

# WASTE MANAGEMENT PLAN (WMP) FOR THE HAGA HAGA WIND ENERGY FACILITY, EASTERN CAPE PROVINCE, SOUTH AFRICA

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**IMPORTANT NOTE: ALL READERS TO PLEASE FAMILIARISE THEMSELVES WITH THE RELEVANT TERMINOLOGY CONTAINED IN THE GLOSSARY (APPENDIX A) PRIOR TO READING THIS DOCUMENT.**

## 1 TERMS OF REFERENCE

This Waste Management Plan (hereinafter referred to as a “WMP”) is designed in accordance with the Provincial Department of Environmental Affairs and Development Planning (hereinafter referred to as the “DEA&DP”) Industry Waste Management Plan Guidelines (2011) – Best Practice Guideline.

Fabio Venturi, through Terramanzi Group (Pty) Ltd is responsible for this Report and has a wealth of strategic environmental assessment and environmental management expertise in both government and the private sectors, stretching over a decade within the industry.

Fabio Venturi is a **certified Environmental Scientist** registered with the Southern African Institute of Ecologists and Environmental Scientists (SAIEES), served on the Western Cape **Committee** Branch of the South African Affiliate of the International Association for Impact Assessment (IAIASa) and the National Executive, is a **founding member** of the Environmental Assessment Practitioners Association of South Africa (EAPASA),, is a **Certified Carbon Footprint Analyst** and **Energy Efficiency Auditor** and is qualified as an **Accredited Professional** (AP) with the **Green Building Council of South Africa** (GBCSA).

Terramanzi Group (Pty) Ltd (“TMG”) hereby declares that they have no conflicts of interest related to the work of this Report. Specifically, TMG declares that they have no personal financial interests in the property and/or activity being assessed in this report, and that they have no personal or financial connections to the relevant property owners, developers, planners, financiers or consultants of the property or activity, other than fair remuneration for professional services rendered for this Report to the Competent Authority. TMG declares that the opinions expressed in this Report are independent and a true reflection of their professional expertise.

## 2 INTRODUCTION

Haga Wind Energy Facility RF (Pty) Ltd (hereinafter referred to as the “Applicant”) wishes to establish a Wind Energy Facility (hereinafter referred to as a “WEF”) targeting a maximum installed capacity of 150 megawatts (million watts or MW) across various land parcels located in Great Kei Local Municipality (LM), which lies just inland of the coastal hamlets of Haga, Morgan’s Bay and Kei Mouth, South Africa (hereinafter referred to as the “Site”) and which is detailed further in this Environmental Impact Assessment (hereinafter referred to as “EIA”) Report.

The total area of the site equates to approximately 8884 hectares (or ha) of land of which approximately 80ha has been earmarked for the developments. Please refer to Table 1.1 and Figure 1.1, which shows the land parcels involved in the development.

**Table 1.1: this table details the specific land parcels which make up the “site” for the Project.**

LAND PORTIONS ASSOCIATED WITH THE PROJECT
Farm 112, Komga
Farm 113, Komga
Farm 131, Komga
Farm 133, Komga
Farm 134, Komga
Farm 135, Komga
Farm 136, Komga
Farm 137, Komga
Farm 138, Komga
Farm 139, Komga
Farm 140, Komga
Farm 141, Komga
Farm 142, Komga
Farm 143, Komga
Farm 226, Komga
Farm 227, Komga
Farm 228, Komga
Farm 229, Komga
Farm 230, Komga
Farm 231, Komga
Farm 232, Komga
Farm 233, Komga
Farm 236, Komga
Farm 237, Komga
Farm 238, Komga
Farm 239, Komga
Portion 2 of Farm 240, Komga
Farm 242, Komga
Farm 243, Komga
Farm 244, Komga
Farm 245, Komga
Farm 248, Komga
Farm 254, Komga
Farm 255, Komga
Farm 256, Komga
Remainder of Farm 268, Komga
Farm 270, Komga
Farm 272, Komga
Farm 280, Komga
Farm 281, Komga
Farm 283, Komga
Farm 446, Komga
Remainder of Farm 447, Komga
Farm 452, Komga
Portion 1 of Farm 115, Komga
Portion 1 of Farm 253, Komga

Portion 1 of Farm 271, Komga
Portion 2 of Farm 71, Komga
Portion 6 of Farm 282, Komga
Portion 7 of Farm 282, Komga
Remainder of Farm 115, Komga
Remainder of Farm 132, Komga
Remainder of Farm 241, Komga

This WMP is a site-specific plan designed for the construction of the wind energy facility.

