TRANS ATLANTIC DIAMONDS

FINAL BASIC ASSESSMENT REPORT

APPLICATION FOR ENVIRONMENTAL AUTHORISATION AND PROSPECTING RIGHTS FOR PROSPECTING IN OFFSHORE SEA CONCESSION AREA 6C, NORTHERN CAPE, BY TRANS ATLANTIC DIAMONDS (PTY) LTD

EA Application Ref. No.: NC30/5/1/1/2/14851 PR

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Report prepared for:

Trans Atlantic Diamonds (Pty) Ltd
109 Kloof Road, Bantry Bay,
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TRANS ATLANTIC DIAMONDS

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mineral resources

Department:
Mineral Resources
REPUBLIC OF SOUTH AFRICA

BASIC ASSESSMENT REPORT

And

ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

SUBMITTED FOR ENVIRONMENTAL AUTHORIZATIONS IN TERMS OF THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998 AND THE NATIONAL ENVIRONMENTAL MANAGEMENT WASTE ACT, 2008 IN RESPECT OF LISTED ACTIVITIES THAT HAVE BEEN TRIGGERED BY APPLICATIONS IN TERMS OF THE MINERAL AND PETROLEUM RESOURCES DEVELOPMENT ACT, 2002 (MPRDA) (AS AMENDED).

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FILE REFERENCE NUMBER SAMRAD: NC30/5/1/1/2/14851 PR

1 IMPORTANT NOTICE

In terms of the Mineral and Petroleum Resources Development Act (Act 28 of 2002 as amended), the Minister must grant a prospecting or mining right if, among others, the mining "will not result in unacceptable pollution, ecological degradation or damage to the environment".

Unless an Environmental Authorisation can be granted following the evaluation of an Environmental Impact Assessment and an Environmental Management Programme report in terms of the National Environmental Management Act (Act 107 of 1998) (NEMA), it cannot be concluded that the said activities will not result in unacceptable pollution, ecological degradation or damage to the environment.

In terms of section 16(3)(b) of the EIA Regulations, 2014, any report submitted as part of an application for Environmental Authorisation must (a) be prepared in a format that may be determined by the Competent Authority and (b) in terms of section 17 (1) (c) of the same regulation, the competent Authority must check whether the application has taken into account the minimum requirements applicable or instructions or guidance provided by the competent authority to the submission of applications.

It is therefore an instruction that the prescribed reports required in respect of applications for an environmental authorisation for listed activities triggered by an application for a right or a permit are submitted in the exact format of, and provide all the information required in terms of, this template. Furthermore, please be advised that failure to submit the information required in the format provided in this template will be regarded as a failure to meet the requirements of the Regulation and will lead to the Environmental Authorisation being refused.

It is furthermore an instruction that the Environmental Assessment Practitioner must process and interpret his/her research and analysis and use the findings thereof to compile the information required herein. (Unprocessed supporting information may be attached as appendices). The EAP must ensure that the information required is placed correctly in the relevant sections of the Report, in the order, and under the provided headings, as set out below, and ensure that the report is not cluttered with uninterpreted information and that it unambiguously represents the interpretation of the applicant.

2 OBJECTIVE OF THE BASIC ASSESSMENT PROCESS

The objective of the basic assessment process is, through a consultative process, to ─

(a) determine the policy and legislative context within which the proposed activity is located and how the activity complies with and responds to the policy and legislative context;

(b) identify the alternatives considered, including the activity, location, and technology alternatives;

(c) describe the need and desirability of the proposed alternatives,

(d) through the undertaking of an impact and risk assessment process inclusive of cumulative impacts which focused on determining the geographical, physical, biological, social, economic, heritage, and cultural sensitivity of the sites and locations within sites and the risk of impact of the proposed activity and technology alternatives on the these aspects, to determine:

(i) the nature, significance, consequence, extent, duration, and probability of the impacts occurring to; and

(ii) the degree to which these impacts—

(aa) can be reversed;

(bb) may cause irreplaceable loss of resources; and

(cc) can be managed, avoided or mitigated;

(e) through a ranking of the site sensitivities and possible impacts the activity and technology alternatives will impose on the sites and location identified through the life of the activity to—

(i) identify and motivate a preferred site, activity and technology alternative;

(ii) identify suitable measures to manage, avoid or mitigate identified impacts; and

(iii) (iii) identify residual risks that need to be managed and monitored.

PREAMBLE

Please note that all amendments to this final report, in response to the comments received during the public participation process, have been highlighted in yellow.

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GLOSSARY

Alien species: Species whose presence in a region is attributable to human actions that enabled them to overcome fundamental biogeographical barriers (i.e., human-mediated extra-range dispersal) (synonyms: Introduced, non-indigenous, non-native, exotic).

Amphipod/a: Crustaceans with no carapace and a laterally compressed body

Anthropogenic: Environmental pollution originating from human activity

Aquaculture: The sea-based or land-based rearing of aquatic animals or the cultivation of aquatic plants for food

Aquifer: Underground layer of water-bearing permeable rock, rock fractures or unconsolidated materials (gravel, sand, or silt) from which groundwater can be extracted using a water well.

Baseline: Information gathered at the beginning of a study which describes the environment prior to development of a project and against which predicted changes (impacts) are measured.

Bathymetry: The measurement of depth of water in oceans or seas.

Benthic/benthos: The ecological region at the lowest level of a body of water such as an ocean, lake, or stream, including the sediment surface and some sub-surface layers. Pertaining to the environment inhabited by organisms living on or in the ocean bottom

Biodiversity: The variability among living organisms from all terrestrial, marine, and other aquatic ecosystems, and the ecological complexes of which they are part: this includes diversity within species, between species and of ecosystems.

Biomass: The mass of living biological organisms in a given area or ecosystem.

Biota: Living organisms within a habitat or region

Bryozoan: A sedentary aquatic invertebrate of the phylum Bryozoa, which comprises the moss animals.

Chlorophyll a: A green pigment, present in all green plants (including algae) and cyanobacteria, which is responsible for the absorption of light to provide energy for photosynthesis.

Community composition: The number of species in that community and their relative numbers.

Community structure: Taxonomic and quantitative attributes of a community of plants and animals inhabiting a particular habitat, including species richness and relative abundance structurally and functionally.

Community: In ecology, a community is a group or association of populations of two or more different species occupying the same geographical area and in a particular time.

Crustacea/n: Generally differ from other arthropods in having two pairs of appendages (antennules and antennae) in front of the mouth and paired appendages near the mouth that function as jaws.

Cumulative impacts: Direct and indirect impacts that act together with current or future potential impacts of other activities or proposed activities in the area/region that affect the same resources and/or receptors.

Diatoms: A type of phytoplankton group that form a silica-based cell wall.

Dinoflagellate: A type of flagellate phytoplankton. Some produce toxins that can accumulate in shellfish, resulting in poisoning when eaten.

Ecological function: The potential of an ecosystem to deliver a service that is itself dependent on ecological processes and structures.

Ecology: The relations of organisms to one another and to their physical surroundings.

Environment: The external circumstances, conditions and objects that affect the existence of an individual, organism or group. These circumstances include biophysical, social, economic, historical and cultural aspects.

Fauna: General term for all the animals found in a particular location.

Faunal community: A naturally occurring group of native animals that interact in a unique habitat.

Filter feeding: (Of an aquatic animal) feeding by filtering out plankton or nutrients suspended in the water.

Filter-feeders: Animals that feed by straining suspended matter and food particles from water.

Flora: General term for all the plant life found in a particular location.

Functional group: A collection of organisms of specific morphological, physiological, and/or behavioural properties.

Geomorphology/ical: Relating to the physical features of the surface of the earth and their relation to its geological structures.

Impact: A change to the existing environment, either adverse or beneficial, that is directly or indirectly due to the development of the project and its associated activities.

Important Bird and Biodiversity Area: An area identified using an internationally agreed set of criteria as being globally important for the conservation of bird populations.

Indigenous: Species within the limits of their native range (Synonyms: native).

Intertidal: The shore area between the high- and the low-tide levels.

Invasive: Alien species that have self-replacing populations over several generations and that have spread from their point of introduction.

Invertebrate: An animal without a backbone (e.g. a starfish, crab, or worm)

Isopod/a: An order of freshwater, marine, or terrestrial crustaceans of the order or suborder Isopoda, with seven pairs of legs and a dorsoventrally flattened body.

Kelp: A member of the order Laminariales, the more massive brown algae.

Macrofauna: An aquatic plant large enough to be seen by the naked eye. Usually larger than 0.5 mm.

Macrophyte: An aquatic plant large enough to be seen by the naked eye.

Marine Heritage Resources: Includes submerged prehistoric archaeological, maritime archaeological and palaeontological resources.

Mean Sea Level: An average level of the surface of the oceans from which heights such as elevation may be measured. MSL is a type of vertical datum (a standardised geodetic datum).

Megafauna: Large marine species such as sharks, rays, marine mammals and turtles. These animals are key components of marine ecosystems but, as they are long-lived and have low reproductive rates, their populations are usually the first to be reduced by human pressures.

Mitigation measures: Design or management measures that are intended to minimise or enhance an impact, depending on the desired effect. These measures are ideally incorporated into a design at an early stage.

Mollusc/a: Invertebrate with a soft unsegmented body and often a shell, secreted by the mantle.

Native: Species within the limits of their native range (Synonyms: indigenous).

Operational phase: The stage of the works following the Construction Phase, during which the development will function or be used as anticipated in the Environmental Authorisation.

Paleo-channel: Old or ancient river channels often infilled with course fluvial deposits which can store and transmit appreciable quantities of water.

Physico-chemical: Dependent on the joint action of both physical and chemical processes.

Phytoplankton: Ocean dwelling microalgae that contain chlorophyll and require sunlight in order to live and grow.

Plankton: Organisms drifting in oceans, seas, and bodies of fresh water. The word zooplankton is derived from the Greek zoon, meaning "animal", and planktos, meaning "wanderer" or "drifter". Typically comprised of phytoplankton and zooplankton, as well as the eggs, larvae and juveniles of larger animals.

Polychaete/a: Also known as the bristle worms. A paraphyletic class of annelid worms, generally marine. Each body segment has a pair of fleshy protrusions called parapodia that bear many bristles, called chaetae, which are made of chitin.

Rocky shore community: A group of interdependent organisms inhabiting the same rocky shore region and interacting with each other.

Scavenger: An animal that eats already dead or decaying animals.

Specialist study: A study into a particular aspect of the environment, undertaken by an expert in that discipline.

Species diversity: The number of different species and relative abundance of each of those species present in an ecosystem.

Species richness: The number of different species represented in an ecological community. It is simply a count of species and does not take into account the abundance of species.

Species: A category of biological classification ranking immediately below the genus, grouping related organisms. A species is identified by a two-part name; the name of the genus followed by a Latin or Latinised un-capitalised noun.

ABBREVIATIONS AND ACRONYMS

Anchor/ AEC	Anchor Environmental Consultants (Pty) Ltd.
BAR	Basic Assessment Report
CA	Competent Authority
DFFE	Department of forestry, fisheries and the Environment (Formerly DEFF and DAFF)
DMRE	Department of Mineral Resources and Energy
DMPR	Department of Mineral and Petroleum Resources
EA	Environmental Authorisation
EAP	Environmental Assessment Practitioner
EBSA	Ecologically or Biologically Significant Marine Areas
ECO	Environmental Control Officer
EIA	Environmental Impact Assessment
EMPr	Environmental Management Programme Report
ETS	Ecosystem Threat Status
FLO	Fisheries Liaison Officer
IBA	Important Bird and Biodiversity Area
IEM	Integrated Environmental Management
IUCN	International Union for Conservation of Nature
JNCC	Joint Nature Conservation Committee
MARPOL	The International Convention for the Prevention of Pollution from Ships
MBES	Multi Beam Echo Sounder
MMI	Marine Mammal Institute
MMSO	Marine Mammal and Seabird Observer
MPA	Marine Protected Area
MUCH	Maritime and Underwater Cultural Heritage
NBA	National Biodiversity Assessment
NEMA	National Environmental Management Act No. 107 of 1998, as amended
OMP	Operational Management Plan
PAM	Passive Acoustic Monitoring
ROV	Remotely Operated Vehicle
SAHRA	South African Heritage Resource Association
SAMLMA	South African Marine Linefish Management Association
SAMSA	South African Maritime Safety Authority
SANBI	South African National Biodiversity Institute
SAPFIA	South African Pelagic Fishing Industry Association
SBP	Sub-bottom profiler
SOPEP	Shipboard Oil Pollution Emergency Plan
TAC	Total allowable catch
TAD	Trans Atlantic Diamonds (Pty) Ltd

EXECUTIVE SUMMARY

Introduction

The global population continues to grow, increasing the demand for goods and services such as food, housing, transport, healthcare, education and energy. Minerals and metals are essential raw materials used not only in the manufacture of jewellery, but also in everyday products and critical infrastructure. These include mobile phones, computers, batteries, medical equipment (such as pacemakers, dental implants and X-ray machines), catalytic converters, paints, glass, concrete, vehicles, aircraft, ships, buildings, bridges, machinery, electric motors and renewable energy technologies. South Africa possesses some of the world's richest mineral resources, with the potential to supply both national and international markets. Prospecting is therefore undertaken to identify mineral deposits, determine their economic viability, and collect the geological, technical and environmental information required to assess whether future mining may be feasible.

To this end, Trans Atlantic Diamonds (Pty) Ltd (TAD; the Applicant) proposes to undertake prospecting activities within offshore Sea Concession Area 6C in the Northern Cape to determine the economic viability of Chrome, Copper, Corundum, Diamonds (general), Garnet (abrasive), Gemstones, Gold Ore, Heavy Minerals (general), Iron Ore, Lithium Ore, Platinum Group Metals, Rare Earths, Silver Ore, Titanium and Uranium Ore.

Before prospecting may commence, the Applicant is required to obtain a Prospecting Right (PR) from the Department of Mineral and Petroleum Resources (DMPR) in terms of the Mineral and Petroleum Resources Development Act (MPRDA; Act No. 28 of 2002), as well as Environmental Authorisation (EA) in terms of the National Environmental Management Act (NEMA, Act No. 107 of 1998) and the 2014 Environmental Impact Assessment (EIA) Regulations. Environmental Authorisation is required because prospecting is classified as a "listed activity" that may have environmental impacts under the EIA Regulations.

