ENVIRONMENTAL MANAGEMENT PROGRAMME

for

AFRO FISHING FISHMEAL & FISH OIL REDUCTION FACILITY

on

Quay 2, Port of Mossel Bay, Mossel Bay

In terms of the

National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended & National Environmental Management: Air Quality Act, 2004 (Act 39 of 2004)

Prepared for Applicant: **Afro Fishing (Pty) Ltd**

Date: **30 January 2020**

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APPROVAL FOR RELEASE

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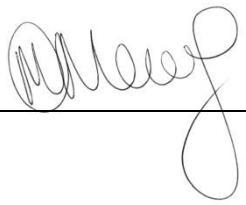
Ms Melissa Mackay	Snr Consultant	

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PURPOSE OF THIS REPORT:

Environmental Management Programme for Basic Assessment process

APPLICANT:

Afro Fishing (Pty) Ltd

CAPE EAPRAC REFERENCE NO:

MOS569/13 V2

SUBMISSION DATE

30 January 2020

ENVIRONMENTAL MANAGEMENT PROGRAMME V2

In terms of the

National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended &
National Environmental Management: Air Quality Act, 2004 (Act 39 of 2004)

Afro Fishing Fishmeal & Fish Oil Reduction Facility

Quay 2, Port of Mossel Bay, Mossel Bay

Submitted for:

Departmental Review

Report Issued by:

Cape Environmental Assessment Practitioners

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ORDER OF REPORT

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ENVIRONMENTAL MANAGEMENT PROGRAMME REQUIREMENTS

Appendix 4 of Regulation 982 of the 2014 EIA Regulations contains the required contents of an Environmental Management Programme (EMPr). The checklist below serves as a summary of how these requirements were incorporated into this EMPr.

Table 1: Checklist in terms of Appendix 4 of Regulation 982 of 2014 EIA Regulations

Requirement	Description
Details and expertise of the EAP who prepared the EMPr; including curriculum vitae.	Ms Melissa Mackay of Cape Environmental Assessment Practitioners. See Cover Page. Appendix 5.
A detailed description of the aspects of the activity that are covered by the EMPr as identified by the project description.	Section 1
A map at an appropriate scale which superimposes the proposed activity, its associated structures, and infrastructure on the environmental sensitivities of the preferred site, indicating any areas that must be avoided, including buffers	Appendix 1
A description of the impact management objectives, including management statements, identifying the impacts and risks that need to be avoided, managed and mitigated as identified through the environmental impact assessment process for all the phases of the development including – (i) Planning and design; (ii) Pre-construction activities; (iii) Construction activities; (iv) Rehabilitation of the environment after construction and where applicable post closure; and (v) Where relevant, operation activities.	Section 4 – Environmental Impacts & Mitigations Section 5 - Responsibilities Section 6 – Pre-Construction Design Section 7 – Construction Phase Section 8 – Operation Phase
A description and identification of impact management outcomes required for the aspects contemplated above.	Section 4
A description of the proposed impact management actions, identifying the manner in which the impact management objectives and outcomes contemplated above will be achieved and must, where applicable include actions to – (i) Avoid, modify, remedy control or stop any action, activity or process which causes pollution or environmental degradation; (ii) Comply with any prescribed environmental management standards or practises; (iii) Comply with any applicable provisions of the Act regarding closure, where applicable; and (iv) Comply with any provisions of the Act regarding financial provisions for rehabilitation, where applicable.	Section 4 Section 6 Section 7 Section 8
The method of monitoring the implementation of the impact management actions contemplated above.	Section 9 Section 11
The frequency of monitoring the implementation of the impact management actions contemplated above.	Section 9

Requirement	Description
An indication of the persons who will be responsible for the implementation of the impact management actions.	Section 5
The time periods within which the impact management actions must be implemented.	Not Applicable
The mechanism for monitoring compliance with the impact management actions.	Section 9
A program for reporting on compliance, taking into account the requirements as prescribed in the Regulations.	Section 9
An environmental awareness plan describing the manner in which – (i) The applicant intends to inform his or her employees of any environmental risk which may result from their work; and (ii) Risks must be dealt with in order to avoid pollution or the degradation of the environment.	Section 5 Section 6 Section 7 Section 8 Section 9
Any specific information that may be required by the competent authority.	Not Applicable.

ABBREVIATIONS AND ACRONYMS

BSP Biodiversity Sector Plan - to inform land use planning, environmental assessments, land and water use authorisations, as well as natural resource management, undertaken by a range of sectors whose policies and decisions impact on biodiversity.

CARA Conservation of Agricultural Resources Act (Act 43 of 1983) - provides for control over the utilization of the natural agricultural resources of the Republic in order to promote the conservation of the soil, the water sources and the vegetation and the combating of weeds and invader plants; and for matters connected therewith.

CBA Critical Biodiversity Area - areas required to meet biodiversity targets for ecosystems, species and ecological processes, as identified in a systematic biodiversity plan.

DEA National Department of Environmental Affairs – the national authority responsible for the sustainable environmental management and integrated planning.

DEA&DP Department of Environmental Affairs and Development Planning – the provincial authority for sustainable environmental management and integrated development planning. The competent authority is this case.

DAFF Department of Agriculture, Forestry and Fisheries – the national authority responsible for the agricultural, forestry and fishery sector and its management. DAFF is mandated to enforce the National Forestry Act (NFA). Permits for the removal or pruning of protected tree species e.g. Milkwoods must be obtained from this entity.

DWS Department of Water & Sanitation Affairs – National authority mandated to enforce the National Water Act (NWA).

EA Environmental Authorisation – Authorisation obtained on completion of an Environmental Impact Assessment in terms of the National Environmental Management Act (NEMA).

ECA Environment Conservation Act, 1989 - To provide for the effective protection and controlled utilization of the environment and for matters incidental thereto.

ECO Ecological Control Officer – independent site agent appointed to observe and enforce the implementation of environmental policies and principles on a development site.

EIA Environmental Impact Assessment - a process of evaluating the likely environmental impacts of a proposed project or development, taking into account inter-related socio-economic, cultural and human-health impacts, both beneficial and adverse.

EMPr Environmental Management Programme – an environmental management tool used to ensure that undue or reasonably avoidable adverse impacts of the construction, operation and decommissioning of a project are prevented and that positive benefits of the projects are enhanced.

GIS Geographic Information System - system designed to capture, store, manipulate, analyse, manage, and present all types of geographical data.

GPS Global Positioning System - a radio navigation system that allows land, sea, and airborne users to determine their exact location, velocity, and time 24 hours a day, in all weather conditions, anywhere in the world.

NEMA National Environmental Management Act (Act 107 of 1998, as amended) – national legislation that provides principles for decision-making on matters that affect the environment.

NEM:BA National Environmental Management: Biodiversity Act (Act No.10 of 2004) – provides for the management and conservation of South African biodiversity within the framework of NEMA.

NFA National Forestry Act (Act No.84 of 1998) - provides for the protection of forests, as well as specific tree species within South Africa.

NSBA National Spatial Biodiversity Assessment – aims to assess the state of South Africa's biodiversity based on best available science, with a view to understanding trends over time and informing policy and decision-making across a range of sectors.

NWA National Water Act (Act No.36 of 1998) - ensures that South Africa's water resources are protected, used and managed.

Mossel Bay	
Emergency and Important Numbers	
Emergency Response / Disaster Management	**10177**
Eden Control Room	044 805 5055
Eden Fire Services	044 801 6376
Police	**10111**
Mossel Bay SAPS (George Road)	044 690 3334
National Disaster Management (Cell phone)	112
Disaster Management (Provincial)	021 937 0800
Life Bay View Private Hospital	044 691 3718
Provincial Hospital	044 691 2011
Ambulance	044 691 3170
ER 24 Private Ambulance Service	084 124
Mossel Bay Municipality	044 501 3000
Emergency (All hours)	**044 606 5000**
Fire & Rescue Services	044 691 3722
Traffic Department	044 606 5201
Water & Electricity	044 606 5041
Electricty Disruption (after hours)	044 805 5073
Sea Rescue (Provincial)	021 449 3500
NSRI Station 15	082 990 5954
Mossel Bay Surf & Life Saving Club	083 462 1182
Southern Cross Life Saving Club	082 740 7654
Mountain Rescue (Provincial)	021 948 9900
Andrew	082 339 1240
Rogan	082 323 4349
Western Cape Tygerberg Poison Centre	021 931 6129
Poisons Information Hotline	0861 555 777
African Snakebite Institute	082 494 2039
Child Emergency	0800 123 321
Citizens Advice Bureau	021 422 0300
SPCA	044 693 0824
CapeNature	044 802 5310
Marine & Coastal Management	044 691 2939
Heritage Western Cape	021 483 9685
Department of Water & Sanitation: Water Pollution	0800 200 200
ROSE Foundation	021 448 7492

1. INTRODUCTION

Cape Environmental Assessment Practitioners (Cape EAPrac) was appointed by the Applicant, Afro Fishing (Pty) Ltd to develop an Environmental Management Programme (EMPr) which will be used to promote and ensure environmental monitoring and control during all phases (construction, operation and possible decommissioning) of the proposed development of a fishmeal and fish oil reduction facility on Quay 2 of Erf 12459 which makes up the Port of Mossel Bay. The proposed facility will require the redevelopment of the old I&J site on Quay 2.

These activities required both Environmental Authorisation in terms of the National Environmental Management Act (NEMA) and an Air Emissions License (AEL) in terms of the National Environmental Management: Air Quality Act (NEM:AQA) before they may proceed. This document provides part of a series of documents that was circulated for public and stakeholder input before being provided to the provincial competent authority, the Department of Environmental Affairs & Development Planning (DEA&DP) for decision making.

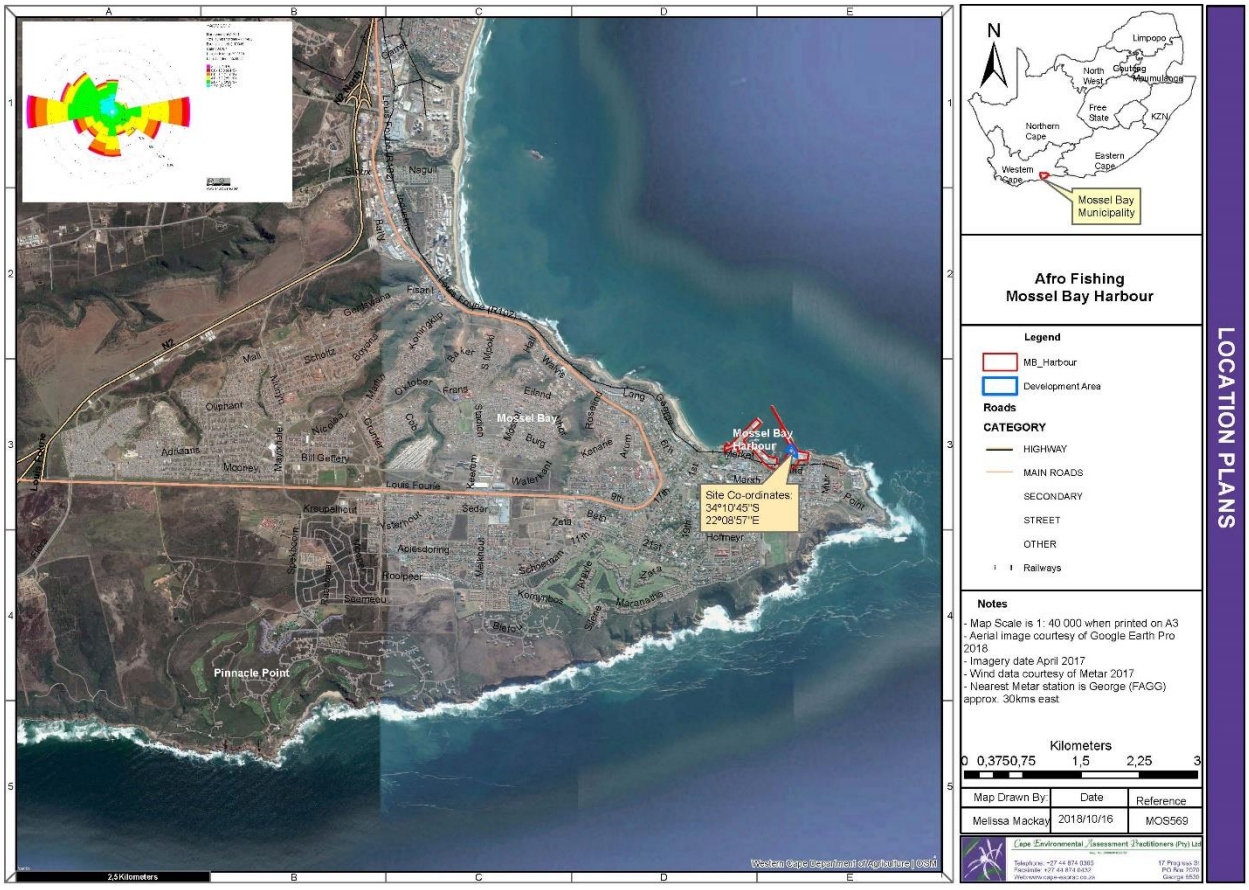

Figure 1: Location Plan

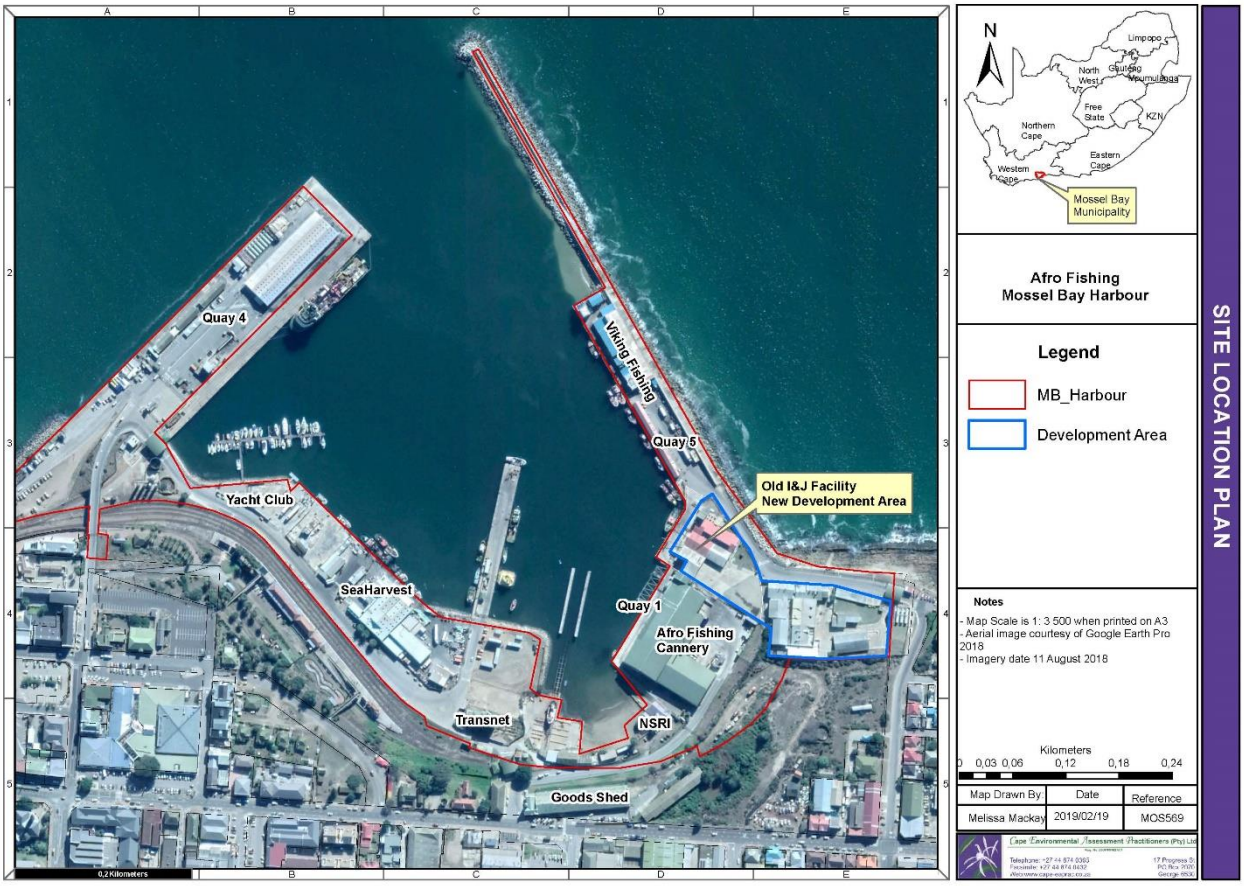

Figure 2: Site location

The existing Afro Fishing cannery is located on Quay 1 immediately adjacent to the proposed fishmeal and fish oil reduction facility on Quay 2. The cannery has been in operation for over 11 years. The area is part of lease areas that Afro Fishing has with the Transnet National Ports Authority (TNPA), who owns Erf 12459 which makes up the Port of Mossel Bay. Erf 12459 is zoned Transport with consent uses for its various lessees.

