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DRAFT SCOPING REPORT

EIA REF: 14/12/16/3/3/2/2122

Arm Scor EIA Application in support to the Atmospheric Emissions License (AEL) Application for the operation of Arm Scor Dockyard Foundry in Simons Town, City of Cape Town Metropolitan, Western Cape.

DECEMBER 2021

Prepared by:

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Prepared for:

ARMSCOR (SOC) Ltd.



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Armaments Corporation of South Africa SOC Ltd

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Overview: Assessment of impacts related to the operation of Armscor Dockyard Foundry in Simons Town, City of Cape Town Metropolitan, Western Cape, in order to ensure the Client's compliance with all relevant environmental legislations.

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Revision	Revision Date	Details	Authorized	Name	Position
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2	18-11-2021	DRAFT Scoping Report	Y	Phumzile Lembede	Principal EAP Env. Scientist

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LIST OF ACRONYMS

BAR	Basic Assessment Report
CFP	Chance Finds Procedure
DFFE	Department of Forestry, Fisheries and Environment
DOT	Department of Transport
DWS	Department of Water and Sanitation
EMPr.	Environmental Management Programme
ECO	Environmental Control Officer
EIA	Environmental Impact Assessment
HGM	Hydrogeomorphic
MSDS	Material Safety Data Sheet
NEMA	National Environmental Management Act 107 (Act 107 of 1998)
NEMPAA	National Environmental Management: Protected Areas, 2003 (Act 57 of 2003)
I&AP	Interested and Affected Parties
EAP	Environmental Assessment Practitioner
GA	General Authorisation
SCADA	Supervisory Control and Data Acquisition
SCC	Species of Conservation Concern

GLOSSARY OF ITEMS

DEVELOPMENT: the building, erection or establishment of a facility, structure or infrastructure that is necessary for the undertaking of a listed or specified activity, but excludes any modification, alteration or expansion of such a facility, structure or infrastructure and excluding the reconstruction of the same facility in the same location, with the same capacity and footprint.

BIODIVERSITY: The variety of life in an area, including the number of different species, the genetic wealth within each species, and the natural areas where they are found.

BASIC ASSESSMENT: The process of collecting, organizing, analyzing, interpreting and communicating information that is relevant to the consideration of the application, in terms of Listing Notice 1 (GNR 327 and 324 of 2017) of NEMA (as amended).

DEVELOPMENT FOOTPRINT: any evidence of physical alteration because of the undertaking of an activity.

CONTRACTOR: companies and or individual persons appointed on behalf of the client to undertake activities, as well as their sub-contractors and suppliers.

ENVIRONMENTAL CONTROL OFFICER (ECO): an individual nominated through the client to be present on-site to act on behalf of the client in matters concerning the implementation and day to day monitoring of the EMPr and conditions stipulated by the authorities as prescribed in NEMA.

ENVIRONMENT: in terms of the NEMA (as amended), the “environment” means the surroundings within which humans exist and that are made up of:

- the land, water, and atmosphere of the earth;
- micro-organisms, plant and animal life;
- any part or combination of (i) of (ii) and the interrelationships among and between them;
- the physical, chemical, aesthetic and cultural properties and conditions of the foregoing that influence human health and wellbeing.

ENVIRONMENTAL IMPACT: the change to the environment, whether adverse or beneficial, wholly or partially resulting from an organization’s activities, products or services.

HYDROLOGICAL SYSTEM: water bodies and their connectivity to the welfare of an ecosystem.

MITIGATION: the measures designed to avoid reduce or remedy adverse impacts.

ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPr): a detailed plan of action prepared to ensure that recommendations for enhancing or ensuring positive environmental impacts and limiting or preventing negative environmental impacts are implemented during the lifecycle of the project. This EMPr focuses on the construction phase, operation (maintenance) phase and decommissioning phase of the proposed project.

POLLUTION: NEMA defines pollution to mean any change in the environment caused by the substances; radioactive or other waves; or noise, odours, dust or heat emitted from any activity, including the storage or treatment of waste or substances, construction and the provision of services, whether engaged in by any person or an organ of state, where that change has an adverse effect on human health or well-being or on the composition, resilience and productivity of natural or managed ecosystems, or on materials useful to people or will have such an effect in the future.

WATER POLLUTION: the National Water Act, 1998 (Act 36 of 1998) defines water pollution to be the direct or indirect alteration of the physical, chemical or biological properties of a water resource so as to make it less fit for any beneficial purpose for which it may reasonably be expected to be used; or harmful or potentially harmful (a) to the welfare, health or safety of human beings; (b) to any aquatic or non-aquatic organisms; (c) to the resource quality, or (d) to property.

REHABILITATION: rehabilitation is defined as the return of a disturbed area to a state which approximates the state (wherever possible) which it was before the disruption.

WATERCOURSE: can be a) a river or spring; b) a natural channel or depression in which water flows regularly or intermittently; c) a wetland, lake or dam into which, or from which, water flows; and/or d) any collection of water which the Minister may, by notice in the Gazette, declare to be a watercourse as defined in the National Water Act, 1998 (Act No. 36 of 1998) and a reference to a watercourse includes, where relevant, its bed and banks.

WETLAND: the land which is transitional between terrestrial and aquatic systems where the water table is usually at or near the surface, or the land is periodically covered with shallow water, and

which land in normal circumstances supports or would support vegetation typically adapted to life in saturated soil.

INDIGENOUS VEGETATION: refers to vegetation consisting of indigenous plant species occurring naturally in an area, regardless of the level of alien infestation and where the topsoil has not been lawfully disturbed during the preceding ten years.

GENERAL WASTE: waste that does not pose an immediate hazard or threat to health or the environment, and includes domestic waste; building and demolition waste; business waste; and inert waste.

HAZARDOUS WASTE: hazardous waste means any waste that contains organic or inorganic elements or compounds that may, owing to the inherent physical, chemical or toxicological characteristics of that waste, have a detrimental impact on health and the environment.

GENERAL WASTE LANDFILL SITE: a waste disposal site that is designed, managed, permitted and registered to allow for the disposal of general waste.

INTERESTED AND AFFECTED PARTY (I&AP): for the purposes of Chapter 5 of the NEMA and in relation to the assessment of the environmental impact of a listed activity or related activity, an interested and affected party contemplated in Section 24(4) (a) (v), and which includes (a) any person, group of persons or organization interested in or affected by such operation or activity; and (b) any organ of state that may have jurisdiction over any aspect of the operation or activity.

PURPOSE OF THIS DOCUMENT

Assessment of impacts related to the operation of Armscor Dockyard Foundry in Simons Town, City of Cape Town Metropolitan, Western Cape, in order to ensure the Client's compliance with all relevant environmental legislations. These activities are carried out in terms of Section 24(5) and Section 44 of the National Environmental Management Act, 1998 (Act No.107 of 1998) as read with the Environmental Impact Assessment (EIA) Regulations of 04 December 2014, amended in 2017.

The purpose of the Scoping Process, as the first phase of the Environmental Impact Assessment (EIA) process includes but not limited to the following;

- ✚ Identify the relevant policies and legislation relevant to the activity.
- ✚ Motivate the need and desirability of the proposed activity, including the need and desirability of the activity in the context of the preferred location.
- ✚ Identify and confirm the preferred activity and technology alternative through an impact and risk assessment and ranking process.
- ✚ Identify and confirm the preferred site, through a detailed site selection process, which includes all the identified alternatives focusing on the geographical, physical, biological, social, economic and cultural aspects of the environment.
- ✚ Identify the key issues to be addressed in the assessment phase.
- ✚ Agree on the level of assessment to be undertaken, including the methodology to be applied, the expertise required as well as the extent of further consultation to be undertaken to determine the impacts and risks the activity will impose on the preferred site through the life of the activity, including the nature, significance, consequence, extent, duration, and probability of the impact to inform the location of the development footprint within the preferred site; and
- ✚ Identify suitable measures to avoid, manage, or mitigate identified impacts and to determine the extent of the residual risks that need to be managed and monitored.

LIMITATIONS AND ASSUMPTIONS

The following assumptions and limitations accompany the scoping exercise:

- ✚ In accordance with the purpose of Scoping, the report does not include specialist investigations on the receiving environment, which will only form part of the Environmental Impact Report (EIR). The environment in the project area was primarily assessed in the Scoping phase through site visits and appraisals, desktop screening, incorporating existing information from previous studies, and input received from authorities and IAPs.

EXECUTIVE SUMMARY

Arm Scor (SOC) Ltd in Simonstown intend to apply for an Atmospheric Emission License (AEL) with regard the operations of Arm Scor Dockyard Foundry within corner Cole Point and St George Road, Simons town, Western Cape. Therefore, in terms of requirement Am Scor will apply for the Section 22 (A) rectification for an AEL application for the foundry. Consequently, the Environmental Impact Assessment (Scoping and EIR) process has commenced, in support to the application for the AEL for the operation of the Arm Scor Dockyard Foundry. Air emissions licenses (AELs) are obligatory under the National Environmental Management: Air Quality Act 39 of 2004 (AQA) for activities that result in atmospheric emissions which have a significant negative environmental impact, listed in GN 893 of November 22, 2013, as amended in 2015.

As a result, Emvelo Quality and Environmental Consultant (PTY) Ltd has been appointed by Arm Scor (SOC) Ltd (the Applicant), as the independent Environmental Assessment Practitioner (EAP), to facilitate the Scoping and Environmental Impact Assessment Process required in terms of the National Environmental Management Act ,1998 (Act. No. 107 of 1998) for this application.

The NEMA, and the Environmental Impact Assessment (EIA) Regulations (2014) as amended in 2017, govern the process of applying for environmental authorization for certain developments. A provision in the EIA Regulations is made for two forms of assessment: Basic Assessment and Scoping & EIA, depending on the scope of the activity. The EIA regulations specify that: Activities identified in Listing Notice 1 and 3 (GNR 327 and 324 of 2017) requires a Basic Assessment while activities identified in Listing Notice 2 (GNR 325 of 2017) are subject to a Scoping and EIA. The listed activity associated with the proposed development is: Listing Notice 2, Activity 6. Therefore, this application will follow a Scoping/EIA process.

The Public Participation Process (PPP) for both the Scoping and Environmental Impact Assessment will be undertaken in accordance with chapter 6 of GN No. 326 (7 April 2017). As well as the EIA regulations and the Disaster Management Act, 2002 (Act No. 57 of 2002) as published on 29 April 2020 (***Refer to Appendix D***).

The preferred alternatives 'Alternative A: Demand Alternative', provides that Arm Scor dockyard foundry will have minimal ambient air pollution as the casting will be carried on need basis, this will be consolidated with the 'Scheduling Alternative'. Whereas the 'Alternative B: Scheduling Alternative', provides that Am Scor dockyard foundry will only result in ambient air pollution within staggering fixed periods, unlike the continuous day to day emissions. As the casting orders will be

consolidated and be undertaken in a batch process. This will give a relief to ambient air quality, as the pollution will only be experienced on certain fixed periods. This will also consider other aspect such as the prevailing wind directions and velocity. The 'Alternative C: Technology Alternative', provides that Amcor dockyard foundry functioned by two (2) independent extraction systems for the copper and aluminium furnaces, and the zinc furnaces. Each fuel fired furnace is fitted with an extraction hood that is linked to the ducting, filtration and shut-off valves and a centrifugal fan of 17000m³.h⁻¹. Therefore, these alternatives cannot be evaluated in isolation as they are interlinked to one another.

Direct and Indirect Impacts as a result of the proposed development, can be emphasis as Bio-Physical Impacts and Socio-Economic Impact. The foundry metal casting process release the flu gases of chemical compounds such as cadmium, lead, sulphur dioxide, and other chemical compounds, depending on the furnace input, these is release into atmosphere via stacks. As a result, the potential impact is observed to be ambient air pollution, and atmospheric pollution. The Air Quality Impact Assessment and Terrestrial Biodiversity Impact Assessment will be conducted to ascertain any conservable impact within the coverage of the study area, as well as within the determined buffer. These studied will be integrated and discussed in the EIR, and mitigation measures be outlined by EMPr.

The information contained in this Scoping Report and the documentation attached hereto is suffice for I&APs to apply their minds to the potential negative and/or positive impacts associated with the development, in respect of the activities applied for.

1 INTRODUCTION AND BACKGROUND

Armcor (SOC) Ltd manages and operates the South African (SA) Naval dockyard in Simon's Town, Western Cape, as a South African Navy's third-line maintenance and refitting authority. Armcor dockyard focusses on maintaining the required capabilities to support the SA Navy's operations, thereby providing for a planned preventative maintenance, corrective maintenance, upgrades, and reconstruction of SA Navy's vessels. Some of the components for SA Navy vessels are produced at Armcor dockyard foundry. As a result, Armcor (SOC) Ltd in Simonstown intend to apply for an Atmospheric Emission License (AEL) with regard the operations of Armcor dockyard foundry. Therefore, in terms of requirement Armcor will apply for the Section 22 (A) of National Environmental Management: Air Quality Act [NEM: AQA (Act No.39 of 2004)] rectification for an AEL application for the foundry. Consequently, the Environmental Impact Assessment (Scoping and EIR) process has commenced, in support to the application for the AEL for the operation of the Armcor dockyard foundry.

Air Emissions Licenses (AELs) are obligatory under NEM: AQA (Act No.39 of 2004) for activities that result in atmospheric emissions which have a significant negative environmental impact, listed in GN 893 of November 22, 2013, as amended in June 12,2015.

As a result, Emvelo Quality and Environmental Consultant (PTY) Ltd. has been appointed by Armcor (SOC) Ltd, as an independent Environmental Assessment Practitioner (EAP) to undertake an Environmental Impact Assessment (EIA) in support to the Atmospheric Emissions License (AEL) Application for the operation of Armcor dockyard foundry in Simon's Town, City of Cape Town Metropolitan, Western Cape.

An AEL can be obtained through two possible routes, namely: AEL process that runs parallel with the Environmental Impact Assessment (EIA) process (combined process); and AEL process (applied for separate from the EIA process). Therefore, this AEL process will run parallel with the EIA process (combined process).

This report has been prepared in compliance with the requirements of the following legislation:

- ✚ The National Environmental Management Act, 1998 (Act No. 107 of 1998) ["NEMA"];

- ✚ The Environmental Impact Assessment (“EIA”) Regulations contained in Government Notice (GN) No. R982 of 2014 as promulgated in terms of the NEMA [“EIA Regulations”] as amended up to and including GN 326 in GG 40772 of 07 April 2017.

This EIA process will include the facilitation of the Scoping/Environmental Impact Assessment processes required in terms of the NEMA for this application.

2 PROJECT TITLE

Arm Scor EIA Application in support to the Atmospheric Emissions License (AEL) Application for the operation of Arm Scor dockyard foundry in Simon’s Town, City of Cape Town Metropolitan, Western Cape.

3 PROJECT LOCALITY

The project locality is described in terms of geographic locational context and site context.

3.1 Geographic locational context

The study area falls within the City of Cape Town Metropolitan (CTM) at Simon’s Town, Western Cape. The study area is situated at (34°11'31.9"S 18°26'26.4"E) approximately 26km south-west of Cape Town on the shores of False Bay, located on the eastern side of the Cape Peninsula (*Figure 1*).

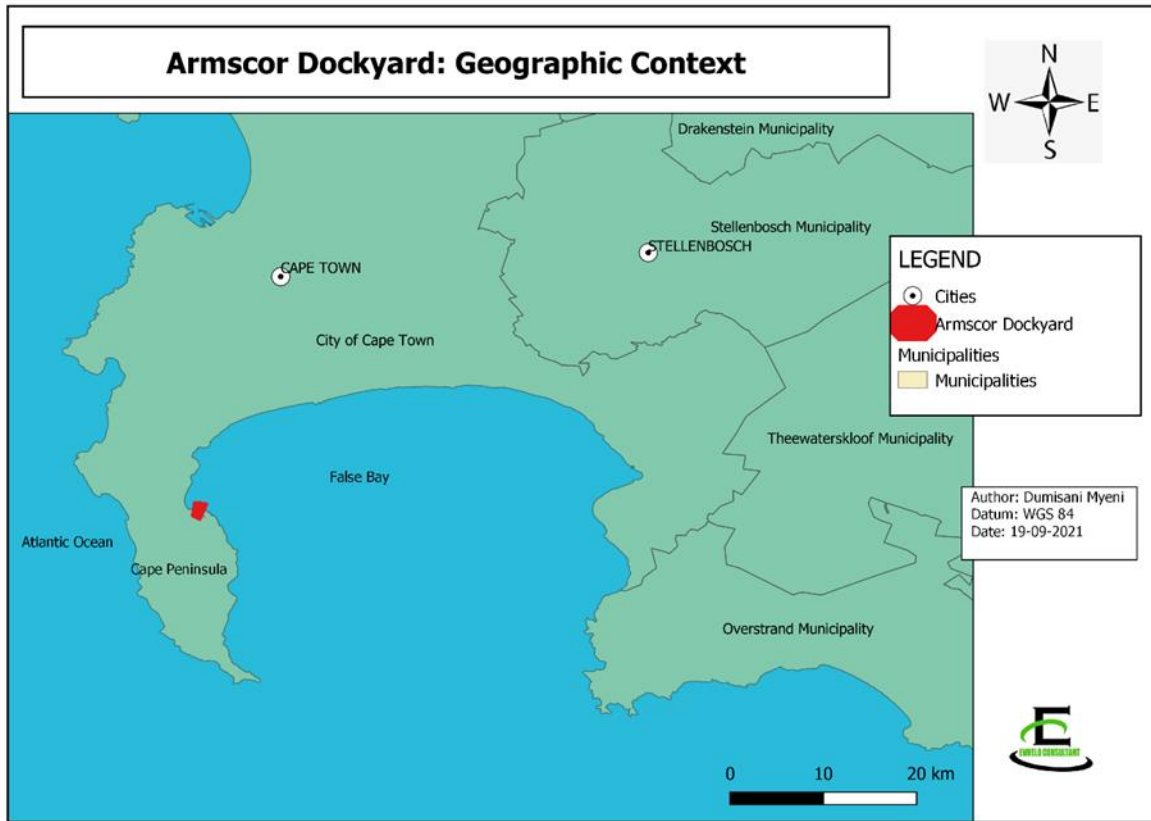


Figure 1: Geographic locational context of Armscor Dockyard

3.2 Site Context

Armscor dockyard foundry is within Erf 3779 situated within the dockyard of SA Naval Base along corner St George and Cole Street, Simon’s Town, at Ward 61 of the City of Cape Town Metropolitan (CTM).

Table 1 provides the Global Positioning System (GPS) co-ordinates for the proposed development site.

Table 1: Co-ordinates (Armscor Dockyard Foundry).

