ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPr)

WEST POINT PROCESSORS PLANT

ERF 1097, ST HELENA BAY

SEPTEMBER 2026

[AMENDMENTS REQUESTED BY WCDM AS A RESULT OF THE PART 1 AMENDMENT]

[PART 2 AMENDMENTS – RED UNDERLINED]

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JM THERON

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SECTION 1: INTRODUCTION & OVERVIEW

1.1 BACKGROUND

An Environmental Management Plan (EMPr) describes mitigation measures in detail, and is prescriptive, identifying specific individuals or organizations responsible for undertaking specific tasks to ensure that impacts on the environment are minimized during construction, operational and related activities. As an open – ended document, information gained during on-going monitoring of procedures on site could lead to changes in the recommendations and specifications of this document. This document forms an agreement between the Department of Environmental Affairs and Development Planning (DEA&DP) and the Applicant that the environmentally sensitive features on the site will be suitably protected during the lifespan of the activity through the implementation of the applicable mitigation measures.

This document is intended to guide and manage the construction and operational phase of the Fish Processing Facility operated by West Point Processor (Pty) Ltd (**WPP**) located on Erf 1097, St Helena Bay, Western Cape. Please refer to **Annexure 2: Locality Maps**. [SG. 21 Digit Code: C04600130000109700000]

The study area comprises a single property which covers an area of approximately 6.89 hectares. It is situated within the Urban Area of St Helena Bay along the West Coast within the Western Cape (Saldanha Bay Municipality). WPP have been operating a fish processing plant on the site since 1948. The first Environmental Authorisation (EA) granted in terms of the National Environmental Management Act, 1998 (Act 107 of 1998) was on the 22 November 2010. In compliance with the EA a Coastal Waters Discharged Permit (CWDP) was applied for and granted to WPP on the 26 June 2017 in terms of the National Environmental Management: Integrated Coastal Management Act, 2008 (Act no.24 of 2008). Two separate discharge pipelines release effluent from the plant into the sea. An Atmospheric Emissions Licence (AEL) was also eventually applied for and issued to WPP with numerous renewals being undertaken. A number of Environmental Authorizations/ Licences/ Permits apply to the site:

- AMENDED ENVIRONMENTAL AUTHORISATION (REF 16/3/3/5/F4/20/3035/16) ISSUED BY DEA&DP ON 7 JULY 2016.
- ENVIRONMENTAL AUTHORISATION WAS GRANTED FOR THE PROPOSED EXPANSION OF THE WEST POINT FISH MEAL PROCESSING PLANT ON ERF 1097, ST HELENA BAY [Issued: 27 July 2022].
- ENVIRONMENTAL AUTHORISATION WAS GRANTED FOR THE PROPOSED REVERSE OSMOSIS PLANT AT THE WEST POINT FISH MEAL PROCESSING PLANT ON ERF 1097, ST HELENA BAY [Issued: 11 November 2022].
- THE EXISTING AEL WAS RENEWED AND A NEW ATMOSPHERIC EMISSIONS LICENSE (REF 12/3/1/11 LICENSE NO: WC/WD/015) WAS ISSUED BY WCDM ON 18 NOVEMBER 2025.
- A NEW CWDP (REF 2014/021 /WC/WEST POINT PROCESSORS) WAS ISSUED on the 3 MARCH 2025 BY THE DEPARTMANT OF FORESTRY FISHERIES AND THE ENVIRONMENT.

- A PART 1 AMENDMENT OF THE ENVIRONMENTAL AUTHORISATION ISSUED ON 22 NOVEMBER 2010 (REF. NO. E12/2/3/1-F4/19-0554/08) FOR THE UPGRADE OF THE WEST POINT FISH PROCESSING PLANT ON PORTION 3 OF ERF 1097, ST HELENA BAY WAS ISSUED [DEA&DP REF NO. 16/3/3/5/F4/20/3027/25]. THE PROPOSED AMENDMENT ENTAILED THE INCLUSION OF FISH MATERIAL (OFF-CUTS AND TRIMMINGS) FROM FROZEN OR FRESH DEMERSAL FISH INTO THE EXISTING PROCESSES [ISSUED: 8 JULY 2025].

  REFER TO APPENDIX 8.

Each of the above permits/licences has its own set of requirements that need to be adhered to on top of this EMP. This EMP is a reminder to the reader to ensure that these permits and licences are checked and administered in terms of various actions and conditions.

1.2. ENVIRONMENTAL ATTRIBUTES

1.2.1 Vegetation

According to the vegetation map the site historically consists of Saldanha Granite Strandveld which is an ENDANGERED vegetation type. However, the majority of the site is developed and the remaining portion of the site on which some of the proposed expansion infrastructure will fall was also developed up until 2018 (topsoil lawfully disturbed during the preceding 10 years). This area consisted of residential dwellings and gardens up until 2018 after which the residential dwellings were demolished as the residential component was not compatible with the industrial nature of the facility. No indigenous vegetation or animal species will therefore be disturbed within the building envelope proposed by the expansion activities because no natural area exist where the expansion is proposed.

The site is completely fenced (except for the small part accessing the harbour and the large parking area for visitors/ employees to utilize) and security access is strictly controlled. A 6 feet high vibracrete wall with wire on top runs along the western side of the property from the sea up to the Main Road and along the Main Road up until the access to WPP from the Main Road. The site is already developed, and in general the nature of the activities revolves around upgrades and additions to the existing facility on a disturbed factory site.

1.2.2 Marine Ecology

A. Oceanography:

Water temperature, nutrient and oxygen levels, and wave exposure are the principle oceanographic forces that drive the shape of marine communities. The broader physical, chemical and biological oceanography of the southern Benguela system of the West Coast of South Africa influence the marine ecology and oceanography of St Helena Bay. The Benguela Current system extends along the west coast of southern Africa between Cape Agulhas in South Africa and the Congo River mouth in Angola. The Benguela system is influenced predominantly by the wind-driven upwelling of deep nutrient rich water close to the coast. Wind is the primary driver of life in the system, strongly influencing both water temperature and inorganic nutrient levels, and in turn, primary production.

The prevailing south-easterly winds displace surface water offshore during the summer, and cause cold, nutrient rich water to rise from deeper water masses to replace this surface water.

These upwelling events cause low water temperatures and high nutrient levels near the coast. The oceanic primary producers, phytoplankton, bloom when upwelled nutrients become available for photosynthesis in the presence of sunlight. These are consumed by zooplankton, which are in turn consumed by small pelagic fish species such as anchovy and sardine. The Benguela upwelling region is one of the world's most productive systems, supporting rich fishing grounds and attracting large colonies of sea birds and seals. Upwelling cells (i.e. areas of intense upwelling) in the southern Benguela are located off Cape Columbine and the Cape Peninsula.

Sun-warming of the surface layers during summer and autumn results in the stratification of the water column which allows for phytoplankton blooms to develop as the cells are kept in the euphotic zone. St Helena Bay is an extremely rich area for phytoplankton due to the enhanced nutrient availability and a stable euphotic zone, and as such, provides a rich feeding ground for planktivores and predators. St Helena Bay is positioned downstream of the Cape Columbine upwelling cell and is a retention zone for the nutrient rich water that is upwelled in this cell. Due to this enrichment and retention, the bay is a particularly productive system that supports a high biomass of marine biota and several important fisheries.

B. Water Quality

Dissolved oxygen

Within St Helena Bay, dissolved oxygen (DO) concentrations show strong seasonal variation, linked to the highly productive and highly retentive nature of the system. For example, consistently low DO concentrations are present in the southern region of the bay the in summer and autumn due to enhanced retention. Indeed, DO concentrations have been shown to be lower in St Helena Bay than anywhere else in the southern Benguela. This persistent "seasonal hypoxia" is considered a consequence of local drawdown, where oxygen depletion is confined to the bottom layer of the water column. This is driven by strong stratification of the water column in summer that impedes the downward mixing of oxygen from the surface layers, in addition to high upwelling driven algal production in surface waters, and settlement of that algal production to the benthos as organic matter. The highly productive and sheltered habitat of St Helena Bay is subject to incidences of harmful algal blooms and regular episodes of oxygen depletion in the shallow nearshore waters (defined as "episodic anoxia"). This episodic anoxia follows the decay of high biomass dinoflagellate blooms and leading to major mortality events for organisms such as rock lobsters and fish. Low oxygen events that have led to stranding and mortality of marine biota have been documented at least once or twice per decade since the 1960s (these natural events were occasionally documented prior to this, but the published record is only considered consistent enough post 1960). There has been a notable increase in the number and severity of low oxygen induced events in the 1990s (five recorded), three over 2000-2010 and two post 2010 (March 2012 and an extended event during February-March 2015). While St Helena Bay is host to seasonal hypoxia events, and rare anoxia events, these are not persistent, and should not be considered the "norm" for the system, because the bay still supports abundant and diverse benthic and pelagic marine life.

Salinity and temperature

Warm oceanic water is typically more saline and nutrient-deficient than cool upwelled water that usually occurs below the thermocline (a clear boundary layer separating warm and cool water). During summer months, when wind driven coastal upwelling within the Benguela region brings cooler South Atlantic central water to the surface, salinities are usually lower than during the winter months when the upwelling front breaks down and South Atlantic surface waters move against the coast (warm surface waters are more saline due to evaporation). Under summer conditions, when the water column is stratified, surface salinities may be slightly elevated due to evaporation, therefore, salinity measurements from deeper water more accurately reflects those of the source water. Salinity values for inshore water along the West Coast and St Helena Bay typically vary between 34.6 and 34.9.

Average surface water temperatures in southwestern area of St Helena Bay range from 12.3-19.3°C, tend to be higher in summer than winter, and tend to decrease with increasing distance from the shore. A thermocline is often present in the nearshore area of the bay at 15-25 m, tending to be shallower in summer than in winter. Data from 2015 indicate that while the temperature of surface water fluctuates under different wind conditions, depth profiling data collected in Stompneus Bay indicated a well-mixed water column with the absence of a thermocline. These isothermal conditions were considered likely a result of wind driven vertical mixing and the shallow nature of this part of the bay.

There is a noted temperature elevation of 0.25 °C on average at sites within the “mixing zone” of the West Point outfalls, compared to the ambient site some 5 km away. This elevation extends beyond the 150 m “mixing zone” defined by Lwandle (2018), with temperature elevations noted some 1.5 km away. The maximum temperature elevation was noted at the site closest to the outfalls (temperature difference of 0.47 °C above the ambient).

Turbidity

Turbidity comprises both organic and inorganic particulates that are suspended in the water column, thus turbidity is ultimately a measure of light conditions in the water column. Turbidity levels were greatest inshore (8 NTU), a combined result of the effluent expelled from fish processing plants and wave action. Anthropogenic sources may result in smothering of the benthic environment as well as decrease the light available for photosynthesis. There is an elevation in turbidity of almost 10-fold on average, evident at sites within the “mixing zone” of the West Point outfalls (30.77 NTU), compared to the ambient site (3.13 NTU) some 5 km away. Again, these elevated turbidity values extend beyond the 150 m “mixing zone” defined by Lwandle (2018), with an 11-fold elevation at one site 1.5 km from the outfall.

C. Microbiological Indicators

In 2008 the St Helena Bay Water Quality Trust (SHBWQT) initiated fortnightly sampling of microbiological indicators at 17 stations within St Helena Bay and six stations in the Berg River Estuary. Compliance with guidelines for recreational use of coastal waters is assessed by comparing faecal coliform and E. coli count data to the 1996 recreational guidelines (DWAF 1995a) and the revised recreational, respectively. Poor water quality was consistently found at most of the

sites close to fish processing factories, while water quality fluctuated between “Poor” and “Excellent” at the other sites.

The majority of treated wastewater from the local wastewater treatment works (WWTW) is currently being diverted to other uses (mainly irrigation), which suggests that the contamination may be from other sources (e.g. fish processing effluent and storm water). Furthermore, there is anecdotal evidence that within the study area and during extreme high-tides and spring tides, water levels rise high enough to intrude into old septic tanks along the Berg River estuary banks, soakaways on the fish factory, and all along quay walls. This may result in an increase in pollutants within the estuary, especially in the form of added E. coli from the septic tanks and may have increased the likelihood of the occurrence of E. coli levels exceeding the prescribed limit above which a water body is considered “poor” or “unfit” for recreational purposes. Due to the lack of monitoring of treated effluent discharge volumes, it is difficult to draw a conclusion as to the exact source of the contamination, although poor water quality at sites adjacent to fish processing factories is a good indication of the potential source.

These results suggest that there may be a health risk associated with industrial outfalls, specifically fish processing effluent but the link between the presence of indicator bacteria from fish factory effluent and human health risk is not clear. Although faecal coliforms, faecal streptococci and Escherichia coli are used to detect the presence of faecal pollution, they provide indirect evidence of the possible presence of water borne pathogens and may not accurately represent the actual risk to water users. These bacteria are only found in the faeces of mammals and birds and the most likely cause of their presence in the fish factory effluent is not from human waste as extremely stringent hygiene practices are enforced aboard vessels and within fish processing plants. The 2020 St Helena State of the Bay reported that the source of these bacteria may be bloodwater discharged from vessel fish holds (where not chilled), fish pits and during dewatering of catches destined for fishmeal processing, and that the bacteria are introduced into these environments by seals that may enter the purse seine nets during fishing operations. Given that seals share few pathogens with humans, the risk to human health may be overestimated by high levels of indicator bacteria in fish factory effluent. This does not, however, imply that there is no risk from bacterial contamination of nearshore water that may arise from fishing vessels or of fish processing factories, (possibly originally from seals), only that it is probably lower than if the source of contamination was human sewage.

D. Sediment Quality

Particle size composition of sediments in the marine environment is influenced by wave energy, depth and current circulation patterns. Areas that experience high wave energy and strong currents generally have courser sand and gravel particles as the movement of water in these areas suspends and carries away fine particles (mud and silt). Alterations to wave action and current patterns can result in the deposition (reduced water movement) or removal (increased water movement) of mud from a particular area.

Sediment in the bay is primarily composed of sand, a lesser fraction of mud and varying gravel content. Fine sediments tend to accumulate in the sheltered, retentive areas of St Helena Bay which are characterised by low wave and current energy and longer residence times than areas to

the east. As such, these areas tend to have higher levels of settlement and accumulation of particulate waste. It is notable that these sheltered bays are also where fish processing factories operate, and discharge effluent high in organics and particulate matter. This has important implications for benthic macrofauna as fine sediments accumulates in the same areas as organic matter due to similar specific gravity and this can result in anoxic conditions developing under high organic loading.

The processing of fish from the small pelagic and/or demersal fishery appears to not only influence organic content of sediment in the immediate vicinity of the fish factories during years of above average catches, but can also influence organic content of sediment in a greater area within the bay. Indeed, Total Organic Carbon (TOC) and Total Organic Nitrogen (TON) were typically greater at sites sampled close to the fish factories compared to other areas in the bay and estuary, suggesting that these processing plants are important sources of organic enrichment in the bay.

In 2020 the C:N ratios in the Outer Bay area, although lower than they were in 2018, remained high (C:N of 52:1). Elevated C:N ratios were also observed at the Fish Factory areas (13:1), while the average C:N remained relatively constant in the Shore area (12:1). The elevated C:N ratios in Outer Bay are likely due to the reduced N present as a result of the weak/neutral La Nina conditions preceding the 2018 and 2020 surveys, which would have reduced the input of N into the euphotic zone. Additionally, this suggests the N input from the fish factories affects the whole bay area. The fish factory sites within the bay generally have the lowest C:N ratios, which is expected due to impacts of nitrogen-rich wastewater discharged from vessels and processing plants.

E. Biogeography

Numerous attempts have been made to understand and map marine biogeographic patterns around the coast of South Africa with the most recent being Sink et al. (2012). Most of the studies recognised three coastal regions; a cool temperate west coast, a warm temperate south coast and a subtropical east coast region; however, Sink et al. (2012) defined several new ecoregions that are now in use. According to these divisions, St Helena Bay falls into the cool temperate west coast region, within the Southwestern Cape inner shelf ecoregion

F. Biodiversity

St Helena Bay and the Berg River Estuary provide a large proportion of the sheltered habitat along the otherwise very exposed west coast of South Africa. There are only four other large estuarine systems which provide sheltered habitat for birds along the West Coast — the Orange, Olifants and Diep River estuaries and Langebaan Lagoon. While South Africa's coastline has numerous estuaries (about 290), the west coast has few very large sheltered coastal habitats.

<u>Benthic macrofauna</u>

Benthic monitoring surveys in St Helena Bay shows that macrofaunal communities are mostly dominated by predatory and *detritivorous polychaetes* and filter feeding bivalves. The presence of *Malacostraca* (mostly composed of amphipods and isopods) across the bay and the seapen *Virgularia schultzei*, at the Outer Bay sites, suggests that the bay as a whole has a fairly low level of contamination as these taxa do not tolerate pollutants well, especially organic pollutants such as fish factory wastewater. Furthermore, the persistence of filter feeders in the bay suggests that

sediment and benthic macrofaunal communities in the broader bay area have remained stable and in a fairly good state of health. However, at most sampling sites located in close proximity to fish factories, a reduction in all indices of benthic macrofaunal diversity, particularly abundance and biomass, was noted in 2020.

This pattern has been attributed to the poor sediment quality in the area surrounding the fish factories, where high organic loading from fish factory effluent has resulted in localised eutrophication of the benthos, and a toxic low-oxygen environment. Indeed, environmental monitoring undertaken specifically for the West Point Processors outfall shows that lowest species numbers, abundances and biomass occurs within "mixing zone" of the discharge plume. This was attributed specifically to anoxic sediment conditions. However, it is also clear from the results of the 2020 survey that the mitigation measures implemented by one of the small pelagic processing factories to improve their waste-water effluent quality and to discharge it at an offshore location has improved the health of the benthos.

Fish

Fish species targeted by fisheries in St Helena Bay include snoek *Thrysites atun*, yellowtail *Seriola lalandi*, harders *Chelon richardsonii* and other shoaling species such as white stumpnose *Rhabdosargus globiceps* and hound sharks *Mustelus mustelus*. Species such as white stumpnose, white Steenbras *Lithognathus lithognathus*, silver kob *Argyrosomus inodorus*, galjoen *Dichistius capensis* and elf *Pomatomus saltatrix* support shore angling, recreational and commercial boat linefisheries. The bay incorporates a rock lobster reserve that was declared in terms of the Marine Living Resources Act covering much of the southern portion of the bay between Doctors reef and Shelly point.

Cetaceans

Southern right whales *Eubalaena australis* arrive annually from sub-Antarctic regions to calve off the west coast of Africa during the months of June to November. Humpback whales *Megaptera novaeangliae* may be sighted during the months of October and November as they migrate south from their breeding grounds in tropical West Africa to their feeding grounds in the Antarctic. Over the last decade, large supergroups (20-200 individuals) of feeding humpback whales have frequented the west coast during spring and summer and have been documented lunge feeding on euphausids and mantis shrimp in the southwestern sector of St Helena Bay. Schools of over 1 000 common and dusky dolphins (*Delphinus capensis* and *Lagenorhynchus obscurus*) have been sighted at times and seals and Heaviside's dolphins *Cephalorhynchus heavisidii* are also frequent visitors.

1.3. ACTIVITY DESCRIPTION

The existing design capacity of the West Point Fish Meal plant is 50tph of raw fish. The proposal is to increase the design capacity to 120tph of raw fish (pelagic and/ or demersal fish). Furthermore, West Point Processors has installed a Reverse Osmosis (RO) Plant on site. The purpose of the RO Plant is to treat the existing municipal potable water coming onto site to further remove the salts and minerals from the potable water used.