The Title Deed T66241/1993 indicates that Erf 12459, Mossel Bay is registered in the name of Transnet Limited. The last-mentioned deed describes that the subject property is 11.14 ha in extent. The SG Diagram and Title Deed are attached to this statement.

The Title Deed has been scrutinized and the deed does not have any restrictive conditions that will prohibit the proposed consent use from happening.

The zoning of the subject property according to the Mossel Bay Integrated Zoning Scheme By-Law is “Transport Zone I: Transport Use”.

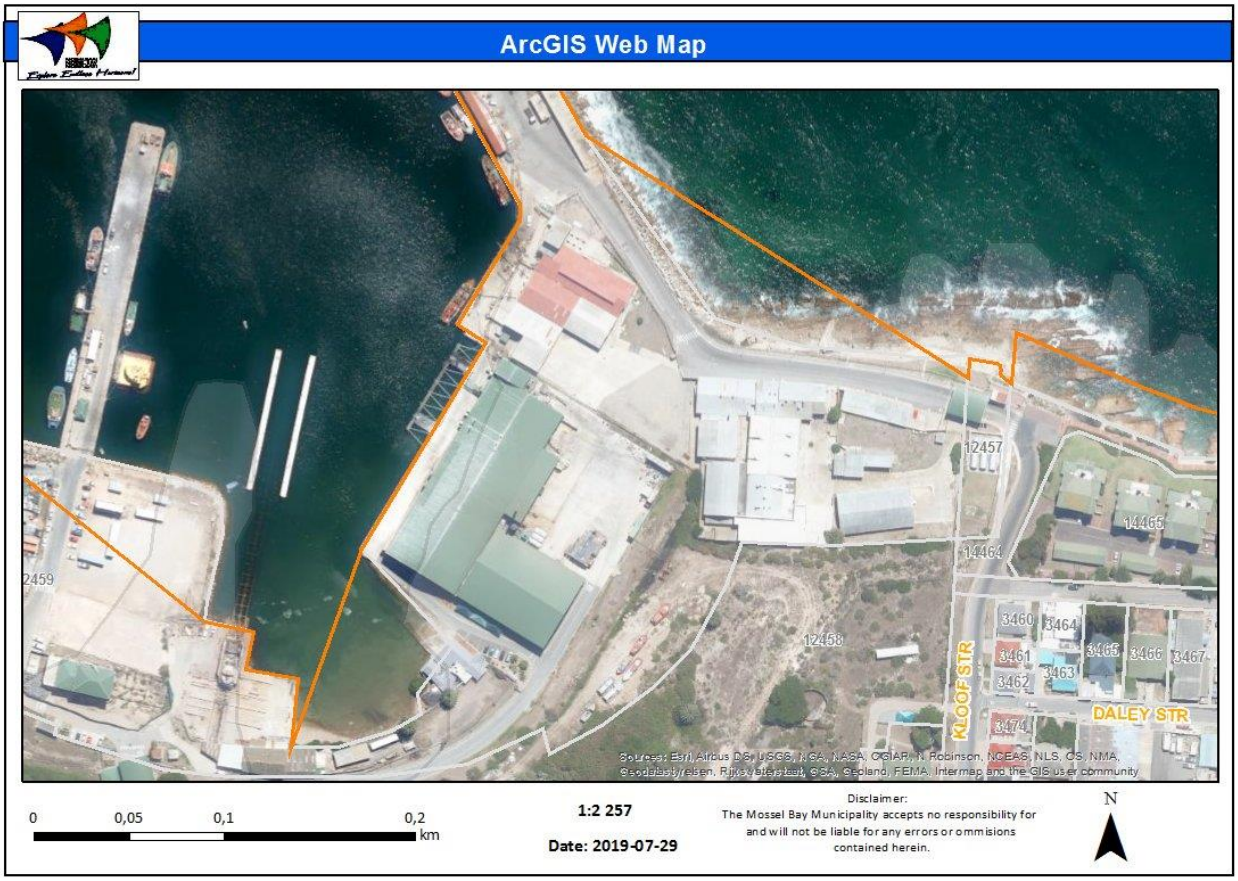

Figure 3: Site Plan

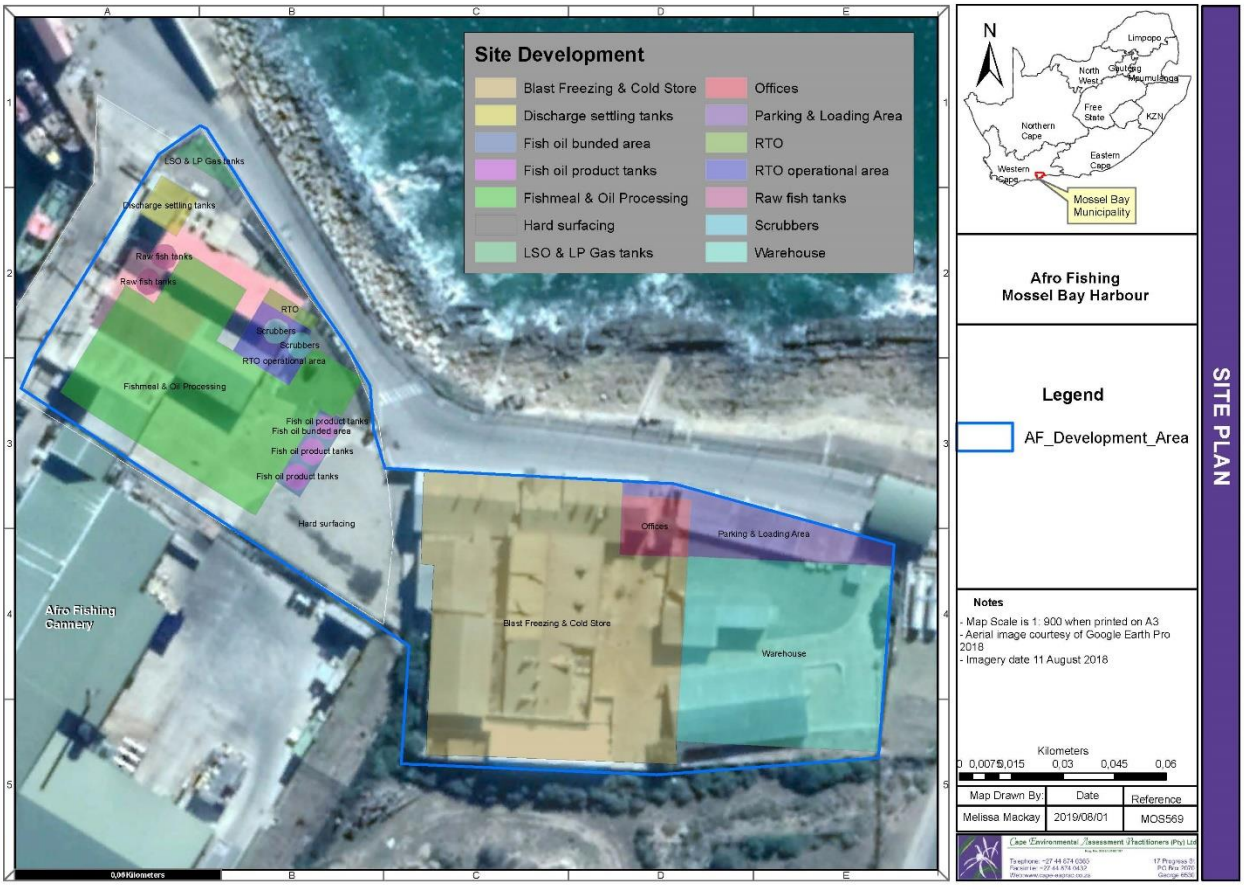

Figure 4: Layout Plan

This EMPr contains **management requirements** and **recommendations** made by *Cape EAPrac*, as well as in terms of the regulations contained in the **National Environmental Management Act** (NEMA, Act 62 of 2008), the **National Environmental Management: Air Quality Act** (NEM:AQA, Act 39 of 2004) and best practice principles. This EMPr has been updated to include any conditions of the **Environmental Authorisation** (EA) as issued.

1.1 PURPOSE OF THE EMPR

The purpose of this EMPr is to ensure that the environmental impacts and management of the various phases of the fishmeal development on the receiving environment are managed, mitigated and kept to a minimum (ie. the **outcome** of implementing the EMPr). The EMPr must provide easily understood and provide clearly defined **actions** that must be implemented during each phase of the development of the proposal. The EMPr is a dynamic document that is flexible and responsive to new and changing circumstances.

The document is binding on the Applicant, all contractors and sub-contractors and visitors to the site. It must be included as part of any tender documents / agreements, as well as contractual documents between the Applicant and any contractors. Copies of this EMPr must be kept on site and all **senior personnel** are expected to familiarise themselves with the content of this EMPr.

Any changes or deviations to this EMPr must be authorised by the competent authority.

1.2 STATUS OF THE EMPR

EA Conditions: TBC

It is of utmost importance that this EMPr be read in conjunction with any legally obtained authorisations such as an Environmental Authorisation (EA) and the Atmospheric Emissions License (AEL). This EMPr is viewed as a dynamic document that must be reviewed and updated on a continual basis.

The EMPr is valid for the duration of the project with each applicable phase corresponding to the identified requirements.

1.3 PROPOSED DEVELOPMENT

EA Conditions: TBC

The development is currently undergoing an EIA process for approval in terms of NEMA and NEM:AQA in the form of an Environmental Authorisation and an Atmospheric Emissions License.

1.3.1 Environmental Authorisation (EA) and an Atmospheric Emissions License (AEL)

An application for EA has been submitted for the proposed development described as Alternative 1 (Preferred Alternative) assessed in the Basic Assessment process for the following listed activity:

Alternative 1 is as follows:

Alternative 1 (Preferred Alternative)

The expansion of the current Afro Fishing facility to include fish meal and oil reduction processes is proposed on the current footprint of the old I&J facility, with a new warehouse adjacent to the current Afro Fishing store.

The proposal entails the harvesting of industrial fish, e.g. anchovy, red-eye, etc., from local waters for the sole purpose of producing fishmeal and fish oil.

The expansion project will include the following:

1. Fish meal and oil reduction plant
2. Fish freezing plant

3. Cold store
4. Fish meal warehouse
5. New canned product warehouse

The reduction process will include the following unit operations:

-- Cooking

-- Pressing

-- Liquid-solid separation

-- Indirect steam drying

-- Waste heat evaporation

-- Oil-liquid separation

-- Cooling / grinding / bagging

-- Boilers for steam generation.

The plant will have a capacity to process a maximum of ±1 000 tons of raw fish per day. The proposed project will produce fish meal and fish oil products for export markets. The project will positively impact local service providers, the Mossel Bay economy, SMME's and ancillary industries. In terms of employment opportunities, the expansion will increase direct employment from 341 to approximately 560 persons.

Afro Fishing (Pty) Ltd envisages an investment of R350-400m in this project. The investment will diversify Afro Fishing into other fisheries, namely anchovy, sardinella and red-eye herring. The project will increase the canned fish production of which a large percentage of the canned fish production goes into the National Schools Nutrition Programme where Afro Fishing supplies 'affordable protein' for school feeding.

The design of the plant, especially the use of RTO (re-generative thermal oxidation) is based on a similar facility, Narciso Dias & Filhos, LDA, located in Peniche, Portugal. The reason for this is due to the similarity in location (seaside town) with tourism as a main driver for the economy. The use of RTO in the plant led to significantly improved odour control management and eliminated offensive odour problems previously experienced. The RTO destroys Hazardous Air Pollutants (HAPs), Volatile Organic Compounds (VOCs) and odorous emissions that are often discharged from industrial or manufacturing processes.

The RTO represents the Best Available Technology (BAT) currently available in the world for odour management. There are currently no such plants in South Africa in the fishing / fishmeal industry.

Plant Operation and Management

Offloading of fish

Depending on the size and capacity of the fishing vessel, approximately two to four vessels are expected to dock at the plant's jetty per day during the peak fishing season. Once the vessel has docked, fish will be pumped off the vessel using a wet offloading pneumatic suction system. The fish is conveyed through closed pipelines to a set of industrial batch scales and weighed. The fish is then pumped or conveyed into stainless steel tanks to limit the impact of high ambient temperatures.

Water pumped off the vessel will be removed from the fish using dewatering screens. The cold water will be recycled and returned to the fishing vessel. Once the vessel is offloaded this water will either be treated by the factory or returned to the fishing vessel for dumping at sea.

The plant and its management are responsible for the vessel and carry liability for any pollution emanating from the vessel while it is docked at the jetty of the fishmeal plant. Once in the bay, responsibility and liability for the vessels transfers to the owner of the boat.

Fish processing

The fish processing sequence is as follows:

- From the stainless-steel storage tank, the fish mass is pumped or conveyed to the cookers. The cooker screw that transports the fish through the cooker is powered by an electric motor. The fish is cooked using steam generated by LSO-fired boilers. Cooking coagulates the protein, ruptures the fat deposits and liberates oil and bound water.
- From the cooker, the cooked fish is fed to a twin-screw press, which separates most of the solid fish material from the liquid (water and oil) fraction of the cooked fish.
- The press water is sent to a set of centrifuges. These separate the remaining fish oil from the press water. The press water contains high levels of dissolved protein and minerals.
- The press water is pumped to a waste heat evaporator / concentration plant, where the valuable elements in the press water are recovered through evaporation of the excess water content. This process uses waste heat from the driers to evaporate off the excess water and produce a fish concentrate with 35 – 38% solid material content. The fish concentrate is added back to the press cake before drying.
- Process vapours and odour point suctions are treated by seawater washing and/or the RTO. Cooling sea water is taken up via a pipeline near the plant and continuously returned to the sea. Return water is approximately 10˚C warmer than intake water. The discharge water is not expected to contain any effluent or solids.
- The solids (press cake) is mixed with the fish concentrate and sent to the indirect steam dryers, where the remaining water is evaporated and a stable, sterilised fishmeal product is produced.
- The dry fishmeal is then milled, treated with an antioxidant before weighed, bagged and stored in a warehouse for a curing period of at least two weeks.
- Fishmeal is then despatched to export markets in 50 kg bags in closed shipping containers.
- Fish oil is pumped from the centrifuges to a fish oil storage tank and later dispatched in tankers or drums in shipping containers.