Latitude /Longitude	Degrees	Minutes	Seconds
Armscor Dockyard Foundry Location			
South	34°	11'	31.9"
East	18°	26'	26.4"
Armscor Dockyard Facilities Perimeter (including offices and storages)			
South	34°	11'	30.70"
East	18°	26'	24.60"
South	34°	11'	29.88"

East	18°	26'	25.62"
South	34°	11'	34.68"
East	18°	26'	29.84"
South	34°	11'	35.16"
East	18°	26'	29.07"

Table 2 provides the 21-digits Surveyor General Code (SGC).

Table 2: 21-digits Surveyor General Code

C	0	1	6	0	0	5	4	0	0	0	0	3	7	7	9	0	0	0	0
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

The (**Figure 2**) below, depict the proximity locality map for development.

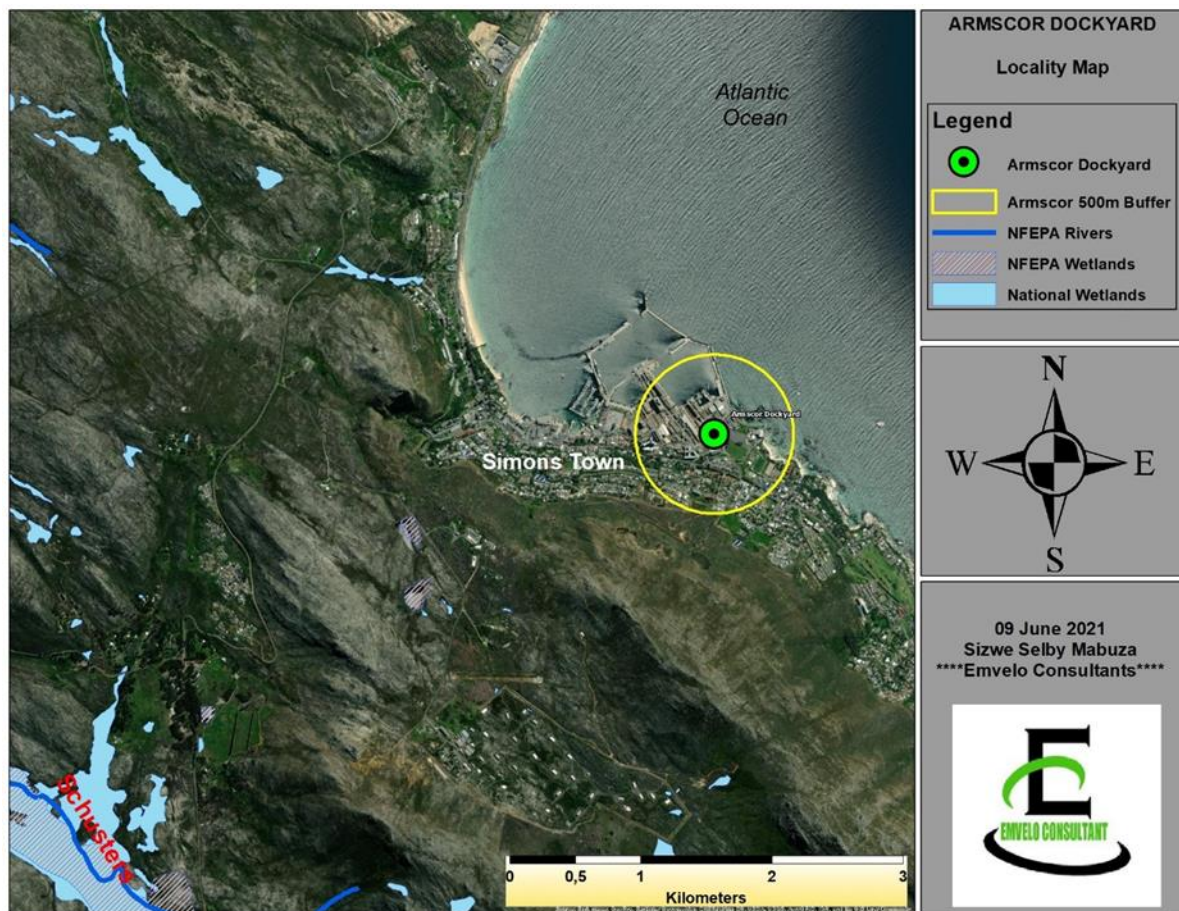


Figure 2: Locality map (Am Scor Dockyard Foundry)

3.3 Site Access

The site can be accessed via M3 from Cape Town towards Muizenberg, along Muizenberg take M4 and head towards Fish Hoek, past Fish Hoek continue with M4 (St George Street) towards Simon's Town and the site entrance is at Corner St George and Cole Point Street towards Simon's Town Naval Base.

4 CURRENT ACTIVITIES DESCRIPTION

Armcor dockyard in Simon's Town operates a non-ferrous foundry by producing aluminium, copper, lead and zinc base alloy metal castings. The foundry operates five (5) diesel fuel-fired furnaces: 3x 0.25T, 1x 0.5T and 1x 1Ton on the need basis, probably once or twice a week. The furnaces used are; zinc furnace and gun metal/brass furnace. Armcor dockyard foundry does not carry day to day metal castings, but only operates five (5) furnaces on the need basis, probably once or twice a week. It must be noted that the five (5) furnaces do not operate simultaneously each furnace is dedicated to its desired product. Armcor dockyard foundry cast aluminium, copper, lead and zinc base alloy metal castings, as in batch process.

The metal casting involves:

- ✚ Furnaces for melting metal alloys;
- ✚ Casting of molten metal into a mould containing a cavity of the desired shape to produce a metal product;
- ✚ The castings are then removed from the mould and excess metal is removed through fettling process;
- ✚ The product may then undergo a range of processes such as polishing and surface coating or finishing before it can be dispatch.

During the above process the flue gases from five (5) furnaces and melting process are removed by the extraction fans and discharged into the atmosphere via stacks. The foundry metal casting process release the flu gases of chemical compounds such as cadmium, lead, sulphur dioxide, and other chemical compounds, depending on the furnace input. Each fuel fired furnace is fitted with an extraction hood that is linked to the ducting, filtration, and shut-off valves.

The dockyard foundry in Simon's Town foundry has been established during 1968 and had been operational since then.

4.1 Armscor Dockyard Foundry Process Flow

Armscor dockyard foundry does not carry day to day operation, as other manufacturing. The foundry operates five (5) furnaces on the need basis, probably once or twice a week. The furnaces used are, zinc furnace and gun metal/brass furnace.

The process flow as illustrated in (figure 4) below are as follows:

1) *Request for casting;*

- ✚ A request is made either by SA Navy or Armscor Dockyard personnel for foundry to produce a metal casting.

2) *Receive job card;*

- ✚ Project Project Management load job cards on the system so that foundry can be able to execute the job.

3) *Confirm availability of input material;*

- ✚ The foundry personnel confirm the job after checking the details, material specification, finish weights and the availability of correct material and tools.

4) *Pattern making;*

- ✚ Pattern making is the first stage for developing a new casting.
- ✚ The pattern is constructed either from wood or plastic materials.
- ✚ These patterns are re-used for other similar molding if required.

5) *Sand Preparation;*

- ✚ A Silica sand No2 (AFS 75) combined with breakdown agent and sodium silicate, are mixed in a sand mixer machine to achieve a chemically bonded sand of high refractoriness that maintains the shape of the mould during pouring.

6) *Mould and core making;*

- ✚ Armscor Dockyard Foundry utilises both the sand moulds and die moulds.

- ✚ The die mould is made up of a high strength aluminium metal to produce the final casting.
- ✚ Die moulds are permanent and are repeatedly used till they are distort.
- ✚ As explained on (**Section 9.2**), Armscor Dockyard is in a process of acquiring the 3D modelling, which will provide an advantage as it allows a large variety of materials with more complex geometries to be produced and reduces wastage.

7) *Melting process:*

- ✚ The foundry operates five (5) diesel fuel-fired furnaces, 3x 0.25T, 1x 0.5T and 1x 1Ton on the need basis, probably once or twice a week. The furnaces used are, Zinc Furnace and Gun Metal/Brass Furnace.
- ✚ Before melting can proceed, an ingot sample is sent to the Laboratory to verify if material conforms to the specification.
- ✚ To prevent cross contamination, all the base alloys are each melted in their dedicated furnaces.
- ✚ The by-product air emissions from melting may include cadmium, lead, sulphur dioxide and other compounds, depending on the furnace input.

8) *Casting metals:*

- ✚ Molten metal is transferred from the furnace to a ladle and held until it reaches the desired pouring temperature.
- ✚ The molten metal is poured into the prepared moulds and allowed to solidify.

9) *Solidification of castings:*

- ✚ Once the metal has been poured, it goes through the solidification and cooling process.
- ✚ The casting needs to cool, often overnight (depending on the casting size) for ambient cooling before it can be removed from the mould.

10) *Casting ejection:*

- ✚ The molding boxes are separated, and the casting is removed and inspected.
- ✚ Since the Foundry does not reclaim any sand, the sand rubbles are disposed in a dedicated skip and collected by the nominated service provider who manages waste disposal for the organisation.

11) *Inspection:*

- ✚ The casting is inspected by checking for any casting defects like misrun, porosity, shrinkage, slag inclusion etc. If the casting includes any defects, the casting is rejected, and the job has to be repeated.

12) *Finishing and polishing*

- ✚ After the casting has been inspected, the gating system is removed, often using electrical cut-off devices.
- ✚ A parting line flash is typically formed on the casting and must be removed by grinding or with chipping hammers, these are done at the Fettling Bay.
- ✚ Shot blasting propelling abrasive material at high velocity onto the casting surface, is often used to remove any remaining metal flash, refractory material, or oxides.
- ✚ Depending on the type of casting, it may need to be sent for machining.
- ✚ Any debris from the Fettling Bay are disposed accordingly

13) *Final Casting:*

- ✚ The accepted casting is dispatched to the client along with the Metallurgical Test Certificate.

14) *Documentation*

- ✚ When the job is completed, the job card is closed on the system and the relevant paperwork is filed accordingly.

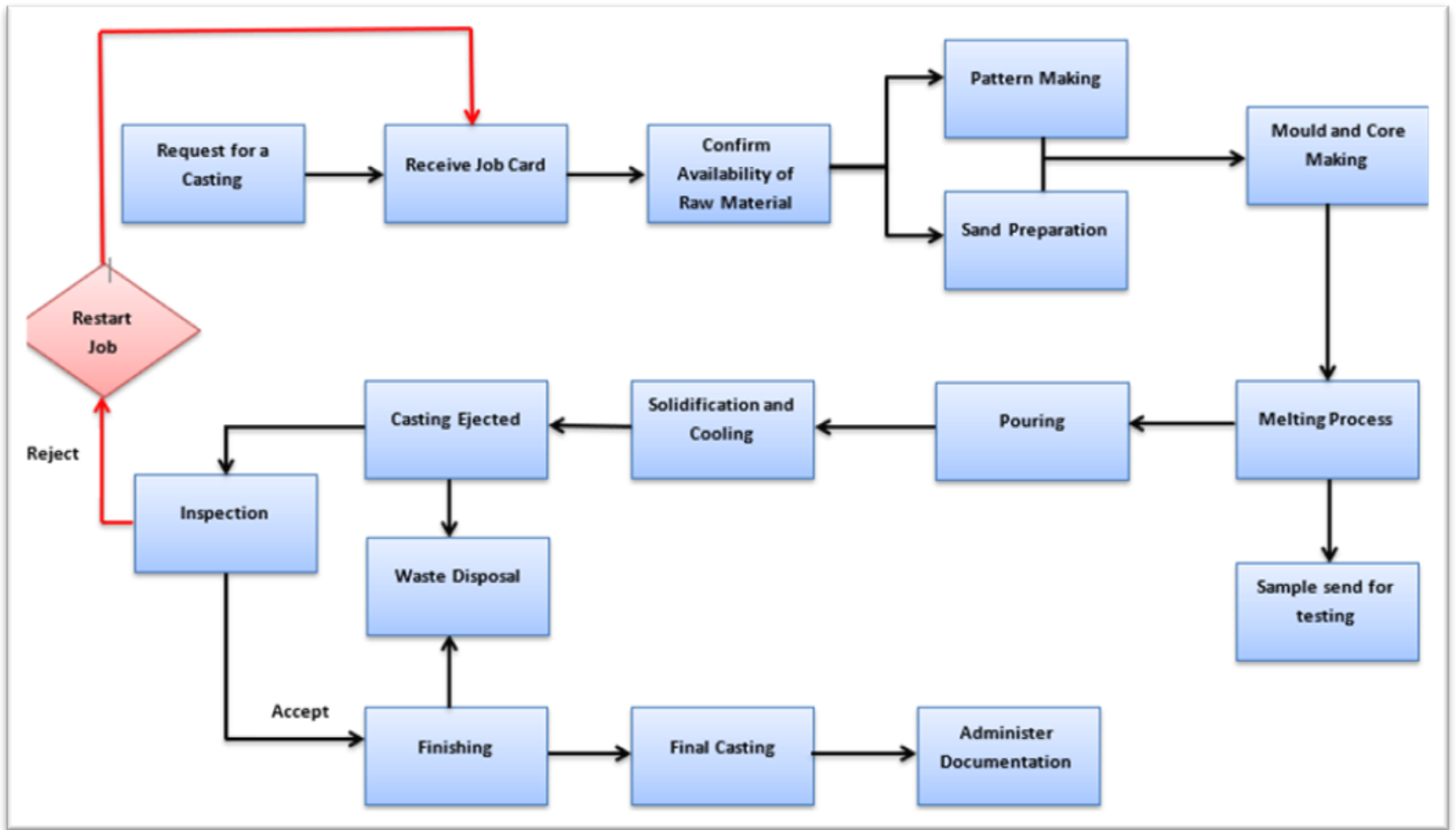


Figure 3: Armscor Dockyard Foundry Process Flow

The (**Table 3**) below outlines major Dockyard Foundry's consumable per month.

Table 3: Major Dockyard Foundry consumables in tonnage per month

Input material	Description	Tons/Month
Silica Sand	Silica sand mixed with chemicals	1.4
Sodium silicate	Mixed with silica sand	0.03
Breakdown agent	Mixed with silica sand	0.06
Zinc	Casting Zinc base alloys	0.5
Aluminium	Casting Aluminium base alloys	0.03
Copper	Casting Copper base alloys	0.3
Lead	Casting Lead base alloys	0
Coveral 11	Fluxing of Aluminium base alloys	0.001
Albral 2	Fluxing of Copper base alloys (Alu-Bronze)	0.004
Cuprex 1	Fluxing of Copper base alloys (Gunmetal)	0.004

Images of Armscor dockyard foundry are illustrated below as (**Figure 4**).



Figure 4 Images of Armscor Foundry

Notes: A= 0.25Ton Fuel fired crucible furnace for melting copper base alloys; B= Foundry casting bay; C= Sand rabble skip; D= 1Ton and 0.25Ton fuel fired crucible furnaces for casting zinc base alloys anodes.

5 BACKGROUND AND PURPOSE OF THE SCOPING REPORT

This report fulfils the requirement of the EIA Regulations for the documentation in the scoping phase. The structure of this report is based on part 3 of GN R.326, of the EIA Regulations as amended, which clearly specifies the required content of a scoping report.

The purpose of these Regulations is to regulate procedures and set criteria as contemplated in Chapter 5 of the Act to enable the submission, processing, consideration, and decision-making regarding applications for environmental authorization of activities and matters pertaining thereto.

6 DETAILS OF ROLE PLAYERS

6.1 Environmental Assessment Practitioner

In accordance with Appendix 2, Section 2(1)(a) of GN No. 326 (7 April 2017), this section provides an overview of Emvelo Consultant and the company's experience with EIAs, as well as the details and experience of the EAPs that form part of the project, as well of team of specialists, as detailed by (Table 4 &5) below:

Table 4: Project Team

Name	Qualification	Experience (Years)	Duties
Phumzile Lembede	BSc Honours in Environmental Management. (EAPAS, IAIA & Pr.Sci.Nat. environmental science)	9	Principal EAP (Environmental Scientist)
Dumisani Myeni	BSc Honours in Environmental Management. (Cand.Sci.Nat. environmental science)	8	Study Lead (Environmental Scientist)

6.2 Expertise required

The following team of specialists will provide an expertise knowledge through assessment of identified impacts:

Table 5: Team of Specialists

Name	Qualification	Experience (Years)	Duties
Andrew Husted	MSc Aquatic Health. BSc Natural Science (Pr.Sci.Nat. Aquatic Science, Ecological Science, Environmental Science)	13 years	Terrestrial Biodiversity Impact Assessment
Kevin Munsamy	BSc. Chem Eng. ESCA (registered as a Candidate), NACA (Member of the National Association for Clean Air) and is accredited with South African Council for the Projects and Construction Management Professions (SACPCMP).	10 years	Air Quality Impact Assessment.
Roy Muroy	Masters Archaeology Cultural Heritage and Museum Studies (Professional Member of Association of Professional Heritage Practitioners; Professional Member of Association of Southern African Professional Archaeologists).	8 Years	Cultural and Heritage Impact Assessment

7 EIA PROCESS AND METHODOLOGY

Arm Scor EIA application in support to the Air Emissions License (AEL) application for the operation of the dockyard foundry, comprise two main phases, namely; the Scoping phase and Impact Assessment phase.

The Scoping Phase of an EIA serves to define the scope of the detailed assessment of the potential impacts of a proposed project. The Environmental Scoping phase has been undertaken in accordance with the requirements of sections 24 and 24D of the National Environmental Management Act (NEMA) (Act 107 of 1998), as read with Government Notices R 543 (Regulations 26-30), 544, 545 and 546 of the NEMA. The objectives of the Scoping Phase are to:

- ✚ Ensure that the process is open and transparent and involves the Authorities, proponent, and stakeholders (**Refer to Section 7.2, 7.3 & 7.4**);
- ✚ Ensure compliance with the relevant legislation (**Refer to Section 8**);
- ✚ Ensure that feasible and reasonable alternatives are identified and selected for further assessment (**Refer to Section 10**);
- ✚ Identify the important characteristics of the baseline environment (**Refer to Section 11**);
- ✚ Assess and determine possible impacts of the proposed project on the biophysical and socio-economic environment and associated mitigation measures (**Refer to Section 15**).

7.1 Scoping Process

The process for seeking Environmental Authorization under NEMA is being undertaken in terms of the prevailing EIA Regulations of 2014 as amended in 2017. An outline of the process flow for Scoping and EIA process for the project is presented by (**Figure 5**) below.