The proposed activities are not expected to constitute bulk sampling and are therefore anticipated to trigger only the following listed activities under Listing Notice 1:

- **Activity 19A**: "*The infilling or depositing of any material of more than 5 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 5 cubic metres from (i) the seashore; (ii) the littoral active zone, an estuary or a distance of 100 metres inland of the high-water mark of the sea or an estuary, whichever distance is the greater; or (iii) the sea…*"
- **Activity 20**: "*Any activity including the operation of that activity which requires a prospecting right in terms of section 16 of the Mineral and Petroleum Resources Development Act, as well as any other applicable activity as contained in this Listing Notice or in Listing Notice 3 of 2014, required to exercise the prospecting right*."

Accordingly, EA must be obtained through a Basic Assessment (BA) process, during which the potential environmental impacts of the proposed prospecting activities are assessed.

The findings of the assessment are documented in a Basic Assessment Report (BAR), which is made available for public review and comment (during a Public Participation Process (PPP))

before being submitted to the DMPR for decision-making. The BAR is supported by specialist studies that inform the assessment of potential environmental impacts.

Anchor Environmental Consultants (Pty) Ltd (Anchor) has been appointed as the independent Environmental Assessment Practitioner (EAP) to manage the Basic Assessment process, coordinate the required specialist studies, and prepare the BAR in support of the Applicant's PR and EA applications. This document constitutes the Final BAR for this process.

Note that the granting of a PR or the completion of prospecting activities does not authorise mining activities. Any future mining would require a separate Mining Right application and Scoping and Environmental Impact Assessment (S&EIA) process before it could proceed.

Project Location

Sea Concession Area 6C is located approximately 4 to 5 km offshore of the Northern Cape Coast, about 11km west of the nearest inland town, Koingnaas and 25 km south of Kleinsee (Figure 1). The sea concession area is approximately 350 000 hectares.

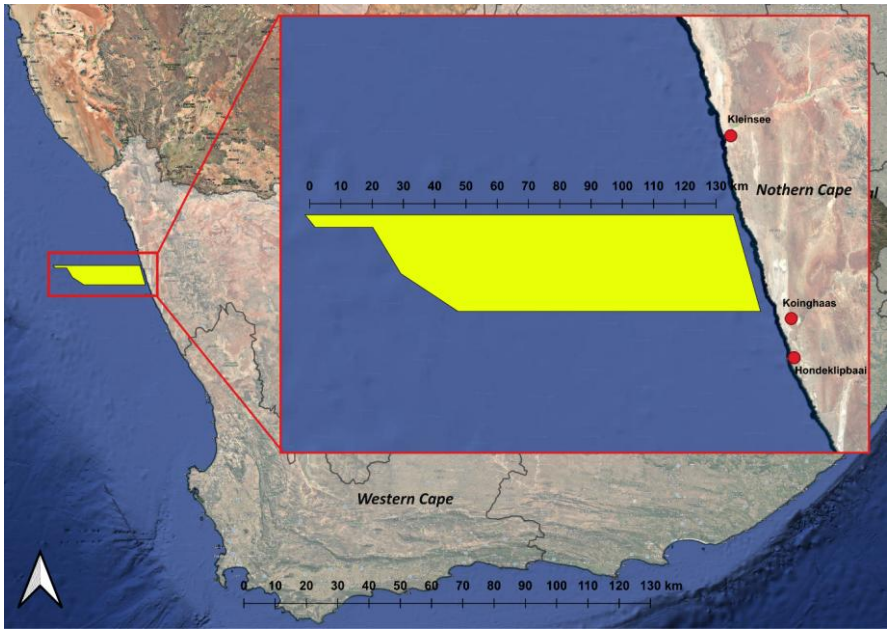

Figure 1 Location of offshore Sea Concession area 6C off the Northern Cape Coast. The concession starts approximately 5 km offshore of the High-Water Mark and extends to the 200 m isobath which is approximately 100 – 140 km offshore.

Description of the Proposed Activities

The proposed prospecting programme is anticipated to be completed within five years. Sampling will be conducted in four phases and include a combination of non-invasive (acoustic survey, data acquisition and analysis) and invasive activities (Van Veen grab, core and drill samples). Phase 1 includes a desktop study and acoustic surveys, Phase 2 includes Van Veen grab and core

sampling, Phase 3 includes drill sampling and Phase 4 includes a feasibility study and resource estimation.

Acoustic surveys are conducted to collect high-resolution bathymetry data. The information will be reviewed to identify target areas for sampling, and any areas that need to be avoided and to inform the appropriate core sampling, and drilling method that must be implemented. A Van Veen grab (clamshell bucket) will be used to collect sediment samples for biological, environmental and geotechnical studies. Samples will be used to identify and characterise benthic macrofauna communities (small animals such as worms, mussels, and crustaceans), while geotechnical samples will be used to determine the geological units of the seafloor. Sampling will be done at 20–50 sites, disturb a total surface area of 5 square metres (m^2), and a total volume of 1.5 cubic metres (m^3). Core samples will be collected at 100–200 sites. Cores penetrate the seafloor to collect sediment samples used to determine the sea floor geology (types of material present, i.e. sand, gravel and/ or rock and the hardness of the rock) and sediment stratigraphy (how sand and rock are layered). This information is then used to engineer the drilling tool. Geotechnical sampling is also used to determine whether there are materials that can be mined in the area and whether it will be economically viable. The core samples will disturb a total surface area of 1.57 m^2, and collect a total volume of 4.71 m^3.

Lastly, target areas will be sampled by a drill tool. An initial 150 samples will be collected. Follow-up sampling will require an additional 150 samples. The total number of samples that will be required for drilling is therefore 300 samples, which will cover a surface area of 1500 m^2 (based on a drill size of 5 m^2). Should these follow-up samples indicate the potential presence of a resource, only then will resource development commence. Potential resource areas, of no larger than 500 m x 300 m, will then be selected. Each of these areas will require an additional 60 samples, spaced on a 50 m grid. Approximately 20 resource development areas will be required. This equates to 1 200 samples, covering a surface area of 6 000 m^2.

Overall, the total seabed area disturbed across Phases 1, 2, and 3 is calculated to be 7,507 m^2 (0.75 ha / 0.007507 km^2). However, as the sampling equipment may temporarily affect a slightly larger area during sampling, a conservative disturbance footprint of approximately 7,600 m^2 (0.76 ha) has been adopted. This represents a very small proportion (0.0002%) of the total Concession Area 6C (approximately 346,000 ha / 3,500 km^2). The information collected as a result of sampling activities will be used to understand seabed conditions, evaluate mineral resources, and determine whether mining within Concession Area 6C is economically viable. It will also inform the design of the future mining vessel and help identify potential areas suitable for mining activities.

Legislative and Policy Framework

The proposed prospecting activities are subject to a comprehensive legislative and policy framework governing environmental management, mineral resource development, marine resource protection and heritage conservation. The primary legislation applicable to the project includes the National Environmental Management Act (NEMA), 1998, the Environmental Impact Assessment Regulations, 2014 (as amended), and the Mineral and Petroleum Resources Development Act (MPRDA), 2002, which require Environmental Authorisation and a Prospecting Right before prospecting activities may commence.

In addition, the project has been assessed against a range of applicable national and provincial legislation, policies and planning frameworks relating to biodiversity conservation, marine living resources, pollution prevention, waste management, maritime safety, cultural and

palaeontological heritage, climate change, occupational health and safety, and marine spatial planning. These include, among others, the National Environmental Management: Biodiversity Act, National Environmental Management: Protected Areas Act, Marine Living Resources Act, National Heritage Resources Act, Marine Pollution legislation, Marine Spatial Planning Act, and relevant Northern Cape biodiversity and coastal management planning frameworks.

The Basic Assessment process has considered the requirements and objectives of these legislative instruments in identifying potential impacts, developing mitigation and optimisation measures, and preparing the Environmental Management Programme (EMPr). Subject to the implementation of the essential mitigation measures and compliance with all applicable legislative requirements, permit conditions and environmental management commitments, the proposed prospecting programme is considered capable of being undertaken in a legally compliant and environmentally responsible manner.

Need and Desirability

The proposed prospecting programme is intended to determine the presence, extent and economic viability of offshore deposits of diamonds and other minerals within Sea Concession Area 6C. Minerals such as diamonds, titanium-bearing minerals, rare earth elements, iron ore and precious metals are essential raw materials that support a wide range of industries, including manufacturing, construction, renewable energy, healthcare and technology. Prospecting is a necessary precursor to mining, as it provides the geological information required to determine whether a mineral resource is economically viable. Any future mining would require a separate Mining Right application and a full Scoping and Environmental Impact Assessment (S&EIA) process.

Prospecting supports South Africa's strategic objective of maintaining a sustainable mineral resource base and aligns with national and provincial development policies that recognise the importance of responsible mineral development in supporting economic growth, employment, investment and scientific knowledge. The prospecting programme will also generate temporary employment, utilise specialist services, contribute to local procurement and improve understanding of the offshore geological and marine environment.

Concession Area 6C is located within South Africa's designated offshore mining concession system in the mineral-rich Benguela region, where marine diamond and other mineral deposits have been identified and mined for decades. The concession is considered prospective for diamondiferous and associated mineral deposits and represents one of the limited concession areas available for prospecting. Its selection is therefore considered both appropriate and desirable from a geological, regulatory and resource management perspective.

Assessment of Alternatives

A range of site, activity, technology, operational and No-Go alternatives were considered as part of the Basic Assessment process. Concession Area 6C was identified as the preferred site because it is one of the limited offshore concession areas available within the Department of Mineral and Petroleum Resources' designated marine concession system, is considered prospective for diamondiferous and associated mineral deposits, and complements the Applicant's existing portfolio of prospecting rights in the region.

The preferred prospecting methodology comprises a phased approach using non-invasive geophysical surveys followed, where justified, by targeted grab sampling, coring and drilling. Bulk sampling was not selected because it is not required to achieve the objectives of the current prospecting programme and would result in a substantially larger environmental footprint. The phased approach ensures that progressively more intrusive activities are undertaken only where supported by the results of earlier investigations, thereby minimising unnecessary environmental disturbance.

At this stage, no final core or drill sampling locations have been identified within Concession Area 6C. The final sampling layout will be informed by the results of the geophysical survey, specialist recommendations and stakeholder input. Sensitive environmental features, including areas of conservation importance and any sensitive benthic habitats identified during the surveys (e.g. rocky reefs and kelp habitats), will be avoided. The No-Go Alternative would avoid the identified environmental impacts but would also forgo the socio-economic, scientific and resource evaluation benefits associated with the proposed prospecting programme. Accordingly, the No-Go Alternative is not supported.

Affected Environment

Marine environment

The proposed prospecting area is located approximately 4–5 km offshore within the Benguela Current Large Marine Ecosystem (BCLME), one of the world's most productive marine ecosystems. This productivity is driven by a natural process known as coastal upwelling, where cold, nutrient-rich water rises from deeper parts of the ocean to the surface. These nutrients support the growth of microscopic marine algae (phytoplankton), which form the base of the marine food web and sustain abundant fish populations, marine mammals, seabirds and many other marine organisms.

The marine environment in this area is characterised by cool waters, strong waves and tides, and ocean currents that continually shape the seabed and influence the distribution of marine life. These conditions support a healthy and productive ecosystem that is important both ecologically and economically.

The concession area includes a variety of seabed habitats comprising muddy, sandy and locally rocky areas. These habitats support a wide range of marine animals living on or within the seabed, including worms, clams, mussels, sea stars, brittle stars, sea cucumbers, crabs and shrimps. These animals have different feeding strategies, including deposit feeders (which feed on organic material in the sediment, such as worms and sea cucumbers), suspension or filter feeders (which filter tiny food particles from the water, such as mussels, clams and some

worms), and predators (such as crabs, sea stars and predatory worms). Together, these organisms recycle nutrients, mix and oxygenate the seabed sediments, and help maintain a healthy marine ecosystem.

The water column above the seabed (pelagic environment) is also highly productive. Microscopic algae (phytoplankton) and animals (zooplankton) form the foundation of the food web and support commercially important fish species such as anchovy, sardine and hake. These fish, in turn, provide food for marine mammals, seabirds and larger predatory fish. The concession area supports a diverse range of marine wildlife typical of South Africa's West Coast.

Approximately 36 species of marine mammals, including whales, dolphins and Cape fur seals, may occur within or move through the area. Several of these species are of conservation concern, including the Critically Endangered Blue Whale, Endangered Fin Whale and Sei Whale, and the Vulnerable Humpback Whale and Sperm Whale. The nutrient-rich waters of the Benguela ecosystem provide important feeding grounds for both resident and migratory marine mammals, with humpback and southern right whales increasingly being recorded feeding within West Coast upwelling areas.

The offshore area also supports a variety of seabirds, including albatrosses, petrels, shearwaters, cormorants, Cape gannets and African penguins, many of which are threatened or protected species. These birds rely on the productive Benguela ecosystem and its abundant fish populations for feeding, with the concession area forming part of the broader foraging range of many species.

From a biodiversity perspective, the concession area is considered to be in a largely natural condition and has therefore been classified as "Least Concern" under the 2025 National Biodiversity Assessment (NBA). It does not overlap with any declared Marine Protected Areas (MPAs) or Ecologically and Biologically Significant Areas (EBSAs). However, a small portion (approximately 9%) falls within a Critical Biodiversity Area (CBA) Natural, where the primary management objective is to maintain ecosystems in a natural or near-natural condition. The CBA Natural area will be clearly demarcated as a no-go area and completely excluded from the prospecting footprint. Prospecting activities will not take place within the CBA. Sensitive benthic habitats identified through geophysical surveys (e.g. rocky reefs and kelp habitats) will also be avoided, with appropriate exclusion buffers implemented around identified sensitive habitats. These biodiversity priority areas contribute to ecological functioning and conservation planning and have therefore been considered in project planning and impact assessment to minimise potential impacts and cumulative effects on sensitive marine habitats.