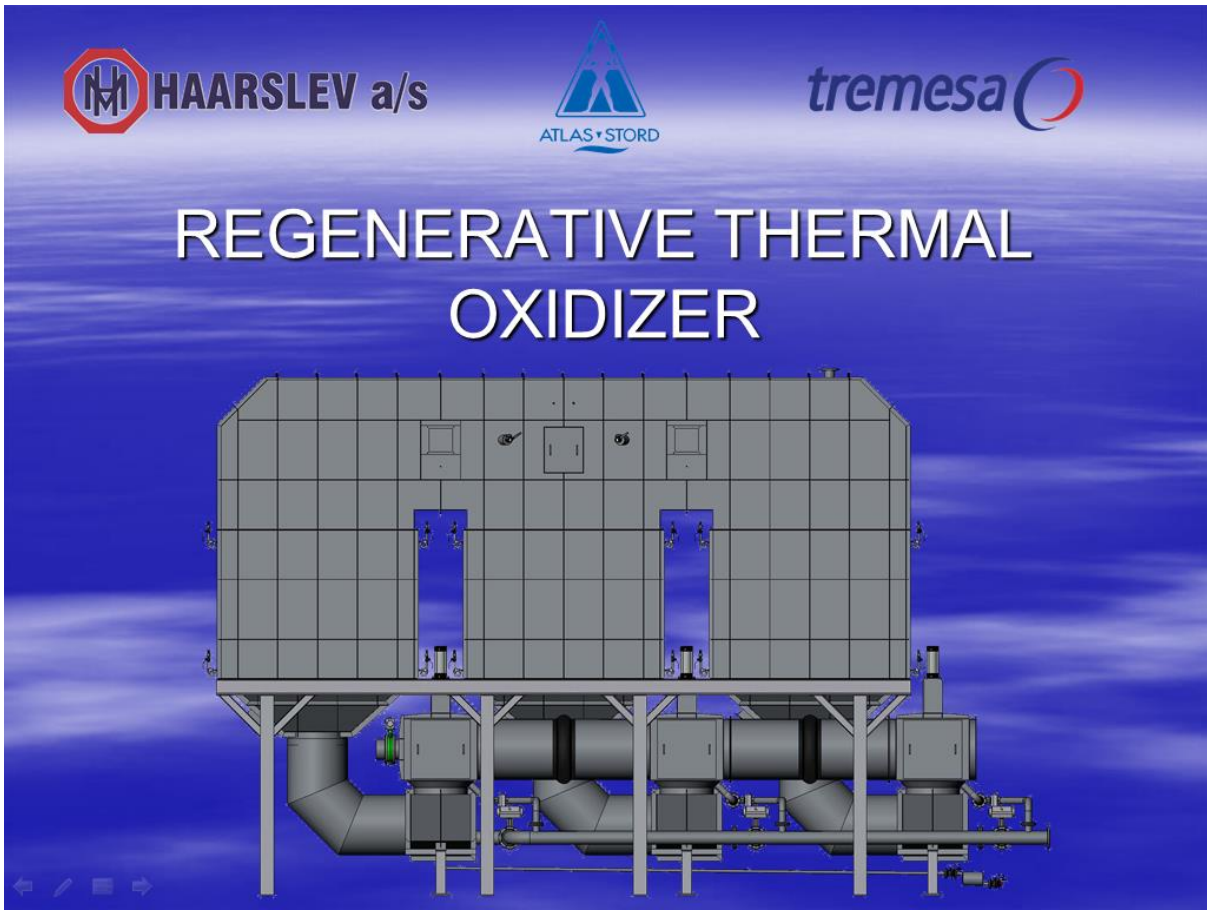

Figure 5: Regenerative Thermal Oxidiser (Haarslev, 2019)

Figure 6: Regenerative Thermal Oxidiser (Tremesa, 2019)

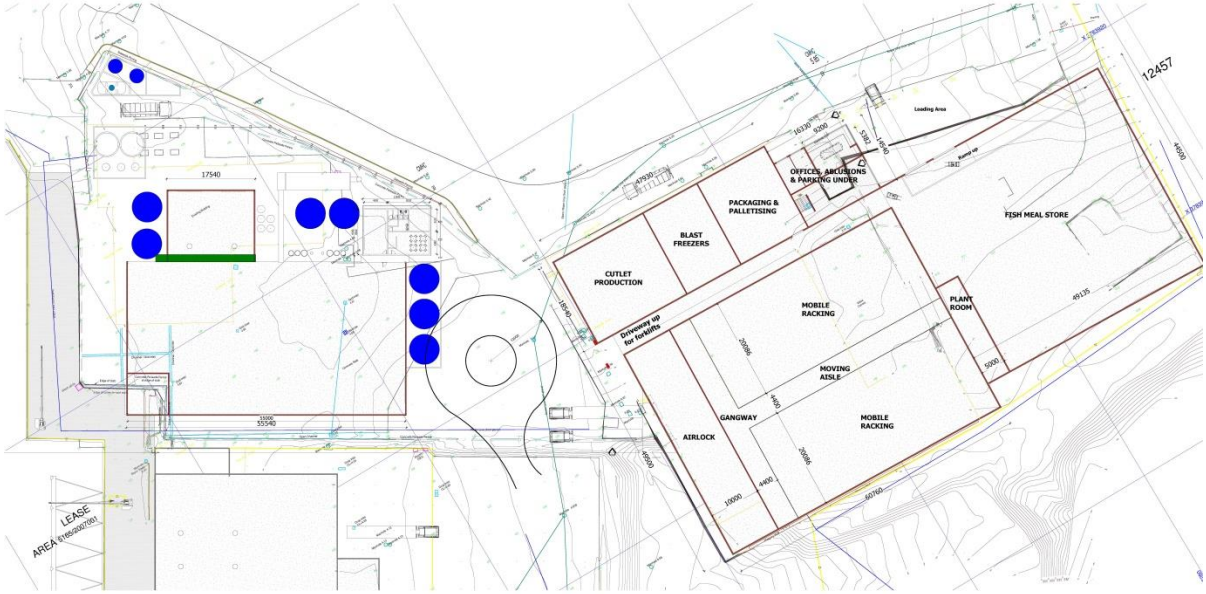

Figure 7: Proposed expansion layout

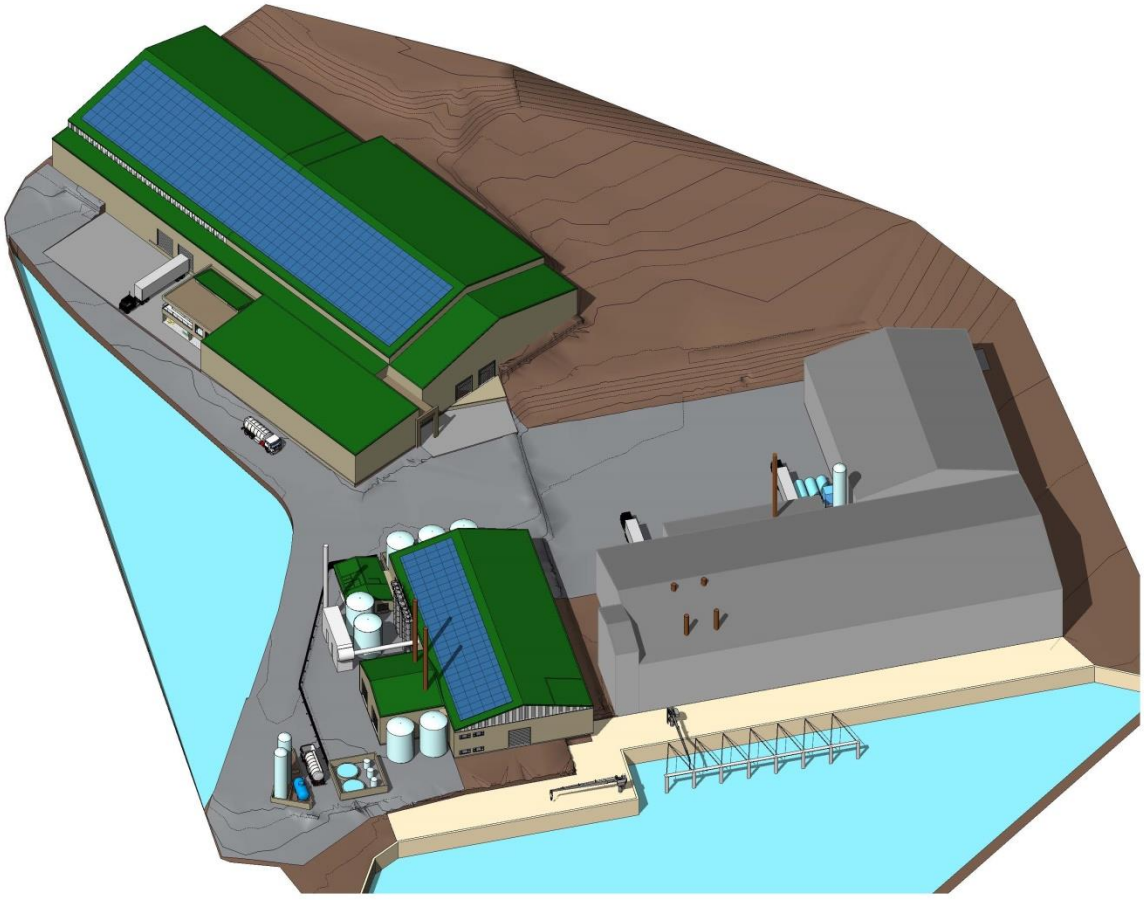

Figure 8: 3D Model of the existing facility and proposed expansion

The process can be divided into two distinct sections, i.e. a "wet" section and a "dry" section. The wet section consists of all of the process steps from unloading of the fish up and including the fishmeal drier. All of the process units included will be sealed units with extraction air being drown off and treated in the RTO unit. The dry section consists of all of the process steps after the fishmeal has been dried, i.e. cooler, grinding, packaging and storage. The fishmeal will be treated with an anti-oxidant to reduce odorous emissions. Cooling air, as well as building air from the grinding, packaging and storage areas will be passed through a wet scrubber system to collect particulate matter that is entrained in the building air.

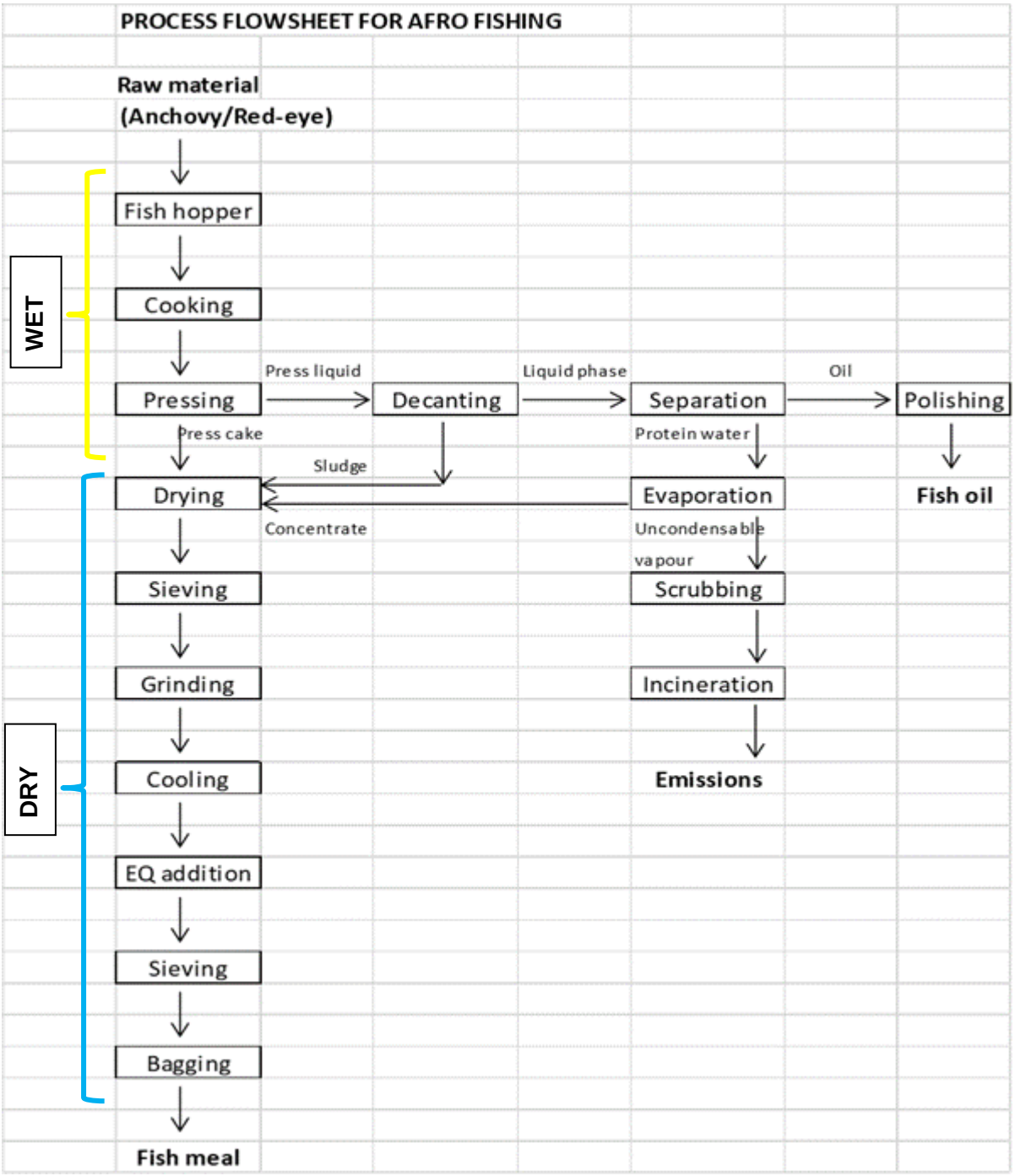

Figure 9: Process Flow Chart

1.4 AMENDMENTS REQUIRED IN TERMS OF THE EA

EA Conditions: TBC

Any amendments to this EMPr specified in an EA must be provided in this section, if necessary.

2 EMPR PHASING

2.1 PRE CONSTRUCTION PHASE

The pre-construction phase refers to the design phase of the project. This will ensure that any requirements and best practise mechanisms are built into the planning / design phase to be developed in the construction and operational phase. This phase must be used to incorporate the necessary design requirements needed to achieve the final objective.

2.2 CONSTRUCTION PHASE

The construction phase refers to the actual construction of the development on the property and includes all earthworks and installation of bulk services (water, sewerage, roads, stormwater, electricity etc.). This will also include the demolition of the existing I&J buildings and infrastructure.

2.3 OPERATIONAL PHASE

The Operation Phase of this project includes all the facets of the facility, including the handling of raw material, processing of fishmeal and fish oil reduction and the storing and handling of product material.

The Applicant must ensure that the Operational Phase maintains the underpinning principles 'Duty-of-Care-to-the-Environment' and ideals of sustainable development. The AEL will be the guiding mechanism for the management of the odour abatement technology.

2.4 CLOSURE AND DECOMMISSIONING PHASE

Decommissioning refers to the process of removing the operating assets of any development after completion of the operating life cycle.

Any food and protein processing facility's life span is subject to outside influences such as economic factors and availability of raw materials which could cause closure or the need for an upgrade beyond the capacity of the cadastral unit. This could lead to closure or decommissioning. A fishmeal facility that was visited as a reference site in Portugal has been in operation for over 20 years, with a Re-generative Thermal Oxidiser (RTO) in place for the last 10 years. However, since this time period is an unknown co-efficient, specific management recommendations are not included with this EMP. In the event that decommissioning is required, all relevant legal processes must be complied with.

