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ENVIRONMENTAL CONSULTING

ENVIRONMENTAL MANAGEMENT PROGRAM FOR THE PROPOSED DEVELOPMENT OF A NEW ALUMINIUM RECYCLING FACILITY ON ERVEN 9874 AND 9875 IN ELSIES RIVER, CAPE TOWN, WESTERN CAPE

SEC REFERENCE: 024064

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1. DETAIL AND EXPERIENCE OF THE EAP WHO PREPARED THE EMPR

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Chantel has a BA Social Dynamics and obtained her MPhil Environmental Management at the University of Stellenbosch in October 2008. Chantel is a registered EAP with EAPSA as well as a member of the International Association for Impact Assessment (IAIA). Chantel is also an Accredited Professional with the Green Building Council of South Africa.

SEC has extensive experience in environmental impact assessment (EIA) procedures and has completed numerous such applications in most provinces of South Africa since 1998.

2. INTRODUCTION

The proposed development includes the installation of an aluminium furnace in an existing industrial warehouse. A steel chimney with an electrostatic adsorption filter will be installed. The chimney will be 8m long with a 250mm diameter. 3.575m of the chimney will extrude from the roof of the warehouse. The filter will remove 90-95% of dust from the exhaust gas. Raw materials will be stored outside the warehouse, and the aluminium dross and captured dust will be stored under a roofed area outside the warehouse. The finished product (aluminium ingots) will be packed into bundles and stored in the warehouse prior to being loaded onto a flatbed truck or into a 20-foot container, depending on the customer's transport requirements.

Dross and filter-captured dust storage (roofed area outside warehouse):
Aluminium dross generated during melting or casting and dust captured by the abatement system will be stored in a dedicated covered (roofed) external storage bay outside the warehouse. The storage bay will be located on an impermeable hardstand surface (e.g., concrete slab) to prevent seepage and to enable effective housekeeping and spill clean-up; where the existing surface is not demonstrably impermeable, it will be upgraded prior to commissioning. The storage bay will be bunded to prevent migration of solids and to allow containment of any contaminated runoff from the storage area. The area will be stormwater protected by diverting clean stormwater runoff away from the bay and managing the bay as a controlled area, such that any runoff arising within the bay is contained and prevented from discharging off-site.

Dust generation will be controlled by prevention and containment rather than wet suppression: filter dust will be kept in sealed, labelled containers and dross will be kept under cover with handling controls. Water spraying will not be applied to dross or dust unless a site-specific risk assessment confirms it is safe and appropriate for the waste stream. Filter-captured dust (and dross, where managed as a waste stream) will be classified in terms of applicable waste classification requirements prior to routine disposal; until classification results are available, the dust will be handled as potentially hazardous, stored sealed and removed by an appropriately authorised waste contractor. The filter-captured dust will be transported by a registered service provider to a licensed disposal facility authorised to accept the classified waste stream.

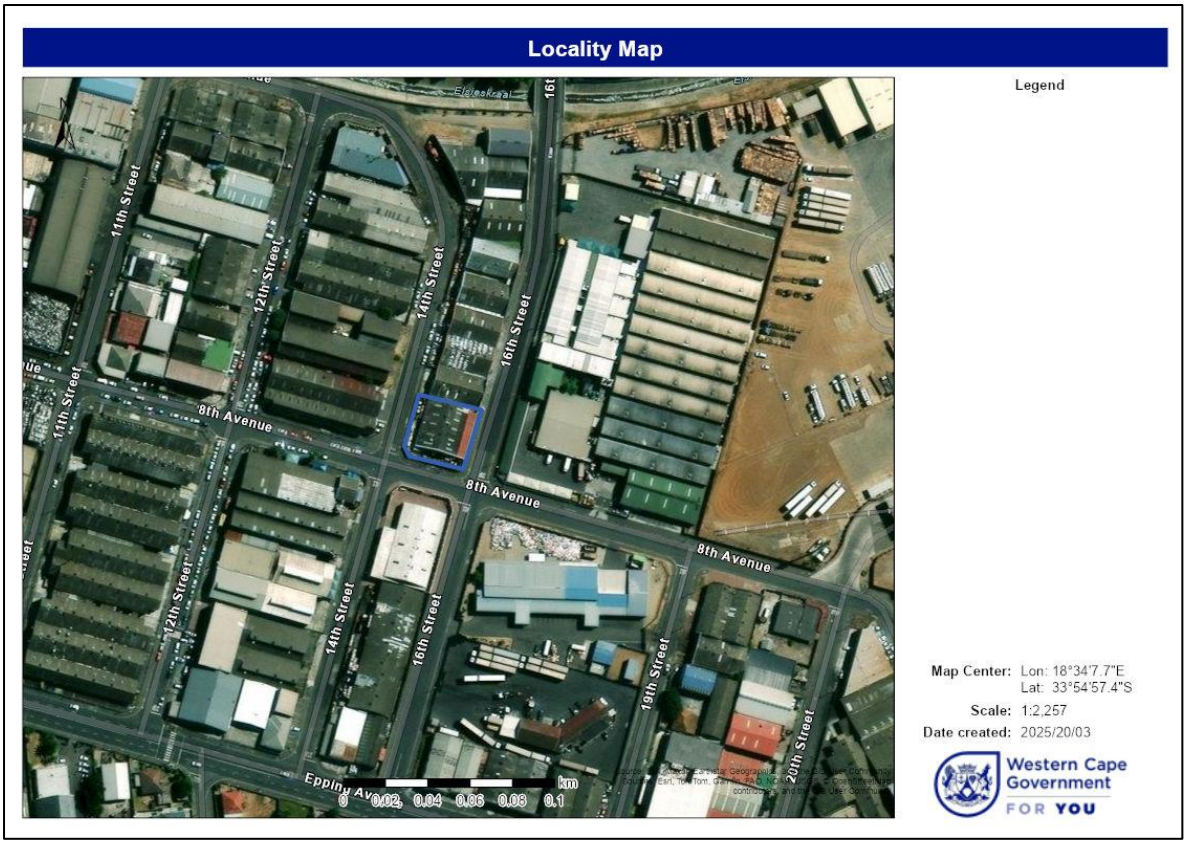

Figure 1: The location of the proposed development site (study site). The property borders are indicated in red. Please refer to appendices for the Locality Map and the proposed site layout plans.

This Environmental Management Programme (EMP) has been compiled in terms of the requirements of the National Environmental Management Act, 1998 (Act 107 of 1998) and the Environmental Impact Assessment Regulations, 2014, as amended.

This EMPr is intended to ensure compliance with the principles of sound Environmental Management and the general "Duty of Care" specified in the National Environmental Management Act, so as to avoid or minimize potential negative impacts on the natural environment during the pre-construction, construction and operational phases of the proposed expansion activity.

This document provides measures that must be implemented to ensure that any environmental degradation associated with the proposed aluminium recycling facility activity is avoided, or where such impacts cannot be avoided entirely, are minimised and mitigated appropriately.

This EMPr forms part of the contractual obligations to which all persons including but not limited to, contractors/sub- contractors or employees involved in construction, operation, maintenance, or decommissioning work, must be committed. It also serves as a baseline information document for the project applicant and any entity working on behalf of the applicant, during the various phases of the proposed activity. The EMPr aims to comply with Section 24N of the National Environmental Management Act No. 107 of 1998,

as amended (NEMA), as well as any additional specific information requested by any government department, including the regulating authority for this specific project, the DEA&DP.

The overall objective of the EMPr is to direct and guide all responsible parties, binding all contractors, sub-contractors, and all other persons working on the site to adhere to the terms and conditions of the EMPr during the construction, operation, maintenance, and anticipated demolition/decommissioning phases of the project. The overall outcome of the EMPr is to prevent avoidable damage and/or minimize or mitigate unavoidable environmental damage associated with the construction, operation, maintenance, and possible decommissioning phases of the proposed project. The specific outcomes of the EMPr will be achieved by ensuring that the mitigation and management measures detailed in the EMPr are implemented and adhered to throughout the project duration. Compliance monitoring and independent assessment/auditing allow the verification of achievement of the EMPr outcomes and ultimately, fulfilment of the EMPr objectives.

The EMPr:

- identifies project activities that could cause actual environmental damage (or potential environmental risks) and provides a summary of actions required.
- identifies persons responsible for ensuring compliance with the EMPr.
- provides standard procedures to avoid and/or minimize the identified negative environmental impacts and to enhance the positive impact of the project on the environment.
- provides the site and project-specific rules and actions required, including a site plan/s showing:
- areas where construction, maintenance, or demolition work may be carried out.
- areas where any material or waste may be stored.
- allowed access routes, parking, and turning areas for construction or construction-related vehicles.
- forms a written record of procedures, responsibilities, requirements, and rules for contractor/s, their staff, and any other person who must comply with the EMPr.
- provides a monitoring and auditing program to track and record compliance and identify and respond to any potential or actual negative environmental impacts; and
- provides a monitoring program to record any mitigation measures that are implemented

STRUCTURE AND CONTENT OF EMP

This EMP is structured as follows:

Section 1 & 2 provides a background of the proposed activity, the legislative framework, details of the EMP (author and related experience) as well as the content and structure of the Environmental Management Plan.

Section 3 deals with the various communication protocols, which must be implemented during the construction phase of the development

Section 4 documents the various social impacts associated with the proposed development (such as complaints from neighbouring landowners or any other party)

Section 5 deals with environmental sensitive issues and provides an indication of the potential impacts generated by the proposed development.

Section 6 documents the impacts/issues associated with the pre-construction phase of the proposed development.