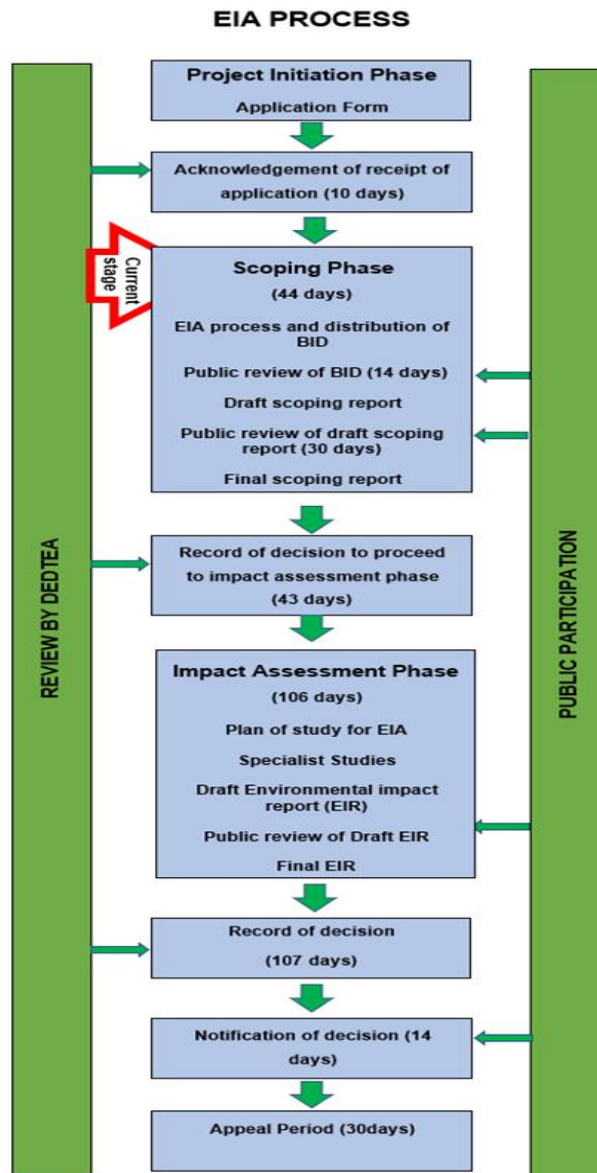


Figure 5: Scoping and EIA Process Flow Diagram

7.2 Landowner

According to Regulation 39(1) of GN No. 326 (7 April 2017), if the applicant is not the owner or person in control of the land on which the activity is to be undertaken, the applicant must, before applying for an Environmental Authorization in respect of such activity, obtain the written consent of the landowner or person in control of the land to undertake such activity on that land.

The Armscor dockyard foundry operates within SA Naval Base in Simon's Town, in this regard the SA Navy is the landowner. The consent letter has been obtained from SA Navy.

7.3 Consultation with Authorities

The relevant authorities required to review the proposed Project and provide an Environmental Authorisation were consulted from the outset of this study and have been engaged throughout the project process. In terms of NEMA Section 24 (C), the lead decision-making authority for this application for Environmental Authorisation is the National Department of Forestry, Fisheries and Environmental (DFFE).

However, other authorities with jurisdiction over elements of the receiving environment or project activities will also be consulted and listed as I&As. Therefore, Western Cape Environmental Affairs and Planning, and City of Cape Town Air Quality Management Unit were also noted as key commenting authorities.

Authority consultation included the following activities:

- ✚ Submission of EA Enquiry to DFFE;
- ✚ The EA Pre-Application Meeting was convened with DFFE on 29th June 2021 (**Refer to Appendix E**) for a copy of the minutes.
- ✚ Submission of an application for authorisation in terms of NEMA (Act 107 of 1998) was submitted and received by DFFE on 22nd November 2021 and Application Acknowledgement provided to EAP on 2nd December 2021 (**Included in Appendix C**). The EIA application has been registered and given the following reference number: (**REF: 14/12/16/3/3/2/2122**).

7.4 Consultation with other Relevant Authorities

Background information regarding the proposed project was provided to relevant authorities and agencies, requesting their input into the EIA process. The authorities include *inter alia* as attached in (**Appendix E**):

- ✚ Western Cape: Department of Environmental Affairs and Development Planning (DE&DP);

- ✚ Department of Water Affairs (DWA);
- ✚ Department of Transport and Public Works
- ✚ Department of Economic Development and Tourism
- ✚ City of Cape Town Directorate: Specialised Environmental Health Services and Air Quality Management
- ✚ South African Biodiversity Conservation
- ✚ South African National Parks
- ✚ Heritage Western Cape
- ✚ South African Heritage Agency
- ✚ Flag Officer Commanding Naval Base (Simon's Town)

7.5 Overview of the Public Participation Process

The purpose of Public Participation Process (PPP) is implemented as part of the Scoping Phase of the EIA, is to:

- ✚ Ensure all relevant stakeholders and I&APs have been identified and invited to be engage in the Scoping process;
- ✚ Raise awareness, educate, and increase understanding of stakeholders and I&APs about the proposed project, the affected environment and the environmental process being undertaken;
- ✚ Create open channels of communication between stakeholders and the project team;
- ✚ Provide opportunities for stakeholders to identify issues or concerns and suggestions for enhancing potential benefits and to prevent or mitigate impacts;
- ✚ Accurately document all opinions, concerns and queries raised regarding the Project;
- ✚ Ensure the identification of the significant alternatives and issues related to the project.
- ✚ To protect the environmental rights of the local community.
- ✚ To optimise on local and indigenous knowledge of the area.

7.6 Scoping Phase Public Participation

Section 24 (4) (a) (v) of NEMA, provides that the procedures for the investigation, assessment and communication of the potential consequences or impacts of activities on the environment, must ensure, with respect to every application for an Environmental Authorisation, the public information and participation procedures which provide all interested and affected parties, including all organs of state in all spheres of government that may have jurisdiction over any aspect of the activity, with a reasonable opportunity to participate in those information and participation procedures.

7.6.1 Notification of the Interested and Affected Parties (I&APs)

Section 41 of Chapter 6 of the EIA regulations have listed the different options, to be used when notifying the I&APs. The Public Participation process for this project was conducted, as detailed in (**Table 6**) and indicated by the green blocks.

Table 6: Notification of I&APs

<i>All the Interested and Affected parties were notified of the application by-</i>		
Fixing a notice board at the place conspicuous to and accessible by the public at the boundary, on the fence, or along the corridor of any alternative sites.	YES	NO/NA
Any alternative site also mentioned in the application	YES	NO/NA
<i>Has a written notice been given to-</i>		
Landowner or person in control if the applicant is not in control of the land	YES	NO/NA
The municipal councillor of the Ward in which the site and alternative site of the proposed activity.	YES	NO
The municipality which has jurisdiction in the area and other organs of state	YES	NO
<i>Placing an advertisement in-</i>		
Regional newspaper (<i>False Bay Echo</i>); National News Paper (<i>Mail & Guardian</i>)	YES	NO
Any official Gazette that is published specifically for providing public notice of applications	YES	NO
One provincial newspaper, any official Gazette that is published with the purpose of providing public notice of applications.	YES	NO

Table 7: Scoping Phase Public Participation

Scoping Phase
Interested and Affected Parties (I&APs) have been identified throughout the process. Initial identification of I&APs includes State Departments Organs and Agencies, Municipality, and Ward Councillors (Refer to Appendix D: PP Plan).
Notification BIDs have been circulated to all identified I&APs informing them of the proposed development and the opportunity to comment.
The A3 onsite notices have been placed at boundaries and intersections as well as strategic points (Refer to Appendix D: PP Plan)
An advertisement was placed on <i>False Bay Echo</i> , published on (02/09/2021), and <i>Mail & Guardian</i> , published on (10/09/2021), attached on (Appendix D).
Due to the COVID-19 regulations, where the gathering of large mass is prohibited, several approaches will be implemented to facilitate an inclusive public participation process for the proposed project, in accordance with the EIA regulations and the Disaster Management Act, 2002 (Act No. 57 of 2002) and published on 29 April 2020. The focus group for community representative was formed. This focus group made of Ward Councillor, Simons Town Civic Association, and other community members who requested to be registered as I&APs. Emvelo Consultants (EAPs) had an online meeting with the focus group, tabling the content of the Draft Scoping Report. The focus group to play an important role for facilitation of information dissemination to the broader community (Refer to Appendix D: PP Plan). Draft Scoping Report, and Draft EIR was/ will be forwarded to ward councillor and focus group as an electronic (CD & email), as well as hardcopy documents based on their request. The EAPs will then set up the online meeting with the ward councillor and focus group to discuss the contents of the Draft EIR empower the group toward effective information dissemination.
Copies of the report were delivered or sent via an email to relevant State Departments and Organs of State. Also, requesting their inputs or comments in terms of 240 of NEMA.
All comments received during the commenting period will be included in the Final Scoping Report & Final EIR.

7.6.2 Review of Draft Scoping Report

The Draft Scoping report is circulated for 30 days, and this document will be lodged for public review using the public participation methods mentioned on (**Table 8**) above (**Note: This could change subjected to Covid-19 Regulation. Also, refer to PP Plan**).

7.6.3 Comments from I&APs

Section 43 of Chapter 6 of NEMA (EIA Regulations 2017) indicates that all I&APs are entitled to comment in writing on all reports produced by the applicant during the EIA process. This will bring the concerns raised to the attention of the applicant.

The proof of document circulation to I&APs is attached as appendix E.

The current comments (**Appendix E6**) involve the comments from BID, onsite notices, newspaper adverts and public meeting (held online as focus group meeting).

7.7 Screening of Alternatives

Consideration of alternatives is one of the most critical elements of the environmental assessment process. Also, the key criteria for consideration when identifying alternatives are that they should be “practicable”, “feasible”, “relevant”, “reasonable” and “viable” (DEAT,2004). As a result, after weighing the following alternatives: Demand, Scheduling, and Technology Alternative will be feasible to offset a No-Go Alternative (**Refer to Section 10**).

7.8 Prediction of Impacts

The Scoping exercise is aimed at identifying and qualitatively predicting significant environmental issues for further consideration and prioritisation during the EIR stage. It is important to note that the impact “significance” relates to whether the effect (i.e., change to the environmental feature/attribute) is of sufficient importance that it ought to be considered and have an influence on decision-making.

The potential environmental impacts associated with the proposed project were identified during the Scoping phase (**Refer to Section 15**) through consideration of the following:

- ✚ Proposed locations and the extent of the proposed development, which included site investigations as well as a desktop evaluation with a Geographical Information System (GIS), inputs from various data sources, and aerial photography;
- ✚ Activities associated with the project life cycle (i.e., operation and decommissioning).
- ✚ Profile of the receiving environment and the potential sensitive environmental features and attributes;

- ✚ Input received during public participation from authorities and I&APs; and
- ✚ Legislation framework, and policy context.

The Environmental Impact Report (EIR) will therefore provide a qualitative and quantified impact assessment methodology, which will be conducted through the contributions of the project team and requisite specialist studies. Subsequently, the suitable mitigation measures will be identified to manage (i.e., prevent, reduce, rehabilitate and/or compensate) the environmental impacts, and will be included in the Environmental Management Programme (EMPr).

The Environmental Scoping Phase has been undertaken in accordance with the requirements of sections 24 and 24D of the National Environmental Management Act (Act 108 of 1998), as read with Government Notices R 543 of the NEMA.

8 APPLICABLE LEGISLATION, POLICIES AND/OR GUIDELINES

NEMA is the primary South African legislation governing the requirements for Environmental Impact Assessment. In the context of the operation of Armscor dockyard foundry, the provisions of NEMA, and the associated EIA Regulations (regarding Scoping and EIA) are of fundamental relevance.

In terms of the Environmental Regulations promulgated under the NEMA, an EIA must be conducted for any development or activity that requires an Environmental Authorisation.

The listed activities in the NEMA, relevant to this project, that triggers the need for an Environmental Authorisation are listed below:

Table 8: Environmental Legislative Context

Legislation	Relevance
Constitution of the Republic of South Africa, (No. 108 of 1996)	<ul style="list-style-type: none"> ➤ Chapter 2 – Bill of Rights. ➤ Section 24 – Environmental Rights.
National Environmental Management Act (NEMA) (No. 107 of 1998)	<ul style="list-style-type: none"> ➤ Section 24 – Environmental Authorisation (control of activities which may have a detrimental effect on the environment). ➤ Section 28 – Duty of care and remediation of environmental damage. ➤ Environmental management principles. ➤ Authorities – Department of Environmental Affairs (DEA) (national) and Department of Economic Development Tourism and Environmental Affairs (provincial).
GN No. 326 (7 April 2017)	<ul style="list-style-type: none"> ➤ Purpose - regulate the procedure and criteria as contemplated in Chapter 5 of NEMA relating to the preparation, evaluation, submission, processing, and consideration of, and decision on, applications for environmental authorisations for the commencement of activities, subjected to EIA, in order to avoid or mitigate detrimental impacts on the environment, and to optimise positive environmental impacts, and for matters pertaining thereto.
<ul style="list-style-type: none"> ➤ Purpose – to identify activities that would require environmental authorizations prior to commencement of that activity and to identify competent authorities in terms of sections 24(2) and 24C of NEMA. ➤ The investigation, assessment, and communication of the potential impact of activities must follow the procedure as prescribed in regulations 19 and 20 of the EIA Regulations published in terms of section 24(5) of the Act. However, according to Regulation 15(3) of GN No. 327, Scoping and an Environmental Impact Report (S&EIR) must be applied to an application, if the application is for two or more 	

Legislation	Relevance	
	<p>activities as part of the same development for which S&EIR must already be applied in respect of any of the activities.</p> <ul style="list-style-type: none"> ➤ Activity under Listing Notice 2 that is relevant to this application. 	
<p>GNR No. 325 (7 April 2017) Listing Notice 2</p>	<p>Activity under Listing Notice 2 relevant to this application is as follows;</p> <p>Listed Activity 6: ‘The development of facilities or infrastructure for any process or activity which requires a permit or licence or an amended permit or licence in terms of national or provincial legislation governing the generation or release of emissions, pollution or effluent.’</p>	<p>Applicability:</p> <p>Armcor Dockyard in Simon’s Town operates a Non-Ferrous Foundry by producing aluminium, copper, lead and zinc base alloy metal castings. Therefore, operation of foundry for casting of iron, steel and zinc emits atmospheric emission which requires the Air Emissions License.</p>
<p>National Water Act (Act No. 36 of 1998)</p>	<ul style="list-style-type: none"> ➤ Chapter 3 – Protection of water resources. ➤ Section 19 – Prevention and remedying effects of pollution. ➤ Section 20 – Control of emergency incidents. ➤ Chapter 4 – Water use. ➤ Authority – Department of Water and Sanitation (DWS). 	
<p>National Environmental Management Air Quality Act (Act No. 39 of 2004)</p>	<ul style="list-style-type: none"> ➤ Section 22 (A) of [NEM: AQA (Act No.39 of 2004)] rectification for an AEL application for the foundry. ➤ Air quality management ➤ NEM: AQA (Act No.39 of 2004), listed in GN 893 of November 22, 2013, as amended in June 2015. ➤ Section 32 – Dust control. ➤ Section 34 – Noise control. ➤ Authority – EDTEA & City of Cape Town 	
<p>National Environmental</p>	<ul style="list-style-type: none"> ➤ Management and conservation of the country’s biodiversity. ➤ Protection of species and ecosystems. 	

Legislation	Relevance
Management: Biodiversity Act, 2004 (Act No. 10 of 2004)	➤ Authority – EDTEA.
Occupational Health & Safety Act (Act No. 85 of 1993)	➤ Provisions for Occupational Health & Safety ➤ Authority – Department of Labour.
National Heritage Resources Act (Act No. 25 of 1999)	➤ Section 34 – protection of structure older than 60 years. ➤ Section 35 – protection of heritage resources. ➤ Section 36 – protection of graves and burial grounds. ➤ Authority – KwaZulu-Natal Amafa and Research Institute
National Road Traffic Act 1996 (Act No. 96 of 1996)	➤ Authority – KwaZulu-Natal Department of Public Works, Roads, and Infrastructure.

8.1 Environmental Assessment Triggered

Based on the type of activity involved, the extent and the biophysical environment within which it is set to occur as reflected in (**Table 8**) above, the required environmental assessment for the project is a Scoping and EIR process.

9 ACTIVITY MOTIVATION

SA Naval Base in Simon's Town is the South African Navy's largest naval base, home port of the frigate and submarine flotillas, and host Armscor dockyard.

Armcor (SOC) Ltd manages and operates the South African (SA) Naval dockyard in Simon's Town, Western Cape, as a South African Navy's third-line maintenance and refitting authority. Armcor dockyard focusses on maintaining the required capabilities to support the SA Navy's operations, thereby providing for a planned preventative maintenance, corrective maintenance, upgrades, and reconstruction of SA Navy's vessels. Some of the components for SA Navy vessels are produced at Armcor dockyard foundry.

9.1 The need

Armcor dockyard host a foundry to cast several types of materials and components for use during the maintenance and repair of the vessels of the SA Navy. Therefore, the foundry form one of the components of SA Navy vessels maintenance and reconstruction.

9.2 Desirability

Armcor dockyard foundry is committed to meet environmental requirements, by applying for the Section 22 (A) rectification for an AEL application for the foundry, as a result emission of flu gases from combustion and metal processing during foundry's operation.

In addition, Armcor Dockyard Foundry will have additive manufacturing capability to compliment the limitations of the foundry, such as use of 3D modelling, which will provide an advantage as it allows a large variety of materials with more complex geometries to be produced and reduces wastage, amongst others. This will involve the computer aided engineering and drawing capabilities that are not currently in the Armcor dockyard and will ensure that the manufacturing environment is elevated to the industry standards. This will give Armcor dockyard foundry the edge to deliver more effectively on the mandate in terms of service delivery to the SA Navy.

10 ALTERNATIVES

The Department of Environmental Affairs provides guidelines on the assessment of alternatives, to which the impact assessment be considered. Regulations indicate that alternatives that are considered in an assessment process be reasonable and feasible. I&APs must be provided with an opportunity of providing inputs into the process of formulating alternatives. Once a full range of potential alternatives has been identified, the alternatives

that could be reasonable and feasible should be formulated as activity alternatives for further consideration during the basic assessment or scoping and EIA process (DEAT,2004a; DEAT, 2006). These alternatives are: location (site), activity (project), site layout, design, scale, routing, scheduling, process, demand, input, technology, and no-go alternatives.

It is, however, important to note that the regulation and guidelines specifically state that only 'feasible' and 'reasonable' alternatives should be explored. It also recognizes that the consideration of alternatives is an iterative process of feedback between the applicant and the appointed Environmental Assessment Practitioner (EAP), which in some instances culminates in a single preferred project proposal (DEAT, 2006).

After weighing all project alternatives for this project (Discrete Alternative Approach), the preferred "Alternative A: Demand Alternative, Alternative B: Scheduling Alternatives, and Alternative C: Technology Alternative" were adopted as alternatives that will meet the stated need for and purpose of the project, by providing proper mitigation measures, as discussed below.

10.1 Alternative A (Demand Alternative)

The "Demand alternatives arise when a demand for a certain product or service can be met by some alternative means" (DEAT,2004a). Therefore, as explained in (**Section 4**), Armscor dockyard foundry does not carry day to day operation. The foundry operates five (5) furnaces on the need basis, probably once or twice a week. Therefore, the demand base foundry operation will reduce the unnecessary emission, by only focusing on casting of metals for components which are currently in demand at that time. The 'Demand Alternative' cannot be taken in isolation but will require strict adherence to integration of 'Scheduling Alternative' discussed below.