3 LEGISLATIVE REQUIREMENTS

The project Applicant is required to comply with all necessary legislation and policies applicable to development and management of the development. These include but are not limited to:

3.1 NATIONAL ENVIRONMENTAL MANAGEMENT ACT (NEMA, ACT 107 OF 1998)

The National Environmental Management Act (**NEMA**, Act 107 of 1998, as amended), makes provision for the identification and assessment of **activities** that are potentially detrimental to the environment and which require authorisation from the competent authority (in this case, the provincial Department of Environmental Affairs & Development Planning (DEA&DP)) based on the findings of an Environmental Impact Assessment (EIA).

NEMA embraces the notion of sustainable development as contained in the Constitution of South Africa (Act 106 of 1996) in that everyone has the right:

- to an environment that is not harmful to their health or wellbeing; and
- to have the environment protected for the benefit of present and future generations through reasonable legislative and other measures.

NEMA aims to provide for cooperative environmental governance by establishing principles for decision-making on all matters relating to the environment and by means of Environmental Implementation Plans (EIP) and Environmental Management Plans/Programmes (EMPr), of which this CMP is one.

Principles contained in Section 2 of the NEMA, amongst other things, prescribe that environmental management must:

- In order of priority aim to: avoid, minimise or remedy disturbance of ecosystems and loss of biodiversity;
- Avoid degradation of the environment and avoid jeopardising ecosystem integrity;
- Pursue the best practicable environmental option by means of integrated environmental management;
- Protect the environment as the people's common heritage;
- Control and minimise environmental damage; and
- Pay specific attention to management and planning procedures pertaining to sensitive, vulnerable, highly dynamic or stressed ecosystems.

It is incumbent upon the applicant, to ensure that the abovementioned principles, entrenched in this EMPr are upheld and complied with.

3.1 NATIONAL ENVIRONMENTAL MANAGEMENT: AIR QUALITY ACT (NEM:AQA, ACT 39 OF 2004)

The current assessment is being undertaken in terms of the National Environmental Management Act (NEMA, Act 107 of 1998 as amended) and the National Environmental Management: Air Quality Act (Act 39 of 2004). These Acts makes provision for the identification and assessment of activities that are potentially detrimental to the environment and which require authorisation from the competent authority (in this case, the provincial Department of Environmental Affairs & Development Planning, DEA&DP and the Garden Route District Municipality) based on the findings of an Environmental Assessment.

The AEL in terms of the NEM:AQA will be applied for from the Garden Route District Municipality once an EA is issued by DEA&DP. The AEL has stringent annual monitoring and will need to be renewed every five years.

3.2 ENVIRONMENT CONSERVATION ACT, 1989 (ECA)

The EIA regulations contained in the Environmental Conservation Act (ECA) have been replaced by NEMA. However, property owners must comply with the draft regulations pertaining to noise as published in the province of Western Cape Provincial Extraordinary Gazette as provision made in section 25 of the ECA), as well as Section 24 of the ECA regarding waste management and Section 20 of the ECA dealing with waste management under Part IV, Control of Environmental Pollution.

3.3 NATIONAL ENVIRONMENTAL MANAGEMENT: BIODIVERSITY ACT (NEM:BA) (ACT 10 OF 2004)

This Act controls the management and conservation of South African biodiversity within the framework of NEMA. Amongst others, it deals with the protection of species and ecosystems that warrant national protection, as well as the sustainable use of indigenous biological resources. Sections 52 & 53 of this Act specifically make provision for the protection of critically endangered, endangered, vulnerable and protected ecosystems that have undergone, or have a risk of undergoing, significant degradation of ecological structure, function or composition as a result of human intervention through threatening processes.

The National List of Threatened Ecosystems (Notice 1477 of 2009, Government Gazette No. 32689, 6 November 2009) was gazetted in 2014. The list of threatened terrestrial ecosystems supersedes the information regarding terrestrial ecosystem status in the National Spatial Biodiversity Assessment (NSBA) 2004 & 2011.

In the case of the fishmeal and fish oil reduction facility, the lease area on Erf 12459 is located within the Port of Mossel Bay limit, in an area designated for commercial fishing industries, within the urban edge and has been significantly transformed and as such this Act has no applicability.

3.4 NATIONAL ENVIRONMENTAL MANAGEMENT: INTEGRATED COASTAL MANAGEMENT AC (NEM:ICMA) (ACT 24 OF 2008)

The Act aims to establish a system of integrated coastal and estuarine management in the Republic, including norms, standards and policies, in order to promote the conservation of the coastal environment, and maintain the natural attributes of coastal landscapes and seascapes, and to ensure that development and the use of natural resources within the coastal zone is socially and economically justifiable and ecologically sustainable; to define rights and duties in relation to coastal areas; to determine the responsibilities of organs of state in relation to coastal areas; to prohibit incineration at sea; to control dumping at sea, pollution in the coastal zone, inappropriate development of the coastal environment and other adverse effects on the coastal environment; to give effect to South Africa's international obligations in relation to coastal matters; and to provide for matters connected therewith..

The ICMA activities applicable to the development are associated with the prevention of pollution to marine waters and public access to coastal areas. The existing cannery already has a Coastal Waters Discharge Permit (CWDP) for the abstraction and discharge of effluent into the harbour and the breakwater on the western side of the harbour. This CWDP must be amended to include the additional volume of seawater which will be used by the facility for cooling and scrubbing purposes.

3.5 NATIONAL WASTE MANAGEMENT STRATEGY

The National Waste Management Strategy presents the South African government's strategy for integrated waste management for South Africa.

It deals among others with: Integrated Waste Management Planning, Waste Information Systems, Waste Minimisation, Recycling, Waste Collection and Transportation, Waste Treatment, Waste Disposal and Implementing Instruments.

In the case of the fishmeal and fish oil reduction facility, an integrated waste management system must be adopted, which includes waste minimisation, waste recycling and the proper storage and disposal of waste, which does not impact of the health of the environment and human health.

3.6 NATIONAL WATER ACT (NWA, ACT 36 OF 1998)

The National Water Act (NWA) gives effect to the constitutional right of access to water. The Act's overall purpose is to ensure that South Africa's water resources are protected, used and managed in ways which take into account a number of factors, including inter-generational equity, equitable access, redressing the results of past racial and gender discrimination, promoting sustainable and beneficial use, facilitating social and economic development, and providing for water quality and environmental protection.

The NWA makes persons who own, control, occupy or use land responsible for taking measures to prevent pollution of water resources, and empowers Government authorities to take measures to enforce this obligation. No Water Use Licenses or Permits are required for this development, however stormwater management across the property and entering the harbour during construction and operation must be in line with efforts to prevent pollution.

The NWA is not applicable to the Afro Fishing application.

3.7 NATIONAL FOREST ACT (ACT 84 OF 1998)

The NFA provides for the **protection of forests**, as well as **specific tree species**, quoting directly from the Act: "no person may cut, disturb, damage or destroy any protected tree or possess, collect, remove, transport, export, purchase, sell, donate or in any other manner acquire or dispose of any protected tree or any forest product derived from a protected tree, except under a licence or exemption granted by the Minister to an applicant and subject to such period and conditions as may be stipulated". The Department of Agriculture, Forestry & Fisheries (DAFF) is responsible for the implementation and enforcement of the NFA, which includes **prohibition of damage to indigenous trees in any natural forest without a licence** (Section 7 of the NFA), as well as the prohibition of the cutting, disturbing, damaging destroying or removing **protected trees** without a licence (Section 15 of the NFA).

In the case of this development, no protected trees have been identified.

The NFA is not applicable to the Afro Fishing application

3.8 NATIONAL HERITAGE RESOURCES ACT (ACT 25 OF 1999)

The purpose of the National Heritage Resources Act is to:

- Introduce an integrated and interactive system for the management of the national heritage resources;
- Promote good government at all levels,
- Empower civil society to nurture and conserve their heritage resources so that they may be bequeathed to future generations;
- To lay down general principles for governing heritage resources management throughout South Africa;
- To introduce an integrated system for the identification, assessment and management of the heritage resources of South Africa;
- To establish the South African Heritage Resources Agency together with its Council to co-ordinate and promote the management of heritage resources at national level;
- To set norms and maintain essential national standards for the management of heritage resources in South Africa and to protect heritage resources of national significance;
- To control the export of nationally significant heritage objects and the import into South Africa of cultural property illegally exported from foreign countries;
- To enable the provinces to establish heritage authorities which must adopt powers to protect and manage certain categories of heritage resources;
- To provide for the protection and management of conservation-worthy places and areas by local authorities; and
- To provide for matters connected therewith.

The development of the Afro Fishing facility does not impact on any heritage resources and is within the urban edge / built environment. This has been confirmed by Heritage Western Cape.

3.9 OCCUPATIONAL HEALTH AND SAFETY ACT (ACT 85 OF 1993)

The Act provides for the health and safety of persons at work and for the health and safety of persons in connection with the use of plant and machinery; the protection of persons other than

persons at work against hazards to health and safety arising out of or in connection with the activities of persons at work.

In terms of this Act, a Health and Safety Officer and Protocol must be implemented on any sites. The appointment of a Health and Safety Officer is the responsibility of the proponent and contractor and is included in this report to ensure due diligence on construction sites. It is the responsibility of the appointed to HSO to conduct any required audits and as such only the appointment of an HSO will be auditable in terms of this document.

3.10 SANS 10400 APPLICATION OF THE NATIONAL BUILDING REGULATIONS

The application of the National Building Regulations contains performance parameters relating to fire safety, sanitation systems, moisture penetration, structural safety, serviceability and durability. It also takes into account how the above can be established to reflect social expectations in a manner which supports sustainable development objectives.

3.11 NATIONAL BUILDING REGULATIONS

The National Building Regulations and Building Standards Act as amended must be complied with. This act addresses, inter alia:

- Specifications for draftsmen, plans, documents and diagrams;
- Approval by local authorities;
- Appeal procedures;
- Prohibition or conditions with regard to erection of buildings in certain conditions;
- Demolition of buildings;
- Access to building control officers;
- Regulations and directives; and
- Liability.

4 ENVIRONMENTAL IMPACTS & MITIGATIONS

The following specialist assessments and reports were undertaken as part of the Environmental Impact Assessment process:

- Air Quality Impact Assessment by Lethabo Air Quality Specialists (LAQS);
- Socio-Economic Impact Assessment by Multi Purpose Business Solutions (MPBS);
- Traffic Impact Assessment by Urban Engineering;
- Planning Statement by DelPlan;
- Electrical Supply Report by Makukhane Consulting Engineers;
- Services Report by V3 Engineering;
- Visual Statement by Francois van Zyl Architects; and
- Heritage Notice of Intent to Develop by Perception Planning.

According to the various specialists, the impacts associated with the proposed redevelopment of the site range between negligible and Low significance, with mitigation. The impacts can be easily managed to ensure that they do not cause significant negative impacts to the environment or the community.

The following environmental impacts of the development were identified and assessed during the EIA process, based on which the associated mitigation measures were recommended for implementation (to reduce negative impacts & enhance positive ones):

- Odour (-ve) very low

- Noise (-ve) low
- Socio-economic (-ve) low to medium, (+ve) medium
- Traffic (-ve) very low

4.1 IMPACTS

The following impacts were identified by the specialists and stakeholders:

Table 2: Impacts identified

Biodiversity impacts
- None
Odour impacts
LAQS used the rating system to attach a risk to air quality as a result of emissions from Afro Fishing's operations: **Likelihood of occurrence:** Frequency of activity: Daily, i.e. score = 1 Frequency of impact: Almost never, i.e. score = 1 Confidence: High, i.e. score = 2 Total score for likelihood of occurrence: 4 **Consequence:** Severity: small, i.e. score = 1 Spatial scope: Impact is specific to fishmeal production activity, i.e. score = 1 Duration: Life of operation, i.e. score = 4 Total score for consequence: 6 The overall score, i.e. likelihood x consequence, is 24 which places the potential risk in the **"very low"** category.
Socio-Economic
The following **concerns** (medium or higher impact after mitigation) have been identified: 1. **Sense of place**: The significantly larger Afro Fishing facility will be visible to a large number of receptors and may negatively affect the current small coastal harbour character of Mossel Bay, one of the key selling features that attract tourists. 2. **Nuisance factors (dust, malodours, noise and human wellbeing)**: The impact (mainly noise from harbour activities) will be medium to a limited number of receptors in close proximity to the construction site, but low to those further away. 3. **Tourism and related businesses**: Given the potential impact on the sense of place and nuisance factors, the Afro Fishing project could have a medium negative residual impact on the tourism offering in Mossel Bay. 4. **Real estate values of surrounding land:** There is a medium probability that the proposed Afro Fishing project could have a negative impact on the property prices of adjacent land. 5. **Impact on traffic flows:** Large construction vehicles may impact traffic flows during the construction phase. 6. **Influx of job-seekers:** A significant number of employment opportunities would be linked to the proposed project, which may add to the current influx of job seekers

experienced in Mossel Bay.

Potential positive impacts

A number of benefits are associated with the proposed Afro Fishing Project:

1. **Job creation:** The findings of the employment analysis are considered in the context of the entire development with capital expenditure phased in over a 3-year period. Based on the different scenarios, the project could sustain 95 to 104 jobs per month on average (over the construction period of 3 years) in the Western, or 105 to 118 jobs per month on average if considered at the local (Mossel Bay) level (Mossel Bay has a lower GVA to employment levels). During operations, the project could initially (Year 1) create 456 jobs in the Mossel Bay area if productivity remained constant and increasing to 502 if external influences on demand are considered.

In terms of the Western Cape, an estimated total of 10 222 jobs could be sustained during the first 10 years of operation or approximately 1 000 direct, indirect and induced jobs per annum on average. When the impact on Mossel Bay is considered, 1 100 direct, indirect and induced jobs per annum on average could be sustained of which 560 are direct jobs.

2**. Contribution towards economic income**: During the construction phase, a combined initial investment of R437 million (R349,6 million net of the initial import leakage) will give rise to a multiplied increase in GVA of R3 845,6 million in the Western Cape Province. Based on the initial direct expenditure, a large propensity to import goods and services, and the contribution of the Mossel Bay area to the Western Cape Province, **approximately R162,44 million will accrue to the area over and above the initial direct capital expenditure on these components**.

A forecast of the revenue over the 10 years once the facility is fully operational (less an estimated leakage) will give rise to a multiplied increase in GVA of R5 799,407 million in the Western Cape Province over the first 10 years of the project (with no assumption as to the estimated stabilising year). Based on the initial direct expenditure, a large propensity to import goods and services, and the contribution of Mossel Bay to the Western Cape Province, approximately R102,8 million will accrue to the area over and above the initial operational revenue. Note, the revenue figures used for these calculations are confidential.

3. Socio-economic prescriptions have become a standard inclusion in the submission of development proposals to relevant government departments at local, provincial and national level, and in this context refer to socio-economic development contribution requirements of the Economic Development Scorecard.

Afro Fishing adheres fully to the Enterprise and Supplier Development requirement and Socio-economic Development contributions stated in the Policy and 80% to the Enterprise Development in the terms of the Policy and by implication the BBBEE Code.

4. Contribution towards infrastructure: The need for sewerage, potable and fire water will be within the old I&J quantities, but there will be a substantial increase in the power requirement for additional heating and chilling facilities. Although Afro Fishing will only need one new 185 mm2 PILC 11 kV cable, the project will pay for a second cable to cater for further developments in the precinct and to improve the stability of the electricity supply ring in Mossel Bay.