Section 7 provides an indication of the impacts/issues associated with the construction phase of the proposed development.

Section 8 documents the impacts/issues associated with the post construction phase of the proposed development.

Section 9 highlights the impacts/issues associated with the operational phase of the proposed development.

Conduct of Employees on Site

The following restrictions or constraints will be placed on all staff operating on the site in general:

- No illegal disposal of solid or liquid waste;
- No littering of the site or surrounding areas;
- No collection of firewood;
- No interference with any wildlife, fauna or flora;
- No use of toilet facilities other than the chemical toilets provided on site;
- No lighting of open fires; and
- No burning of any waste on site.
- Adherence to relevant health and safety standards and municipal bye laws

3. COMMUNICATION PROCEDURES

(a) 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 environmental matters during construction and bulk landscaping phases of the development.

- The responsibilities of the ECO will include *monitoring* of compliance with the EMP, EA (If applicable) and supporting specialist studies (if applicable) by the Contractor.

- The ECO has the authority to recommend the cessation of works or any portion of construction related activity if in his/her opinion (and after discussion and agreement by the Principal Agent), the activity has caused or will imminently cause damage and/or harm to the environment deemed to be significant by the ECO or is in contravention to the relevant environmental legislation/permits/authorisations applicable to the site and/or activity/ies.

- If the Contractor fails to show adequate consideration to the EMP or the recommendations of the ECO, then the ECO may recommend to the Principal Agent, the Contractor's representative or any employee/s responsible for not showing adequate consideration to the EMP 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, namely the Principal Agent, the Contractor, ECO and the relevant authority.

(b) The Developer – the Developer is responsible for employing the ECO, Principal Agent, Contractor and Engineer for the duration of the construction contract. The Developer will also ensure, as a signatory to the EMP, that the Principal Agent and Contractor fulfil their obligations in terms of this EMP.

(c) The Principal Agent – the Principal Agent is appointed by the Developer and is responsible to the Developer 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 EMP. 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 Agents must ensure that the Contractor has a copy of this EMP and all approved Method Statements and that the Contractor is familiar with the relevant documentation.

(d) The Contractor – the Contractor will adhere to the conditions of this EMP 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 EMP, its requirements and the consequences of any breach of the requirements of this EMP. The Contractor is fully responsible for *implementing* the EMP. The Contractor will ensure that works on site are conducted in an environmentally responsible manner and in accordance with the requirements of this EMP.

(e) Council Representative – will be an appropriately qualified environmental officer of the City of Cape Town Municipality. This representative will monitor compliance of this EMP by the Developer through the ECO.

(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.

(g) Environmental register - an environmental register must be kept on-site. The register will provide a record of all actual impacts that are generated as a result of the proposed activity and observations made by the ECO. This may include information related to such aspects as spillages, dust generation and complaints from adjacent neighbours. 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 reasonable time frame.

(h) Method Statements – Method Statements (a template for these purposes is appended to this EMP) will be required for activities that may result in significant impacts according to the ECO. These must address the following aspects:
- What – a brief description of the work to be undertaken
- How – a detailed description of the process of work, methods and materials

- Where – a description of the location of the work (if applicable)
- When – the sequencing of actions with commencement and completion date estimates

All Method Statements must be approved by the ECO prior to being implemented. An example of a Generic Method Statement has been included in **Appendix A**.

4. HANDLING OF COMPLAINTS RELATED TO THE PROJECT

All forms of complaint must be forwarded to the site Principal Agent and ECO. These must be entered into the environmental register and all responses and actions taken to address these must also be recorded. All issues raised must be addressed. It is important that the complainant feels that their concerns have been listened to and that appropriate action (within reason) has been taken to address these.

5. SITE SPECIFIC ENVIRONMENTAL CONTEXT

The proposed Alvi's Creations facility is situated on the corner of 16th Street and 8th Avenue in Elsies River Industrial, an area zoned for General Industrial and Commercial Business purposes. The immediate surroundings are primarily characterised by light industrial and business activities.The receiving environment is an established urban-industrial area characterised by light industrial and business activities in the immediate vicinity. Within a 5 km radius the surrounding land use includes a mix of industrial, commercial and residential neighbourhoods, including residential areas within approximately 0.2–1.3 km of the site (e.g., Leonsdale, Riverton/Ruyterwacht, Richmond, Parow and Epping Garden Village). Given this context, the key environmental sensitivities relevant to the EMPr relate to operational nuisance pathways (air emissions/dust, noise, lighting and traffic) and pollution prevention (stormwater protection and compliant residue/waste handling), rather than natural habitat disturbance.

Key surrounding areas include:
• Riverton residential area, located approximately 0.3 km west of the site, adjoining the Ruyterwacht residential neighbourhood.
• Richmond, a residential suburb, lies approximately 0.8 km north of the facility.
• Parow, a well-established residential area, is situated about 1 km north-east of the site.
• Beaconvale, located approximately 1.1 km east, is a mixed-use area with industrial and business activity. It extends for around 1.7 km eastward before transitioning into the Parow Valley residential area. Further east, approximately 2.8 km from the facility, lies the Klipkop residential area.
• The Leonsdale residential area lies approximately 0.2 km south and south-east of the proposed site, transitioning into the Elsies River residential neighbourhood further south.
• To the south-west (approximately 0.9 km away) is the Epping Garden Village residential area. Just beyond, at approximately 1.3 km south-west, lies the Epping Industrial area.

6. ENVIRONMENTAL SENSITIVITY AND MITIGATION MEASURES

A variety of potential impacts/issues are associated with the proposed activity including the following:

POTENTIAL IMPACT	EMP REFERENCE
PRE-CONSTRUCTION	
Site Boundary and Access Control	Refer to Section 7
Services/Routes (confirm services; define internal routes for deliveries/dispatch and emergency access)	Refer to Section 7
Site Layout and Designated Areas (define "clean" vs "dirty" areas; designate waste/residue bay; designate spill kit locations)	Refer to Section 7
Fire and Emergency Preparedness Planning (extinguishers, hot works controls, emergency contacts and evacuation routes)	Refer to Section 7

Working Hours	Refer to Section 7
CONSTRUCTION PHASE	
Dust Control (If any temporary stockpiles of fine material are generated (e.g., drilling fines, grinding residue, small rubble piles), they must be bagged/contained or covered immediately and removed to an approved facility; routine wet suppression is not the default and may only be used where safe and where it will not generate contaminated runoff)	Refer to Section 8
Air Emissions and Nuisance Prevention during works (minimise door-open time; manage odours/emissions; good housekeeping)	Refer to Section 8
Stormwater Protection (protect stormwater inlets; prevent contaminated runoff; keep dirty/clean areas separated)	Refer to Section 8
Spill Prevention and Response (spill kits; MSDS; containment; correct disposal of contaminated absorbents)	Refer to Section 8
Waste Storage and Waste Management (segregation; covered/contained storage; licensed removal)	Refer to Section 8
Fires and Firefighting Equipment	Refer to Section 8
Safety and First Aid	Refer to Section 8
Dust Control	Refer to Section 8
Water Quality Impacts	Refer to Section 8
Conservation of the Natural Environment	Refer to Section 8
Heritage Impacts	Refer to Section 8
Materials & Waste Management	Refer to Section 8
Chemical Toilets	Refer to Section 8
Machinery Management	Refer to Section 8
Noise and Traffic Impacts (delivery scheduling; safe routing; minimise reversing/queuing; maintain equipment)	Refer to Section 8
Drilling	Refer to Section 8
Lighting	Refer to Section 8
Traffic Impacts	Refer to Section 8
Environmental Control Officer	Refer to Section 8
Matters Pertaining to Non-Conformance	Refer to Section 8
POST CONSTRUCTION	
Site Clearance and Waste Removal (remove all construction waste; reinstate hardstand/housekeeping)	Refer to Section 9
Rehabilitation	Refer to Section 9
Waste Management	Refer to Section 9
OPERATIONAL PHASE	
Waste Storage and Residue Management (dross and filter dust): covered, contained storage; sealed/labelled dust containers; classification; authorised disposal	Refer to Section 10
Air Emissions and Nuisance (key pathway): stack and abatement operation and maintenance	Refer to Section 10
Dust Prevention (handling/storage/housekeeping; prevent windblown dust and tracking)	Refer to Section 10
Spill Procedures and Hazardous Materials Management (secondary containment; spill response; disposal of contaminated materials)	Refer to Section 10
Complaints Register and Response (dust/odour/noise/traffic; investigation; corrective actions; close-out)	Refer to Section 10
Noise and Traffic Impacts (deliveries/dispatch; equipment maintenance; minimise nuisance)	Refer to Section 10
Fire Risk and Emergency Response	Refer to Section 10

It is understood that **Alvi's Creations CC** (the Applicant) will be fully responsible for any environmental rehabilitation should an environmental incident occur at the site as required in terms

of Section 28 (*Duty of Care and Remediation of Damage*) of the National Environmental Management Act, (Act No. 107 of 1998).

7. PRE-CONSTRUCTION PHASE IMPACTS/ISSUES

(a) **Services/Routes –** The location of existing services must be determined to prevent accidental damage to, and/or duplication of, existing infrastructure. Prior to any installation works, the Contractor shall obtain and review available as-built/service information and confirm the position of all relevant electrical supply infrastructure (including the point of supply and any required electrical upgrades for the furnace and associated plant), stormwater infrastructure (including stormwater inlets, channels and discharge routes, with specific attention to infrastructure in and around the external roofed dross or filter-dust storage bay), and the municipal sewer connection serving the existing warehouse (confirm connection point and ensure no works compromise sewer lines or manholes).

