

# ENVIRONMENTAL MANAGEMENT PROGRAMME

GET ALLOYS SCRAP ALUMINIUM FOUNDRY ON REMAINDER OF PORTION 1 OF  
FARM DRIEFONTEIN NO. 87-IR, GERMISTON



The  
Environmental  
Practice

☎ 021 788 9323 | 083 695 1664  
✉ [colleen@enviroprac.co.za](mailto:colleen@enviroprac.co.za)  
🌐 [www.enviroprac.co.za](http://www.enviroprac.co.za)

*April 2022*

GDARD Reference Number: Gaut 002/21-22/10002

Enviroprac Reference Number: GETA Germiston

## TABLE OF CONTENTS

<b>1</b>	<b>INTRODUCTION .....</b>	<b>1</b>
<b>2</b>	<b>DETAIL AND EXPERIENCE OF THE EAP WHO PREPARED THE EMPR .....</b>	<b>1</b>
<b>3</b>	<b>PROJECT DESCRIPTION.....</b>	<b>1</b>
<b>4</b>	<b>ASPECTS COVERED BY THIS EMP .....</b>	<b>3</b>
4.1	WASTE.....	3
4.2	AMBIENT AIR QUALITY .....	3
4.3	NOISE IMPACTS .....	4
4.4	GEOLOGICAL IMPACTS.....	4
4.5	SOIL AND GROUNDWATER CONTAMINATION.....	4
4.6	IMPACTS ON HERITAGE RESOURCES .....	4
4.7	BIOPHYSICAL IMPACTS (TERRESTRIAL & AQUATIC BIODIVERSITY).....	4
4.8	SOCIO-ECONOMIC IMPACTS (BENEFITS) .....	5
4.9	IMPACTS ON AIR QUALITY / POLLUTANTS.....	5
4.10	INCREASE TRAFFIC AND CONGESTION – NUISANCE .....	5
4.11	POTENTIAL RISK OF SOIL, GROUNDWATER, AND SURFACE WATER CONTAMINATION (INDIRECT) .....	6
4.12	ADVERSE OCCUPATIONAL HEALTH EFFECTS ON STAFF DUE TO SIGNIFICANT LEVELS AND PERIODS OF EXPOSURE .....	6
4.13	NOISE RESULTING IN NUISANCE FACTORS / POTENTIAL COMPLAINTS.....	6
4.14	WASTE IMPACTS .....	6
4.15	IMPACT ON NATURAL RESOURCES (POSITIVE) .....	6
4.16	SOCIO-ECONOMIC (EMPLOYMENT OPPORTUNITIES) .....	7
4.17	SOCIO-ECONOMIC (CONTRIBUTION TO CAPITAL INVESTMENT).....	7
4.18	SOCIO-ECONOMIC (CONTRIBUTION TO THE ECONOMY).....	7
4.19	CONTRIBUTION TO GREEN ECONOMY AND NATIONAL WASTE DIVERSION FROM LANDFILL OBJECTIVES AND TARGETS .....	7
<b>5</b>	<b>ROLES AND RESPONSIBILITIES.....</b>	<b>9</b>
<b>6</b>	<b>LEGISLATIVE FRAMEWORK AND OBLIGATIONS.....</b>	<b>10</b>
<b>7</b>	<b>IMPACT MANAGEMENT OUTCOMES, TARGETS AND MEASURES .....</b>	<b>12</b>
7.1	PLANNING & DESIGN PHASE IMPACTS.....	12
7.2	PRE-CONSTRUCTION PHASE IMPACTS .....	13
7.3	CONSTRUCTION PHASE IMPACTS .....	14
7.3.1	<i>Waste and Wastewater Management .....</i>	<i>14</i>
7.3.2	<i>Noise and Visual .....</i>	<i>17</i>
7.3.3	<i>Geological.....</i>	<i>18</i>
7.3.4	<i>Materials and Chemicals Storage and Handling (potential for soil and groundwater contamination).....</i>	<i>18</i>
7.3.5	<i>Fire and Safety.....</i>	<i>20</i>
7.3.6	<i>Traffic Control .....</i>	<i>21</i>
7.4	OPERATIONAL PHASE MITIGATION MEASURES.....	22
7.4.1	<i>Potential for Soil and Groundwater Contamination .....</i>	<i>22</i>
7.4.2	<i>Atmospheric Emissions .....</i>	<i>23</i>
7.4.3	<i>Risk of Fire &amp; Explosion; Health and Safety of Staff.....</i>	<i>25</i>
7.4.4	<i>Noise .....</i>	<i>27</i>
7.4.5	<i>Traffic Control .....</i>	<i>28</i>
7.5	DECOMMISSIONING PHASE IMPACTS & REHABILITATION .....	29
<b>8</b>	<b>IMPLEMENTATION OF THE EMPR .....</b>	<b>29</b>
8.1	MONITORING, AUDITING AND REPORTING.....	29
8.2	ENVIRONMENTAL AWARENESS AND TRAINING .....	31
8.3	ADDRESSING NON-CONFORMANCES ON SITE .....	32

### List of Annexures

<b>Annexure A</b>	POSSIBLE METHOD STATEMENT TEMPLATE
<b>Annexure B</b>	SITE LAYOUT PLAN
<b>Annexure C</b>	OPERATIONAL PHASE STANDARD OPERATING PROCEDURES AND PREVENTATIVE MAINTENANCE PLANS, INCLUDING DROSS MANAGEMENT PROCEDURE (TO BE POPULATED BY CLIENT PRIOR TO COMMISSIONING)
<b>Annexure D</b>	INCIDENT REGISTER AND BASIC ACCIDENT REGISTER TEMPLATES
<b>Annexure E</b>	EAP CURRICULUM VITAE'S
<b>Annexure F</b>	MATERIAL SAFETY DATA SHEETS
<b>Annexure G</b>	EXAMPLE OF CHECKLIST FOR DOCUMENTATION AND ACTIVITIES ON AND PRIOR TO SITE CONSTRUCTION
<b>Annexure H</b>	NEMA SECTION 30 INCIDENT REPORT TEMPLATE

## 1 INTRODUCTION

GeT Alloys (Pty) Ltd plans to develop a foundry for the production of aluminium alloy and copper from scrap. The site identified for the development is a developed industrial facility situated on un-subdivided portion of remainder of portion 1 of farm Driefontein No. 87-IR (“the proposed property”), Shaft Road, Germiston Knights industrial area, Gauteng. Get Alloys’ plan is to install the infrastructure needed for the foundry. This will include furnaces and other machinery to produce 2000 tons of aluminium alloy per month.

Other activities will include upgrading the buildings on site and constructing new buildings. A second phase of development (anticipated at this stage to occur between 2022 and 2023) will include installing furnaces for the melting of scrap brass and copper to produce 100 tons of copper per month.

This EMP, compiled in terms of Section 11 of the National Environmental Management Act, 1998 (Act No. 107 of 1998), Section 24N of the National Environmental Management Act, Act No. 107 of 1998 (as amended) (NEMA) and Appendix 4 of the 2014 EIA Regulations, provides a pro-active and practical working mechanism to aid GeT Alloys to avoid, minimize and control any possible adverse impacts associated with the activity.

## 2 DETAIL AND EXPERIENCE OF THE EAP WHO PREPARED THE EMPr

The EMPr has been compiled by Colleen McCreadie of The Environmental Practice. Enviroprac is an independent consultancy with no financial interest in operations at the mineral sand plant, other than remuneration for work performed in terms of the National Environmental Management Act, Specific Environmental Management Acts and the authorisations issued in terms thereof; and does not have and will not have any vested interest in the outcome of this EMPr.

Colleen has fifteen years’ experience in environmental management, including impact assessment and monitoring. Colleen has an Economics Honours degree from the University of Cape Town; is a registered environmental assessment practitioner with EAPASA (Reg. No. 2018/166); and is a member of good standing with the International Association of Impact Assessment, the National Association for Clean Air, and the Institute of Waste Management in Southern Africa.

Please refer to the EAP Curriculum Vitae contained in **Annexure E**.

## 3 PROJECT DESCRIPTION

GeT Alloys’ new foundry is to be situated on the un-subdivided portion of remainder of portion 1 of farm Driefontein No. 87-IR, which is located in Shaft Road in Germiston Knights industrial area. See Figure 1 for the site location.

The Surveyor General’s 21-digit codes for this erf are:

The un-subdivided portion of remainder of portion 1 of farm Driefontein No. 87-IR	Q330 0000 00000087 00001
---	--------------------------

The approximate co-ordinates of the site boundaries are:

	Latitude	Longitude
North-west corner	26°11'47.24"S	28°10'56.85"E
North-east corner	26°11'46.85"S	28°11'4.75"E
South-west corner	26°11'49.65"S	28°10'57.02"E
South-east corner	26°11'49.25"S	28°11'4.83"E

**Figure 1: The un-subdivided portion of Remainder of Portion 1 of farm Driefontein No. 87-IR: Site Locality**



*image courtesy of Google Earth 2021*

GeT Alloys operates a sand drying plant on Portion 8 of Farm Brakkefontein in Atlantis Industria. The proposed new foundry will entail the following infrastructure and activities:

- Renovation of an existing building to house the foundry.
- Installation of a scrap pre-treatment system (sorting, separating, shredding, pre-heating)
- Installation of two 8 tonne reverberatory furnaces, each with a 10-tonne holding furnace, as well as one Vortex pump furnace with a 10-tonne holding furnace for scrap aluminium melting. 2000 tonnes per month of aluminium alloy will be produced from approximately 2400 tonnes of scrap. This will also involve a more targeted extraction of emissions.
- Aluminium alloy casting will use a belt conveyor mould system.
- Construction of a building on the eastern portion of the property for the recovery and storage of dross<sup>1</sup>. Approximately 10 - 15 % of the residual aluminium in the dross will be recovered and returned to the alloying process. The remaining, unusable dross is then further processed off-site before being disposed of.
- The dross recovery system will entail milling, screening, and magnetic separation.
- A pollutant emissions abatement system will be installed. The system will include localized hood extraction above each of the furnaces, as well as an apex extraction system to extract fumes within the foundry building. The extracted fumes will pass through a bag filter before discharging via a stack of appropriate height to atmosphere.

<sup>1</sup> Dross is a by-product of the metal melting process, which can be defined as the oxidized metal impurities that are formed on the top of the aluminium melt. As dross is not pure enough to be cast with the rest of the melt, the dross is skimmed off the top of the melt and then disposed of as a waste.

- A 4-tonne furnace for melting scrap copper will be installed. 250 tonnes per month of scrap will be melted in order to produce 200 tonnes per month of copper.
- Weatherproof storage areas for the raw material, product, and cool dross.
- A cooling tower to cool the water used to release the ingots from the moulds. This water is continuously reused in a closed loop.
- A weighbridge and scale for weighing receiving raw material.

In terms of engineering services (water supply, stormwater management, electricity supply, sewerage reticulation), the facility will utilize existing municipal services and the existing site access points from Shaft Road.

#### 4 ASPECTS COVERED BY THIS EMP

Whilst the site is already fully developed for industrial purposes, the establishment of the foundry will entail the installation of infrastructure such as furnaces, ducting, etc., as well as building renovations, which are specific to the foundry. A new building to house the dross recovery process will also be constructed. The establishment of the foundry can therefore be considered as construction.