This WMP aims to achieve the following prescriptive requirements:

- A description of **how waste is generated** on site (Section 2 of this WMP);
- A description of **which types of waste will be collected** for recycling and reuse (Section 3 of this WMP);
- The **methodology used for recycling and reuse** of waste (Section 4 of this WMP)
- A description of the **roles and responsibilities** for the various aspects of the plan (Section 5 of this WMP);
- **Instructions to construction to crew and sub-contractors** on the recycling and reuse procedure as set out by this WMP (Section 6 of this WMP).
- **Monitoring** of waste, which includes submitting quarterly reports, which specify all categories of waste (wood, metal, concrete, general etc.) with the corresponding quantities and indicating how they were reused and recycled as indicated by Man-7 Waste Management Credit (Section 6 of this WMP).

In terms of the DEA&DP Industry Waste Management Plan Guidelines (March 2011): *“waste management options for a particular waste are best considered according to the waste management hierarchy approach which reflects the relative sustainability of each of the options. One of the key principles underlying the waste management hierarchy is to ensure that waste is dealt with as high up the hierarchy as possible. Since all waste management options have some impact on the environment, the only the way to avoid impact is to not produce waste in the first place and waste prevention/avoidance reduction is therefore at the top of the hierarchy. Minimisation of waste through re-use and recycling followed by recovery techniques (treatment, composting and generating energy from waste) follow, while disposal to landfill (the least favourable) is the bottom of the hierarchy”.*

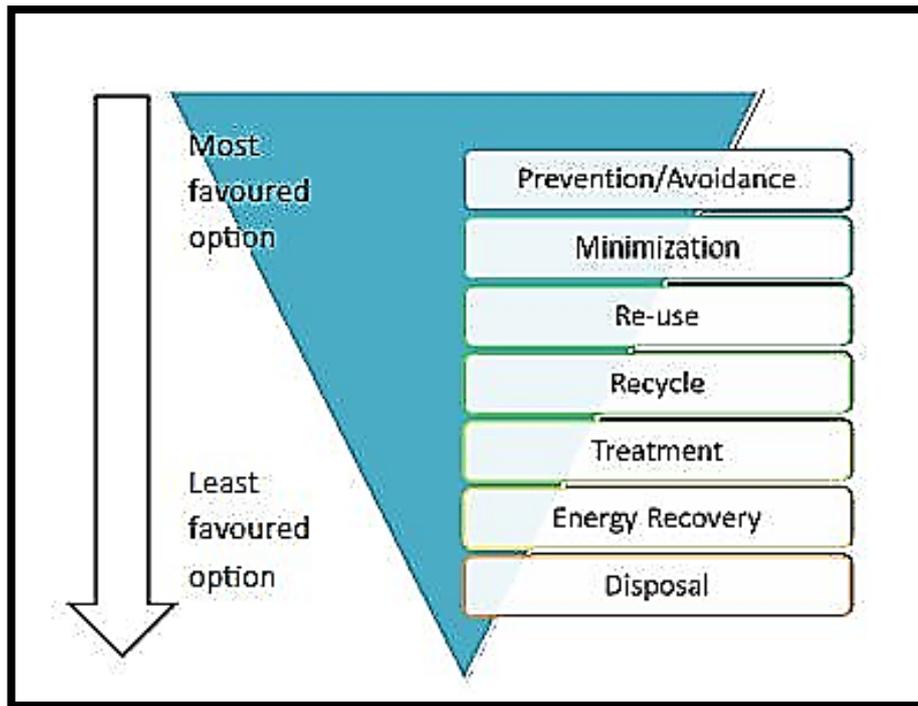


Figure 1: This figure shows the Waste Management Hierarchy as extracted from the DEA&DP Industry Waste Management Plan Guidelines (March 2011).