A preliminary internal vehicle and delivery route plan shall be established for delivery and installation of equipment (including any lifting/rigging operations), and for routine delivery movements, to avoid conflict with other industrial users and to minimise traffic disturbance. Delivery scheduling should be planned to avoid local peak traffic periods where practicable, and all access/turning areas must be agreed with the ECO/Principal Agent prior to commencement.

(b) **Site boundaries** - the site boundaries within which the Contractor may operate must be agreed to by the ECO, Principal Agent and Contractor prior to the start of the site operations. The Contractor must fence or demarcate the site boundaries at the very start of the project. Access to the site must be restricted to ensure that members of the public are not able to gain access other than via the designated, controlled access points. Any construction activities taking place prior to the above will constitute a serious violation of this EMP and is liable to a fine as detailed within this EMP.

(c) **No-go areas** – The site is a previously transformed industrial property, and the proposed works are largely within an existing warehouse footprint. The site is fully developed and no sensitive ecological receptors/vegetation occur on or around the site; accordingly, no formal ecological “no-go” areas have been identified for this project.

Notwithstanding the above, the following **restricted access / protection zones** shall be demarcated prior to commencement to prevent avoidable pollution and infrastructure damage:

(i) stormwater inlets/drains and any stormwater conveyance infrastructure (keep clear; no storage or discharge); and
(ii) the footprint of the external roofed dross and filter-dust storage bay (controlled access only) until the hardstand, containment and stormwater protection measures are confirmed complete. Any request for additional working space or laydown areas must be agreed between the Principal Agent, Contractor and ECO, and may only be authorised after the ECO confirms that the change will not create an uncontrolled dust or contaminated runoff pathway. Any construction activities taking place prior to the above will constitute a serious violation of this EMP and is liable to a fine as detailed within this EMP.

(d) **Site Layout -** Designated areas must be set-aside within the site for various types of activities. The location of the Contractor’s camp, toilet facilities and storage areas must be agreed to by the ECO, Principal Agent and Contractor prior to the commencement of work at the site. These must all be kept neat, sanitary and in good condition throughout the project. Any construction activities taking place prior to the above will constitute a serious violation of this EMP and is liable to a fine as detailed within this EMP.

(e) **Architectural and Design Guidelines -** where applicable & possible, Earth-Tone Colours: Buildings should adopt natural, non-reflective colours that complement the local landscape. Low-Impact Materials: Use sustainable and visually recessive materials (e.g., timber cladding, textured facades). Variation in Rooflines and Facades: Avoid monotonous designs by incorporating staggered facades, varying heights, and setbacks.

(f) **Working Hours –** The hours of operation shall be restricted to those stipulated by the Local Authority. If the associated impacts of the said operation during normal working hours are unacceptable and mitigation measures proposed by the ECO are not sufficient to address the impact effectively then the ECO, in conjunction with the Local Authority may stipulate revised operating hours depending on the impacts associated with the normal working hours as allowed for by the local authority.

8. CONSTRUCTION PHASE IMPACTS/ISSUES

Overview of Impacts and Issues associated with the construction phase

8.1.1. Visual –

- The ECO must be consulted with to determine the appropriate location for the site camp (if required).
- The site camp must be always kept neat and tidy and free of litter.
- Good housekeeping practices on site must be maintained to ensure the site is kept neat and tidy.
- The site camp, storage facilities, stockpiles, waste bins, and any other temporary structures on site should be located in such a way that they will present as little visual impact to surrounding residents and road users as possible.
- Work on site must be well-planned and well-managed so that work proceeds quickly and efficiently, thus minimizing the disturbance time.
- The site camp will require visual screening via shade cloth or other suitable material.
- Special attention should be given to the screening of highly reflective material.
- The use of lighting (if required) should consider surrounding land users and should present little or no nuisance. Downward facing, spill-off type lighting is recommended.
- Construction vehicles must enter and leave the site during working hours.
- The appointed Environmental Control Officer (ECO) must undertake at least one site inspection bi-weekly for the duration of the construction phase, and produce a short ECO report monitoring the compliance of the property developer with the conditions of the approved EMP/EA.

8.1.2. Appropriate Machinery - The Contractor shall at all times carefully consider what machinery is appropriate to the task in the context of this EMP while minimising the extent of environmental damage.

8.1.3. Topsoil stockpile – No greenfield clearing, topsoil stripping or topsoil stockpiling is anticipated because works will occur within an existing warehouse and on existing hardstand areas. Accordingly, no topsoil rehabilitation or landscaping-related topsoil replacement is proposed as part of this project. If limited excavation is required (e.g. for equipment foundations, bunding or hardstand upgrades) excavated material must be managed to prevent dust and runoff impacts;

- Stockpile excavated material only in a designated area on hardstand, away from stormwater inlets.
- Cover stockpiles (or secure to prevent windblown dust) and do not allow fines to migrate off-site.

- Dispose of surplus excavated material at an approved facility or reuse on site only where environmentally appropriate and approved by the ECO.

8.1.4. Storm water outfalls –If the storm water is of such a quality that suspended solids are present then detention ponds for removal of suspended solids must be considered. To prevent storm water damage, the increase in storm water runoff resulting from construction activities must be estimated and the drainage system assessed and implemented accordingly by the Principal Agent. Temporary cut off drains and berms may be required to capture storm water. Storm water outfalls should be designed to reduce flow velocity and avoid downstream stream bank erosion and soil erosion.

8.1.5. Erosion – Erosion controls relating to exposed natural soil surfaces are not applicable because no vegetation clearing or extensive earthworks are expected. Where excavation or concrete works occur, pollution prevention measures my apply to prevent sediment runoff. No controlled discharge of water from excavations, prevent cement slurry and wet concrete residues from entering stormwater infrastructure and keep stormwater inlets protected during works.

8.1.6. Fires and Firefighting Equipment – no fires will be allowed outside the construction area. Welding and cutting activities will only be permitted inside the working areas. Adequate firefighting equipment must be available on site and be in good working order. In this regard the SABS 0400 Code of Practice will be implemented on site in addition to adherence by the Contractor to the Community Fire Safety By-Law for the Western Cape Province.

8.1.7. Safety and First Aid – all people working on site are responsible for their own safety on site. Contractors and Principal Agent/s shall comply with the relevant regulations including the Occupational Health and Safety Act (Act 85 of 1993). A comprehensive site specific first aid kit and suitably trained personnel must be available on site at all times. Emergency evacuation procedures must also be established at the start of operations of the site.

8.1.8. Dust Control

- Construction dust impacts are expected mainly from cutting, drilling, grinding, welding preparation, and movement of debris.
- Source control: Use dust-minimising methods when cutting/drilling/grinding (e.g., on-tool extraction/vacuum attachments, localised capture, or dampening where safe and appropriate). A Complaints Register must be available at the site office for inspection by the ECO of dust complaints that may have been received.
- Housekeeping: Keep work areas clean and free of dust build-up. Do not allow fine dust to accumulate near doors/openings where it could become fugitive.
- No dry sweeping of fine dust: Fine dust must be removed using industrial vacuuming or controlled methods approved by the ECO (dry sweeping of fine dust is not permitted where it can generate fugitive dust).
- Containment of dusty wastes: Collect drilling dust, grinding residues and fine debris in sealed containers/bags and store in a designated area away from stormwater inlets until removal.
- The appointed ECO must undertake regular site inspections for the duration of the construction phase, and to produce regular ECO monitoring reports, auditing on the compliance with the conditions of the Environmental Authorisation and the approved EMP.
- Dust tracking prevention: Keep access points and vehicle movement areas clean; if dust is tracked outside the work area, clean immediately.

- Stop-work trigger: If visible dust plumes are observed leaving the building or crossing the site boundary, the activity causing dust must stop immediately and additional controls must be implemented before work resumes.

- Dust suppression (construction): No open “sand heaps” or bulk earthworks dust sources are anticipated, as construction is limited to installation and minor works within an existing warehouse and hardstand. Dust control will therefore prioritise source capture and containment, including (i) on-tool extraction or localised capture for cutting/drilling/grinding, (ii) industrial vacuum removal of fine dust (no dry sweeping where it can generate fugitive dust), (iii) sealed bagging/containers for fine residues and debris, and (iv) immediate clean-up of any tracked dust at access points. Water/misting may only be used as a targeted, localised suppression measure at the point of generation where safe and appropriate, and may not be applied in a manner that creates runoff to stormwater infrastructure. If visible dust plumes are observed leaving the building or crossing the site boundary, the activity causing dust must stop immediately and additional controls must be implemented before work resumes.

- Dust levels specified in the National Dust Control Regulations (GN 827 of November 2013) may not be exceeded.

- Monitoring: Daily dust checks by the Contractor/Site Manager; ECO to verify during inspections. Record any dust incidents and corrective action in the environmental register.

8.1.9. Water Quality Impacts – Site staff shall not be permitted to use any nearby stream, river, other open water body or natural water source adjacent to or within the designated site for the purposes of bathing, washing of clothing, or for any construction or related activities. Municipal water (or another source approved by the Principal Agent and ECO) should instead be used for all activities such as washing of equipment, or disposal of any type of waste, dust suppression, concrete mixing, compaction, etc.

8.1.10. Materials Management

Liquids:

- 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.

- Material safety data sheets 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. Materials caught in this bunded area must be disposed of to a suitable waste site or as directed by the Principal Agent.

- Cement contaminated water must be fed to a container, neutralised and suitably disposed of (to sewer if acceptable to the Municipality) or 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.

- 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.