10.2 Alternative B (Scheduling Alternative)

The 'Scheduling Alternative' involve scheduling activities in a different order or at different times and as such produce different impacts, they also form part of project description (DEAT,2004a). Therefore, the 'Scheduling Alternative' provides that Armscor dockyard foundry, cast aluminium, copper, lead, and zinc base alloy metal, as in batch process. This simply means that the orders (demand) as mentioned above in (**Section 10.1**) will be

consolidated, and the schedule date for casting be determined based on number of orders, to avoid day to day operation of foundry which will result in daily accumulation of emission and ambient air pollution.

The 'Scheduling alternative' proposes that the casting be undertaken once or twice a week, within minimal time (***Refer to Section 4***).

The wind speed and direction must be of consideration when scheduling the foundry melting and casting, so that the flue gases are prevented from flowing on direction of residential and businesses (inland). Whereby, most probably the westerly wind will be preferable for operations.

10.3 Alternative C (Technology Alternative)

The technology to be used in the activity, refers to a consideration of method of operation, such that an alternative includes the option of achieving the same goal by using a different method or process (DEA&DP, 2007). The flue gases from five (5) furnaces, metal melting and casting process are removed by the extraction fans and discharged into the atmosphere via stacks. It is essential that exhaust volumes are sufficient to control generated fume. Heavy fume generation during charging, the initial melt stage and any refining may increase the air volume required and consequently the collector size. This will require filtration to reduce chemical compounds from vented out to the ambient environment.

Therefore, Amscor dockyard foundry functioned by two (2) independent extraction systems for the copper and aluminium furnaces, and the zinc furnaces.

Copper and Aluminium Furnace:

- ✚ Cu and Al Furnaces (2x 0.25Ton and 1x 0,5Ton);
- ✚ Each fuel fired furnace is fitted with an extraction hood that is linked to the ducting, filtration and shut-off valves and a centrifugal fan of 17000m³.h-1;
- ✚ Stack height: 4.2m high above ground level.

Zinc furnaces:

- ✚ Zinc Furnaces (1x 0.25Ton and 1Ton);
- ✚ Each fuel fired furnace is fitted with an extraction hood that is linked to the ducting, filtration and shut-off valves and a centrifugal fan of 3720m³.h-1;
- ✚ Stack height: 6.65m high above ground level.

10.4 Alternative D (No-Go Alternative)

In the absence of the Armscor dockyard foundry's operations, Armscor (SOC) Ltd. will be unable to provide components for repair and servicing of navy vessels. As a result, Armscor will be not in a position to render adequate service to SA Navy in Simon's Town. This will in return hamper the Defence Force capability to conduct its mandate of protecting the sovereignty of South Africa (***Refer to Section 9***). Therefore, projects that are proposed on public land and/or for the public good should consider the major development alternatives that would meet the stated need for and purpose of the project (DEAT, 2004a).

The EAP is therefore of the view that the NO-GO option is undesirable in the face of social and economic needs of South Africa.

10.5 Preferred Alternatives

The role of alternatives is to find the most effective way of meeting the need and purpose of the proposal, either through enhancing the environmental benefits of the proposed activity, and or through reducing or avoiding potentially significant negative impacts (DEAT, 2004a).

With 'Alternative A: Demand Alternative', Armscor dockyard foundry will have minimal ambient air pollution as the casting will be carried on need basis, this will be consolidated with the 'Scheduling Alternative'.

With 'Alternative B: Scheduling Alternative', Armscor dockyard foundry will only result in ambient air pollution within staggering fixed periods, unlike the continuous day to day emissions. As the casting orders will be consolidated and be undertaken in a batch process. This will give a relief to ambient air quality, as the pollution will only be experienced on certain

fixed periods. This will also consider other aspect such as the prevailing wind directions and velocity.

With 'Alternative C: Technology Alternative' Amcor dockyard foundry functioned by two (2) independent extraction systems for the copper and aluminium furnaces, and the zinc furnaces. Each fuel fired furnace is fitted with an extraction hood that is linked to the ducting, filtration and shut-off valves and a centrifugal fan of 17000m³.h-1.

These alternatives cannot be evaluated in isolation as they are interlinked to one another.

10.6 Environmental sensitivity for potential alternatives

The qualitative sensitivity exercise for the proposed alternatives involves the use of preliminary desktop studies and GIS Environmental Desktop studies under the following themes:

1) *Biophysical Environment:*

- ✚ Biodiversity (flora& fauna);
- ✚ Atmospheric emissions;
- ✚ Hydrological features (surface and ground);

2) *Social:*

- ✚ Ambient Air Quality
- ✚ Pollution and Waste
- ✚ Palaeontological, archaeological, cultural and heritage

The (**Table 9**) provides a description of the various categories used in the environmental sensitivity exercise. This table should be read in conjunction with (Section 11) below. The five (5) categories of sensitivities are outlined by the legend below.

LEGEND:

Sensitivity Significance	Colour Code
Low	L
Low-Medium	L
Medium	M
Medium-High	MH
High	H

Table 9: Description of the various sensitivity categories

Study Component	Category	Description
Biophysical Components		
Biodiversity (flora & fauna);	High Sensitivity	<p>The project has no direct impact on the vegetation, as the foundry is already operational within the dockyard. The activity does not require vegetation clearance.</p> <p>The preliminary desktop studies for fauna availability identify the following attributes within the region:</p> <ul style="list-style-type: none"> ○ Availability of endemic species within study region ○ Availability of vulnerable species within a study region <p>The environmental screening tool has picked up the Terrestrial Biodiversity Theme, as very high. However, there were no CBAs within the project reach. However, the perimeter of ambient air quality coverage will be determined by an Air Quality Impact Assessment.</p>
Atmospheric Emission	High Sensitivity	<p>The foundry has a direct negative impact on ambient air quality, due to emission of the flu gases of chemical compounds such as cadmium, lead, sulphur dioxide, and other chemical compounds, depending on the furnace input.</p> <p>Amscor dockyard foundry's operation has a direct impact on ambient air quality, atmospheric emission and foreseen to the climate, as a result, it must be regulated</p>

Study Component	Category	Description
Hydrological features (surface and ground);	Low Sensitivity	<p>The hydrological features comprehend for a combination of the following attributes:</p> <ul style="list-style-type: none"> ○ Noticeable, that an entire site is not sitting on surface water (wetland), no rivers within the project reach <p>Potential impacts on groundwater may arise if dangerous substances are allowed to leak onto bare soil and potentially leach into the ground.</p> <ul style="list-style-type: none"> ○ However, the rest of the site paved, and it is unlikely that groundwater pollution may occur as a result of the current activities on site. Most areas where materials are stored are under roof and stored within lined and bunded facilities, therefore rainwater does not leach through or wash hazardous substances into clean water systems from these roofed storage areas.
Social		
Ambient Air Quality	High Sensitivity	The foundry has a direct negative impact on ambient air quality, due to emission of the flu gases of chemical compounds such as cadmium, lead, sulphur dioxide, and other chemical compounds, depending on the furnace input.
Pollution and Waste	Medium-High Sensitivity	Amscor Dockyard Foundry generate waste in a form of scrap metal, grits, molding sand, and other hazardous waste.
Social (including visual and noise)	Low Sensitivity	<p>The social on aspects of visual and noise comprehends for a combination of the following attributes:</p> <ul style="list-style-type: none"> ○ Negligible Visual Impact, as the foundry has been in operation since 1968, is within the dockyard which is largely transformed ○ The foundry is located within the dockyard for SA Naval Base, as a noise generated by the operations and activities on site are significantly muffled due to most activities

Study Component	Category	Description
		taking place within the dockyard workshops.
Palaeontological, archaeological, cultural and heritage;	Low- Sensitivity	The project site has been operated as a foundry since 1968. Any impacts that may have been generated on cultural or historical sites cannot be mitigated at this late stage. The activity on site will not be changing, but merely applying for licensing in accordance with the current environmental legislation. It is, therefore, motivated that it is unlikely that any artefacts of cultural or historical value remains on site and that the continuing operation will not make any new significant impact in this regard.
Pollution and Waste	Medium-High	<p>The social on aspects comprehends for a combination of the following attributes:</p> <ul style="list-style-type: none"> ○ Some of the possible solid and liquid waste during the construction ○ Certain activities during construction could have a minor impact on the ambient air as a result dust from construction areas. ○ Influx of people for housing opportunities will need more waste management services

11 DESCRIPTION OF BASELINE ENVIRONMENT

This section provides a general description of the status quo of the receiving environment in the project area. This serves to provide the context within which the environmental aspects within the project region and site are accrued. It is most important to note that the description of a receiving environment form an integral environmental assessment tool that guides the identification of sensitive environmental features and possible receptors of the effects of the proposed project.

11.1 Climate

The Southern African region is divided into three climatic regions; Wet, dry, and moderate regions. Western Cape encompasses both, with categories classified by the Köppen-Geiger system such as; warm-summer Mediterranean climate (*Csb*), cold semi-arid climates (*BSk*), oceanic climate (*Cfb*), hot-summer Mediterranean climate (*Csa*), hot semi-arid climates (*BSh*), humid subtropical climate (*Cfa*), cold desert climates (*BWk*), and hot desert climates (*BWh*). The region is mostly dominated by are *Csb*, *BSk*, *Cfb*, and *Csa* (Climate-Data.org).

The climate of the study region within Cape Peninsula, in particular the Simon’s Town is warm and temperate. The regional climate in Simon’s Town falls under the (*Csb*), annual mean temperature of (16.6 °C), the annual precipitation of 668 mm mostly received during winter to which this period also records the highest humidity. Most of the precipitation falls within June, averaging 118 mm, while the driest period is experienced in February averaging 19 mm, to which is characterised by the lowest humidity (Climate-Data.Org).

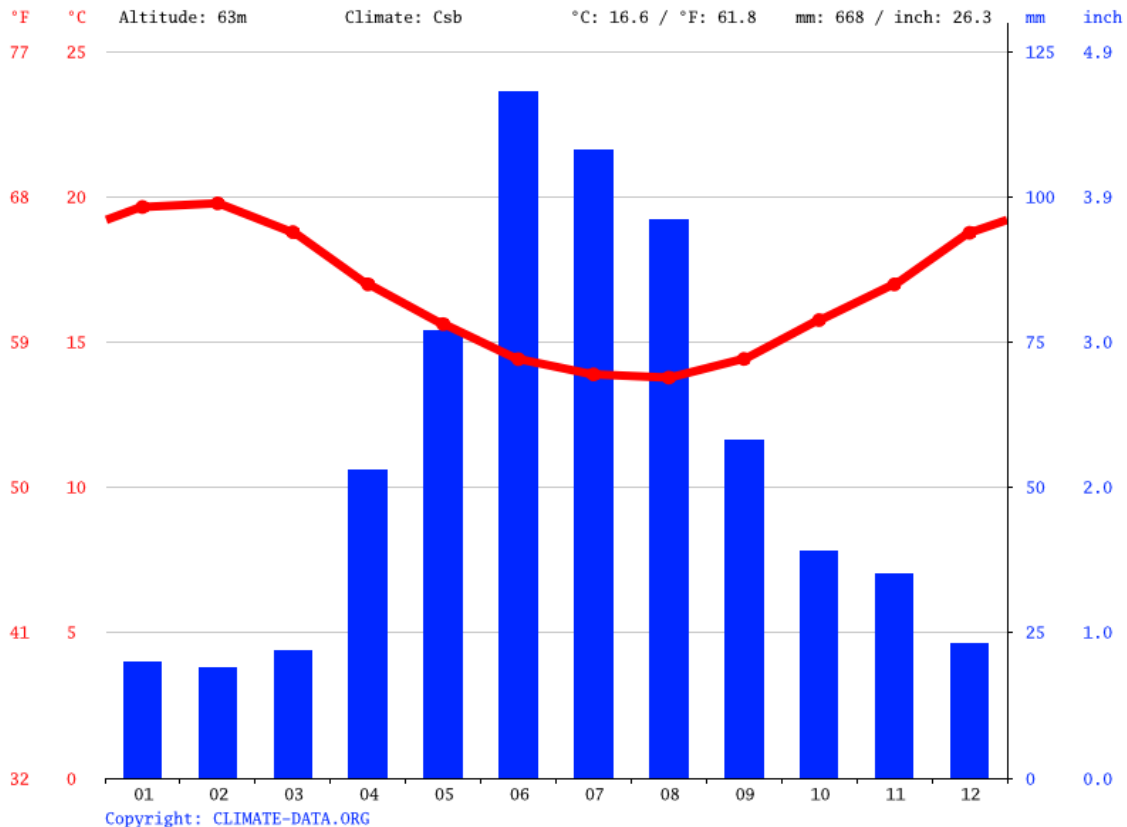


Figure 6: Simon’s Town climate graph [Source: Climate-Data.Org]

As, discussed in (**Section 4**) the foundry has a great potential for ambient air pollution and atmospheric emission, as a result of flu gasses of chemical compounds that is formed during the operation. The climatic baseline environment aspect is the direct recipient of air pollution from the foundry’s operation. Therefore, the Department of Environmental Affairs (DEA) has published a list of activities which result in atmospheric emissions and associated minimum standards. The Armscor Dockyard is classified as ‘Category 4, Sub-category 4.10’ of NEM: AQA (Act No.39 of 2004), listed in GN 893 of November 22, 2013, as amended in June 2015. “Production and or casting of iron, iron ores, steel or ferroalloys, including the cleaning of castings and handling of casting mould materials.”

Other factor to be taken into consideration is the prevailing winds and wind velocity within the study area. The meteoblue climate diagram (**Figure 7**) below illustrate the mean wind velocities. The green shaded area displays a minimum and maximum mean monthly wind velocity, at a given month. The graphically representation provides that the prevalent maximum winds velocity of approximately 15km/h-17km/h in monthly average are experienced during summer season, mostly between October and March, while the period between April to September range between 13km/h to 14km/h.

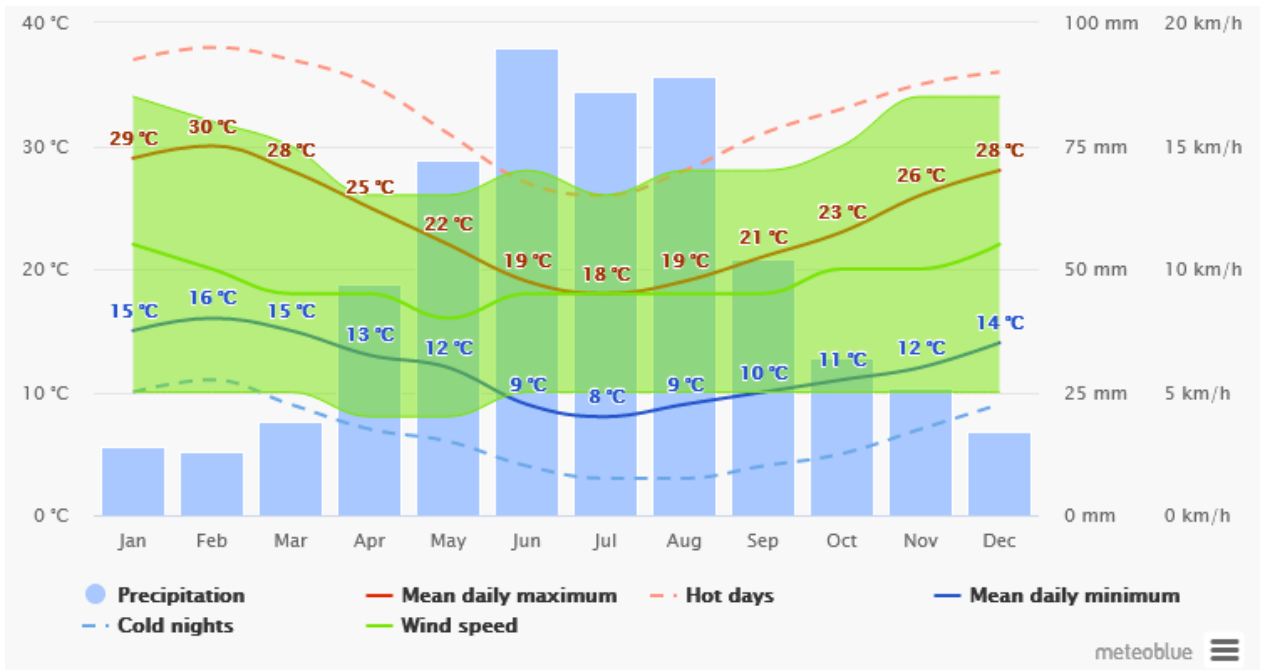


Figure 7: Simon's Town mean wind velocity [Source: Meteoblue Climate Graphs]

11.1.1 Potential impact

Amscor dockyard foundry's operation has a direct impact on ambient air quality, atmospheric emission and foreseen to the climate, as a result, it must be regulated. Air Emissions Licenses (AELs) are obligatory under the NEM: AQA (Act No.39 of 2004) for activities that result in atmospheric emissions which have a significant negative environmental impact. The Armscor Dockyard is regulated under 'Category 4, Sub-category 4.10' of NEM: AQA (Act No.39 of 2004), listed in GN 893 of November 22, 2013, as amended in June 2015. Therefore, measures to regulate the foundry's activities that result in atmospheric emissions will be considered further in the EIR, through associated Air Quality Impact Assessment and EMPr.

11.2 Hydrology

The hydrological system comprised of an interlinked system of ecosystems such as the headwaters of a river catchment, rivers, and wetlands downstream, lakes, groundwater, estuaries, and the marine environment. The Western Cape's freshwater ecosystems comprise diverse rivers and wetlands, as discuss below (Pool-Stanvliet, Duffell-Canham, Pence, & Smart, 2017).

11.2.1 Rivers

The headwaters of Western Cape are supported by mountain catchments, often associated with seeps and other wetland types. These river systems flow down through the foothills to the lowlands and plains, until they form estuaries and emptied in both Indian and Atlantic Oceans, of which are listed within sections of 10 different ecoregions, namely the Drought corridor, Southern Folded Mountains, South-eastern coastal belt, Great Karoo, Southern coastal belt, Western Folded Mountains, South-western coastal belt, Western coastal belt, Nama Karoo, and Namaqua highlands. These rivers are classified as a National Freshwater Ecosystem Priority Area (NFEPA) River (Pool-Stanvliet, Duffell-Canham, Pence, & Smart, 2017).

The project site is located within G22A Quaternary Catchments under Berg-Olifants Water Management Area. However, there are no rivers within the reach 500m coverage of the project area (**Figure 8**).

11.2.2 Wetlands

The Western Cape plains host a number of wetland range in differing altitudinal zones, with diverse wetland category, namely: plain, seeps, wilderness lakes, and vleis etc. Wetlands are largely known for providing species habitat and ecosystem services. The region is estimated to have approximately 300 000 ha of wetland overlay, which could be translated into 1% of provincial land cover. However, only 13% of these wetlands are still intact, with a further 34% being moderately modified and the remaining 53% found to be heavily to critically modified. (Pool-Stanvliet, *et al.*, 2017).