The following table illustration provides a guideline overview of the typical waste generation categories per the DEA&DP Industry Waste Management Plan Guidelines (March 2011):

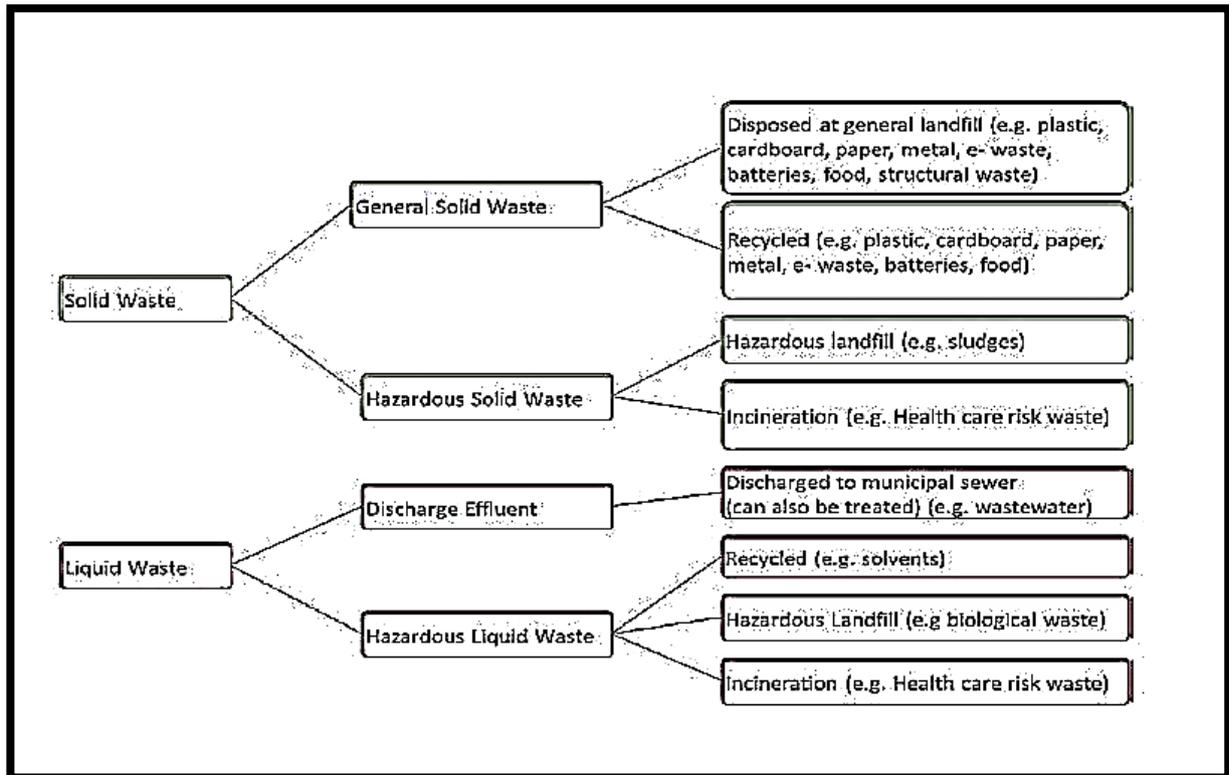


Figure 2: This illustration shows the waste types which typically arise from the Consumer-formulated Chemical Sector.

## 2.1 THE PURPOSE OF THE WMP

The purpose of this WMP is to ensure that material and wastes are managed in a responsible manner from the point of creation (source) to the point of disposal (grave). This can be achieved by implementing the "cradle to grave" principle on the disposal of reusable and recyclable resources to landfill by including waste management strategies in all demolitions and related activities conducted on site.

The overall aim of this WMP is to ensure the following:

- Ensuring that all products and/or services conform to environmental requirements;
- Identifying and separating re-usable waste and general waste at point of origin;
- Ensuring suitable transportation of waste;
- Maximizing recycling, reducing and reusing opportunities of waste;
- Ensuring proper storage of waste is implemented on site;
- Ensuring the correct disposal of waste to minimize pollution;
- Identification of licensed facilities of where waste will be finally disposed of;
- Minimizing the cost with regards to waste;
- Solid waste control monitoring (including waste leakage protection systems);
- Roles and responsibilities; and
- Training of workers.

This WMP is a practical and achievable plan to ensure that environmental risks and opportunities (i.e. opportunities to provide environmentally friendly alternatives) are identified and addressed during the construction phases of the Project.

This document is dynamic and can be amended to adapt the document to the requirements of the waste management on the site. Changes to this WMP can only occur with the written approval of all parties involved and an updated version should also be forwarded to all parties once agreed.

It is understood that the Contractor will be fully responsible for this WMP and its requirements.