It is important to allow for changes to the plan and operation due to continued changes in available equipment and technology. Therefore, the upgrade description needs to be wide enough not to result in continues amendment administration as in the past. As a norm it's best to determine the expansion extent with the infrastructure and footprint, the allocated operational capacity, discharges and air emission capacities but to allow engineering changes at the plant in future that will reduce the impacts and achieve the various license thresholds.

1.3.1 Rational for the Proposed Upgrade

Plant efficiency is the primary goal of West Point Processors resulting in numerous upgrades required to the existing plant. The proposal would however not entail an increase in fish quota allocations or catching of more fish, as per quota allowance, per annum. In the past WPP has lost up to approx. 30% of their total fishing quota per annum as a result of the plants inability to process the available fish at one given time. The proposal is to upgrade the fish meal plant to be able to optimally process the available anchovy as per approved quotas allocation and vessel catching ability. These allocated quotas exclude the catching of red eye fish as a non-quota species. The total vessels offloading to West Point Fish Meal Plant is 17. The upgrade is required to optimally accommodate the fish availability in the main fishing season. History has shown that there are approximately 60 days per year in which to catch enough fish to ensure that the allocated quotas are caught and processed.

By increasing the plant capacity, the operation will be able to process the allocated fish during the best fishing period. For example, due to poor weather and random fish occurrence, the vessels need to optimally secure the available fish when it is available. The risk with a low-capacity plant is that only small quantities can be processed per day even if more fish is available on the specific day.

In other words when the fish is accessible it needs to be caught optimally and processed efficiently within the allocated quota. The quicker the fish can be processed the fresher it is and the fresher the less impact it has in terms of odour and poor water quality. In addition, the quicker the fish can be processed, the better the control over the quality of the final product. Higher percentage of "super prime" meal can be produced with a higher income to the factory. This will ensure sustainability of the current operation and its contribution to the local economy. Furthermore, a bigger throughput will lower the energy consumption and will decrease the water usage in the long term thus allowing the processing to be more cost efficient.

A further rationale for the equipment expansion is to absorb downtime for maintenance purposes during production periods and to have backup if processing is underway. This will ensure less environmental impact by maintaining faster production even if there is equipment failure. As a result, less odors, better discharge water quality and a better-quality product. The RO Plant results in more effective steam and energy generation within the plant as well as an increased efficiency of the boilers resulting in the use of less coal and less chemicals being added.

West Point Processors have also included additional demersal fish material (offcuts and trimmings) from Sea Harvest located in Saldanha in the existing process facility (frozen or fresh). The quality

of the fish material is not expected to deteriorate from the moment it is received to the moment it is processed since:

- The fish material will be stored in temperature-controlled environments until processing. The quantity of trimmings will be managed to match the daily processing capacity of the fishmeal plant, considering the normal production of fresh fish.
- The processing of the off-cuts and trimmings will commence within 8 hours from being removed from the onsite cold storage.

1.3.2 Processing Equipment and Utilities (Description of the Activity):

Please refer to the schematic **Site Development Plan: Annexure 3**.

The proposed expansion will result in the increase and upgrading of the existing fish holding pits, fish cookers, fish presses, decanters, steam driers, separators, oil polishers, fish oil tanks and hammer mills in order to operate and support a 120tph Plant. In addition, the existing fish offloading system convey fish from the vessels into the plant as well as the fish and meal screw conveyors within the plant itself will be upgraded and expanded. The Waste Heat Evaporating Plant will furthermore be upgraded to support the evaporating capacity from the proposed 120tph plant. Additional seawater and chemical scrubbing will also take place.

The bulk bagging system will be expanded to handle the increased quantities of meal in a shorter time span and additional meal warehouses will be constructed along with a store (Woody biomass). Cold storage facilities will be established on site. The Ice Plant will be incorporated into a building of approximately 10m x 15m. The building will have a concrete floor and will be steel frame insulated. A conveyor line (or feeding pipe) will convey the ice onto the fishing vessels. Various upgrades will be undertaken within the cannery facility. The existing office block will be utilized for the proposed plant upgrades mentioned above and therefore a new office block will be constructed.

A phased approach will be used and a mixture of various boilers will be introduced to increase the steam capacity at the plant (Table 1). The existing 16T Coal boiler will continue to operate, the existing 10 T capped Coal Boiler will be uncapped to 20 T and an additional 2 x 20T Coal Boilers will be introduced, the existing 11T HFO Boiler will be utilized with the remaining existing HFO boiler (10T) only being used in cases of an Emergency. To be compliant in the initial phases the HFO boilers will run on Low Sulphur Fuel. The conversion of the boilers from coal to biomass can be affected at any given time to reduce the need for coal. The PS2 stack height will be increased to a maximum of 30 meters.

The existing electrical supply will require an additional 2MVA from Eskom and generators will be used as back-up electrical supplies. Alternative energy supply such as additional solar panels on the roofs of building will be introduced over time. The proposed upgrades are expected to increase the site's water demand. Additional on-site water storage capacity will therefore be required to support the site's operational demand and the proposed upgrades and provide a buffer to reduce the demand on the municipal water supply line. The existing General Waste Handling Area will be upgraded to operate more efficiently. Furthermore, additional sea water for condensing will be abstracted and the existing abstraction pipeline will be extended to ensure the coolest and cleanest

seawater intake possible. Higher volumes of effluent will also be discharged to sea resulting in the lengthening of Outfall A & B. The option of combining Outfall A and B and thereby consolidating the two discharge pipelines into a single discharge system, with the combined discharge being routed through Outfall B, has also been assessed as a viable option (Outfall A to be retained for approved effluent discharges arising from unique operational requirements). The onshore inline filtration (or similar technology/ treatment) of effluent by removal of solids and pollutants prior to discharge will be implemented through phased improvements. The onshore treatment and associated ancillary infrastructure for the handling and treatment of effluent, including the removal of solids and pollutants prior to discharge, will be implemented through phased improvements. The improvement plan will remain adaptive, with subsequent requirements to be determined based on the results obtained through ongoing monitoring and evaluation in accordance with the Marine Specialist.

Lastly, the RO plant has the capacity to treat 25 cubic meter of potable water per hour (±55 632m^3/ annum). The RO plant generates wastewater/ brine from the water production process which equates to ±25% (±13 908m^3) of the potable water used per annum. The brine is discharged to the sea through the existing discharge outfall pipeline B.

West Point Processors have also included additional demersal fish material (offcuts and trimmings) from Sea Harvest located in Saldanha in the existing process facility (frozen or fresh). The introduction of this fish material to the processing facility will NOT increase the plant's capacity, and the facility will operate within the approved capacity range.

Table 1: Boiler Utilisation in each phase of the expansion.

	Plant steam in Phase 2A					Burning LSO (Low sulpher oil) in 2 HFO boilers					
	16t Coal Boiler # 7	20t Coal Boiler # 5	11T HFO Boiler # 6	10t HFO Boiler # 8	20t Coal Boiler # 9	20t Coal Boiler # 10		Fish to Steam Ratio	Total Raw Fish T/H	Canning SteamT/H	Industrial Fish T/H
Ton Steam /H	16	20	11	10	20	20					
Efficietcy	85%	85%	90%	90%	85%	85%					
Boiler in Use	1	1	1	1	0	0					
Steam Availibl	13.6	17.0	9.9	9.0	0.0	0.0	49.5	0.7	**71**	6	**62**

	Plant steam in Phase 2B					Coal only with additional 20t coal boiler					
	16t Coal Boiler # 7	20t Coal Boiler # 5	11T HFO Boiler # 6	10t HFO Boiler # 8	20t Coal Boiler # 9	20t Coal Boiler # 10		Fish to Steam Ratio	Total Raw Fish T/H	Canning SteamT/H	Industrial Fish T/H
Ton Steam /H	16	20	11	10	20	20					
Efficietcy	85%	85%	90%	90%	85%	85%					
Boiler in Use	1	1	0	0	1	0					
Steam Availibl	13.6	17.0	0.0	0.0	17.0	0.0	47.6	0.7	**68**	6	**59**

	Plant steam in Phase 3					Running 1HFO and 1 new 20t Coal boiler					
	16t Coal Boiler # 7	20t Coal Boiler # 5	11T HFO Boiler # 6	10t HFO Boiler # 8	20t Coal Boiler # 9	20t Coal Boiler # 10		Fish to Steam Ratio	Total Raw Fish T/H	Canning SteamT/H	Industrial Fish T/H
Ton Steam /H	16	20	11	10	20	20					
Efficietcy	85%	85%	90%	90%	85%	85%					
Boiler in Use	1	1	1	0	1	0					
Steam Availibl	13.6	17.0	9.9	0.0	17.0	0.0	57.5	0.7	**82**	6	**74**

	Plant steam in Phase 4					Running 1 HFO and 2 new 20t coal boilers					
	16t Coal Boiler # 7	20t Coal Boiler # 5	11T HFO Boiler # 6	10t HFO Boiler # 8	20t Coal Boiler # 9	20t Coal Boiler # 10		Fish to Steam Ratio	Total Raw Fish T/H	Canning SteamT/H	Industrial Fish T/H
Ton Steam /H	16	20	11	1	20	20					
Efficietcy	85%	85%	90%	90%	85%	85%					
Boiler in Use	1	1	1	0	1	1					
Steam Availibl	13.6	17.0	9.9	0.0	17.0	17.0	74.5	0.7	**106**	6	**98**

July 2020/ upon authorisation – 2025.
Phase 2A is currently the preferred, however the environmental impacts would be the same for Phase 2A & 2B and therefore either combination of boilers could be utilised.

2026 - 2027

2028 - onwards

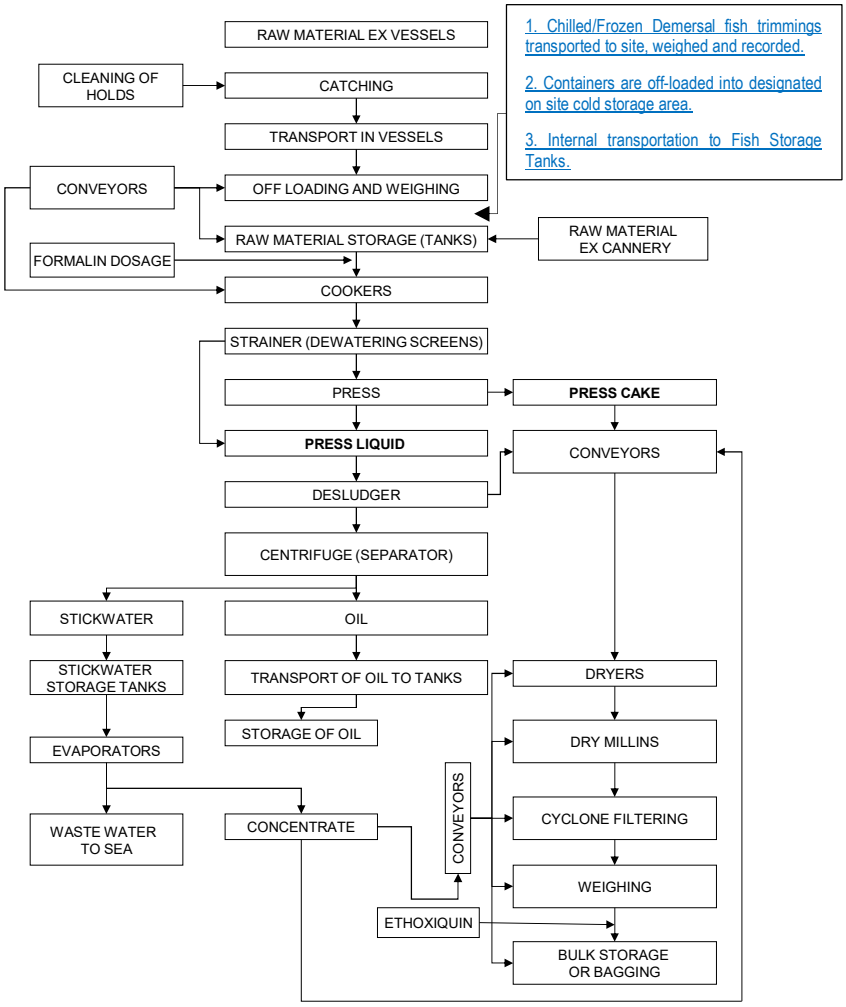


Figure 1: Flow Diagram of the existing Fish Meal Operations.

1.4. ENVIRONMENTAL LEGISLATION

1.4.1 National Environmental Management Act, 1998 (Act 107 of 1998), as amended ("NEMA")

NEMA makes provision for the identification and assessment of activities that are potentially detrimental to the environment and which require authorisation from the competent authority based on the findings of an Environmental Impact Assessment (EIA). NEMA is a national act, which is enforced by the Department of Environmental Affairs (DEA). In the Western Cape, these powers are delegated to the Department of Environmental Affairs & Development Planning (DEA&DP). According to the list of activities identified under the EIA Regulations, by Listing Notice 1 (GN. R. 327), Listing Notice 2 (GN. R. 325), and Listing Notice 3 (GN. R. 324), published in Gazette No. 40772 on the 07 April 2017, the following activities are triggered and require environmental authorisation:

Listing Notice 1 (BASIC ASSESSMENT): 19A, 34, 38, 52, 65, 16
Listing Notice 3 (BASIC ASSESSMENT): 2

1.4.2 National Environmental Management: Air Quality Act, 1998 (Act 107 of 1998), as amended ("NEM: AQA")

According to Section 21 of the National Environmental Management: Air Quality Act, the Minister of Environmental Affairs is required to publish a list of activities which result in atmospheric emissions, and to establish minimum emissions standards in respect of a substance or mixture of substances resulting from those listed activities. The consequence of the listing is that to conduct a listed activity in the Republic; a person requires a Provisional Atmospheric Emissions License or an Atmospheric Emission License.

The list of activities which result in atmospheric emissions and have or may have a significant detrimental effect on the environment, including health, social conditions, economic conditions, ecological conditions or cultural heritage was published on 22 November 2013.

Fishmeal processing falls under ***Category 10: Animal Matter processing*** [Processes for the rendering, cooking, drying, dehydrating, digesting, evaporating or protein concentrating of animal matter not intended for human consumption]. For this listed activity, there are no emission limits given for air pollutants, but "Best practice measures intended to minimize or avoid offensive odours must be implemented by all installations". In the current AEL of West Point, the West Coast District Municipality has set the emission limit for H2S at 5 mg/Nm3 for the scrubber stack.

The AEL has been renewed, and a new license was issued 18 November 2025, with a validity period until the 8 August 2029.

1.4.3 National Environmental Management: Integrated Coastal Management Act, 2008 (Act 24 of 2008), as amended ("NEM: ICMA" of "ICMA")

The Coastal Waters Discharge Permit Regulations (2018) aim to provide an administrative framework for the implementation of Section 69 of the ICMA. The ICMA empowers the Department of Environment, Forestry & Fisheries (DEFF) to manage the discharge of effluent into coastal waters in a manner that ensures that users of coastal waters are not adversely affected, and that the environmental integrity of the coast is not compromised.

A NEW CWDP (REF 2014/021 /WC/WEST POINT PROCESSORS) WAS ISSUED on the 3 MARCH 2025 BY THE DEPARTMANT OF FORESTRY FISHERIES AND THE ENVIRONMENT.

1.5 THE EMPr DOCUMENT

An Environmental Management Plan (EMPr) can be defined as "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 the positive benefits of the projects are enhanced". EMPr's are therefore important tools for ensuring that the management

actions arising from EIA processes are clearly defined and implemented through all phases of the project life cycle.

The EMP forms part of the contract identifying and specifying the procedures to be followed by WPP in order to eliminate or reduce adverse impacts during the construction and operational phase of the proposed fish processing facility. Should WPP persistently fail to observe provisions of the EMP, the Environmental Control Officer (ECO) should notify the relevant authority for a compliance audit.

The Environmental Authorisation, Coastal Water Discharges Permit and Provisional Atmospheric Emission Licence ascribes legal status to the EMPr and any subsequent amendments thereto. The EMPr includes all relevant documentation within this report and/or referred to within it. The National Environmental Management Act, 1998 (Act No. 107 of 1998), National Environmental Management: Integrated Coastal Management Act (Act 24 of 2008) and National Environmental Management: Air Quality Act (No. 39 of 2004) is pertinent to the operation. All activities on site are lawful and need to adhere and comply with the provisions of these Acts.

In general, the EMPr can consist of the following phases: **planning & design; pre-construction activities; construction activities; rehabilitation &/or decommissioning;** and lastly **operational activities**. However, the need to include all the above phases is dependent on the scale and scope of each individual project. For the purposes of this application the following three categories are largely defined:

- **Planning, Design & Pre-construction Phase**: This section relates to the demarcating of the proposed activity footprint areas and ensuring all the necessary documentation is in place.
- **Construction Phase**: This section relates to the construction and installation of all the proposed requirements in terms of the proposed upgraded facility including increasing the PS2 stack height to a maximum of 30 meters.
- **Operational Phase**: This section is intended to guide the operation and maintenance aspects associated with the infrastructure, equipment and operation relating to the proposed upgraded 120tph Fish Processing Plant (including the operation of the RO Plant) in line with relevant legislative requirements and the recommendations made by the specialist consultant (s).

Please note: *The first two phases can overlap and are generally also referred to collectively as the CEMP (Construction Environmental Management Plan). The final phase can also be referred to as the OEMP (Operation Environmental Management Plan).*

The EMPr will be reviewed by the ECO on an ongoing basis. Based on observations during site inspections and issues raised at site meetings, the ECO will determine whether any procedures require modification to improve the efficiency and applicability of the EMPr on site. Any such changes or updates will be registered in the ECO's monthly record, as well as being included as an annexure to this document. Annexures of this nature must be distributed to all relevant parties on site.

The following content is required in the EMPr in accordance with Appendix 4 of the EIA Regulations:

a) *details of–*
   i. *the EAP who prepared the EMPr; and*
   ii. *the expertise of that EAP to prepare an EMPr, including a curriculum vitae;*
b) *a detailed description of the aspects of the activity that are covered by and as identified by the project description;*
c) *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 should be avoided, including buffers;*
d) *a description of the impact management outcomes, 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 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;*
   v. *where relevant, operation activities;*
e) *a description of proposed impact management actions, identifying the manner in which the impact management outcomes contemplated in paragraph (d) 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 practices;*
   iii. *comply with any applicable provisions of the Act regarding closure, where applicable;*
   iv. *comply with any provisions of the Act regarding financial provision for rehabilitation, where applicable;*
f) *the method of monitoring the implementation of the impact management actions contemplated in paragraph (e);*
g) *the frequency of monitoring the implementation of the impact management actions contemplated in paragraph (e);*
h) *an indication of the persons who will be responsible for the implementation of the impact management actions;*
i) *the time periods within which the impact management actions contemplated in paragraph (e) must be implemented;*
j) *the mechanism for monitoring compliance with the impact management actions contemplated in paragraph (e);*
k) *a program for reporting on compliance, taking into account the requirements as prescribed by the Regulations;*
l) *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; and

m) any specific information that may be required by the competent authority.

1.6 KEY TERMS AND ABBREVIATIONS

a) **Applicant** – The person or legal entity that has made application to the competent authority for environmental authorizations and who will have the overall responsibility to adhere to the relevant legislation and comply with the environmental authorization.

b) **Contractor –**

(i) the main or specialised contractors as engaged by the Applicant from time to time for the execution of the works, including all sub-contractors appointed by the main contractor of his own volition for the execution of parts of the works.

(ii) any other contractor from time to time engaged by the Applicant directly in connection with any part of the works which is not a nominated subcontractor or a subcontractor to the main contractor.