Socio-economic and cultural context and character

The proposed prospecting area is located offshore of the Namakwa District Municipality within the Kamiesberg Local Municipality. The nearest settlement is Koingnaas, located approximately 11 km east of the concession area. The Namakwa District is a large, sparsely populated region comprising small rural towns and coastal settlements. Its economy has historically been based on mining, agriculture, fishing and nature-based tourism, with mining remaining one of the most important contributors to employment and economic activity.

The region continues to face several socio-economic challenges, including unemployment, poverty, limited economic diversification and skills shortages. Coastal settlements such as Kleinzee, Hondeklipbaai and Koingnaas have historically been closely associated with the diamond mining industry. Although mining remains an important employer, declining production

in some areas has resulted in population decline and reduced economic opportunities. Small-scale fishing, agriculture, government services and seasonal tourism continue to provide important sources of income for many communities.

Koingnaas was originally established as a mining town to support offshore and coastal diamond mining operations. Following the decline of mining activities, the town experienced a substantial reduction in population and economic activity and today remains a small, remote settlement with limited services and employment opportunities. Mining and mining-related activities continue to play an important role in the local economy, although some employment is also provided through environmental rehabilitation, tourism and local service industries.

Given that the proposed prospecting activities will take place offshore, approximately 11 km from the nearest settlement, direct effects on local communities are expected to be limited. Nevertheless, the assessment considers the potential effects on marine-based industries, particularly the commercial fishing sector, as well as the contribution that prospecting activities may make to employment, local procurement and broader regional economic development.

Current land uses and user groups

The main users of the marine environment within and surrounding Concession Area 6C are the commercial fishing and shipping industries. Due to the exposed nature of the West Coast and the absence of major nearby ports, most international commercial shipping routes occur well offshore of the concession area along the continental shelf edge. Vessel traffic within or near the concession area is therefore expected to consist primarily of fishing vessels and other prospecting or mining vessels.

Commercial fishing activities were assessed using spatial catch data provided by the Department of Forestry, Fisheries and the Environment (DFFE). The major offshore fisheries, including the demersal trawl, demersal hake longline and large pelagic longline sectors, generally operate outside the concession area, while the West Coast rock lobster fishery occurs in shallow nearshore waters and does not overlap with the proposed prospecting area.

Limited overlap may occur with the tuna pole and line fishery and local commercial linefish operations. However, tuna fishing effort within the concession area is low, while commercial linefishing primarily occurs in shallower coastal waters. Small-scale and recreational fishers, particularly those operating from Hondeklipbaai, generally fish close to shore and are therefore unlikely to be directly affected by the offshore prospecting activities. Appropriate mitigation measures have nevertheless been proposed to minimise potential interactions with local fishing activities.

Mariculture operations, including abalone ranching and oyster production near Kleinzee and Hondeklipbaai, are located approximately 5 km or more from the concession area and operate in shallow nearshore waters. Owing to this separation distance and the temporary, localised nature of the proposed prospecting activities, impacts on these facilities are not anticipated.

Overall, existing sea uses within and around Concession Area 6C are considered compatible with the proposed prospecting programme, with only limited potential for temporary interactions with certain fishing activities. These interactions can be effectively managed through the implementation of the essential mitigation measures.

Maritime heritage context

The concession area has the potential to contain submerged heritage resources, including prehistoric archaeological material, historic shipwrecks and fossils preserved beneath the seabed.

During past ice ages, sea levels were much lower than they are today, exposing large areas of the present-day continental shelf as dry land. Early humans occupied these landscapes, meaning that buried archaeological material, such as stone tools, may still occur beneath the seabed. Although no submerged prehistoric sites have yet been recorded within Concession Area 6C, archaeological discoveries elsewhere along South Africa's West Coast demonstrate that such resources can survive offshore.

The West Coast also has a long maritime history dating back to the 1600s. The coastline was heavily used for shipping, fishing and mining, and numerous shipwrecks have been recorded along the coast. While two historic shipwrecks occur near the concession area, both are located onshore outside the concession and are therefore not expected to be affected. Nevertheless, there remains a small possibility that previously unknown shipwrecks could occur within the concession area.

The seabed geology itself is generally of low palaeontological sensitivity, although younger seabed sediments and buried ancient river channels may preserve fossil material and evidence of past environments.

Overall, no known maritime heritage resources occur within Concession Area 6C. However, because previously unknown submerged archaeological sites or shipwrecks could be encountered during prospecting, appropriate mitigation measures, including a chance-find procedure, are recommended to ensure that any unexpected discoveries are protected and managed appropriately.

Potential Impacts and Benefits of the Proposed Prospecting Activities

The potential positive and negative impacts associated with the proposed prospecting activities in Concession Area 6C were assessed for the following key environmental and social receptors:

1. Marine Ecology
2. Socio-Economic and Fisheries
3. Maritime Heritage Resources

In addition, cumulative impacts and the "No-Go" alternative were also assessed.

Table 1 provides a summary of the significance ratings assigned to each impact before and after the implementation of mitigation and optimisation measures. Mitigation measures are actions aimed at avoiding or reducing negative impacts and are classified as either Essential (mandatory to implement and should reduce the impact significance rating after implementation) or Best Practice/Recommended (not mandatory and implemented where feasible). Optimisation measures are applied to enhance positive impacts and are generally considered Best Practice/Recommended.

The assessment identified **25 potential environmental, socio-economic and heritage impacts or benefits** that could result from the proposed prospecting activities. Before the implementation of mitigation and optimisation measures, **21 of these were assessed as negative**, while the remaining **four were assessed as positive.**

The **21 negative impacts** relate primarily to temporary disturbance of marine fauna (including benthic invertebrates, fish, marine mammals, seabirds and turtles), disturbance of the seabed, effects on fisheries, commercial shipping, tourism, recreation and community well-being, and, in the absence of appropriate management, damage to valuable submerged heritage resources, including palaeontological, archaeological and prehistoric material. These negative impacts were assessed to have significance ratings ranging from **"**Medium" to "Insignificant" before the implementation of mitigation measures. The impacts of highest negative significance ("Medium") relate to temporary disturbance of marine mammals and seabirds from geophysical surveys, and localised disturbance of benthic habitats associated with seabed sampling and drilling. Following implementation of the proposed mitigation and optimisation measures, the five negative impacts relating to maritime heritage resources change from “Low” or “Medium Negative” to "Low” or "Medium Positive", as the discovery, protection and curation of archaeological or palaeontological material would contribute to scientific knowledge and heritage conservation. The significance of the remaining 16 negative impacts can all be reduced to between "Low" and "Insignificant", indicating that no significant residual environmental impacts are anticipated.

The proposed prospecting activities also have the potential to generate positive socio-economic benefits through temporary employment, procurement, skills development and scientific knowledge generation. **Accordingly, four of the 25 identified impacts were assessed as positive**, all relating to socio-economic benefits. These were assessed to be of "Very Low Positive" significance before optimisation—due to the short-term and specialised nature of the activities— improving to "Low Positive" significance with the implementation of best-practice optimisation measures. As discussed above, the five heritage-related impacts also change from negative to positive following mitigation, resulting in a potential net gain in scientific and heritage knowledge through the recovery, documentation and assessment of valuable archaeological and palaeontological material.

In summary, the assessment identified 25 potential environmental, socio-economic and heritage impacts or benefits that could result from the proposed prospecting activities. Following the implementation of mitigation and optimisation measures, 16 of these remain negative, but all are assessed to be of "Low" or "Insignificant" significance, indicating that no significant residual environmental impacts are anticipated. The remaining nine impacts are assessed as positive, with significance ratings ranging from "Low Positive" to "Medium Positive".

Table 1. Potential impacts associated with prospecting in Concession area 6C, as identified during the Basic Assessment Process. These include impacts on Marine Ecology, Socio-Economic Resources and Marine Heritage Resources. * Note that the "Intensity" refers to the magnitude of the impact in relation to the sensitivity of the receiving environment, taking into account the degree to which the impact may cause irreplaceable loss of resources.

Impact	Extent	Intensity	Duration	Consequence	Probability	Significance	Status	Reversibility	Degree impact can be avoided	Degree impact can be managed:	Degree impact can be mitigated / optimised
MARINE ECOLOGY											
Impact 1: Geophysical survey related disturbance on plankton: **No mitigation**	Regional	Low	Short term	Very Low	Probable	**VERY LOW**	**-ve**	Reversible	Cannot be fully avoided	No management required	No mitigation needed/ possible
Impact 2: Geophysical survey related disturbance on benthic invertebrates: **No mitigation**	Local	Low	Short term	Very Low	Possible	**INSIGNIFICANT**	**-ve**	Reversible	Cannot be fully avoided	No management required	No mitigation needed/ possible
Impact 3: Geophysical survey related disturbance on fish: **No mitigation**	Regional	Low	Short term	Very Low	Probable	**VERY LOW**	**-ve**	Reversible	Cannot be fully avoided	No management required	No mitigation needed/ possible
Impact 4: Geophysical survey related disturbance on marine mammals: **Without mitigation**	Regional	High	Short term	Medium	Probable	**MEDIUM**	**-ve**	Reversible	Can be partially avoided	Manageable	Moderately effective
With mitigation	Regional	High	Short term	Medium	Possible	**LOW**	**-ve**				
Impact 5: Geophysical survey related disturbance on seabirds: **Without mitigation**	Regional	High	Short term	Medium	Probable	**MEDIUM**	**-ve**	Reversible	Can be partially avoided	Manageable	Moderately effective
With mitigation	Regional	High	Short term	Medium	Possible	**LOW**	**-ve**				
Impact 6: Impacts of drilling noise on marine fauna: Phase 2: **Without mitigation**	Local	Medium	Short term	Very Low	Probable	**VERY LOW**	**-ve**	Reversible	Can be partially avoided	Manageable	Moderately effective
With mitigation	Local	Low	Short term	Very Low	Probable	**VERY LOW**	**-ve**				
Impact 7: Impacts of drilling noise on marine fauna: Phase 3: **Without mitigation**	Regional	Medium	Short term	Low	Probable	**LOW**	**-ve**	Reversible	Can be partially avoided	Manageable	Moderately effective
With mitigation	Local	Low	Short term	Very Low	Probable	**VERY LOW**	**-ve**				
Impact 8: Marine megafauna collisions with survey vessels. **Without mitigation:**	Local	High	Short term	Low	Possible	**VERY LOW**	**-ve**	Reversible	Can be partially avoided	Manageable	Moderately effective
With mitigation	Local	High	Short term	Low	Improbable	**VERY LOW**	**-ve**				
Impact 9: Direct benthic impacts associated with prospecting activities (all phases): **Without mitigation**	Local	High	Medium term	Medium	Definite	**MEDIUM**	**-ve**	Reversible	Can be partially avoided	Manageable	Moderately effective
With mitigation	Local	Medium	Medium term	Low	Definite	**LOW**	**-ve**				
Impact 10: Indirect impacts associated with tailings discharge and fine sediment plumes: **Without mitigation**	Local	Medium	Short term	Very Low	Definite	**VERY LOW**	**-ve**	Reversible	Can be partially avoided	Manageable	Moderately effective
With mitigation	Local	Low	Short term	Very Low	Probable	**VERY LOW**	**-ve**				
Impact 11: Impact of artificial light at night from vessels on marine fauna: **Without mitigation**	Regional	Low	Short term	Low	Probable	**LOW**	**-ve**	Reversible		Manageable	Moderately effective

Impact	Extent	Intensity	Duration	Consequence	Probability	Significance	Status	Reversibility	Degree impact can be avoided	Degree impact can be managed:	Degree impact can be mitigated / optimised
With mitigation	Regional	Low	Short term	Low	Possible	**VERY LOW**	**-ve**		Can be partially avoided		
Impact 12: Waste discharges during vessel operations: **Without mitigation**	Local	Low	Medium term	Very Low	Probable	**VERY LOW**	**-ve**	Reversible	Can be partially avoided	Manageable	Moderately effective
With mitigation	Local	Low	Short term	Very Low	Improbable	**INSIGNIFICANT**	**-ve**				
SOCIO-ECONOMIC RESOURCES AND FISHERIES											
Impact 13: Impact on fisheries: **No Mitigation**	Local	Medium	Short term	Very Low	Possible	**INSIGNIFICANT**	**-ve**	Reversible	Cannot be fully avoided	No management required	No mitigation needed/ possible
Impact 14: Potential impacts on commercial shipping: **No mitigation**	Local	Low	Short term	Very Low	Possible	**INSIGNIFICANT**	**-ve**	Reversible	Cannot be fully avoided	No management required	No mitigation needed/ possible
Impact 15: Impact on sense of place and wellbeing: **With and without mitigation**	Local	Medium	Short term	Very Low	Possible	**INSIGNIFICANT**	**-ve**	Reversible	Cannot be fully avoided	Manageable	Moderately effective
Impact 16: Impact on tourism and recreation: **Without mitigation**	Local	Medium	Short term	Very Low	Probable	**VERY LOW**	**-ve**	Reversible	Cannot be fully avoided	Manageable	Moderately effective
With mitigation	Local	Medium	Short term	Very Low	Improbable	**INSIGNIFICANT**	**-ve**				
Impact 17: Impact on employment and economic opportunities: **Without optimisation**	Regional	Low	Short term	Very Low	Probable	**VERY LOW**	**+ve**	Not desirable to avoid as this is a benefit	Not desirable to avoid as this is a benefit	Manageable	Moderately effective
With optimisation	Regional	Medium	Short term	Low	Probable	**LOW**	**+ve**				
Impact 18: Impact on procurement and expenditure: **Without optimisation**	Local-Regional	Low	Short term	Very Low	Probable	**VERY LOW**	**+ve**	Not desirable to avoid as this is a benefit	Not desirable to avoid as this is a benefit	Manageable	Moderately effective
With optimisation	Local-Regional	Medium	Short term	Low	Probable	**LOW**	**+ve**				
Impact 19: Impact on skills development, capacity building and transformation: **Without optimisation**	Local-Regional	Low	Medium term	Low	Possible	**VERY LOW**	**+ve**	Not desirable to avoid as this is a benefit	Not desirable to avoid as this is a benefit	Manageable	Moderately effective
With optimisation	Local-Regional	Medium	Medium term	Low	Probable	**LOW**	**+ve**				
Impact 20: Impact on environmental and scientific knowledge generation: **Without optimisation**	National	Low	Short-medium term	Low	Possible	**VERY LOW**	**+ve**	Not desirable to avoid as this is a benefit	Not desirable to avoid as this is a benefit	Manageable	Moderately effective
With optimisation	National	Medium	Short-medium term	Low	Probable	**LOW**	**+ve**				
MARITIME HERITAGE RESOURCES: SUBMERGED PREHISTORIC ARCHAEOLOGICAL, MARITIME ARCHAEOLOGICAL AND PALAEONTOLOGICAL RESOURCES											
Submerged prehistoric archaeological Heritage Resources (prehistoric stone artefacts and tools)											
Impact 21: Impact on Submerged Prehistory: **Without mitigation**	Local	Medium	Long-term (permanent)	Medium	Probable	**MEDIUM**	**-ve**	Irreversible	Cannot be fully avoided	Manageable	Very effective
With Mitigation	Local	Medium	Long-term (permanent)	Medium	Probable	**MEDIUM**	**+ve**	Irreversible	Cannot be fully avoided	Manageable	Very effective

