaluation of significance is thus contingent upon values, professional judgment, and dependent upon the environmental and community context. Ultimately, impact significance involves a process of determining the acceptability of a predicted impact to society.

The purpose of impact assessment is to identify and evaluate the likely significance of the potential impacts on identified receptors and resources according to defined assessment criteria, to develop and describe measures that will be taken to avoid, minimize, reduce or compensate for any potential adverse environmental effects, and to report the significance of the residual impacts that remain following mitigation. There are a number of ways that impacts may be described and quantified.

7.3.1

Impact Identification and Characterisation

An 'impact' is any change to a resource or receptor brought about by the presence of a project component or by a project-related activity. In this assessment, the impacts are described in terms of their characteristics, including the impact's type and the impact's spatial and temporal features (namely extent, duration, scale and frequency). While an impact assessment typically focuses on the negative impacts, an impact can also be positive. The definitions of these terms used in this EIA are described in *Table 7.1*.

Table 7.1 Impact Characteristic Terminology

Characteristic	Definition	Terms
Type	A descriptor indicating the relationship of the impact to the Project (in terms of cause and effect).	<p>Direct - Impacts that result from a direct interaction between the Project and a resource/receptor (eg, between occupation of a plot of land and the habitats which are affected).</p> <p>Indirect - Impacts that follow on from the direct interactions between the Project and its environment as a result of subsequent interactions within the environment (eg, viability of a species population resulting from loss of part of a habitat as a result of the Project occupying a plot of land).</p> <p>Induced - Impacts that result from other activities (which are not part of the Project) that happen as a consequence of the Project.</p> <p>Cumulative - Impacts that arise as a result of an impact and effect from the Project interacting with those from another activity to create an additional impact and effect.</p>
Duration	The time period over which a resource / receptor is affected.	<p>Temporary - (period of less than 3 years -negligible/ pre-construction/ other).</p> <p>Short term - (period of less than 5 years ie production ramp up period).</p> <p>Long term - (period of more than 5 years and less than 19 years ie life of plant).</p> <p>Permanent - (a period that exceeds the life of plant – ie irreversible.).</p>
Extent	The reach of the impact (ie physical distance an impact will extend to)	<p>On-site - impacts that are limited to the Project site.</p> <p>Local - impacts that are limited to the Project site and adjacent properties.</p> <p>Regional - impacts that are experienced at a regional scale.</p> <p>National - impacts that are experienced at a national scale.</p> <p>Trans-boundary/International - impacts that are experienced outside of South Africa.</p>
Scale	Quantitative measure of the impact (eg the size of the area damaged or impacted, the fraction of a resource that is lost or affected, etc.).	Quantitative measures as applicable for the feature or resources affects. No fixed designations as it is intended to be a numerical value.
Frequency	Measure of the constancy or periodicity of the impact.	No fixed designations; intended to be a numerical value or a qualitative description.

An additional characteristic that pertains to unplanned events (eg incidents, spills) is likelihood (*Table 7.2*). The likelihood of an unplanned event occurring is determined qualitatively, or when data is available, semi-

quantitatively. Likelihood is estimated on the basis of experience and/or evidence that such an outcome has previously occurred. It is also important to distinguish that likelihood is a measure of the degree to which the unplanned event is expected to occur, not the degree to which an impact or effect is expected to occur as a result of the unplanned event.

Table 7.2 *Definitions for Likelihood*

Likelihood	Definition
Unlikely	The event is unlikely but may occur at some time during normal operating conditions.
Possible	The event is likely to occur at some time during normal operating conditions.
Likely	The event will occur during normal operating conditions (ie, it is essentially inevitable).