Noticeable, at the project area there are numerous wetland and pans dispersed across the high altitudes of Cape Peninsula, these wetlands characterised of national wetlands and NFEPA Wetlands. However, these wetlands are not within the project reach (**Figure 8**).

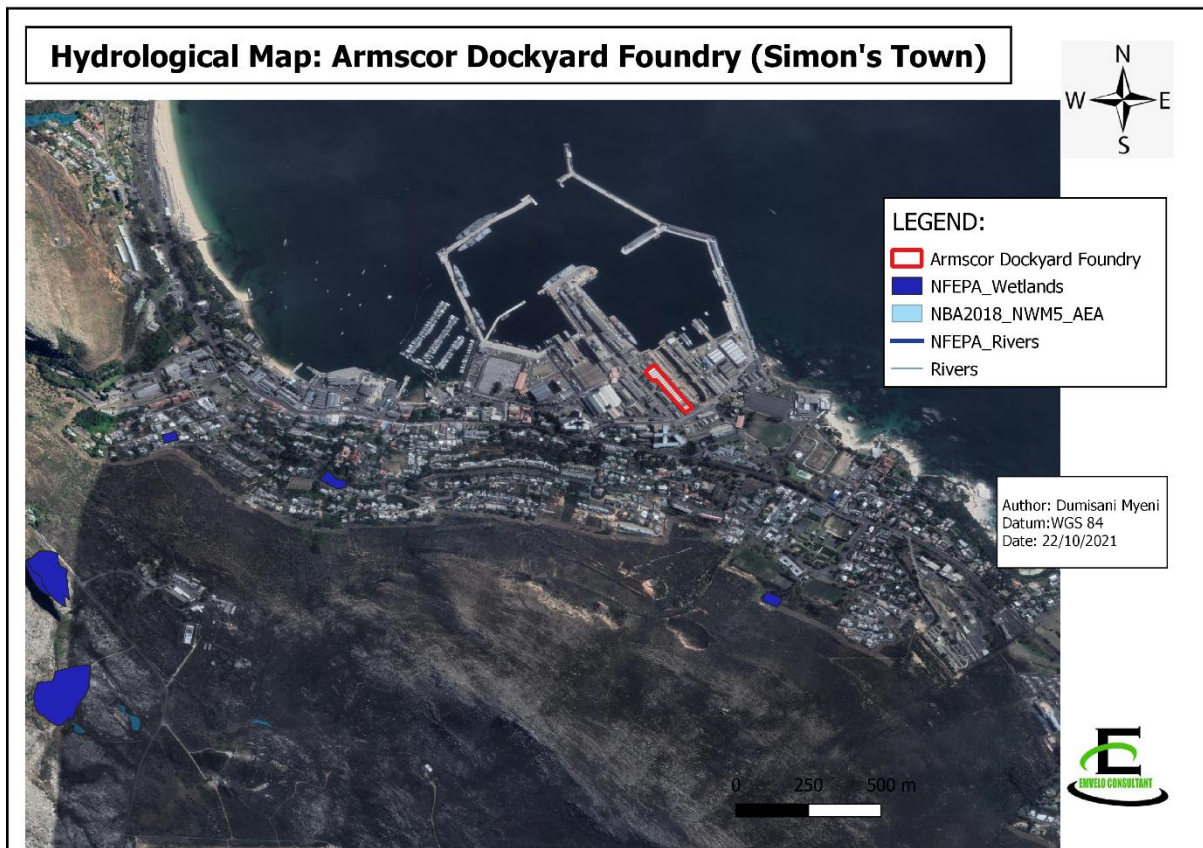


Figure 8: Terrestrial Hydrological Map (Armscor Dockyard Foundry)

11.2.3 Potential impacts of the project hydrological features

The impacts on wetlands systems are expected to be minimal, this is partly because site is not sitting on these systems. Stormwater runoff on site is contained in the site's storm water management system which in turn connects to the municipal system.

The impacts could only be linked to faunal species, who might be affected due to ambient air pollution as a result of emissions. However, this will be further explored by Air Quality Impact Assessment, and Terrestrial Biodiversity Impact Assessment. The mitigation and recommendation will be presented in the Environmental Impact Report.

11.3 Ground Water Quality

No boreholes are located at the project site and there is no information on the quality of the groundwater below the study site.

11.3.1 Potential Impact

Potential impacts on groundwater may arise if dangerous substances are allowed to leak onto bare soil and potentially leach into the ground. However, the rest of the site is concrete paved, and it is unlikely that groundwater pollution may occur as a result of the current activities on site. Most areas where materials are stored are under roof and stored within lined and bunded facilities, therefore rainwater does not leach through or wash hazardous substances into clean water systems from these roofed storage areas.

11.4 Topography

Simon's Town is situated within foothills of Cape Peninsula on the shores of False Bay. The study area in Simon's Town is characterised of gently steep terrain, with slope gradient of approximately 17° (Average 29%) ranging from 0m to 546m above mean sea-level within 2km distance. The site is within the foothill of Cape Peninsula, located at approximately 6m above mean sea level on the shores of Atlantic Ocean, False Bay (**Figure 9**).

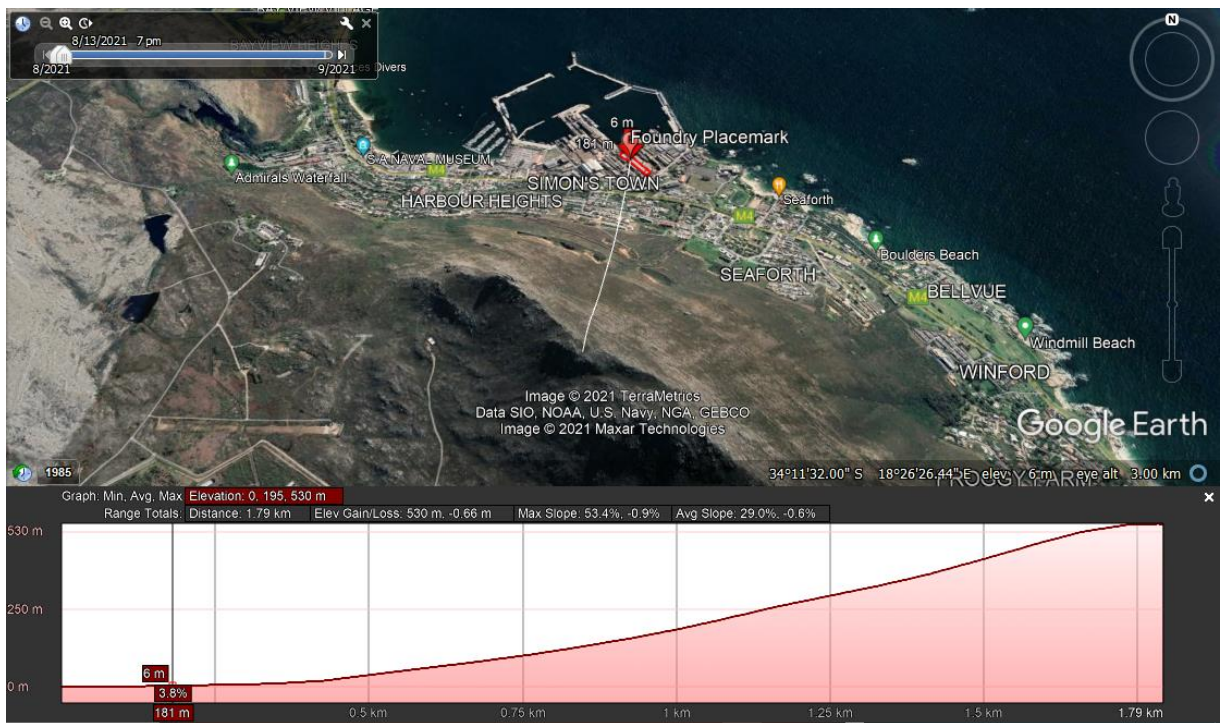


Figure 9: Elevation within the study area (Simon's Town)

11.4.1 Potential impacts

The topography characteristic of the study area comprises of a gentle steep terrain. The highest area for residential is situated at 102m above mean sea-level at the foothill of Cape Peninsula, at approximately 1km away from the Dockyard Foundry. The Air Quality Impact Assessment will be conducted to describe potential impacts, likely associated with residential within highest altitudes within the study area. The impact mitigation will be discussed in EIR.

11.5 Biomes

The Western Cape hoist five distinct biomes of high levels of diversity and endemism. These biomes occupy proportional percentage of South African biomes, namely; Fynbos (79%), Succulent Karoo (35%), Nama Karoo (11%), Albany Thicket (5%) and Afrotemperate Forest (47%), to which are classified as 'Critical Endangered'. Also, a smallest proportion of Grassland Biome (0.03%) situated along the plains (Mucina & Rutherford 2006, as cited in Pool-Stanvliet, *et al.* 2017).

Moreover, the study area falls under the Fynbos Biome, with predominantly, Peninsula Granite Fynbos and Peninsula Sandstone Fynbos (**Figure 12**).

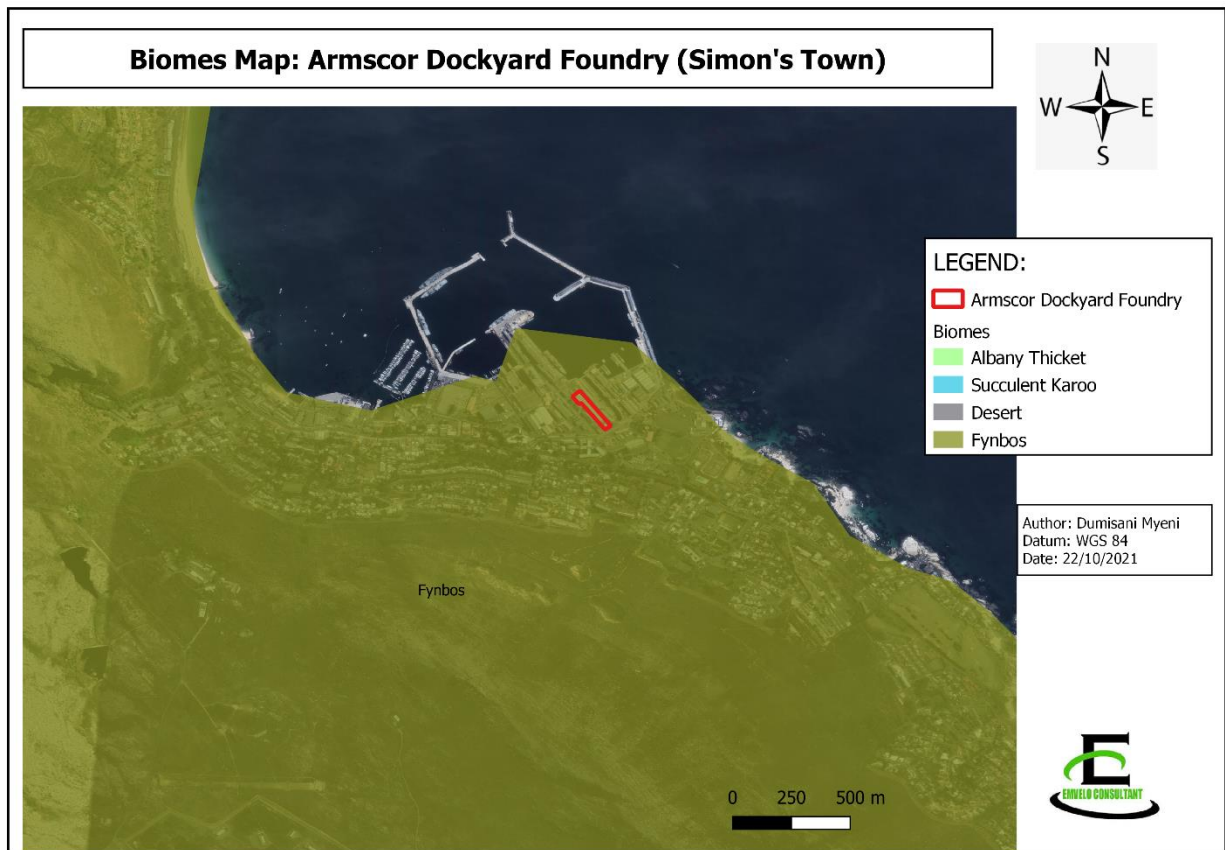


Figure 10: Map Showing the biome within a study area

11.6 Flora

As discussed in (**Section 11.5**) there is high levels of vegetational diversity and endemism within the Western Cape region, underpinned by five distinct biomes. In addition, the Western Cape region is overlaid by 24 vegetation units that qualify as '**Critically Endangered**', '**Endangered**', and '**Vulnerable**' a total of 67 qualifying as '**Threatened**' amongst which are cape fynbos species, alluvial vegetation species, succulent species, and spekboomveld (Pool-Stanvliet, *et al.*, 2017).

The vegetation type with the study area (**Figure 12**) is dominantly, Peninsula Granite Fynbos (FFg3) '**Critically Endangered**' of a 30% conservation target, with a southern inland intrusion of Peninsula Sandstone Fynbos (FFs9) '**Endangered**' of a 30% conservation target (Mucina & Rutherford, 2006).

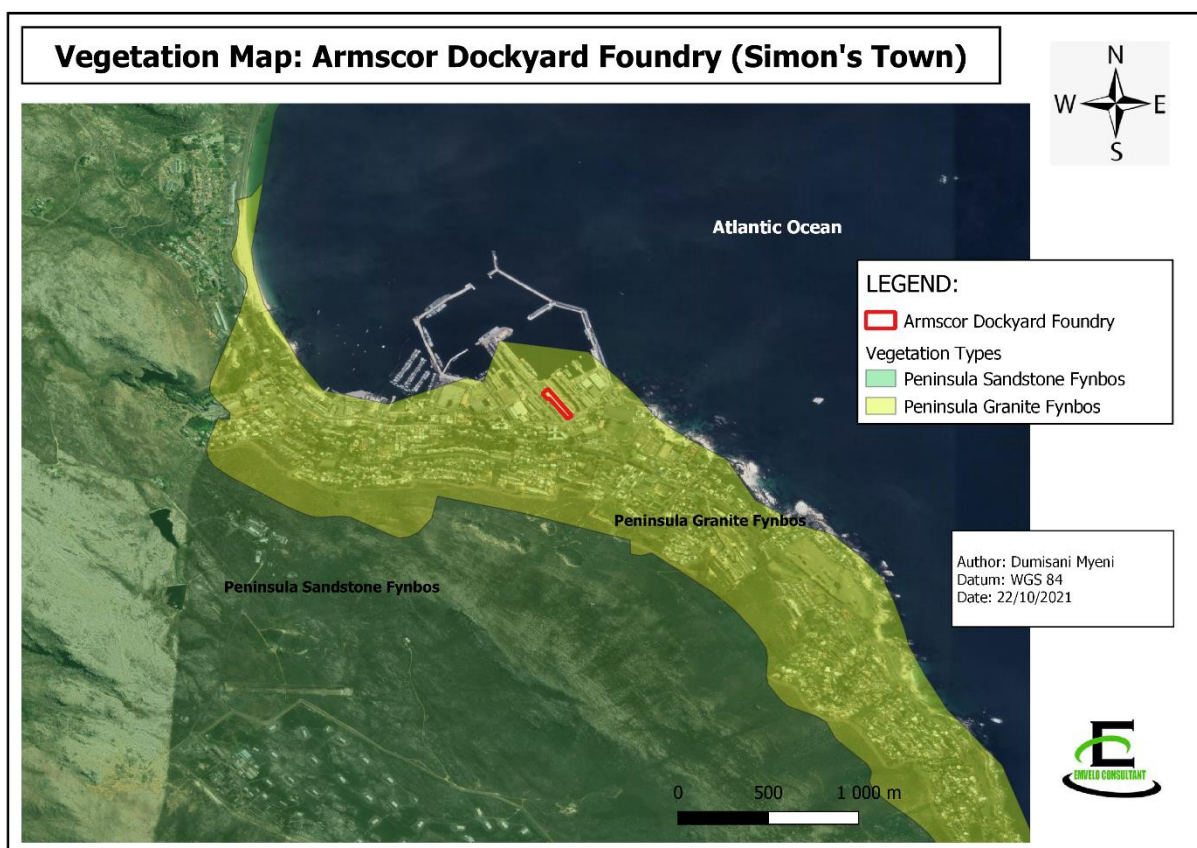


Figure 11: Map showing the vegetation types within study area

11.6.1 Potential Impacts

The project has no direct impact on the vegetation, as the foundry is already operational within the dockyard. The activity does not require vegetation clearance. The historical and existing activities undertaken on site, together with the buildings, infrastructure and paving situated on site have rendered the site with no natural vegetation or habitat. Also, the surrounding land is built up with both commercial land and settlement land uses.

However, it is important to note that the neighbouring vegetation support species habitat, and that some species are endemic to particular habitat. The vegetation and species habitat will be assessed through Terrestrial Biodiversity Impact Assessment and discussed in EIR.

11.7 Protected Areas

Protected areas in South Africa are defined as parts of the landscape that are formally protected by law in terms of the NEM: PAA and managed primarily for the purpose of biodiversity conservation. Therefore, the Western Cape has a number of protected areas

corresponding to high levels of species endemism. The Western cape hoist several types of protected areas, namely Special Nature Reserves, National Parks, Nature Reserves, and Protected Environments, World Heritage Sites, Marine Protected Areas; Mountain Catchment Areas (MCAs). In addition, the whole of Cape Peninsula, where the project is located is regarded as Marine Protected Area (Pool-Stanvliet, *et al.*, 2017).

The site (Armscor dockyard foundry) is located at approximately 1km away from the Mountain Catchment Areas (MCAs) and is within a Marine Protected Area (MPA). Technically, the site is between Table Mountain Protected Area (MCA) and Table Mountain National Park (MPA) and bordered with the Boulder Restricted Zone (MPA) on the east, on the shores of Atlantic Ocean, in False Bay within Cape Peninsula (**Figure 12**).