(iii) the main or specialised operator as engaged by the Applicant from time to time for the execution of the plant operation.

c) **Council** – the local municipal authority that operates or is responsible in said area.

d) **Days** – the days of the week excluding Sundays and legal public holidays.

e) **Environmental Authorization** also referred to as the ROD is the Record of Decision as issued by the Provincial Government Department arising from the application for Environmental Authorization through either a basic assessment or full EIA process.

f) **Environmental Management Programme (EMPr)** – this document as amended or varied with the approval of the Competent Authority from time to time, to control the implementation of the works on the site in such a way as to ensure that they do not result in undue or reasonably adverse impacts on the environment.

g) **Environmental Control Officer (ECO)** – a suitably qualified environmental consultant to be appointed by the Operator, and his successor/s should he cease to hold such appointment for any reason, to oversee the implementation of the EMP and environmental agreement until the completion of works on the site.

h) **Land Surveyor** - (LS)

i) **Site Manager** – the employee of the main contractor or Applicant responsible for the day-to-day control of all activities and operation on site.

j) **Works** – the construction operations, all related and incidental works such as, but not limited to, site works, fencing, earthworks, roads, buildings, equipment installations etc.

k) **Competent Authorities**

- National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA); Department of Environmental Affairs and Development Planning (**DEA&DP**).
- National Environmental Management: Integrated Coastal Management Act (Act 24 of 2008); DEFF: Oceans & Coast.
- National Environmental Management: Air Quality Act (No. 39 of 2004); West Coast District Municipality (**WCDM**).

SECTION 2: ENVIRONMENTAL IMPACTS

2.1 IMPACTS:

2.1.1 Atmospheric

Construction Phase – N/A

Operational Phase

- Impact on Air Quality - a negative direct impact on the ambient air quality in the immediate area around the plant (rated LOW).
- Odour Control

2.1.2 Marine Ecology

A. Construction Phase

Construction of the proposed intake and outfall pipelines will involve heavy vehicle traffic on the intertidal and the utilisation of machinery for laying the infrastructure over the intertidal and subtidal sandy and rocky substrate. Five potential impacts associated with intake and outfall pipeline construction were identified:

Impact 1: Disturbance of intertidal and subtidal habitat

Intake and outfall infrastructure will be constructed intertidally and subtidally, mostly on rocky shore habitat and artificial breakwater habitat. The communities in the vicinity of proposed construction are “characteristic of typical west coast habitat” and include a number of intertidal invertebrate fauna and flora (e.g., mussels, barnacles, crabs, algae).

The construction of these pipelines will result in disturbance of the rocky intertidal and subtidal surfaces, and the associated macrofauna and flora will experience displacement and mortality. Sessile biota along the infrastructure length will become smothered. Therefore, it is expected that a significant, short-term decrease in macrofaunal abundance and biomass will occur as a result of the proposed construction operations. Subtidally, pipe will be laid on the sediment surface will become gradually buried by shifting sand. Pipelines that are laid over subtidal reefs will cause direct mortality of reef associated species in the short term, but the hard substrate created will be similar to the reef habitat and is likely to be recolonized in a short space of time.

The relatively small footprint of the discharge pipes and ‘short-term’ nature of construction activities will result in the impact being felt over a very limited spatial scale and will not noticeably influence the ecology of the area as a whole. Since this disturbance will not result in a net loss of habitat, the significance of this impact is rated as ‘very low’. Mitigation measures should include rehabilitation of the disturbed area immediately following construction by removing all artificial materials not related to the permanent fixture of the pipeline. If these tasks are actioned, the impact is considered to be ‘insignificant’.

Impact 2: Disturbance of pelagic open water habitat

Construction of the proposed infrastructure will result in the temporary disturbance of deep pelagic habitat within the construction footprint and surrounds. However, mobile fish and elasmobranchs

(sharks, rays and skates) that utilise the habitat will be able to move to adjacent areas. There are no seabird colonies of particular concern in the vicinity of the proposed expansion. As such, the significance of this impact is considered 'insignificant'.

Impact 3: Litter pollution generated during construction

The problem of litter entering the marine environment has escalated dramatically in recent decades, with an ever-increasing proportion of litter consisting of non-biodegradable plastic materials. South Africa has laws against littering, both on land and in the coastal zone, but unfortunately these laws are seldom rigorously enforced. Objects which are particularly detrimental to aquatic fauna include plastic bags and bottles, pieces of rope and small plastic particles. Large numbers of aquatic organisms are killed or injured daily by becoming entangled in debris or as a result of the ingestion of small plastic particles. If allowed to enter the ocean, solid waste may be transported by currents for long distances out to sea and around the coast. Thus, unlike fuel or sewage contamination, the extent of the damage caused by solid waste is potentially large. The impact of floating or submerged solid materials on aquatic life (especially birds and fish) can be lethal and can affect rare and endangered species.

Impact 4: Hazardous substance spills

A variety of hazardous substances could be spilled in the environment due to the use of heavy machinery, construction vehicles and construction vessels for the project. For example, spillage may occur as a result of fuel leaks, refueling, or collision. Hydrocarbons are toxic to aquatic organisms and precautions must be taken to prevent them from contaminating the environment. This impact can be mitigated successfully by implementing a rigorous environmental management and control plan to limit ecological risks from accidents. All fuel and oil must be stored with adequate spill protection and no leaking vehicles should be permitted on site. Intentional disposal of any substance into the aquatic environment is strictly prohibited, while accidental spillage must be prevented, contained and reported immediately. After mitigation, the impact of accidental spillage is considered to be 'very low'.

Impact 5: Noise and vibration management during construction

Noise pollution will be generated during construction operations, that may have an impact on marine organisms in the vicinity. Noise may be generated by construction activities (e.g. earthmoving vehicles, service vehicles, vessels, cranes, heavy machinery, generators, chopping, drilling, grinding etc.). Marine invertebrates have been shown to be relatively insensitive to low frequency sound, whilst fish appear to be able to tolerate moderate sound levels. Foraging seabirds and cetaceans are expected to avoid the sound source should it reach levels sufficient to cause discomfort. Given the importance of the Bay to cetaceans and other marine fauna, mobile equipment, vehicles and power generating equipment should be subject to noise tests which are measured against manufacturer specifications to confirm compliance before deployment on site as a precautionary measure. Noise emissions from mobile and fixed equipment should be subject to periodic checks as part of regular maintenance programmes to allow for detection of any unacceptable increases in noise. After mitigation is considered, the impact of noise and vibration on the marine environment is considered to be 'insignificant'.

B. Operation Phase

The primary operational phase impacts are effluent discharge and seawater intake. Physico-chemical attributes of the effluent mean that it could impact negatively on the marine ecology and on marine users depending on the effluent concentrations and levels of dilution achieved in the receiving environment.

Impact 1: Disturbance and/or mortality of marine life due to the intake of seawater

The impacts of seawater abstraction on marine life can include entrainment and impingement. Entrainment occurs when organisms pass through intake structures and into the processing equipment. Organisms small enough to pass through most intake screens include holoplanktonic organisms (permanent members of the plankton, such as copepods, diatoms and bacteria) and meroplanktonic organisms (temporary members of the plankton, such as juvenile shrimps and the planktonic eggs and larvae of invertebrates and fish). Impingement occurs when larger marine organisms are trapped against intake screens by the velocity of the water flow. These organisms may suffer mortality due to starvation, suffocation or exhaustion. While some studies estimated a 100% mortality rate of entrained organisms in power plant cooling systems, a study by Bamber & Seaby (2004) demonstrated mortalities ranging from 10 to 20%. Although some hardy species may survive impingement, the 24 h survival rate of less robust species is probably less than 15%.

The significance of these impacts is related to the location of an intake. Intake structures should be positioned away from sensitive environments or areas with high species diversity or abundance, like rocky reefs, and should not draw in water from the upper one metre of the water column, as planktonic organisms tend to concentrate in this zone. The intake should also avoid the bottom one metre of the water column to minimise intake of suspended sediment.

While the significance of both impingement and entrainment is related to the location of an intake, impingement is primarily a function of intake velocity, and entrainment depends largely on the overall volume of water drawn into plant. Impingement and entrainment can be mitigated through optimal designs to open water intakes. The horizontal extraction of water should aid in reducing fish entrainment as fish have been shown to avoid rapid changes in horizontal flow.

The number of mobile organisms becoming entrained in the intake structure and the ability of larger organisms to escape impingement is dependent on the intake velocity. There is a broadly accepted rule that water extraction velocities should not exceed 0.15 m/s to minimize debris and marine life impingement. However, this mitigation measure is only effective for mobile organisms which can swim away and not planktonic organisms, which have little or no mobility and drift passively with currents, or organisms that are incapable of sustained mobility against water flow. Intake velocities can be reduced to the requisite 0.15 m/s through the use of footer values — these increase the area of intake, resulting in a decrease in intake velocity to safe levels. The significance of the disturbance and/or mortality of marine life due to the intake of seawater through abstraction pipelines has been assessed. The impacts are expected to last for the duration that the plant is on operation for the lifetime of the plant. Predicted impacts are rated as ‘low’ significance before mitigation and ‘very low’ following mitigation.

Impact 2: Impacts of elevated temperature

Changes in water temperature can have a substantial impact on marine species and ecosystems, with the effects either influencing the physiology of the biota (e.g. growth and metabolism, reproduction timing and success, mobility and migration patterns and production); and/or influencing ecosystem functioning (e.g. through altered oxygen solubility). This includes impacts on plankton and the pelagic food web. South African WQGs recommend that the maximum acceptable variation in ambient temperature should not exceed 1°C at the edge of the RMZ. This is a conservative value considering the limited effects of thermal plumes on benthic assemblages reported for a change in temperature of 5°C or less.

Near field dispersion modelling results indicate that the increased volume of thermally elevated Outfall A effluent does not meet WQG when discharged onshore at 20°C above ambient either the 100 m RMZ, or the 300 m RMZ. The effluent temperature should be lowered to 3.5°C above ambient, or Outfall A must be extended to discharge subtidally at a depth of at least 2 m. A in situ water quality monitoring program must be implemented at the 100 m RMZ to validate the model results. An ecological monitoring program must also be implemented to detect potential changes in rocky intertidal and subtidal community structure in the vicinity of outfall. The implementation of these mitigation measures changes the significance of this impact from 'high' to 'low'.

In addition, when considering the RO Plant, model results indicate that WQGs are met quickly under expanded operations discharging via the offshore Outfall B, and the impacts of temperature were considered to be 'insignificant'. An offshore discharge therefore presents an alternative mitigation strategy to reduce the temperature of the effluent prior to discharge. It is strongly recommended that Outfall B be moved offshore as determined by Wright et al. 2021 (i.e., at 5.8 m depth, 500 m from shore, via a 25 m diffuser). Construction and operation of the RO plant in terms of discharge must also occur in line with the results of the dispersion modelling study to ensure that the effluent plume does not exceed that modelled. [According to the study undertaken by Wright et al. 2026 the design of Outfall B would be slightly different i.e., at a 7.2 m depth)]

Impact 3: Impacts of changes in salinity

All Marine organisms have variable tolerance levels to changes in salinity, which is related to their ability to regulate the osmotic balance of their individual cells and organs to maintain positive turgor pressure. Aquatic organisms are commonly classified in relation to their range of tolerance as stenohaline (able to adapt to only a narrow range of salinities) or euryhaline (able to adapt to a wide salinity range), with most organisms falling into the first category. The South African WQG set an upper target value for salinity of 36 PSU. At levels exceeding 40 PSU, significant negative effects are expected, including possible disruptions to the recruitment of molluscan bivalves (e.g. mussels, oysters and clams), crustaceans, and possibly fish.

The end of pipe effluent quality data shows that both Outfall A has a salinity close to or equivalent to that of seawater (35 PSU); dispersion modelling results show that the Outfall B salinity of 37 PSU meets legislated WQG at the 100 m RMZ. Therefore, the impacts of elevated salinity from both outfalls are expected to be 'very low'. Should the salinity of either effluent stream change from the values presented here, impacts on the marine environment will need to be reassessed (and may include the need for additional dispersion modelling).

In addition, when considering the RO Plant, the effluent discharges will be positively buoyant, with a density slightly lower than that of the surrounding seawater (salinity lower than that of seawater). Near-field modelling results indicate that the expanded operations discharge will meet the required WQGs within the required RMZ of 100 m for both the current and the offshore Outfall B configuration. Therefore, this impact is rated as 'insignificant' for both the current and offshore Outfall B configurations. Regardless, an in-situ monitoring program must be implemented at the 100 m RMZ to validate the model results.

Impact 4: Impacts of elevated nutrients

Increased nutrient levels in receiving waters can encourage plant growth, which may lead to algal blooms and local eutrophication. Prolific seaweed growth on intertidal rocky shores and foulsmelling subtidal sediments are often indications of enrichment. There are three forms of nitrogen that are commonly measured in water bodies: ammonia, nitrates and nitrites. Total Kjeldahl nitrogen (TKN) is the sum of organically bound nutrients, while total nitrogen is the sum of inorganic and organic nutrients. Organic nutrients include nitrogen, ammonia (NH3) and ammonium (NH4+), while inorganic nutrients include nitrates (NO3) and nitrite (NO2). Organic nutrients need to be broken down into inorganic nutrients before being absorbed by organisms; therefore, inorganic nutrients can be described as readily available sources of energy.

Nitrogen is an essential nutrient for plants and animals; however, an excess amount of nitrogen may lead to low levels of dissolved oxygen in the water (anoxia) and may negatively affecting organisms within the marine environment. For example, a surplus of ammonia and organic nitrogen in a body of water can result in eutrophication and lead to prolific algal growth. Sources of nitrogen include WWTWs, runoff from fertilized lawns and croplands, failing septic tank systems, and input from processing factories, aquaculture facilities and industrial discharges. Thus, ammonia and the associated ions are required parameters for regulatory reporting at many treatment plants to assist in the monitoring of operations and effluent quality. Ammonia is highly toxic to most organisms and even low levels can cause toxicity issues for animals. Increased concentrations of nitrate (>30 mg/L) can have serious impacts on aquatic organisms as it inhibits growth of some organisms and promotes that in others and can cause a number of stresses on aquatic life. Increased phosphates can also lead to enrichment and potentially eutrophication, which will result in significant changes to species composition and species diversity in the affected area. Increased levels of nitrates and phosphate can result in an increased abundance of certain algal species and may facilitate the generation of harmful algal blooms.

Dispersion modelling results indicate that while dilution is improved with an offshore discharge (coupled with a diffuser), current end of pipe ammonia-N concentrations for Outfall B do not meet legislated WQG at the 100 m RMZ. This impact is therefore rated 'high' prior to the implementation of mitigation measures.

Indeed, the only way for ammonia-N WQGs to be met at the 100 m mixing zone is to treat the effluent onshore and reduce the overall loading entering the system. This can be achieved (at least in part) through filtration/membrane technology. Other mitigation measured include monitoring of end of pipe concentrations prior to discharge, and the implementation of an ecological and water

quality monitoring program around the diffuser to detect potential changes in the receiving environment as a result of the discharge. Operations must be adjusted should adverse effects be detected by the monitoring program. The implementation of these mitigation measures reduces the significance of this impact to 'medium'. Note that should the modelled end of pipe limits for ammonia-N be achieved, this impact will be rated as 'low'.

5: Impacts of elevated suspended solids and increased turbidity

High levels of suspended solids have been shown to cause growth deficiencies in marine organisms and in some cases lead to mortalities should smothering of benthic habitats. High TSS levels also increase turbidity and decrease light penetration which can impact on primary production, respiration and feeding in marine species (such as plankton and small pelagic fish species).

Dispersion modelling results indicate that while dilution is improved with an offshore discharge (coupled with a diffuser), current end of pipe TSS concentrations for Outfall B (for the combined RO and fish processing effluent) do not meet legislated WQG at the 100 m RMZ. This impact is assessed as being of 'high' significance. Mitigation measures include reducing end of pipe TSS concentrations before discharge (through in line treatment such a filtration/membrane technology). Further mitigation includes monitoring of end of pipe concentrations prior to discharge and the implementation of an ecological and water quality monitoring program around the diffuser to detect potential changes in the receiving environment as a result of the discharge. Operations must be adjusted should adverse effects be detected by the monitoring program. The implementation of these mitigation measures reduces the significance of this impact to 'medium'. Note that should the modelled end of pipe limits for TSS be achieved, this impact will be rated as 'low'.

Impact 6: Impacts of reduced dissolved oxygen

Sufficient dissolved oxygen (DO) in sea water is essential for the survival of most marine organisms. Excessive discharge of organic effluent via municipal sewage, factory waste, and/or stormwater drains often results in low oxygen concentrations in nearshore waters. Following the depletion of oxygen in a water body, anaerobic bacteria that survive without oxygen continue the decay process. Microbial breakdown of excessive organic matter further depletes oxygen levels and anaerobic digestion by hydrogen sulphide producing bacteria can cause "black tides" when large plankton blooms sink and decompose. Occasionally this results in mass mortality of marine species.

While a proxy measure of oxygen levels (BOD) was modelled in this study, DO levels in the marine environment are highly variable and influenced by waves, wind and storm events. Since BOD is not a direct measure of DO levels, but rather an indicator of organic pollution, there is a 'medium' confidence in the results as an assessment of effluent discharge on DO in St Helena Bay. Environmental monitoring of the existing West Point outfalls has detected lower DO levels in the water column, and anoxic sediment conditions near the discharge site, and this impact is therefore assessed as 'high' significance. While coastal upwelling regions, including the Southern Benguela, are frequently exposed to hypoxic (low dissolved oxygen) conditions owing to extremely high primary production and subsequent oxidative degeneration of organic matter, measures must be taken to reduce any further anthropogenic depletion of oxygen in coastal waters. Measures to reduce organic loading (such as filtration/membrane technology to reduce ammonia-N and TSS in

the final effluent) as well as the improved mixing offered by an offshore discharge are also likely to reduce impacts of low DO in the marine environment. Should end of pipe oxygen levels fall below 4 mg/L more that 20% of the time, the effluent should be aerated prior to discharge. These mitigation measures reduce the significance of the impact to 'medium'.

Impact 7: Impacts on sediments

Scouring of sediment around the discharge outlet can become a serious design issue for poorly designed pipe ends discharging into shallow receiving water bodies. However, this is not anticipated to be a problem for the West Point discharge as long as the diffuser is angled towards the water surface to enable water to jet upwards into the water column (to maximise dilution potential while simultaneously minimising erosion of the sandy seabed).

Impact 8: Reduced physiological functioning due changes in pH

The pH of the discharged seawater will be impacted by the addition of cleaning chemicals, which may include alkaline (pH 11–12) or acidic (pH 2–3) solutions with additives such as detergents. Alkaline cleaning solutions are used for removal of silt deposits and biofilms, whereas acidified solutions are used to remove metal oxides and scales. Other chemicals that may be added to improve cleaning efficiency are detergents, oxidants, complexing agents or biocides for membrane disinfection.

The project engineers have specified that the pH of the RO effluent is estimated to be 7.8 pH units. Neutralization of extremely alkaline or acidic solutions and treatment of additional cleaning agents is recommended before discharge to the ocean to remove any potential toxicity. For example, spent CIP solutions are either acidic or alkaline and must be neutralized within the CIP system before discharge. It must also be noted that seawater is also highly buffered and has a strong neutralising effect on acids. As such, the significance of the impact regarding the reduction in the physiological functioning of biota as a result of a reduction in pH through the release of co-discharges is assessed. The effects are considered to be of 'very low' intensity for both the current Outfall B and the offshore Outfall B under expanded operations, will likely remain localised, and will persist for the duration of plant operation. As a result, the impact is assessed to be 'insignificant'.