Solids:

- Waste must be categorised by the Contractor and disposed of in a suitable manner into separate waste streams (including 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 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 sealed containers must be considered.
- 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 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:

- Storage areas that contain hazardous substances must be bunded with an approved impermeable liner or have some form of secondary containment.
- The Contractor shall keep Material Safety Data Sheets 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 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.
- If an “incident” takes place on site, the main contractor must within 14 days of the incident, report to the Director General, the provincial head of department and the municipality such information as is available to enable an initial evaluation of the incident, including:

    1. the nature of the incident.
    2. the substances involved and an estimation of the quantity released and their possible acute effect on persons and the environment and data needed to assess these effects.
    3. initial measures are taken to minimise impacts.

4. causes of the incident, whether direct or indirect, including equipment, technology, system or management failure.

5. measures taken and to be taken to avoid a recurrence of such incident.

- Chain of Custody documentation must be provided for any hazardous substances disposed of as proof of end recipient.

Concrete works – 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 an 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 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.

8.1.11. Chemical Toilets

- Chemical toilet facilities are to be supplied and managed by the Contractor. These are to be in a specific area agreed to by the ECO prior to placement and to be used by all personnel.
- The number of chemical/portable toilets required on site (i.e. the ratio of persons working on site to number of toilets) must be determined in conjunction with the City of Cape Town Municipality prior to works starting on site. This is typically one toilet per 15 workers.
- 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.

8.1.12. Machinery Management

- Machinery must not be located beneath the foliage of any trees.
- Construction machinery must be located away from sensitive areas when parked for extended periods of time. A dedicated parking area must be defined with drip trays beneath any leaking equipment.
- Fuel/lubricant absorbing media (peat/moss type products) within these drip trays must be used to contain any spilled liquids. These materials must be replaced regularly to prevent over-saturation and potential spillage of free product. This material must be disposed of as hazardous waste and be collected by an approved Contractor/delivered to a suitable waste site. Chain of custody documentation must be provided as proof of final end recipient.
- All spills are to be recorded in the Environmental Register, including any clean-up actions taken to remediate the spillage. Such actions are to be agreed with the ECO prior to taking place.

8.1.13. Noise

- Noise generation is likely to be one of the biggest impacts during the construction phase and can cause nuisance to neighbouring land users if not controlled.

- The receiving environment is an established industrial area; the nearest potential receptors are typically adjacent industrial properties, workers on neighbouring sites, and road users. Notwithstanding the industrial setting, the Contractor shall implement the following controls to minimise noise impacts and comply with applicable occupational health and safety requirements, SANS guidance and relevant municipal noise requirements/by-laws.

- Every attempt must be made to reduce noise levels and maintain appropriate directional and intensity settings to ensure minimum nuisance by the noise source. The Contractor must use modern equipment which produces the least noise. Any unavoidably noisy equipment must be identified and located in an area where it has the least off-site impact. The use of noise shielding screens must be considered and the operation of such machinery restricted to when it is required.

- Vehicles and equipment must be kept in good working condition. If deemed necessary, machinery and equipment must be fitted with mufflers/exhaust silencers. No unnecessary disturbances should be allowed to emanate from the construction site. Noise levels must comply with the relevant health & safety regulations and SANS codes and should be monitored by the Health & Safety Officer as necessary and appropriate.

- No amplified music shall be allowed on site. The use of radios, tape recorders, compact disc players, television sets etc. shall not be permitted unless the volume is kept sufficiently low as to avoid any intrusion on members of the public within range. The Contractor shall not use sound amplification equipment on site unless in emergency situations.

- Working hours control for noisy activities: All high-noise construction activities (including cutting, grinding, drilling, jackhammering, and similar activities) shall be confined to normal construction working hours, unless prior written approval is obtained from the local authority and the Principal Agent/ECO. No noise generating work is to be conducted outside of normal working hours as approved by the local authority.

- A noise complaints register must be maintained within the site office. Any complaints received must be logged, investigated, and corrective actions implemented (e.g., additional screening, revised scheduling, equipment maintenance, relocation of noisy plant), with close-out recorded in the register.

- The appointed ECO must undertake regular site inspections for the duration of the construction phase and produce regular monitoring/audit reports auditing compliance with the conditions of the Environmental Authorisation and the approved EMPr.

Drilling

- In the event that rock drilling are required, the following recommendations will be implemented in addition to normal health and safety requirements as stipulated in the Occupational Health and Safety Act (Act No. 85 of 1993).
- These activities will only take place through a competent and appropriately qualified Contractor.
- The Contractor shall take all necessary precautions to prevent damage to special features and the general environment, which includes the minimisation of, and if required the removal of any fly rock.
- Environmental damage caused by the above activities shall be repaired and/or rehabilitated at the Contractor’s expense to the satisfaction of the ESO and Principal Agent.
- None of the above activities may be done on Sundays or Public Holidays.

8.1.14. Lighting

Any temporary lighting required by the Contractor shall be aimed strictly at the area to be lit on site and the overspill must be kept to a minimum. The site is located in an industrial area, and the objective is to avoid nuisance to adjacent land users and prevent glare hazards to road users and neighbouring properties.

The following must be implemented:

- Use the minimum lighting required for safe work and security.
- Use shielded, downward-directed luminaires (no upward spill) and orient lights away from site boundaries and public roads where practicable.
- Avoid floodlighting unless absolutely necessary; where used, fit shielding and limit operating times.
- Switch off temporary lighting immediately when no longer required.
- If night work is required, the Contractor must implement additional controls to prevent nuisance (shielding, reduced lux levels, limited hours) and must obtain any required approvals in line with local authority requirements and the project's approved working hours.

8.1.15. Traffic Impacts (Access and Traffic Control)

The following must be implemented to reduce traffic impacts:

- All drivers will be competent and in possession of an appropriate valid driver's license.
- All vehicles travelling on site will adhere to the specified speed limits.
- The movement of all vehicles will be controlled such that they remain on designated routes.
- No member of the workforce will be permitted to drive a vehicle under the influence of alcohol or narcotic substances.

8.1.16. Frequency of visits by the Environmental Control Officer

- The frequency of visits by the ECO must be agreed with the Principal Agent, but as an initial starting point, it is recommended that short inspections (of approximately one hour duration) be carried out bi-weekly, or as required.
- An initial meeting with the ECO, Principal Agent and Contractor must be held to familiarise each of the parties with each other, the site, the EMP and to confirm communication methods.
- The frequency of subsequent meetings and ECO visits must be agreed, depending on the performance of the Contractor. If required the Principal Agent may introduce some form of penalty system if compliance with the EMP proves problematic.
- A brief summary of the findings and any recommendations made by the ECO per visit should be emailed to all parties including the Principal Agent and Contractor.

8.2. Matters Pertaining to Non-Conformance

"Non-conformances" would occur when there are deviations from any of the construction requirements of this EMP. This may also include non-compliance with the relevant environmental regulations.

The Contractor is responsible for reporting non-conformance with the EMP, to the ECO. The applicant and Contractor, in consultation with the ECO must, thereafter, undertake the following activities:

- Investigate and identify the cause of non-conformance;
- Report matters of non conformance to the local municipality (within a suitable timeframe, dependant on the severity of the incident);
- Implement suitable corrective action as well as prevent recurrence of the problem.
- Assign responsibility for corrective and preventative action.
- Any corrective action taken to eliminate the cause/s of non-conformance shall be appropriate to the magnitude of the problems and commensurate with the environmental impact encountered.

Records

The Contractor must maintain and update the register of non-conformance. The record shall specifically contain a list the instances of non-conformances found in the EMP, the date of their occurrence, date of corrective action, and date of completion of preventive action. In addition, matters of non-conformance and corrective action must be included within the audit reports. Records must be are legible, identifiable, protected and easily retrieved for review.

Fine and Penalties relating to non-conformance/contraventions

The Contractor must comply with the environmental requirements of the construction phase requirements of this EMP on an ongoing basis and any failure on his part to do so will entitle the ECO and Principal Agent to impose a fine subject to the details set out below. Moneys from fines/penalties will be managed and allocated at the discretion of the Principal Agent.

1) Spot fines

Spot fines will be issued per incident in addition to any remedial costs incurred as a result of non-conformance with the EMP, at the discretion of the Principal Agent and ECO. The ECO may *recommend* the imposition of fines and penalties, but the Principal Agent will be responsible for imposing such fines or penalties against the account of the Contractor. Fines will be imposed on the Contractor for contraventions of the EMP by individuals or operators employed by the Contractor and/or any sub-Contractors. The Principal Agent will inform the Contractor of the EMP contravention and the amount of the fine. These monies will be recovered by the Principal Agent from the Contractor.

Failure by the Contractor to pay fines imposed by the Principal Agent within 14 days of the fine being imposed may result in a “Stop Works” order being issued by the Principal Agent until the matter is resolved. Any costs incurred as a result of the “Stop Works” order will be for the account of the Contractor.

The following spot fines are recommended for contraventions (plus any rehabilitation costs if applicable):

a. Any individual/s littering on site: R50 on first offence and R250 on further offences.
b. Any individual/s burning waste on site: R250 on first offence and R1000 on further offences.
c. Any individual/s dumping waste on site: R250 on first offence and R1000 on further offences.
d. Any violation of a Method Statement: R250 for first offence and R1500 on further offences.
e. Any individual causing avoidable disturbance to fauna and flora on site: R250 on first offence and R1000 on further offences.

2) Penalty fines

Penalty fines will be implemented where the Contractor repeatedly fails to comply with the specifications of this EMP the Contractor will be liable to pay a penalty fine over and above any other contractual consequence.