7.3.2 *Determining Impact Magnitude*

Once an impact’s characteristics are defined, the next step in the impact assessment phase is to assign each impact a ‘magnitude’. Magnitude is typically a function of some combination (depending on the resource/receptor in question) of the following impact characteristics:

- extent
- duration
- scale
- frequency

Magnitude (from small to large) is in practice a continuum, and evaluation along the spectrum requires the exercise of professional judgement and experience. Each impact is evaluated on a case-by-case basis, and the rationale for each determination is noted. The universal magnitude designations, for negative effects, are: negligible, small, medium and large. The magnitude designations themselves are universally consistent, but the definition for the designations varies by issue. In the case of a positive impact, no magnitude designation has been assigned as it is considered sufficient for the purpose of the impact assessment to indicate that the Project is expected to result in a positive impact.

The magnitude of an impact takes into account the various dimensions of a particular impact in order to make a determination as to where the impact falls on the spectrum from negligible to large. Some impacts will result in changes to the environment that may be immeasurable, undetectable or within the range of normal natural variation. Such changes can be regarded as essentially having no impact, and are characterised as having a negligible magnitude.

In the case of impacts resulting from unplanned events, the same resource/receptor-specific approach to concluding a magnitude designation is utilised.

The likelihood factor is also considered, together with the other impact characteristics, when assigning a magnitude designation.

Determining Magnitude for Biophysical Impacts

For biophysical impacts, the semi-quantitative definitions for the spatial and temporal dimension of the magnitude of impacts used in this assessment are provided below:

High Magnitude Impact affects an entire area, system (physical), aspect, population or species (biological) and at sufficient magnitude to cause a significant measurable numerical increase in measured concentrations or levels (to be compared with legislated or international limits and standards specific to the receptors) (physical) or a decline in abundance and/ or change in distribution beyond which natural recruitment (reproduction, immigration from unaffected areas) would not return that population or species, or any population or species dependent upon it, to its former level within several generations (physical and biological). A high magnitude impact may also adversely affect the integrity of a site, habitat or ecosystem.

Moderate Magnitude Impact affects a portion of an area, system, aspect (physical), population or species (biological) and at sufficient magnitude to cause a measurable numerical increase in measured concentrations or levels (to be compared with legislated or international limits and standards specific to the receptors) (physical) and may bring about a change in abundance and/or distribution over one or more plant/animal generations, but does not threaten the integrity of that population or any population dependent on it (physical and biological). A moderate magnitude impact may also affect the ecological functioning of a site, habitat or ecosystem but without adversely affecting its overall integrity. The area affected may be local or regional.

Low Magnitude Impact affects a specific area, system, aspect (physical), group of localized individuals within a population (biological) and at sufficient magnitude to result in a small increase in measured concentrations or levels (to be compared with legislated or international limits and standards specific to the receptors) (physical) over a short time period (one plant/animal generation or less, but does not affect other trophic levels or the population itself), and localized area.

Determining Magnitude for Socioeconomic Impacts

For socioeconomic impacts, the magnitude considers the perspective of those affected by taking into account the likely perceived importance of the impact, the ability of people to manage and adapt to change and the extent to which a human receptor gains or loses access to, or control over socio-economic resources resulting in a positive or negative effect on their well-being. The quantitative elements are included into the assessment through the designation and consideration of scale and extent of the impact.

Determining Receptor Sensitivity

In addition to characterising the magnitude of impact, the other principal step necessary to assign significance for a given impact is to define the sensitivity of the receptor. There are a range of factors to be taken into account when defining the sensitivity of the receptor, which may be physical, biological, cultural or human. Where the receptor is physical (for example, a water body) its current quality, sensitivity to change, and importance (on a local, national and international scale) are considered. Where the receptor is biological or cultural (i.e. the marine environment or a coral reef), its importance (local, regional, national or international) and sensitivity to the specific type of impact are considered. Where the receptor is human, the vulnerability of the individual, community or wider societal group is considered. As in the case of magnitude, the sensitivity designations themselves are universally consistent, but the definitions for these designations will vary on a resource/receptor basis. The universal sensitivity of receptor is low, medium and high.

For ecological impacts, sensitivity is assigned as low, medium or high based on the conservation importance of habitats and species. For habitats, these are based on naturalness, extent, rarity, fragility, diversity and importance as a community resource. For the sensitivity of individual species, *Table 7.3* presents the criteria for deciding on the value or sensitivity of individual species.