Impact 9: The impacts of co-pollutants in backwash water

Anti-scalants, biocides, mineral acids, halogenated by-products and heavy metals are routinely added to the brine discharges of many RO plants. While co-pollutant effects were not explicitly modelled, effects are likely to be limited to the near field for both the current and expanded offshore Outfall B discharge options. Suitable mitigation measures are likely to result in the 'very low' significance of impacts on the marine environment. Again, construction and operation of the RO plant in terms of discharge must occur in line with the results of the dispersion modelling study to ensure that the effluent plume does not exceed that modelled.

Outfall A and Outfall B effluents will be combined and discharged together. All effluent will be gravity fed and discharged via the existing Outfall B (Outfall A will only be retained for approved effluent discharges arising from unique operational requirements). According to the Marine Specialist this

will improve dilution of effluent prior to discharge thereby reducing the impact significance (particularly in terms of "Elevated nutrient levels" and "increased suspended solid concentrations"). No negative impacts will result from the combination of effluent through one outfall.

2.1.3 Socio-Economic

By increasing the plant capacity, the operation will be able to process the allocated fish during the best fishing period. For example, due to poor weather and random fish occurrence, the vessels need to optimally secure the available fish when it is available. The risk with a low-capacity plant is that only small quantities can be processed per day even if more fish is available on the specific day. In other words when the fish is accessible it needs to be caught optimally and processed efficiently within the allocated quota. The quicker the fish can be processed the fresher it is and the fresher the less impact it has in terms of odour and poor water quality. In addition, the quicker the fish can be processed, the better the control over the quality of the final product. Higher percentage of "super prime" meal can be produced with a higher income to the factory. This will ensure sustainability of the current operation and its contribution to the local economy. Furthermore, a bigger throughput will lower the energy consumption and will decrease the water usage in the long term thus allowing the processing to be more cost efficient.

A further rational for the equipment expansion is to absorb downtime for maintenance purposes during production periods and to have backup if processing is underway. This will ensure less environmental impact by maintaining faster production even if there is equipment failure. As a result, less odours, better discharge water quality and a better-quality product.

The proposed upgrades will ensure sustainability of the current operation and its contribution to the local economy. While temporary job creation will result from the proposed upgrades during the construction phase the operational phase would result in more permanent job creation through the creation of approximately 16 new job opportunities. Furthermore, the Capital Contribution of the project (over 6 years) will amount to approximately R290 000 000 million (excluding the cost of the RO Plant) which is to be circulated into the local and national economy. WPP has also been operating in the St Helena Bay community for more than a century with numerous social responsibility initiatives being undertaken. The most notable contribution is an on-site clinic with a registered nurse where free primary health care (including medication) is provided to all employees, their spouses and children. The financial contribution towards this initiative amounts to approximately R1,2million annually.

2.1.4 General Impacts

These 'general impacts' are considered insignificant in the case of this application and where applicable are dealt with automatically through the implementation of THIS DOCUMENT or through the impacts already raised in the Marine Ecology Impact Assessment i.e Marine Fauna and Avi-Fauna.

Dust

The contractor shall take appropriate measures, to the satisfaction of the ECO to minimise the generation of dust and mud on the site, by supplying suitable stabilisation (such as mulch or straw stabilisation) for all cleared ground. Watering of exposed working areas may be considered for the

control of dust during windy conditions, although great care must be taken that this does not result in excessive run- off, and erosive action. Furthermore, no potable water may be used in this regard.

Noise

Noise impacts should be limited due to the isolation of site and the nature of the existing activities being undertaken on site.

Visual

The activities are in keeping with the activities being undertaken within the site but are also in keeping with the surrounding land use and sense of place within the area. The majority of the site is developed and the portion of the site on which some of the proposed expansion infrastructure will fall was also developed. Furthermore, due to the nature of the activities undertaken on site the site is completely fenced (except for the harbour and the large parking area) and security access is strictly controlled. A vibracrete wall (with wire on top) runs along the western side of the property from the sea up to the Main Road and along the Main Road up until the access West Point.

The site is already developed, and the nature of the activity revolves around upgrades and additions to the existing facility on a site zoned *Fishing Industry Zone* that is in keeping with the surrounding sense of place of St Helena Bay and other similar Fish Factories within the area.

Fauna

According to the DEA Screening Tool the animal species theme map indicates the majority of the site as LOW sensitivity. As described throughout this report the site is largely developed, located within the Urban Edge and is earmarked, zoned and being utilized for Fishing Industrial purposes. The proposed expansion is on previously disturbed and factory related operational areas with no “greenfield” areas being involved. The site is completely fenced (except for the harbor and the large parking area) and security access is strictly controlled. A high vibracrete wall with wire on top runs along the western side of the property from the sea up to the Main Road and along the Main Road up until the access to WPP from the Main Road. The Faunal Impact in terms of the site is therefore considered LOW to negligible.

Avi-Fauna

According to DEFFs Coastal Viewer Tool WPP is not situated in a SANBI Important Bird Area or Important Bird Corridor with the closest being almost 3kms away. The Tool does indicate the presence of the Afrian Black Oystercatcher along the seashore/ coastline (as it does for the majority of the Western Capes coastline). The African Black Oystercatcher would breed in November-January. These birds are found living on rocky, sandy and mixed rock and sandy coasts along the mainland and islands, and to a lesser extent, in estuaries and lagoons. Nests are simple shallow holes in the ground excavated in sandy soil, lined with rocks and shells. If the ground is too hard to dig into, shells and rocks are placed by parents around the rim of the nest. The nests are typically placed near the high-water mark, concealed by rocks or kelp.

However, as indicated above the site is already developed, and the nature of the activity revolves around upgrades and additions to the existing facility which are in keeping with the historical, current and future vision of the site and St Helena Bay in general (Fishing Industry). The only activity

that would fall on/ below the HWM and potentially disturb any African Black Oyster Catchers would be the proposed extension of the Discharge Pipelines. This proposed activity would however be short term and will be undertaken in accordance with the mitigation measures proposed by the Marine Specialist. The Marine Specialist furthermore states that "There are no seabird colonies of particular concern in the vicinity of the proposed expansion."

Archaeology & Cultural Heritage

The Archaeological and Cultural Heritage theme in terms of the Screening Tool is indicated as having a LOW sensitivity. As mentioned, the site is considered developed and the nature of the activity revolves around upgrades and additions to the existing facility. The site is located inside the Urban Edge, is earmarked and zoned for industrial purposes and the proposed upgrades are in keeping with the existing and historical sense of place of St Helena Bay. No impacts would result from the proposed activity on any archaeological or cultural heritage resources and the National Heritage Resources Act will not be triggered as such a NID to HWC is not required. The Vasco da Gama freshwater pit exist on the site, but it is fenced and regarded as a 'no-go' zone. No development is intended adjacent or withing close vicinity to this site.

2.2 IMPACT MITIGATION:

2.2.1 Atmospheric

Considering the modelled concentrations due to the plant's emissions and the potential low cumulative impacts, the following mitigation measures are proposed:

- Utilise LSO for Phase 2A, when utilising both HFO boilers.
- Increase the PS2 stack height to a maximum of 30 m ~~23 m~~.
- For Phases 3 and 4 utilise only one HFO boiler with normal HFO fuel. Alternatively, if two HFO boilers are to be utilised then only LSO with a maximum sulphur content of not more than 1.5% is to be used.
- Monitor TVBN as per the Standard operating procedure to ensure that fish material adheres to the limits and to prevent odors.
- Install automated H2S stack monitoring and dosing to prevent H2S exceedances. This will allow for the monitoring of emissions and management of odors. The installed monitor must continuously track and log H2S levels to ensure that emissions stay below the AEL H2S limit. The device must have alerts and automated dosing functionality to prevent H2S levels from exceeding the AEL limit.
- Trimethylamine (TMA) odors in fish are primarily caused by the breakdown of trimethylamine oxide (TMAO), a compound naturally found in fish tissues. To curtail TMA formation, it is imperative to minimize the storage time of raw fish material prior to processing and maintain low storage temperatures to inhibit microbial activity. The Fish Meal Plant's production rate will be increased to allow for streamlined operation and minimize fish storage time in the pits. The current dryer is being replaced by a larger model in the Fish Meal Plant to increase the processing rate. The sugar press is also being replaced by a fish press.
- The outside conveyor from the fish meal plant to the bulk store is being covered to encapsulate potential odors and to prevent dust pollution.
- Strictly adhere to the 'Demersal Fish Trimming Handling' Standard Operating Procedures (SOP) – Annexure 7.

2.2.2 Marine Ecology

Mitigation measures recommended to reduce the severity of the impacts during the construction phase are as follows:

- Limit duration of construction activities in the coastal zone and marine environment.
- Keep construction equipment within the developmental footprint, and do not disturb sediment outside this area.
- Constrain spatial extent of impacts to the minimum required.
- Rehabilitation of the disturbed area must be conducted immediately following construction by removing all artificial materials not related to the permanent fixture of the pipeline.
- Inform all staff about sensitive marine habitats.
- Intentional disposal of any substance into the environment is strictly prohibited, while accidental spillage must be prevented, contained and reported immediately.
- A rigorous environmental management and control plan must be implemented (including procedures for remediation).
- All fuel and oil is to be stored with adequate spill protection.
- No leaking vehicles are permitted on site, and appropriate spill kits are to be maintained on site for the duration of construction/decommissioning activities.
- All hazardous substances must be accompanied by a permit, a hazard report sheet, and may only be handled by suitably trained operators.
- Subject mobile equipment, vehicles and power generation equipment to noise tests at commencement and periodically throughout the construction phase.
- Reduce, reuse, recycle.
- Suitable waste handling and disposal protocols must be clearly explained and sign boarded

Mitigation measures recommended to reduce the severity of the impacts during the operational phase are therefore as follows:

- Outfall A effluent discharged onshore should be cooled prior to discharge, noting the maximum temperature modelled here that meets WQG (i.e. a maximum effluent temperature of 3.5°C above ambient). Alternatively, Outfall A should be extended to discharge subtidally at a depth of at least 2 m to permit discharge of effluent 20°C above ambient.
- Continuous monitoring of temperature at the edge of the Outfall A RMZ must be undertaken.
- Outfall B effluent must be discharged via the pipeline configuration modelled (i.e. at 7.2 m depth, 500 m from shore, via a 25 m staged diffuser, with port diameter of 0.2 m.)
- Outfall B effluent must be treated prior to discharge (through in-line treatment like filtration/membrane technology) to reduce total suspended solids and organic matter loading. It is acknowledged that the maximum modelled end of pipe concentrations required to meet WQG at the edge of the RMZ are significantly lower than the prescribed CWDP limits. However, effluent treatment, combined with a deeper outfall, will improve the current situation, and should be encouraged. Gradual improvement in effluent quality over time towards the maximum modelled concentration limits (65 mg/L for TSS and 26 mg/L for ammonia-N at least) should be encouraged. Achieving these maximum modelled pipe end limit concentrations will result in the impact being assessed as of 'low' significance (rather than the current 'medium' with mitigation).
- Should end of pipe oxygen levels fall below 4 mg/L more that 20% of the time, the effluent should be aerated prior to discharge.

- Intake velocities should be kept below 0.15 m/s to ensure that fish and other organisms can escape the intake current.
- Intake pipes should be designed to ensure “suction” occurs horizontally, rather than vertically, to allow pelagic organisms such as fish and larvae, etc. to escape. This can be achieved through the use of a footer plate below the intake pipe end, or with the use of a t-pipe. Intake U is preferential over intake V.
- Monitoring of end of pipe concentrations must be conducted and operations adjusted should adverse effects be detected by the monitoring program.
- A water quality monitoring programme must be implemented to validate the predictions of the hydrodynamic modelling study and monitor constituents of the effluent (specifically, TSS and ammonia-N) to ensure compliance with published water quality guidelines.
- Ecological monitoring must be conducted in the vicinity of Outfall A to detect potential changes in rocky intertidal and subtidal community structure as a result of the discharge.
- Ecological and water quality monitoring must be conducted in the vicinity of Outfall B to detect potential changes in subtidal community structure as a result of the discharge.
- Intake structures should be positioned away from sensitive environments or areas with high species diversity or abundance, like rocky reefs, and should not draw in water from the upper meter of the water column.
- Implement the proposed WMP. Discharge must meet the Scenario 4 effluent quality (Table 4-1 of the Marine Impact Assessment (2026) – inserted below).
- The diffuser must be angled towards the water surface to enable water to jet upwards into the water column.

Table 4-1. Combined Outfall effluent treatment scenarios (average).

Parameter	Treatment scenario			
	Scenario 1: Worst Case	Scenario 2: 2022 Average	Scenario 3: Semi Treated	Scenario 4: Treated
Without RO plant operation				
NH_3 (mg/L)	97	24	7.5	3.7
COD (mg/L)	6 219	1 613	194	19
FOG (mg/L)	155	68	33	3.7
TSS (mg/L)	1 944	544	272	39
Turbidity NTU	389	194	97	23
Salinity (ppt)	36.9	33.1	33.1	33.1
With RO plant operation				
NH_3 (mg/L)	92	23	7.4	3.7
COD (mg/L)	5 899	1 530	184	18
FOG (mg/L)	147	65	31	3.7
TSS (mg/L)	1 848	521	263	41
Turbidity NTU	369	184	92	22
Salinity (ppt)	36.5	32.8	32.8	32.8

Mitigation measures recommended to reduce the severity of the impacts during the operational phase specifically for the RO Plant:

- Construction and operation must occur in line with the results of the relevant dispersion modelling study to ensure that the effluent plume does not exceed that modelled, specifically with regards to depth of discharge, flow rates and effluent composition (Current Outfall B: maximum salinity of 36 PSU, maximum temperature of 19°C and discharge rate of 0.0956 m^3/sec; Offshore Outfall B: maximum salinity of 36 PSU, maximum temperature of 30°C and discharge rate of 0.1882 m^3/sec).
- Discharge via the current Outfall B requires that the maximum pipe end temperature be limited to 19°C. Alternatively, a pipe end temperature of 30°C can be maintained if Outfall B is moved offshore as determined by Wright et al. 2021 (i.e., at 7.2 m depth, 500 m from shore, via a 25 m diffuser).
- TSS levels in discharge effluent should be reduced prior to discharge through in-line treatment like filtration/membrane technology noting:
    - a concentration of 15.5 mg/L is required to meet WQG at the 100 m RMZ under current operations for discharge via current Outfall B.
    - a concentration of 57 mg/L is required to meet WQG at the 100 m RMZ under expanded operations for discharge via offshore Outfall B.
- Aeration of the effluent prior to discharge is required if sodium metabisulfite will be used.
- Strong acidic and alkaline solutions must be neutralised prior to discharge.
- Restrictions on the discharge of chemicals used during the Clean-in-Place (CIP) process should be implemented (for example, there must be continual release of small volumes of chemicals used during the CIP process with the brine discharge to allow for maximum dilution before release into the environment).
- A water quality monitoring programme must be implemented to validate the predictions of the hydrodynamic modelling study and monitor constituents of the effluent to ensure compliance with published water quality guidelines.
- Monitoring of end of pipe concentrations must be conducted and dosing levels should be adjusted if adverse effects are detected by the monitoring program.

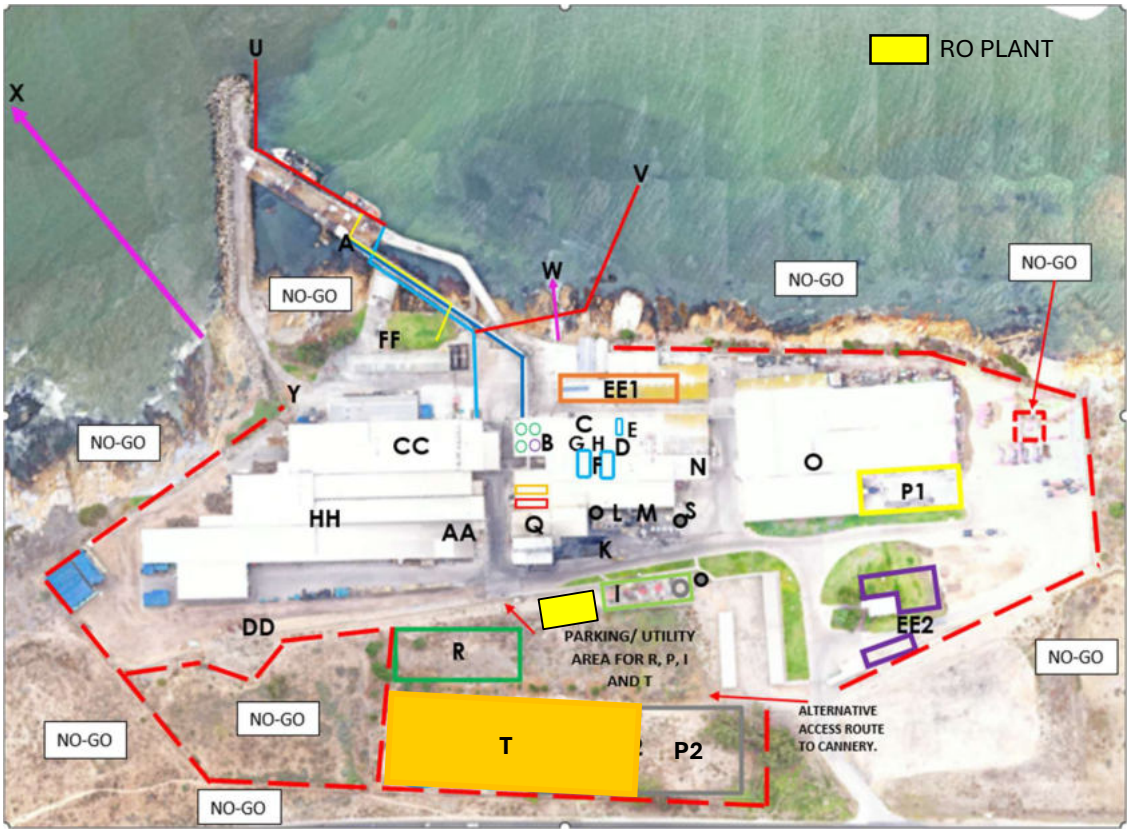


Figure 2: Shows the SDP as well as the environmental sensitivities indicated by the red dash lines and the no-go indications.

SECTION 3: KEY STAKEHOLDERS

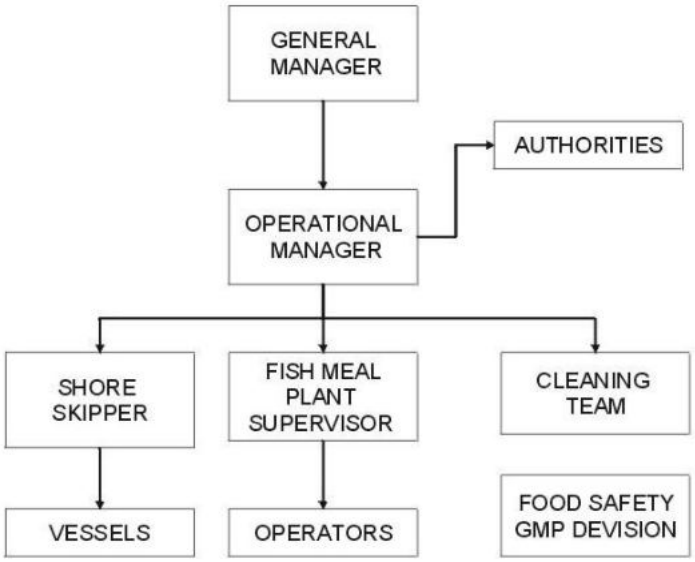


Figure 3: Organogram & Responsibilities at WPP.