#### **CONSTRUCTION AND DECOMMISSIONING PHASES:**

In terms of construction and decommissioning phase impacts associated with the proposed foundry, these will entail standard construction-type impacts of which the following may be considered potentially significant:

##### 4.1 Waste

During the construction phase, general and/or hazardous waste will be stored and managed separately and disposed of at licensed landfill sites. The type of waste that will be generated will entail construction-related waste, including rubble and excess concrete; empty cement bags; etc.

During the decommissioning phase, any remaining waste from the foundry will need to be managed accordingly.

##### 4.2 Ambient air quality

During the construction and decommissioning phases, particulate matter and vehicle exhaust emissions from equipment installation and building construction will be generated. Impacts and risks associated with exposure to particulate matter [ $PM_{10}^2$ ] and vehicle exhaust emissions include potential adverse health impacts. The coarse (bigger) particles which constitutes  $PM_{10}$  can irritate eyes, nose and throat. Health impacts can range from coughing and wheezing to asthma attacks and bronchitis to high blood pressure, heart attack and premature death. with inhalable and respirable Particulate Matter. The proposed activity will occur in the industrial area of Germiston Knights where similar dust-generating activities occur. However, the cumulative impact to current air quality at sensitive receptors such as residences is expected to be minimal.

---

<sup>2</sup> Particulate Matter (PM) The collective name for fine solid or liquid particles added to the atmosphere by processes at the earth's surface, and includes dust, smoke, soot, pollen, and soil particles. Particulate matter can be principally characterised as discrete particles spanning several orders of magnitude in size, with inhalable particles falling into the following general size fractions.  $PM_{10}$  - generally defined as all particles equal to and less than 10 microns in aerodynamic diameter; particles larger than this are not generally deposited in the lung. *Source: State of Environment Outlook Report for the Western Cape Province, 2018*

Therefore standardized, proven construction industry methods for dust suppression can be implemented during the construction and decommissioning phases of the proposed activity, that will adequately mitigate dust impacts.

#### **4.3 Noise impacts**

The construction and decommissioning phase of the proposed foundry will entail the use of heavy vehicles and machinery to construct/erect/dismantle buildings, dig excavations, pour concrete, etc. These activities will generate noise which can potentially be a nuisance to the surrounding areas.

Germiston Knights is an established industrial area situated about 1km from any residential areas. The type of disturbing noise associated with construction activities, is to be expected in an industrial area and is not anticipated to impact negatively on residential receptors.

Additionally, this potential impact can be mitigated by implementing appropriate noise reduction and management measures, such as using modern equipment, which produces the least noise; and locating any unavoidably noisy equipment/machinery in areas where the impact will be least significant.

#### **4.4 Geological impacts**

The site is underlain by quartzites of the Johannesburg Subgroup of the Central Rand Group. At the 350m to 400m depths indicated by the BGC plan (refer to plan in Geological Review, Rock and Stock (Pty) Ltd, 2022), there should be no building restrictions (Brink, 1979), unless specifically imposed by authorities. The shaft indicated on the BGC plan could be of concern should it be a surface shaft which was capped in the past (though this seems less likely than a sub-level shaft). Furthermore, notwithstanding the general absence of specific restrictions due to the mining being at intermediate depths, engineering design should take cognizance of the possibility of differential subsidence on the site related to closures at depth. In addition, the site is surrounded by old mine dumps, which due to oxidation of contained pyrite, result in acidic (sulphuric) waters draining from them. Adequate protection must be provided for concrete in contact with soils on the site.

#### **4.5 Soil and groundwater contamination**

The construction and decommissioning phase of the proposed foundry will entail active construction activities which will include the use of construction machinery and/or plant which might have the possibility of contaminating soil and groundwater, with toxicants (hydrocarbons) as a result of operation and refuelling of construction vehicles. As the property is already developed with hard standing surfaces, leaks, or spills of fuel into the surrounding environment should be minimised. Also, no natural sensitivities such as watercourses or valuable indigenous vegetation, have been identified on or near the site. As such, the impact on sensitive receptors is deemed to be negligible given adequate implementation of appropriate construction management measures are implemented.

#### **4.6 Impacts on heritage resources**

None anticipated.

#### **4.7 Biophysical impacts (terrestrial & aquatic biodiversity)**

None anticipated.

#### 4.8 Socio-economic impacts (benefits)

Economic and social benefits (scrap metal recovery and diversion from landfill; service to the construction and manufacturing industries; investment in Germiston), are associated with this development, but not at the expense of the receiving environment.

Construction phase socio-economic impacts generally are temporary, the effects of which tend to cease as soon as construction has concluded or shortly thereafter. Some of the socio-economic impacts that may result from the proposed development include:

- Temporary / short term contract-based employment for semi-skilled, unskilled (labourers) and artisans limited to the duration of the construction phase of the development.
- Benefits to downstream production and construction industries for the supply, fabrication and installation of the equipment and infrastructure required by the foundry.

The knock-on effects of the development would result in the short-term increase in revenue or earning potential of the service providers and contractors engaged in the construction phase. as well as the potential to attract similar and related business to the area.

#### **OPERATIONAL PHASE:**

The operational phase activities associated with the plant which have been identified as possibly impacting on the surrounding environment (social, economic, and bio-physical) include:

#### 4.9 Impacts on air quality / pollutants

Increased particulate matter and gaseous emissions may occur from aluminium scrap pre-heating and oil-fired furnaces, resulting in poor ambient air quality. At sufficiently high concentrations, these pollutants may result in potential health, nuisance, dust, and odour impacts without mitigation. Regional air quality may be negatively affected as a result of the cumulative impacts associated with these emissions which may lead to a potentially more widespread negative impact for residents within proximity to the facility.

The required monitoring, mitigation and management of impacts to within acceptable levels, and as determined by the air quality specialist appointed for the project, has been included in this management plan.

#### 4.10 Increase traffic and congestion – nuisance

The foundry will have associated additional trucks on the road, transporting scrap aluminium and copper to the plant while also transporting alloy to customers. There will be associated exhaust emissions and contribution to road congestion and increased traffic – nuisance factors to adjacent and surrounding landowners and users. The surrounding road network is designed to accommodate heavy vehicles and is already accommodating heavy vehicle traffic. The foundry will add to the cumulative impacts associated with the movement of heavy vehicle within the industrial area and localised surrounds. Effects are likely to only be felt on a localised level.

The current facility has existing access roads and entrances, paved internal road network as well as paved parking area. Additional heavy traffic on the roads is a roads authority challenge that needs to be addressed during road planning in order to support necessary industrial development.

#### **4.11 Potential risk of soil, groundwater, and surface water contamination (Indirect)**

Potential contamination of the soil and groundwater resources exists due to handling and bulk storage of furnace oil. If the tank bunding, tanks, fuel lines and other associated infrastructure are not monitored and maintained regularly, and if fuel storage and handling is not managed appropriately, infrastructure failure and unnecessary leaks and spills could cause soil or groundwater contamination. Ineffective onsite stormwater management may also result in contaminants entering the municipal stormwater system or flowing off-site resulting in potential contamination of adjacent land / natural features to the extent that there may be any.

Negative impacts affecting downstream users and resources may arise. Potential impacts on water resources managed and mitigated by implementing best-practice measures to ensure no significant adverse impacts on downstream users of the natural resources.

#### **4.12 Adverse occupational health effects on staff due to significant levels and periods of exposure**

The foundry has significant associated risks in terms of health and safety of workers (working with extreme temperature machinery and molten metal; furnace emissions in the workplace; handling hazardous dross (corrosive; skin and lung irritant; potential for harmful and explosive fumes when wet). The facility needs to be designed and operated in such a way as to effectively avoid and manage health and safety risks.

Get Alloys will need to prepare standard operating procedures for the various foundry processes (e.g., furnace charging, tapping, casting, dross handling and storage), as well as prepare preventative maintenance plans for all infrastructure associated with the foundry activities, in order to ensure that best-practice health and safety measures are implemented, and that infrastructure does not become derelict and unsafe to operate. Compliance obligations as well as conditional aspects for the preparation of SOP's and maintenance plans are provided.

#### **4.13 Noise resulting in nuisance factors / potential complaints**

Potential noise impact related to the operation of the facility. This may be significant at start up and shut down procedures but is compatible with the existing land use planning objectives for the property (zoned for industrial use). Measures to manage and mitigation nuisance factors are addressed herein.

#### **4.14 Waste impacts**

The operation of the foundry will generate only small quantities of general waste such as office and some kitchen waste. This will be disposed of in the municipal waste stream [normal solid waste collection services as provided by the Municipality in the area]. Therefore, no increase expected on the current municipal solid waste capacity.

The following potential benefits are associated with the proposed foundry activity:

#### **4.15 Impact on natural resources (positive)**

The operation of the facility will result in a positive impact on the use of natural resources:

Recovering aluminium and copper from scrap will result in a smaller carbon footprint and to be less energy intensive than mining these virgin ores.



Scrap metal will be diverted from landfill, thereby saving on scarce landfill airspace. Increasing the indirect benefit on the environment.

The furnaces to be installed shall use fossil fuel, such as low Sulphur oil (LSO) or natural gas. The consideration of replacing hydrocarbon furnace oil or natural gas with a biofuel, provided that the quality, performance, competitive costs, and security of supply can be assured, has been assured by the Applicant.

#### **4.16 Socio-economic (employment opportunities)**

GeT Alloys will increase their market share and profitability. Not only will there be knock-on benefits for Get Alloys staff in terms of job and income security, and benefits to the owners of GeT Alloys, but the new plant will require the employment of potentially 50 new staff members.

#### **4.17 Socio-economic (contribution to capital investment)**

GeT Alloys provides a service to downstream production and construction industries. These are essential industries which support human activities.

It can be argued that successful businesses in the Germiston Knights industrial area, could attract additional investment into the area: businesses which provide goods and services to GeT Alloys, the scrap providers (companies and individuals), and construction-related businesses which use GeT Alloys' aluminium alloy and copper in their manufacturing and construction processes.

#### **4.18 Socio-economic (contribution to the economy)**

An expanded and financially stable and profitable industry generates tax revenue for the government, which is an essential aspect of the economy.

#### **4.19 Contribution to green economy and national waste diversion from landfill objectives and targets**

The metal recovery process has significant benefits in terms of the waste-to-value chain and diversion of waste from landfill and avoiding the impacts associated with mining and processing of virgin materials.

#### The no-go option

The no-go option is the alternative of not proceeding with the development, in this case the development of a foundry on the un-subdivided portion of remainder of portion 1 of farm Driefontein No. 87-IR. The no-go option includes the in its current state – a vacant factory and trucking yard.

**Benefits** associated with the no-go option include:

- The additional air emissions and possible fugitive dust emissions associated with the proposed foundry would not occur. The proposed development design, including appropriate process and abatement technology, as well as dust control measures, however, are expected to reduce emissions to within statutory and therefore acceptable limits. This benefit is therefore not considered significant enough to warrant not developing the plant. The results of Air Quality Impact Assessment (Soundscape, 2021) support this finding.
- The identified health and safety risks associated with operating a foundry would not occur. But these impacts can be readily avoided with standard, best-practice measures and adherence to statutory requirements contained in the Occupational Health and Safety Act. This benefit is therefore not

considered significant enough to warrant not developing the foundry.