Impact	Extent	Intensity	Duration	Consequence	Probability	Significance	Status	Reversibility	Degree impact can be avoided	Degree impact can be managed:	Degree impact can be mitigated / optimised
Palaeontological Resources (fossils)											
Impact 22: Impact on cretaceous fossil wood: **Without mitigation**	Local	Medium	Long-term (permanent)	Medium	Probable	**MEDIUM**	**-ve**	Irreversible	Cannot be fully avoided	Manageable	Very effective
With Mitigation	Local	Medium	Long-term (permanent)	Medium	Probable	**MEDIUM**	**+ve**	Irreversible	Cannot be fully avoided	Manageable	Very effective
Impact 23: Impact on cenozoic shelly macrofauna (fossil shells of relatively large marine organisms from ancient geological deposits): **Without mitigation**	Local	Medium	Long-term (permanent)	Medium	Probable	**MEDIUM**	**-ve**	Irreversible	Cannot be fully avoided	Manageable	Very effective
With Mitigation	Local	Medium	Long-term (permanent)	Medium	Probable	**MEDIUM**	**+ve**	Irreversible	Cannot be fully avoided	Manageable	Very effective
Impact 24: Impact on fossil bones and teeth: **Without mitigation**	Local	High	Long-term (permanent)	High	Improbable	**MEDIUM**	**-ve**	Irreversible	Cannot be fully avoided	Manageable	Very effective
With Mitigation	Local	High	Long-term (permanent)	High	Possible	**MEDIUM**	**+ve**	Irreversible	Cannot be fully avoided	Manageable	Very effective
Impact 25: Impact on shells from the Last Transgression Sequence (younger shells from more recent marine deposits): **Without mitigation**	Local	Medium	Long-term (permanent)	Medium	Possible	**LOW**	**-ve**	Irreversible	Cannot be fully avoided	Manageable	Effective
With Mitigation	Local	Medium	Long-term (permanent)	Medium	Possible	**LOW**	**+ve**	Irreversible	Cannot be fully avoided	Manageable	Effective
Maritime archaeological resources (shipwrecks)											
Scoped Out											

Impacts on marine ecology

The proposed prospecting activities have the potential to result in a number of localised and temporary impacts on marine ecology, primarily associated with geophysical surveys, seabed sampling and vessel operations. These impacts may include disturbance of marine fauna (including benthic invertebrates, fish, marine mammals, seabirds and turtles) and localised disturbance of seabed habitats. The assessment indicates that, prior to mitigation, significance of these impacts ranges from "**Medium Negative**" to "**Insignificant**". With implementation of the mitigation measures, all impacts are reduced to "**Low**", "**Very Low**" or "**Insignificant**" negative significance.

The impact of greatest concern is the potential disturbance of marine mammals arising from underwater noise generated during geophysical surveys. The west coast of South Africa supports seasonally important populations of migrating humpback and southern right whales, while odontocetes such as dusky dolphins and Heaviside's dolphins may occur throughout the year. Of the proposed acoustic equipment, the chirp sub-bottom profiler (operating primarily between approximately 1 and 45 kHz) presents the greatest potential for interaction with mid-frequency cetaceans. However, provided recognised international mitigation measures are implemented, the residual impact is expected to be of "**Low Negative**" significance.

Concession Area 6C overlaps with an area identified as CBA: Natural and may contain additional sensitive benthic habitats. The CBA: Natural area must be clearly demarcated as a no-go area and completely excluded from the prospecting footprint. No prospecting activities may occur within the CBA. Sensitive benthic habitats identified through geophysical surveys must also be avoided, with appropriate exclusion buffers implemented around identified sensitive habitats (e.g. rocky reefs and kelp habitats). A pre-survey verification of sensitive marine habitats is required before intrusive sampling.

Overall, the specialist identified the proposed prospecting programme to not present a fatal flaw from a marine ecological perspective, and that, subject to implementation of the prescribed mitigation measures, the project is considered acceptable.

Impacts on socio-economic and fishery receptors

The proposed prospecting programme is expected to generate a range of modest positive socio-economic benefits, although these will be limited by the short-term, highly specialised nature of the activities. Temporary employment, procurement and expenditure will contribute to economic activity primarily at the provincial and national levels, while opportunities for local communities are expected to be limited. The programme also has the potential to support skills development and transformation through targeted training, capacity building and preferential procurement, while the collection of geological, oceanographic and ecological data will improve scientific understanding of the offshore environment and may support future resource management, conservation initiatives and marine spatial planning. With the implementation of best-practice optimisation measures, including local procurement and employment preferences, skills development, stakeholder engagement, transparent procurement and recruitment, and appropriate management and sharing of environmental data, the significance of these benefits can be enhanced from "**Very Low Positive**" to "**Low Positive**". Temporary interactions with commercial fishing activities and vessel traffic may occur due to the moving safety zone around the survey vessel and short-term acoustic survey activities. However, these interactions are expected to be localised and short-lived, with impacts on fisheries and shipping assessed as "**Insignificant**" due to the limited overlap with fishing grounds and shipping routes.

The specialist therefore concluded that no socio-economic fatal flaws were identified and that the proposed prospecting activities can proceed from a socio-economic perspective.

Impacts on maritime heritage resources

Although prospecting activities have the potential to disturb or permanently remove submerged heritage prehistoric resources, they also present a valuable opportunity to enhance scientific and heritage knowledge through the recovery, documentation and assessment of previously unknown fossils and archaeological material. Prior to mitigation, impacts on older fossil material from ancient geological deposits (including fossil wood, shells, bones and teeth) and prehistoric archaeological resources (such as stone tools) are assessed as **"Medium Negative"**, while impacts on younger shells from more recent marine deposits (Last Transgression Sequence) are assessed as **"Low Negative"**. With the implementation of mitigation measures, including environmental awareness training, the systematic identification, collection, recording and specialist assessment of significant fossil and archaeological material, and reporting important finds to the relevant heritage authorities, these impacts improve to **"Medium Positive"** and **"Low Positive"**, respectively. These measures ensure that scientifically valuable material, which might otherwise be lost, is preserved and contributes to a better understanding of the region's geological, environmental and human history. No impacts on maritime archaeological resources are anticipated due to the extremely low likelihood of shipwrecks occurring within the concession area, although any unexpected discoveries must be reported and managed in accordance with statutory heritage requirements.

The heritage specialist therefore concluded that, provided the recommendations to mitigate potential impacts are implemented, the proposed prospecting in Concession Area 6C is likely to have relatively minor impacts on palaeontological, submerged prehistoric and maritime and underwater cultural heritage resources, and is thus acceptable from a maritime heritage perspective.

Cumulative Impacts

A summary of the cumulative impact ratings is provided in Table 2 below. Cumulative impacts arise when the effects of an individual activity combine with those of past, existing and reasonably foreseeable future activities, resulting in incremental or aggregate impacts over broader spatial and temporal scales. This is particularly relevant along South Africa's west coast, where marine diamond mining has been undertaken for several decades and extensive areas of the nearshore and offshore environment are already subject to prospecting and mining rights. In addition to existing diamond mining operations, offshore oil and gas exploration activities also occur within the region, often using similar survey methods such as acoustic surveys, coring and drilling. There has also been a recent increase in applications for offshore diamond prospecting rights, including in concession areas adjacent to Concession Area 6C, indicating that marine prospecting activity is likely to increase over the short- to medium-term. Consequently, the cumulative effects of multiple concurrent prospecting programmes must be considered. In most cases, cumulative impacts are expected to arise through an increase in the spatial extent and duration of otherwise localised, short-term impacts, rather than an increase in their intensity. However, the absence of a recent strategic regional assessment means that uncertainty remains regarding the timing, extent and interaction of future activities.

Table 2. Potential cumulative impacts associated with prospecting activities in Concession Area 6C identified during the Basic Assessment Process.

Receptor	Impact Nature and Significance
Marine Ecology and Fisheries	MEDIUM NEGATIVE
Socio-Economic Receptors	VERY LOW POSITIVE
Palaeontological Resources	POSITIVE (NO RATING GIVEN)
Submerged Prehistorical Resources	LOW NEGATIVE
Maritime Archaeological Resources	LOW NEGATIVE

Marine ecology and fisheries

The principal cumulative considerations relate to underwater noise, localised seabed disturbance and temporary interactions with commercial fisheries. Should prospecting programmes in adjacent concession areas occur simultaneously, these impacts may extend over a larger regional area and persist for longer periods. However, because prospecting activities are temporary, mobile, spatially limited, and do not normally occur concurrently, the proposed programme is considered to make only a small incremental contribution to existing regional pressures. Consequently, the overall cumulative ecological impact is assessed to be of "**Medium Negative**" significance, although confidence in this assessment is low due to uncertainty regarding the timing, scale and intensity of future regional activities.

Socio-economic considerations

The prospecting programme is not expected to result in meaningful cumulative adverse effects because it is temporary, offshore, requires no permanent infrastructure and will not generate a substantial influx of workers. Instead, it will make a modest incremental contribution to regional economic activity through expenditure, procurement, employment, skills development and the generation of geological and environmental information that may support future marine spatial planning and resource management. Consequently, the cumulative socio-economic impact is assessed to be of "**Very Low Positive**" significance.

Maritime Heritage considerations

From a heritage perspective, cumulative impacts differ between resource types. Cumulative impacts on submerged prehistoric archaeological resources (stone artefacts and tools) and maritime archaeological resources (shipwrecks) are expected to be of "**Low Negative**" significance—reflecting the low density and highly localised distribution of submerged archaeological material, the limited likelihood of encountering shipwrecks within the concession area, and the ability to avoid known heritage features where identified. In contrast, although prospecting will inevitably result in the permanent loss of some palaeontological (fossil) material, coordinated fossil recovery, documentation and specialist assessment across multiple prospecting programmes has the potential to substantially improve understanding of the continental shelf's geological, palaeoenvironmental, palaeontological, and archaeological context. As a result, cumulative palaeontological impacts have the potential to become be of "**Positive**" significance (no specific rating assigned), assuming appropriate fossil rescue and documentation programmes are generally implemented across the region.

Impacts associated with the "No Go" alternative

The No-Go Alternative refers to the potential impacts associated with not pursuing the proposed development, or "doing nothing". It therefore considers the implications of not proceeding with the proposed prospecting works in Concession 6C. Under this scenario, the project area would remain in its current state, with only natural environmental processes and any existing marine will continue to influence the site. This alternative would avoid the "Low", "Very Low", or "Insignificant" negative impacts associated with the prospecting works (as identified and assessed in this BAR and supporting specialist studies EIA)—and would prevent this project from adding to the cumulative burden/impact placed on the surrounding marine environment within Concession 6C (and the surrounding concessions)—due to other prospecting and mining activities. While the contributions of the proposed prospecting works to the overall "Medium Negative" cumulative impact rating (assigned by the Marine and Fisheries specialist) would be small—relative to existing/historical mining/prospecting activities—it will still contribute marginally to these regional cumulative pressures. **However, pursuing the No-Go would also result in the loss of the anticipated positive project outcomes, which includes:**

Lost socio-economic benefits

Under the No-Go Alternative, the limited but meaningful socio-economic benefits associated with the prospecting programme would not be realised. This includes the loss of "Low Positive" project-level benefits relating to temporary employment, procurement, capital expenditure, skills development and scientific knowledge generation, as well as the "**Very Low Positive**" cumulative socio-economic benefits identified by the specialist. In addition, the economic activity associated with the prospecting phase itself, including the use of specialist services, vessel operations and associated procurement, would not occur.

Lost maritime heritage benefits

The No-Go Alternative would also result in the loss of important opportunities to advance South Africa's marine heritage knowledge. Although prospecting has the potential to disturb palaeontological and archaeological resources, appropriate mitigation enables the recovery, documentation and scientific assessment of valuable fossils and artefacts that would otherwise remain inaccessible. Consequently, the "**Low**" to "**Medium**" Positive project-level heritage benefits associated with the proposed prospecting works—together with the "**Low Positive**" cumulative benefits for submerged prehistoric and maritime archaeological resources, and the un-rated Positive cumulative palaeontological benefits—would not be realised.

Broader implications relating to the project's "Need and Desirability"

The No-Go Alternative would not address the underlying need and desirability of the project, as prospecting is the essential first step in determining the location, extent and economic viability of offshore mineral resources. Without prospecting, these resources would remain unquantified, preventing informed decisions regarding any future mining development. The baseline geological, geophysical and environmental information generated during prospecting further contributes to South Africa's broader mineral resource knowledge base, environmental management and marine spatial planning, while supporting national development objectives. As a result, the No-Go Alternative would forgo not only potential future economic opportunities, but also valuable information that could benefit the broader public interest beyond the immediate objectives of the applicant.