The following penalty fines (per repeat offence) are recommended for transgressions:

a. Ongoing littering on site: R2500 plus any rehabilitation costs, if applicable.

b. Ongoing dumping of any waste on site: R10 000 plus any rehabilitation costs, if applicable.

c. Ongoing burning of any waste on site: R10 000 plus any rehabilitation costs, if applicable.

d. Ongoing transgression of a Method Statement: R10 000 plus any rehabilitation costs, if applicable.

e. Ongoing disturbance to Fauna and Flora on site: R5000 plus any rehabilitation costs, if applicable.

3) Other fines

a. Any individual/s causing damage to identified sensitive natural areas: R5000 plus any rehabilitation costs.

b. Any individual/s causing damage to identified sensitive heritage areas: R5000 plus any rehabilitation costs.

c. Any individual/s causing irreparable damage to the environment: R10 000.

d. Injuring or killing of any wildlife: R5000 plus any rehabilitation costs, if applicable.

The above recommended fines are applicable and relevant to the construction phase of this EMP and as such do not exempt the Developer from other legal obligations such as *Section 24(h)* National Environmental Management Second Amendment Act, Act No. 107 of 1998, which states that it is "*an offence for any person to contravene conditions applicable to any environmental authorization granted for a listed activity. A person convicted of an offence is liable to a fine not exceeding R5 million or to imprisonment for a period not exceeding ten years, or to both such fine and such imprisonment"*

An Environmental Management Plan constitutes a *Condition* applicable to an *Environmental Authorisation* and any transgression would thus trigger *Section 24(h)* of the above-mentioned Act. The exact penalty and fines will be decided on, subsequent to consultation with DEA&DP and the local municipality.

All staff working on-site must be made aware of the penalties and fines associated with non-conformance. The ECO will be responsible for ensuring that the penalty system is maintained and enforced. Should disputes arise between the Developer, Engineer, Contractor or ECO with respect to the above then the matter will be referred for arbitration at the Developer's account.

9. POST CONSTRUCTION & CLOSE OUT PHASE

(a) Final site cleaning - The Contractor shall clear and clean the site and ensure that everything not forming part of the permanent works is removed from site prior to practical completion/issue of the completion certificate, or as otherwise agreed with the Principal Agent and ECO. All temporary works, temporary fencing and demarcations, unused materials, packaging, surplus chemicals/consumables, and construction equipment must be removed from the site. The site must be cleared of all litter.

(b) Rehabilitation - No revegetation or ecological rehabilitation is anticipated because works are within an existing industrial warehouse and existing hardstand areas. Rehabilitation for this project is defined as reinstatement of the built environment, including:

- Removal of concrete/cement residues, metal swarf, dust build-up and construction staining from hardstand and work areas;
- Repair/reinstatement of any damaged hardstand, kerbing/bunds, stormwater inlets, and building finishes; and
- Confirmation that no construction residues remain that could contaminate stormwater.

(c) Waste removal and disposal – All rubble, construction waste, used consumables, and contaminated absorbents generated during construction must be removed from site to **approved/licensed facilities**. Burying or burning rubble or waste on site is prohibited.

(d) External roofed dross/filter-dust storage bay: close-out acceptance criteria (must be confirmed before commissioning) – Prior to commissioning, the Contractor/Principal Agent must confirm and document that the external roofed storage bay for dross and filter-captured dust meets the following minimum requirements:

- Impermeable hardstand in the bay area (or upgraded where impermeability cannot be demonstrated)
- Bunded/contained (kerbing/bunding/contained bay walls) to prevent migration of solids and to allow containment of any contaminated runoff
- Stormwater-protected, including clean stormwater run-on diversion away from the bay and no uncontrolled discharge of runoff arising within the bay

(e) The site is to be cleared of all litter.

(f) Surfaces are to be checked for waste products from activities such as concreting or asphalting and cleared in a manner approved by the Principal Agent.

(g) Stack/abatement installation and emissions routing: commissioning readiness (must be confirmed before first melt) – Prior to commissioning and prior to any melting or casting operation, the Contractor/Principal Agent must confirm that the stack/ducting/abatement system is fully installed and functional, and that emissions will be routed through the abatement system prior to discharge, with no bypass arrangement unless explicitly authorised by the relevant licence/conditions. Commissioning must not proceed until the abatement system is operational and verified by the Site Manager and Maintenance Supervisor.

(h) Handover of environmental management system (registers and responsibilities) – Prior to commissioning, the Contractor/Principal Agent shall hand over the following to the site operator (Applicant) and confirm understanding through a handover meeting and signed attendance register:

- the Operational Environmental Register (hard copy and/or controlled electronic version) and all construction-phase entries and close-out actions;
- the Complaints Register and the complaints response procedure;
- the Stack & Abatement Maintenance Log template/system (including maintenance schedules and supplier manuals); and
- the Spill Register/Incident Forms and the location and contents of spill kits.

(i) **Close-out inspection and sign-off** – A joint close-out inspection must be undertaken by the Principal Agent, Contractor and ECO. The inspection must verify: (i) site clearance and waste removal, (ii) reinstatement/cleanliness of work areas, (iii) integrity of stormwater infrastructure, (iv) compliance of the external roofed storage bay (impermeable/contained/stormwater-protected), and (v) commissioning readiness of stack/abatement installation. Any non-conformances must be recorded in the Environmental Register with corrective actions and deadlines prior to final sign-off.

10. OPERATIONAL PHASE IMPACTS

10.1. Dust control & housekeeping

Impact pathway: fugitive dust and nuisance from handling or storage of scrap, dross, filter dust, and from doors/openings during operation.

Operational controls (mandatory):

1. Enclosure and capture-at-source: All primary processing will occur inside the existing warehouse and emissions from the furnace will be routed via the abatement/filtration system prior to discharge through the stack (as per project description).
2. Material handling controls:
    - Minimise drop heights and avoid “throwing” material.
    - Keep roller doors closed except for access/vehicle movements; do not leave doors open during melting/casting unless operationally unavoidable.
3. Housekeeping standard:
    - No dry sweeping of fine dust in operational areas (use industrial vacuuming or damp method only where safe and appropriate).
    - Clean-up of any visible dust deposition in the warehouse, at doors, and in the external residue bay daily (or after each shift).
4. External storage controls: Feedstock, dross and filter dust must not be stored in open skips/stockpiles. Dross and filter dust must be managed in the designated roofed bay described under 10.3 (below).
5. Dust suppression: Do not apply water sprays to dross or filter dust unless a site-specific risk assessment confirms it is safe and appropriate for the waste stream (default control is prevention/containment).

Monitoring & records:

- Daily housekeeping check (operator).
- Weekly inspection of dust sources/tracking (Site Manager).
- Record findings and actions in the Environmental Register (see templates).

Performance criteria:

- No visible dust plumes leaving the building/boundary.
- No dust tracking beyond designated operational areas.
- Complaints trend does not show repeated dust-related issues (see 10.5).

Corrective actions:

- If visible dust occurs: stop the activity causing dust, clean immediately, review handling method, and increase housekeeping frequency; if recurring, revise storage/containment and update SOP.

10.2. Stack and abatement maintenance

A steel chimney or stack fitted with an electrostatic adsorption filter is part of the proposed installation; the stack is described as 8 m long, 250 mm diameter, with approximately 3.575 m above the warehouse roof, and the filtration system is stated to remove 90–95% of dust from exhaust gas.

Preventative maintenance requirements (mandatory):

1. Daily pre-start (operator / maintenance):
    - Confirm extraction fan running (where applicable) and abnormal noise/vibration absent.
    - Confirm no visible leaks from ducting/joints.
2. Weekly inspection (Maintenance Supervisor):
    - Inspect ducting connections, access doors, seals, and supports.
    - Check for dust deposits around joints (leak indicator).
3. Monthly inspection (Site Manager and Maintenance Supervisor):
    - Inspect stack external condition: corrosion, loose brackets, storm damage, bird nesting, obstructions.
    - Inspect abatement unit condition per manufacturer requirements (electrical connections, earthing, controls, alarms—depending on actual technology).

4. Quarterly planned service (competent person or supplier):
    - Service or clean abatement unit as per OEM specification.
    - Verify fan performance and any instrumentation used to indicate performance.
5. Annual structural check (competent person):
    - Confirm stack integrity, anchoring points, and weatherproofing.
    - Confirm that any sampling ports/access platforms (if required by AEL) remain safe and functional.

Operational rules:

- No bypassing of abatement equipment. If abatement fails or is offline, melting or casting must cease until controls are restored.

Trigger & escalation:

- Any abnormal visible emissions, repeated dust complaints, or abnormal equipment indicators trigger: immediate inspection, corrective maintenance, and entry into Environmental Register and Complaints Register.

10.3. Waste storage and waste handling (including dross and filter dust)

Waste streams (minimum): general waste; recyclables; dross; filter-captured dust; used filter media or consumables; oily rags or absorbents from spill response; any chemical containers or flux packaging.

Dross and filter dust storage controls:
Dross and filter-captured dust must be stored in a dedicated covered (roofed) external storage bay outside the warehouse on an impermeable hardstand; the bay must be bunded/contained to prevent migration of solids and to contain any contaminated runoff; the area must be stormwater protected by diverting and ensuring runoff arising within the bay is contained and does not discharge off-site.

Dust prevention in waste storage:

- Filter dust must be kept in sealed, labelled containers.
- Dross must remain under cover with handling controls to minimise dust generation.
- No water spraying of dross/dust unless risk assessed (see 10.1).