Nature of the Impact	Rating before mitigation	Rating after mitigation (Residual impact)
Construction		
Traffic and road infrastructure	60 (med neg)	50 (med neg)
Nuisance factors (Dust and noise pollution)	55 (med neg)	50 (med neg)
Influx of job-seekers	44 (med neg)	40 (med neg)
Increase in local crime	30 (low neg)	27 (low neg)
Economic income	65 (med pos)	
New employment opportunities	65 (med pos)	
Operations		
Sense of place	75 (med-high neg)	55 (med neg)
Nuisance factors (malodours, noise and human wellbeing)	95 (med-high neg)	44 (med neg)
Impact on local tourism and businesses	90 (med-high neg)	48 (med neg)

Nature of the Impact	Rating before mitigation	Rating after mitigation (Residual impact)
Impact on surrounding property values	68 (med neg)	45 (med neg)
Pollution of the bay area	72 (med neg)	39 (low neg)
Traffic and road infrastructure	40 (med neg)	27 (low neg)
Bulk infrastructure requirements/contributions	50 (med pos)	
Local business development	70 (med pos)	
Economic income	80 (med pos)	
New employment opportunities	80 (med pos)	

Cumulative impacts

Cumulative impacts refer to any other developments as well as existing activities within the immediate area that could compound any positive or negative impacts associated with the proposed development. The Old Town area is fully developed, with mainly renovations that are foreseen in terms of new construction activities. The recent discovery of the gas fields suitable for exploration just off Mossel Bay (Brulpadda) may also result in additional infrastructure required for mining of the gas fields. A new Waterfront development has been proposed for the Mossel Bay Harbour area, which include the area to the west of the Vincent Jetty and along the south-eastern border of the Afro Fishing site.

Noise

- Limited noise generation confined to normal working hours during construction and operation phase- Low

Traffic

- The impact of the proposed expansion of the Afro Fishing facility, on the surrounding road network can be seen as insignificant

4.2 MITIGATIONS

The specialists provided various mitigations measures to avoid or minimise the impacts identified; these are shown in the table below.

Table 3: List of Mitigation Measures & Associated Management Requirements

Mitigation & Management Requirement
Odour impacts
• Implement the RTO system.

- As some of the products of the fishmeal process are destined for human consumption, it is recommended that only freshly harvested fish is processed at the proposed fishmeal plant in order to comply with the current health and hygiene requirements of the canning process.
- It is of paramount importance that all process equipment in the fishmeal plant is cleaned and sanitised at regular intervals to minimise the formation of odours between production runs. It is recommended that a cleaning procedure and schedule, similar to that of the canning plant, is defined for this purpose.
- It is recommended that a preventative maintenance program is designed and implemented with the assistance of the preferred technology supplier to ensure that the equipment operates at optimum conditions.
- It is of paramount importance that the extraction system that gathers fumes from the various process steps are designed properly to ensure that the correct volume of air is extracted from each point. While it can be assembled locally, it is recommended that design of this system is left to the supplier of the RTO so that a well-balanced system is installed.
- It is recommended that specific attention is paid to the day-to-day operation of the RTO as its availability is of key importance to remove odorous emissions from the plant. As is the case with the process equipment, it is recommended that a formal maintenance procedure and schedule is developed for the RTO and this schedule meets the requirements of the equipment supplier.
- It is recommended that supervisory personnel in charge of the operation of the fishmeal plant receive thorough training in the operation and maintenance of the process, especially the RTO, to ensure that breakdowns and kept to a minimum and that fault diagnosis and correction can be achieved in the shortest period of time.
- Even though the main odorous compound emitted from Afro Fishing's operations are expected to consist of amines, there is no easy method for measuring such compounds continuously and costs running to a few million Rand may be incurred if such monitoring of amines is required.
- It is rather recommended that the TMA emissions from the RTO stack are verified biannually by an independent contractor.
- It is recommended that the emissions from the scrubber stack are verified annually by an independent contractor.
- It is recommended further that emissions from the boilers are verified on a biennial basis by an independent contractor.

Socio-Economic

Impact	Mitigation measures
Construction phase	
Impact on traffic flows	No recommendations were made in the TIA related to the construction phase.
Nuisance factors (dust and noise)	Dust and noise emissions should be minimised by means of a CEMP that would incl measures and trigger mechanisms to mitigate any potential impacts to nea receptors.
Influx of job-seekers	Contractors need to employ people from the immediate area whenever possible.

Impact	Mitigation measures
Local crime	TNPA applies strict access control to the Port Limits, which will add a high leve security during the construction phase. Co-operation between the Developer and contractors is essential; fencing and on-site security measures will minimise the ri
Operational phase	
Sense of Place	Most of the infrastructure would be enclosed to retain the current "look and feel the current Afro Fishing buildings.
Nuisance factors (malodours, noise and human well-being)	Nuisance factors during the operational phase should be minimised by means o EMP that include measures and trigger mechanisms to mitigate any potential impa to nearby receptors.
Impact on traffic flows	The removal of the fence between the existing Afro Fishing cannery site and proposed Fish Meal and Oil Reduction facility will help to increase circulation betw the two facilities and distribute traffic.
Pollution of the bay area	Regular monitoring of the water quality at the point of discharge and beyond wo be required to ensure that the plant adheres to legislative requirements.
Local tourism and businesses	It is imperative that the sense of place that attracts tourists is not negatively affec
Surrounding property values	Special attention is required to minimise the visual impact and nuisance factors lin to the Afro Fishing project.

Noise

- Work hours to be restricted to normal working hours.
- Vehicles to be maintained and have bafflers

Traffic

- Remove fence between existing cannery and the proposed expansion facility.

5 RESPONSIBILITIES

This section deals with the responsibilities of various parties during the Construction Phase of any development.

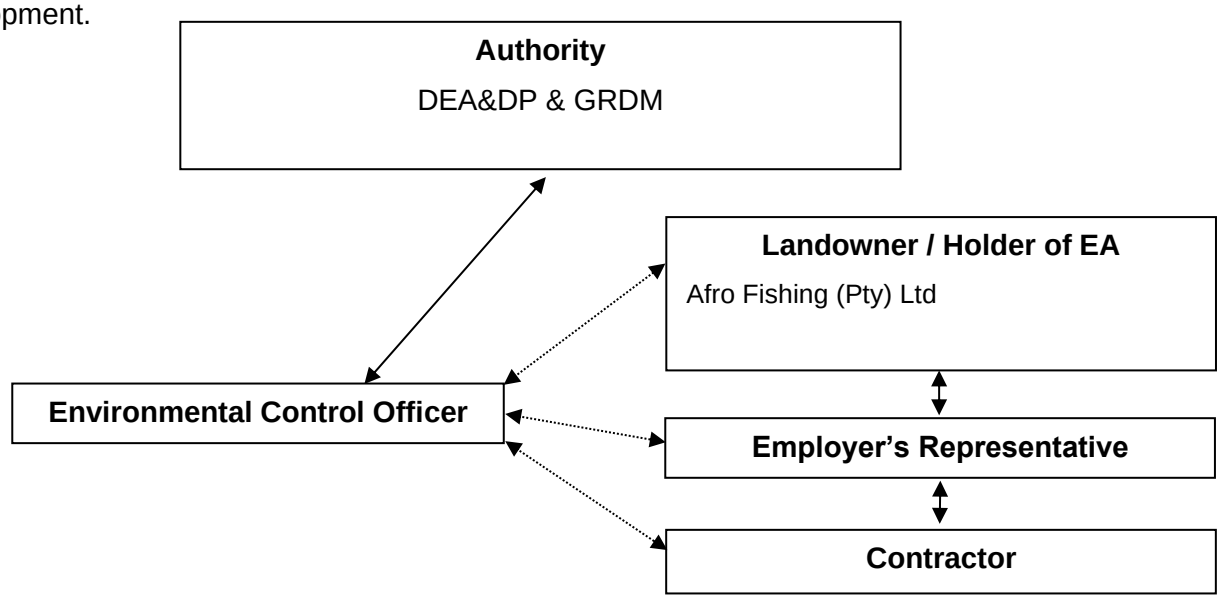

Figure 10: Responsibilities

5.1 HOLDER OF THE EA

EA Conditions: TBC

The holder of the EA / property owner (Afro Fishing (Pty) Ltd) is the overseeing entity responsible for ensuring that all activities undertaken on the property comply with the Environmental Authorisation (EA) and associated Environmental Management Programme (EMPr) (& any other approval / licence / permit), as well as the management and maintenance of the open space areas (protected vegetation.

The responsibilities of the holder of the EA / property owner include, but are not limited to the following:

- Ensure that **all tender documentation** include reference to, and the need for compliance with, the EA and EMPr as well as any other legally binding documentation, which include and are not limited to:
  - the Municipal Approval/s (, service agreements & building plans etc.);
- Be conversant with, and ensure that all Contractors, Sub-contractors, Engineers (and future senior site managers / personnel) are made aware of, and understand the conditions and recommendations, contained in the abovementioned documentation;
- Ensure that all Contractors, Sub-contractors, Engineers (during construction activities), as well as all future visitors and service providers (during operation) are made aware of their 'Duty of Care to the Environment' and that any damage or degradation of the natural environmental within the bounds of the property will be not be tolerated and must be dealt with / remedied at the cost of the perpetrator;
- Take remedial and/or disciplinary action in circumstances where persons are found to be in contravention of the abovementioned legally binding documentation.

5.2 ENGINEERS, CONTRACTORS & SERVICE PROVIDERS

The Engineers, Contractors and Service Providers are often the parties responsible for physically carrying out the activities for which majority of the recommendations in this EMPr are intended. Service providers and Contractors include services, building contractors, 'handy-men' and engineers overseeing the installation and maintenance of services etc. The responsibilities indicated here are also relevant to Sub-Contractors.

The responsibilities of these parties include but are not limited to the following:

- Be conversant and compliant with the EA, the EMPr, and any relevant License, Permit or any legally binding documentation relevant to their operations;
- Have a responsibility to adhering to any conditions and recommendations laid out in above mentioned documentation;
- Prevent actions that may cause harm to the environment;
- Be responsible for any remedial activities in response to an environmental incident within their scope of influence;
- Liaise with the holder of the EA and the ECO in complying with the EMPr, and in the event that any industry regulated standards are in contradiction with the EMPr or any other authorisations.
- Review and amend to any construction activities to align with the EMPr and Best Practice Principles;
- Ensure compliance of all site personnel and / or visitors to the EMPr and any other authorisations.

5.3 ECOLOGICAL CONTROL OFFICER (ECO)

EA Conditions: TBC

It is recommended that a suitably qualified Environmental Control Officer (ECO) be appointed to oversee all activities for the duration of the construction phase (i.e. demolition, construction

activities, services). The ECO must have a minimum of a tertiary level qualification in the natural sciences field. The ECO must have at least 3 years' experience and proven competency as an ECO.

The responsibilities of the ECO include but are not limited to the following:

- Provide environmental induction training to Contractors on site prior to construction activities commencing
- Provide maintenance, update and review of the EMPr if necessary;
- Liaison between the Project Holder of the EA, Contractors, Authorities and other lead stakeholders on all environmental concerns, including the implementation of the EMPr;
- Compilation of Environmental Control Reports (ECR) to ensure compliance with the EA, EMPr and duty of care requirements, where necessary;
- Compilation of the Environmental Audit Report or Environmental Completion Statement, after completion of construction (or as otherwise defined in the Environmental Authorisation), where necessary;
- Ensuring / guiding and monitoring compliance with the EA and EMPr and any legally binding documentation;
- Facilitating consultation with relevant environmental authorities (e.g. DEA&DP, GRDM, CapeNature or Municipality);
- Facilitating the application for any required environmental authorisation, permit or licence;
- Provide guidance and interpretation of the EA and EMPr where necessary;
- Issuing site instructions to the contractor for corrective actions required;
- The ECO is required to conduct regular site visits for the duration of the construction period, in order to ensure the Contractor receives the necessary induction and that all procedures are in place. Additional visits may be undertaken in the event of any unforeseen environmental accidents;
- The duration and frequency of these visits may be increased or decreased at the discretion of the ECO;
- Attendance of site meetings if required;
- Maintain a record of environmental incidents (e.g. spills, impacts, legal transgressions etc.) as well as corrective and preventative measures taken. This information must also be included in the ECR;
- Maintain a public complaints register in which all complaints and action taken must be recorded. This information must also be included in the ECR.

5.4 ECO SITE VISIT FREQUENCY

The following site frequency for ECO site visits has been determined:

- Weekly during initial demolition, site clearing and demarcation activities;
- Every second week after site clearing and during installation of civil services (services etc.) and construction of the facility;
- Monthly once construction is completed and installation and finishing are underway, must coincide with site meetings;
- Ad hoc site visits may be undertaken in the event of any incidents or specific requests from the project holder of the EA or project team.

5.5 ENVIRONMENTAL INDUCTION & TRAINING

The ECO in consultation with the Contractor shall ensure that adequate environmental awareness training of senior site personnel takes place and that all construction workers receive an induction presentation on the importance and implications of the EA and EMPr. The presentation shall be conducted, as far as is possible, in the employees' language of choice. The Contractor must provide a translator from their staff for the purpose of translating, should this be necessary.

As a minimum, training must include:

- Explanation of the importance of complying with the EA and EMPr and the employee's accountability;
- Discussion of the potential environmental impacts of construction activities;
- The benefits of improved personal performance;
- Employees' roles and responsibilities, including emergency preparedness;
- Explanation of the mitigation measures that must be implemented when carrying out their activities;
- Explanation of the specifics of this EMPr and its specification (no-go areas, etc.);
- Explanation of the management structure of individuals responsible for matters pertaining to the EMPr.

Should the staff turnover be high and with additional appointment of Sub-contractors, it may be necessary to undertake additional induction training sessions. The Contractor must keep records of all environmental training sessions, including names, dates and the information presented.

6 PRE CONSTRUCTION DESIGN CONSIDERATIONS

It is recommended that sustainable design considerations are implemented during the planning phase in order to ensure that the impacts associated with the development are avoided, minimised or managed before construction commences.

Given that the facility is already developed, it may be that some of these recommendations will have to be phased in over time.

6.1 EXTRACTION DESIGN

Management Statement	Impacts & Risks Avoided
To minimise the potential for odour dispersion	• Nuisance odours beyond the site

Management Actions

Provide a duct design specification to the authorities for review

Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Approved plans	Once off	Owner	Ad hoc	Audit	Once off

6.2 WATER RESOURCE PROTECTION

Management Statement	Impacts & Risks Avoided

To minimise the use of scarce water resources by improving consumption methods	• Supplement outdoor water use with rain water instead of utilising municipal sources • Improve internal water consumption mechanisms

Management Actions

Incorporate rain water harvesting into the design of the facility

Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Approved plans must show location of rain water harvesting tanks	Once off	Owner	Ad hoc	Audit	Once off

Incorporate water saving measures into the design of the facility

Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Water saving checklist	Once off	Owner	Ad hoc	Audit	Once off

<u>Additional Considerations for to implement:</u>

All taps used for personnel hygiene must be low flow nozzles with automatic cut off or foot operated mechanisms.

Low flow shower heads and taps should be implemented in personnel washrooms.

Geyser and pipe insulation will save water and energy by preserving heat within pipes.

Rainwater harvesting must be implemented.

Geysers must be fitted with insulation jackets to minimise water being wasted while waiting for hot water. If the geysers are a distance away from the usage area, either a secondary heating mechanism must be placed in line or the water must captured by means of a heat sensitive valve that pipes it to a holding tank for later re-use.