3.1 THE COMPETENT AUTHORITY

In terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998) the Department of Environmental Affairs and Development Planning (DEA&DP) is the competent or lead authority in this instance. This Directorate has overall responsibility for ensuring that the Applicant complies with the conditions of its EA as well as this EMPr once approved. During the construction (and operational phases) of the EMPr the lead authority will have the following role to play:

- The authorities may perform random controls to check compliance.
- Review Monitoring and Audit reports, if required.
- Whenever necessary, the authorities are to aid in understanding and meeting the specified requirements.
- Recommend suitable corrective measures are undertaken by the Applicant where non-compliance has been reported.
- Enforcing compliance by the Applicant

Furthermore, in terms of the National Environmental Management: Integrated Coastal Management Act (Act 24 of 2008) the Department of Forestry, Fisheries and the Environment: Oceans and Coast (**DEFF: O&C**) are the Competent Authority in terms of the Coastal Waters Discharge Permit. In terms of the National Environmental Management: Air Quality Act (No. 39 of 2004) the West Coast District Municipality (**WCDM**) is the Competent Authority in this regard.

DEA&DP, DEFF and WCDM will review the EMP if amendments are made and on approval, they may have the following role to play:

- Review and monitor report.
- Review whether there is compliance by WPP.
- Perform random control checks.

3.2 OPERATIONAL MANAGER (OM)

An operations manager must be identified by WPP to assume overall responsibility for managing project operations, contractors and for ensuring that the environmental management requirements are met. All decisions regarding environmental procedures and protocol must be approved by the Operational Manager, who also has the authority to stop any activity in contravention of the EMP. The Operational Manager is responsible for:

- Reporting to authorities
- Regulate catches to ensure maximum capacity of plant is not exceeded
- Report to General Manager
- Handling complaints from respondents

The Air Quality team include, but is not limited to:

- General Manager
- Operations manager
- Quality and systems (ECO)

3.3 ENVIRONMENTAL CONTROL OFFICER (ECO)

A suitably qualified individual will be designated to fulfil the role of Environmental Control Officer, to ensure and oversee the implementation of the EMPr in its entirety on site.
The role of the ECO is essentially seen as an interactive one which involves site visits approximately once a month at the start of construction. Site visits may need to be less frequent during certain stages of development, depending on the sensitivity of the area in which construction is taking place.

The responsibilities of the ECO or designated person during the construction phase of the project will include:

- To educate and raise the awareness of the Contractors and their staff as to the sensitivity of the site and to target responsible individuals as key players for environmental education, to facilitate the spread of the correct environmental attitude during the contract work.
- To review method statements and to determine the most environmentally sensitive options of modus operandi for the development tasks.
- To oversee the implementation of environmental procedures set out in this document.
- To attend site contractor's and report on environmental issues.
- To maintain an open and direct channel of communication with the RE, who will be immediately aware of the actions of the ECO at all times, especially as they relate to implementation policy and corrective actions as detailed in this document.
- To take immediate action on site where clearly defined no-go areas are violated, or in danger of being violated.
- To keep an up-to-date record of works on site, as they relate environmental issues.

- To be contactable by the public regarding matters of environmental concern as they relate to the development.

The responsibilities of the ECO during the operational phase of the project will include:

- To review method statements and to determine the most environmentally sensitive options of modus operandi for the operational tasks.
- To oversee the implementation of environmental procedures set out in this document.
- To report on environmental issues.
- Liaison with the Operational Manager, contractors and authorities.
- Complication of a maintenance routine, with tasks and budget and timing factors.
- Compilation of a monitoring plan.
- Monitoring of contractors, the OEMP and the monitoring plan.
- Conflict resolution.
- Hold monthly meetings and obtain specialist environmental input if required.
- Notify the competent authorities of any incidents on the site.
- Maintain a complains register.

3.4. ENVIRONMENTAL AUDITOR

Where required by the EA an environmental auditor will be appointed by the Applicant. The auditor will be an independent environmental consultant. The auditor will carry out a compliance audit based on the EA and of all of the activities being undertaken.

SECTION 4: IMPACT MANAGEMENT OUTCOMES AND ACTIONS

This section includes a description of proposed impact management actions, identifying the manner in which the impact management outcomes will be achieved and, where applicable, include actions to avoid, modify, remedy, control or stop any action, activity or process which causes pollution or environmental degradation & comply with any prescribed environmental management standards or practices.

4.1 PRE-CONSTRUCTION MANAGEMENT PLAN

The pre-construction or planning management plan is to be used as a guide during the planning, design and detailing of the development activity.

4.1.1 General Requirements:

A. Contractual Communication Procedures on Site

One book will be kept on site for the purposes of recording on-site instructions and as a general record of environmental issues. The diary must be kept for a minimum of two years after the activity is completed for the relevant authority to review if deemed necessary. A photographic record of the before and the after construction will be kept for visual reference purposes. The book will consist of two sections:

Environmental Site Instruction Section

The Environmental Site Instruction Section will be used for the recording of general site instructions relating to the protection of environmentally sensitive or potentially impacted areas or features on the site, by the ECO, to facilitate the issuing of the site instruction by the RE.

Site Diary Section

The purpose of this section will be to record the comments of the ECO as they relate to activities on the site, any problems encountered, or comments or complaints received from the public about works from the site.

This book is to remain on site at all times and is to be made available for monitoring purposes by the local authority as required.

Monitoring Section

The purpose of this section will be to record the comments of the ECO during Construction and the O in relation to the effective implementation of the waste, recycling and renewable energy measure used during the life cycle of project.

B. Communication/Contractual Network

There is to be continual communication between the RE and Contractor, as well as the RE, Site Manager and the ECO. The ECO will advise the RE on factors relating to the EMP and all environmental matters on site.

The ECO is empowered to order the Contractor immediately to cease any activities or operations that are required to be stopped as a matter of urgency to prevent serious adverse environmental impacts or potential impacts on the site or any of the adjacent properties or areas outside the boundaries of the site. The ECO shall without delay report any such actions to the Project Manager. The suspension will be enforced until corrective action has been taken, with no extension of time for such delays. In such a case, all costs are to be borne by the Contractor.

C. Method Statement Format

For any activity the Contractor is requested to submit a method statement for comment by the ECO, the format should clearly indicate the following:
What- a brief description of the work to be undertaken;
How- a detailed description of the process of work, methods and materials;
Where- a description/sketch map of the locality of work; and
When - the sequencing of actions with due commencement dates and completion date estimates.

The Contractor must submit the method statement to the ECO prior to the start of any construction activity. Work may not commence until the comments of the ECO have been received, and taken into consideration. The ECO must communicate and inform the A when clearance of the ground surface and the bulk earthworks will commence.

D. Programming of Construction Events

The ECO must be supplied with a detailed programme of all construction events to allow for proper monitoring on site. Any amendments to the program of construction events for any reason must be forwarded to the ECO.

E. Bylaws and Regulations

All national and provincial laws and regulations, as well as all local authority bylaws and regulations which apply to the development of this site are to be adhered to.

F. Protection of sensitive features, no-go areas and operational areas

Sensitive and no-go areas within the development area as identified by the ECO or Site Manager will be fenced off prior to the start of construction on site, to ensure minimum disturbance to these areas or ongoing operations during construction activities. (This is to ensure a quality site and un-interfered operation after construction). The proposed no-go areas will help security on site.

<u>Adjacent sea area</u>

No effluent from the site during the construction phase will be allowed to enter the sea, which is adjacent to the site. All construction water and run off from the site will be channelled onto selected areas. Flow into the sea will be avoided.

- Limit duration of construction activities in the coastal zone and marine environment.
- Keep construction equipment within the developmental footprint, and do not disturb sediment outside this area.
- Constrain spatial extent of impacts to the minimum required.
- Rehabilitation of the disturbed area must be conducted immediately following construction by removing all artificial materials not related to the permanent fixture of the pipeline.

- Inform all staff about sensitive marine habitats.

Reptiles, birdlife and mammals

Due to the fact that there are vegetated areas on and next to the site reptiles, birdlife and mammals occur and move through the system. Any living organism needs to be respected during the construction phase and should not be killed or run over. Reptiles like snakes need to be removed by the ECO (or someone competent to do so) to a safe area in the vicinity. Bird nests should not be disturbed and unless impossible; the ECO (or someone competent to do so) should take the necessary action to remove the nest.

Heritage Resource:

The Vasco da Gama Water Pit is fenced off and considered a no-go area.

Archaeological remains

- If any heritage remains are found Heritage Western Cape (HWC) needs to be informed;
- If heritage remains are disturbed it should be left and demarcated for inspection by HWC;
- If any archaeological remains (including but not limited to fossil bones and shells, coins, ceramics, antique, marine shell heaps, stone artefacts and bone remains) are discovered HWC need to be notified; and
- If any graves or human remains are discovered HWC need to be notified.

G. Visual Impacts

The visual impact of the development is limited due to the nature of site. The development will consist of upgrading and extending the existing fish meal processing facility. The visual impact will therefore be minimal.

H. Noise Impacts

The contractor must take appropriate measures to limit the impact of unreasonable noise from construction activities. Appropriate measures should include holding discussions with affected parties to determine if there are times of the day when noise is less likely to be a problem, and restricting working hours as far as reasonably practical. Noise impacts should be limited due to the isolation of site.

I. Cleanliness of roads

The Contractor must ensure that construction vehicles do not spill or drop any construction materials (sand, cement, debris, etc) onto public or private roads. If this should occur, it is the responsibility of the Contractor to ensure that the roads are suitably cleaned.

J. Safety

The Contractor is to appoint a safety steward, who will be responsible for safety of the labour force, construction activities and handling emergency situations on site during construction hours. All contractors and their staff will have to undergo safety induction by WPP Safety Office before commencement of any work.

K. Fire Control

The contractor must take appropriate measures to guard against accidental fire, and it will be presumed that any bush fire which starts on the site, or within 100m thereof during the construction period would be the responsibility of the developer and incur legal liability thereof.

Fire beaters are to be kept on site, and easily accessible at all times, and not locked away. In the case of any welding, grinding or other “hot work”, a fire extinguisher is to be readily available to extinguish any fire that may result from these activities.

All excavation equipment should carry fire extinguishers, and all staff should be able to use them if required.

No open fires may be lit anywhere on the construction site, except at locations approved by the ECO and Site Manager. The burning of refuse on site as a means of disposal will only be allowed by prior arrangement.

L. Emergency

All accidents and emergency situations are to be reported to the ECO and Site Manager, and full details included in the monthly environmental report.

Fire

In the case of a fire occurring on site, the ECO and safety steward are to be notified immediately. If fairly localised, and effort should be made to extinguish the fire immediately, and if required, the assistance of the local fire department should be sought by the safety steward.

First Aid

The Contractor must provide and maintain a suitable first aid kit on site, with a member of staff suitable qualified in first aid on site during working hours, in accordance with the Occupational Health and Safety Act.

M. Public Complaints

All public complaints received are to be registered by the ECO or Site Manager and addressed immediately. Public complaints and responses are to be recorded in the Site Diary and included in the monthly environmental report by the ECO.

4.1.2 Site Establishment Requirements

A. Site Definition and Demarcation

Prior to any works commencing on site, a site survey and the placement of demarcation pegs must be undertaken. Peg coding is to be communicated to the Contractor and all other relevant parties as they may be identified.

The development site must be clearly demarcated with hazard tape to the satisfaction of the ECO. Once this has been done, all works, including stockpiling of construction and waste materials, are to be strictly confined to the demarcated areas.

Any detailed construction of any of the factory needs to be contained within the boundaries of the building zone.

B. Environmental Awareness Training for Site Personnel

All contractor teams involved in work on the development are to be briefed on their obligations towards the environmental controls and methodologies. The briefing will usually take the form of an on-site talk and demonstration by the ECO. The education program should be aimed at all levels of management within the Contractor team.

The environmental awareness education program should commence with entry onto the site, prior to any construction activities taking place by each team, and is likely to be an ongoing process. All personnel are to be made aware of the details of the EMP which will be applicable to them, in the languages of the site staff. Contractor teams must also be aware of penalties issued by the ECO in terms of environmental conduct on site, as well as safety and emergency procedures to be followed. Posters in all recognised languages about the do's and don'ts will be erected at the contactor camp.

A regularly updated record is to be kept of all personnel attending the Environmental Awareness training sessions.

C. Contractor's Camp

There should be a single Contractor's camp for use by all contractors and subcontractors, for the provision of staff facilities as well as the storage of all materials and equipment. The most suitable for the Contractor's Camp should be determined by the Site Manager and ECO.

D. Toilet Facilities

Suitable sanitary facilities are available on site. The Contractor should ensure that ablutions are restricted to the sanitary facilities only. Where chemical toilets are provided, the Contractor should ensure that they are kept in hygienic condition and emptied on a regular basis.

Care must be taken that no spillage occurs when chemical toilets are cleaned, and their contents are properly stored and removed off site. A contingency plan for spills must be supplied by the contractor, and approved by the ECO. Toilets should be located where their use would result in minimal impact on the environment, and may not be in areas of running or standing water during winter, and must be secured to prevent them from blowing over.

E. Fencing of Sensitive Features no-go areas and operational areas

Fencing should consist of 1.8m long timber stakes (25 * 25 mm) at 2m centres, driven approximately 600 mm into the ground, supporting a wire mesh fence, or as otherwise approved by the ECO. All fencing is to be erected prior to construction works commencing on site, and are to remain in position and in good repair for the duration of the works. No materials, rubble or equipment is to be stored or stockpiled within the fenced areas, and no- one should enter these areas. Any deviations from these specifications are subject to the approval of the ECO.

4.1.3 Waste and Energy Guidelines

During the lifespan of human habitation people generally waste on a daily basis. Examples of additional wastage are excessive electricity consumption for lighting and air-conditioning and excessive water usage.

A. Sustainable Building Guidelines

A sustainable building is not something that requires huge resources or great expertise to develop. With a little knowledge much can be gained at no extra initial costs, resulting in a more environmental friendly and healthier living space, and with much lower operating costs. Some choices cost more up-front, but pay for themselves over the life of the building.

- Make sure that the proposed buildings and spaces (workshops) are "right sized" (avoiding wasted accommodation and energy consumption). *The savings can fund improved features and energy efficient materials, fittings and performance.*
- Use 'local' as far as possible. *Local materials, knowledge and skills will save transport costs and is often matched to local climatic conditions and assist develop/sustain of local economics.*
- Consider using standard building material sizes. *When, where and if feasible to avoid waste and extra transport with the removal of waste from the building site*.
- Indigenous vegetation and planting is best suited to the local soil and climate. *Deciduous trees can help shade buildings in summer and allow sunlight to warm spaces in winter, reducing the need for heating and cooling.*
- Be sensible rather than fashionable. *Avoid using fashionable trends when selecting finishes and other aesthetic choices because these often quickly look tatty and tardy and then requires refurbishing. Rather choose materials and finishes that ensure healthy, comfortable buildings which can be economically cleaned and maintained. Avoid toxic materials and those with high levels of embodied energy (Those that require large amounts of energy to manufacture, transport and construct).*
- Water saving appliances is becoming generally available. *Dual-flush toilets, low-flow showerheads and tap aerators are inexpensive and save huge amounts of water over their lifetime.*
- Good sealing of doors and windows. *Those ensure optimum control of conditions in individual rooms or particular spaces in the building.*
- Investigation of energy efficient, non-toxic insulation materials. *It is important, such as treated organic fibre (waste timber) chip, recycled paper and possibly polyester.*
- It often makes sense to employ competent professionals familiar with technology and practice for sustainable buildings. *It saves having to upgrade poorly performing buildings and pay for extra heating, lighting, air conditioning, water heating and so on.*

B. Materials

Material used during construction or in the life-cycle of the project should be focused on renewable and recyclable elements:

- Select building materials for durability to minimise maintenance or replacement;
- Use standard materials to increase the potential for re-use and re-cycling;
- Materials should be sourced locally where possible; and
- Use recycled material where possible.

C. Water Measures

Water needs to be managed according to water saving principles:

- Capture and use rainwater from gutters and roofs into rainwater storage tanks for individual structures;
- Most external taps to be linked to rain storage tanks to reduce the use of potable (drinkable) water to be used for activities such as gardening and washing;
- Washbasin and shower taps to be fitted with flow reduction devices, aerators and motion sensors to ensure water conservation and prevent that they can be left running;
- Toilets should be fitted with reduced flow or preferably a duel flush system;
- All hoses to be fitted with trigger gun spray nozzles to limit wastage;
- Dry sweeping of areas first to limit water consumption;
- All drains fitted with grease traps which are included in a maintenance schedule;
- Watering hoses fitted with trigger gun spray nozzles;
- Taps around the fish processing facility to be fitted with locks to prevent unauthorised use and included on a maintenance schedule to detect and repairs leaks;
- High pressure hoses to be used wherever possible to reduce water consumption;

D. Energy Efficiency

Use passive solar design to reduce energy consumption and thus the need for extra equipment such as air conditioning and to ensure comfortable accommodation:

- North orientation to ensure that as many well-used spaces face north as possible. Sun control is more difficult on East and West facing windows. South facing windows can capture good, reflected light from the sky and elsewhere, but very little solar energy.
- Good insulation in the roof and walls to keep the inside temperature warm in winter or cool in summer and reduce the use of air conditioners.
- Suitable roof overhangs to let in the lower winter sun but shade from the hot-summer sun.
- Sensible fenestration (windows) – let in the light and catches the winter sun, but not too much window area so that warmth or cool cannot be retained inside when needed. They can be combined with shading and reflecting devices - such as overhangs, screens, shutters, awnings, trees, planting, different glass types - to control the amount, quality and time of daylight entering the building.
- Suitable ventilation for fresh air and cool breezes – so that rooms can be ventilated as suitable using airbricks, opening windows or forced ventilation.
- Natural light used wherever possible during the day in preference to artificial light.
- Energy saving bulbs in all structures, alternatively use low voltage or compact fluorescent lights.
- Use energy saving geysers.
- Solar glazing or energy efficient windows to reduce the need for air conditioning.
- Maximise the use of solar heating.
- Cold rooms and freezers fitted with counter-weight doors to ensure that they cannot be left open unnecessarily.

4.1.4 Documentation

- Authorisation from the WCDM regarding the Variation Application for the AEL.
- Authorisation from DEFF regarding the amended/ renewal of the CWDP.

- Approved Building Plans from the Saldanha Bay Municipality.

4.2 CONSTRUCTION MANAGEMENT PLAN

All building materials are to be prepared at a batching plant identified by the Site Manager and approved by the ECO, or within the Contractor's Camp, to enable the effects of cement and other substances, and the resulting effluent and building waste to be more easily managed.

4.2.1 Material handling and storage

A. Fuels and hazardous materials

Fuels and flammable materials are to be stored in suitably equipped storage areas, inside the Contractor's Camp. These areas shall comply with general fire safety requirements. Impervious materials are to be used in these storage areas to prevent contamination of the ground in the event of spillages or leaks. Quantities of fuels and hazardous materials stored on site should be appropriate to the requirement for these substances on site. All fuel and oil is to be stored with adequate spill protection.

Bulk fuel depots are to be placed within hardened bund areas; bunds are to have a holding capacity equal to 110% of the largest fuel container. The Contractor is to ensure that he is aware of the effects of all substances on staff and the environment, and the correct action to take in the case of any incident involving these materials.

All hazardous substances must be accompanied by a permit, a hazard report sheet, and may only be handled by suitably trained operators.

B. Stockpiles

The Contractor must identify sites for stockpiling building materials, and excavated material, which are to be marked on a plan, and approved by the Site Manager and ECO. Stockpile sites should preferably be in areas with a gentle gradient. Stockpiles should be stabilised if required.

4.2.2 Effluent/ Waste Management

- Reduce, reuse, recycle.
- Suitable waste handling and disposal protocols must be clearly explained and sign boarded

A. General Wastes

Waste management during the construction phase is the responsibility of the Contractor. The Contractor must establish a system acceptable to the ECO for control during execution of the works. Refuse refers to all construction debris (cement bags, rubble, timber, cans, nails, wire, spilt bitumen, glass, packaging, plastic, organic matter, etc.). Refuse generated during the execution phase of the works should be stored in an appropriate area on site, protected against wind dispersion and removed on a regular basis for disposal of at a permitted disposal site. No burning or burying of refuse on site should be allowed. Refuse bins must be water tight and wind- proof.