Classification and disposal/dispatch controls:

- Filter-captured dust (and dross where managed as a waste stream) must be classified prior to routine disposal; until classification results are available, treat filter dust as potentially hazardous and store sealed/labelled.
- Filter dust must be transported by an appropriately authorised service provider to a licensed disposal facility authorised to accept the classified waste stream (facility name and proof must be filed on site).
- Dross dispatched for further processing must have a chain-of-custody record (mass, date, haulier, recipient, proof of receipt).

Monitoring & records:

- Weekly inspection of waste bay: hardstand condition, bund integrity, housekeeping, evidence of runoff escape.
- Waste manifest/receipts filed monthly.
- All non-conformances recorded with corrective action.

10.4. Spill prevention and spill response procedure

Scope: oils/grease/hydraulic fluids; any fuels (if present); cooling water releases; chemicals/fluxes; contaminated runoff within the waste bay; wash-down water (if any).

Prevention:

- Store any liquids (oils/chemicals) in a designated area with drip trays/secondary containment.
- Keep MSDS available for stored products.
- Maintain a spill kit with appropriate absorbents (Spillsorb/Drizit or equivalent) at: (i) furnace/maintenance area, (ii) loading/offloading area, (iii) waste bay.

Spill response steps (mandatory):

1. Stop the source (shut valve/upright container/stop equipment).
2. Contain immediately (absorbents; block stormwater inlets; prevent discharge off-site).
3. Notify Site Manager and record in Environmental Register (and Complaints Register if any off-site impact).
4. Recover or clean using appropriate absorbents and methods; collect contaminated absorbents/soil/solid residue into labelled containers.
5. Dispose via authorised waste contractor; keep disposal record.
6. Investigate root cause and implement corrective or preventative action.
7. Report to authorities if required by licence or authorisation conditions (Site Manager to confirm triggers)

Performance criteria:

- No spill enters stormwater system or leaves the site boundary.
- Spill response initiated immediately and completed within same shift where practicable.

10.5. Complaints register and response

Requirement: The EMPr already requires complaints to be forwarded and recorded with actions taken.

Operational system (mandatory):

- Maintain a Complaints Register on site permanently (hard copy + digital backup).
- Minimum fields: date/time received; complainant contact; location; issue type (dust/noise/odour/traffic/other); weather conditions (wind); operations underway; immediate response; investigation findings; corrective action; close-out date; communicated outcome; recurrence flag.
- Response timeframes: acknowledge within 1 working day, investigate within 3 working days, close-out within 10 working days (or provide written update if longer).
- Link complaints to specific controls: housekeeping frequency, waste bay condition, abatement maintenance, truck scheduling, door management.
- If repeated complaints of the same type occur within 30 days, trigger a management review and update SOP/maintenance schedule.

10.6. Stormwater management (clean vs dirty areas)

Objective: prevent contaminated runoff leaving site, especially from the external waste bay and loading/handling areas.

Stormwater controls:

1. Define areas:
    - Clean areas: roofs and areas not exposed to waste/material handling (where applicable).
    - Dirty/controlled areas: roofed dross/dust bay and any areas where spills/handling can occur.
2. Run-on diversion: divert clean stormwater away from the dross/dust bay (project requirement).
3. Containment within bay: the bay must retain any runoff arising within it and prevent discharge off-site.

4. Housekeeping: keep the bay clean and clean up promptly to minimise contaminant load.
5. Inspection:
    - Weekly inspection of bunds/kerbs, cracks, evidence of overtopping.
    - After heavy rain: inspect immediately for any containment breach.
6. Prohibition: no washing-down of dusty residues to stormwater. Any wash-down water (if ever required) must be contained and disposed appropriately.

Records: Weekly stormwater inspection checklist and incident records in Environmental Register.

APPENDIX A

METHOD STATEMENT FOR THE:

……..

This method statement is to be completed by the Contractor (in consultation with the Principal Agent and ECO) at least 5 days prior to the proposed commencement date of the said work and represents a binding agreement to the Method Statement by all site Contractors and sub-Contractors involved in the work for which the Method Statement is submitted.

DATE OF SUBMISSION:……

LEAD CONTRACTOR:……

OTHER CONTRACOTRS AND/OR SUB-CONTRACTORS:……

……

A) Describe in detail ***what*** work is to be undertaken?

b) Describe in detail ***where*** on the site the works are to be undertaken and the ***extent***? Provide sketch plan and grid block reference.

B) ***When*** will the works start and what is the anticipated finishing date of these works?

C) How are the works to be undertaken?

1) Lead supervisor/ foreman name and contact details:

2) Number of personnel:

3) Construction activities:

4) Plant and machinery to be used:

5) Materials to be stored (specify hazardous materials):

6) other:

e)What ***environmental impacts are anticipated and what precautions*** are proposed to prevent these impacts? (refer to the relevant sections of the EMP for guidance and provide a general camp layout)

Camp site demarcation:
Toilet facilities:
Litter:
Security:
Plant/machinery (operation, servicing, management, storage, refuelling etc.):

Emergencies and fire:
Hazardous materials (handling, management, storage etc.):
Have all personnel involved have been through environmental induction course?
Petrochemical spill remediation and containment measures:
Other:

DECLARATIONS BY PARTIES

1) CONTRACTOR

I UNDERSTAND THE CONTENTS OF THE METHOD STATEMENT AND THE SCOPE OF THE WORKS REQUIRED OF ME. I FURTHER UNDERSTAND THAT THE METHOD STATEMENT MAY BE AMENDED ON APPLICATION TO THE ABOVE SIGNATORIES, AND THAT THE ENVIRONMENTAL CONTROL OFFICER WILL AUDIT MY COMPLIANCE WITH THE CONTENTS OF THIS METHOD STATEMENT.

_____ (PRINT NAME)

_____ (SIGNED) DATED: _____

2) ENVIRONMENTAL CONTROL OFFICER (ECO)

THE WORK DESCRIBED IN THIS METHOD STATEMENT, IF CARRIED OUT ACCORDING TO THE METHODOLOGY DESCRIBED, IS SATISFACTORILY MITIGATED TO PREVENT AVOIDABLE ENVIRONMENTAL HARM.

_____ (PRINT NAME)

_____ (SIGNED) DATED: _____

3) PRINCIPAL AGENT

THE WORK DESCRIBED IN THIS METHOD STATEMENT, IF CARRIED OUT ACCORDING TO THE METHODOLOGY DESCRIBED, IS SATISFACTORILY MITIGATED TO PREVENT AVOIDABLE ENVIRONMENTAL HARM.

_____ (PRINT NAME)

_____ (SIGNED) DATED: _____

APPENDIX B

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ENVIRONMENTAL CONSULTING

INDUSTRIAL WATER MANAGEMENT PLAN

INTRODUCTION

This document has been prepared by Sillito Environmental Consulting (Pty) Ltd (SEC) as a guide to the main contractors during construction phase as well as to the building users of Alvi's Creations CC – Aluminium Recycling Facility (Elsies River Industrial) during construction and operational phase.

This Industrial Water Management Plan applies to all operational water use and water-related pollution prevention measures for the aluminium recycling facility. The objectives are to: (i) minimise water demand, (ii) prevent contamination of stormwater, soil and groundwater, and (iii) ensure any wastewater is managed lawfully.

Globally, water consumption has risen almost ten-fold in the last decade, and many parts of the world are now approaching their full utilisation of available water resources.

South Africa has always been one of the water scarce countries and as such, water has long been considered a precious and high-demand resource, essential for all living things.

The pressures on fresh water supply are ever-increasing and are affected by many different factors including catchment locations, contaminated freshwater sources, drought and the rising demand on services as government embarks on projects to provide potable water to all communities throughout South Africa.

Sustainable use of potable water in South Africa would not only protect our already stressed resources but will also ensure the availability of the precious resource for future generations.

"All consumers and institutions have the duty towards our country, our environment and themselves to implement adequate measures that contribute to water use efficiency through Water Conservations and Water Demand Management." (Minister of Water Affairs and Forestry: Buyelwa Sonjica, August 2004)

WATER MANAGEMENT MEASURES

By implementing effective water management measures “Unaccounted-for Water” as well as total demand can be significantly reduced.

Water sources and water use profile (facility-specific)

Water sources:

- Municipal potable water supply (make-up water for cooling system and domestic use).

Primary water uses:

1. Cooling system make-up water: cooling tower/recirculating cooling system associated with ingot cooling; the technology description states that a cooling tower and water recovery/recycling is used to minimise water usage.

2. Domestic use: staff ablutions and handwashing (sewered).

3. Cleaning/housekeeping: limited cleaning where required, subject to “no contaminated discharge to stormwater” rules.

CONSTRUCTION PHASE

The following initiatives and management measures can be implemented during the construction phase to ensure sustainable water consumption and prevent water wastage:

Water system controls (avoidance and minimisation)

1.1. Cooling system controls (efficiency and pollution prevention)

- Operate the cooling system as a recirculating system and maintain the water recovery features to minimise make-up water demand.
- Inspect cooling system weekly for leaks (pipework, valves, tower basin, fittings).
- Repair leaks within 24–72 hours depending on severity; isolate if necessary to prevent uncontrolled release.

1.2. Prohibition on contaminated discharges

- No industrial contaminated water (including wash water, spill clean-up liquids, or residue-bay runoff) may be discharged to stormwater or allowed to leave the site boundary.

1.3. Cleaning controls

Avoid hose-down practices that create runoff. Use dry housekeeping as the default, and if wet cleaning is unavoidable, ensure water is contained and managed appropriately.

1.4. Stormwater protection interface (mandatory)

- The external roofed residue bay is treated as a controlled “dirty area”; clean stormwater run-on must be diverted away, and any water arising within the bay

must be contained and must not discharge off-site (see EMPr Section 10 Stormwater Management).