### 3 DESCRIPTION OF WASTE GENERATION

The Client has confirmed that construction waste will be generated on the site.

The following waste categories are accordingly described below.

#### 3.1 Construction Waste

Construction waste consists of unwanted material produced directly or unintentionally by the construction<sup>1</sup> phase, this type of waste includes the following waste products:

- Hazardous Waste
- Solid Waste
- Liquid Waste

<b>Waste Type</b>	<b>Waste type:</b>	<b>Product/item:</b>	<b>Origin of Disposal:</b>	<b>Percentage:</b>
<b>Hazardous Waste</b>	Non-recyclable	Cement Bags	Landfill at licensed municipal landfill	To be determined during construction through the monitoring programme
		Paint Containers		
		Cement		
		Caulking		
		Petrochemicals		
		Batteries		
		Asbestos		
		Waste Oils		
		Sulphur contained solvents		
		Organic Solvents		
		Organic Halogenated Solids		
		Tarry and Bituminous Waste		
		Brine		
		Flyash		
		Slag		
<b>Solid Waste</b>	Reusable and Recyclable	Glass	Reuse for resale at an appropriately licensed second hand resellers or transported for recycling at an appropriately licensed recycling facility	
		Plastics		
		Metals and Steel		
		Tyres		
		Mineral Waste		
		Organic Waste		
		Wood		
		Bricks		
		Concrete		
		Boards		
		Tins		
		Paper		
<b>Liquid Waste</b>	Non-Recyclable	Paint water	Landfill at licensed municipal landfill	
		Non-organic waste water		
	Recyclable	Sewage Water	Recycled offsite at appropriately licensed municipal WWTW	
		Stormwater		
		Organic Water		

**Table 1: This Table indicates the typical different construction wastes that are generated during construction**

<sup>1</sup> [http://en.wikipedia.org/wiki/Construction\\_waste](http://en.wikipedia.org/wiki/Construction_waste)

## 4 WHAT WASTE IS RECOVERED FOR RECYCLING AND REUSE

### 4.1 Construction Waste Recovery Options

	<i>Waste Type</i>	<i>Reused</i>	<i>Recycled</i>	<i>Non-Recyclable</i>
<b>Hazardous Waste</b> <i>"x" indicates the possibilities for the Contractor to deal with the waste.</i>	Cement Bags			X
	Paint Containers			X
	Cement			X
	Caulking			X
	Petrochemicals			X
	Batteries			X
	Asbestos			X
	Waste Oils		X	X
	Sulphur contained solvents			X
	Organic Solvents			X
	Organic Halogenated Solids			X
	Tarry and Butiminous Waste			X
	Brine			X
	Fly ash			X
	Slag			X
	Electronic waste			X
	Metal Scrap			X
Health Care Waste			X	
<b>Solid Waste</b> <i>"x" indicates the possibilities for the Contractor to deal with the waste.</i>	Glass		X	
	Plastics		X	
	Metals and Steel	X		
	Tyres		X	
	Mineral Waste		X	
	Organic Waste		X	
	Wood		X	
	Bricks	X		
	Concrete	X		
	Boards	X		
	Tins		X	
	Paper		X	
<b>Liquid Waste</b>	Paint water			X
	Non-organic waste water			X
	Sewage Water		X	
	Stormwater		X	
	Organic Water		X	

Table 2: This Figure demonstrates the typical construction waste generated on site which can be reused or recycled.

## 5 WASTE RECYCLING AND REUSE METHODOLOGY

### 5.1 Construction Waste Recycling and Re-Use Options

	<b>Waste Type</b>	<b>Recycling/Re-Use Methodology:</b>
<b>Hazardous Waste</b>	Cement Bags	Landfill at licensed municipal landfill
	Paint Containers	
	Cement	
	Caulking	
	Petrochemicals	
	Batteries	
	Asbestos	
	Waste Oils	
	Sulphur contained solvents	
	Organic Solvents	
	Organic Halogenated Solids	
	Tarry and Butiminous Waste	
	Brine	
	Flyash	
	Slag	
	Electronic waste	
	Metal Scrap	
Health Care Waste		
<b>Solid Waste</b>	Glass	Reuse for resale at an appropriately licensed second hand resellers or transported for recycling at an appropriately licensed recycling facility
	Plastics	
	Metals and Steel	
	Tyres	
	Mineral Waste	
	Organic Waste	
	Wood	
	Bricks	
	Concrete	
	Boards	
	Tins	
Paper		
<b>Liquid Waste</b>	Paint water	Landfill at licensed municipal landfill
	Non-organic waste water	Landfill at licensed municipal landfill
	Sewage Water	Recycled offsite
	Stormwater	Recycled offsite at appropriately licensed municipal WWTW
	Organic Water	Recycled offsite at appropriately licensed municipal WWTW