B. Recycling of Decommissioned equipment

All bulk equipment needs to be removed by a specialist contractor. It needs to be reduced by cutting the components into smaller pieces to be recycled as scrap metal.

C. Eating areas

If construction workers are allowed to eat on the development site, other than within the Contractor's Camp, the Contractor shall provide adequate refuse bins at all such places, and ensure that they are used. Bins are to be cleared on a daily basis.

D. Discharge of construction water

All cement effluent from mixer washings and run- off from batching areas and other work areas shall be contained in suitable sedimentation ponds. Sedimentation ponds which must be suitably lined to prevent contamination of the ground shall be allowed to dry on a regular basis to allow for solid material to be removed. The material must be disposed of in a suitable manner, depending on the nature of the material, and to the discretion of the ECO.

Care must be taken to ensure that no water from the construction site enters the sea adjacent to the site. Intentional disposal of any substance into the environment is strictly prohibited, while accidental spillage must be prevented, contained and reported immediately.

4.2.3 Maintenance of equipment

All mechanical equipment and work vehicles which may be kept on site are to be stored, serviced and refueled only in designated areas within the Contractor's Camp. Within these areas drip trays and other impervious materials, for example plastic or metal sheeting, are to be used to prevent contamination of the ground in any way.

No leaking vehicles are permitted on site, and appropriate spill kits are to be maintained on site for the duration of construction/decommissioning activities. Subject mobile equipment, vehicles and power generation equipment to noise tests at commencement and periodically throughout the construction phase.

The RE or ECO may order the removal of equipment that is causing continual environmental damage through noise pollution or by leaking oil/ diesel for example, until such equipment has been repaired.

4.2.4 Stormwater Management

A stormwater management plan including drainage measures for the construction phase and relevant method statements shall be presented to the ECO for approval before the start of any works.

The Contractor must take suitable measures to prevent erosion resulting from a diversion, restriction or increase in flow of stormwater caused by the presence of his own works, operations and activities to the satisfaction of the ECO.

The Contractor may need to construct a berm or similar control measures to prevent stormwater from running from excavated areas, stockpiles of waste and excavated material from flowing into adjacent sea. Any stormwater collected in such bund areas which contain oils, fuels, chemicals or other potentially harmful substances must be pumped out, collected in suitable containers and removed from site for suitable disposal.

4.2.5 Topsoil Removal and Stockpiling

Where services are to be installed, topsoil is to be removed from the work areas, stockpiled separately from subsoil, and must be stabilised within a day of stockpiling.

Stockpiles should be convex at the top to promote run-off, so that water is not able to accumulate and result in leaching of nutrients from the soil.

4.2.6 Erosion Control

Care must be taken at all times to prevent erosion of soil on the construction site. Should any erosion be detected on site, the ECO, RE or Site Manager must identify the cause of such erosion and ensure that the most appropriate method of mitigation or stabilisation is employed as soon as possible.

4.2.7 Dust Control

The contractor shall take appropriate measures, to the satisfaction of the ECO, to minimise the generation of dust and mud on the site, by supplying suitable stabilisation (such as mulch or straw stabilisation) for all cleared ground. Watering of exposed working areas may be considered for the control of dust during windy conditions, although great care must be taken that this does not result in excessive run-off, and erosive action. No potable water main be used for Dust Control, however sea water or stick water can be used in this regard.

4.2.8 Run-off

The Contractor should take appropriate measures to control run-off from the site onto adjacent property or the roadway or spillage of muddy water into the river. A designated representative of the Contractor shall take responsibility for ensuring that temporary stormwater routes are maintained daily. All runoff from the site should be channelled into the sedimentation ponds.

4.2.9 Earth Shaping

Any major earth works are to be restricted to the site boundaries. Bulldozer and heavy machinery operations are to be under constant supervision and must be aware of all the environmental obligations and penalties for transgressions, as they have the potential to inflict severe damage to the surrounding environment.

The use and excessive movement of heavy machinery should be avoided in particularly sensitive areas with great environmental value, or high erosion potential.

4.2.10 Trenching and Service Installation

The excavation of trenches for the installation of services should be undertaken in a phased manner where possible, to allow for trenches to stand open for a maximum of five days. Materials removed

from trenches must be stockpiled in a suitable position close by and should be stabilised if backfilling is not expected to occur within the following two days.

In the event of trenches becoming flooded, water is to be pumped into sedimentation ponds, and must not be allowed to flow onto adjacent agricultural land, or enter the natural water course.

Backfilling of trenches should be undertaken in a phased manner as services are installed, and under the supervision of the RE. The Contractors to ensure that fill material is replaced in areas from which it originated. The Contractor must account for the possibility of some settling occurring and compact filled areas to their approximate original density.

Service installation should be coordinated to prevent the undue reopening of trenches for the installation of additional services.

4.2.11 Construction Traffic Management

All construction vehicles carrying materials must use sheeting to prevent loss of loads due to wind or rain.

Movement of all construction vehicles on site is to be strictly limited to ECO approved haul and access routes, at all times. Should deviation from these routes be necessary for any reason, this is to be with the approval of the ECO, and under the supervision of the RE, who is to ensure that no significant environmental damage results.

4.2.12 Site Clean Up and Rehabilitation

The Contractor must ensure that all structures, equipment materials and facilities used on site construction activities are removed once the project has been completed. The construction site shall be cleared and cleaned to the satisfaction of the ECO. The Contractor will ensure that no building rubble is left behind in the area designated as pasture or any other area.

4.2.13 Environmental Control Sheets

A. Communications

TASK	MITIGATION AND ENVIRONMENTAL CONTROLS	ACTION
Site Diary and Site Instruction Book	● To be updated on a regular basis	ECO, Site Manager
Public complaints	● To be recorded, along with records of responses to them in the Site Diary	ECO/Site Manager
Environmental Awareness education	● Each contractor team to attend a training session prior to commencing work on site ● Record of members attending training sessions to be kept, and updated regularly	ECO

Method Statements	● Inform all staff about sensitive marine habitats. ● Method statements to indicate What, How, Where and When activities are to take place. ● Method statements for each relevant activity to be submitted to ECO prior to the start of that activity on site. ● Work is not to commence until method statement approved by ECO and Site Manager if necessary.	Contractor

COMMENTS/ UPDATE

RECORD OF PERFORMANCE

Acceptable		Details of Transgression	Responsible Party	Action Taken	Date
Yes	No				

B. Site Preparation

TASK	MITIGATION AND ENVIRONMENTAL CONTROLS	ACTION
Site definition	● Site survey to be undertaken, and site demarcated prior to any other works on site. ● Limit duration of construction activities in the coastal zone and marine environment. ● Keep construction equipment within the developmental footprint, and do not disturb sediment outside this area. ● Constrain spatial extent of impacts to the minimum required.	Surveyor Contractor
Fencing of sensitive features, no-go areas and operational areas	● No-go portions of the site should be fenced off prior to construction. Fencing to be as per specifications of section 4.1.2. ● All extra fencing materials are to be removed from site or stored in the Contractor's Camp. ● Fencing must remain in place for the duration of the work on site. If damaged, fencing is to be repaired or replaced immediately.	Contractor

Topsoil removal	● No dumping or stockpiling of any materials is allowed within fenced areas, and no- one should enter these areas. ● Topsoil to be removed from all work areas and stockpiled separately from subsoil. ● Stockpiles should be suitably shaped to prevent leaching of nutrients, and stabilised.	Contractor

COMMENTS/ UPDATE

RECORD OF PERFORMANCE

Acceptable		Details of Transgression	Responsible Party	Action Taken	Date
Yes	No				

C. Site Procedures

TASK	MITIGATION AND ENVIRONMENTAL CONTROLS	ACTION
Contractor's Camp location	● Contractor's Camp is located at the most suitable site as identified by the ECO and Site Manager.	Contractor
Toilet facilities	● Suitable toilet facilities are provided for all staff. ● Ablutions are to be restricted to the facilities provided. ● Toilets are to be kept in a hygienic condition and emptied regularly	Contractor
Working hours	● To be limited to between 07h00 and 18h00 on weekdays, and 07h00 and 14h00 on Saturdays.	Contractor
Cleanliness of public roads	● Construction materials spilled on private or public roads cleaned up.	Contractor
Fire control	● Required firefighting equipment is available on site, and in working order. ● No open fires are lit on site without approval of the ECO and Site Manager.	Contractor

Material handling and storage	● Fuels and hazardous materials to be stored in suitably equipped storage areas with adequate spill protection in the Contractor's camp. ● These areas shall comply with fire safety requirements. ● Impervious materials are to be used to prevent contamination of the ground in the event of spillages or leaks. ● No leaking vehicles are permitted on site, and appropriate spill kits are to be maintained on site for the duration of construction/decommissioning activities. ● All hazardous substances must be accompanied by a permit, a hazard report sheet, and may only be handled by suitably trained operators.	Contractor
Stockpiles	● Sites for stockpiling as identified by the Contractor are to be marked on a plan and approved by the ECO and Site Manager. ● Stockpiles must be suitably stabilised where necessary.	Contractor
Waste management	● All waste to be stored in an appropriate area on site and protected against wind dispersal. ● Waste to be removed on a regular basis for disposal at a permitted disposal site. ● No burning or burying of refuge on site is allowed. ● No waste to be dumped in sea ● Recycling of bulk decommissioned equipment ● Reduce, reuse, recycle. ● Suitable waste handling and disposal protocols must be clearly explained and sign boarded	Contractor
Discharge of construction water	● All runoff from batching plants, work areas and mixer washings to be contained in sedimentation ponds, which are suitably lined. ● Ponds must be allowed to dry out regularly, and solid waste removed and disposed of at a site approved by the local authority. ● Intentional disposal of any substance into the environment is strictly prohibited, while accidental spillage must be prevented, contained and reported immediately.	Contractor
Maintenance of equipment	● All mechanical equipment and work vehicles need to be stored. Serviced and refuelled at designated areas in the contractor's camp. ● Drip trays or impervious materials to be used to prevent contamination of ground.	Contractor
		Contractor

	● Subject mobile equipment, vehicles and power generation equipment to noise tests at commencement and periodically throughout the construction phase.	
Stormwater management	● Suitable measures must be in place to prevent erosion resulting from diversion, restrictions or increase in stormwater runoff. ● Measures must be taken to prevent stormwater from flowing from excavated areas or stockpiles to adjacent wetland. ● Stormwater containing harmful substances at be contained and removed from site. ● Stormwater channels are to be kept clear from soil and debris.	Contractor
Erosion control	● Erosion or stormwater damage resulting from Contractor's operations to be suitably repaired. ● Suitable stabilisation measures are to be implemented wherever works are taking place. ● Where erosion is detected, suitable mitigation methods are to be employed as soon as possible.	Contractor
Dust control	● All cleared ground is to be suitably stabilised to prevent dust. ● If ground is watered to prevent dust, care must be taken that runoff is not excessive, or erosive.	Contractor
Construction traffic management	● All construction vehicles carrying materials must use sheeting to prevent loss of loads due to wind or rain ● Movement of construction vehicles must be limited to approved haul and access routes.	Contractor
Site rehabilitation	● All structures, equipment materials and facilities are to be removed from site on completion of the project. ● Construction site shall be cleared and cleaned to the ECO's satisfaction. ● Rehabilitation of the disturbed area (associated with the discharge pipeline extentions) must be conducted immediately following construction by removing all artificial materials not related to the permanent fixture of the pipeline.	Contractor

COMMENTS/ UPDATE

RECORD OF PERFORMANCE

Acceptable		**Details of Transgression**	**Responsible Party**	**Action Taken**	**Date**
Yes	**No**				

D. Construction Activities

TASK	MITIGATION AND ENVIRONMENTAL CONTROLS	ACTION
Preparation of building materials	● Preparation of materials to be limited to a batching plant, or the Contractor's Camp	Contractor
Earth shaping	● Works to be restricted to within surveyed boundaries of the site. ● Bulldozer/ heavy machinery operators to be under constant supervision. ● Use and excessive movement of heavy machinery to be avoided in areas of environmental sensitivity or high erosion potential. ● Trenching to be undertaken in a phased manner.	Contractor
Excavation of trenches for service installation	● Trenches to stand open a maximum of 5 days for installation of services.	Contractor
Dewatering of trenches if flooded	● Water to be pumped to sedimentation ponds, not allowed to flow into adjacent land. ● To be undertaken in a phased manner as services are installed.	Contractor
Backfilling of trenches	● Fill material to be replaced in same work area from which it originated as far as possible. ● Fill material to be compacted to its approximate original density.	Contractor
Temporary stabilisation	● All areas in which service have been installed are to be stabilised as soon as possible after backfilling. ● Monthly maintenance checks to be carried out and remedial action implemented where necessary.	Contractor

COMMENTS/ UPDATE

RECORD OF PERFORMANCE

Acceptable		Details of Transgression	Responsible Party	Action Taken	Date
Yes	No				

4.3 OPERATIONAL MANAGEMENT PLAN

4.3.1 Operational Guidelines

Operational Guidelines should focus on mechanisms that need to be implemented by WPP. In order to ensure that they are in compliance with regulatory requirements in terms environmental legislation; an action plan will be followed to ensure that impacts relating to the production of fish meal will be minimised to expectable levels.

4.3.2 Operational Activities, Effects and the Management thereof:

	Component	Description	Specification	Management/Mitigating Action	Time frame	Responsibility
1	Vessels and Management of catching effort	Fishing vessels for catching and transporting fish for processing	a) Holds of vessels to be cleaned prior going to sea b) After first days' catch the remainder of the fleet, if relevant will be issued with tallies to ensure no more fish is landed than can be handled in a 24 hour period. Maximum of 30 hours – if 30 hours is exceeded to be declared as abnormal incident (Dumping of fish is illegal) c) Steel vessels 200 to 300 ton d) Wooden vessels 140 - 160 ton	a) Hold of vessels will be properly cleaned and sanitised after every landing to limit bacterial growth. b) Operations Manager in conjunction with Shore Skipper will be in contact with vessels to ensure the daily quota the plant can handle is not exceeded – to minimise physical and microbiological deterioration of fish. Vessels capacity to be limited to prevent excessive damage to fish to limit enzyme activity. Records kept as from September 2008	Daily when in operation	Skipper and Supervisor
2 A	Fish receiving system	a) Rubber conveyor belts conveying fish to holding tanks	a) Freshness of raw material b) Conveyor belts to be fully maintained; physically as well as cleaning and sanitising. (Maximum ton per hour: TBC)	a) After each discharge the system will be inspected for defects and will be properly cleaned and sanitised to prevent bacterial growth Records kept as from September 2008	Daily when in operation	Shore skipper
2 B	Fish receiving system	Sourcing of Raw Material (Demersal fish trimmings from Sea Harvest, Saldanha). Cold Chain Management at Source (Chilled/ Frozen). Records of cold chain must be	Offloading and On-Site Storage 1. Upon arrival: • Containers are offloaded into designated on-site cold storage. • The cold chain must remain uninterrupted. 2. The temperature of the cold storage is continuously monitored. 3. Internal transport to processing occurs via - Forklift, Hopper system, and/ or Conveyors. 4. Spill kits must be available during offloading. 5. In the event of a spill: • Immediate containment and clean-up must occur. • ECO must be notified. • Incident logged via internal reporting procedure.		Daily when in operation	Shift supervisors

		maintained and made available upon request. Transportation to Facility, weighed and Records kept.	Processing Requirements 1. Demersal fish trimmings: • May be blended with pelagic material; or • Processed separately. 2. Trucked-in raw material must be processed within 8 hours after removal from the site cold storage. 3. Records must reflect: • Date/time removed from cold storage. • Date/time processed. • Any issues or near-misses must be reported via the Alarm Report procedure. Cleaning Procedure 1. Containers and tubs used for transporting and storing demersal trimmings shall be cleaned: • In the designated cleaning area. 2. Cleaning may include: • High-pressure washing, • Removal of residues, 3. Cleaning must ensure: • No accumulation of residual biomass, • Prevention of decomposition,			
3	Fish holding tanks (pits)	a) Cement tanks for storage of fish and fish material from cannery to be processed	a) Holding tanks to be fully maintained pertaining to construction (intact and proper drainage), hygiene and sanitation. b) Oldest fish will be processed first c) Tanks will only be filled to specified capacity. d) Tanks: Capacity of Tanks - TBC e) Maximum tons per 24 hours: TBC f) Cover, keep painted for smooth surface and enclose tanks and clean regularly, improve cleaning methods	a) The tanks will be properly cleaned after production or at least on a weekly basis b) Tanks need to be painted regularly for smooth inners surface that will allow easy cleaning c) Tanks will be numbered for traceability and control on a “first in first out basis” d) Every tank will be filled to maximum capacity and properly emptied. e) All raw material must be processed during specific shift and no build-up of material allowed. f) Process be monitored every hour by operator manually and recorded on computer and hard copy filed	Daily when in operation	Shift supervisors

	Component	Description	Specification	Action planned	Time frame	Responsibility
4	Cooking Process					
	a) Cookers b) Dewatering Screens c) Presses d) Desludgers	a) Cooking of fish b) Straining of fish c) Straining of fish d) Liquids from dewatering and presses are desludged	Proper maintenance to be in place to ensure odours are limited and no leaks present. Process parameters: Not to exceed 4.2 bar; Temperature; minimum of 95°C for 15; maximum 20 minutes *Vapours and gasses from cooking process to be ducted and deodorised(scrubbed for further treatment*	Will be properly cleaned after production or at least on a weekly basis (monitored by cleaning team) Process be monitored every hour by operator Info monitored and recorded on hard copy	Daily when in operation to short term *Medium term*	Shift supervisor
			Grax (solids) to be added to the press cake for drying	Will be properly cleaned after production or at least on a weekly basis Process be monitored every hour by operator Records will be kept as from September 2008	Daily when in operation	Shift supervisor
5	Dryers	Drying of cooked fish at reasonably high temperatures	a. Temperature of flame dyers will be controlled and continuously recorded: Inlet temp: 300 - 450°C Outlet temperature of gas stream: 60 - 80°C b. Temperature of steam dyers will be controlled and continuously recorded: Inlet temp: °C Outlet temperature of gas stream: °C *Vapours and gasses from cooking process to be ducted and deodorised (scrubbed for further and disposed of into sea)*	Will be properly cleaned after production or at least on a weekly basis Process be monitored every hour as per SOP by operator and recorded on computer and hard copies filed after being checked by Operations manager Records will be kept as from September 2008	Daily when in operation *Medium term*	Shift supervisor
6	Cooling and Dry milling Cyclones & Dry milling	Cool down meal and reducing size of fish meal	Cooling takes place during the suction conveying of meal to mills. Fine material is to be prevented from reaching atmosphere by means of cyclone systems. Further cooling takes place during transport of meal to bulk store	Operation will be monitored and maintained to comply with safety specification. Weekly inspection and nozzles will be done. All information will be recorded Process be monitored every hour by operator Records will be kept as from September 2008	Daily when in operation	Shift supervisor