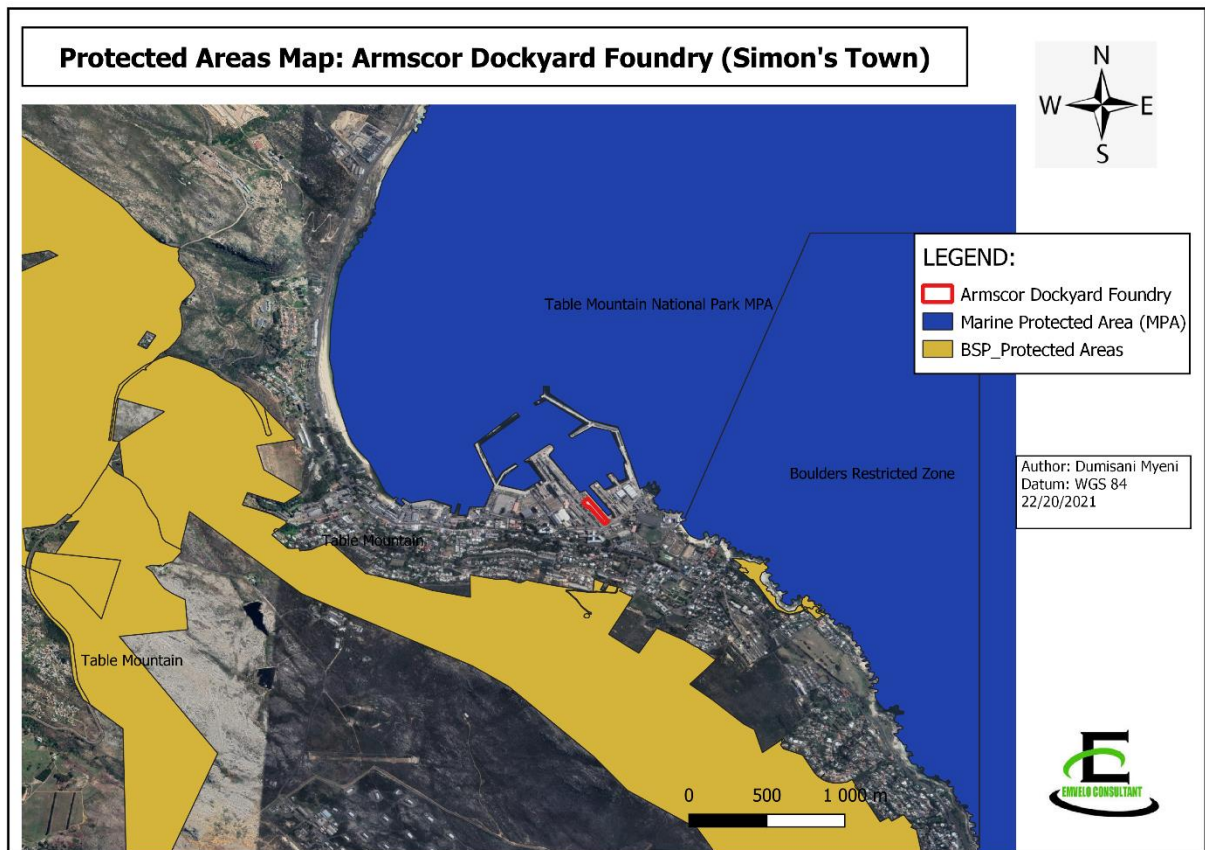


Figure 12: Map showing the protected areas within a study area

According to Ezemvelo KZN Wildlife (2016) there are two main categories of areas that are required to meet conservation targets. These two main categories include Critical Biodiversity

Areas (CBAs) and Ecological Support Areas (ESAs). The CBAs represent the crucial for supporting biodiversity features and ecosystem functioning and are required to meet biodiversity and/or process targets including corridors. While the ESAs represent the functionality but not necessarily entirely natural areas that are required to ensure the persistence and maintenance of biodiversity patterns and ecological processes within Critical Biodiversity Areas (**Refer to table 10**). However, in the in the Western Cape Province, about 80% of land that has important biodiversity on it, does not fall within formally protected areas, but is privately or communally owned land (Pool-Stanvliet, *et al.*, 2017).

Table 10: Subcategories of CBA and ESAs [Source: Ezemvelo KZN Wildlife,2016]

Critical Biodiversity Areas (CBAs) – Crucial for supporting biodiversity features and ecosystem functioning and are required to meet biodiversity and/or process targets		
Critical Biodiversity Areas: Irreplaceable (CBA1)		Areas considered critical for meeting biodiversity targets and thresholds, and which are required to ensure the persistence of viable populations of species and the functionality of ecosystems.
Critical Biodiversity Areas: Optimal (CBA2)		Areas that represent an optimised solution to meet the required biodiversity conservation targets while avoiding high-cost areas as much as possible (Category driven primarily by process but is informed by expert input).
Ecological Support Areas (ESAs) – Functional but not necessarily entirely natural areas that are required to ensure the persistence and maintenance of biodiversity patterns and ecological processes within Critical Biodiversity Areas.		
Ecological Support Areas		Functional but not necessarily entirely natural terrestrial or aquatic areas that are required to ensure the persistence and maintenance of biodiversity patterns and ecological processes within the Critical Biodiversity Areas. The area also contributes significantly to the maintenance of Ecosystem Services.
Ecological Support Areas: Species Specific		Terrestrial modified areas that provide a critical support function to a threatened or protected species, for example agricultural land or dams associated with nesting/roosting sites.
Ecological Support Areas: Buffers		Terrestrial areas identified as requiring land-use management guidance not necessarily due to biodiversity prioritisation, but in order to address

other legislation/ agreements which the biodiversity sector is mandated to address, e.g., WHS Convention, Triggers Listing Notice criteria, etc.

Although there are number of CBAs and ESA within the Cape Peninsula, however upon interrogation of the (City of Cape Town: SANBI Biodiversity Network, 2017) for terrestrial areas, it was determined that were no CBAs or ESAs located within project reach (**Figure 13**).

Species of Conservation Concern (SCC) are underpinned by ecological, economic, or cultural importance and include: those that are rare, endemic, or threatened; species with unusual distributions; and medicinal and other indigenous species that are exploited commercially or for traditional use (Pool-Stanvliet, *et al.* 2017). The CBAs and ESAs support the species diversity and SCC. Therefore, there are no SCC within the project reach, as the site falls outside CBAs and ESA. However, this will be further assessed by the Terrestrial Ecological Impact Assessment and discussed in EIR.

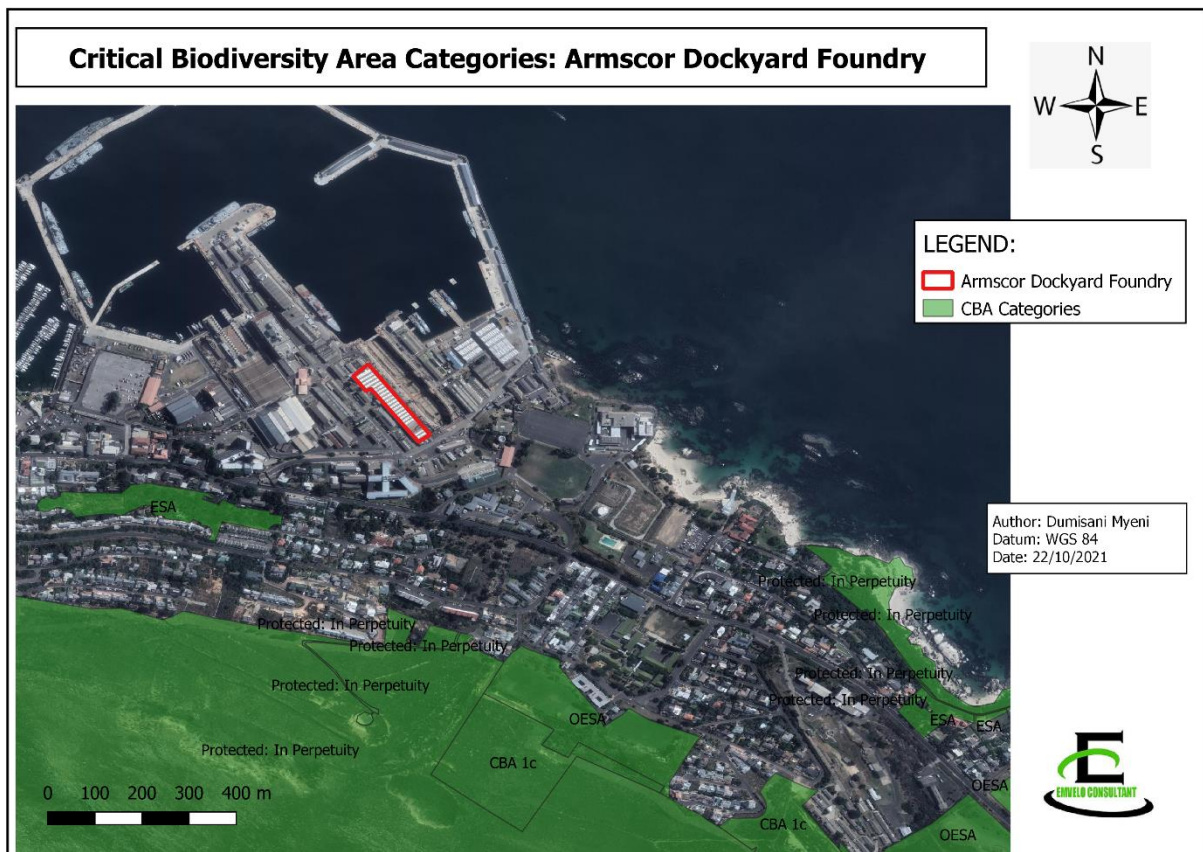


Figure 13: Map showing CBAs outside the project reach

11.7.1 Potential Impacts

There are no CBAs and ESA within the reach of the project site, as the foundry is already operational within the dockyard. The activity does not require vegetation clearance. The historical and existing activities undertaken on site, together with the buildings, infrastructure and paving situated on site have rendered the site with no natural vegetation or habitat. Also, the surrounding land is built up with both commercial land and settlement land uses.

However, the perimeter of ambient air quality coverage will be determined by the Air Quality Impact Assessment. The Terrestrial Ecological Impact Assessment will be conducted and further discussed in EIR phase. The identification of Species of Conservation Concern (SCC) will be covered in the IER through the Terrestrial Biodiversity Impact Assessment.

11.8 Fauna

The Western Cape has 172 described mammal taxa (species and subspecies), with 19 amongst these species are listed as '**Threatened**', three (3) are 'Critically Endangered', four (4) are 'Endangered', 10 are 'Vulnerable', and 18 are 'Near Threatened'. Also, some taxa are extant and endemic to the Western Cape such as *Acomys subspinosus* (Cape spiny mouse), *Amblysomus corriae devilliersii* (Fynbos golden mole), *Bathyergus suillus* (Cape dune mole rat), *Cryptochloris zyli* (Van Zyl's golden mole), *Damaliscus pygargus* (Bontebok), *Dasymys capensis* (Cape water rat), *Hippotragus leucophaeus* (Blue antelope), *Myosorex longicaudatus boosmani* (Boosmansbos long-tailed forest shrew) *Tatera afra* (Cape gerbil). With 10 near endemic taxa, and some taxa are considered locally extinct in terms of South African Red Data Book, as well as regional assessment (Pool-Stanvliet, *et al.*, 2017).

The Western Cape recorded approximately 600 bird species, with (48%) territorial and (52%) being migratory species mostly south during summer. The region proves to have 93 bird species which are listed as threatened and six (6) of those are regionally extinct (Pool-Stanvliet, *et al.*, 2017).

The Western Cape also recorded approximately 153 reptile species to which (14%) are endemic to the province. Eleven species are threatened: three Critically Endangered, two Endangered, six Vulnerable; and eight are Near Threatened, to which most are intolerant of habitat transformation (Pool-Stanvliet, *et al.*, 2017).

The inveterate dominate the Cape Floristic Region, also it is noted that the invertebrate constitute more than 80% of all species diversity within Western Cape. There are three species of dragonfly of great concern in the Western Cape, which two amongst are 'Critically Endangered' and one 'Endangered'. Also, 37 species of Lepidoptera that are endemic to the Western Cape however, the majority are of Least Concern, while one (1) is extinct and two (2) 'Critically Endangered' (Pool-Stanvliet, *et al.*, 2017).

The Cape Peninsula region was interrogated against Quarter Degree Square (3418AB), (**Figure 14**) obtained from Fitzpatrick Institute of African Ornithology Virtual Museum (2019), the region confirms the availability of mammal 108 species, with two (2) are 'Vulnerable', namely: *Damaliscus pygargus pygargus* (Bontebok), *Hippotragus niger niger*, and three (3) which are 'Near Threatened' namely: *Pelea capreolus* (Vaal Rhebok), *Aonyx capensis* (African Clawless Otter), and *Mirounga leonine* (Southern Elephant Seal).

The is interrogated against Quarter Degree Square (3418AB), also recorded a total of 167 bird species with one (1) 'Near Threatened, namely: *Buteo trizonatus* (Forest Buzzard), four (4) 'Endangered', namely: *Phalacrocorax africanus* (Reed (Long-tailed) Cormorant), *Phalacrocorax neglectus* (Bank Cormorant), *Eudyptes moseleyi* (Northern Rockhopper Penguin), *Spheniscus demersus* (African (Jackass) Penguin), and *Scotopelia peli* (Pel's Fishing-Owl).

The is interrogated against Quarter Degree Square (3418AB), further recorded a total of 112 Lepidoptera species, which three of conservation concern, namely, *Kedestes barberae bunta* (Cape flats freckled ranger) 'Critically Endangered', *Kedestes lenis lenis* (Unique ranger) 'Endangered', and *Aloeides egerides* (Red Hill russet) 'Vulnerable'. The total of 49 reptile species with only six (6) of conservation concern, namely: *Bradypodion pumilum* (Cape Dwarf Chameleon), *Caretta caretta* (Loggerhead Turtle), and *Psammophis leightoni* (Cape Sand Snake) 'Vulnerable', *Chelonia mydas* (Green Turtle), *Cordylus niger* (Black Girdled Lizard) 'Near Threatened', and *Dermochelys coriacea* (Leatherback Turtle) 'Endangered'.

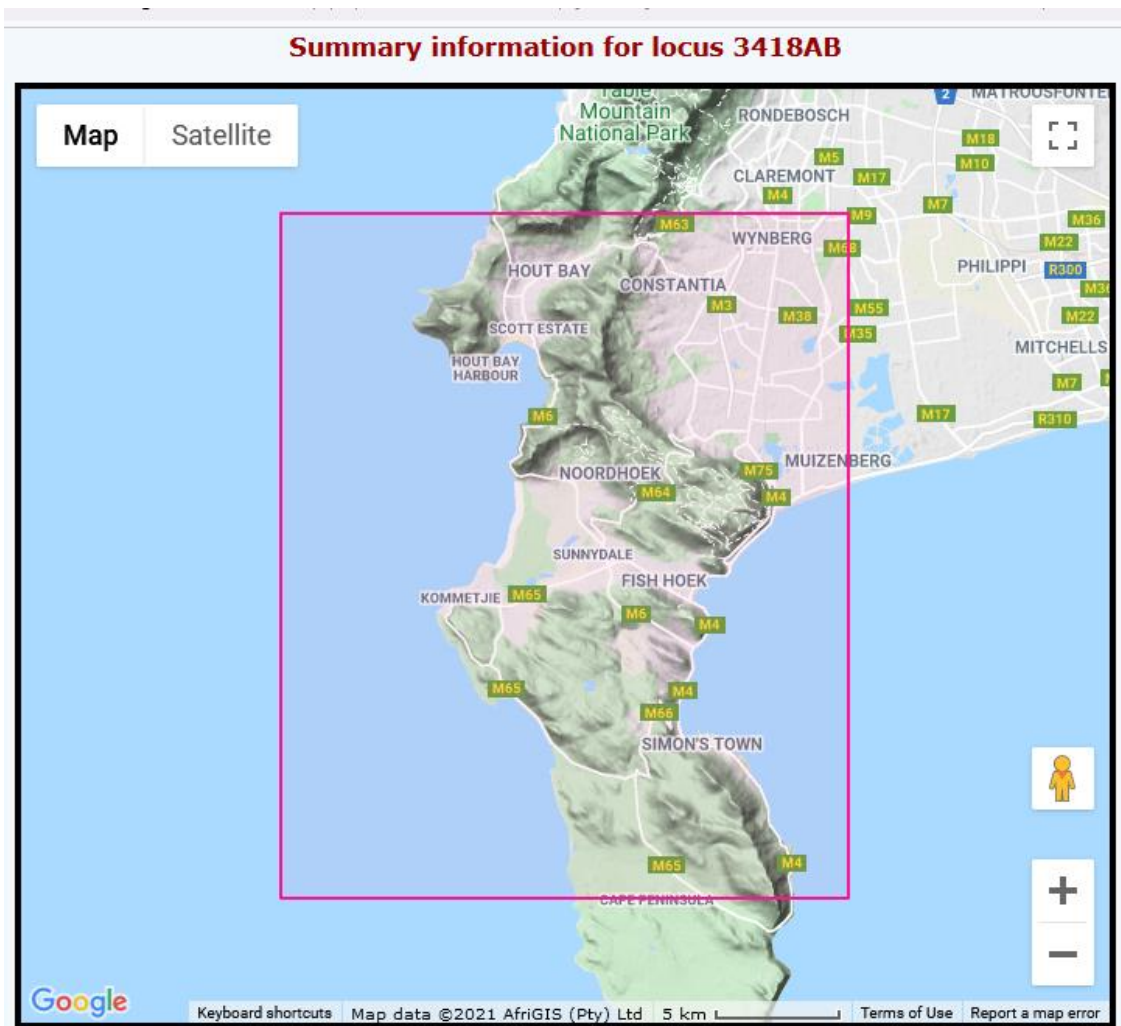


Figure 14: Locus 3418AB coverage [Source: DDI Virtual Museum (2019)]

11.8.1 Potential Impacts

There are no CBAs and ESA within the reach of the project site. It must be noted that the CBAs and ESA support biodiversity species habitat. The foundry is already operational within the dockyard. The activity does not require vegetation clearance. The historical and existing activities undertaken on site, together with the buildings, infrastructure and paving situated on site have rendered the site with no natural vegetation or habitat. Also, the surrounding land is built up with both commercial land and settlement land uses.

However, the perimeter of ambient air quality coverage will be determined by an Air Quality Impact Assessment. The Terrestrial Ecological Impact Assessment will be conducted and discussed further discussed in EIR phase. The identification of Species of Conservation

Concern (SCC) will be covered in the IER through the Terrestrial Biodiversity Impact Assessment.

11.9 Visual environment and land use character

Subject to the direct visual influence of the proposed project, the zone of visual influence can be experienced at different scales by receptors located at various distances from the site. The viewshed area and zone of visual influence for new developments is classified as follows:

- High visibility - Visible from a large area (several square kilometres, >5km radius)
- Moderate visibility - Visible from an intermediate area (several hectares, 2.5 – 5 km radius).
- Low visibility - Visible from a small area around the project site (<1km radius).

Pockets of land covers in Western Cape have undergone a land cover change, due to economic activities, largely agriculture and urbanisation. As a result, few remaining remnants of natural vegetation within these areas now of very high conservation value (Pool-Stanvliet, *et al.*, 2017).

Armcor Dockyard Foundry is situated the Simon's Town Naval Base, within which the natural environment is largely transformed, since the establishment of Naval Base with the rich history dating back to 1890s, and currently modernised to meet operational capacity. This Naval Base is surrounded by residential and businesses within the foothill of Cape Peninsula.