**Table 3: This table demonstrates the reuse and recycling methodology of construction waste.**

## 6 ROLES AND RESPONSIBILITIES

- (a) Environmental register - an environmental register must be provided by the Principal Agent and kept on-site at all times as well as being freely accessible to all project team members. The register will provide a record of all actual environmental incidents that occur as a result of the onsite activity. This may include information related to such aspects as spillages, dust generation and complaints from adjacent neighbours and any other environmental incidents. It must also contain information relating to action taken/mitigation measures employed. Any party on-site may complete the register; however, it is envisaged that the Principal Agent, Contractor and ECO will be the main contributors. The Principal Agent must ensure that the Contractor implements recommendations made by the ECO within an agreed and reasonable time frame.
- (b) Environmental Control Officer (“ECO”) – the ECO must be appointed prior to commencement of operations. The ECO will advise the Principal Agent and Contractor of any environmentally related issues during the construction and demolition phases of the development. The role of the ECO is defined more fully in Appendix E
- The responsibilities of the ECO will include *monitoring* of compliance with the WMP by the Contractor. As well as ensuring that all necessary permits have been obtained by the Agent or Principal Contractor.
  - The ECO has the authority to recommend the cessation of works or any portion of construction and demolition related activity to the Principal Agent. This will be triggered if in his/her opinion the activity has caused or will imminently cause significant damage and/or harm to the environment or is in contravention of the relevant environmental legislation/permits/authorisations applicable to the site and/or activity/ies.
  - If the Contractor fails to show adequate consideration to the WMP or the recommendations of the ECO, then the ECO may recommend to the Principal Agent, that the Contractor’s representative or any employee/s responsible for not showing adequate consideration to the WMP are removed from the site. Alternatively, the ECO may recommend that all work on site be suspended until the matter is remedied. All costs will be carried by the Contractor.
  - Should modifications to this document be required, these must be agreed to by all parties concerned.
- (c) The Client – the Client is responsible for employing the Principal Agent, Contractor and Engineer for the duration of the construction and demolition contract. They in turn will employ the ECO. The Client will also ensure, as a signatory to the WMP that the Principal Agent and Contractor fulfil their obligations in terms of this WMP.
- (d) The Principal Agent – the Principal Agent is appointed by the client and is responsible to the client for ensuring that the construction contract is carried out to completion on time, in budget and that the Contractor fulfils their obligations in terms of the WMP. The Principal Agent and ECO are expected to develop a close working relationship and to communicate frequently. The Principal Agent must be recognised as the senior authority on site and all communications and instructions between the ECO and the Contractor must occur via the Principal Agent. The Principal Agent is also responsible for deducting environmental penalties from the Contractor. The Principal Agent must ensure that the Contractor has a copy of this WMP and all approved Method Statements and that the Contractor is familiar with the relevant documentation.
- (e) The Contractor – the Contractor will adhere to the conditions of this WMP and ensure that all of its sub-Contractors, employees, suppliers, agents and so forth, for whom the Contractor is fully responsible for their actions on site, are fully aware of this WMP, its requirements and the consequences of any breach

of the requirements of this WMP. The Contractor is fully responsible for *implementing* the WMP. The Contractor will ensure that works on site are conducted in an environmentally responsible manner and in accordance with the requirements of this WMP.

- (f) Problematic Issues – should problematic issues arise, as identified by the ECO, the ECO has the authority to call a special meeting with the Principal Agent to address and rectify the matter.

## 7 INSTRUCTION TO CREW AND SUB-CONTRACTORS FOR THE RECYCLING AND REUSE PROCEDURE ENVISAGED ON SITE

Training will be provided by the ECO prior to the construction activities commencing on the site. This training will inform the necessary personnel on site about the following matters which are discussed in this WMP.

- Application of the WMP to the personnel;
- Management of the identified aspects and impacts; and
- Indication of respective management roles and responsibilities of all the service providers.