	Component	Description	Specification	Action planned	Time frame	Responsibility
7	Deodoriser (scrubber system)	1. To remove fish meal particles from drier and other relevant operations 2. To condensate steam and other condensable vapours from relevant processes	Spray nozzles to be operational/unblocked. Sea water intake; flow rate to be monitored to ensure effective operation – by measuring outlet steam temperature to be below 40°C; but not higher than 45°C;	This equipment is installed and functional Hourly visual checks of steam plumes Installed temperatures probes' readings will be taken every hour during operation. Will be done in accordance with SOP and hard copies filed.	Daily when in operation	Shift supervisor
8	Separator	Separating oil and stick water	Process is enclosed in tanks to limit emissions	Operation will be monitored and maintained to comply with specification. Process be monitored every hour by operator Records will be kept as from September 2008	Daily when in operation	Shift supervisor
9	Stick water plant	Concentration of stick water				
10	Scale area	Weighing of fish meal	Dust to be limited to acceptable levels	Operation will be monitored and maintained to comply with specification Process be monitored every hour by operator Records will be kept as from September 2008	Daily when in operation	Shift supervisor
11	Bulk Fish meal store	Holding of loose fish meal to be moved in bulk and /or bagged	Dust to be limited to acceptable levels and to be maintained Pest control to be enforced to ensure no rodents and birds enter this area	Operation will be monitored and maintained to comply with specification	Daily	Shift supervisor

	Component	Description	Specification	Action planned	Time frame	Responsibility
12	Atmospheric Emissions Licence	Point sources to be monitored and centralised and no deviation from operating conditions and halt operation during excessive emissions	Monitored and a quarterly and annual report to be submitted. Report to the National Atmospheric Emissions Inventory System	External testing of emissions by DDA Environmental Engineers when plant is in operation. As per AEL adhere to: - Maximum permitted consumption rate of raw material and production rate. - Adhere to material and quantity of energy sources - Adhere to point source parameters and maximum emission rates - Adhere to area source parameters - Check appliances and control measures - Check emission monitoring and reporting requirements	Quarterly and annually	Operations Manager and ECO
		Procedures to mitigate, monitor and manage odors and emissions throughout the plant.	Monitor TVBN as per the Standard operating procedure. Implement stack H2S monitoring to prevent exceedances. Increase the Fish Meal Plant's production rate to allow for a streamlined operation with minimal fish storage periods in the pits.	1a) Raw fish sampling ● TVBN sampling to cover 50% of vessels offloaded per day. ● Sample to be taken from the vessel hold. ● Raw fish samples must be kept refrigerated/frozen if tests are not performed immediately after sampling. ● Once testing is completed, the sample is frozen for any retest enquiries. ● Samples are discarded into fish pits when there is production. Samples are retained for a min period of 7 ● days. 1b) Fishmeal sampling ● During production: Samples drawn after rotary disc dryers are analyzed on the NIR every hour and Wet chemistry analysis including TVBN testing is done every 2 hours.	Daily	Quality Control

				• Batch: Every batch produced. • Ad hoc samples as requested 2.Appoint a company to install an appropriate stack H2S monitor with dosing capabilities. The installed monitor must continuously track and log H2S levels to ensure that emissions stay below the AEL H2S limit. The device must have alerts and automated dosing functionality to prevent H2S levels from exceeding the AEL limit. 3.Replacement of the current direr with a larger model in the Fish Meal Plant to increase the rate of processing. A fish press will also replace the current sugar press to increase production efficiency. The conveyor from the fishmeal plant to the bulk store is being covered to encapsulate potential odors and to close the majority of the production process.	Daily when in operation Once-off	The automated system to be maintained by the engineering team and OHSE to monitor data. Engineering team
13.	Coastal Water Discharge	Discharge of seawater after use in process	Received discharge permit from DEA for -18 000 m³ cooling effluent; Pipeline A (south) - 8000 m³ fish processing effluent, Pipeline B (north)	- Report major incidents - Adhere to the authorised discharge volumes based on pump capacity - Adhere to the prescribed limits of the permit - Adhere to weekly and monthly monitoring requirements when the plant is operational - 6 monthly external audit if samples are take internally - Not exceed parameters and target value as per CWDP - Monitoring in a radial manner of 25 m, 75 m and 100 m from the discharge points - No contamination of stormwater by industrial effluent - Leak inspections quarterly - Malfunctions and abnormal conditions need to be documented and monitored - Quarterly Reports to DEA	Various timeframes for conditions	Operations Manager and ECO

	Component	Description	Specification	Action planned	Time frame	Responsibility
14.	Sampling	Nationally and Internationally acceptable standards	To test quality of coastal discharges and air emissions Isokinetic sampling	Registered laboratories and professionals are used to verify, audit and conduct testing at the plant.	As per permits and licences Twice an annum (Isokinetic)	Operations Manager and ECO
15.	Coal, Coal Ash & Fly Ash	Coal bunkers to be contained and vehicle traffic to be controlled Regular removal of coal and fly ash	Coal stored in bunker in designated area an avoid spillage. Managed and worked by machine operator to keep neat and clean. No material is to accumulate outside the bunker. Coal ash stored on eastern side of site. Ash removed by registered service provider on a regular base. Collect fly ash and remove with coals ash	Increase the removal of coal & fly ash in an environmentally sustainable manner for recycling purposes, monitor storage and neatness of area and keep record of waste manifest. Call for removal when 70% capacity is reached to avoid overflow.	Regular removal and daily management	Operations Manager and ECO
16.	Bag Filters	Clean	Regularly cleaned and replaced	Regular inspections	Monthly	Operations Manager and ECO
17.	Formaldehyde	Avoid and phase out	Limiting the use	Fresher fish and investigate methods and technology.	Medium term	Operations Manager
18.	Records	GMP/GHP system	This system will control the process from time of catching till storage and dispatch. This will be traceable pertaining to vessels, dates, time and, TVBN and microbiological tests (The latter 2, where relevant)	TVBN – in the process of evaluation of equipment for *in-house testing*	Immediately *Short term*	QA
19.	Reporting and Auditing	Quarterly internal report on prescribed form Annual report Annual external Audits	To report non-compliance - report quarterly to authorities on all. Annual report, no later than 60 days after reporting year	Operations Manager or ECO will compile the report Report on: - Pollutant emissions trend - Compliance audit reports - Upgrades - Greenhouse gas - Coastal discharge External Audits to be done by Consultants.	Quarterly and annual	Operations Manager and ECO

	Component	Description	Specification	Action planned	Time frame	Responsibility
20.	Complaints	Detailed complaint record to be in place	24 hour telephone contact number to be available for complaints The respondent must be qualified to handle complaints Complaint to be investigated within one hour Authorities to be informed of complaint and action taken within 1 working day after lodging of complaint	The factory landline are manned 24 hours for contact in case of complaints: Tel. number: 022 7361100 The Operations Manager be responsible for handling all complaints and complaints will be investigated and handled within one hour after notification A complainant register will be kept and the relative authorities will be informed within one working day after complaint has been logged	Daily	Shift supervisor
21.	Air Quality Forum	Civil society group: various stakeholders - private sector, government, workers and WP staff	Established 3 May 2012.	Meetings arranged at critical stages of the operation in order to gage progress and experience from the public	Annually	ECO
22.	Reverse Osmosis Plant	1. Water will be drawn from the municipal feed line to the carbon filters to remove chlorine. 2. From the carbon filters, water will go through to the pre-filtration bag filters. The Carbon filters will be set to backwash on a weekly basis that is fully automated. 3. The bag filter needs to be checked every day. 4. From the bag filters, filtered water will then be treated with an antiscalant to prevent any scale build up on the RO membranes. A daily inspection needs to be done on the chemical tank to ensure there is significant chemical for the RO. 5. Water will then go into a high-pressure pump that will be fed into the membranes. 6. Water will be pushed through the membranes and permeate water will be sent to the storage tank. 7. Reject water will then be sent to the drain. 8. The RO system is controlled by a high level switch that will switch off the RO system when the tank is full.				Operations Manager and ECO

4.3.3 Components of Operational Management

- Goals: The key environmental goals are set for the operation of the development
- Objectives: These are set to meet the goals.
- Risk: If the goal is not achieved.
- Actions: Measures put in place to achieve objectives.
- Monitoring: To check if the objectives are achieved.
- Targets: Indicators of the effectiveness of the programme.
- Remedial Action: If targets are not met.

4.3.4 Goals (Management Outcomes and Actions):

The Environmental Impact Assessments identified various issues and concerns that were addressed through the process. Many of the issues need to be mitigated by management procedures and therefore goals need to be set to ensure implementation of these measures. Management activities are described to achieve the objectives together with monitoring and target criteria.

Goal 1: To ensure aesthetic appeal of the site					
Objective	**Risk**	**Actions**	**Monitoring**	**Targets**	**Remedial Action**
To ensure that measures are put in place to maintain the sites appeal to public image	● Inappropriate landscaping ● No Waste management ● Poor site access control	● Maintain landscaping around parking and entrance ● Naked light sources should be reduced ● Lighting to be sufficient for safety and clarity of movement only ● Only low voltage lights to be used. ● All colours or textures used must be chosen for their ability to blend into the landscape ● Cleaning and regular removal of waste to avoid stockpiles ● Recycling of steel and redundant equipment ● Removal of all unwanted items to waste transfer station ● Removal of coal ash from site on regular basis by registered	● Monitor that the landscape vision are adhered to ● Monitor that no indigenous vegetation is being removed ● Monitor the removal of waste stockpiles and encourage recycling ● Monitor general cleanliness and redundant material removal from waste yard. ● Ensure regular checks and cleaning of the coastal area ● Check standard of security firm handling access control	●Adherence of WPP and landscaper to the guidelines ●Ensure that buffer coastal areas are maintained ●Ensure removal of waste stockpiles and recycling where possible ●Removal of coals ash on frequent basis by registered service providers. ●No trespassers	● WPP to take immediate action against non-compliance ● Penalize individuals removing indigenous vegetation ● Penalize individuals dumping waste into coastal buffer area or vandalising this area. ● Penalize waste offenders ● Removal of bulk waste in yard ● Address security access contract

		service provider and that recycling is done by a registered service provider. ● Maintain high standard of access control			
Maintenance of structures	● Decrease in aesthetic appeal ● Poor presentation of developed area ● Poor maintenance of structures & fence ● Poor maintenance of landscaped areas ● Contamination of natural areas	● All buildings and associated infrastructure that has been erected, must comply with maintenance standards	● Monitor condition of buildings ● Monitor effect of lights on surrounding area ● Monitor fence for security ● All faults to be repaired immediately	● Compliance with landscaping aims ● All buildings to be in an acceptable condition	● Deviation from job description must be dealt with in terms of contractual or employment terms of reference.
Maintenance of landscaped area to mitigate possible visual intrusion, act as a buffer against noise, to act as a windbreak and to provide additional shade	● Decrease in aesthetic appeal ● Inappropriate landscaping ● Poor presentation of development ● Misuse of water	● Use only indigenous/ endemic waterwise plants ● To act as buffer area between operation and surrounding environment ● Rain-sensor to be installed as part of automatic irrigation system if applicable ● Irrigation vs water used during washing to be monitored	● Monitor landscaped area to ensure no alien vegetation or waste accumulation. ● Monitor water use ● Monitor irrigation system for effective use of water – adjust where necessary	● Ensure effective screening of development ● Ensure optimal & effective water use ● Ensure landscaped area acts as buffer ● Ensure landscaped area is alien free ● Implement alien control programme	● Irrigation system to be kept in optimal condition ● Leaks to be repaired immediately ● Alien vegetation to be removed as part of ongoing maintenance programme

PERFORMANCE					
Acceptable Yes	**Acceptable Yes**	**Details of Transgression**	**Responsible Party**	**Action Taken**	**Date**

Goal 2: Protection of surrounding environment					
Objective	**Risk**	**Actions**	**Monitoring**	**Targets**	**Remedial Action**
Management & Conservation of Water Resources	● Contamination of water resources, poor discharge quality to sea ● Poor storm water quality ● Misuse of water resources	● Ensure that run-off is not contaminated ● Create contour furrows to redirect any potential run-off from storm water ● Consider dissipating and polishing structures before general water from site enters the sea ● All water used during general washing should preferably be reused ● Continue sampling and monitor results and discus at Trust meetings if issues exist. ● Implement the Coastal Water Discharge Permit	● Monitor water source to ensure that no pollution is taking place ● Monitor contour furrows to ensure that water is redirected ● Monitor that water used during washing is not wasted ● Monitor irrigation system to ensure that there are no leaks and run-off into surrounding environment	● Ensure that all water resources remain unpolluted ● Reuse water generated during general washing to irrigate landscaped areas ● Ensure that contour furrows remain in good repair ● Ensure that irrigation system is leak free – all leaks to be repaired immediately	● WPP to take immediate action against non-compliance ● Deviation from job description must be dealt with in terms of contractual or employment terms of reference. ● Act on identified pollution issues
Conservation of sensitive environmental features	● Contamination of water resources ● Impact on Avi Fauna ● Contamination of natural vegetation	● Implement buffer areas for drainage lines ● Implement & maintain buffer area ● Maintain coastal buffer area ● No removal of any vegetation unless authorised ● Implement an alien control programme	● Monitor buffer area for encroachment of alien vegetation ● Monitor buffer areas for erosion ● Monitor buffer areas for the release of excess nutrients.	● To ensure that alien vegetation does not grow on site ● No erosion and limited disturbance ● To ensure safety of wild fauna.	● WPP to take immediate action against non-compliance ● Removal of alien vegetation ● Maintain coastal buffer

	● Erosion as a result of excessive run-off ● Irreversible loss of habitat ● Invasion of alien species ● Protect heritage site (old well) on the eastern part of the site	● Maintain fences			
Manage remaining habitat on site to support fauna	● Mobile species moving off the site ● If site can't support current mobile species ● Wildlife suffers disturbance during operation	● No feeding of wild animals ● Feral cats and dogs should be removed ● Use only biologically friendly pesticides and fertilizers – organic slow release fertilisers where possible ● All poaching is illegal ● No rubbish left out to attract scavengers	● Monitor faunal and avi-faunal species on site ● Monitor for litter and dumping ● Monitor for unrestrained pets	● Ensure that no species become pets ● Litter free area ● No disturbance of fauna and flora	● Maintain suitable coastal buffer areas ● Contain and remove all litter ● Increase awareness of fauna and avi-fauna
Prevent and minimise the risks to the environment.	Environmental harm in the event of malfunctioning equipment, plant failure, accidental spillage or other incidents.	Implementation of Contingency Plan (**Annexure 6**).	Implementation of Contingency Plan (**Annexure 6**).	Implementation of Contingency Plan (**Annexure 6**).	Implementation of Contingency Plan (**Annexure 6**).

PERFORMANCE					
Acceptable Yes	**Acceptable Yes**	**Details of Transgression**	**Responsible Party**	**Action Taken**	**Date**

Goal 3: To create awareness of waste management and waste minimisation (Refer to the Site Waste Management Plan – Annexure 5)					
Objective	**Risk**	**Actions**	**Monitoring**	**Targets**	**Remedial Action**
To minimize and manage waste	● Irresponsible waste management	● Reduce waste produced ● Re-use resources ● Educate employees to sort waste ● Recycle old stockpiles ● Remove coal ash regularly ● Implement incentive programme for employees	● Check operational components if recycling is followed ● Check waste and stockpile areas ● Ensure removal	● Recycling to be actively implemented by the WPP, manager and staff ● Keep stockpile areas to the minimum, keep only reusable parts, remove, sell all other waste	● Refer non- compliance to the WPP and site operator/manager ● Remove waste to registered landfill sites ● Ensure recycling to be done by accredited service providers.
Manage operational waste	● Irresponsible waste management ● Unsightly and smell ● Attraction of pests	● No burning or burying of waste on site ● All garden waste and organic waste to be removed to an appropriate composting site ● Collect recycled litter from site to a central collection point for removal to the municipal site ● No household waste, cement, alien vegetation or soil be dumped in the sea	● Monitor for any litter on a weekly base	● No waste or pollution incidents may occur	● Any non-compliance to be referred to WPP
Ensure no spillage of dangerous goods	● Pollution	● Ensure that all dangerous good storage areas are bunded at 110% capacity	● Regular checks that bunded areas are maintained	● Zero pollution	● Fix bunded areas or construct new bunded areas

PERFORMANCE					
Acceptable Yes	**Acceptable Yes**	**Details of Transgression**	**Responsible Party**	**Action Taken**	**Date**

Goal 4: To create awareness of water conservation and sewage					
Objective	**Risk**	**Actions**	**Monitoring**	**Targets**	**Remedial Action**
Responsible and sustainable water use	● Water wastage	● Plant indigenous plants ● Water wise gardening ● Water gardens and lawns early in the morning or late at night ● Use permeable and semi-permeable hard surfaces ● Use duel-flush toilets ● Water awareness programme with development of interpretative signage	● Check water usage of staff ablutions and gardens and more often in dry times ● Undertake survey to determine level of awareness	● Water use targets to be set according to water availability ● Public compliance	● Water leaks, non-compliance to be reported to WPP ● Increased awareness programme
Manage Sewage system	● Mismanagement ● Unsightly and smell	● Follow regular pumping programme	● Monitor on a weekly base	● No ground water pollution incidents may occur	● Any non-compliance to be referred to WPP

PERFORMANCE					
Acceptable Yes	**Acceptable Yes**	**Details of Transgression**	**Responsible Party**	**Action Taken**	**Date**

Goal 5: Ensure acceptable ambient air quality & odour management in the immediate area around the plant					
Objective	**Risk**	**Actions**	**Monitoring**	**Targets**	**Remedial Action**
Acceptable levels of ambient air quality surrounding the plant.	Unacceptable levels of ambient air quality and odours.	● Utilise Low Sulphur Oil for Phase 2A, when utilising both HFO boilers. ● For Phases 3 and 4 utilise only one HFO boiler with normal HFO fuel. Alternatively, if two HFO boilers are to be utilised then only LSO with a maximum sulphur content of not more than 1.5% is to be used. ● Install automated H2S stack monitoring and dosing to prevent H2S exceedances. This will allow for the monitoring of emissions and management of odors. The installed monitor must continuously track and log H2S levels to ensure that emissions stay below the AEL H2S limit. The device must have alerts and automated dosing functionality to prevent H2S levels from exceeding the AEL limit. ● To curtail Trimethylamine (TMA) formation, it is imperative to minimize the storage time of raw fish material prior to processing and maintain low storage temperatures to inhibit microbial	Quarterly Reports Monitor TVBN as per the Standard operating procedure to ensure that fish material adheres to the limits and to prevent odors. **Raw fish sampling:** *TVBN sampling to cover 50% of vessels offloaded per day.* *Sample to be taken from the vessel hold.* *Raw fish samples must be kept refrigerated/frozen if tests are not performed immediately after sampling.* *Once testing is completed, the*	● Increased Production Rate at the Fish Meal Plant and minimal fish storage periods in the pits. ● No public complaints.	● Record keeping and prevention.

		activity. The Fish Meal Plant's production rate must be increased to allow for streamlined operation and minimize fish storage time in the pits. The current dryer will be replaced by a larger model in the Fish Meal Plant to increase the processing rate. The sugar press will also be replaced by a fish press. • The outside conveyor from the fish meal plant to the bulk store must be covered to encapsulate potential odors and to prevent dust pollution.	*sample is frozen for any retest enquiries.* *Samples are discarded into fish pits when there is production. Samples are retained for a min period of 7 days.* **Fishmeal sampling**: *During production: Samples drawn after rotary disc dryers are analyzed on the NIR every hour and Wet chemistry analysis including TVBN testing is done every 2 hours.* *Batch: Every batch produced.* *Ad hoc samples as requested.*		
Acceptable levels of Odour Management associated with Demersal fish trimmings transported to the site from Sea Harvest, Saldanha.	Unacceptable levels of odour on or around the site resulting in complaints.	Cold Chain Management at source: • The raw material must be kept in a temperature-controlled environment at source. • Records of cold chain must be maintained and made available upon request. Transportation to Facility: • Transport shall occur in: Leak-proof, Temperature-controlled containers. • Containers must: Prevent liquid leakage, minimise odour release, and maintain cold chain integrity.		• No offensive odours • No public complaints.	• Record keeping and prevention. The following records must be retained: •Cold chain temperature records. •Date and time of receipt. •Date and time of processing. •Weighbridge records (where applicable). •Spill incident reports. •Complaints register.