- Whilst the foundry development *could* have significant impacts on sensitive natural resources such as conservation-worthy vegetation and wetlands, no such sensitive aspects have been identified on or in close proximity to the site. Therefore, there is no benefit associated with the no-go option in terms of conservation of sensitive vegetation or freshwater features.

**Negative impacts** associated with the no-go option include:

- From the investigation of the need and desirability of the development that has been undertaken in **Annexure I**, the no-go option does not support the regional planning imperatives for the Germiston Knights and greater Ekurhuleni area in terms of investment in Germiston.
- The no-go option could curtail the profitability and therefore financial stability of GeT Alloys.
- The no-go option does not represent jobs and associated income, to the benefit of the surrounding Germiston community.
- The no-go option would mean that the production of aluminium and copper in order to meet market demand, would not take place.
- The South African scrap aluminium recovery industry would not receive much-needed investment and growth with the establishment of a technologically advanced foundry. The scrap could potentially need to be transported to other countries for processing.
- Increased pressure on the aluminium industry for the continued mining of aluminium at the detriment of the environment and natural stocks would occur.

There are thus no significant benefits associated with the no-go option, which would motivate for not proceeding with the proposed foundry.

**5 ROLES AND RESPONSIBILITIES**

There are various key role players involved in the proposed work – these are outlined below.

<b>Position</b>	<b>Responsibilities</b>	<b>Company</b>	<b>Representative</b>	<b>Contact Details</b>
<b>Client</b>	1) For the lifecycle of the facility, appoint: <ul style="list-style-type: none"> <li>a. A Project Manager</li> <li>b. The Main Contractor</li> <li>c. An Independent ECO</li> </ul> 2) Include implementation of EMP in all contract documentation 3) Overall responsibility for implementation of EMP and any rehabilitation 4) All ongoing environmental monitoring, health and safety training, and other ongoing management measures contained in the EMP should be reported on to the GDARD and the Ekurhuleni Metropolitan Municipality by the Client during the operational phase, at the frequency determined by the licensing authority. 5) Reporting operational-phase emergency incidences in terms of NEMA Section 30 to the relevant authorities.	GeT Alloys	TBC	TBC
<b>Council Representative (environmental officer)</b>	1) Monitor compliance of this EMP by the client through the ECO	Ekurhuleni Metropolitan Municipality		
<b>Project Manager</b>	2) Appoint Contractor 3) Include implementation of EMP in all contract documentation			
<b>Main Contractor</b>	1) Implement EMP 2) Appoint on-site ESO 3) Appoint HSE representative			
<b>Contractor’s Site Environmental Officer</b>	1) Daily monitoring of EMP implementation 2) Recommending corrective action to Contractor 3) On-going staff environmental awareness training 4) Reporting to ECO on compliance with EMP and of environmental incidences requiring correction. 5) Reporting emergency incidences in terms of NEMA Section 30 to the ECO and the relevant authorities.			
<b>Contractor’s HSE Representative</b>	1) Oversight of implementation of OHS Act			
<b>Independent Environmental Compliance Officer (ECO)</b>	1) Weekly reporting to Client, Project Manager and Contractor on compliance with EMP and of environmental incidences requiring correction during construction and decommission phases (if applicable).			

## ANNEXURE K: DRAFT ENVIRONMENTAL MANAGEMENT PLAN

Position	Responsibilities	Company	Representative	Contact Details
	2) Monthly reporting on compliance to the relevant authorities during the construction phase: <ol style="list-style-type: none"> <li>a. Reports must contain monitoring laboratory results, chain-of-custody receipts to show safe disposal of hazardous waste, incident reports from the environmental register, etc</li> </ol> 3) Issue a cease works order to Contractor's staff in the event of imminent environmental risk/incident.                     4) Ongoing assessment of the efficacy of the EMP to achieve environmental management objectives.                     5) Recommend amendment of EMP to Client as required to achieve environmental management objectives.			
<b>Director General: DFFE</b>	6) Receive and evaluate NEMA Section 30 incident report	National DFFE	TBC	TBC
<b>Head of Department: GDARD</b>	7) Receive and evaluate NEMA Section 30 incident report	GDARD: Sustainable Use of the Environment Branch	TBC	TBC
<b>Regional Head: DWS</b>	8) Receive and evaluate NEMA Section 30 incident report	DWS	TBC	TBC

## 6 LEGISLATIVE FRAMEWORK AND OBLIGATIONS

This Environmental Management Programme (EMP) should adhere to the national laws and local authority by-law requirements as well as any other obligatory environmental and other legal requirements (such as those listed in the table below).

Changes to this EMP can only be made in accordance with the procedures outlined in Chapter 5, Parts 3 and 4 of the 2014 NEMA EIA Regulations (as amended).

It is the full responsibility of GeT Alloys or any future development entity (where transfer of ownership occurs) to ensure that this EMP and its requirements including any environmental rehabilitation is adhered to and implemented. This is a requirement as per Section 28 (Duty of Care and Remediation of Damage) of the National Environmental Management Act, (Act No. 107 of 1998), as amended.

The applicant should adhere to any statutory requirements which may be relevant to the lifecycle of the foundry. Laws applicable to this EMP are outlined in the table below.

Acts, Laws and By-Laws	Regulations, Norms and Standards
The National Environmental Management Act, Act 107 of 1998, as amended (NEMA)	Waste Classification and Management Regulations, August 2013
National Water Act, Act 36 of 1998, as amended	National Norms and Standards for the Assessment of Waste for Landfill Disposal, August 2013
National Environmental Management Waste Act, Act 59 of 2008	Relevant SANS codes

## ANNEXURE K: DRAFT ENVIRONMENTAL MANAGEMENT PLAN

<b>Acts, Laws and By-Laws</b>	<b>Regulations, Norms and Standards</b>
All relevant by-laws and building regulations of the Ekurhuleni Metropolitan Municipality	Norms and Standards for the Storage of Waste, November 2013
The Operational Health and Safety Act, Act 85 of 1993	Norms and Standards for the Shredding of Waste, October 2017
The National Environmental Management Air Quality Act, Act No. 39 of 2004	National Waste Information Regulations, August 2012
	The List of Activities which Result in Atmospheric Emissions which May have a Significant Detrimental Effect on the Environment (“Minimum Emissions Standards”), November 2013, as amended

## 7 IMPACT MANAGEMENT OUTCOMES, TARGETS AND MEASURES

A variety of potential impacts are associated with the proposed foundry in Germiston Industrial. Reference is made to the EIA Report and appended Specialist Studies, which form part of the submission made to the GDARD. This information will form the basis of the GDARD's decision on whether to grant authorisation for development of the proposed facility.

Several mitigatory measures are proposed to minimise impacts during the Construction, Operational, and Closure Phases.

It is understood that the applicant, GeT Alloys, is responsible for the implementation of the recommended impact management measures throughout the lifecycle of the activity; as well as being responsible for any environmental rehabilitation/offsets as identified.

### 7.1 PLANNING & DESIGN PHASE IMPACTS

The design of the development proposal is aimed at minimisation of health, safety and environmental risks associated with the new plant. These design-phase measures must therefore be implemented at the earliest stages to ensure that the management objectives of this EMP are adhered to and implemented in line with these measures.

The design and planning of the proposed activity are critical for the avoidance and management of impacts that could occur during the operational phase. Therefore, the operational phase impact assessment tables should be referred to for mitigation measures that should be included in the design of the proposed activity.

During the design, planning and development phase, however, there are no activities that will take place that will have associated impacts.

**7.2 PRE-CONSTRUCTION PHASE IMPACTS**

Before any construction activities taking place, the following measures will need to be complied with:

<b>AVOIDING NUISANCE IMPACTS TO NEIGHBOURS, DAMAGE TO BULK SERVICES INFRASTRUCTURE AND MINIMISING RISK TO WORKER HEALTH AND SAFETY</b>			
<b>Objective(s)</b>	To avoid damage to bulk engineering services infrastructure and to avoid nuisance impacts on neighbours due to construction activities.		
<b>Management Strategy</b>	To ensure before construction commences, that the site layout and extent of works do not cause damage or nuisance to neighbours or infrastructure.		
		<b>Responsibility</b>	<b>Timing</b>
<b>Control(s)</b>	<ol style="list-style-type: none"> <li>1) The relevant environmental authorities must be notified of upcoming construction activities.</li> <li>2) Neighbours must be notified of the works through letter drops and signage on the site fenceline.</li> <li>3) The Contractor must record and repair any damage that the construction works may cause to neighbouring properties.</li> <li>4) The ECO must be notified in writing of any incidents relating to the above.</li> <li>5) Underground utilities are to be identified and avoided. The required permits for rerouting of any utilities are to be obtained before works commencing.</li> <li>6) The contractor is to obtain all legally required permits before construction commences. Copies of these permits are to be provided to the ECO.</li> <li>7) Permits should include any approvals required for the discharge of excavation groundwater, wastewater discharge, wayleaves for work in Council servitudes, etc.</li> <li>8) Workers' PPE will comply with international good practices (always hardhats and safety boots; as needed masks, safety glasses, hearing protection and harnesses).</li> <li>9) Appropriate signposting will inform workers of key rules and regulations to follow.</li> <li>10) Contractor and staff training on the requirements of the EMP is to be undertaken by the ECO before works commencing.</li> <li>11) The Contractor's environmental site officer is to undertake ongoing staff environmental awareness training during the construction phase.</li> <li>12) The construction site layout is to be approved by the ECO before works commencing. The Contractor is to provide a layout diagram. Storage areas (materials stockpiles, waste, hazardous goods store, etc.); ablutions; staff eating and smoking areas; vehicle parking areas; site access and stormwater management measures are to be indicated on the diagram.</li> <li>13) Construction may only take place during Council-approved working hours. Any exceedances are to be approved by Council and the ECO and neighbours are to be given 3 days' prior warning of the required exceedance.</li> <li>14) Lighting for the construction site must be designed to avoid off-site spillover to minimise nuisance to neighbours.</li> <li>15) Only appropriate and well-maintained vehicles and machinery to be used.</li> </ol>	Contractor	Pre-construction phase
<b>Performance Indicator(s)</b>	<ol style="list-style-type: none"> <li>1) No complaints from neighbours or Council.</li> <li>2) Effective repair of damage to neighbouring property.</li> </ol>		

AVOIDING NUISANCE IMPACTS TO NEIGHBOURS, DAMAGE TO BULK SERVICES INFRASTRUCTURE AND MINIMISING RISK TO WORKER HEALTH AND SAFETY			
	3) No staff injuries on site. 4) Visual confirmation of adequate HSE signage on site. 5) No utilities damaged.		
<b>Monitoring</b>	ECO to review permits, undertake contractor training and approve construction site layout.	ECO	Weekly - pre-construction phase
<b>Reporting</b>	1) Weekly written reports to be submitted to the client, project manager/engineer and contractor. 2) Written reports to be submitted to GDARD and Ekurhuleni Metropolitan Municipality Air Quality monthly.	ECO	Weekly & monthly – pre-construction phase
<b>Corrective Action(s)</b>	1) Any damaged neighbouring infrastructure is to be reported to the affected neighbour and ECO immediately. Repairs to be for the cost of the Contractor. 2) Any damaged services infrastructure to be reported to Council/service provider immediately. Repairs to be for the cost of the Contractor. 3) Deviations to the ECO-approved site layout to be rectified as per approved layout. 4) Exceedances of Council-approved working hours to cease immediately. 5) Additional contractor staff training to be undertaken when contraventions of EMP occur by staff.	Contractor	Immediately upon detection of problems.