For socio-economic impacts, the degree of sensitivity of a receptor is defined as the level of resilience (or capacity to cope) with sudden social and economic changes. The sensitivity of a resource is based on its quality and value/importance, for example, by its local, regional, national or international designation, its importance to the local or wider community, or its economic value. *Table 7.3* and *Table 7.4* present the criteria for deciding on the value or sensitivity of biological and socioeconomic receptors.

Table 7.3 *Biological and Species Value / Sensitivity Criteria*

Value / Sensitivity	Low	Medium	High
Criteria	Not protected or listed as common / abundant; or not critical to other ecosystem functions (e.g. key prey species to other species).	Not protected or listed but may be a species common globally but rare in South Africa with little resilience to ecosystem changes, important to ecosystem functions, or one under threat or population decline.	Specifically protected under South African legislation and/or international conventions e.g. CITIES Listed as rare, threatened or endangered e.g. IUCN

Note: The above criteria should be applied with a degree of caution. Seasonal variations and species lifecycle stage should be taken into account when considering species sensitivity. For example, a population might be deemed as more sensitive during the breeding/spawning and nursery periods. This table uses listing of species (e.g. IUCN) or protection as an indication of the level of threat that this species experiences within the broader ecosystem (global, regional, local). This is used to provide a judgement of the importance of affecting this species in the context of project-level changes.

Table 7.4 Socio-economic Sensitivity Criteria

Sensitivity	Low	Medium	High
Criteria	Those affected are able to adapt with relative ease and maintain pre-impact status.	Able to adapt with some difficulty and maintain pre-impact status but only with a degree of support.	Those affected will not be able to adapt to changes and continue to maintain pre-impact status.

7.3.4 Assessing Significance

Once magnitude of impact and sensitivity of a receptor have been characterised, the significance can be determined for each impact. The impact significance rating will be determined, using the matrix provided in Figure 7.1.

Figure 7.1 Impact Significance

		Sensitivity/Vulnerability/Importance of Resource/Receptor		
		Low	Medium	High
Magnitude of Impact	Negligible	Negligible	Negligible	Negligible
	Small	Negligible	Minor	Moderate
	Medium	Minor	Moderate	Major
	Large	Moderate	Major	Major

The matrix applies universally to all resources/receptors, and all impacts to these resources/receptors, as the resource/receptor-specific considerations are factored into the assignment of magnitude and sensitivity/vulnerability/importance designations that enter into the matrix. Box 7.1 provides a context for what the various impact significance ratings signify.

An impact of **negligible** significance is one where a resource/receptor (including people) will essentially not be affected in any way by a particular activity or the predicted effect is deemed to be 'imperceptible' or is indistinguishable from natural background variations.

An impact of **minor** significance is one where a resource/receptor will experience a noticeable effect, but the impact magnitude is sufficiently small and/or the resource/receptor is of low sensitivity/ vulnerability/ importance. In either case, the magnitude should be well within applicable standards.

An impact of **moderate** significance has an impact magnitude that is within applicable standards, but falls somewhere in the range from a threshold below which the impact is minor, up to a level that might be just short of breaching a legal limit. Clearly, to design an activity so that its effects only just avoid breaking a law and/or cause a major impact is not best practice. The emphasis for moderate impacts is therefore on demonstrating that the impact has been reduced to a level that is as low as reasonably practicable (ALARP). This does not necessarily mean that impacts of moderate significance have to be reduced to minor, but that moderate impacts are being managed effectively and efficiently.

An impact of **major** significance is one where an accepted limit or standard may be exceeded, or large magnitude impacts occur to highly valued/sensitive resource/receptors. An aim of IA is to get to a position where the Project does not have any major residual impacts, certainly not ones that would endure into the long-term or extend over a large area. However, for some aspects there may be major residual impacts after all practicable mitigation options have been exhausted (i.e. ALARP has been applied). An example might be the visual impact of a facility. It is then the function of regulators and stakeholders to weigh such negative factors against the positive ones, such as employment, in coming to a decision on the Project.