Environmental management outcomes and Mitigation/Optimisation Measures for Implementation through the Environmental Management Programme

Environmental management outcomes and associated mitigation and optimisation measures have been developed to guide implementation of the Environmental Management Programme (EMPr) and ensure that the project is undertaken in an environmentally responsible manner. These measures have been developed in accordance with the internationally recognised mitigation hierarchy of avoid, minimise, rehabilitate/restore, offset and, where necessary, no-go. Mitigation measures are actions aimed at avoiding or reducing negative impacts and are classified as either Essential (mandatory to implement and should reduce the impact significance rating after implementation) or Best Practice/Recommended (not mandatory and implemented where feasible to further improve environmental performance). Optimisation measures are applied to enhance positive impacts and are generally considered Best Practice/Recommended. Together, these measures are designed to achieve the environmental management outcomes identified for the project, minimise adverse environmental impacts, enhance project benefits, and ensure compliance with the Environmental Authorisation and EMPr.

The mitigation and optimisation measures were initially developed based on the findings and recommendations of the specialist assessments for each environmental receptor. For implementation within the EMPr, these measures have been consolidated, expanded where appropriate, and reorganised according to the project phase during which they are to be implemented, namely the Planning, Design and Establishment Phase; Operational Phase; and Decommissioning and Closure Phase. The environmental management outcomes and associated management actions (mitigation/ optimisation measures) applicable to each phase are summarised below.

1. Planning, design and establishment phase

1.1 Environmental awareness training

Outcome: Provide environmental awareness training to ensure all staff are aware of and understand their individual responsibilities in terms of this EMPr, ensuring effective implementation and compliance.

- **Essential Mitigation Measures:**
  - All personnel must receive environmental awareness training before commencing work, with refresher training provided where required.
  - Training must cover the requirements of the EA and EMPr, environmental sensitivities of the concession area, protection of marine fauna and heritage resources, pollution prevention, waste management, emergency response, and environmental incident reporting procedures.
  - Environmental and safety notices, including emergency contacts, spill response, waste management and pollution prevention requirements, must be displayed onboard the survey vessel where practicable.
  - Environmental toolbox talks or briefings must be conducted, where appropriate, throughout the survey programme to reinforce environmental requirements and communicate site-specific risks or procedural changes.
  - Training records must be maintained, and training material must be provided in languages understood by personnel.

1.2 Interested and Affected party (I&APs) notification

Outcome: Notify registered and relevant I&APs of the commencement of prospecting activities to promote stakeholder awareness, transparency and communication, and to enable affected parties to anticipate and respond to survey activities.

- **Essential Mitigation Measures:**
  - Registered I&APs and relevant stakeholders must be notified in writing prior to commencement of prospecting activities.
  - Notifications must include the survey location, anticipated programme, contact details, safety exclusion zones, and emphasise the temporary, offshore and localised nature of the activities.
  - Key stakeholders include relevant government authorities, heritage authorities, maritime authorities, adjacent right holders, tourism stakeholders, fishing organisations, mariculture operators and local fishing communities.
  - A Fishing Liaison Officer (FLO) must be appointed to facilitate communication with the fishing and mariculture sectors and provide operational updates throughout the survey programme.

1.3 Protection of marine benthic and sensitive habitats

Outcome: Ensure that seabed sampling, drilling and tailings disposal result only in localised and temporary disturbance to benthic habitats, with sensitive habitats avoided and the CBA Natural area excluded from the prospecting footprint, no significant impacts on biodiversity features of concern, and no long-term loss of benthic ecosystem structure or function.

- **Essential Mitigation Measures:**
  - A pre-survey verification of sensitive marine habitats (e.g. rocky reefs and kelp habitats) before intrusive sampling is mandatory.
  - Exclusion buffer zones must be implemented around sensitive habitats identified during geophysical surveys. The recommended exclusion buffer zone is 500 m.
  - All sensitive benthic habitats identified during geophysical surveys should be avoided, including exclusion zone buffers (500 m recommended) around such habitats.
  - The CBA Natural area must be clearly demarcated as a no-go area and be excluded from the prospecting footprint entirely, prior to prospecting. No prospecting may occur in the CBA.
  - Potential discharges must be planned and managed to ensure that tailings are not discarded onto potentially sensitive habitats.

1.4 Protection of submerged prehistoric archaeological, maritime archaeological and palaeontological resources

Outcome: Avoid or minimise damage to submerged prehistoric archaeological resources (e.g. prehistoric stone artefacts and tools), maritime archaeological resources (e.g. shipwrecks), and palaeontological (fossil) resources, including older fossil material from ancient geological deposits (e.g. Cretaceous fossil wood, Cenozoic macrofauna shells, fossil bones and teeth) and younger shells from more recent marine deposits (the Last Transgression Sequence), and ensure that any heritage resources identified during prospecting activities are appropriately protected, recorded and managed.

- **Essential Mitigation Measures:**

  - Obtain all required heritage permits from the South African Heritage Resources Agency (SAHRA) before commencement of prospecting activities.
  - Prepare and implement a Chance Find Procedure (Method Statement) for the identification, recording, handling and management of submerged archaeological and palaeontological material encountered during prospecting.
  - Provide environmental awareness training to relevant personnel on the identification, protection and reporting procedures for submerged archaeological resources (e.g. stone artefacts and shipwrecks) and palaeontological (fossil) material.

1.5 Management of employment, procurement and economic opportunities

Outcome: Optimise the positive socio-economic and scientific outcomes of the prospecting programme by promoting local and South African participation in employment, procurement and skills development where feasible, and by ensuring that environmental and scientific data generated during the project are appropriately managed and utilised.

- **Recommended/ best practice mitigation and optimisation measures:**

  - Communicate employment, procurement and local/regional business opportunities to stakeholders, where appropriate as well as the limited and temporary nature of employment opportunities associated with the prospecting phase.
  - Implement procurement in a fair, transparent and non-discriminatory manner in accordance with applicable legislation, the Mining Charter (where applicable), contractual obligations, and the Applicant's B-BBEE and supplier development policies.
  - Give preference, where feasible and commercially competitive, to South African and, where possible, local and regional suppliers and service providers.
  - Where training and capacity-building opportunities are available, implement them in a fair and transparent manner, giving preference, where feasible, to suitably qualified local and regional candidates.

2. Operational phase

2.1 Overall environmental management

Outcome: Ensure effective environmental management to achieve compliance with the EA, EMPr and applicable legislation, and to facilitate effective monitoring and reporting of environmental performance.

- **Essential Mitigation Measures:**

  - Confine prospecting activities to the approved footprint.
  - Ensure compliance with the EA, EMPr, Method Statements and applicable environmental legislation.
  - Monitor environmental compliance throughout operations by the ECO.
  - Record environmental incidents, non-conformances and corrective actions, including photographs where practicable.

2.2 Ongoing I&AP liaison and coordination, including marine users and the fishing sector

Outcome: Maintain effective communication with relevant stakeholders, particularly marine users and the fishing sector, throughout the operational phase to minimise potential conflicts,

facilitate coordination of activities, communicate operational updates where appropriate, and ensure that complaints and concerns are addressed in a timely manner.

- **Essential Mitigation Measures:**

  - Maintain ongoing communication and an operational alert protocol with key stakeholders, particularly marine users, fishing organisations and mariculture operators.
  - Keep relevant authorities, registered I&APs and affected stakeholders informed of survey activities, where applicable.
  - Record interactions or conflicts with other marine users and fishing activities.
  - Maintain a Complaints and Communications Register and respond to complaints as soon as reasonably practicable.
  - Refer unresolved disputes with adjacent or overlapping right holders to the relevant competent authority.

2.3 Staff, public and other sea users' health, safety and emergency management

Outcome: Ensure the health and safety of personnel, other sea users and the public through compliance with applicable health, safety and maritime legislation, recognised industry standards and emergency preparedness procedures.

- **Essential Mitigation Measures:**

  - Comply with applicable occupational health and safety, maritime safety and emergency management legislation and recognised industry standards.
  - Ensure survey vessels are seaworthy, appropriately equipped and operated in accordance with statutory requirements.
  - Maintain required safety exclusion zones and implement measures to minimise conflicts with other marine users.
  - Implement emergency response procedures, maintain emergency equipment and contact details, and conduct regular emergency drills.
  - Provide and use appropriate PPE, and maintain fire prevention and firefighting measures, including no smoking in hazardous storage areas.

2.4 Management of impacts on tourism and recreation

Outcome: Minimise disruption to tourism and recreational activities through appropriate planning, communication and management of prospecting operations.

- **Essential Mitigation Measures:**

  - Confine prospecting activities to the approved concession area and comply with applicable environmental and operational requirements.
  - Notify relevant tourism stakeholders and local authorities of the timing and duration of prospecting activities prior to commencement.

- **Recommended/ best practice mitigation measures:**

  - Where feasible, schedule prospecting activities outside peak tourism periods.
  - Maintain communication with tourism stakeholders and emphasise the temporary, offshore and localised nature of the activities.
  - Minimise unnecessary vessel lighting at night and avoid prolonged stationary presence near the coastline, where feasible.

2.5 Management of impacts on sense of place and wellbeing

Outcome: Minimise impacts on the sense of place and well-being of affected communities and other stakeholders arising from the prospecting activities.

- **Essential Mitigation Measures:**

  - Clearly communicate the temporary nature, limited extent and findings of the prospecting programme to stakeholders.
  - Provide regular project updates and communicate specialist study and monitoring results in an accessible, non-technical format, where feasible.
  - Clearly communicate that any future exploration or mining activities will be subject to separate environmental assessment and stakeholder engagement processes.

2.6 Protection of marine megafauna from vessel operations

Outcome: Avoid injury and mortality of marine megafauna resulting from vessel operations, including vessel strikes, underwater noise and artificial lighting, and ensure that any disturbance arising from geophysical survey or prospecting activities (including drilling) is limited to short-term, localised and reversible behavioural effects, with no significant interference with migration, feeding or breeding behaviour, and no measurable ecological or population-level impacts.

- **Essential Mitigation Measures:**

  - Implement the JNCC (2017) Guidelines for minimising impacts on marine mammals during geophysical surveys.
  - Appoint a minimum of two suitably qualified Marine Mammal and Seabird Observers (MMSOs), which should also serve as the Passive Acoustic Monitoring (PAM) observers, and utilise PAM during periods of poor visibility or darkness.
  - Establish a 500 m mitigation zone, undertake pre-survey observations (30 to 60 minutes), implement soft-start/ramp-up procedures, and delay survey commencement where marine fauna are present.
  - Maintain dedicated marine fauna watches throughout operations, record all sightings and behavioural observations, suspend operations if injury or mortality is observed, and report findings in a report to the relevant authorities.
  - Use the quietest practicable drilling methods.
  - Where practicable, avoid surveys during the peak baleen whale migration period (June to November).
  - Limit vessel speeds to <12 knots offshore and <10 knots within 25 km of the coast, with further reductions where marine megafauna are present.
  - Consult relevant marine stakeholders, including the fishing industry, before survey commencement.
  - Minimise and appropriately direct vessel lighting to reduce attraction of seabirds and other fauna, monitor bird interactions, implement procedures for handling grounded seabirds, and report ringed birds where encountered.

2.7 Protection of benthic and sensitive habitats

Outcome: Ensure that seabed sampling, drilling and tailings disposal result only in localised and temporary disturbance to benthic habitats, with sensitive habitats avoided, no significant impacts on biodiversity features of concern, and no long-term loss of benthic ecosystem structure or function.

- **Essential Mitigation Measures:**
  - A pre-survey verification of sensitive marine habitats (e.g. rocky reefs and kelp habitats) before intrusive sampling is mandatory.
  - Exclusion buffer zones must be implemented around sensitive habitats identified during geophysical surveys. The recommended exclusion buffer zone is 500 m.
  - All sensitive benthic habitats identified during geophysical surveys should be avoided, including exclusion zone buffers (500 m recommended) around such habitats.
  - The CBA Natural area must be clearly demarcated as a no-go area and be excluded from the prospecting footprint entirely, prior to prospecting. No prospecting may occur in the CBA.
  - Potential discharges must be planned and managed to ensure that tailings are not discarded onto potentially sensitive habitats.
  - Information gathered during all seabed sampling, reef identification and seabed video/camera assessments must be made available in a usable, geo-referenced format to the South African government (DFFE) and SANBI to inform future Marine Spatial Planning and confirmation of CBA status.

- **Recommended/ Best Practice mitigation:**
  - Annual benthic biodiversity monitoring could be undertaken to assess changes in ecological conditions and identify whether cumulative impacts may be increasing over time. The findings could be used to inform the need for additional mitigation measures, where required.

2.8 Protection of submerged prehistoric archaeological, maritime archaeological and palaeontological resources

Outcome: Avoid or minimise damage to submerged prehistoric archaeological resources (e.g. prehistoric stone artefacts and tools), maritime archaeological resources (e.g. shipwrecks), and palaeontological (fossil) resources, including older fossil material from ancient geological deposits (e.g. Cretaceous fossil wood, Cenozoic macrofauna shells, fossil bones and teeth) and younger shells from more recent marine deposits (the Last Transgression Sequence), and ensure that any heritage resources identified during prospecting activities are appropriately protected, recorded and managed.

- **Essential Mitigation Measures:**
  - Monitor all geophysical survey, grab, core and drill samples for submerged archaeological and palaeontological resources in accordance with the approved Method Statement.
  - Treat any identified shipwrecks as no-go areas, avoid destructive sampling, and immediately report discoveries to SAHRA.
  - Record, retain and, where appropriate, submit significant fossil and archaeological material for specialist assessment and curation, in accordance with the required permits.
  - Record all heritage finds and maintain liaison with the appointed palaeontologist and/or archaeologist throughout the prospecting programme.

2.9 Pollution management

Outcome: Prevent pollution of the marine environment while protecting water quality, marine habitats, marine fauna and human health through the appropriate management of waste, hazardous substances and spill risks, in compliance with MARPOL and other applicable legislation.

- **Essential Mitigation Measures:**

  - Comply with MARPOL requirements, maintain a Shipboard Oil Pollution Emergency Plan (SOPEP) and spill-response capability, implement pollution prevention measures, and provide spill response training.

2.10 Management of employment, procurement and economic opportunities

Outcome: Optimise the positive socio-economic benefits of the prospecting programme by promoting local and South African participation in employment, procurement and skills development where feasible.