### 7.3 CONSTRUCTION PHASE IMPACTS

The construction phase measures for minimisation of any health, safety and environmental risks need to be adhered to throughout the construction phase of the project.

#### 7.3.1 Waste and Wastewater Management

WASTE AND WASTEWATER MANAGEMENT			
<b>Objective(s)</b>	To minimise possible environmental damage through inappropriate waste and wastewater management on-site or related to the site.		
<b>Management Strategy</b>	To ensure that the handling of waste and wastewater is in accordance with the statutory requirements of the local authority by-laws and the National Environmental Management Waste Act, Act 59 of 2008.		
		<b>Responsibility</b>	<b>Timing</b>
<b>Control(s)</b>	<b>Waste</b> 1) Waste management on-site shall align with relevant by-laws and legislation. 2) Waste collection and disposal pathways and sites will be identified for all major waste types expected from demolition and construction activities. 3) Mineral construction and demolition wastes will be separated from general refuse, organic, liquid, chemical/hazardous and recyclable wastes by on-site sorting and stored in appropriate containers. 4) Whenever feasible the contractor will reuse and recycle appropriate and viable materials.	Contractor	Weekly- Construction phase



**WASTE AND WASTEWATER MANAGEMENT**

	<p>5) The Contractor must provide an adequate number of waste receptacles for general hazardous and recyclable waste across the site. Waste receptacles shall be of adequate size and covered to prevent windblown litter and/or pests. The use of netting covers or similar sealed containers must be implemented as and when required by the ECO.</p> <p>6) All workers must be briefed that no waste is to be disposed of in the environment.</p> <p>7) Hazardous waste containers must be impermeable and weatherproof. Appropriate warning signage must be in place.</p> <p>8) Construction waste must be collected regularly to prevent windblown litter and bin overflows.</p> <p>9) The records of waste disposal will be maintained as proof for proper management as designed.</p> <p>10) Stationary vehicles and machinery should be parked with drip trays beneath to prevent hydrocarbon contamination of exposed soil. Drip trays may contain spill absorbent products. Trays should be regularly cleaned, and the waste stored and disposed of in the hazardous waste stream.</p> <p>11) Vegetation originating from site clearing should be diverted from landfill: chipped and composted</p> <p><b>Wastewater</b></p> <p>12) Chemical toilets will be provided and serviced by a suitable contractor. A minimum of one toilet for 15 staff members shall be provided.</p> <p>13) No on-site vehicle washing is allowed.</p> <p>14) Any wastewater discharged to the natural environment, or the municipal sewerage system must have required discharge approvals and meet relevant discharge quality and volume criteria.</p> <p>15) On-site wastewater treatment may include, for example, settlement ponds for fines-contaminated water; containers for cement-contaminated water; and separation systems for free-phase product contaminated water.</p>		
<b>Performance Indicator(s)</b>	<p>1) No litter around the construction site.</p> <p>2) Proper separation of waste using appropriate containers.</p> <p>3) Contracts with waste service providers.</p> <p>4) Receipts for waste disposal.</p> <p>5) Clean chemical toilets.</p> <p>6) Permits for wastewater discharge.</p>		
<b>Monitoring</b>	<p>1) Contractor to check that litter is prevented, and waste is disposed of appropriately.</p> <p>2) Visual inspection of waste storage areas and containers and signage.</p> <p>3) Visual inspections of settlement ponds and containers and separation systems.</p>	Contractor’s environmental site agent	Weekly - construction phase
	<p>4) Visual site inspection according to EMP checklist.</p> <p>5) Photographic record to be taken.</p>	Independent ECO	Weekly – construction phase
<b>Reporting</b>	<p>1) Weekly written reports to be submitted to the client, project manager/engineer and contractor.</p> <p>2) Written reports to be submitted to GDARD and Ekurhuleni Metropolitan Municipality Air Quality monthly.</p>	ECO	Weekly & monthly – construction phase
<b>Corrective Action(s)</b>	<p>1) Spills in banded areas must be cleaned up, removed and disposed of safely from the banded area as soon after detection as possible to minimize pollution risk and reduced bunding capacity.</p> <p>2) Any windblown litter to be picked up and disposed of properly.</p> <p>3) Hazardous waste spills to be rectified immediately and the ECO to be informed.</p> <p>4) Wastewater spills to be rectified and the ECO, local authority and Department of Water and Sanitation to be informed.</p>	Contractor	Immediately upon detection of problems.

**Ambient Air Quality**

DUST AND EMISSIONS MANAGEMENT			
<b>Objective(s)</b>	To ensure the impacts of dust on adjacent areas and the community are minimised.		
<b>Management Strategy</b>	Minimise dust sources and control unavoidable dust emissions.		
<b>Control(s)</b>	<ol style="list-style-type: none"> <li>1) Minimise areas to be disturbed.</li> <li>2) Erect shade netting around site fence line for very dusty operations.</li> <li>3) Limit materials stockpiles to 2 m in height.</li> <li>4) Dust control at materials stockpiles can include covering with shade cloth, wetting down, and application of chemical binders.</li> <li>5) Non-potable water to be used for wetting down.</li> <li>6) Enforce speed limits to reduce dust entrained from road surfaces.</li> <li>7) Avoid unnecessary idling of vehicles on-site to reduce vehicle exhaust emissions.</li> <li>8) Establish a complaint register.</li> <li>9) Visual inspection of dust sources.</li> </ol>	<b>Responsibility</b>	<b>Timing</b>
		Contractor	Daily
<b>Performance Indicator(s)</b>	No complaints from adjacent road users, businesses and residents.		
<b>Monitoring</b>	<ol style="list-style-type: none"> <li>1) Visual site inspection according to EMP checklist.</li> </ol>	Contractor's environmental site officer.	Daily
	<ol style="list-style-type: none"> <li>2) Visual site inspection according to EMP checklist.</li> <li>3) Photographic record to be taken.</li> <li>4) Written report to be compiled.</li> </ol>	Independent ECO.	Weekly
<b>Reporting</b>	<ol style="list-style-type: none"> <li>1) Weekly written reports to be submitted to the client, project manager/engineer and contractor.</li> <li>2) Written reports to be submitted to GDARD monthly.</li> </ol>	ECO	Weekly & monthly
<b>Corrective Action(s)</b>	<ol style="list-style-type: none"> <li>1) Investigate cause of excessive dust</li> <li>2) Implement controls immediately (e.g., wetting down, application of chemical binders)</li> <li>3) In extraordinarily windy conditions, cease works that occur on sandy surfaces or that involve agitating stockpiles.</li> </ol>	Contractor	Immediately upon detection of the problem

7.3.2 Noise and Visual

NOISE AND VISUAL MANAGEMENT			
<b>Objective(s)</b>	To limit nuisance noise impacts on neighbouring parties. To avoid worker health and safety impacts due to loud noise.		
<b>Management Strategy</b>	Comply with relevant ambient and occupational noise limits through equipment maintenance and correct PPE.		
		<b>Responsibility</b>	<b>Timing</b>
<b>Control(s)</b>	<p><b>Noise</b></p> <ol style="list-style-type: none"> <li>1. Avoid unnecessary activities during the night when noise impacts are generally more significant.</li> <li>2. Avoid unnecessary revving of engines and switch off equipment/vehicles/trucks when not required.</li> <li>3. Managing the impact of reverse warning signals:                             <ul style="list-style-type: none"> <li>▪ Remove the need for reversing by using the drive-through pathways.</li> <li>▪ Use alternative means of carrying out the work that does not require the use of reversing vehicles.</li> <li>▪ Install audio-visual devices in vehicles such as broadband alarms, flashing lights, proximity detection systems, and reversing cameras.</li> </ul> </li> <li>4. Enforce speed limits.</li> <li>5. Avoid excessive use of exhaust brakes.</li> <li>6. Adherence to the Gauteng Province Noise Control Regulations, 1999 and/or to the ECA Noise Control Regulations.</li> <li>7. The Contractor will issue ear protection for any noise activities with a noise output of 85 dB or more.</li> <li>8. No amplified music or PA system may be used on-site except in an emergency.</li> <li>9. Vehicles and machinery are to be adequately serviced and maintained to prevent excessive noise.</li> <li>10. the Gauteng Noise Control Regulations must be adhered to, i.e. noise from the foundry must not increase ambient noise levels beyond the measured baseline.</li> </ol> <p><b>Visual</b></p> <ol style="list-style-type: none"> <li>1) Manage site such that construction materials, waste are well organised.</li> </ol>	Contractor	Daily
<b>Performance Indicator(s)</b>	1) No complaints from adjacent communities.		
<b>Monitoring</b>	1) Visual and auditory site inspection according to EMP checklist.	Contractor's environmental site officer.	Daily
	<ol style="list-style-type: none"> <li>2) Visual and auditory site inspection according to EMP checklist.</li> <li>3) Photographic record to be taken.</li> <li>4) Review of complaints register.</li> <li>5) Written report to be compiled.</li> </ol>	Independent ECO.	Weekly
<b>Reporting</b>	<ol style="list-style-type: none"> <li>1) Weekly written reports to be submitted to the client, project manager/engineer and contractor.</li> <li>2) Written reports to be submitted to GDARD monthly.</li> </ol>	ECO	Weekly & monthly
<b>Corrective Action(s)</b>	<ol style="list-style-type: none"> <li>1) Investigate the cause of excessive noise.</li> <li>2) Shut down extraordinarily loud machinery or vehicles immediately and use properly serviced equipment instead.</li> </ol>	Contractor	Immediately upon

## ANNEXURE K: DRAFT ENVIRONMENTAL MANAGEMENT PLAN

### NOISE AND VISUAL MANAGEMENT

3) Shut off amplified music or PA system.	detection of the problem
4) Issue workers with hearing protectors.	