		• The weighbridge may be utilised to record: Gross mass, Net mass, Date and time of arrival. • Records must include: Date and time of receipt, Temperature on arrival, Quantity received, and Source identification. Offloading and On-Site Storage • Upon arrival: Containers are offloaded into designated on-site cold storage. The cold chain must remain uninterrupted. • The temperature of the cold storage is continuously monitored. • Internal transport to processing occurs via: Forklift, Hopper system, and/ or Conveyors. Processing Requirements • Demersal fish trimmings may be blended with pelagic material; or processed separately. • Trucked-in raw material must be processed within 8 hours after removal from the site cold storage. • Records must reflect: – Date/time removed from cold storage. – Date/time processed. – Any issues or near-misses must be reported via the Alarm Report procedure. Cleaning Procedure • Containers and tubs used for transporting and storing demersal trimmings shall be cleaned - In the designated cleaning area. • Cleaning may include: High-pressure washing and/or Removal of residues, • Cleaning must ensure: No accumulation of residual biomass and Prevention of decomposition, MONITORING: Permanent on-site ECO does weekly checks and quarterly audits. Annual external audits also take place. The line manager is notified if any issues are identified and is to be		Spill kits must be available during offloading. In the event of a spill: Immediate containment and clean-up must occur. ECO must be notified. Incident logged via internal reporting procedure.

		rectifed immediately. A follow up is to be done by the ECO within the following week.			
PERFORMANCE					
Acceptable Yes	**Acceptable Yes**	**Details of Transgression**	**Responsible Party**	**Action Taken**	**Date**

Goal 6: Safeguarding the Marine Environment (Upgrades)					
Objective	**Risk**	**Actions**	**Monitoring**	**Targets**	**Remedial Action**
Limited disturbance and/ or mortality of marine life due to the intake of sea water.	Disturbance and/or mortality of marine life.	• Intake velocities should be kept below 0.15 m/s to ensure that fish and other mobile organisms can escape the intake current. Intake velocities can be reduced to the requisite 0.15 m/s through the use of footer values. • Intake structures should be positioned away from sensitive environments or areas with high species diversity or abundance, like rocky reefs, and should not draw in water from the upper meter of the water column. • Intake structures should ensure the horizontal intake of water. This can be achieved through use of footer valves. • Intake structures should be positioned away from sensitive environments or areas with high species diversity or abundance, like	Refer to Section 5.1 below.	Limited disturbance and/ or mortality of marine life.	Record keeping and prevention.

		rocky reefs, and should not draw in water from the upper meter of the water column. • The diffuser must be angled towards the water surface to enable water to jet upwards into the water column. • Implement the proposed WMP. Discharge must meet the Scenario 4 effluent quality (Table 4-1 of the Marine Impact Assessment (2026) – inserted above).			
Limited impact on marine species and ecosystems as a result of Outfall A's discharge effluents temperature.	Changes in water temperature can have a substantial impact on marine species and ecosystems, with the effects either influencing the physiology of the biota and/or influencing ecosystem Functioning.	• Outfall A effluent discharged onshore should be cooled prior to discharge, noting the maximum temperature modelled here that meets WQG (i.e. a maximum effluent temperature of 3.5°C above ambient). • Alternatively, Outfall A should be extended to discharge subtidally at a depth of at least 2 m to permit discharge of effluent 20°C above ambient.	• Continuous monitoring of temperature at the edge of the Outfall A RMZ must be undertaken. • Monitoring of end of pipe concentrations must be conducted and operations adjusted should adverse effects be detected by the monitoring program. • Ecological monitoring must be conducted in the vicinity of the outfall, to detect potential changes in rocky intertidal and subtidal community structure as a result of the discharge.	The maximum acceptable variation in ambient temperature should not exceed 1°C at the edge of the RMZ.	Record keeping and prevention. WPP to take immediate action against non-compliance
Achieving acceptable Salinity levels.	At levels exceeding 40 PSU, significant negative effects are expected, including possible disruptions to the recruitment of molluscan bivalves (e.g. mussels, oysters and clams),	Effluent must be discharged for outfall B via the pipeline configuration modelled by the Marine Specialist: (i.e. at 7.2 m depth, 500 m from shore, via a 25 m diffuser with port diameter of 0.2 m).	Ecological and water quality monitoring must be conducted in the vicinity of the outfall, to detect potential changes in subtidal community structure as a result of the discharge.	Upper target value for salinity of 36 PSU (not exceed 40 PSU).	Record keeping and prevention. WPP to take immediate action against non-compliance

	crustaceans, and possibly fish.				
Achieving modelled end of pipe limits for ammonia-N.	Increased nutrient levels in receiving waters can encourage plant growth, which may lead to algal blooms and local eutrophication.	• Effluent must be discharged via the pipeline configuration modelled by the Marine Specialist (i.e. at 7.2 m depth, 500 m from shore, via a 25 m diffuser with port diameter of 0.2 m). • Ammonia-N levels in discharge effluent should be reduced prior to discharge through in-line treatment like filtration/membrane technology (noting that a concentration of 26 mg/L is required to meet WQG at the 100 m RMZ).	• Monitoring of end of pipe concentrations must be conducted and operations adjusted should adverse effects be detected by the monitoring program. • Ecological and water quality monitoring must be conducted in the vicinity of the outfall, to detect potential changes in subtidal community structure as a result of the discharge.	Achieving modelled end of pipe limits for ammonia-N.	Record keeping and prevention. WPP to take immediate action against non-compliance
Achieving modelled end of pipe limits for TSS (Total Suspended Solids)	High levels of suspended solids - growth deficiencies in marine organisms and in some cases lead to mortalities should smothering of benthic habitats occur. High TSS levels also increase turbidity and decrease light penetration - impact on primary production, respiration and feeding in marine species	• Effluent must be discharged via the pipeline configuration modelled here (i.e. at 7.2 m depth, 500 m from shore, via a 25 m diffuser with port diameter of 0.2 m). • TSS levels in discharge effluent should be reduced prior to discharge through in-line treatment like filtration/membrane technology (noting that a concentration of 65 mg/L is required to meet WQG at the 100 m RMZ).	• Monitoring of end of pipe concentrations must be conducted. • Operations must be adjusted should adverse effects be detected by the monitoring program. • Ecological and water quality monitoring must be conducted in the vicinity of the outfall, to detect potential changes in subtidal community structure as a result of the discharge.	Achieving modelled end of pipe limits for TSS. Noting that a concentration of 65 mg/L is required to meet WQG at the 100 m RMZ.	Record keeping and prevention. WPP to take immediate action against non-compliance
Sufficient dissolved oxygen (DO) in sea water is essential for the survival of most marine organisms. Achieving modelled end of pipe	Reduced dissolved oxygen concentrations & mass mortality of marine species	• Effluent must be discharged via the pipeline configuration modelled here (i.e. at 7.2 m depth, 500 m from shore, via a 25 m diffuser with port diameter of 0.2 m). • Organic content of the discharge effluent should be reduced prior to discharge through in-line treatment	• Monitoring of end of pipe concentrations must be conducted. • Operations must be adjusted should adverse effects be detected by the monitoring program.	Achieve end of pipe oxygen levels above 4 mg/L	Record keeping and prevention. WPP to take immediate action against non-compliance

limits for oxygen levels.		(including but not limited to filtration/membrane technology).	● Ecological and water quality monitoring must be conducted in the vicinity of the outfall, to detect potential changes in subtidal community structure as a result of the discharge.		Should end of pipe oxygen levels fall below 4 mg/L more that 20% of the time, the effluent should be aerated prior to discharge.
Maximise dilution potential while simultaneously minimising erosion of the sandy seabed.	Sediment scouring and shifts in sediment movement patterns	The diffuser must be angled towards the water surface to enable water to jet upwards into the water column.	Refer to Section 5.1 below.	Maximise dilution potential while simultaneously minimising erosion of the sandy seabed.	Record keeping and prevention.

PERFORMANCE					
Acceptable Yes	**Acceptable Yes**	**Details of Transgression**	**Responsible Party**	**Action Taken**	**Date**

Goal 7: Safeguarding the Marine Environment (Reverse Osmosis Plant)					
Objective	**Risk**	**Actions**	**Monitoring**	**Targets**	**Remedial Action**
Maintain appropriate Salinity levels in accordance with the Marine Specialist.	Reduced physiological functioning due to changes in salinity.	None required.	A water quality monitoring programme must be implemented to validate the predictions of the hydrodynamic modelling study and monitor constituents of the effluent to ensure compliance with water quality guidelines.	Maintain appropriate Salinity levels in accordance with the Marine Specialist.	Record keeping and prevention. WPP to take immediate action against non-compliance WPP ECO: Dudley Lesch is

					to undertake water quality monitoring.
Ensure the temperature of the effluent does not exceed maximum limits set prior to discharge.	An increase in water temperature can have a substantial impact on aquatic organisms and ecosystems, with the effects influencing the physiology of the biota (e.g. growth and metabolism, reproduction timing and success, mobility and migration patterns, and production); and/or ecosystem functioning.	• Discharge via the current Outfall B requires that the maximum pipe end temperature be limited to 19°C. • Alternatively, a pipe end temperature of 30°C can be maintained if Outfall B is moved offshore as determined by Wright et al. 2021 (i.e., at 7.2 m depth, 500 m from shore, via a 25 m diffuser). • Operation must occur in line with the results of the relevant dispersion modelling study to ensure that the effluent plume does not exceed that modelled, specifically with regards to depth of discharge, flow rates and effluent composition (Current Outfall B: maximum salinity of 36 PSU, maximum temperature of 19°C and discharge rate of 0.0956 m3/sec; Offshore Outfall B: maximum salinity of 36 PSU, maximum temperature of 30°C and discharge rate of 0.1882 m3/sec).	• A water quality monitoring programme must be implemented to validate the predictions of the hydrodynamic modelling study and monitor constituents of the effluent to ensure compliance with water quality guidelines.	Effluent must not exceed maximum temperatures set prior to discharge	Record keeping and prevention. WPP to take immediate action against non-compliance
Reducing suspended solid concentrations and turbidity.	High levels of suspended solids have been shown to cause growth deficiencies in marine organisms and in some cases lead to mortalities should smothering of benthic habitats. High TSS levels also increase turbidity and decrease light penetration which can impact on primary production, respiration	• It is strongly recommended that Outfall B be moved offshore as determined by Wright et al. 2021 (i.e., at 7.2 m depth, 500 m from shore, via a 25 m diffuser). • TSS levels in discharge effluent should be reduced prior to discharge through in-line treatment like filtration/membrane technology nothing: • a concentration of 15.5 mg/L is required to meet WQG at the 100 m RMZ under current operations for discharge via current Outfall B. • a concentration of 57 mg/L is required to meet WQG at the 100 m RMZ under	• Monitoring of end of pipe concentrations must be conducted. • Ecological and water quality monitoring must be conducted in the vicinity of the outfall, to detect potential changes in subtidal community structure as a result of the discharge	Reducing suspended solid concentrations and turbidity.	Operations must be adjusted should adverse effects be detected by the monitoring program. WPP to take immediate action against non-compliance

	and feeding in marine species (such as plankton and small pelagic fish species).	expanded operations for discharge via offshore Outfall B.			
Prevent oxygen levels falling below 4mg/L	Reduced dissolved oxygen concentrations	• It is strongly recommended that Outfall B be moved offshore as determined by Wright et al. 2021 (i.e., at 7.2 m depth, 500 m from shore, via a 25 m diffuser). • Organic content of the discharge effluent should be reduced prior to discharge through in-line treatment (including but not limited to filtration/membrane technology).	• Monitoring of end of pipe concentrations must be conducted. Should end of pipe oxygen levels fall below 4 mg/L more that 20% of the time, the effluent should be aerated prior to discharge. • Ecological and water quality monitoring must be conducted in the vicinity of the outfall, to detect potential changes in subtidal community structure as a result of the discharge.	Reduce impacts of low Dissolved Oxygen in the marine environment.	Operations must be adjusted should adverse effects be detected by the monitoring program. WPP to take immediate action against non-compliance
Maintaining the pH balance of discharged effluent.	Reduced physiological functioning due changes in pH	• Extremely alkaline or acidic solutions and treatment must be neutralised prior to discharge. • Operation must occur in line with the results of the relevant dispersion modelling study to ensure that the effluent plume does not exceed that modelled, specifically with regards to depth of discharge, flow rates and effluent composition (Current Outfall B: maximum salinity of 36 PSU, maximum temperature of 19°C and discharge rate of 0.0956 m3/sec; Offshore Outfall B: maximum salinity of 36 PSU, maximum temperature of 30°C and discharge rate of 0.1882 m3/sec).	Refer to Section 5.1 below.	Maintaining the pH balance of discharged effluent.	Record keeping and prevention. WPP to take immediate action against non-compliance
Limiting the impacts of discharged co-pollutants on marine biota.	Anti-scalants, biocides, mineral acids, halogenated by-products and heavy metals are routinely	• Aeration of the effluent prior to discharge must be undertaken. • Corrosion resistant materials should be used (i.e., high quality stainless steel or alternative materials suitable for a 10-	Monitoring of end of pipe concentrations must be conducted and adjust dosing levels should adverse effects be detected by the monitoring program.	Limiting the impacts of discharged co-pollutants on marine biota.	Record keeping and prevention. WPP to take immediate

	added to the brine discharges of many RO plants and can have a number of toxic impacts on the Marine Environment.	to-15-year design life should be used to limit leaching of metal ions). • Strong acidic and alkaline solutions must be neutralised. • Operation must occur in line with the results of the relevant dispersion modelling study to ensure that the effluent plume does not exceed that modelled, specifically with regards to depth of discharge, flow rates and effluent composition (Current Outfall B: maximum salinity of 36 PSU, maximum temperature of 19°C and discharge rate of 0.0956 m3/sec; Offshore Outfall B: maximum salinity of 36 PSU, maximum temperature of 30°C and discharge rate of 0.1882 m3/sec). There must be continual release of small volumes of chemicals used during the Clean-in-Place (CIP) process with the brine discharge to allow for maximum dilution before release into the environment.			action against non-compliance

PERFORMANCE					
Acceptable Yes	**Acceptable Yes**	**Details of Transgression**	**Responsible Party**	**Action Taken**	**Date**

SECTION 5: COMPLIANCE AND MONITORING

5.1 COMPLIANCE AND MONITORING

The monitoring of works on site is necessary to demonstrate compliance with the specifications of the EMP and to allow for problems or issues of non-conformance to be identified and appropriate corrective measures to minimise environmental damage to be implemented.

Monitoring should include visual checks by the Operational Manager daily, checks on particular requirements for site activities by the ECO, as well as a review of site documentation. The ECO shall complete the performance record at the end of each table above, as a record of transgressions or problems experienced on site, and how they were dealt with. Monitoring of activities on site by the ECO should be done on a weekly basis.

During the Operational Phase, on receipt of a Coastal Waters Discharge Permit (CWDP), the end of pipe concentrations published in the permit conditions must be met to ensure compliance at the edge of the Recommended Mixing Zone (RMZ). Compliance monitoring of the effluent before discharge should be performed to minimise environmental impacts. If discharged effluent exceeds the end of pipe values at any time, the operation will be in violation of the CWDP and the cause of poor effluent quality must be identified, reported and rectified immediately.

A continuous in situ monitoring program for both the Outfall A and Outfall B discharges should be implemented to validate the dispersion modelling and assess compliance with Water Quality Guidelines (WQGs). A data logging instrument capable of measuring conductivity, temperature and depth (CTD) should be moored at the 100 m RMZ for a period of at least one year. Additional quarterly monitoring should be conducted at the sites (including adequate control sites) for temperature, TSS, dissolved oxygen, salinity, ammonia and pH at the edge of the RMZ.

It is recommended that rocky intertidal and subtidal communities be monitored at Outfall A and that subtidal communities be monitored at Outfall B. Biological indicators such as species abundance, biomass and diversity provide a direct measure of the state of the ecosystem in space and time and tend to be directly affected by pollution/disturbance. It is recommended that a minimum of three sites be monitored in the vicinity of each outfall, with three control sites. Monitoring should be aligned to the State of St Helena Bay monitoring program methodology so that any changes detected can be assessed in the context of larger scale trends in the Bay.

5.2 PENALTIES AND INCENTIVES

Transgressions relate to actions by the WPP and operating team members whereby damage or harm is inflicted upon the environment or any feature thereof and where any of the conditions or specifications of the EMP are infringed upon.

In the instance of environmental damage, the damage is, where possible, to be repaired and rehabilitated using appropriate measures, as specified and undertaken by appropriate specialists, for the account of the guilty party.

Where infringement of the specifications or conditions of the EMPr is registered, appropriate remedial action or measures are to be implemented for the account of the Applicant. Where non-repairable damage is inflicted upon the environment or non-compliance with any of the EMPr obligations is registered then the Contractor may face a monetary penalty to an amount specified by the ECO. The ECO reserves the right to implement a first offence warning.

Transgressions are most likely to occur with respect to litter on site, damage to the natural environment, disturbance of sensitive areas, for example the coastal buffer, heritage well and erosion. The following penalties are suggested for the above-mentioned transgressions:

Litter: In the case of excessive litter on site, the ECO is to allow the transgressor 24 hours in which to remove the litter or face disciplinary action.

Damage or degradation of natural and cultural environment: Implement disciplinary action and rehabilitate immediately.

Polluted Runoff: Should runoff not be properly controlled on site, and storm water be contaminated, the ECO should request immediate rectification and advice on disciplinary action. Should contaminated stormwater or construction effluent enter the adjacent sea area, the ECO should impose a monetary penalty to the maximum of R1 000 per incident.

Failure to comply with AEL will be subject to penalties as set out in Section 52 of the NEM: AQA.

Issues of non-compliance noted by the ECO are to be communicated to the Operational Manager, who holds the responsibility of ensuring that the relevant parties are made aware of the lack of compliance with EMP specifications, and that appropriate action is taken to rectify the situation. The ECO will advise on appropriate corrective actions when necessary.

5.3 SITE RECORD

Minutes of meetings on site must reflect environmental queries, complaints, actions agreed upon, dates of eventual compliance and must form part of the official environmental site record.

In addition to the summary report, the ECO shall keep a monthly photographic record of issues on site and an ad hoc record of incidents or events on site, especially in the case of transgressions from EMP specifications.

Quarterly reports (Air Quality and Coastal Water Discharge) will be used as records of the internal findings and reporting and annual external audits will further capture the extent of compliance for the record.

5.4 REVIEW OF EMPr

The EMPr will be reviewed by the ECO on an ongoing basis. Based on observations during site inspections and issues raised at site meetings, the ECO will determine whether any procedures require modification to improve the efficiency and applicability of the EMPr on site.

Any such changes or updates will be registered in the ECO's monthly record, as well as being included as an annexure to this document. Annexures of this nature must be distributed to all relevant parties on site.

5.5 ENVIRONMENTAL AUDITS

A suitably qualified Environmental Auditor is to be appointed, at the expense of WPP, to undertake audits of compliance with the EMPr. An audit should be undertaken 6 months after construction activities have been completed and an audit should be undertaken 6 months after the operation phase has commenced.

Objectives should be to audit compliances with the key components of the EMPr, to identify main areas requiring attention and recommend priority actions. The audit should cover a cross section of issues, including implementation of environmental controls, environmental management and environmental monitoring.

Results of the audits should inform changes required to the specifications of the EMP or additional specifications to deal with any environmental issues which arise on site and have not been dealt with in the current document.

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