### 7.1 Monitoring of Waste

**Objectives:** To minimise the possible cumulative environmental damage of improper waste disposal practices and waste management practices on site or related to the site.

**Targets:** To ensure that the handling of waste is in accordance with the requirements of the Competent Authority.

**Measures:**

- The Contractor shall at all times ensure that all waste generated on site is categorised into the different waste types (e.g. landfill wastes (non reusable/recyclable wastes), reusable wastes and recyclable wastes).
- The Contractor shall at all times ensure that categorised wastes types are measured by mass and recorded.
- The Contractor shall ensure that the wastes are then transported to various recycling and resale merchants or to licensed municipal landfill operations – please refer to Table 1 above.
- The Contractor shall at all times ensure that the chain of custody (i.e. Safe Disposal Certificates) are retained and kept in the Environmental Register in order to monitor the final destination of waste disposal. The Contractor shall make the chain of custody and Safe Disposal Certificates and associated documentation available to all the ECO, Principle Agent, Local Authority and Property Owner upon request.
- **The Contractor shall ensure that for every waste load leaving the site, evidence (e.g. in the form of disposal dockets) is collected that clearly indicates the following:**
  - **Date**
  - **Source of waste**
  - **Name of disposal location**
  - **Waste type**
  - **Mass of waste**
  - **Intended usage (e.g. brick manufacture, landfill, etc.)**
- The appointed Environmental Control Officer (ECO) shall conduct weekly site visits (i.e. every week) to ascertain compliance with WMP on site.
- The Contractor shall compile Quarterly Reports. The Reports should be issued to the building owner, Principle Agent and other parties involved.
- The Reports should reference appended receipts and other appropriate records such as Safe Disposal Certificates and chain of custody documentation.

### 7.1.2 Construction Waste Monitoring Checklist

<b>Waste</b>	<b>Product/Item</b>	<b>Landfill</b>	<b>Recycled</b>	<b>Reused</b>	<b>Weight by Mass (kg)</b>	<b>Chain of Custody Documentations</b>
<b>Hazardous Waste</b>	Cement Bags					
	Paint Containers					
	Cement					
	Caulking					
	Petrochemicals					
	Batteries					
	Asbestos					
	Waste Oils					
	Sulphur contained solvents					
	Organic Solvents					
	Organic Halogenated Solids					
	Tarry and Butiminous Waste					
	Brine					
	Fly ash					
	Slag					
	Electronic waste					
	Metal Scrap					
	Health Care Waste					
<b>Solid Waste</b>	Glass					
	Plastics					
	Metals and Steel					
	Tyres					
	Mineral Waste					
	Organic Waste					
	Wood					
	Bricks					
	Concrete					
	Boards					
	Tins					
	Paper					
<b>Liquid Waste</b>	Paint water					
	Non-organic waste water					
	Sewage Water					
	Stormwater					
	Organic Water					

Table 4: This Table represents an example of a monitoring waste checklist for construction

## 7.2 Monitoring System to detect leakage or spillage of hazardous wastes

The Contractor MUST monitor any areas with hazardous waste on site, at least twice daily and record this in a Hazardous Waste Leakage Register.

Measures:

- The Contractor shall keep a hazardous waste leakage register on site.
- The Contractor will identify, in conjunction with the appointed ECO, all hazardous waste storage areas and hazardous material storage area – please kindly refer to Section 4.2.8, 4.2.9, 4.2.10 and 4.2.13 of the Environmental Management Programme (EMPr).
- The Contractor shall twice daily, visually inspect all of the above areas and record in the register the state of the storage facility as well as the state of the hazardous materials contained on the site.
- Any leakages must be reported immediately to the ECO and the local authority.
- Any leakages must immediately be dealt with in accordance with Section 4.2.8, 4.2.9, 4.2.10 and 4.2.13

***The Contractor shall ensure that for every waste load leaving the site the checklist above is utilised.***

### 7.3 General Best Practice Waste Management Guidelines for Contractor

Objectives: To minimise possible environmental damage through inappropriate waste management on site or related to the site.

Targets: To ensure that the handling of waste is in accordance with the statutory requirements of the local authority by laws and the NEM: Waste Act (2008), Competent Authority and the National Waste Management Strategy (2011).