### 7.3.3 Geological

#### POTENTIAL FOR GEOLOGICAL CONSTRAINTS MANAGEMENT

<b>Objective(s)</b>	To prevent negative impacts resulting from historical subsurface mining activities which may intercept with the development footprint and the associated subsidence which can affect the existing and planned renovations of the facility. Prevent potential contamination from acid mine drainage as a result of surrounding mine dumps in proximity to the development site.		
<b>Management Strategy</b>	Implement engineering design to mitigate subsidence and adequate protection from contamination through impermeable surfaces.		
		<b>Responsibility</b>	<b>Timing</b>
<b>Control(s)</b>	1) Implement geotechnical technologies in engineering design of all upgrades and renovations planned for the facility to be approved by local authority prior to implementation. 2) Site surface area to be impermeable (cement surfacing) to protect the facility and staff from potential acid mine contamination.	Contractor	Daily
<b>Performance Indicator(s)</b>	1) No subsidence resulting from renovations and upgrades to the facility. 2) No contamination of the site resulting from acid mine dumps located in proximity to facility.		
<b>Monitoring</b>	1) Visual inspection of construction works. 2) Sign-off by Council building inspectorate.	Project engineer.	Post-construction and before plant commissioning
<b>Reporting</b>	1) Post-construction audit report to be submitted to GDARD within 6 months of plant commissioning.	ECO	Within 6 months of plant commissioning.
<b>Corrective Action(s)</b>	1) Non-specification infrastructure to be removed and replaced to specification.	Project engineer	Immediately upon detection of problem during the construction phase

### 7.3.4 Materials and Chemicals Storage and Handling (potential for soil and groundwater contamination)

#### MANAGEMENT OF MATERIALS AND CHEMICALS STORAGE

<b>Objective(s)</b>	To minimise the health, safety and environmental impacts of materials, hazardous substances, chemicals usage, handling and storage on site.		
<b>Management Strategy</b>	To ensure that materials, hazardous substances and chemicals used on-site are handled, used and stored appropriately and according to best practice.		
		<b>Responsibility</b>	<b>Timing</b>
<b>Control(s)</b>	1) Hazardous and chemical substances should be stored in appropriate containers within a secured, bunded area with warning signage. 2) Material safety data sheets are to be stored at the chemical store. 3) A spill response protocol should be compiled before works commencing, for review and approval by the ECO. The protocol should be appropriate to the chemicals and hazardous substances stored on site.	Contractor	Weekly- Construction phase

ANNEXURE K: DRAFT ENVIRONMENTAL MANAGEMENT PLAN

MANAGEMENT OF MATERIALS AND CHEMICALS STORAGE			
	<ol style="list-style-type: none"> <li>4) A spill response kit with product-specific absorption media must be kept on site.</li> <li>5) Drip trays must be in place where hazchems and hydrocarbons are dispensed.</li> <li>6) Vehicle and machinery refuelling may only take place on dedicated refuelling areas.</li> <li>7) Refuelling and fuel storage areas, and areas used for the servicing or parking of vehicles and machinery, should be located on impervious bases and should have bunds around them (sized to contain 110% of the total stored volume).</li> <li>8) Cement is to be mixed in a bunded area. No mixing of cement beyond the property boundary. Excess mixing water to be evaporated out or neutralised.</li> <li>9) Cement slurry, runoff and cement water must be contained and must not flow off-site or contaminate the soil of adjacent properties.</li> <li>10) Material stockpiles must be in a dedicated area where trip and slip can be avoided.</li> <li>11) Dry materials stockpiles (excavated soils, new sand) should be a suitable height to prevent windblown dust. Height depends on the type of fencing/walling at the site and the land use of the surroundings.</li> <li>12) Material stockpiling and storage areas are to be approved in the construction site layout plan by the ECO before works commencing.</li> </ol>		
<b>Performance Indicator(s)</b>	<ol style="list-style-type: none"> <li>1) Hazardous and chemical substances stored appropriately, with signage.</li> <li>2) No evidence of chemical or cement spills in and around the work area.</li> <li>3) Safe disposal receipts for spill remediation materials.</li> </ol>		
<b>Monitoring</b>	<ol style="list-style-type: none"> <li>1) Contractor to monitor cement mixing sites to ensure the limited occurrence of spills.</li> <li>2) Contractor to monitor the use of drip trays where needed to prevent the occurrence of spills.</li> <li>3) Contractor to monitor the condition of the storage containers to prevent hazardous and chemical spills from occurring.</li> <li>4) Contractor to ensure that remediation measures are taken when spills occur and that appropriate measures are taken to dispose of such spills.</li> <li>5) Contractor to inspect vehicles for fuel and oil leaks daily.</li> </ol>	Contractor's environmental site agent	Weekly - construction phase
	<ol style="list-style-type: none"> <li>1) Visual site inspection according to EMP checklist.</li> <li>2) Photographic record to be taken.</li> </ol>	Independent ECO	Weekly – construction phase
<b>Reporting</b>	<ol style="list-style-type: none"> <li>1) Weekly written reports to be submitted to the client, project manager/engineer and contractor.</li> <li>2) Written reports to be submitted to GDARD monthly.</li> </ol>	ECO	Weekly & monthly – construction phase
<b>Corrective Action(s)</b>	<ol style="list-style-type: none"> <li>1) Hazardous substance and/ or cement spills to be rectified immediately and the ECO to be informed.</li> <li>2) If spills occur due to incorrect storage of substances, that action is taken to ensure that the proper storage containers are used.</li> <li>3) Suitably trained personnel must be on site for response to exposures to hazardous substances and to manage spill response.</li> </ol>	Contractor	Immediately upon detection of problems.

7.3.5 Fire and Safety

GENERAL SAFETY OF WORKERS AND STAFF ON SITE			
<b>Objective(s)</b>	To minimise any potential safety or health-related incidents on-site (including fire incidents).		
<b>Management Strategy</b>	To ensure compliance with the local authority by-laws and any other statutory requirements (including the local fire department) relating to health, safety and fire safety on the construction site.		
		Responsibility (Role)	Timing
<b>Control(s)</b>	<p><b>Health and Safety:</b></p> <ol style="list-style-type: none"> <li>1) All people working on site are responsible for their safety on site.</li> <li>2) The project manager, contractors and sub-contractors must comply with the Occupational Health and Safety Act, Act No.85 of 1993.</li> <li>3) A first aid kit must be on-site and regularly restocked.</li> <li>4) A trained first aider must be on-site at all times.</li> <li>5) An Emergency Response Plan must be available in the environmental site register.</li> </ol> <p><b>Fire:</b></p> <ol style="list-style-type: none"> <li>6) No fires will be allowed on site.</li> <li>7) A trained fire safety officer must be on-site at all times.</li> <li>8) Adequate fire fighting equipment must be available on-site and be in good working order.</li> </ol>	Contractor and contractor's environmental site agent	During the construction phase
<b>Performance Indicator(s)</b>	<ol style="list-style-type: none"> <li>1) Presence of first aid kit on site.</li> <li>2) Records of first aider and fire officer training in the environmental site register.</li> <li>3) ERP in the site register</li> <li>4) No major injuries to staff and construction workers.</li> <li>5) No evidence of fires on site.</li> </ol>		
<b>Monitoring</b>	<ol style="list-style-type: none"> <li>1) Daily inspection of the work site to occur.</li> <li>2) Fire control equipment will be inspected during site checks.</li> </ol>	Contractor's environmental site agent	Daily – construction phase
	<ol style="list-style-type: none"> <li>3) Visual site inspection according to EMP checklist.</li> <li>4) Photographic record to be taken.</li> </ol>	Independent ECO	Weekly – construction phase
<b>Reporting</b>	<ol style="list-style-type: none"> <li>1) Weekly written reports to be submitted to the client, project manager/engineer and contractor.</li> <li>2) Written reports to be submitted to GDARD monthly.</li> </ol>	Independent ECO	Weekly & monthly – construction phase
<b>Corrective Action(s)</b>	<ol style="list-style-type: none"> <li>1) Investigate and review the cause of the accident. Ensure that appropriate controls are in place to prevent a similar accident from occurring.</li> <li>2) Investigate and review the cause of the fire incident. Ensure that appropriate controls are in place to prevent a similar incident from occurring.</li> </ol>	Contractor's environmental site agent	Immediately on detection of the problem.

7.3.6 Traffic Control

TRAFFIC MANAGEMENT			
Objective(s)	To prevent negative impacts on road safety and road users in the vicinity of the site.		
Management Strategy	Control and oversee heavy vehicle access to and exit from the site.		
	Responsibility	Timing	
<b>Control(s)</b>	3) Only delineated site access points to be used. 4) Warning signage and barriers to be used to warn pedestrians and vehicles of potential construction traffic hazards. 5) Provision of safe passages and crossings for pedestrians must be provided where construction traffic interferes. 6) Avoid major transport activities during rush hours. 7) Active traffic management by trained and visible staff is required to prevent hazards to pedestrians and road users. 8) Avoid unnecessary revving of engines and switch off equipment/vehicles/trucks when not required. 9) Managing the impact of reverse warning signals: <ul style="list-style-type: none"> <li>a. Remove the need for reversing by using the drive-through pathways.</li> <li>b. Use alternative means of carrying out the work that does not require the use of reversing vehicles.</li> </ul> 10) Install audio-visual devices in vehicles such as broadband alarms, flashing lights, proximity detection systems, and reversing cameras. 11) Maintain internal road surfaces and avoid steep road gradients. 12) Enforce speed limits. 13) Avoid excessive use of exhaust brakes.	Contractor	Daily
<b>Performance Indicator(s)</b>	3) No complaints from adjacent communities. 4) No pedestrian or vehicle accidents.		
<b>Monitoring</b>	3) Visual inspection according to EMP checklist.	Contractor's environmental site officer.	Daily
	4) Visual site inspection according to EMP checklist. 5) Photographic record to be taken. 6) Written report to be compiled.	Independent ECO.	Weekly
<b>Reporting</b>	2) Weekly written reports to be submitted to the client, project manager/engineer and contractor. 3) Written reports to be submitted to GDARD monthly.	ECO	Weekly & monthly
<b>Corrective Action(s)</b>	2) Deploy traffic marshal to clear up congestion and move the obstructing vehicles onto the site. 3) Rectify any unclear/broken warning and safe passage signage and barriers.	Contractor	Immediately upon detection of the problem

**7.4 OPERATIONAL PHASE MITIGATION MEASURES**

The measures for minimising health, safety and environmental risk associated with operations at the new plant, will need to be implemented on an ongoing basis throughout the operational lifespan of the development.

**7.4.1 Potential for Soil and Groundwater Contamination**

<b>SOIL AND GROUNDWATER CONTAMINATION</b>			
<b>Objective(s)</b>	To minimise the risk of contamination through inappropriate transportation or disposal of waste and storage and handling of Hydrocarbons. To ensure that any spills or leaks at the site from an incident or day-to-day product storage and handling activities, are not able to reach any soil or groundwater or freshwater ecosystems nearby or reach the municipal storm water system. And in the event of an incident, that prompt action is taken to remedy the cause of the spill or leak and to address any potential contamination.		
<b>Management Strategy</b>	To comply with the requirements of the National Environmental Management: Waste Act and associated regulations as well as a best practice operating procedures and various authority requirements with respect to prevention of soil and freshwater (stormwater, groundwater, surface water) resources.		
		<b>Responsibility</b>	<b>Timing</b>
<b>Control(s)</b>	<ol style="list-style-type: none"> <li>1) A Standard Operating Procedure (SOP) for all activities relating to Fossil Fuel storage, refilling, handling and use in processing must be compiled to minimise associated health, safety and environmental risks.</li> <li>2) Staff must be trained in the SOP, with records of staff training retained for external auditing purposes.</li> <li>3) Bi-annual internal audits of the operation against the SOP must be conducted with records retained for external auditing purposes.</li> <li>4) Staff must be trained in preventative maintenance, with records of staff training retained for external auditing purposes.</li> <li>5) A fuel and Hazchem Spill Response Procedure must be compiled and attached to the EMPr. The Spill Response Procedure must be submitted to the GDARD and to the DWS for approval.</li> <li>6) Any industrial effluent discharged to the sewer network will need to comply with the Water bylaw, Wastewater &amp; Industrial effluent by-law and the by-law related to stormwater management must be adhered to at all times.</li> <li>7) If any pollution of soil or water resources is detected, the Department of Water and Sanitation (DWS) must be informed immediately, and remediation should take place in consultation with the DWS.</li> </ol>	The applicant or representative	For the duration of the operational phase
<b>Performance Indicator(s)</b>	<ol style="list-style-type: none"> <li>1) Little to no incidents are reported in the Environmental Register.</li> <li>2) Equipment failure avoided.</li> <li>3) No leakage of hydrocarbons.</li> </ol>		
<b>Monitoring</b>	<ol style="list-style-type: none"> <li>1) Monitor equipment and processes according to requirements of SOP's and Maintenance Plans</li> </ol>	The applicant or representative	Bi-annually during the operational phase
<b>Reporting</b>	<ol style="list-style-type: none"> <li>1) Internal audits of the operation against the SOP to be conducted with records retained for external auditing purposes.</li> <li>2) Internal audits of the operation against the Preventative Maintenance Plan to be conducted with records retained for external auditing purposes.</li> </ol>	The applicant or representative	Bi-annually / when an incident occurs