11.9.1 Potential Impacts

The foundry is in line with local land use as the site is within a dockyard and associated workshop buildings. Also, the site (dockyard foundry) has been operational for number of decades, since 1968. The entire site is walled, and the operations take place mostly within the warehouse infrastructure on site in the middle of the dockyard site, as a result the foundry is not visible from outside the facility. Therefore, the viewshed area and zone of visual influence for the Armcor Dockyard Foundry's operation is considered "Low Visibility" or negligible as the site streamlined to a built environmental.

11.10 Heritage and cultural aspects

The Simon's Town Naval Base has a rich intrinsic heritage dating from Dutch-East Indian Company settlements, subsequently a British Royal Navy establishment of Simon's Town Dockyard, as a result features within the Armscor Dockyard in Simon's Town are of heritage significant. It must be noted that this EIA Application is for an existing foundry within Simon's Town Naval Base. The foundry has been operation since 1968.

A preliminary desktop study for palaeontological fossils sensitivity of the Naval Base Dockyard, reveals that the site falls within 'Low sensitivity' (**Figure 15**).



Figure 15: Simon's Town Palaeontological Sensitivity

[Source: SAHRIS <https://sahris.sahra.org.za/node/add/heritage-cases>]

11.10.1 Potential Impacts

The project site has been operated as a foundry since 1968. Any impacts that may have been generated on cultural or historical sites cannot be mitigated at this late stage. The activity on site will not be changing, but merely applying for licensing in accordance with the current environmental legislation. It is, therefore, motivated that it is unlikely that any artefacts of

cultural or historical value remains on site and that the continuing operation will not make any new significant impact in this regard.

There will be no filed assessment and protocol for finds for Palaeontological Assessment, as the site is recovered to have fall within 'Low Sensitivity', also there is no construction works required as the foundry is already in operation.

11.11 Socio-economic

Armcor (SOC) Ltd has made progress in transforming itself towards having a workforce that reflects the country's demographic profile, as a result the Armcor dockyard in Simon's Town, initiated a Talent Development Programme (TDP) to provide on-the-job training with mentorship to inexperienced, largely youth and technical graduates. At the end of the learning contract, depending on the availability of posts, the said trainees are given permanent employment.

In addition, the foundry offers a job opportunity and form part of economic multiplier within Simon's Town, in a form of buying local services and goods. These local suppliers in return develop the local economy. Therefore, by aforementioned, Amcor dockyard form part in local economic development within the City of Cape Town Metropolitan.

The foundry metal casting process release the flu gases of chemical compounds, Therefore, the social impact as a results of ambient air quality and atmospheric emission cannot be overlooked. In this regard the public participation provided consensus inputs from the neighbouring community on how the foundry must manage and report the air quality data.

11.11.1 Potential Impacts

The project has social impact in terms of ambient air quality, as a result of emissions. The Air Quality Impact Assessment will be conducted to ascertain if the current emission, are above air quality thresholds. The findings and recommendation will be discussed in the EIR.

11.12 Traffic

The foundry is linked to the dockyard, which is largely established during the establishment of the Simon's Town. The foundry has been in operation since 1968, within the dockyard in Simon's Town Naval Base, with the road network accommodated the SA Naval Base as founding resource of the Simon's Town.

11.12.1 Potential Impact

The site is within the SA Naval Base, within the dockyard together with other associated naval base facilities. Traffic to and from the foundry is limited to the delivery of materials as well as the collection and removal of product and waste materials from SA Naval Base. Other traffic is related to the arrival of staff to work. The access to the site does not affect any main road traffic.

12 AMBIENT AIR POLLUTION AND WASTE

The foundry's operations lead to air pollution and waste generation, and these pollution and waste have detrimental effect on receiving environment.

12.1 Ambient Air Pollution/ Atmospheric Emission

The foundry has a direct negative impact on ambient air quality, due to emission of the flu gases of chemical compounds such as cadmium, lead, sulphur dioxide, and other chemical compounds, depending on the furnace input.

Amscor dockyard foundry uses the filters which are installed in extraction system, as a result mitigate the emission released via stacks onto atmosphere. The foundry functioned by two (2) independent extraction systems for the copper and aluminium furnaces, and the zinc furnaces.

Copper and Aluminium Furnace:

- Cu and Al Furnaces (2x 0.25Ton and 1x 0,5Ton);
- Each fuel fired furnace is fitted with an extraction hood that is linked to the ducting, filtration and shut-off valves and a centrifugal fan of 17000m³.h-1;

- Stack height: 4.2m high above ground level.

Zinc furnaces:

- Zinc Furnaces (1x 0.25Ton and 1Ton);
- Each fuel fired furnace is fitted with an extraction hood that is linked to the ducting, filtration and shut-off valves and a centrifugal fan of 3720m³.h⁻¹;
- Stack height: 6.65m high above ground level.

Currently, Amcor dockyard foundry does not have a filter register in place, it still needs to be developed for completion during cleaning or change the filters.

Amcor dockyard has been conducting an Emission Survey for yearly reporting to NAEIS on emissions inputs. This promulgated the need for undertaking of application Atmospheric Emission Licence (AEL), in order to meet environmental compliance.

12.1.1 Potential Impact

The most significant potential environmental impact associated with foundries relates to air quality. Foundries are very energy intensive, and the furnaces are known to emit significant amounts of greenhouse gases (GHGs). The foundry metal casting process releases the fumes of chemical compounds such as cadmium, lead, sulphur dioxide, and other chemical compounds, depending on the furnace input.

The foundry operates five (5) diesel fuel-fired furnaces which use (Zinc Furnace and Gun Metal/Brass Furnace). Therefore, Amcor is currently undertaking an application for an Air Emissions License in terms of the National Environmental Management Air Quality Act (Act 39 of 2004). The Air Quality Impact Assessment will be conducted to ascertain if the current emissions are above air quality thresholds. The appliances and measures to prevent air pollution will be discussed in detail in the Environmental Impact Report.

12.2 Waste

Amscor Dockyard Foundry generate waste in a form of scrap metal, grits, molding sand, and other hazardous waste. The waste is temporary stored on impervious surface and shelter area within the foundry in three (3) separate waste skips. Hazardous waste and non-hazardous waste are kept segregated and collected by a nominated certified waste service provider. The capacity of waste that is temporary stored does not exceed 100m³.

Domestic waste is collected by the Municipal service provider on a weekly basis.

12.2.1 Potential Impacts

In appropriate hazardous waste handling of waste, could have detrimental impact in nearby waterbodies and ground water.

Potential impacts on groundwater may arise if dangerous substances are allowed to leak onto bare soil and potentially leach into the ground. However, the rest of the site paved, and it is unlikely that groundwater pollution may occur as a result of the current activities on site. Most areas where materials are stored are under roof and stored within lined and bunded facilities, therefore rainwater does not leach through or wash hazardous substances into clean water systems from these roofed storage areas.

12.3 Noise management

The project site is within Amscor dockyard in SA Naval base, the entire study area emits different levels of noise due the various workshops occupying the dockyard. In addition, Sources of noise in the general surrounding area include noise generated by traffic utilising St George Street adjacent to the site.

12.3.1 Potential Impacts

The foundry is located within the dockyard for SA Naval Base, as a noise generated by the operations and activities on site are significantly muffled due to most activities taking place within the dockyard workshops.

13 WATER USE AND SANITATION

Water supply:

The water used in the SA Naval base and Amcor Dockyard at Simon's Town is serviced and potable water is supplied by the City of Cape Town Metropolitan. Therefore, it must be noted that Amcor Dockyard Foundry falls within the SA Naval base, and therefore potable water is supplied and serviced by the City of Cape Town Metropolitan.

Sewer Facilities:

The study site is serviced, and sewer facilities are connected to the Municipal services, as a result is serviced by the City of Cape Town Metropolitan

Stormwater Management:

Stormwater falling within the property is collected in the storm water management system on site, which is connected to the City of Cape Town Metropolitan storm water system.

14 ENERGY USE

The foundry operates five (5) diesel fuel-fired furnaces, the electricity for SA Naval Base and Amcor Dockyard at Simon's Town is supplied by the City of Cape Town Metropolitan. Therefore, apart from five (5) diesel fuel-fired furnaces, electricity to Amcor dockyard foundry for other operations is provided by the City of Cape Town Metropolitan. Also, according to Amcor dockyard the current electricity supply is sufficient, and it is not expected that additional capacity will be required in the future as the activities will remain the same.

15 IDENTIFICATION OF POTENTIAL IMPACTS

The Scoping is a critical step in the Environmental Impact Assessment (EIA) process, as it identifies significant issues that require further investigation as well as identifying the preferred site/s that will go through for further investigation. These issues will be carried forward into the EIA phase and subsequently the Environmental Management Plan.

This section seeks to provide an overview of environmental issues to be further investigated or prioritized during an EIA phase and methodology to be used when assessing those impacts. This allows for a more efficient and focused impact assessment in the EIA phase, where the analysis is largely limited to significant issues and reasonable alternatives.

15.1 Approach

The environmental issues associated with the proposed development were identified by referring to the following;

- ✚ Activities associated with the project life cycle.
- ✚ Activities relating to the construction phase.
- ✚ Nature and profile of the receiving environment and potential sensitive environmental features and attributes (see Section 12), which included a desktop evaluation (via literature review, specialist input, GIS, topographical maps, and aerial photography) and site investigations.
- ✚ Direct and Indirect impact related to the proposed development
- ✚ Input from Public Participation
- ✚ Legal framework and Policy Context

This section does not only provide a detailed description of the receiving environment, but the section also outlines the possible impact associated with the proposed activity.

15.2 Potential Biophysical and Social Impacts

The potential Biophysical and Social Impacts were distilled from this information and are summarised in (**Table 11**) below. There Cumulative Impacts are also explained briefly in (**Section 16**).

Table 11: Summary of Potential Biophysical Impacts

Environmental factors	Summary of Potential Impacts	Further investigation/ EIA Provisions
Foundry's Operation		
Potential Biophysical Impacts		
Flora	<ul style="list-style-type: none"> • The historical and existing activities undertaken on site, together with the buildings, infrastructure and paving situated on site have rendered the site with no natural vegetation or habitat. 	<ul style="list-style-type: none"> • EIR and EMPr
Biodiversity	<ul style="list-style-type: none"> • The continued operation of the foundry is not expected to generate additional significant impacts on habitat or biodiversity within the study area, as the site is located between Mountain Protected Area and Marine Protected Area. Therefore, impacts likely associated with large emission are: <ul style="list-style-type: none"> ○ Direct impacts on threatened faunal taxa; ○ Direct impacts on common fauna species/ faunal assemblages (including migration patterns, etc.); • Red Data species are particularly sensitive to changes in their environment, having adapted to a narrow range of specific habitat requirements. 	<ul style="list-style-type: none"> • Terrestrial Biodiversity Impact Assessment. • Air Quality Impact Assessment. • EIR and EMPr.
Impacts on Aquatic Ecosystem Functions and Services	<ul style="list-style-type: none"> • There are no rivers, wetlands, pans, or other surface water bodies present within a 500m radius of the project site. Stormwater runoff on site is contained in the site's storm water management system which in turn connects to the municipal system. • The foundry is within the dockyard (marine coast), however as mentioned above, the stormwater runoff on site is contained in the site's storm water management system which in turn connects to the municipal system. 	<ul style="list-style-type: none"> • EIR and EMPr.
Ground Water	<ul style="list-style-type: none"> • Potential impacts on groundwater may arise if dangerous substances are allowed to leak onto bare soil and potentially leach into the ground. Contamination of ground 	<ul style="list-style-type: none"> • EIR and EMPr.

Environmental factors	Summary of Potential Impacts	Further investigation/ EIA Provisions
Foundry's Operation		
Potential Biophysical Impacts		
	<p>water due to hydrocarbon spillage and seepage into groundwater reserves, affecting groundwater quality.</p> <ul style="list-style-type: none"> • However, the rest of the site is concrete paved, and it is unlikely that groundwater pollution may occur as a result of the current activities on site. Most areas where materials are stored are under roof and stored within lined and bunded facilities. 	
Ambient Air/Atmospheric Pollution	<ul style="list-style-type: none"> • The most significant potential environmental impact associated with foundries relates to air quality. Foundries are very energy intensive, and the furnaces are known to emit significant amounts of greenhouse gases (GHGs). • The foundry metal casting process release the flu gases of chemical compounds such as cadmium, lead, sulphur dioxide, and other chemical compounds, depending on the furnace input, these is release into atmosphere via stacks. 	<ul style="list-style-type: none"> • Air Quality Impact Assessment • EIR and EMPr.
Waste (Non-Hazardous and Hazardous Waste)	<ul style="list-style-type: none"> • Amscor Dockyard Foundry generate waste in a form of scrap metal, grits, molding sand, and other hazardous waste. • Potential impacts on groundwater may arise if dangerous substances are allowed to leak onto bare soil and potentially leach into the ground. However, the rest of the site is concrete paved, and it is unlikely that groundwater pollution may occur as a result of the current activities on site. Waste is stored in waste skips under roof and stored within lined and bunded facilities 	<ul style="list-style-type: none"> • EIR and EMPr
Geology	<ul style="list-style-type: none"> • Amscor Dockyard Foundry is in operation, no construction works, or further sited development will take place. • The site is within the dockyard, therefore characterised of paved, and hard impervious surface. Therefore, it is anticipated that no geological instability will occur. 	<ul style="list-style-type: none"> • N/A

Table 12: Summary of Potential Social Impacts

Environmental factors	Summary of Potential impacts	Further investigation/ EIA Provisions
Foundry's Operations		
Potential Social Impacts		
Visual	<ul style="list-style-type: none"> No Impact on the current visual landscape. No Impact on sensitive receptors 	<ul style="list-style-type: none"> EIR and EMPr.
Ambient Air Quality	<ul style="list-style-type: none"> The foundry metal casting process release the flu gases of chemical compounds such as cadmium, lead, sulphur dioxide, and other chemical compounds, depending on the furnace input, these is release into atmosphere via stacks. 	<ul style="list-style-type: none"> Air Quality Impact Assessment EIR and EMPr.
Paleontological, Archaeological, Cultural and Heritage	<ul style="list-style-type: none"> The project site has been operated as a foundry since 1968. Any impacts that may have been generated on cultural or historical sites cannot be mitigated at this late stage. The activity on site will not be changing, but merely applying for licensing in accordance with the current environmental legislation. 	<ul style="list-style-type: none"> EIR and EMPr.
Socio-economic	<p>Positive Impacts:</p> <ul style="list-style-type: none"> Armcor Dockyard Foundry offers a job opportunity and form part of economic multiplier within Simon's Town, in a form of buying local services and goods. 	<ul style="list-style-type: none"> EIR and EMPr.
Traffic	<ul style="list-style-type: none"> The site is within the SA Naval Base, within the dockyard together with other associated naval base facilities. Traffic to and from the foundry is limited to the delivery of materials as well as the collection and removal of product and waste materials from SA Naval Base. Other traffic is related to the arrival of staff to work. The access to the site does not affect any main road traffic. 	<ul style="list-style-type: none"> EIR and EMPr
Noise	<ul style="list-style-type: none"> The foundry is located within the dockyard for SA Naval Base, as a noise generated by the operations and activities on site are significantly muffled due to most activities taking place within the dockyard workshops. 	<ul style="list-style-type: none"> EIR and EMPr.

16 CUMULATIVE IMPACTS

In terms of the EIA Regulations, the cumulative impact is considered from the holistic point of view. It means that the impacts of an activity are considered from the past, present, and foreseeable future together with the impact of activities associated with that activity. The activity itself may not be significant, but when combined with the existing and reasonably foreseeable impacts eventuating from similar or diverse activities may result in a significant change. “Cumulative impacts can be: Additive, synergistic, time crowding, neutralizing and space crowding” (DEA, 2017;14), as outlined on (**Table 13**) below.

Table 13: Cumulative Impacts

Impact	Description Mitigation
Atmospheric Emission	Uncontrolled continuous emission will be most significant cumulative impact in terms of GHG, as the foundry is within the dockyard, would be related to air quality as the result of emission from vessels operations and maintenance etc.
Ambient Air Pollution	The Uncontrolled continuous emission will be most significant cumulative impact in terms of ambient air pollution within the radius of Simon’s Town, as the foundry is within the dockyard, would be related to air quality as the result of emission from vessels operations and maintenance etc.
Noise Pollution	The foundry is located within the dockyard for SA Naval Base, as a noise generated by the operations and activities on site
Economic Development	Employment opportunities, and suppliers within the region benefit through operation of a foundry.

16.1 Mitigation Measures

The EIA report will provide a detailed analysis of the impact and their significance to the receiving environment, using the above methodology as well as the input from the project team specialists’ studies, comments from Interested and Affected Parties.

A suitable and practical mitigation measure will be developed to minimize the impact of the proposed activity on the receiving environment. The mitigation measures will seek to achieve the following;

- ✚ Initial efforts will strive to prevent the occurrence of the impact
- ✚ If the above is not achievable, mitigation will include measures that reduce or minimize the significance of the impact to an acceptable level;
- ✚ Remediation and rehabilitation will take place if measures cannot suitably prevent or reduce the impacts, or to address the residual impacts; and
- ✚ As a last measure, compensation will be employed as a form of mitigating the impacts associated with a project.

The mitigation measure will be included in the EMPr, which will form part of the EIA report. Together with the Environmental Authorization, the EMPr is binding on the Applicant, all contractors and sub-contractors and visitors to the site.

17 IMPACT ASSESSMENT METHODOLOGY

Each impact identified is assessed in terms of probability (likelihood of occurring), scale (spatial scale), magnitude (severity) and duration (temporal scale). To effectively implement the adopted scientific approach in determining the significance of the environmental impact, a numerical value was linked to each rating scale.

The following criteria will be applied to the impact assessment for the project:

Occurrence:

Probability - the probability of the impact describes the likelihood of the impact actually occurring.

Impact duration - the duration of the impact describes the period of time during which an environmental system or component is changed by the impact.

Severity:

Magnitude – refers to the ‘degree of disturbance’ to biophysical systems and components which expresses the change in the health, functioning and/or role of the system or component as a result of an activity.

Scale/extent - the extent of the impact generally expresses the spatial influence of the effects produced by a disturbance to an environmental system or component.