Measures:

#### Liquid Waste Management Guidelines:

- Liquid dispensing receptacles (e.g. lubricants, diesel, shutter oil etc.) must have drip trays beneath them/beneath the nozzle fixtures.
- A spill management protocol must be produced by the Contractor and approved by the ECO prior to works commencing on site.
- Material safety data sheets (MSDS) must be available on site where products are stored, so that in the event of an incident, the correct action can be taken.
- Depending on the types of materials stored on site, suitable product recovery materials (such as Spillsorb or Drizit products) must be readily available.
- A designated, bunded area is to be set aside for vehicle washing and maintenance (if required). Materials caught in this bunded area must be disposed of to a suitable waste site or as directed by the Principal Agent. Vehicles should ideally be washed at their storage yard as opposed to on site.
- Cement contaminated water must be fed to a container, neutralised and suitably disposed of (e.g. sent to a suitable landfill site). In the latter case, chain of custody documentation must be provided to ensure a suitable end recipient. The latter must be kept with the environmental register.
- The Contractor shall ensure that any wastewater generated during construction and demolition activities feeds to a suitable containment area such as a container or lined sedimentation pond prior to disposal. This pond or ponds must be allowed to dry out on a regular basis to allow for solid material removal. The wastewater must be disposed of in a suitable manner (possibly to the sewer system following local authority approval) and must not be directed to a storm water drain.
- Storm water must be managed in such a way that no overland flow is possible onto any area of the site which could contain potential contaminants (such as concrete mixing areas, material and hazardous storage areas from any adjacent area).

#### Solid Waste Management Guidelines:

- Waste must be categorised by the Contractor and disposed of in a suitable manner into separate waste streams (this includes general and hazardous waste).
- The Contractor must provide an adequate number of waste receptacles for general waste at points around the construction site, and a single collection point for hazardous waste.
- General waste is to be collected either by the Municipality or via a waste disposal Contractor. The Developer or their Agent will be responsible for arranging the above collection and disposal with either the Municipality or Private Contractor.
- The frequency of collections/emptying of waste receptacles will be at least once per week or at such a frequency that waste receptacles do not overflow.
- Particular care shall be taken with the disposal of materials that could be wind-borne or waterborne to ensure that the release of these materials is minimised (the latter is a requirement for hazardous waste).
- The use of netting covers or similar sealed containers must be implemented as and when required by the ESO.

- Areas demarcated for specific activities including food consumption must have suitable waste receptacles provided.
- Wherever possible recycling must be carried out.
- No dumping within the surrounding area is to be permitted.
- No burning of solid waste is allowed.
- All material used by the Contractor during the construction and demolition phase shall be managed in such a way that it does not cause pollution, or that minimises pollution. In the event of a spillage, the Contractor should have suitably trained personnel who can correctly clean up any spillage in an efficient and environmentally sound manner.

#### **Hazardous Waste Management Guidelines:**

- Storage areas that contain hazardous substances must be covered and bunded with an approved impermeable liner or have some form of secondary containment.
- The Contractor shall keep Material Safety Data Sheet (MSDS) on-site for all potentially hazardous materials used.
- Suitably trained personnel shall be available on the site during working hours so that in the event of human exposure to any hazardous materials that the correct first aid actions are taken. This training should also include environmental spill containment procedures.
- Spills in bunded areas must be cleaned up, removed and disposed of safely from the bunded area as soon after detection as possible to minimize pollution risk and reduced bunding capacity.
- Chain of Custody documentation must be provided for any hazardous substances disposed of as proof of end recipient.

#### **Cement/Concrete Mixing Management Guidelines**

- Cement powder has a high alkalinity, which can contaminate and dramatically affect both soil and groundwater. The following recommendations are made:
  - Mixing areas must be defined on site and approved by the ECO.
  - No mixing of cement on is allowed on bare soil and a lined bund or bunded portable mixer must be used. The use of ready mix concrete must be considered.
  - Cement bags must be disposed of in demarcated hazardous waste receptacles and the used bags disposed of via the hazardous substances waste stream.
  - Excess or spilled concrete must be disposed of to a suitable landfill site, with chain of custody documentation provided.