SOIL AND GROUNDWATER CONTAMINATION			
	3) Any incident that results in the ingress of product into the soil or water courses must be reported to all relevant authorities, including the GDARD's Pollution Management Directorate, within 14 days. Containment, clean-up and remediation must commence immediately.		
<b>Corrective Action(s)</b>	In the event of a spill or leak, the fuel and Hazchem Spill Response Procedure and Standard Operating Procedure contained in <b>Annexure C</b> must be implemented.	The applicant or representative	Immediately upon detection of the problem

7.4.2 Atmospheric Emissions

MANAGEMENT OF ATMOSPHERIC EMISSIONS			
<b>Objective(s)</b>	To avoid health and nuisance/lifestyle impacts associated with atmospheric emissions from operational activities		
<b>Management Strategy</b>	To comply with the ambient air quality standards for criteria pollutants and the National Dust Control Regulations for dustfall		
		<b>Responsibility</b>	<b>Timing</b>
<b>Control(s)</b>	<p><u>Measures to reduce emissions</u></p> <ul style="list-style-type: none"> <li>As per the planned Turnkey Modular air pollution control system design, all furnaces must be fitted with fume extraction, both from the furnaces itself and via hoods to capture fumes during charging and/or tapping. Fugitive emissions must furthermore be extracted from the building roof at its apex. The system design must ensure the PM concentration in the plume exiting the 30 m stack meets the MES of 30 mg/Nm<sup>3</sup>.</li> <li>It is also recommended that the outlet PM concentration at the dross recovery baghouse meet the MES of 30 mg/Nm<sup>3</sup> for secondary aluminium production processes.</li> <li>Fugitive PM emissions should be minimised to avoid off-site exceedances of NAAQS and NDCR. Measures to be considered are:                             <ul style="list-style-type: none"> <li>Good housekeeping, e.g., avoiding and cleaning up spillages of fine materials such as baghouse dust and dross.</li> </ul> </li> <li>Keep vehicle driveways clean and free of dust to avoid entrainment.</li> <li>Fugitive ammonia emissions must be avoided by keeping dross dry i.e., covered within the dross recovery building.</li> <li>To reduce vehicle exhaust emissions, avoid unnecessary idling of vehicles on-site.</li> </ul> <p><u>Emissions Monitoring</u></p> <p>In terms of <i>compliance monitoring</i>, the periodic compliance emissions monitoring will be required from GeT Alloys under section 21(1)(b) of NEMAQA. The requirements for periodic emissions monitoring are as follows:</p> <ul style="list-style-type: none"> <li>The averaging period shall be expressed on an hourly average basis or as prescribed in the AEL.</li> <li>Emission measurement must be conducted in accordance with the methods listed in Annexure A of section 21(1)(b) of NEMAQA.</li> <li>Measurements shall take place on, at least, an annual basis unless otherwise prescribed in the AEL.</li> <li>Sampling will take place under normal operating conditions using the permitted feed-stock or raw material.</li> </ul>	The applicant or representative	During operational phase

<b>MANAGEMENT OF ATMOSPHERIC EMISSIONS</b>			
	<ul style="list-style-type: none"> <li>All tests will be conducted by South African National Accreditation System (SANAS) accredited laboratories or laboratories accredited by similar foreign authorities.</li> </ul> <p><u>Ambient air quality monitoring</u> An <b>air quality monitoring</b> programme can confirm both baseline and project related air pollution levels and provide information useful in assessing the effectiveness of emissions management strategies. After careful consideration of the dispersion simulations, the following is recommended:</p> <ul style="list-style-type: none"> <li>Visual inspection and reporting of dust emissions sources annually and in response to complaints. Photographic records can be useful.</li> <li>Passive diffusive sampling of ammonia within the dross recovery building upon commencement of production to confirm assumptions with regards to the formation and emissions of ammonia. A specialist should be consulted in the methodology.</li> </ul> <p><u>Air quality complaints register</u> A register for complaints relating to air quality should be maintained. It must include the name, contact and affiliation details of the complainant, the date of the complaint, the date and time of the pollution incident, and a detailed description of the incident. In response to a complaint, GeT Alloys should investigate possible causes and if required make use of a specialist to determine the likely source through a site inspection. Remedial actions to prevent such events in future should then be taken.</p>		
<b>Performance Indicator(s)</b>	No complaints from neighbours. Any required monitoring shows pollutant concentrations within the statutory limits.		
<b>Monitoring</b>	According to SOPs and Preventative Maintenance Plans. Annual stack emissions testing in terms of the Minimum Emissions Standards. Dustfall sampling in accordance with the NDCR.	The applicant or representative	Annually during the operational phase
<b>Reporting</b>	Internal audits of the operation against the Preventative Maintenance Plan must be conducted with records retained for external auditing purposes.	The applicant or representative	Bi-annually during the operational phase
<b>Corrective Action(s)</b>	Faulty infrastructure to be serviced and /or replaced to specification.	The applicant or representative	Immediately upon detection of the problem – the construction phase

7.4.3 Risk of Fire & Explosion; Health and Safety of Staff

GENERAL SAFETY OF WORKERS AND STAFF ON SITE			
<b>Objective(s)</b>	To minimise health and safety risks, property damage, etc. associated with fire and explosion and other forms of exposure to Hydrocarbons as well as dross handling.		
<b>Management Strategy</b>	To comply with the requirements of the Operational Health and Safety Act and other relevant statutory requirements, and to implement best practice operating procedures.		
		<b>Responsibility (Role)</b>	<b>Timing</b>
<b>Control(s)</b>	<ol style="list-style-type: none"> <li>1) Adequate fire fighting equipment in accordance with the Community Fire Safety By-Law, as amended, must be provided at the facility.</li> <li>2) All fire extinguishers on the premises must be tested at least once every six months by a certified equipment supplier</li> <li>3) The management and mitigation of the employees' exposure to these health and safety risk factors is through sound implementation and compliance to the requirements of the Occupational Health and Safety Act and applicable Regulations, as well as best practice management and mitigation measures to minimize these potential impacts.</li> <li>4) The applicant should compile Standard Operating Procedures and Preventative Maintenance Plans for all aspects of the operation where significant health and safety risks are attendant, including fuel storage and handling as well as dross management. Best practice should be incorporated. These procedures and plans should be included in Appendix C of this EMPr.</li> <li>5) Specifically, a Dross Management Procedure should be compiled to ensure adequate ventilation of dross-handling areas, weatherproofing of dross handling areas, etc. The Dross Management Procedure should address all hazards and risks identified in available Material Safety Data Sheets for dross.</li> <li>6) Staff must receive ongoing training in preventative maintenance, spill response and Standard Operating Procedures, with records of staff training retained for external auditing purposes.</li> </ol>	The applicant or representative	As needed during the operational phase
<b>Performance Indicator(s)</b>	<ol style="list-style-type: none"> <li>1) Presence of fire fighting equipment on site.</li> <li>2) No incidence of fires on site.</li> <li>3) No major injuries of staff are reported.</li> </ol>		
<b>Monitoring</b>	According to the requirement of the SOPs for Hydrocarbon handling. Dangerous goods and substances must be handled, used, stored and disposed of in accordance with the MSDS issued for the respective goods/substances. Refer to MSDS in Appendix E of this EMPr (applicant to provide).	The applicant or representative	Daily during the operational phase
<b>Reporting</b>	Incident reports of all injuries occurring on site. Reports are to be sent to the GDARD, at the frequency determined by the licensing authority.	The applicant or representative	Monthly during the operational phase

**GENERAL SAFETY OF WORKERS AND STAFF ON SITE**

	Any spills and or incidents falling within the ambit of Section 30 NEMA must be reported in accordance with the Regulations for reporting of NEMA Section 30 incidents to the relevant provincial and local representative as set out in the Regulations.		
<b>Corrective Action(s)</b>	Investigate and review the cause of the accident and/or exposure and/or fire incident. Ensure that appropriate controls are in place to prevent a similar event from occurring.	The applicant or representative	Immediately on detection of the problem.

## 7.4.4 Noise

NOISE MANAGEMENT			
<b>Objective(s)</b>	To avoid “disturbing” noise impacts on neighbouring facilities.		
<b>Management Strategy</b>	To ensure that noise levels at the facility do not exceed ambient noise levels by 7dBA or more, in compliance with the Gauteng Province Noise Control Regulations, 2013.		
		<b>Responsibility</b>	<b>Timing</b>
<b>Control(s)</b>	<ol style="list-style-type: none"> <li>1. Developing a mechanism to record and respond to complaints</li> <li>2. In the event of a complaint being lodged, investigate through specialist site visit and noise monitoring to determine cause and implement any recommended remedial measures to resolve complaint.</li> <li>3. Avoid unnecessary revving of engines and switch off equipment/vehicles/trucks when not required.</li> <li>4. Managing the impact of reverse warning signals by removing the need for reversing by using drive through pathways.</li> <li>5. Maintain internal road surfaces and avoid steep road gradients.</li> <li>6. Avoid excessive use of exhaust brakes.</li> <li>7. Maintain machinery and equipment and roller elements of conveyors to minimise noise.</li> <li>8. The Gauteng Noise Control Regulations must be adhered to, i.e. noise from the foundry must not increase ambient noise levels beyond the measured baseline.</li> </ol>	The applicant or representative	Daily
<b>Performance Indicator(s)</b>	1) No complaints from adjacent facilities.		
<b>Monitoring</b>	Visual and auditory site inspection.	The applicant or representative	Continuously throughout the operational phase
<b>Reporting</b>	Report incident and remedial measures after noise complaints. Reports are to be sent to the GDARD, at the frequency determined by the licensing authority.	The applicant or representative	If and when required during the operational phase
<b>Corrective Action(s)</b>	<ol style="list-style-type: none"> <li>1) Investigate the cause of excessive noise.</li> <li>2) Shut down extraordinarily loud machinery or vehicles immediately and use properly serviced equipment instead.</li> <li>3) Shut off amplified music or PA system.</li> <li>4) Issue workers with hearing protectors.</li> </ol>	The applicant or representative	Immediately upon detection of the problem

7.4.5 Traffic Control

TRAFFIC MANAGEMENT			
<b>Objective(s)</b>	To avoid deterioration of road infrastructure and adverse impacts on road safety.		
<b>Management Strategy</b>	To comply with traffic engineer recommendations.		
		<b>Responsibility</b>	<b>Timing</b>
<b>Control(s)</b>	1) The best practice for alleviating congestion is to schedule loading and offloading times to avoid excessive trucks waiting to be loaded or offloaded. 2) The shortest and safest routes are to be followed at all times to and from the facility and only during standard operational times where feasible	The applicant or representative	Daily
<b>Performance Indicator(s)</b>	3) No complaints from other road users. 4) No accidents involving GeT Alloys' trucks on the surrounding road network of Atlantis. 5) No damage to road infrastructure (such as traffic lights and signposts)		
<b>Monitoring</b>	Monitor truck journeys via GPS where feasible.	The applicant or representative	Continuously throughout the operational phase
<b>Reporting</b>	Report incident and remedial measures after traffic incident or damage to infrastructure, to the Ekurhuleni Metropolitan Municipality's engineering services department.	The applicant or representative	If and when required during the operational phase
<b>Corrective Action(s)</b>	1) Investigate traffic complaints, incidences or damage. 2) Reinforce correct routes with drivers. 3) Enforce penalties or similar punitive action with drivers using incorrect routes, as required and at the discretion of the applicant.	The applicant or representative	Immediately upon detection of the problem

**7.5 DECOMMISSIONING PHASE IMPACTS & REHABILITATION**

The measures recommended for minimising health, safety and environmental risk associated with the decommissioning of the plant, need to be implemented during the practical decommissioning of the plant. Any rehabilitation measures required will take place for the duration recommended by the specialists compiling the Rehabilitation Action Plan.