- **Recommended/ best practice mitigation and optimisation measures:**

  - Communicate employment, procurement and local/regional business opportunities to stakeholders, where appropriate as well as the limited and temporary nature of employment opportunities associated with the prospecting phase.
  - Implement procurement in a fair, transparent and non-discriminatory manner in accordance with applicable legislation, the Mining Charter (where applicable), contractual obligations, and the Applicant's B-BBEE and supplier development policies.
  - Give preference, where feasible and commercially competitive, to South African and, where possible, local and regional suppliers and service providers.
  - Where training and capacity-building opportunities are available, implement them in a fair and transparent manner, giving preference, where feasible, to suitably qualified local and regional candidates.
  - Maintain records of procurement, supplier development, training and economic contributions.

3. Decommissioning and closure phase

3.1 Survey/ sampling vessel to leave area

Outcome: Ensure that the prospecting area is left in a condition that is safe for other maritime users.

- **Essential Mitigation Measures:**

  - Ensure the survey area is left safe for navigation and other marine users.
  - Recover lost items where practicable and environmentally appropriate, and report any unrecovered navigational hazards to the relevant maritime authorities.

3.2 Information sharing: contribution to environmental and scientific knowledge

Outcome: Maximise the environmental and scientific benefits arising from the prospecting programme by ensuring that environmental and scientific data are appropriately collected, managed, documented and, where appropriate, shared to support future environmental management, scientific research and marine spatial planning.

- **Essential Mitigation Measures:**

  - Record and manage environmental and scientific data in accordance with legal requirements and, where appropriate, share non-sensitive data with government authorities, research institutions and conservation organisations to support environmental management, biodiversity mapping and marine spatial planning.

3.3 Final waste disposal

Outcome: Ensure that all waste generated during the prospecting programme is removed from the vessel and disposed of responsibly so that no pollution or long-term environmental impacts remain following completion of the survey.

- **Essential Mitigation Measures:**

  - Remove all waste and hazardous substances from the vessel and dispose of them at licensed facilities in accordance with MARPOL and applicable legislation.
  - Retain waste disposal records and ensure no pollutants are discharged into the marine environment during demobilisation.

3.4 Closure

Outcome: Ensure that the prospecting programme is appropriately concluded through stakeholder notification and compliance with applicable closure requirements.

- **Essential Mitigation Measures:**

  - Notify stakeholders and relevant authorities on completion of the prospecting programme.
  - Submit any required closure documentation to the DMPR, where applicable.

Cumulative impacts on the environment and community

Mitigation measures recommended for each individual impact should be implemented. However, given the nature of cumulative impacts and the many factors acting across the broader region, it cannot be assumed that these measures will be implemented consistently by all parties. Consequently, no additional project-specific mitigation measures have been prescribed for cumulative impacts. Furthermore, a strategic Environmental Impact Assessment (EIA), informed by marine spatial planning principles, should be undertaken by the relevant government authority to assess and manage cumulative impacts holistically and identify any additional mitigation measures required.

Financial provisioning and Rehabilitation Plan

Financial provision of R170 000 has been made for the management of environmental incidents, emergency response, pollution remediation and any unforeseen environmental liabilities associated with the proposed prospecting programme. Additional financial provision available for the Applicant's concurrent prospecting programmes in Concession Areas 7C and 10B, together with contingency funding, further strengthens the Applicant's capacity to respond to unforeseen events. Separate operational funding has also been allocated for implementation of the EMPr, including environmental monitoring, pollution prevention and response, and the appointment of suitably qualified environmental personnel. As the proposed activities are temporary, highly localised and do not involve permanent infrastructure, active rehabilitation of

the seabed is neither necessary nor feasible. Instead, the limited disturbance (approximately 0.76 ha, representing 0.0002% of the concession area) is expected to recover naturally through normal marine sediment transport and redistribution processes.

Application process and timeline

Phase 1: **Lodge Application**
An application for PR and EA was lodged with the DMPR in February 2026.

Phase 2: Pre-Consultation Registration and Scoping
A pre-consultation registration period was undertaken from 20 June 2026 to 29 June 2026 to allow government authorities, surrounding communities and other Interested and Affected Parties (I&APs) to register and provide preliminary comments on the Background Information Document (BID). The BID provided an overview of the proposed activities and the preliminary findings of the specialist studies. The public was notified through A4 site notices placed in Kleinzee, Koingnaas and Hondeklipbaai, while the BID was distributed electronically to identified stakeholders and made available on Anchor Environmental Consultants' website (https://anchorenvironmental.co.za/public-documents). All registrations and comments received were recorded and incorporated into the I&AP database and Comments and Responses Report (CRR), respectively.

Phase 3: **Circulate documents during Participation Period (Current Phase)**
The Draft BAR, EMPr and specialist reports were made available for public review and comment during the 30-day public participation period from 25 July 2026 to 25 August 2026. Identified stakeholders and registered I&APs were notified by email and provided with a link to the project documents on Anchor Environmental Consultants' website (https://anchorenvironmental.co.za/public-documents). Hard copies of the reports were also made available at the Kleinzee Library and Hondeklipbaai SAPS.

Phase 4: **Submit Final BAR to the DMPR**
Stakeholder comments received during the PPP have been recorded and addressed in the CRR, which has been submitted as a separate appendix to this Final BAR. The Final BAR, together with all required appendices, has been submitted to the DMPR for review and consideration on 11 September 2026.

Phase 4: **Decision by the DMPR**
DMPR has 107 days following submission of the final BAR to review all the documents and decide whether to grant EA and PR for Concession Area 6C.

Conclusion and Recommendation

The Basic Assessment and specialist studies indicate that the proposed prospecting programme is environmentally acceptable and does not present any fatal flaws that would preclude the project from proceeding, provided that the "Essential Mitigation Measures" are implemented.

The proposed prospecting activities are temporary, localised and of relatively small spatial extent, disturbing an estimated 7 600 m^2 (0.76 ha) of seabed within a concession area of approximately 350 000 ha. Although the prospecting programme has the potential to result in

temporary disturbance to marine fauna, localised seabed disturbance, limited interactions with marine users and fisheries, and potential impacts on submerged heritage resources, the specialist assessments demonstrate that these impacts can be effectively avoided, minimised or managed through the implementation of the EMPr. Following mitigation, all remaining negative impacts are assessed to be of "Low", "Very Low" or "Insignificant" significance, indicating that no significant residual environmental impacts are anticipated.

The assessment also identified a number of positive outcomes associated with the project. These include temporary socio-economic benefits through employment, procurement, skills development and scientific knowledge generation, although these benefits are of "Low Positive" significance due to the short-term and specialised nature of the prospecting programme. The project also has the potential to contribute to scientific knowledge through the appropriate management and, where feasible, sharing of non-sensitive environmental and scientific data collected during the prospecting programme. In addition, should previously unknown submerged archaeological or palaeontological resources be encountered, their identification, documentation, specialist assessment and appropriate management would provide valuable opportunities to improve understanding of South Africa's offshore geological, palaeontological and archaeological heritage.

From a cumulative impact perspective, the proposed prospecting programme is expected to make only a small incremental contribution to existing regional environmental pressures because the activities are temporary, highly localised and mobile. While cumulative marine ecological impacts remain of Medium Negative significance at a regional scale due to uncertainty associated with other existing and future offshore activities, the contribution of the proposed prospecting programme to this cumulative impact is expected to be limited. The cumulative socio-economic impacts are positive, while cumulative palaeontological impacts also have the potential to be positive where fossil recovery, documentation and scientific assessment are implemented.

The No-Go Alternative would avoid the limited environmental impacts associated with the proposed prospecting activities but would also prevent the collection of important geological, environmental and scientific information required to determine the economic viability of the mineral resource. It would further result in the loss of temporary socio-economic benefits and opportunities to improve scientific understanding of the offshore environment and South Africa's submerged heritage resources.

Overall, the findings of the Basic Assessment demonstrate that the proposed prospecting activities are compatible with the receiving environment and surrounding marine uses, that the identified environmental risks can be effectively managed through the implementation of the EMPr, and that the project is expected to result in an acceptable balance between potential environmental risks and anticipated socio-economic and scientific benefits.

The EAP recommends that Environmental Authorisation for the proposed prospecting activities within Sea Concession Area 6C be granted, subject to the implementation of all essential mitigation measures contained in the EMPr. With the implementation of these measures, all identified negative impacts are expected to be reduced to **"Low"**, **Very Low**" or **"Insignificant"** significance. In addition, potential impacts on submerged heritage resources may result in a positive outcome where archaeological or palaeontological material is identified, appropriately managed and contributes to scientific knowledge.

The proposed prospecting programme is therefore considered environmentally acceptable, and the anticipated environmental, socio-economic and scientific benefits are considered to outweigh the limited residual environmental impacts.

Should Environmental Authorisation be granted, the prospecting programme will be undertaken over a five-year period in accordance with the conditions of the Environmental Authorisation, the approved EMPr and all applicable legislation. Key commitments include the phased refinement of sampling locations using the results of acoustic surveys and baseline benthic sampling to avoid environmentally sensitive habitats, implementation of all essential mitigation measures, ongoing review of new environmental information as it becomes available, and notification of relevant authorities and registered interested and affected parties prior to survey campaigns. Where appropriate and subject to confidentiality requirements, non-sensitive environmental and scientific data collected during the programme will be shared with relevant authorities and research institutions to support marine research, biodiversity conservation and marine spatial planning.

1 CONTACT PERSON AND CORRESPONDENCE ADDRESS

1.1 DETAILS OF THE EAP

Name of The Practitioner	Cheruscha Swart
Tel No:	021 701 3420
Fax No:	N/A
Email address:	cher@anchorenvironmental.co.za
Physical Address	Suite 8, Steenberg House, Silverwood Close, Steenberg Estate, Tokai, 7945
Postal address:	Same as above

1.2 EXPERTISE OF THE EAP.

1.2.1 The Qualifications of the EAP

(with evidence)

Cheruscha holds a Master of Science (MSc) in Zoology and a Bachelor of Science (BSc) Honours degree in Biodiversity and Ecology from Stellenbosch University. She is a Registered Environmental Assessment Practitioner (EAP). See CVs submitted with the report for more details.

- MSc (Cum Laude) Zoology; BSc (Hons) & BSc Biodiversity and Ecology
- EAPASA (Reg EAP no. 2021/3298)
- SACNASP Pr.Sci.Nat. Reg: 155305 (Environmental Science; Zoological Science)

1.2.2 Summary of the EAP's past experience.

(In carrying out the Environmental Impact Assessment Procedure)

Cheruscha has 14 years of research and consulting experience. She is the Team Lead and Head EAP of the Environmental Management Department at Anchor Environmental Consultants, where she leads and manages a wide range of environmental projects. Her expertise includes Environmental Impact Assessments (EIAs), applications for prospecting rights, management plan development, auditing, environmental compliance monitoring, baseline and monitoring surveys, and specialist impact assessments, all undertaken across marine, coastal, and terrestrial environments. In addition, she has specialist expertise in marine invertebrate taxonomy and rocky shore surveys. Her project portfolio spans a wide range of sectors, including land-based and offshore prospecting, offshore mining, agriculture, land- and sea-based aquaculture, solar desalination, residential and commercial developments, conservation surveys for protected areas, and long-term monitoring of bays and ports along the South African coast.

2 DESCRIPTION OF THE PROPOSED ACTIVITY

2.1 LOCATION OF THE OVERALL ACTIVITY.

Farm Name:	Sea Concession Area 6C
Application area (Ha)	Approximately 350 000 hectares
Magisterial district:	Namaqualand, Northern Cape Region
Distance and direction from nearest town	Located approximately 4 to 5 km offshore of the Northern Cape Coast, about 11km west of the nearest inland town, Koingnaas and 25 km south of Kleinsee.
21 digit Surveyor General Code for each farm portion	N/A

2.2 LOCALITY MAP

(show nearest town, scale not smaller than 1:250000).

Sea Concession Area 6C is located approximately 4 to 5 km offshore of the Northern Cape Coast, about 11km west of the nearest inland town, Koingnaas and 25 km south of Kleinsee (Figure 2.1, Figure 2.2, Table 2.1). The sea concession area is approximately 350 000 hectares.

Table 2.1 Coordinates of the concession area for the proposed prospecting.