7.3.5

Mitigation Potential and Residual Impacts

One of the key objectives of an EIA is to identify and define socially, environmentally and technically acceptable and cost effective measures to manage and mitigate potential impacts. Mitigation measures are developed to avoid, reduce, remedy or compensate for potential negative impacts, and to enhance potential environmental and social benefits.

In keeping with the mitigation hierarchy, the priority is to first apply mitigation measures to the source of the impact (ie to avoid or reduce the magnitude of the impact from the associated Project activity), and then to address the resultant effect to the resource/receptor via abatement or compensatory measures or offsets (ie to reduce the significance of the effect once all reasonably practicable mitigations have been applied to reduce the impact magnitude).

Once mitigation measures are declared, the next step in the impact assessment process is to assign residual impact significance. This is essentially a repeat of the impact assessment steps discussed above, considering the assumed implementation of the additional declared mitigation measures. The approach taken to defining mitigation measures is based on a typical hierarchy of decisions and measures, as described in *Table 7.5*.

Table 7.5 Mitigation Hierarchy

<p>Avoid at Source; Reduce at Source: avoiding or reducing at source through the design of the Project (e.g. avoiding by siting or re-routing activity away from sensitive areas or reducing by restricting the working area or changing the time of the activity).</p>
<p>Abate on Site: add something to the design to abate the impact (e.g. pollution control equipment).</p>
<p>Abate at Receptor: if an impact cannot be abated on-site then control measures can be implemented off-site (e.g. traffic measures).</p>
<p>Repair or Remedy: some impacts involve unavoidable damage to a resource (e.g. material storage areas) and these impacts require repair, restoration and reinstatement measures.</p>
<p>Compensate in Kind; Compensate Through Other Means where other mitigation approaches are not possible or fully effective, then compensation for loss, damage and disturbance might be appropriate (e.g. financial compensation for degrading agricultural land and impacting crop yields).</p>

7.3.6 Residual Impact Assessment

Once mitigation measures are declared, the next step in the impact assessment process is to assign residual impact significance. This is essentially a repeat of the impact assessment steps discussed above, considering the assumed implementation of the additional declared mitigation measures.

7.3.7 Cumulative Impacts

A cumulative impact is one that arises from a result of an impact from the Project interacting with an impact from another activity to create an additional impact. How the impacts and effects are assessed is strongly influenced by the status of the other activities (eg already in existence, approved or proposed) and how much data is available to characterize the magnitude of their impacts.

The approach to assessing cumulative impacts is to screen potential interactions with other projects on the basis of:

- projects that are already in existence and are operating;
- projects that are approved but not as yet built or operating; and
- projects that are a realistic proposition but are not yet built.

7.4 PROPOSED STRUCTURE OF THE EIA REPORT

An outline of the proposed contents of the main volume of the EIA report is provided in *Table 7.6*. The content may change through the evolution of the project but it is anticipated to accord broadly within the suggested framework.