If the facility is decommissioned, similar impacts to those associated with a construction phase may arise (see Section 7.3 CONSTRUCTION PHASE IMPACTS for guidance). The conditions contained in Section 7.3 will therefore also apply to the decommissioning phase.

Once the site has been decommissioned or immediately before this a focused baseline subsoil and groundwater assessment should be carried out to determine the contamination status of the site. This should focus on areas of likely impact and known historical spillage. Based on the findings of this assessment and any planned redevelopment of the site, appropriate recommendations should be made at that time in terms of any remedial actions. Appropriate licensing and authorisation as relevant at that time should be obtained.

**8 IMPLEMENTATION OF THE EMPR**

**8.1 Monitoring, Auditing and Reporting**

DOCUMENTATION AND RECORD-KEEPING			
Documentation Required	Description	Responsibility	Timing
Environmental Register	<p>Must be kept at the site.</p> <p>The environmental register should be used to record any relevant daily information related to the operations and current status of the site. Documents needed in the Register includes:</p> <ul style="list-style-type: none"> <li>• This EMP.</li> <li>• An accident and incident register.</li> <li>• Complaints register.</li> <li>• Preventative Maintenance Plans and Standard Operating Procedures aimed at impact minimisation</li> <li>• Environmental Authorisation</li> <li>• Emergency Procedures</li> <li>• Site evacuation plan/maps.</li> <li>• Method statements.</li> <li>• Details of audits and inspections carried out by the ECO and follow-ups.</li> <li>• Instances of non-conformances, the date of their occurrence, date of corrective action, and date of completion of preventive action.</li> <li>• Details of the chain of custody documentation; and</li> </ul>	Contractor Client	Construction phase Operational phase

ANNEXURE K: DRAFT ENVIRONMENTAL MANAGEMENT PLAN

DOCUMENTATION AND RECORD-KEEPING			
	<ul style="list-style-type: none"> <li>Any other relevant/ pertinent daily events</li> </ul>		
<b>Accident and Incident Register</b>	<p>An accident and incident register must be kept and should include the following information:</p> <ul style="list-style-type: none"> <li>Time, date and place of the accident and/or incident;</li> <li>Who and what was involved; and</li> <li>A detailed description of the accident or incident.</li> </ul>	Contractor	Construction phase Operational phase
<b>Complaints register</b>	<p>A complaints register must be kept for the recording of all complaints lodged. 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.</p> <p><u>The complaints register must include:</u></p> <ul style="list-style-type: none"> <li>Detail of the complaint in clear, well-structured language;</li> <li>Time and date of complaint and details of the complainant for follow-up purposes;</li> <li>Name of the person who received the complaint; and</li> <li>Description of action that was taken to address the complaint, including date and time of action.</li> </ul> <p><u>For noise complaints, the register must include:</u></p> <ul style="list-style-type: none"> <li>the name, contact and affiliation details of the complainant</li> <li>the date of the complaint as well as the date and time of the disturbing event</li> <li>the location where the event was observed, and</li> <li>a detailed description of the event including details such as noise character, impulsiveness, and tonality.</li> </ul>	Contractor Client	Construction phase Operational phase
<b>Method Statements</b>	<p>Method Statements (a template for these purposes is appended to this EMP) will be required for activities that may result in significant impacts during the construction phase.</p> <p><u>These must address the following aspects:</u></p> <ul style="list-style-type: none"> <li>What – a brief description of the work to be undertaken;</li> <li>How – a detailed description of the process of work, methods and materials;</li> <li>Where – a description of the location of the work (if applicable); and</li> <li>When – the sequencing of actions with commencement and completion date estimates</li> </ul> <p>All Method Statements (MS) must be in place at least <b>5 working days before the relevant construction activities</b> taking place and must be approved by the ECO before being implemented. The following MS must as a minimum be made available to address the following construction-related impacts:</p> <ul style="list-style-type: none"> <li>Stormwater and Erosion Management</li> <li>Fire Risk Management</li> <li>Waste and Wastewater Management</li> <li>Hazchem Spill Response Protocols</li> </ul>	Contractor	Before the commencement of the construction phase



**DOCUMENTATION AND RECORD-KEEPING**

<p><b>Section 30 incident response and reporting</b> <i>(Where incident means an unexpected sudden occurrence, including a major emission, fire or explosion leading to serious danger to the public or potentially serious pollution of or detriment to the environment, whether immediate or delayed).</i></p>	<p>In the event of an emergency incident occurring, the incident must be reported to the Director General of the National Department of Forestry, Fisheries and the Environment (DFFE); the Gauteng Head of the Department of Agriculture and Rural Development’s Sustainable Use of the Environment branch (GDARD SUE); the Regional Head of the Department of water and Sanitation (DWS); and the City of Ekurhuleni.</p> <p>The report must contain such information as is available to enable an initial evaluation of the incident, including: (a) the nature of the incident; (b) 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; (c) initial measures taken to minimise impacts; (d) causes of the incident, whether direct or indirect, including equipment, technology, system, or management failure; and (e) measures taken and to be taken to avoid a recurrence of such incident.</p> <p>The report template attached in Annexure H should be used.</p>	<p>Client (construction phase) Production Manager (operational phase)</p>	<p>Within 14 days of emergency incident occurring</p>
--	---	---	---

**8.2 Environmental Awareness and Training**

**ENVIRONMENTAL AWARENESS AND TRAINING**

Phase	Description	Responsibility	Timing
<p><b>Construction Phase</b></p>	<p>The ECO should conduct ongoing Basic Environmental Awareness Training sessions with the Contractor, his staff and subcontractors before any work taking place. The Contractors are required to provide a facility and interpreter (if required).</p>	<p>Independent ECO</p>	<p>Before construction phase</p>
	<p><u>Environmental awareness and training should include:</u></p> <ul style="list-style-type: none"> <li>▪ Site Environment Induction</li> <li>▪ Daily Pre-Start Meetings</li> <li>▪ Environmental Toolbox Talks</li> </ul>	<p>Contractor</p>	<p>For the duration of the construction phase</p>

## ANNEXURE K: DRAFT ENVIRONMENTAL MANAGEMENT PLAN


ENVIRONMENTAL AWARENESS AND TRAINING			
	<ul style="list-style-type: none"> <li>▪ Incident bulletins</li> <li>▪ Sub-contractor's kick-off meeting;</li> <li>▪ Contractor and client site kick-off meeting</li> </ul>		
<b>Operations</b>	All employees and sub-contractors should be fully aware of the operational procedures that must be followed to minimise health, safety and environmental risks associated with operations at the facility.	Applicant or representative	For the duration of the operations

### 8.3 Addressing Non-Conformances on Site

NON-CONFORMANCE ON SITE			
Non-conformances <b>would occur when there are deviations from any of the requirements of this EMP. In addition, the Client, Project Manager, Main Contractor, Subcontractor and Employees</b> are bound by Section 28, Duty of Care, and Section 24(H), Offences and Penalties, of the NEMA.			
Phase	Description	Responsibility	Timing
<b>Construction phase</b>	Report all non-conformance with the EMP, to the ECO.	Contractor	For the duration of the construction phase
	<p>The Client and the Contractor, in consultation with the ECO, must, thereafter, undertake the following activities:</p> <ul style="list-style-type: none"> <li>▪ Investigate and identify the cause of non-conformance;</li> <li>▪ Implement suitable corrective action (appropriate to the magnitude of the environmental impact), as well as prevent recurrence of the problem, with responsibilities assigned for both.</li> </ul> <p>Non-conformances and corrective action must be recorded in the environmental register and included in the audit reports compiled by the ECO.</p>	Contractor, client and independent ECO	For the duration of the construction phase, if and when a non-conformance has occurred.
	Introduce some form of penalty system for contractors onsite if compliance with the EMP proves problematic.	Client	In the event of a non-compliance by the contractor(s)
<b>Operational phase</b>	Appoint an independent ECO to audit the site in terms of the conditions of the authorisation.	Client	For the duration of the operations, at the frequency stipulated in the environmental authorisation
	Submit the audit report to the GDARD and include any incidences of non-conformance and recommendations for any corrective action required.	Independent ECO	At the frequency stipulated in the environmental authorisation

# EMP ANNEXURE A

## POSSIBLE METHOD STATEMENT TEMPLATE

	The Environmental Practice METHOD STATEMENT	Ref	
		Rev	0
		Date	

Site:	Risk Assessment No:
Activity:	
Plant & equipment:	

Activity	Responsibility
▪	
▪	
▪	
▪	
▪	
▪	

**Signed by:**

.....

**Contractor**

.....

**Date**

.....