1.5. Wastewater and sewer management

- Domestic sewage must be discharged to the municipal sewer system via the existing connection.
- No industrial effluent is anticipated other than sewage (to be confirmed against cooling system configuration and any blowdown).

1.6. Monitoring, responsibilities and records

- Monitoring
  Daily: operator checks for visible leaks, standing water, wet staining near plant.
  Weekly: site manager inspection of cooling system and stormwater protection measures.
  Monthly: review municipal water consumption (trend analysis; investigate abnormal increases).
- Records to keep

  Cooling system inspection and maintenance log, Leak/spill incident forms (if applicable), Monthly water use record (kL/month) with notes on anomalies and any approvals/records for blowdown management (if applicable).

1.7. Performance criteria

- No contaminated runoff leaves site.
- No contaminated discharge to stormwater.
- Water consumption trends are monitored and explained.

Impact Management Outcome:	To avoid the contamination of surface and groundwater resources by inappropriate waste management practises, fuel and oil spills, chemical toilet spills and inappropriate cement mixing.		
IMPACT MANAGEMENT ACTIONS:			
Mitigation Measure		**Responsible**	**Time Period**

➢ The appointed Environmental Control Officer (ECO) must undertake at least one site inspection per month, for the duration of the construction phase, and to produce a short ECO monitoring audit report, auditing on the compliance of the property developer with the conditions of the Environmental Authorisation and the approved EMPr. 1) Liquid Waste: • 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 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).	Construction Contractor	Construction Phase

2) Solid Waste: • Waste must be categorised by the Contractor and disposed of in a suitable manner into separate waste streams (this includes general, hazardous and recyclable waste). • The Contractor must provide an adequate number of waste receptacles for general waste at points around the construction site as well as for hazardous and recyclable waste. • Waste is to be collected either by the Municipality or via a licensed waste disposal Contractor. • The frequency of collections/emptying of waste receptacles will be of 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 ECO. • 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 phase shall be managed in such a way that it does not cause pollution, or that it 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. 3) Hazardous Waste: • 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 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. 4) Cement/concrete mixing areas 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 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. 5) Ablution Facilities • 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/portable toilets required on site (i.e. the ratio of persons working on site to number of toilets) must be determined in conjunction with the City of Cape Town Municipality prior to works starting on site. This is typically one toilet per 15 workers. • 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.		

Performance Indicator:	➢ The ECO will monitor the site to check that the measures have been implemented. ➢ The environment is not polluted or contaminated as a result of construction activities on site. ➢ Spillage incidents are effectively contained and do not lead to pollution of the water resources. ➢ Waste is reduced, reused and recycled where possible.

Objective 2: Avoid High and Inefficient Water Usage

<table>
<tr><td>Impact Management Outcome:</td><td colspan="3">To avoid high and inefficient water usage during construction.
To avoid any non-compliance with the local authority by-laws and any other statutory requirements relating to water efficiency.</td></tr>
<tr><td colspan="4">IMPACT MANAGEMENT ACTIONS:</td></tr>
<tr><td colspan="2">Mitigation Measure</td><td>Responsible</td><td>Time Period</td></tr>
<tr><td colspan="2">➢ The appointed Environmental Control Officer (ECO) must undertake at least one site inspection per month, for the duration of the construction phase, and to produce a short ECO monitoring audit report, auditing on the compliance of the property developer with the conditions of the Environmental Authorisation and the approved EMP.

1) Water Efficient Technologies
• Most construction activities on site demand water in one form or another. Potable water is not be used for most of these activities with the exception of cases where hygiene, health or product quality will be compromised.
• The demand and use of potable water should be reduced at all times. This should be done by the identification of alternative water sources (other than potable water) for as many of the construction activities on site as possible as well as possibilities for re-use of water on site during construction.
Site office:
• Potable water should be used only for drinking.
• Chemical toilets must be used on site during construction.
General cleaning:
• Tool rinsing and plant and equipment washing must be done with non-potable water.
• A closed water recycling system is recommended for cleaning activities during construction.

Dust suppression:
• Should dust suppression by means of damping and misting be required this must be undertaken by using non-potable water sources.
• Other means of dust suppression such as the use of netting and/or straw/hay.</td><td>Construction Contractor</td><td>Construction Phase</td></tr>
<tr><td>Performance Indicator:</td><td colspan="3">➢ The ECO will monitor the site to check that the measures have been implemented.
➢ Efficient water use is being undertaken on site at all times.</td></tr>
</table>

APPENDIX C

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ENVIRONMENTAL CONSULTING

ENERGY MANAGEMENT PLAN – ALVI'S CREATIONS CC (ALUMINIUM RECYCLING FACILITY)

INTRODUCTION

This document has been prepared by Sillito Environmental Consulting (Pty) Ltd (SEC) as a guide to the main contractors during construction phase as well as to the building users of Alvi's Creations CC – Aluminium Recycling Facility (Elsies River Industrial) during the operational phase.

This Energy Management Plan applies to the operation of the Alvi's Creations CC aluminium recycling facility and sets out practical measures to minimise electricity demand, improve energy efficiency, and reduce avoidable nuisance and emissions associated with inefficient or poorly maintained plant. The plan is aligned to the facility's main electrical loads, including the electric melting furnace, extraction/abatement equipment, cooling system and material handling equipment, and is implemented through monitoring, preventative maintenance and operating discipline.

Energy consumption at the Alvi's Creations CC aluminium recycling facility is driven primarily by industrial process equipment rather than building-use energy demand. The main electrical loads are the electric aluminium melting furnace, the extraction and emissions abatement equipment (including fans/controls), and the cooling system associated with ingot production, with secondary loads from lighting and general site services. Energy performance will therefore be managed as a function of production throughput and operating discipline, and will be monitored using an energy intensity indicator (kWh per ton of product/output) to identify abnormal consumption trends and maintenance/operational opportunities for improvement.

ENERGY MANAGEMENT MEASURES

This Energy Management Plan applies to all operational energy use at the facility and aims to reduce energy intensity (kWh/ton output), maintain stable operations, and minimise avoidable emissions and nuisance linked to inefficient or poorly maintained equipment.

Major energy loads

Primary loads are expected to include:

- Electric furnace (electric induction furnace) for aluminium melting (core process).
- Extraction/abatement system (fans, controls) associated with the stack and filtration unit.
- Cooling tower and pumps for ingot cooling with water recovery/recycling features.
- Material handling equipment (forklifts where electric, lighting, ancillary services).

Operational energy efficiency controls

(1) Furnace and process scheduling
   - Operate in planned batches and avoid unnecessary re-heats. The process description indicates batch melting cycles (e.g., ~500 kg per cycle and ~1.5 hours per batch), which supports planned scheduling to reduce inefficiency from stop-start operation.
   - Align high-load operations with operational planning to reduce peak demand charges where possible (subject to operational constraints).

(2) Preventative maintenance for energy efficiency
   - Maintain furnace electrical components, refractory/lining (where applicable), and controls as per OEM to prevent energy losses.
   - Maintain fans, motors and ducting to prevent leakage and loss of performance (leaks increase required fan work and reduce capture effectiveness).

- Maintain cooling tower/pumps to prevent inefficient operation due to scale, fouling or leaks.

(3) Demand management and shutdown discipline

- Switch off non-essential loads when not in use (lighting zones, ancillary equipment).
- Investigate abnormal energy consumption trends and implement corrective actions.

Load-shedding / supply interruption operational control

- Use an operational plan to manage interruptions (safe shutdown and restart procedures to prevent equipment damage and avoid uncontrolled emissions).
- If backup generation is ever proposed, it must be assessed separately (noise/air emissions and legal compliance)

Monitoring, responsibilities and records

Monitoring

- Monthly: electricity consumption (kWh) and production throughput (tons), calculate and track kWh/ton trend.
- Quarterly: management review of energy intensity trends and maintenance records.

Records

- Monthly energy and throughput log (kWh; tons; kWh/ton)
- Maintenance logs for furnace, fans, motors, cooling system
- Corrective action log for abnormal increases

Performance criteria

- Measurable tracking of kWh/ton and documented actions where performance degrades.
- Preventative maintenance completed as scheduled.

APPENDIX D

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ENVIRONMENTAL CONSULTING

GENERIC INTEGRATED WASTE MANAGEMENT PLAN

INTEGRATED WASTE MANAGEMENT PLAN

1. **OVERVIEW**

This integrated waste management plan is prepared in respect of Alvi's Creations CC – Aluminium Recycling Facility (Elsies River Industrial).

Purpose and scope

This IWMP applies to all waste and residue streams generated during operation and aims to ensure:

- waste minimisation and separation at source;
- lawful classification, storage, transport and disposal/recovery;
- prevention of dust dispersion and stormwater contamination; and
- full audit trail (records, manifests, receipts).

2. **WASTE CATEGORISATION**

Waste categorisation (project-specific): Waste and residues generated by Alvi's Creations CC – Aluminium Recycling Facility will be managed as the following site-relevant streams:
(1) **General waste** (office/canteen waste and similar non-hazardous refuse) managed via municipal collection or an authorised general waste contractor;
(2) **Recyclables** (packaging such as cardboard/plastics/metal strapping) separated at source and sent to recycling service providers;
(3) **Process residues** (including **aluminium dross** and **filter-captured dust**) managed as the dominant environmental risk stream, stored and handled under containment and stormwater protection, and **classified (where required) prior to disposal** with full chain-of-custody;
(4) **Maintenance-related wastes** (used oils/greases, oily rags/absorbents, contaminated spill clean-up waste) stored in sealed, labelled containers and removed by authorised contractors; and
(5) **Construction/installation wastes** (scrap metal offcuts, packaging, small quantities of rubble) removed to approved facilities, with no on-site burial or burning.