Water for generalised washing must be pressurised. Some pressurised washing equipment has a compressed air stream at the nozzle exit.

All hoses must be fitted with self-closing nozzles or pistol grips to prevent water wastage when not in use.

Water monitoring must take place daily.

Water saving information / education must be available to personnel.

Recycled water mechanisms could be introduced for use in general outdoor use. E.g. Steriliser and hand-wash / boot wash water collected and used to wash, process water can be chlorinated, UV irradiated or heated to be re-used on floors for primary processing or warehousing.

6.3 ENERGY RESOURCE PROTECTION

Management Statement	Impacts & Risks Avoided
To minimise the use of energy resources by improving consumption methods	• Excessive and unnecessary energy consumption

Management Actions

a. Incorporate energy efficiency into the design of the facility

Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Energy saving checklist	Once off	Owner	Ad hoc	Audit	Once off

Additional Considerations:

Energy efficient lighting

Disposing of Burnt Out Bulbs

- Seal the bulb inside two plastic bags, or one thick freezer bag, before disposal.
- Find the nearest recycling station that handles hazardous materials. Check with your city's municipal office to see if there is a recycling program in your town.
- Take the bulbs to the recycling station. Ask the people there about the process of giving them your bulbs and follow all their instructions.
- Tell everyone you know who is using energy efficient bulbs how to properly dispose of them as the use of these bulbs is growing.

If a Bulb Breaks

- Open a window and leave the room. Let no one inside for at least 15 minutes.
- Collect the fragments and powder with stiff paper or cardboard. Wear disposable rubber gloves. Do not use a vacuum cleaner.
- Clean the entire area with a wet wipe or wet paper towel. Use adhesive tape to collect excess powder.
- Seal all pieces and cleanup materials in a plastic bag. Follow the above procedures on disposal or recycling. Wash your hands completely afterward.

  Dispose of the vacuum bag in the same manner the next time you vacuum the area. If it's a canister vacuum, wipe it completely clean.

Solar energy generation

Geyser and pipe insulation

6.4 DEMARCATION OF WORK AND NO-GO AREAS

Management Statement	Impacts & Risks Avoided
To clearly define the work area and avoid impacting on non-works areas.	Impact on the current functioning of other port users

Management Actions

a. Site camp location must not impact on sensitive areas and must be located within the development area.

b. Written notice from land owners must be provided for off site camps.

Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Method Statement	Once off	Owner / contractor	Pre implementation	Audit	Once off

The site camp must be clearly demarcated and fenced off with shade netting or any other approved material

Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Method Statement	Once off	Owner / contractor	Pre implementation	Audit	Once off

Fuel and chemicals may only be stored in the site camp.

Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Method Statement	Once off	Owner / contractor	Pre implementation	Audit	Once off

The site camp must be provided with sufficient ablution facilities (toilets and potable water) of which the content must be disposed of regularly and at the suitable facilities

Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance

Method Statement	Once off	Owner / contractor	Pre implementation	Audit	Once off

7 CONSTRUCTION CONSIDERATIONS

These Construction Phase requirements are aimed at using Best Practise Principles and / or specialist recommendations to manage the impacts on the environment during the construction of the development.

7.1 STORMWATER MANAGEMENT

Management Statement	Impacts & Risks Avoided
To minimise the generation of contaminated stormwater.	• Stormwater damage during construction. • Pollution entering the harbour.

Management Actions

a. Minimise the quantity of uncontaminated stormwater entering harbour.

Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Method Statement	Once off	Owner / contractor	Pre implementation	Audit	Once off

- The following must be implemented:
- Run-off from all work areas must be filtered through silt fences, or channelled into sedimentation dams, before being allowed to flow into the harbour.
- Energy dissipation measures must be combined with the above measures, where necessary.
- Construction of the roads and services must be carried out in phases, so that construction activities are continuously being completed and the work areas rehabilitated.
- All stormwater must be channelled to the existing stormwater outfalls.

7.2 DUST CONTROL

Management Statement	Impacts & Risks Avoided
To ensure there is no health risk or loss of amenity due to emission of dust to the environment.	• Nuisance dust during construction

Management Actions

a. Implement a dust prevention strategy, developed at the project planning stage.					
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Method Statement	Once off	Owner / contractor	Pre implementation	Audit	Once off

- Trucks bringing in materials must be **covered** to prevent dust and small particles escaping and potentially causing damage to people and property.

7.3 NOISE & VIBRATION

Management Statement	Impacts & Risks Avoided
To ensure nuisance from noise and vibration does not occur.	• Noise from the demolition and construction of the facility

Management Actions

a. Fit and maintain appropriate mufflers on earth-moving and other vehicles on the site.					
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
As required	Initially when vehicle or machinery is introduced to the site and thereafter monthly. As required if complaints registered.	Contractor	During construction	Audit	As required

Enclose noisy equipment such as generators and pumps.					
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance

As required	Initially when vehicle or machinery is introduced to the site and thereafter monthly. As required if complaints registered.	Contractor	During construction	Audit	As required
Provide noise attenuation screens, where appropriate.					
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
As required	Initially when vehicle or machinery is introduced to the site and thereafter monthly. As required if complaints registered.	Contractor	During construction	Audit	As required
Where an activity is likely to cause a noise nuisance to nearby residents, restrict operating hours to between 7 am and 6 pm weekdays and 7 am to 1 pm Saturday, except where, for practical reasons, the activity is unavoidable.					
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
As required	As required if complaints registered.	Contractor	During construction	Audit	As required
Noise should not be above background levels inside any adjacent residence between 10 pm and 7 am.					
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance

As required	As required if complaints registered.	Contractor	During construction	Audit	As required
Advise local residents when unavoidable out-of-hours work will occur.					
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
As required	As required if complaints registered.	Contractor	During construction	Audit	As required
Schedule deliveries to the site so that disruption to local amenity and traffic are minimised.					
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
As required	As required if complaints registered.	Contractor	During construction	Audit	As required
Minimise air vibrations.					
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
As required	As required if complaints registered.	Contractor	During construction	Audit	As required

7.4 WASTE MANAGEMENT

Management Statement	Impacts & Risks Avoided

To minimise the waste load discharged to the environment.	Improve waste disposal methods during construction Reduce waste volumes to landfill sites

Management Actions

a. Reduce wastes by selecting, in order of preference, avoidance, reduction, reuse and recycling.

Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Record of volumes of material removed	As required	Contractor	As required	Audit	Records

Maintain a high quality of housekeeping and ensure that materials are not left where they can be washed or blown away to become litter.

Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Photographic	Weekly	Contractor	As required	Audit	Records

Provide bins for construction workers and staff at locations, especially where they consume food.

Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Photographic	Weekly	Contractor	As required	Audit	Records

Conduct ongoing awareness with staff of the need to avoid littering.

Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Induction	Once off	Contractor	As required	Audit	Attendance register

7.5 AIR QUALITY

Management Statement	Impacts & Risks Avoided
To ensure there is no health risk or loss of amenity due to emission of exhaust gases to the environment.	Air pollution affecting neighbouring land users during construction

Management Actions

a. Ensure that all vehicles and machinery are fitted with appropriate emission control equipment, maintained frequently and serviced to the manufacturers' specifications.

Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Services	As required	Contractor	As required	Audit	Complaints register

Smoke from internal combustion engines should not be visible for more than ten seconds

Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Services	As required	Contractor	As required	Audit	Complaints register

7.6 STORING FUELS & CHEMICALS

Management Statement	Impacts & Risks Avoided
To ensure that fuel and chemical storage is safe, and that any materials that escape do not cause environmental damage.	• Avoid overland flow by capture and store water from roof • Avoid siltation by installing silt traps

Management Actions

a. Minimise fuels and chemicals stored onsite.

Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance

Method statement	As required	Contractor	As required	Audit	Method statement records
Install bunds and take other precautions to reduce the risk of spills.					
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Method statement	As required	Contractor	As required	Audit	Method statement records
Implement a contingency plan to handle spills, so that environmental damage is avoided.					
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Method statement	As required	Contractor	As required	Audit	Method statement records

7.7 CEMENT BATCHING

Management Statement	Impacts & Risks Avoided
Cement powder has a high alkaline pH that may contaminate and adversely affect both soil pH and water pH negatively. A rapid change in pH can have consequences on the functioning of soil and water organisms as well as on the botanical component.	Minimises negative impacts that may impact on the marine environment.

Management Actions					
a. All concrete batching must take place on an area that is to be hard surfaced as part of the development.					
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Method statement	As required	Contractor	As required	Audit	Method statement records

Concrete batching outside such areas at satellite sites may only take place with the necessary approval of the ECO and then all topsoil (if any) must be stripped and stockpiled for reuse.					
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Method statement	As required	Contractor	As required	Audit	Method statement records
Concrete mixing areas must have bund walls or a settling pond in order to prevent cement run off. Once the settling ponds dry out, the concrete must be removed and dispatched to a suitable disposal site.					
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Method statement	As required	Contractor	As required	Audit	Method statement records
When using Readymix concrete, care must be taken to prevent spills from the trucks while offloading. This form of batching is preferable for large constructions as no on site batching is required and there is a lesser likelihood of accidental spills and run off. Trucks may not be washed out on site.					
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Method statement	As required	Contractor	As required	Audit	Method statement records

7.8 FIRE MANAGEMENT

Management Statement	Impacts & Risks Avoided
To ensure prevention of unnecessary fires that may cause risk to the environment and human health.	Prevents unnecessary fires from causing damage, as well as protecting infrastructure and lives.

Management Actions

a. In case of an emergency, the contact details of the local fire and emergency services must be readily available (see contact list on page x above)

Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Emergency information to be displayed on site	Once off	Contractor	Once off	Audit	Photographs

7.9 SOCIAL REQUIREMENTS

Management Statement	Impacts & Risks Avoided
To ensure equitable, fair and safe social interaction on construction sites	Loss of employment opportunities to the region

Management Actions

a. It is strongly recommended that the Contractor make use of local labour as far as possible for the construction phase of the project.

Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Employment records	Ad hoc	Contractor	Ad hoc	Audit	Once off

Theft and other crime associated with construction sites is not only a concern for surrounding residents, but also the Developer and the Contractor.

Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Site records	Ad hoc	Contractor	Ad hoc	Audit	Once off

7.10 HERITAGE REQUIREMENTS

Management Statement	Impacts & Risks Avoided
To minimise the impacts of development, operation and maintenance of the Project on the heritage values in the Project area.	Ensure heritage impacts are minimised, and impacts outside of the approved disturbance area are avoided.

Management Actions

a. No disturbance of heritage values outside of the approved disturbance area.					
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Site records	Ad hoc	Contractor	Ad hoc	Audit	Once off

- Should any heritage remains of potential cultural value be exposed during excavations, these must be immediately reported to the ECO and the Provincial Heritage Resource Authority of the Western Cape, namely Heritage Western Cape in terms of the national Heritage Resources Act (Act No. 25 of 1999). Heritage remains uncovered or disturbed during earthworks may not be disturbed further until the necessary approval has been obtained from Heritage Western Cape.
- Should any archaeological remains including (but not limited to) fossil bones, fossil shells, coins, indigenous ceramics, colonial ceramics, marine shell heaps, stone artefacts, bone remains, rock art, rock engravings and any antiquity be discovered during construction, they must be immediately reported to the ECO and Heritage Western Cape and not disturbed further until the necessary approval has been obtained.
- Should any human remains be uncovered, they must immediately be reported to the ECO and the HWC archaeologist, who can be contacted on **(021) 483 9685**. Construction in the area must cease immediately and the site may not be disturbed further until the necessary approval has been obtained.

7.11 METHOD STATEMENTS

Management Statement	Impacts & Risks Avoided
To ensure efficient communication mechanisms in the implementation of environmental performance requirements	Prevention of potential impacts are avoided during construction by means of correct communication

Management Actions

a. Method statements are written submissions by the Contractor to the ECO in response to the requirements of this EMPr or to a request by the ECO. The Contractor shall be required to prepare method statements for several specific construction activities and/or environmental management aspects.

Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Method statement	Ad hoc	Contractor	As required	Audit	Once off

Based on the specifications in this EMPr, the following method statements are required as a minimum (more method statements may be requested as required at any time under the direction of the ECO):

- Site layout and site camp establishment.
- Demarcation of No-Go areas
- Demolition and Site clearing
- Hazardous substances and their storage.
- Cement and concrete batching.
- Solid waste control system.
- Fire control and emergency procedures
- Erosion remediation and stabilisation
- Petroleum, chemical, harmful and hazardous materials storage, if any.

7.12 WATER MANAGEMENT

Relatively little work has been carried out to date on water sustainability on construction sites, More cogniscance is given to water sustainability during the operational phase of a project. However, as water moves up the political and environmental agenda due to increasing pressure on water resources, it is anticipated that this will change. Taking this into consideration and applying the principles of Best Practice, it is recommended that the Contractor take a sustainable approach to the use of water during construction. The following table (Waylen et al, 2011) provides practical actions which can be implemented to minimise water use on site.

Table 4: Water using processes & actions to reduce consumption (Source: Waylen et al, 2011)

Key:			High water using processes	
Use of Water on Site (Processes/ Activities)	**Procedures/ Systems**	**Estimated proportion of current water use on sites**	**Behaviours**	**Technologies**
Design Stage Considerations (relating to water use impact of completed development)		N/A		Water efficient bathroom products and taps must be installed.
Site Camps				
Toilets, catering, washing (personnel)	Monitoring via meter readings etc. Rainwater collection and use		Site inspections for leaks, wastage / increase awareness through briefing and posters, notices. Awareness raising – toolbox talks / posters etc.	Eco-cabins (e.g. rainwater harvesting, waterless or low or sensor activated flush urinals, water saving devices [taps] and effluent management system), composting, water meter adaptors to facilitate fitment of water meter to improve quality of data. Water meter adapter / add-on
General site activities				

Tool washing Rinsing	Site inspections all to include checking for water leaks & use practices		Use toolbox talks to ensure operatives understand need to conserve water. Use buckets etc. to wash tools rather than running water. Dedicated tool washing areas.	Auto shut-off taps. Ensure water supply able to be switched off at point of use e.g. through trigger guns on hoses.
Wet Trades				
Brick/blockwork				On-site mortar silos as opposed to batch mixing
Screeding				
Concreting	Concrete mix design		Use water from settled concrete wash out area to clean equipment	On-site batching using closed-loop water recycling
Plastering				
Core Boring				Dry core
Lightweight Roofing				
Ceramic Tile				
Bentonite mixing				On-site batching using closed-loop water recycling
Rendering				
Groundworks				
Grouting				Auto shut-off taps (e.g. trigger type hoses/taps)
Drilling/Piling	Flushing water / coolant			
Dust Suppression				
General, site roads, wheel washes	Water spraying bowsers (using water diffusers to create mist as more effective at capturing dust) Rainwater collection Early hardstanding (or stone) site roads, car parks etc. (reduce requirement for damping down)	Considered to be the largest 'wasteful' use of water on sites.	Licensed water abstraction (surface water / boreholes)	Use temporary settlement lagoons and look at early construction of lagoons so that they can be utilised early. Closed-loop water recycling for drive-through wheel-washes. Admixtures for dust suppression reduces damping frequency. Source dust suppression agents that are biodegradable and binds together dust and floating parts to reduce damping.
Hydrodemolition with high pressure water		(High on sites where this is used)		Closed-loop water recycling
Cleaning				
Cleaning tools and small			Use buckets as	

equipment			opposed to running water	
Plant & equipment				Closed loop systems
Lorry wash out				Recovery of water for re-use
Ready mixed concrete wagons	Wash out into segregated area			Wash out pit with recirculation system to reuse water in concrete mixes
Site / general cleaning				
Specialist / high pressure cleaning				
Paintbrush washing				Wash in closed containers such as Dulux EnviroWash System
Commissioning & Test				
Building plant/ services	Capture and re-use of commissioning water			

The following information must be captured on site to provide water usage data during the construction period. It is suggested that this data is included the required monthly information for the ECO.