Table 7.6 Proposed EIA Report Structure

Chapter Number	Contents Heading	Explanatory Note
Executive Summary		Summary of the entire EIA report.
1	Introduction	This <i>Chapter</i> will outline the development and structure of the EIA report including the background, terms of reference and declaration.
2	Legal Framework	This <i>Chapter</i> will outline the policy, legal and institutional framework within which the EIA has been conducted.
3	Description of the Environment	This <i>Chapter</i> will summarize the available baseline data on the environmental and social resources and receptors within the Facility Project Study Area. It will be based on both primary and secondary data sources and will consider changes in the baseline condition without the development in place.
4	Project Description	This <i>Chapter</i> will provide a concise description of the project and its geographical and temporal context. It will include a site description, an overview of the Facility Project design and details of project inputs and outputs.
5	Public Participation Process	This <i>Chapter</i> will present the results of consultation undertaken as part of the EIA, plus plans for future consultation. It will identify key project stakeholders and present their feedback on the Project.
6	Impact Assessment Methodology	This <i>Chapter</i> will summarize the methodology used to assess the impacts of the Project on the bio-physical, terrestrial and socio-economic environment.
7	Impact Assessment	This <i>Chapter</i> will summarize the predicted positive and negative impacts of the Project. Cumulative impacts will be assessed as appropriate.
8	Mitigation, Management and Monitoring	This <i>Chapter</i> will outline general and specific mitigation measures to reduce, remove or avoid negative impacts to environmental and social receptors as well as measuring for monitoring these impacts. Any residual impacts (post mitigation) will be outlined.
9	Environmental Management Plan (EMP)	The EMP will draw together the possible mitigation measures; group them logically into components with common themes; define the specific actions required and timetable for implementation; identify training needs, institutional roles and responsibilities for implementation; and estimate the costs of the measures.
9	Conclusion	This <i>Chapter</i> will summarize conclusions that are made based on the assessment as well as outline any further recommendations.
Bibliography & References		All references made in the report and documents drawn upon during the course of the assessment
Annexes		These will include technical annexes with details of specific technical surveys, the bibliography and list of acronyms.

The EIA will present and describe the impacts of the proposed Project (and their significance) and how these will be further reduced through measures incorporated into the engineering and design of the proposed Project. This will be included in the Environmental Management Plan (EMP) for those key issues identified. An EMP is a requirement of *Section 33* of the EIA Regulations, and will comprise recommendations for on-site use during the construction phase and for ongoing management and monitoring during the operational phase of the proposed Project. For each issue and impact identified in the EIA, the EMP will provide clear guidelines for monitoring, analysis of results, interpretation of results and reporting of results to management.

A draft EMP will be compiled on conclusion of the EIA process detailed above. The EMP will contain all necessary information as stipulated in *Sections 28, 31, 32 and 33* of the EIA Regulations (contents of scoping reports, EIA Reports, EMPs, and Specialist Reports).

The draft EMP will be made available to all registered I&APs for a 60 day comment period. Any additional comments received will be addressed and included in the final EMP which will be submitted to the DEA with the final EIA for decision.

8.1**CONCLUSION**

Venetia has been using the current Waste Management Facility since approximately 2007 for the control and management of all waste streams on Venetia. All waste generated on site, beside that generated in the Red Area at some stage either passes through the WMF or is stored there. Venetia, in order to be compliant with the current NEMWA and relevant Regulations and Norms and Standards, wishes to license this WMF as well as the proposed disposal of inert (construction and demolition building rubble) waste in a designated area within the WMF. As such the EIA process is being undertaken to identify and assess potential impacts due to the construction/ expansion, operation and later decommissioning and closure of the existing WMF and inert waste disposal area.

The Project thus being applied for as part of this EIA/ Scoping process is the licensing by the relevant Authority for:

- The expansion of and current operations at the Waste Management Facility; and
- The disposal of inert waste (building rubble and other construction and demolition waste) to the WMF.

The DSR presents a description of the proposed project and also identifies a number of key issues/potential impacts that are expected as a result of this application process. These will form the focus of the EIA phase of the assessment. The Plan of Study (PoS) for the EIA has been included in *Section 6.3*.

8.2**WAY FORWARD**

The DSR (this document) is now out for the required 40 day public comment period (26 September 2014 to 05 October 2014), after which any comments on the report will be taken into consideration and any amendments to the report made. These comments will be included in a Comments and Responses Report to be included in the FSR. The document will then be finalised and the FSR will be submitted to the DEA for approval. Once the FSR has been approved by the authorities, stakeholders will be informed of the next phase of stakeholder engagement.

The Scoping process is followed by the EIA process which will include the compilation of an EIA. The Draft EIA will be presented to I&AP's and made available for a further 40 day public review period before it is finally submitted to the DEA for their decision making.

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