The following Scale will be used:

Table 14: Impact Assessment Criteria

<p><i>Probability = P</i></p> <p>5 – Definite (More than 80 % chance of occurrence)</p> <p>4 – Probable (Between 60-80% chance of occurrence)</p> <p>3 – Possible (Between 40-60% chance of occurrence)</p> <p>2 – Fairly Unlikely (Between 20-40% chance of occurrence)</p> <p>1 – Unlikely (Less than 20% chance of occurrence)</p>	<p><i>Duration = D</i></p> <p>5 – Permanent - The only class of impact that will be non-transitory (indefinite)</p> <p>4 - Long-term - The impact and its effects will continue or last for the entire operational life of the development (15 - 50years)</p> <p>3 - Medium-term - The impact and its effects will continue or last for some time after the construction phase (5 - 15 years)</p> <p>2 – Medium-short - The impact and its effects will continue or last for the period of a relatively long construction period and/or limited recovery time after this construction period (2 - 5 years)</p> <p>1 – Short Term - Likely to disappear with mitigation measures or through natural processes which span shorter than the construction phase (0-2 years)</p>
<p><i>Scale = S</i></p> <p>5 – International (beyond 200km)</p> <p>4 – Regional (50-200km radius)</p> <p>3 – Local (2-50km radius)</p> <p>2 – Surrounding area (within 2km)</p>	<p><i>Magnitude = M</i></p> <p>5 - High</p> <p>4– Medium High</p> <p>3 – Medium</p> <p>2 – Medium Low</p>

1 – Site (within 100m)	1 – Low
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Status of Impact

+ Positive / -Negative or 0-Neutral

The overall impact significance score/points (SP) for each identified impact is calculated by multiplying magnitude, duration, and scale by the probability of all this happening.

Once the impact has been assessed using the above significance categories, a rating is calculated. The rating will indicate a specific significance of the impact as illustrated by (**Table 15**) below. By identifying whether the impact is positive or negative, the significance will be read from the relevant portion of the table.

By calculating the significance rating of the impact, one can evaluate whether a negative impact can be mitigated and managed efficiently, or whether the impact is a fatal flaw, and thereby disallowing the proposed development from being approved. A positive impact could be a motivation to the proposed development and by assigning significance to the positive impact; this provides comparative information to decision-makers for approval or denial of the application. The range of possible significance scores is classified into seven rating classes.

Note: $SP = (Magnitude + Duration + Scale) \times Probability$

Table 15: Impact Ratings and the Implicated Significance

Significance	Environmental Significance Points	Colour Code
Negligible	0-10	N
Very low	11-20	VL
Low	21-30	L
Medium	31-40	M
Medium-High	41-50	MH
High	51-60	H
Very high	61-75	VH

18 PLAN OF STUDY

This section provides a summary of the key findings of the Scoping Phase of the EIA and to describe the activities to be undertaken in the Impact Assessment Phase of the EIA. Legislatively, the document is required to provide the following:

- ✚ A description of the environmental issues identified during scoping phase that may require further investigation and assessment;
- ✚ A description of the feasible Design, Layout and Routing Alternatives identified during scoping that may be further investigated;
- ✚ An indication of additional information required to determine the potential impacts of the proposed activity on the environment;
- ✚ A description of the proposed method of identifying these impacts; and
- ✚ A description of the proposed criteria for assessing the significance of these impacts.

The requirements of Regulation 28 of Government Notice R.543 promulgated in terms of section 24 of the National Environmental Management Act, 1998 (Act 107 of 1998) have been reviewed in order to ensure compliance therewith. These requirements are as follows:

- ✚ A description of the tasks that will be undertaken as part of the environmental impact assessment process, including any specialist reports or specialised processes, and the manner in which such tasks will be undertaken;
- ✚ An indication of the stages at which the competent authority will be consulted;
- ✚ A description of the proposed method of assessing the environmental issues and alternatives, including the option of not proceeding with the activity;
- ✚ Particulars of the public participation process that will be conducted during the environmental impact assessment process; and
- ✚ Any specific information required by the competent authority.

18.1 Description of tasks to be undertaken for EIA

The following section describes the identified tasks that are required to form part of the EIA Process:

- ✚ Specific Project Detail
- ✚ Activity Motivation
- ✚ Project Alternatives
- ✚ Description of the Baseline Environment;
- ✚ Public Participation Process;
- ✚ Specialist Reports;
- ✚ Stack Emission Measurement Survey Report;
- ✚ Impact Assessment
- ✚ An Environmental Management Programme Report (EMPr)
- ✚ An environmental impact statements
- ✚ Proposed EIA Report Roadmap

18.2 Specific Project Detail

The existing foundry operation and associated emission details forming part of the licensing application will be described in detail. Process flow diagrams indicating inputs and outputs will be included.

18.3 Activity Motivation

Envelo Quality and Environmental Consultant (Pty) Ltd (the EAPs) has engage with Amcor (SOC) Ltd (the Applicant) in order to solicit the activity motivation. This motivation includes the project need and desirability as discussed in (Section 2).

18.4 Project Alternatives

The role of alternatives is to find the most effective way of meeting the need and purpose of the proposal, either through enhancing the environmental benefits of the proposed activity, and or through reducing or avoiding potentially significant negative impacts (DEAT, 2004).

Therefore, the 'Alternative A: Demand Alternative', 'Alternative B: Scheduling Alternative', and 'Alternative C: Technology Alternative' will be assessed to offset the 'No-Go Alternative'.

18.5 Description of the Baseline Environment

A description of the Baseline Environment be provided, as described in (Section 2), the details will involve additional information, such as desktop and field assessment from the specialist studies.

18.6 Summary of Public Participation Process



Consultation with I&APs regarding the possible significance of impacts and suitable mitigation measures will take place during the Public Participation Process.

The following public participation process is proposed for the EIA Phase:

- i) Official notification of all registered I&APs from the Notification Period and Scoping Phase.
- ii) Registration of any new I&APs.
- iii) Public and/or focus group meetings
- iv) Circulation of Draft Environmental Impact Report (EIR) to I&APs for comment, with a 30-day response period.
- v) Submission of final EIR to the Department of Forestry, Fisheries and the Environment (DFFE).

18.7 Specialist studies identified

The required specialist studies triggered by the findings of the Scoping process, aimed at addressing the key issues and compliance with legal obligations, include:

-  Air Quality Impact Assessment; and
-  Terrestrial Biodiversity Impact Assessment;

Prior to any work, both general and specific, the Terms of reference will be determined for each specialist study. In determining general Terms of reference for specialist studies, the following guideline will be used:

- ✚ Guideline for determining the scope of specialist involvement in EIA processes (Münster, 2005).

- ✚ Guideline for involving biodiversity specialists in EIA processes (Brownlie, 2005);

In addition to the above guidelines, the relevant specialists need to satisfy specific requirements stipulated by the following key environmental authorities:

- ✚ Western Cape: Department of Environmental Affairs and Development Planning (DE&DP);
- ✚ Western Cape Department of Economic Development and Tourism
- ✚ City of Cape Town Directorate: Specialised Environmental Health Services and Air Quality Management
- ✚ South African Biodiversity Conservation
- ✚ South African National Parks
- ✚ Heritage Western Cape
- ✚ South African Heritage Agency

For the incorporation of the findings of the specialist studies into the EIA report, the following guideline will be used:

- ✚ Guideline for the review of specialist input in EIA processes (Keatimilwe & Ashton, 2005). Key considerations will include:
 - ✚ Ensuring that the specialists have adequately addressed IAPs' issues and specific requirements prescribed by environmental authorities.
 - ✚ Ensuring that the specialists' input is relevant, appropriate, and unambiguous; and
 - ✚ Verifying that information regarding the receiving ecological, social, and economic environment has been accurately reflected and considered.

18.7.1 General Terms of Reference

The following general Terms of Reference apply to all the EIA specialist studies to be undertaken for the proposed project:

- ✚ Address all triggers for the specialist studies contained in the subsequent specific Terms of Reference.
- ✚ Address issues raised by IAPs, as contained in the Comments and Response Report, and assess all potentially significant impacts. Additional issues that have not been identified during Scoping should also be highlighted to the EAP for further investigations.
- ✚ Ensure that the requirements of the environmental authorities that have specific jurisdiction over the various disciplines and environmental features are satisfied.
- ✚ Approach to include desktop study and site visits, as deemed necessary, to understand the affected environment and to adequately investigate and evaluate salient issues. Indigenous knowledge (i.e., targeted consultation) should also be regarded as a potential information resource.
- ✚ Assess the impacts (direct, indirect, and cumulative) in terms of their significance (using suitable evaluation criteria) and suggest suitable mitigation measures. In accordance with the mitigation hierarchy, negative impacts should be avoided, minimized, rehabilitated (or reinstated) or compensated for (i.e., offsets), whereas positive impacts should be enhanced. A risk-averse and cautious approach should be adopted under conditions of uncertainty.
- ✚ Consider time boundaries, including short to long-term implications of impacts for the project lifecycle (i.e., pre-construction, construction, operation, and decommissioning).
- ✚ Consider spatial boundaries, including:
 - The broad context of the project (i.e., beyond the boundaries of the specific site);
 - Off-site impacts; and
 - Local, regional, national, or global context.
- ✚ The provision of a statement of impact significance for each issue, which specifies whether or not a pre-determined threshold of significance (i.e., changes in effects to

the environment which would change a significance rating) has been exceeded, and whether or not the impact presents a potentially fatal flaw or not. This statement of significance should be provided for anticipated project impacts both before and after the application of impact management actions.

- ✚ Recommend a monitoring programme to implement mitigation measures and measure performance. List indicators to be used during monitoring.
- ✚ Appraisal of alternatives (including the No-Go option) by identifying the BPEO with suitable justification.
- ✚ Advise on the need for additional specialists to investigate specific components and the scope and extent of the information required from such studies.
- ✚ Engage with other specialists whose studies may have bearing on your specific investigation.
- ✚ Present findings and participate in public meetings, as necessary.
- ✚ Information provided to the EAP needs to be signed off.
- ✚ Review and sign off on the EIA report prior to submission to DEA to ensure that specialist information has been interpreted and integrated correctly into the report.
- ✚ Sign a declaration stating independence.
- ✚ The appointed specialists must consider the policy framework and legislation relevant to their particular studies.
- ✚ All specialist reports must adhere to Appendix 6 of GN No. 326 (7 April 2017).

18.8 Stack Emission Measurement Survey Report

The Stack Emission Survey (EMS) report will be appended on the EIR. The main purpose of this SEMS will be to quantify the emission trend using emission inventory of the particulate and gaseous emissions from selected point sources located within the Armscor Dockyard Foundry, to determine legal compliance and to provide recommendations for mitigation measures where applicable.

18.9 Impact Assessment

The impact assessment will provide an evaluation of impacts prior to mitigation, as well as proposed mitigation measures, and then evaluate the impacts after mitigation. The potential

environmental impacts identified in the study will be quantified as far as possible and the significance of the impacts will be assessed according to specific criteria as discussed in (Section 10.5).

18.10 Environmental Management Programme Report (EMPr)

A draft Environmental Management Programme Report (EMPr) for the existing facility will be provided with the EIA Report. The EMPr will not include plans for the construction phase as the facility already exists and no additional construction is expected. The EMPr will be compiled for the operational and potential decommissioning phases.

The EMPr will identify environmental targets and objectives and will describe the methods and procedures that need to be followed (such as the mitigation and monitoring of potential impacts) to achieve these goals and objectives. The EMPr will be compiled in such a manner that it can be easily incorporated into the daily management of the site.

The EMPr aims to provide environmental responsibility and a management framework within which all existing and future activities will occur, as well as providing for the protection of any potentially sensitive areas.

18.11 Environmental impact statement

An environmental impact statement will be provided as part of the EIA. The opinion of the EAP as to whether or not the activity should be authorised will also be included with the recommendations.

19 EIA REPORT

The Environmental Impact Report (EIR) will provide enough evidence or information for EDTEA to make a final decision. At a minimum, the report will contain the following information which is in accordance with Appendix 3 of GN No. 326 (7 April 2017).

The following critical components of the EIA Report are highlighted;

-  A description of the policy and legislative context.

- ✚ A detailed description of the proposed development (full scope of activities).
- ✚ A detailed description of the proposed development site, which will include a plan that locates the proposed activities applied for as well as the associated structures and infrastructure.
- ✚ A description of the environment that may be affected by the activity and the way physical, biological, social, economic, and cultural aspects of the environment may be affected by the proposed development.
- ✚ The methodology of the stakeholder engagement process.
- ✚ The Comments and Responses Report and IAPs Database will be provided as an appendix to the EIA Report.
- ✚ A description of the need and desirability of the proposed development and the identified potential alternatives to the proposed activity.
- ✚ A summary of the methodology used in determining the significance of potential impacts.
- ✚ A description and comparative assessment of the project alternatives.
- ✚ A summary of the findings of the specialist studies.
- ✚ A detailed assessment of all identified potential impacts.
- ✚ A list of the assumptions, uncertainties, and gaps in knowledge.
- ✚ An environmental impact statements.
- ✚ Any aspects which were conditional to the findings of the assessment either by the EAP or specialist which are to be included as conditions of authorization.
- ✚ A reasoned opinion as to whether the proposed activity should or should not be authorized, and if the opinion is that it should be authorized, any conditions that should be made in respect of that authorization.
- ✚ An opinion by the consultant as to whether the development is suitable for approval within the proposed site.
- ✚ An EMPr that complies with Appendix 4 of GN No. 326 (7 April 2017).
- ✚ Copies of all specialist reports appended to the EIA report; and
- ✚ Any further information that will assist in decision making by the authorities.

For the remainder of the Scoping process and EIA the interaction with DFFE will be as follows:

- ✚ Submit Draft Scoping Report
- ✚ Address comments on Scoping Report.
- ✚ Submission of the Final Scoping Report.
- ✚ Submit the Draft EIR
- ✚ Address comments on Draft EIR
- ✚ Submit Final EIR; and
- ✚ Obtain a decision.

The following report skeleton is proposed for the Environmental Impact Report

Table 16: Proposed EIR outline

<p>1. INTROCUATION</p> <p>2. PROJECT TITTLE</p> <p>3. PROJECT DESCRIPTION</p> <p>4. PROJECT LOCALITY</p> <p>4.1. Geographic Context</p> <p>4.2. Site Locality</p> <p>5. SITE ACCESS</p> <p>6. ACTIVITY MOTIVATION</p> <p>6.1 The Need</p> <p>6.2 Desirability</p> <p>7. FOUNDRY PROCESS FLOW</p> <p>8. PROJECT ALTERNATIVES</p> <p>8.1 Demand Alternative</p> <p>8.2 Schedule Alternative</p> <p>8.3 Technology Alternative</p> <p>8.4 No-Go Alternative</p>
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8.5 Discussion of Preferred Alternatives

9. APPLICABLE LEGISLATION, POLICIES AND GUIDELINES

10. DESCRIPTION OF BASELINE ENVIRONMENT

10.1 Climate

10.2 Hydrology

10.3 Topography

10.4 Biomes

10.5 Flora

10.6 Protected Areas

10.7 Fauna

10.8 Air Quality

10.9 Visual and Land use Character

10.10 Heritage and Cultural Aspects

10.11 Socio-economic Aspects

10.12 Noise

11. WASTE ,EFFLUENT AND AIR POLLUTION

11.1 Waste

11.2 Effluent

11.3 Ambient Air and Atmospheric Pollution

12. WATER AND ENERGY USE

12.1 Water Use

12.2 Energy Use

13. PUBLIC PARTICIPATION

13.1 Background

13.2 Objectives of Public Participation

13.3 Notification of I&APs

13.4 Comments from I&APs

14. IMPACT ASSESSMENT AND MITIGATION MEASURES

14.1 Impact Analysis for preferred Alternatives

15. CUMMULATIVE IMPACT ASSESSMENT AND MITIGATION MEASURES

16. RECOMMANDATIONS BY SPECIALIST

16.1 Recommendations by Air Quality Impact Assessment

16.2 Recommendation by Terrestrial Biodiversity Impact Assessment

17. RECCOMANDATION BY EAP

18. CONCLUSION

19. APPENDECES

-EAP Declaration

-EMPr

-Maps and Layouts

-Public Participation Records

-Specialist Reports

-Motivation for Exclusion of other Specialist Studies

-Emission Survey Report

-Environmental Screening Report

20 TIME FRAMES

The table to follow presents the proposed timeframes for the EIA process. Note that these dates are subject to change.

Table 17: EIA Time Frames

Scoping Phase	Start	Finish
Review of the Draft Scoping Report by authorities & IAPs (30 days)	06/12/2021	31/01/2022
Submit Final Scoping Report	02/02/2022	
EDTEA Review and Decision (43 days review period) on scoping report	04/02/2021	07/03/2021
Review of Draft EIR by authorities & IAPs (30 days)	13/05/2022	27/06/2022
EAP Submit Final EIA Report & EMPr to EDTEA	8/07/2022	

EDTEA Review and Decision (107 days)		
IAP Notification on Decision (14 days)		

21 CONCLUSION

The scope of an environmental assessment is defined by the range of issues and alternatives it considers, the nature of the receiving environment, and the approach towards the assessment. Key outcomes of the Scoping phase for the Armscor dockyard foundry are as follows:

- ✚ Stakeholders were effectively identified and were afforded adequate opportunity to participate in the scoping process.
- ✚ Alternatives for achieving the objectives of the proposed activity were duly considered.
- ✚ Significant issues pertaining specifically to the pre-construction, construction and operational phases of the project were identified.
- ✚ Sensitive elements of the environment to be affected by the project were identified.
- ✚ A Plan of Study was developed to explain the approach to executing the EIA phase, which also includes the Terms of Reference for the identified specialist studies; and
- ✚ The scoping exercise set the priorities for the ensuing EIA phase.
- ✚ No fatal flaws were identified in terms of the proposed activities and the receiving environment that would prevent the environmental assessment from proceeding beyond the Scoping phase. It is the opinion of the EIA team that Scoping was executed in an objective manner and that the process and report conform to the requirements of Regulation 21 and Appendix 2 of GN No. 326 (7 April 2017), respectively. It is also believed that the Plan of Study for EIA is comprehensive and will be adequate to address the significant issues identified during Scoping and to ultimately allow for informed decision-making.

This Draft Scoping Report is available for a review and comment period of 30 days, from 6th December 2021 to the 31st of January 2022. Comments and submissions received in response to this report will be submitted to DFFE (the competent authority).

Written submissions must be addressed to:

Emvelo Quality and Environmental Consultant (Pty) Ltd

Attention: **Ms Phumzile Lembede**

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APPENDICES

APPENDIX A. DECLARATION OF INFORMATION

I, the undersigned Phumzile Lembede, on behalf of **Emvelo Quality and Environmental Consultant**, hereby declare that the information provided in this application is correct and true.

6th December 2021

Signature

Date

Principal EAP

Emvelo Quality and Environmental Consultant

Position

Company

APPENDIX B. LOCALITY MAP AND LAYOUT

B-1: Locality Map

B-2: Layout

APPENDIX C: DEPARTMENT ACKNOWLEDGEMENT LETTERS

APPENDIX D SITE PHOTOGRAPHS

APPENDIX E PUBLIC PARTICIPATION PROCESS

E-1: News Paper Advert

E-2: Onsite Notices

E-3: Public Participation Plan and Register of I&APs

E-4: Background Information Document

E-5: Proof of Circulation to I&APs

E-6: Comments and Responses

APPENDIX F. EA PRE-APPLICATION MINUTES

APPENDIX G: AIR EMISSION INVENTORY

APPENDIX H. EAP'S CV(S)

APPENDIX I. ENVIRONMENTAL SCREENING REPORT