1. **Hazardous**: filter dust, cement, cement bags, paint and other chemical products.
2. **Recyclable**: wrapping from suppliers, paper, cardboard, cans, glass.
3. **Building Rubble**: concrete, bricks.
4. **General**: Food waste.

The waste items identified above are not an exhaustive list. A change in the nature or location of works may result in a change in the type of waste produced and therefore the site manager must continuously monitor waste production in order to determine if the existing waste management plan is fit for purpose or requires amendment.

Waste / residue stream	Segregation & storage (mandatory)	Collection / destination	Records required
General waste (canteen/office)	Closed bins; prevent litter; no burning	Municipal collection or authorised contractor	Waste collection schedule/receipts
Recyclable packaging (cardboard/plastics/metal straps)	Segregate; store in covered area to prevent windblown litter	Recycling service provider	Weighbridge/receipt where available
Aluminium dross (process residue)	Store only in the roofed external residue bay; keep under cover; minimise dust; prevent stormwater contact	Dispatched for further processing to authorised recipients (chain-of-custody)	Dispatch records (mass/date/haulier/recipient/receipt)
Filter-captured dust (abatement residue)	Store in sealed, labelled containers only; keep in roofed residue bay; prevent stormwater contact	Authorised waste contractor → licensed disposal facility authorised to accept the classified waste	Waste classification results; manifests; disposal receipts; facility acceptance
Used filter media/consumables (if applicable)	Bag/contain; store covered; prevent dust	Authorised contractor to licensed disposal	Disposal receipts/manifests
Oily rags, used absorbents, spill clean-up waste	Sealed containers; label as “contaminated absorbents”	Authorised contractor to licensed facility	Spill incident form + disposal record
Used oils/greases (maintenance)	Store in sealed drums in bunded area	Authorised oil recycler/disposal facility	Safe disposal certificate / recycling receipt
Chemical/flux packaging	Keep empty containers sealed/closed; store covered	Dispose/recycle per classification and contractor guidance	Disposal receipts

Dross and filter dust must be stored only in the dedicated roofed external bay on an impermeable hardstand**,** bunded/contained**, with** clean stormwater run-on diverted away **and** no uncontrolled discharge **of** runoff from the bay. Filter dust must be in sealed labelled containers **and** removed by an authorised contractor to a licensed facility once classified.

3. WASTE PLANNING & STORAGE

The developer is to create dedicated waste streams which are safely stored, protected from the weather and the storage containers are of adequate size and fit for purpose. The developer is advised that the waste stream storage is to be contained in 240 litre Municipal type wheelie bins. All waste containers are to be marked Hazardous, Recyclable or Building Rubble (full names used and not abbreviations).

In the case of Builders Rubble, due to the magnitude of the potential volume of waste in this waste stream, skips, larger containers and or refuse bags (for dry waste) may need to be used. These should all be covered and protected from the weather, including rain and wind.

The Site Manager should be notified if more waste bins are required or if bins are broken or stolen. If required, the site manager will make an application to the City for replacement or additional waste bins (See Appendix B for contact details).

A designated site camp area should be established where workers can rest, have lunch breaks and use portable toilet facilities. One of the purposes of a designated site camp is to contain refuse generated by workers in an enclosed area where it can be collected and disposed of via the relevant waste stream.

All waste activities shall be in line with this Integrated Waste Management Plan.

All waste service providers used shall be appropriately licensed and registered with the relevant authorities in accordance with relevant statutory requirements.

SEPARATION OF WASTE

All waste shall be separated into the appropriate categories, these shall include:

- Recyclable
    - Metals
    - Plastics, including wrapping from suppliers
    - Glass
    - Paper
    - Cardboard

    - Wood
    - Oil and Oily Water
- General Waste
    - Food/cooking waste
    - Non-recyclable plastics
    - Cigarette buts
- Hazardous waste
    - Cement and cement bags
    - Filter dust
    - Paint
    - Batteries
    - Florescent light fittings
    - Surplus or used chemicals and their containers
    - Hazardous material contaminated soil or water
    - Other hazardous waste
    - Waste water from wash-downs as well as from bunded areas

All waste and recycling shall be separated into the various categories in the appropriate bins, skips and storage containers by dedicated staff. These containers should be located in a dedicated waste storage area which is protected from the weather. This area will also be secure and will have sufficient natural ventilation in order to prevent the build-up of offensive smells and odours.

4. POTENTIAL WASTE REDUCTION, RECOVERY AND RECYCLING

Various waste reduction methods may be used in order to reduce the volume and the hazardous nature of wastes wherever possible and will include:

- Where possible all paint used will be lead free and will be solvent free or Low VOC (volatile organic compounds)
- Green cleaning products and materials will be used wherever possible
- Use of reusable pallets and materials containers wherever possible
- Recycling and reuse of materials as described in **Table 1** below if possible if sufficient volumes of recyclables are available.

Table 1: Potential Recycling and Reuse of Materials

Material	Detail
Cardboard	Cardboard is an excellent candidate for recycling because it is easily separated from other materials. It is bulky and it is possible to generate revenue from this waste stream if managed correctly.
Paper	Waste paper is likely to be generated by the on-site office. Office paper is usually collected in two grades: high-grade and mixed paper. High-grade paper typically consists of white copier paper, white computer paper, white office stationery, and white note paper. Mixed office paper includes all other paper generated in an office, including white and coloured paper, file folders, manila envelopes, etc. newspapers and magazines may be collected separately, as they are a different type of fibre. Mixed paper is considered low quality and generally yields low market prices. The highest prices are paid for high-grade paper with little contamination.
Glass	Glass is readily recyclable. Depending upon the vendor and the quantity of material, glass containers may have to be separated from other containers or separated by colour. Non-bottle glass, such as window glass or light bulbs, should not be mixed in a bottle recycling program.
Plastics	The most easily recycled plastics are containers comprised of polyethylene terephthalate (PET)—primarily and high density polyethylene (HDPE). PET bottles are marked number 1; HDPE bottles are marked number 2.
Metals	Metal tins/cans and other scrap metals are readily recyclable. They can usually be mixed with aluminium because they are easily extracted from the recycling stream with magnets.
Used Oil	Used oil is readily recyclable, this can be cleaned and processed into fuels for various appliances such as boilers, incinerators, etc.
Builders rubble/ builders waste	Construction, demolition, and/or renovation of a structure can produce an enormous amount of waste known as builder's rubble or builders waste. Much of this material can be reused or recycled. There are two types of waste created on a project site: (1) non-hazardous waste; (2) hazardous waste. It is important that all contractors are aware of all relevant regulations that impact the generation, storage, transport and disposal of hazardous waste items, such as lead-based paint, mercury, tires, and oil.
Oily rags	Oily rags can be cleaned and returned for reuse.
Pallets	Wooden pallets may be used for material transport. When an untreated wooden pallet can no longer be reused or repaired, it can be managed as any other clean wood waste. As long as it is not chemically treated wood, it can be ground up for use as landscape mulch, animal bedding, compost, soil amendment, boiler fuel or core material for particleboard. Pallet users can avoid end-of-life issues by opting

	to lease their pallets, using a pallet management company, or switching to reusable plastic pallets. Any treated wooden pallets should be segregated from untreated pallets.

5. DISPOSAL OF WASTE

The following are EMPr requirements for waste storage, handling, transport and disposal for this project. Where an Environmental Authorisation is issued and incorporates this EMPr, these requirements must also be implemented as binding authorisation conditions:

- All building material and rubble is removed upon completion of construction activities.
- Any solid waste must be disposed of at a licensed landfill.

All waste for landfilling will be disposed of at the appropriate waste disposal site. General waste will be disposed of via the Municipal solid waste management collection system wheelie bin collection). Hazardous waste and builder's rubble type waste is to be collected by specific contractors as required.

6. WASTE SERVICES AND VENDORS

A variety of waste service providers will be utilised to remove waste and recycling from Alvi's Creations CC – Aluminium Recycling Facility (Elsies River Industrial) . All providers will have the following requirements:

- To be appropriately licenced and registered with the various authorities. These being the local, provincial and national organs of state and the Integrated Pollution and Waste Information System (IPWIS).
- To supply certificates of safe disposal for hazardous waste and recycling removed from site.
- To provide chain of custody documentation of all non-hazardous waste and recycling removed from site.
- All scrap metal recyclers to be registered in terms of the Second-Hand Goods Act and Regulations.

i. Recycling companies:

- Consol Glass, Greens Bottle Recyclers, etc.

- Mpact, etc.
- Atlantic Plastic Recycling, etc.
- SA Fine Trading, L.O. Rall, SA Metal
- Rags4us
- Green Office
- Manila Productions
- African Green Oil
- Fuel 44

ii. Waste transport/disposal Companies

- Waste Busters
- Enviroserv
- Averda
- Municipal Waste Collection and disposal

7. TRACEABILITY

All waste removed from the site will be traceable from its removal to its final disposal to a landfill, incineration, recycling, or any other type of final disposal facility. This traceability will be provided by unique numbering on a manifest, safe disposal certificates, etc. These should be kept on site as cradle to grave and cradle to cradle proof.

8. TRAINING AND COMMUNICATION

All employees will be trained and educated in relation to the waste management systems by management. Attendance registers will be kept relating to the training.

All contractors will be expected to ensure all their employees are trained and comply with the requirements of the Waste Management Plan with the help of Inductions and Toolbox talks.