**ECO**

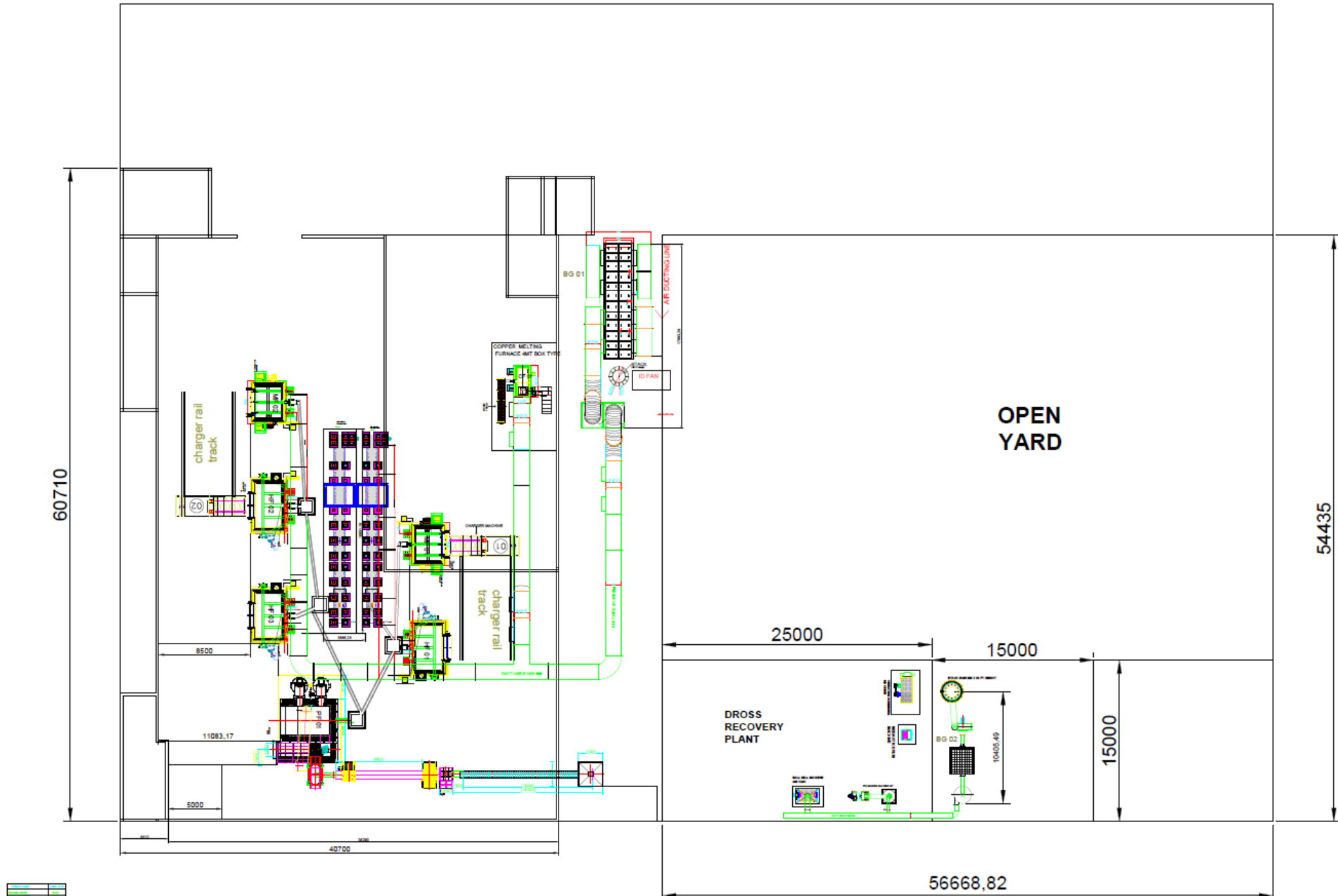
.....

**Date**

# ***EMP ANNEXURE B***

## ***1) SITE LAYOUT PLAN***

# EMP Annexure B: Site Layout Plan



## ***EMP ANNEXURE C***

***STANDARD OPERATING PROCEDURES AND PREVENTATIVE  
MAINTENANCE PLANS, INCLUDING DROSS MANAGEMENT  
PROCEDURE:***

***1) CLIENT TO POPULATE***

***EMP ANNEXURE D***  
***INCIDENT REGISTER AND BASIC ACCIDENT***  
***REGISTER TEMPLATES***







***EMP ANNEXURE E***  
***EAP CURRICULUM VITAE***



☎ 021 788 9323 | 083 695 1664 ✉ colleen@enviroprac.co.za 🌐 www.enviroprac.co.za

**Colleen McCreadie – Curriculum Vitae**  
EAPASA Reg. No. 2018/166

**Work History**

**The Environmental Practice** | Owner and Director | 03/2018 to date

**Sillito Environmental Consulting** | Environmental Consultant | 07/2007 - 02/2011; 03/2012 to 03/2018

**Freelance Environmental Consultant** | for KHULA Environmental Consultants, SiVEST Environmental Division, Cape Town, Sillito Environmental Consulting | 03/2011 – 02/2012

**SRK Consulting** | Intern | 11/2006 – 05/2007

**Skills & Experience**

**Environmental Management** | Site screening | Basic assessments and Scoping/EIA | Non-compliance rectification | Public participation | Auditing | Specialist management | Environmental management plans | Environmental compliance monitoring

**Waste Management** | Waste licence applications, renewals and amendments | Regular licence auditing | Resolution of non-compliance with conditions of a licence | Public participation | Integrated waste management plans

**Air Quality Management** | Licence applications, renewals and amendments | Annual licence audits | Annual atmospheric emissions reporting on NAEIS | Public participation | Resolution of non-compliance with conditions of a licence | Greenhouse gas reporting | Carbon tax quantum calculation and tax returns completion | Pollution prevention plans

**Recent Projects**

<b>EIA</b>
Atlantis Sand Sales new sand drying plant – EIA application
RCL Wolwehoek – resolution of water use licensing matters for effluent dams
Mount Prospect Constantia residential development – EIA application
Erf 2224 Hout Bay residential development – EIA application
<b>Air Quality</b>
Helderberg Galvanizing – AEL renewal application; annual AEL audit
Ceres Fruit Processors – Greenhouse Gas reporting; stack emission reporting
RCL Worcester – ozone depleting substances survey
Minrite Lutzville – annual AEL audits
Galvatech - AEL variation application; annual AEL audit; AEL renewal application
RCL Foods Worcester – Environmental Forum and associated support
Epol Pietermaritzburg – public participation for odour complaint resolution
<b>Waste</b>
Trigen Group Biodigester, Rustenburg – Waste Licence and EIA application
Trigen Group Biodigester, Worcester – Waste Licence and EIA application
Iselula Crushers, Blackheath – S24G / Waste Licence
Ross Demolition Maitland crushing plant – S24G / Waste Licence

## Professional Affiliations

Environmental Assessment Practitioners Association of South Africa (EAPASA) - Registered EAP (Reg. No. 2018/166)  
 National Association for Clean Air (NACA) – Western Cape Branch Vice-Chair | International Association for Impact Assessment (South Africa) - Member | Institute of Waste Management of Southern Africa (IWMSA) - Member

## Continuing Professional Development (CPD)

ENVIRONMENTAL MANAGEMENT		
Date	Institution / professional body	Subject
2019	IAIA	Workshop on environmental compliance monitoring and auditing
2017	DWS	Workshop on 21 (i) & (c) Water Uses
2015	DEA&DP	Workshop on the 2014 EIA Regulations
2012	IAIA	National Conference
2011	DEA&DP	Workshop on the 2010 EIA Regulations
2010	DEA&DP	Workshop on the 2010 EIA Regulations
2010	University of Stellenbosch Sustainability Institute	Development Planning & Environmental Analysis Module
2009	University of Stellenbosch Sustainability Institute	Sustainable Development Module
2008	IAIA, DEA&DP & BotSoc	Basic Assessment Review Workshop
2008	DEFF	Ten years of EIA in South Africa

WASTE MANAGEMENT		
Date	Institution / professional body	Subject
2019	IWMSA	Workshop on waste legislation updates
2014	IWMSA	Waste Conference
2010	DEA&DP	Workshop on the Waste Act
2010	DEFF	Waste Act Roadshow
2009	IAIA & DEA&DP	Workshop on NEM Waste Act and Listed Activities
2008	IAIA, DEA&DP & SANBI	Basic Assessment Review Workshop
2007	SANBI & CAPE	Biodiversity GIS Workshop

AIR QUALITY MANAGEMENT		
Date	Institution / professional body	Subject
2020	IAIA	The IAIA Guide on Air Quality Impact Assessments
2019	NACA	National Conference
2017	NACA	National Conference
2017	NACA	Innovative Techniques in Portable Ambient Air Quality Monitoring (& Odour Mitigation in Animal Matter Processes) (Presenter)
2016	NACA	Maintaining Compliance with AEL Conditions (Presenter)
2015	NACA	Challenges of Dust Deposition Monitoring
2015	NACA	In-Stack Emission Monitoring and Reporting in Compliance with Atmospheric Emission Licence Requirements

## Qualifications

BA Economics & Political Studies, UCT, 1995 – 1997 | BComm Honours Economics, UCT, 2000

### Contact

Tel: 021 788 9323 | Cell: 083 695 1664 | Email: [colleen@enviroprac.co.za](mailto:colleen@enviroprac.co.za) | Physical: 23 Dartmouth Road, Muizenberg, Cape Town, 7945

[www.enviroprac.co.za](http://www.enviroprac.co.za)



## EAPASA

Unit 19 Oxford Office Park  
3 Bauhinia Street  
Highveld Techno Park  
Centurion  
0157  
Tel. (+27) 12 880 2154

## Environmental Assessment Practitioners Association of South Africa

*Advancing environmental assessment practice in South Africa*



Email: [registrar@eapasa.org](mailto:registrar@eapasa.org) / Website: [www.eapasa.org](http://www.eapasa.org)

Mrs Colleen McCreadie  
23 Dartmouth Road  
Muizenberg  
Cape Town  
7945

Sent by email to: [colleen@enviroprac.co.za](mailto:colleen@enviroprac.co.za)

Dear Mrs McCreadie

**Registered Environmental Assessment Practitioner: Number 2018/166**

**Colleen McCreadie: South African ID 760625 0002 083**

The Environmental Assessment Practitioners Association of South Africa (EAPASA) herewith certifies that Colleen McCreadie is a Registered Environmental Assessment Practitioner (EAP) in accordance with the prescribed criteria of Regulation 15.(1) of the Section 24H Registration Authority Regulations (Regulation No. 849, Gazette No. 40154 of 22 July 2016, of the National Environmental Management Act (NEMA), Act No. 107 of 1998, as amended).

Your registration is duly authorised by EAPASA as the single Registration Authority for EAPs in South Africa (appointed as per Regulation No. 104, Gazette No. 41434 of 8 February 2018, in terms of section 24H(3)(a) of the NEMA). Your status as a Registered EAP will be displayed in the 'EAP Register' which will be placed in the near future on the websites of EAPASA and the Department of Environment, Forestry and Fisheries. Please find your name in the list of Registered EAPs at [https://registration.eapasa.org/registered-practitioners?utf8=%E2%9C%93&search=&candidate\\_type=3](https://registration.eapasa.org/registered-practitioners?utf8=%E2%9C%93&search=&candidate_type=3)

Your registration is effective for a period of five years from 26 June 2019, and expires on 26 June 2024. The renewal of your registration in 2024 will be contingent on you having met the requirements of EAPASA's Continuing Professional Development (CPD) policy during each year of registration.

*Board Members: Ms Snowy Makhudu (Chairperson), Mr Khangwelo Desmond Musetsho (Vice-Chairperson),  
Mr Ntsako Baloyi, Mr Zama Dlamini, Mr Siyabonga Gqalangi, Ms Jacqui Hex, Ms Sibusisiwe Hlela,  
Mr Malcolm Moses, Mr Phumudzo Nethwadi, Mr Danie Neumann, Ms Keshni Rughoobee.*

Registrar: Dr Richard Hill  
NPO Reg. No. 122-986

# ***EMP ANNEXURE F***

***MATERIAL SAFETY DATA SHEETS FOR DANGEROUS GOODS STORED  
ON SITE***

# **EMP ANNEXURE G**

## **EXAMPLE OF CHECKLIST FOR DOCUMENTATION AND ACTIVITIES ON AND PRIOR TO SITE CONSTRUCTION**

Requirement	Available		Date	Comment
	Yes	No		
EMP				
Methodology statement				
Site establishment plan				
Letter re awareness training				
Letter confirming the commencement of activities				
Relevant site-specific documentation e.g. Atmospheric Emissions License; Environmental Authorisation				
Emergency plans & MSDS				
Incident and accidents register				
Complaints register				
Past audit reports				
Emission reports				
Fire fighting equipment and first aid box				
Appropriate signage				
Adequate ablutions				

# ***EMP ANNEXURE H***

## ***1) NEMA SECTION 30 INCIDENT REPORT TEMPLATE***