Vertex	Latitude	Longitude
a	30.182314	16.168534
b	30.074266	15.978797
c	29.941495	15.886008
d	29.941499	15.695164
e	29.905389	15.660994
f	29.905369	17.081360
g	30.182299	17.171094
h	30.182314	16.168534

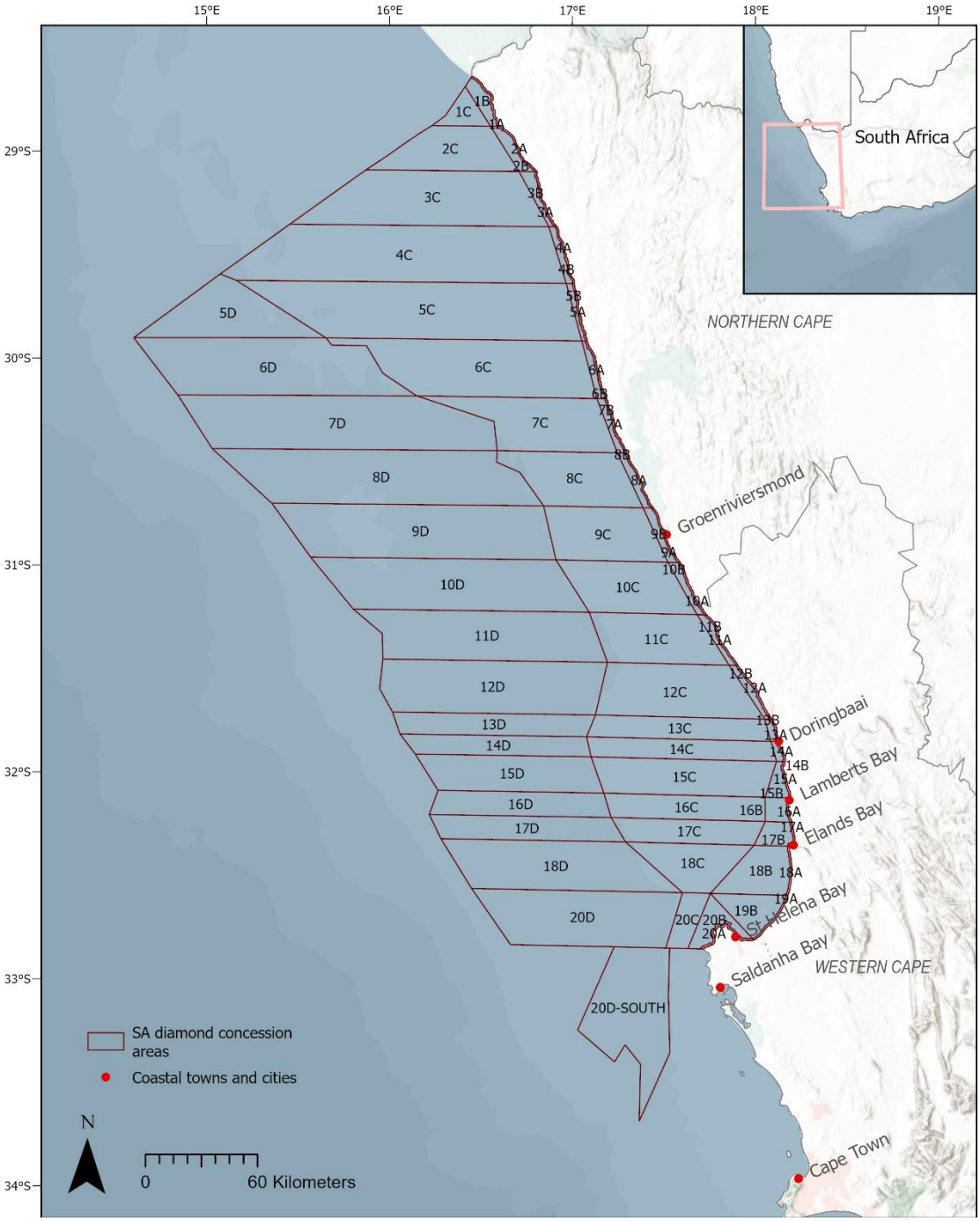

Figure 2.1 The offshore diamond mining lease areas in South African waters. The coastal shelf waters have been divided into 20 contiguous, parallel strips which have been further subdivided into the onshore and offshore concession areas (A, B, C, D).

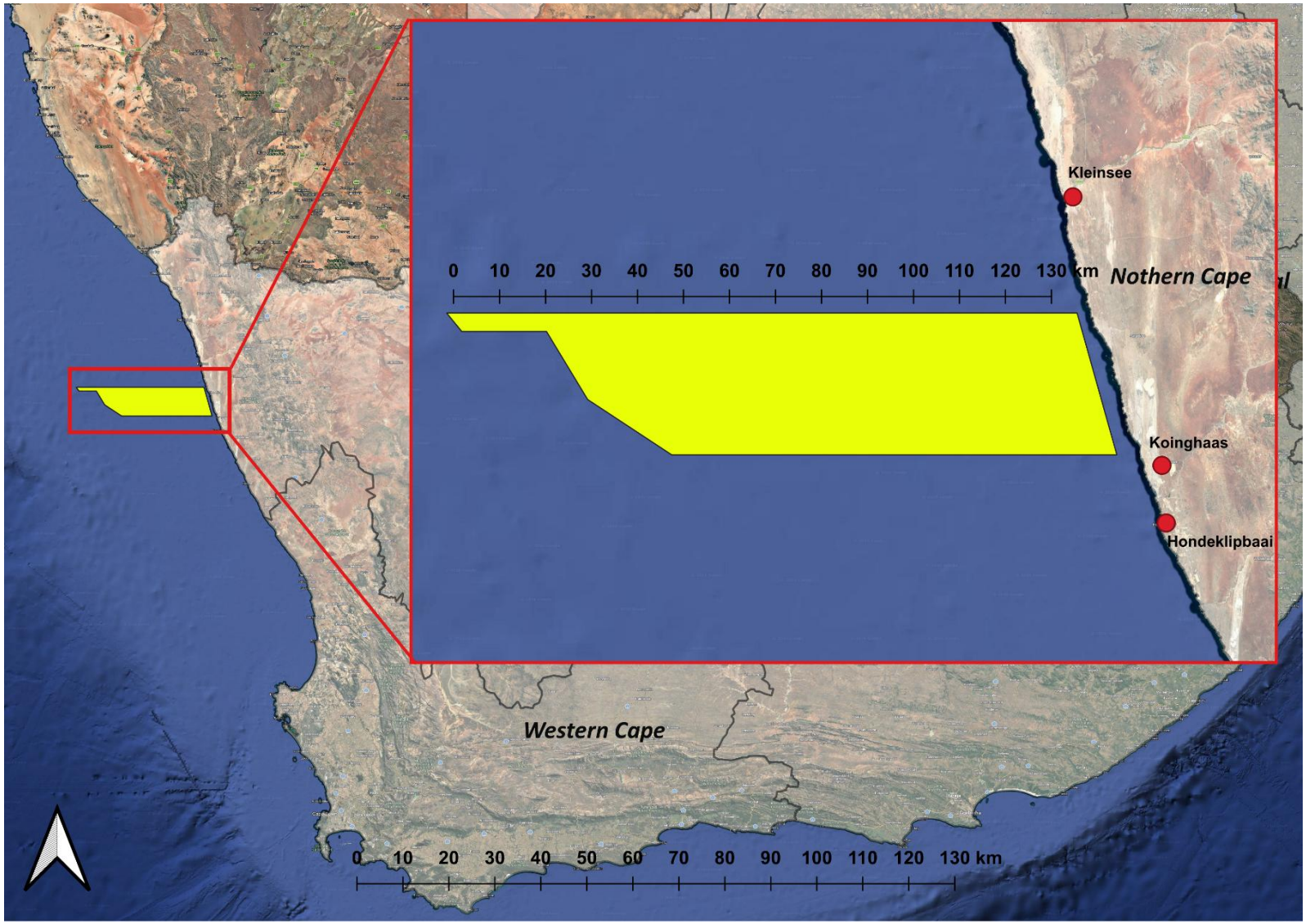

Figure 2.2 Location of offshore Sea Concession area 6C off the Northern Cape Coast. The concession starts approximately 5 km offshore of the High-Water Mark and extends to the 200 m isobath which is approximately 100 – 140 km offshore.

2.3 DESCRIPTION OF THE SCOPE OF THE PROPOSED OVERALL ACTIVITY.

Provide a plan drawn to a scale acceptable to the competent authority but not less than 1: 10 000 that shows the location, and area (hectares) of all the aforesaid main and listed activities, and infrastructure to be placed on site.

Trans Atlantic Diamonds (Pty) Ltd is proposing to prospect for various minerals within Sea Concession area 6C using both non-invasive and invasive sampling activities, none of which require infrastructure. As the activity is located offshore and comprises prospecting only, no land-based infrastructure will be required. Refer to Figure 2.2 above for the plan that shown the location and area of the main and listed activities.

2.3.1 Listed and specified activities

NAME OF ACTIVITY **(E.g. For prospecting – drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office, access route etc** **E.g. for mining,- excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc.**	**Aerial extent of the Activity Ha or m^2**	**LISTED ACTIVITY Mark with an X where applicable or affected.**	**APPLICABLE LISTING NOTICE 1, 2 and 3 (*GNR 544, GNR 545 or GNR 546)***
Geophysical survey and seafloor. mapping	350 000 ha		No listed activity triggered
A Van Veen grab will be collect between 20 and 50 samples for baseline biological assessment.	Approximately 5 m^2	X	**Listing Notice 1, Activity 19A**: "*The infilling or depositing of any material of more than 5 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 5 cubic metres from (i) the seashore; (ii) the littoral active zone, an estuary or a distance of 100 metres inland of the high-water mark of the sea or an estuary, whichever distance is the greater; or (iii) the sea; but excluding where such infilling, depositing, dredging, excavation, removal or moving (f)[sic] will occur behind a development setback; (g)[sic] is for maintenance purposes undertaken in accordance with a maintenance management plan; (h)[sic] falls within the ambit of activity 21 in this Notice, in which case that activity applies; (i)[sic] occurs within existing ports or harbours that will not increase the development footprint of the port or harbour; or where such development is related to the development of a port or harbour, in which case activity 26 in Listing Notice 2 of 2014 applies.*"

			Listing Notice 1, Activity 20: *"Any activity including the operation of that activity which requires a prospecting right in terms of section 16 of the Mineral and Petroleum Resources Development Act, as well as any other applicable activity as contained in this Listing Notice or in Listing Notice 3 of 2014, required to exercise the prospecting right."*
Core sampling	Approximately 1.57 m^2	X	**Listing Notice 1, Activity 19A and Activity 20.**
Drill sampling	Approximately 7600m^2.	X	**Listing Notice 1, Activity 19A and Activity 20.**
Desktop study and literature review	350 000 ha		No listed activity triggered
Data acquisition and synthesis	350 000 ha		No listed activity triggered
Geological modelling	350 000 ha		No listed activity triggered
Feasibility study and resource estimation	350 000 ha		No listed activity triggered

2.3.2 Description of the activities to be undertaken

(Describe Methodology or technology to be employed, including the type of commodity to be prospected/mined and for a linear activity, a description of the route of the activity)

Commodities to be prospected

Chrome, Copper, Corundum, Diamonds (general), Garnet (abrasive), Gemstones, Gold Ore, Heavy Minerals (general), Iron Ore, Lithium Ore, Platinum Group Metals, Rare Earths, Silver Ore, and Titanium and Uranium Ore

Methodology or technology to be employed

Prospecting will be conducted using a dedicated survey vessel, with an example shown in Figure 2.3. As the activity is located offshore and comprises prospecting only, no land-based infrastructure will be required. Sampling will be conducted in four phases, combining both non-invasive and invasive sampling activities, none of which require infrastructure. Activities will be followed by a feasibility study and resource estimation.

The proposed prospecting programme will take place during spring and/or summer and when weather conditions are suitable and seas are calm. It is anticipated to be completed within five (5) years. Sampling will be conducted in four phases and include a combination of non-invasive and invasive activities to detect the presence of specific sediment deposits which will contain the target minerals. Prospecting operations are expected to occur sporadically over the entire extent of the concession area. The non-invasive activities will include geophysical exploration (acoustic survey), data acquisition and analysis, while the invasive activities will include physical sampling (collection of core, drill and grab samples) (Figure 2.4).

Figure 2.3 An example of a vessel used for prospecting and exploration (Image source: Ship-Technology.com).

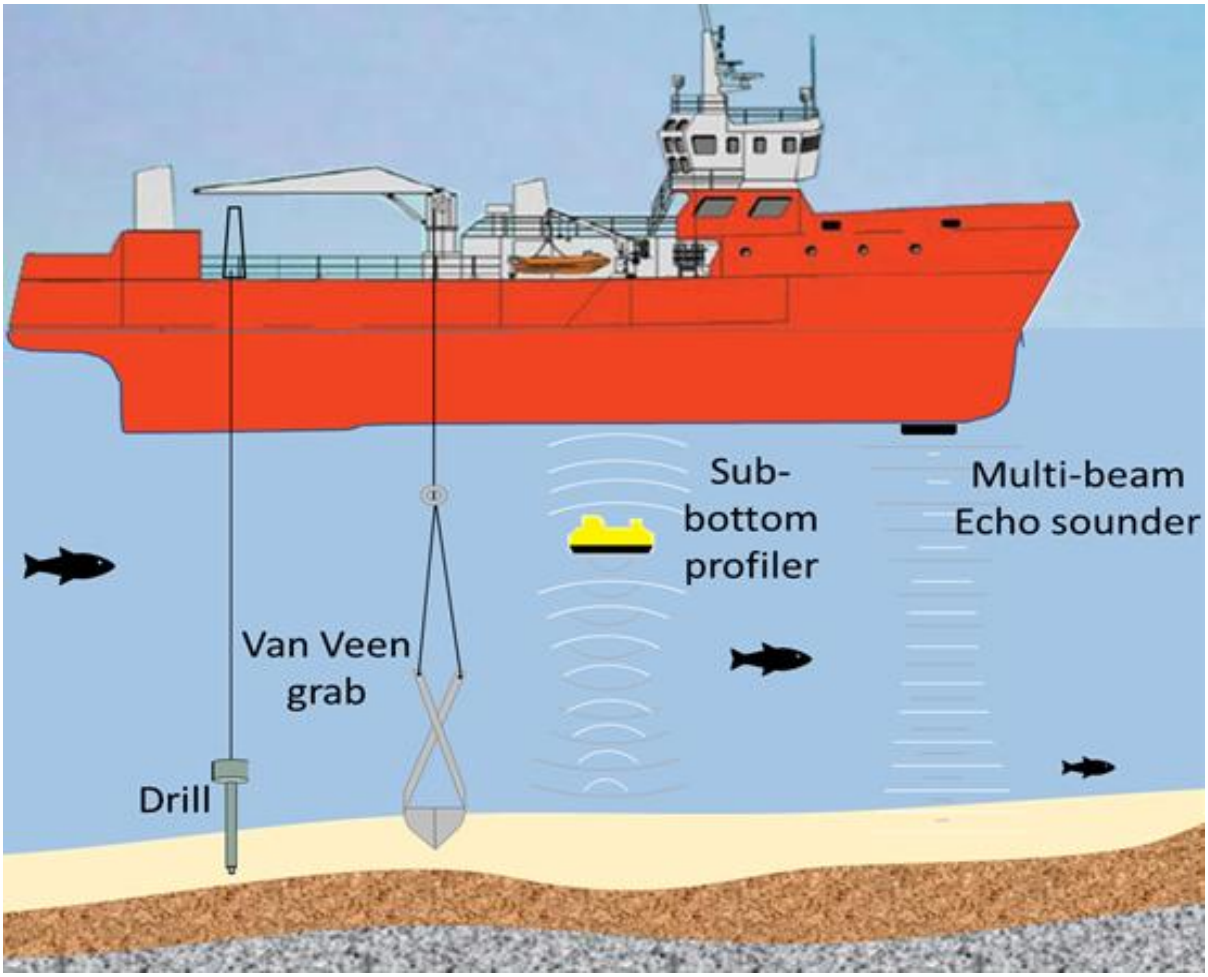

Figure 2.4 Illustration of some of the various sampling methods that will be used.