Mandatory data includes:

- Mains water where the contractor is responsible for billing / metering;
- Licensed water abstractions;
- Water transported to sited (bowsers / tankers);
- Value of work (i.e. allocation of use) that the water data relates to.

Optional information:

- Workforce that the water data relates to (direct and subcontracted staff);
- Details of initiatives or good practice to reduce potable water consumption (e.g. rainwater recycling, other water recycling etc.);
- Estimated water saved via initiatives / good practice.

Exclusions:

- Water provided and paid for by the customer;
- Rainwater collected on site, e.g. lagoons, rainwater harvesting systems..

7.13 HEALTH AND SAFETY

The Contractor must ensure compliance with the Occupational Health and Safety (No. 85 of 1993). Of key importance is the following (Section 8 of the aforesaid act):

8. General duties of employers to their employees:

(1) Every employer shall provide and maintain, as far as is reasonably practicable, a working environment that is safe and without risk to the health of his employees.
(2) Without derogating from the generality of an employer's duties under subsection (1), the matters to which those duties refer include in particular-
(a) the provision and maintenance of systems of work, plant and machinery that, as far as is reasonably practicable, are safe and without risks to health;

(b) taking such steps as may be reasonably practicable to eliminate or mitigate any hazard or potential hazard to the safety or health of employees, before resorting to personal protective equipment;
(c) making arrangements for ensuring, as far as is reasonably practicable, the safety and absence of risks to health in connection with the production, processing, use, handling, storage or transport of articles or substances;
(d) establishing, as far as is reasonably practicable, what hazards to the health or safety of persons are attached to any work which is performed, any article or substance which is produced, processed, used, handled, stored or transported and any plant or machinery which is used in his business, and he shall, as far as is reasonably practicable, further establish what precautionary measures must be taken with respect to such work, article, substance, plant or machinery in order to protect the health and safety of persons, and he shall provide the necessary means to apply such precautionary measures;
(e) providing such information, instructions, training and supervision as may be necessary to ensure, as far as is reasonably practicable, the health and safety at work of his employees;
(f) as far as is reasonably practicable, not permitting any employee to do any work or to produce, process, use, handle, store or transport any article or substance or to operate any plant or machinery, unless the precautionary measures contemplated in paragraphs (b) and (d), or any other precautionary measures which may be prescribed, have been taken;
(g) taking all necessary measures to ensure that requirements of this Act are complied with by every person in his employment or on premises under his control where plant or machinery is used;
(h) enforcing such measures as may be necessary in the interest of health and safety;
(i) ensuring that work is performed and that plant or machinery is used under the general supervision of a person trained to understand the hazards associated with it and who have the authority to ensure that precautionary measures taken by the employer are implemented; and
(j) causing all employees to be informed regarding the scope of their authority as contemplated in section 37 (1) (b).

The Occupational Health and Safety Act aims to provide for the health and safety of persons at work and for the health and safety of persons in connection with the activities of persons at work and to establish an advisory council for occupational health and safety.

Health & Safety on site is the responsibility of the contractor and the proponent.

Although this is not the function of the ECO, it is a standard requirement for building construction and must be monitored and evaluated by a suitably qualified Health & Safety person. It will not form part of any environmental audit in the future.

8 OPERATIONAL PHASE ENVIRONMENTAL MANAGEMENT REQUIREMENTS

The Operational Phase of this EMPr refers to the day to day management activities that are required to ensure sustainability and the achievement of the principles and objectives of the development. The requirements are applicable to the proponent, all employees and all visitors to the property.

Fishing industries and processing facilities are heavily regulated in terms of the health requirements and it is not the intention of this document to subjugate any of those requirements. The items mentioned in this section are thus taken directly from the regulations or are in support of them, either way this section should be read with these Regulations.

8.1 AIR QUALITY MANAGEMENT – REGENERATIVE THERMAL OXIDERS

Management Statement	Impacts & Risks Avoided
To ensure responsible operation of the RTO	Nuisance odours during operations

Management Actions

a. Freshly harvested fish is processed at the proposed fishmeal plant in order to comply with the current health and hygiene requirements of the canning process.

Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Catch records	Daily	Owner	As required	Audit	Catch records

Specific considerations for freshness:

- The fish will be fresh when processed. The fresher the fish the less the bacteriological and enzymatic decay resulting in the formation of obnoxious substances. The following practises will be used to ensure that the fish is fresh:
    - Fish will be caught and delivered to the factory and processed within 24 hours. This way little time is allowed for bacteriological and enzymatic decay.
    - The red-eye herring will be preserved in fishing vessels using RSW (refrigerated sea water) or CSW (chilled sea water using ice). Afro Fishing has its own ice plant so the supply of ice to the fishing vessels will not be a problem.
    - The anchovy, which is a smaller species, will be delivered dry. Proper draining of the fish, both aboard the fishing vessel and ashore, is a simple and effective method of extending the short-term storage life of small fish. Aboard the fishing vessels proper drainage reduces the amount of rubbing together and breakage of the fish during rolling and pitching of the fishing vessel. Moreover, the spreading and rapid growth of bacteria is reduced by restricting the presence of free water containing body slime, gut contents and the bacteria contained therein.

- Closed system stainless steel storage tanks will be used to store fresh fish as opposed to the traditional system of open concrete fish pits. These tanks will be fitted with a CIP (cleaning in place) system.
- Fish will be pumped or conveyed from the storage vessels to the cookers and from the cookers to the presses by sealed transport means. This way a closed system will be maintained. There will be no open conveyors.

b. All process equipment in the fishmeal plant is cleaned and sanitised at regular intervals to minimise the formation of odours between production runs					
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Cleaning procedure and schedule	Daily	Owner	As required	Audit	Cleaning schedule
c. Preventative maintenance program is designed and implemented with the assistance of the preferred technology supplier to ensure that the equipment operates at optimum conditions.					
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Maintenance Programme	Daily	Owner	As required	Audit	Maintenance schedule
d. Formal maintenance procedure and schedule is developed for the RTO and this schedule meets the requirements of the equipment supplier.					
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Maintenance Programme	Daily	Owner	As required	Audit	Maintenance schedule
e. Training in the operation and maintenance of the process, especially the RTO, to ensure that breakdowns and kept to a minimum and that fault diagnosis and correction can be achieved in the shortest period of time.					
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance

Training protocol	Daily	Owner	As required	Audit	HR Report
f. Air Quality Monitoring					
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Air Quality Monitoring Protocol	Biannual / Annual & Biennially (every two years)	Owner	As required	Audit	HR Report

- It is rather recommended that the TMA emissions from the RTO stack are verified biannually by an independent contractor.
- It is recommended that the emissions from the scrubber stack are verified annually by an independent contractor.
- It is recommended further that emissions from the boilers are verified on a biennial basis by an independent contractor.

Best Practise Air Quality requirements:

- Fish will be pumped or conveyed from the storage vessels to the cookers and from the cookers to the presses by sealed transport means. This way a **closed system will be maintained**. There will be no open conveyors.
- Any gases emitted from the storage tanks, cooking, pressing and drying processes will be **collected at source and ducted to the RTO** (regenerative thermal oxidiser) plant.
- **Waste heat will be recovered** with the aim of reducing energy costs and hence the carbon footprint of the factory. The water vapour coming off the dryers will be ducted to a waste heat evaporation plant. During this process the vapours are cooled which condenses most of the water, thereby reducing the gas volume and eliminating the characteristic white vapour from a stack. The remaining vapours are then passed to the RTO unit and oxidised.
- This is a **'greenfield' project** so a new factory will be designed to cater for odour management. From the outset the factory will be designed with **proper cleaning facilities, drainage and ventilation**. The idea is to design the building in such a way that it becomes a **contained unit** that does not ventilate freely into the environment. This way processing odours are prevented from leaving the building. Due to the suction effects of the waste heat evaporation and the RTO plants, the fish meal processing building will be under negative vacuum.
- The process has also been designed to **reduce distances between equipment** units, thus keeping the building volume to a minimum. The cooking/pressing area to be separate from the drying area and separate from the milling/bagging areas. By creating these zones odour can also be better managed.
- No fish meal will be transported using air and cyclone systems, thus **reducing the contact of the fish meal with air** which then needs to be treated.
- The dried fish meal will be cooled in a meal cooler. The meal cooler uses air to cool the fish meal to around 30oC so that the fish meal can be bagged immediately. The cooling gases with low concentrations of odorous substances are then **passed through** a sea water scrubber which will remove any condensable vapours and fine fish meal particulates.
- Should plant emissions exceed the stipulated amounts, e.g. due to a technical problem, the following measures will be implemented: o Scale back throughput in the plant to ensure that the scrubber can

property handle the potential additional odorous load;

- Instruct vessels to stop fishing so that no additional fish arrives at the plant until the scrubber and RTO unit can handle the odorous load;
- Stop or reduce offloading of fish into the fish storage tanks at the plant until the scrubber and RTO unit is running at enough capacity again;
- Divert vessels to other ports that have enough capacity; and
- Continue processing the fish already in storage, carefully monitoring air emissions and odorous substances in real time.

8.2 WASTE MANAGEMENT

Management Statement	Impacts & Risks Avoided
To ensure responsible and integrated waste management approach so that soil and water resources on and adjacent to the property are protected and not contaminated with pollutants.	Pollutants may take the form of solid waste (litter & household general waste) or contaminated stormwater run-off, which is likely to be directed into the municipal system and subsequently into nearby watercourses.

Management Actions

a. Manage the collection, recycling and disposal of solid waste from the site.

Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Visual inspection	Daily	Owner	As required	Audit	Complaints register

Additional considerations:

- At all places of work the proponent shall provide litterbins, containers and refuse collection facilities for later disposal
- Solid waste may be temporarily stored on site in a designated area prior to collection and disposal.
- Solid waste must be removed on a weekly basis to a licensed waste disposal site.
- Recyclable waste must be recycled wherever possible.
- It is recommended that recycling bins are placed at a central point in the development, with access for all residents and visitors to encourage recycling of most of the general household waste that is produced. Bins need to be adequately marked for ease of reference.
- See Appendix 3 for easy to use reference documents on what can be recycled and how recycling works.

b. Maintain a high quality of housekeeping and ensure that materials are not left where they can be washed or blown away to become litter. Avoid nuisance odours affecting adjacent users and personnel.

Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Management inspection	Daily	Owner	As required	Audit	Complaints register
c. Conduct ongoing awareness with staff of the need to avoid littering.					
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Inductions	As required	Owner	As required	Audit	Attendance register

8.3 COASTAL WATERS DISCHARGE

Management Statement	Impacts & Risks Avoided
To ensure responsible and integrated waste management approach so that marine resources are protected and not contaminated with pollutants.	Marine pollution
Management Actions	
a. Comply with the criteria specified in the Coastal Waters Discharge Permit	

Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Volume & quality records	As prescribed	Owner	As required	Audit	CWDP Monitoring Forum

8.4 ODOUR MANAGEMENT

Please note: This section refers to general odour management on site. Odour relating to the fishmeal process is covered under section 8.1 above

<table>
<tr><th colspan="3">Management Statement</th><th colspan="3">Impacts & Risks Avoided</th></tr>
<tr><td colspan="3">To avoid nuisance odours affecting adjacent users and personnel</td><td colspan="3">Good housekeeping prevents situations causing nuisance odours
Correct waste management strategies</td></tr>
<tr><th colspan="6">Management Actions</th></tr>
<tr><td colspan="6">Implement correct odour management protocols to avoid nuisance odours.</td></tr>
<tr><td>Method of monitoring implementation</td><td>Frequency of Monitoring</td><td>Responsible Party for implementing management action</td><td>Time period</td><td>Mechanism for monitoring Compliance</td><td>Programme for reporting on Compliance</td></tr>
<tr><td>Assess site daily</td><td>Daily</td><td>Owner</td><td>As required</td><td>Audit</td><td>Complaints register / Emissions Inventory</td></tr>
<tr><td colspan="6">Additional considerations:
Implement an Emissions Inventory to be part of the standard operating checks at the facility;
Draft and implement an Emergency Preparedness Protocol for dealing with upset conditions;
Proper waste management measures must be adhered to on site;
Airtight bags and bins must be used for sources of nuisance odours;
Good housekeeping on the site to ensure that waste is removed regularly;
Food safety and quality assurance requirements will result in strict hygiene for all internal buildings. As such, these areas will be cleaned following the completion of each shift which will be one to two times per day</td></tr>
</table>

9 MONITORING

Monitoring is an important tool in determining the effectiveness of management actions by measuring changes in the environment. These could be in the form of fixed point photography where an area is photographed on a regular / seasonal basis to ascertain changes, monitoring of a particular aspect such as water quality parameters, etc. The most important aspect of any monitoring programme is consistency and continuity. This will ensure a level of scientific accuracy to determine baselines / thresholds and measure changes / deviations, which then drive management reactions.

EA Condition: TBC

ECO audit reports as considered in Section 5.3 of this EMPr must be made available to the competent authority on a completion.

The type and frequency of monitoring must include:

- Photographs must be taken at each ECO site visit during construction (specified in the EMPr or determined by the ECO).

- Daily water use volumes must be recorded.
- Daily wastewater volumes must be recorded as per CWDP protocol.
- Air emissions monitoring will be required as per the specialist recommendations.

9.1 MONITORING TIMEFRAMES SUMMARY

EA Condition: TBC

Table 5: Monitoring Timeframe Summary

MONITORING TIMEFRAMES		
Type	Frequency	Criteria
CONSTRUCTION MONITORING		
ECO (Construction)	Weekly / bi-weekly / monthly as per schedule	Site photographs and inspection
	6 month post construction	Completion Statement
Potable water monitoring	Daily / Monthly as required	Water demand volumes as per municipal requirements
OPERATIONAL MONITORING		
Wastewater	For volume and constituents as per CWDP.	As per the CWDP requirements.
Odour (TMA)	Biannually (every two years)	It is rather recommended that the TMA emissions from the RTO stack are verified biannually by an independent contractor.
Emissions from scrubber stack	Annually	It is recommended that the emissions from the scrubber stack are verified annually by an independent contractor.
Emissions from boiler	Biennially (every two years)	It is recommended further that emissions from the boilers are verified on a biennial basis by an independent contractor
Auditing	6 months post construction	Compliance with the EA, EMPr, municipal permits, DAFF requirements and any other approvals
	As determined by the EA	Compliance with the EA, EMPr, municipal permits, DAFF requirements and any other approvals

9.2 ENVIRONMENTAL AUDITS

EA Condition: TBC

Final construction phase Audit Report to be undertaken 6 months post construction and submitted to the competent authority.

This audit report must include the monitoring results as above, where applicable to construction.

Since the development includes operational aspects, annual audits for the first 5 years must be undertaken and every 5 years thereafter which must include, as a minimum:

- Records of volumes of wastewater;
- Records of volumes of fish processed on the site;
- Records of complaints or issues received during the year, along with the actions taken to address such complaints or issues.

9.3 AUDIT REPORTS FREQUENCIES AND FORMAT

The table below provides a summary of the timeframes for the various Audit Reports specified in the EA.

Table 6: Audit Reports Timeframe Summary

ENVIRONMENTAL AUDIT TIMEFRAMES		
Type	Frequency	Criteria
Final Construction Audit	6 months after completion	6 months post construction completion
Operational Audit	Every year for the first 5 years and every 5 years thereafter	Audit on operational aspects of the EA and EMPr

In terms of the 2014 EIA Regulations, Audit Reports must be submitted to the registered Interested & Affected Parties within 7 days of submission to the competent authority.