#### **Ablution Facilities Management Guidelines**

- Chemical toilet facilities are to be supplied and managed by the Contractor. These are to be located in a specific area agreed to by the ECO prior to placement and to be used by all personnel.
- The number of chemical toilets required on site (i.e. the ratio of persons working on site to number of toilets) must be determined in conjunction with the Competent Local Authority prior to works starting on site.
- These toilets are to be secured by at least four separate cables or guy ropes to ensure that they are not knocked over or blown over by the wind.
- The ablution facilities will be emptied at a frequency as stipulated by the general requirements of the City and which will be dependent on the amount of labourers on site.
- The amount of ablution facilities will be dependent on the amount of Labourers contracted for the site works. However, one ablution facility per 15 workers will be adhered to as per the requirement of the City of Cape Town.

Should you require any further information, please do not hesitate to contact the undersigned.

Yours faithfully,

A handwritten signature in black ink, appearing to read 'F. Venturi', with a long horizontal flourish extending to the right.

**FABIO VENTURI**

*Certified Environmental Scientist (SAIEES)  
Environmental Assessment Practitioners Association of South Africa (Founding Member)  
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# ***APPENDIX A***

## ***GLOSSARY***

## TERMS USED IN THIS WMP

The terms used include the following and those defined in AS/NZS ISO 14001:2004 and AS/NZS ISO 9000:2000.

The term '**client**' means the owner of the asset to be procured or project product, and representative of the end users of the asset.

The term '**construction**' means all organised activities concerned with demolition, building, landscaping, maintenance, civil engineering, process engineering, heavy engineering and mining.

The term '**consultant**' means a professional person or organisation that contracts with a customer to provide design, management or other services.

The term '**contractor**' means an organisation that contracts with a Principal to carry out the work under the contract, including construction and related services, to deliver an asset or construction product.

The term '**design**' means the process (and product) of converting a brief into design details ready for documentation, including concept design and design development, and then documentation or detailing of the technical and other requirements for the project in a written form that details the project product sufficiently for it to be constructed or otherwise provided.

The term '**environmental opportunity**' means a potential for beneficial environmental impacts (such as an improvement in air or water quality through environmentally friendly technology alternatives).

The term '**environmental risk**' means a potential for adverse environmental impacts (such as pollution of a water source during construction activities).

The term '**management**' means the planning and interactive controlling of human and material resources to achieve time, cost, quality, performance, functional and scope requirements. It involves the anticipation of changes due to changing circumstances and the making of other changes to minimise adverse effects.

The term '**procurement**' means the collection of activities performed by and for an agency to acquire services and products, including assets, beginning with the identification/detailing of service requirements and concluding with the acceptance (and where applicable, disposal) of the services and products.

The term '**project**' means an undertaking with a defined beginning and objective by which completion is identified. Project delivery may be completed using one contract or a number of contracts.

The term '**service provider**' means a contractor, subcontractor, supplier, consultant (including an agency) and sub-consultant (contracting with a consultant), and their service providers, that contract with a customer to carrying out assets construction, provide other products (including goods) and/or provide services.

The term '**subcontractor**' means an organisation that contracts with a contractor as the customer to carry out construction and related services, and/or provide other products.

The term '**supplier**' means an organisation that contracts with a contractor/Principal to supply a product and/or service

# ***APPENDIX B***

## ***ROLE OF THE ECO***

## **DUTIES OF THE ECO**

1. The identification of potential environmental impacts, prior to the onset of the project.
2. Ensuring that the WMP conditions are adhered to at all times and taking action (via the engineer) where the specifications are not being followed.
3. Ensuring that all necessary permits have been obtained by the Agent or Principal Contractor.
4. Ensuring that environmental impacts are kept to a minimum.
5. Reviewing and approving method statements in consultation with the Principal Agent.
6. Advising the engineer and contractor on environmental issues and assisting in developing environmentally responsible solutions to problems.
7. Reporting to the client and Principal Agent on a regular basis and advising of any environmental impacts.
8. Attending site meetings (when necessary) and giving a report back on the environmental issues at these meetings and other meetings that may be called regarding environmental matters.
9. Inspecting the site and surrounding areas regularly.
10. Establishing and monitoring an on-going environmental awareness program in conjunction with the contractor.
11. Requesting the removal of person(s) and/or equipment not complying with the specifications.
12. Keeping both a written and photographic record of progress on site from an environmental perspective, and an ad hoc record of all incidents or events on site with environmental ramifications. These records should be dated and accurately catalogued.
13. Undertaking continual internal review of the WMP and submitting a report at the end of the project.
14. The ECO will submit all written instructions and verbal requests to the contractor via the engineer.