In order to comply with the 2014 EIA Regulations, any audits must be undertaken using the following format:

Table 7: Environmental Audit Requirements

Appendix 7 of Regulation 326 of the 2014 EIA Regulations, as amended contains the required contents of an Environmental Audit Report. The checklist below serves as a summary of how these objectives & requirements were incorporated into this Audit Report.	
Objective	**Description**
The objective of the environmental audit report is to -	
(a) Report on – (i) the level of compliance with the conditions of the environmental authorisation and the EMPr, and where applicable, the closure plan; and (ii) the extent to which the avoidance, management and mitigation measures provided for in the EMPr, and where applicable, the closure plan achieve the objectives and outcomes of the EMPr, and closure plan.	
(b) Identify and assess any new impacts and risks as a result of undertaking the activity.	

(c) Evaluate the effectiveness of the EMPr, and where applicable, the closure plan.	
(d) Identify shortcomings in the EMPr, and where applicable, the closure plan.	
(e) Identify the need for any changes to the avoidance, management and mitigation measures provided for in the EMPr, and where applicable, the closure plan.	
Requirement	**Description**
(1) An Environmental audit report prepared in terms of these Regulations must contain -	
(a) Details of – (i) The independent person who prepared the environmental audit report; and (ii) The expertise of independent person that compiled the environmental audit report.	
(b) A declaration that the independent auditor is independent in a form as may be specified by the competent authority.	
(c) An indication of the scope of, and the purpose for which, the environmental audit report was prepared.	
(d) A description of the methodology adopted in preparing the environmental audit report.	
(e) An indication of the ability of the EMPr, and where applicable the closure plan to – (i) Sufficiently provide for the avoidance, management and mitigation of environmental impacts associated with the undertaking of the activity on an on-going basis; (ii) Sufficiently provide for the avoidance, management and mitigation of environmental impacts associated with the closure of the facility; and (iii) Ensure compliance with the provisions of environmental authorisation, EMPr, and where applicable, the closure plan.	
(f) A description of any assumptions made, and any uncertainties or gaps in knowledge.	
(g) A description of an consultation process that was undertaken during the course of carrying out the environmental audit report.	

(h) A summary and copies of any comments that were received during any consultation process.	
(i) Any other information requested by the competent authority.	

Any other requirements of the EA or any other authorisations must be incorporated into an Audit where necessary.

9.4 COMPLAINTS

EA Condition: TBC

The direct contact details for the facility manager must be provided to properties directly adjacent to the facility. The proponent is committed to maintaining ongoing relationships with neighbours and will periodically seek their feedback on environmental performance. The proponent will record and investigate any complaints made either directly to the facility manager or via GRDM, the local municipality or the DEA&DP. Direct communication will be made to adjacent neighbours prior to undertaking infrequent, odorous activities such as irregular cleaning activities or in the event of an "upset condition" that was outside of normal activity.

10 SOCIO ECONOMIC MONITORING AND EVALUATION PROGRAMME

10.1 INTRODUCTION AND PURPOSE

An essential component of an Environmental Management Plan (EMP) for the proposed expansion of the Afro Fishing production facilities, includes monitoring, reviewing and evaluation processes to assess the impacts of the project during the establishment and operations phases. Continuous and periodic monitoring and evaluation are required to ensure changes in the impacts are addressed in a proactive manner.

The Monitoring and Evaluation Plan (M&EP) is a working framework document that identifies key measurement indicators and sets out the procedures for tracking, monitoring, calculating and verifying the impacts associated with the project. This M&EP must be used for the planning and establishment of the project and during its continued operations. Adherence to the M&EP framework is necessary for the successful measurement and tracking of the impacts associated with the establishment and operations and to prepare for the periodic audit and verification process that will have to be undertaken to confirm any changes in the baseline measurement and stated benchmarks.

The M&EP contains the requirements and instructions for:

- establishing and maintaining an appropriate monitoring system for the assessment of deviations from baseline impacts;
- checking whether the project meets acceptable standards of impacts as determined through the identification of key indicators;
- implementing the necessary measurement and management mechanisms for monitoring operations;
- preparing for independent, third-party audits and verification of baseline and changes in impacts associated with the identified indicators.

The M&EP must be:

- adopted as key input into the detailed planning of the project, and

- included into the operational manuals of the project.

The impacts monitored by the implementation of the M&EP should be aligned with the information routinely collected by the Management Operator of the facility. The M&EP can be updated and adjusted to meet operational requirements, provided such modifications are approved by the competent authority during the process of initial or periodic verification and assessment.

The impacts envisaged and stated in this Socio-Economic Impact Assessment forms the basis of the monitoring and evaluation mechanism. The M&EP will cover the functioning of the facility with all its component in terms of predetermined baseline risks aligned to appropriate benchmarks that emanate from the following socio-economic and community impacts:

- Noise and smell intrusion;
- Pollution of air and sea water in the Port and further afield; and
- Health-related problems that arise from inhaling polluted air;

10.2 SCOPE OF THE PROGRAMME AND ESTABLISHMENT OF THE BASELINE MEASUREMENT

The Management Operator must implement the data measurement and monitoring requirements for the assessment and monitoring of the following key impacts related to the socio-economic context and the community as stated previously:

- Noise and smell intrusion;
- Pollution of air and sea water in the Port and further afield; and
- Health-related problems that arise from inhaling polluted air.

A baseline measure for each of the impacts (risks) must be established based on acceptable benchmarks for fish production, fish meal and oil facilities of a similar nature and scope. Periodic measurement and assessment of deviations from the baseline should be determined for each of the impacts, with further elaboration on the underlying causes for the deviation.

10.3 KEY PERFORMANCE INDICATORS (KPI'S)

The successful implementation and development of the proposed expansion of the Afro Fishing plant will ultimately be assessed on the basis of the changes to the baseline measurement of impacts stated above. Key performance indicators (KPI's) should form the basis of assessment and offer strategic direction as measurable outputs for a programme linked to an assessment of the socio-economic and community impacts.

Monitoring and evaluation is also an essential gauge to highlight the positive socio-economic ancillary activities that may emanate from the proposed Afro Fishing project. Direct and indirect job opportunities, manufacturing processes that emit pollutants and related prescriptive socio-economic obligations would be a direct consequence of the project activity and operations. The Management Operator will prepare, implement, monitor and report on the following primary indicators on annual basis.

10.3.1 Positive socio-economic indicators

Direct job opportunities: associated with the operations of the expanded Afro Fishing development, which may include all the core production activities and support activities such as maintenance and security. The Monitor must monitor and report changes in the number of jobs created by the project, both directly and indirectly, related to the operations. A set of indicators must be developed to measure changes in the nature and scope of direct jobs created through the operations of the plant.

Afro Fishing through their BBBEE certification can monitor these requirements and aligned the same with prescribed obligations by DAFF.

10.3.2 Negative socio-economic indicators

Noise emission levels caused by unloading of fishing vessels and truck movements: Afro Fishing will monitor and measure changes related to noise generated from the Afro Fishing plant. If complaints are received from the nearby or surrounding neighbourhoods and communities, a plan should be available to measure and understand the severity of the problem, the remedial action required must be determined and a requirement for continuous monitoring thereafter should be introduced. The plan should demonstrate what indicators must be used to measure the nature and scope of the changes in noise emission levels.

Pollution of the air caused by malodours emanating from the plant. The Operator will monitor and measure changes related to air quality. The requirements for the measurement of changes in the receptors should be determined and a plan related to an acceptable monitoring timeframes should be implemented. A sampling plan to measure changes in air quality at and around the plant and in the surrounding area of the Port should be prepared and implemented.

The Operator will monitor and measure changes to the receptors identified and assessed in the Air Quality Assessment. A set of indicators must be developed to monitor changes in the patterns related to air pollution.

Pollution of seawater caused by water discharged into the harbour: The Operator will monitor and measure changes related to the quality of water resources. A sampling plan to measure changes and identify possible pollution of seawater resources in the port should be prepared and implemented. A set of indicators must be developed to monitor changes in the patterns related to the quality of the seawater.

Health-related problems caused by inhaling polluted air: The Operator will monitor and measure changes related to registration of health problems that may be caused by polluted air. A sampling plan to measure changes in air quality should be prepared and implemented. A set of indicators must be developed to monitor changes in the patterns related to health problems reported by residents of neighbourhoods and surrounding communities.

A workbook with a worksheet for an assessment of each impact needs to be completed on an annual basis. The expected project performance as measured by these indicators must be detailed in the worksheet by the Monitoring Specialist.

10.4 COLLATION, ANALYSIS, AUDITING AND DISSEMINATION OF DATA AND FINDINGS

The establishment of a transparent system for the collection, computation and storage of data, including adequate record keeping and data monitoring systems is required. The Monitoring Specialist must develop and implement a protocol that provides for the above functions and processes, which must be suitable for independent auditing.

Electronic and paper-based data entry and record keeping systems must have acceptable procedures and protocols for collection and entry of data, use of workbooks and spreadsheets and any assumptions. The procedures and protocols related to these systems and procedures must be clear and enable compliance with requirements for assessment by a third party. Stand-by processes and systems, e.g. paper based systems, must be outlined and used in the event of, and to provide for the possibility of system failures. The record keeping system must provide a paper trail that can be audited.

The information that is required includes:

- Records on reported socio-economic and environmental performance as measured by indicators and benchmarks recorded and stated in the protocols that are outcomes of the implementation of the M&EP; and
- Records on project management, including monitoring, data collection and management systems.

The following activities are geared towards achieving acceptable and ongoing monitoring standards:

- Regular “field” visits to the plant shall be conducted by a person responsible for the monitoring process, who in turn shall prepare an independent annual report for Afro Fishing that will also be available for scrutiny by stakeholder groups (see Section 10.5). The reports shall be both narrative and quantitative.
- A review after the first 12 months after implementation shall be conducted, focusing on an assessment of the indicators.

Each reporting stage, i.e. on an annual basis, shall provide the following information:

- A summary of outputs and activities undertaken;
- Specification of baseline, variance reporting and assessment of deviations; and
- An assessment of the efficiency of the process and the underlying impact on the community.

10.5 INDEPENDENT EVALUATION AND REVIEW

An independent assessment of the outcomes related to the impacts will form part of the monitoring and evaluation mechanism. The independent review panel will assess the performance of the programme in terms of the following:

- Envisaged outputs and deliverables;
- Assess whether or not the M&EP is achieving the desired outcomes; and
- Recommend changes (if required).

The Review Panel will have an independent chairperson that is not associated with the implementation of the M&EP.

The following members will form part of the Review Panel and assess the annual outcomes:

- Representative of the Mossel Bay Local Municipality;
- Representative of the Garden Route District Municipality;
- Transnet National Ports Authority (TNPA) (Landlord)
- Independent assessor with experience in auditing the types of processes required in terms of the M&EP;
- Independent Monitoring Specialist;
- Representative from body corporates representing surrounding land owners; and
- Representative from business stakeholders and the local tourism industry association.

10.6 MONITORING AND EVALUATION MEETINGS

The Review Panel shall meet once every quarter to:

- review progress of the monitoring and reporting mechanism;
- discuss possible revisions of or adjustments to the M&EP; and

- discuss issues of primary concern and mechanisms for improvement.

Central elements of the discussion and all decisions from the meetings shall be recorded in agreed minutes. The minutes shall be drafted by a secretary appointed for the specific task. Minutes of the meeting will be distributed to members within 10 days after the meeting and shall be kept on file for auditing and verification purposes.

10.7 VERIFICATION PROCESSES

Verification includes a review of the output information generated by the monitoring and evaluation processes, including data and management systems on the basis of the following established criteria:

- Completeness;
- Accuracy;
- Coverage; and
- Risk Management Controls

Auditors and Verifiers will request information (in the form of records and documentation) from the Monitoring Specialist to determine if key performance indicators meet the objectives of the M&EP as set out in the EMP. The Operator is required to record all such indicators, and provide satisfactory documentation and an audit trail for verification purposes.

The audit process, as with other management systems, is interactive, iterative and participatory. The auditors will determine the credibility and accuracy of the reported performance through spot checks of data measurement and collection systems and interviews with the key project participants. It is necessary for all involved in an audit to understand the audit process and verification requirements.

10.8 CONCLUSION

The validity and reliability of the analytical results generated will depend largely on the quality of the plans and processes introduced to measure and analyse the impacts stated in the document. A need exists to maintain the integrity of all procedures in terms of measurement, analysis and reporting. The Monitoring Specialist is therefore encouraged to develop or adapt protocols for each relevant aspect of the M&EP to ensure that a consistent and logical approach is taken in terms of the monitoring and evaluation of all processes.

11 DECOMMISSIONING PHASE ENVIRONMENTAL MANAGEMENT REQUIREMENTS

It is not likely that decommissioning of this facility will take place in the near future. However, in the event that decommissioning does occur, all relevant legislation and policies must be complied with for the given period.

In general, in the future event that the facility be decommissioned, the following must be undertaken:

- Only identified buildings must be removed within a demarcated area to prevent unnecessary damage to the surrounding area;
- Materials that can be recycled must be correctly sorted and stacked for removal to appropriate waste stream sites;
- The footprint area of the facility must be rehabilitated.

A Demolition Certificate must be obtained from the Mossel Bay Municipality prior to demolition commencing.

12 NON-COMPLIANCE

Any person is liable on conviction of an offence in terms of regulation 49(a) of the National Environmental Laws Second Amendment Act (Act 30 of 2013) to imprisonment for a period not exceeding ten (10) years or to a fine not exceeding R10 million or an amount prescribed in terms of the Adjustment of Fines Act, 1991 (Act No. 101 of 1991).

It is the responsibility of the ECO to report matters of non-compliance to the Employer's Representative (e.g. Project Engineer), who in turn is tasked with reporting such matters to the Holder of the EA. It is the responsibility of the Holder of the EA, and not the ECO, to report such matters of non-compliance to the competent Authority.

12.1 PROCEDURES

The Holder of the EA shall comply with the environmental specifications and requirements of this EMPr, any Approval / License issued and Section 28 of NEMA, on an on-going basis and any failure on his part to do so will entitle the authorities to **impose a penalty**[1].

In the event of non-compliance the following recommended process shall be followed:

- The competent authority shall issue a **Notice of Non-compliance** to the Holder of the EA, stating the nature and magnitude of the contravention.
- The Holder of the EA shall **act to correct the transgression** within the period specified in by the authority.
- The Holder of the EA shall provide the competent authority with a **written statement** describing the actions to be taken to discontinue the non-conformance, the actions taken to mitigate its effects and the expected results of the actions.
- In the case of the Holder of the EA failing to remedy the situation within the predetermined time frame, the competent authority may recommend halting the activity.
- In the case of non-compliance giving rise to physical environmental damage or destruction, the competent authority shall be entitled to undertake or to cause to be undertaken such **remedial works** as may be required to make good such damage at the cost of the Project applicant.
- In the event of a dispute, difference of opinion, etc. between any parties in regard to or arising out of interpretation of the conditions of the EMPr, disagreement regarding the implementation or method of implementation of conditions of the EMPr, etc. any party shall be entitled to require that the issue be referred to **specialists and / or the competent authority** for determination.
- The competent authority shall at all times have the right to **stop work** and/or certain activities on site in the case of non-compliance or failure to implement remediation measures.

[1] A penalty may not necessarily be a monetary fine but could also be a stoppage in work time, additional mechanisms to prevent pollution or degradation at the cost of the proponent or even a directive to cease activities from the competent authority.

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