PHASE 1

a) Desktop Study:

A comprehensive literature review will be undertaken to investigate the depositional environments, sediment stratigraphy and geological units of the area. Data will be obtained from a variety of sources including previous explorations in neighbouring concession areas, published papers, data from field surveys, databases, etc. This review will allow the applicant to identify target sites that are likely to contain diamonds or other valuable minerals within the concession area. It will also enable the applicant to identify potential challenges and the best means to address these challenges with a view to minimising environmental impacts and costs. This will allow for a more efficient and effective prospecting sampling programme.

b) Geophysical Exploration

Geophysical surveying will be undertaken to collect high-resolution acoustic and multibeam echosounder data along survey lines spaced 100 m to 1000 m apart throughout the concession area. The vessel can typically survey approximately 120 km/day in an offshore area. The geophysical survey is therefore anticipated to be undertaken within a broader operational window of up to two months to accommodate mobilisation, weather delays, sea-state constraints, and other logistical requirements, although the active survey period itself is expected to be shorter. Surveys will be conducted using a dedicated survey vessel which will have a hull-mounted multibeam echo sounder (MBES) and a Topas sub-bottom profiler system that are designed to collect high-resolution acoustic data (Figure 2.5). As these devices are hull mounted, the vessel will not tow any cables and no physical or environmentally destructive impacts are anticipated for this sampling method. Potential noise or sound impacts on biota will, however, be considered. The geophysical survey allows the operator to produce a digital terrain model of the seafloor. The MBES provides depth sounding information on either side of the vessel's track across a swath width of approximately two times the water depth, while the sub-bottom profiler generates profiles up to 60 m beneath the seafloor, thereby giving a cross-section view of the sediment layers. The source sound level of the MBES is variable but will be a maximum of 221 dB re 1µPa @ 1m, with a frequency range of between 200 and 400 kHz. The sub-bottom profiler uses shallow (35 to 45 kHz) and medium penetration (1 to 10 kHz) "Chirp" acoustic pulses. This equipment has a variable power output and can therefore have the power ramped up in accordance with survey requirements and be contained within acceptable environmental noise levels. As such, it is also capable of "soft starts". The use of a magnetometer to detect magnetic signatures will also be required. The information collected during the acoustic survey will be reviewed by the geologist and used to model the bathymetry of 6C to identify target areas for sampling, any areas that need to be avoided and to inform the appropriate core sampling and drilling method that must be implemented. This process can take approximately one month. The preferred alternative within the site is thus subject to change pending results from the geophysical survey.

Figure 2.5 An example of a sub-bottom profiler. Source: Seatronics.

PHASE 2:

a) Van Veen grab sampling

This is a popular method used to collect sediment samples for biological, environmental and seafloor characterisation studies (geotechnical studies). The device consists of a stainless-steel clamshell bucket that closes around and collects sediment from the seabed.

A Van Veen grab with a sampling capacity of approximately 50 kg will be used to collect baseline environmental data on sediments and benthic macrofauna at between 20 and 50 sampling sites (Figure 2.6). The grab penetrates approximately 20 to 50 cm into the seabed and collects surface sediment samples. A portion of each sample will be preserved (using formalin or ethanol) and sent to a laboratory for biological analysis, while another portion will be analysed to determine the physical characteristics of the sediments, including composition, grain size, and sediment strength. Biological analyses will be used to identify and characterise benthic macrofaunal communities (small animals such as worms, mussels, and crustaceans), while sediment analyses will provide information on the nature and geological characteristics of the seabed. The sampling programme will disturb a total seabed area of approximately 5 m^2 and will result in the collection of approximately 1.5 m^3 of sediment. The information obtained will provide baseline data against which any future changes in benthic communities can be assessed following prospecting and, should the project proceed, mining activities. Grab sampling will be done at a rate of approximately 30 samples per day (maximum) and equate to two working days.

Figure 2.6 A Van Veen grab works like a claw to grab sediment containing macrofauna from the seafloor.

b) Core sampling

Geotechnical samples will be collected at 100-200 sites using either vibracoring, gravity coring or sonic coring (Figure 2.7 and Figure 2.8). Geotechnical samples are physical samples of soil, sediment, or rock collected to assess the physical properties of the material. A core is a cylindrical tool used to penetrate the seafloor to collect sediment samples. These samples are analysed to determine the sea floor geology (types of material present, such as sand, gravel and/ or rock as well as the hardness and strength of rock), topography (for example trenches, slopes

or elevated features on the seabed) and sediment stratigraphy (the layering of sand, mud and rock over time). This information is then used to engineer the drilling tool (for phase three of the prospecting activities – see below) and the future mining vessel. Geotechnical sampling is also used for resource evaluation, i.e. determining whether there are materials that can be mined in the area and whether it will be economically viable. The type of coring will depend on the geological formations of the seafloor.

The sonic corer is an advanced tool that uses high-frequency vibrations to help push a core barrel (a hollow tube) into the seabed. This allows it to sample not only loose sediments but also harder materials such as some types of rock. In contrast, gravity coring and vibracoring can only collect unconsolidated material, meaning loose sediments such as sand and mud.

Each core sample is about 10 cm in diameter and is typically drilled to a depth of 3–8 m below the seabed. Each core contains approximately 0.024 m^3 of material. Overall, the sampling will disturb a very small footprint on the seabed, affecting a total surface area of about 1.57 m^2 and yielding approximately 4.71 m^3 of material in total. There is no release or spillage of material into the ocean during sampling, as the material remains intact within the core tube and is brought back to the vessel for secure storage. No sediment processing is undertaken on the vessel, as all samples are transported to shore for analysis. Collecting around 200 cores will take approximately 10 working days. Exact sampling locations will be determined using results from geophysical surveys and recommendations from the marine ecology specialist study as part of the EIA.

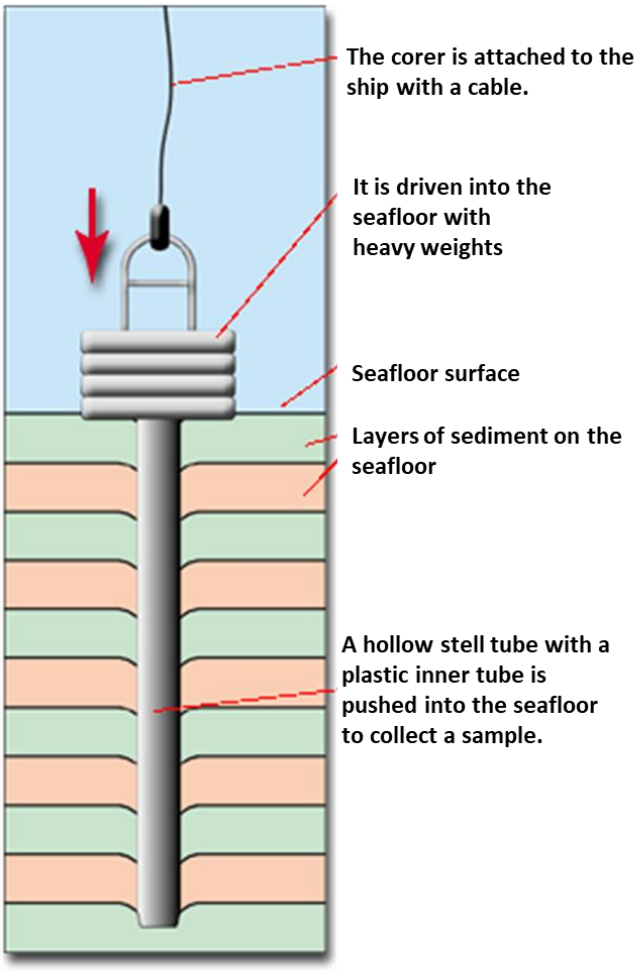

Figure 2.7 Example of a corer. Source: British Ocean Sediment Core Research Facility.

Figure 2.8. Left: An example of vibracorer instrument used to sample sediment samples from the seabed; Right: A vibracorer being deployed from a sampling vessel (image sources: GEO Marine Survey Systems, 2011).

PHASE 3

a) Drill sampling

Prospective target areas will be investigated using a specially designed drilling tool that can collect gravel and other seabed materials seabed (Figure 2.9). The material brought to the surface will be processed onboard a vessel using a processing plant, and the remaining fine material (tailings) will be discharged back into the sea. This can result in temporary sediment plumes in the water column. The formation and persistence of these sediment plumes depends mainly on the size of the particles and the prevailing ocean conditions. Coarser material such as sand settles quickly and produces short-lived plumes, while finer muddy sediments can remain suspended for longer periods.

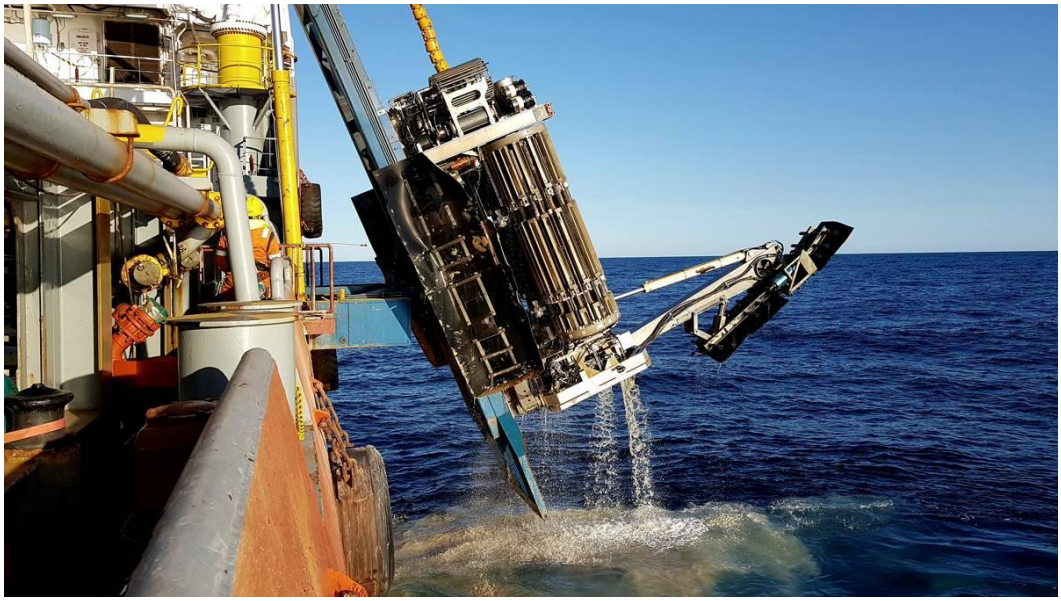

Figure 2.9. Example of the type of drilling equipment to be used during prospecting works (image source: Offshore Engineering Magazine).

Depending on the final tool design, the drill will impact an area of approximately 3 to 5 m^2 per sample. The average drilling depth is expected to be around 3 m, although the system is capable of drilling up to 12 m into the seabed if required. Each sample is expected to yield approximately 9 to 15 m^3 of material.

Based on confirmation received via communication with the DMPR (pers. comms DMPR), this activity does not constitute bulk sampling in terms of the Mineral and Petroleum Resources Development Act (Act 28 of 2002). This is because it is undertaken solely for prospecting purposes, does not involve commercial extraction, and does not entail large-scale removal or dredging of the seabed.

Approximately 150 samples will be collected initially. A further 150 follow-up samples may be required, resulting in a total of 300 drilling samples. These will cover a total disturbed area of approximately 1 500 m^2 (based on a 5 m^2 drill footprint) and will be spaced roughly 300 m apart in a north–south direction. At a rate of about 30 samples per day, this phase would take approximately 10 days, excluding potential weather delays.

If follow-up results indicate a potentially viable resource, a more detailed phase of resource evaluation would be undertaken. This would focus on smaller defined areas of up to 500 m by 300 m, with additional sampling on a 50 m grid. Around 20 such resource development areas are expected, requiring approximately 1 200 additional samples and covering a total disturbed area of about 6 000 m^2 (again based on a 5 m^2 drill footprint). At a rate of 30 samples per day, this phase would take approximately 40 days.

Overall, the total seabed area disturbed across Phases 1, 2, and 3 is calculated to be 7,507 m^2 (0.75 ha / 0.007507 km^2). However, as the sampling equipment may temporarily affect a slightly larger area during sampling, a conservative disturbance footprint of approximately 7,600 m^2 (0.76 ha) has been adopted. This represents a very small proportion (0.0002%) of the total Concession Area 6C (approximately 346,000 ha / 3,500 km^2). The information collected will be used to understand seabed conditions, evaluate mineral resources, and determine whether mining within Concession Area 6C is economically viable. It will also inform the design of the future mining vessel and help identify potential areas suitable for mining activities.

PHASE 4:

a) Feasibility study and resource estimation

Should Phases 1, 2 and 3 yield positive results and the targeted features be identified, a feasibility study will be conducted to assess the likely magnitude of the resource and the economic viability of mining in the proposed prospecting area. This will be a desktop study and will consider the data collected as part of the prospecting activities. The outcome of this will be a Feasibility Study Report. The report will include data on the seafloor topography, sediment stratigraphy and geological units; distribution of potentially mineralised deposits; an evaluation of the drill samples; resource evaluation of areas that are mineralised; an estimate of the extent and size of the resource present; results and recommendations for future mining operations, and recommendations on mining vessel design and construction.

3 POLICY AND LEGISLATIVE CONTEXT

Table 3.1 Key legislation and requirements to be considered and complied with during prospecting activities in Concession Area 6C.

APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT	REFERENCE WHERE APPLIED	HOW DOES THIS DEVELOPMENT COMPLY WITH AND RESPOND TO THE LEGISLATION AND POLICY CONTEXT.
MAIN LEGISLATION		
National Environmental Management Act, 1998. NEMA sets out a number of governing environmental principles that should be taken into account and applied by all organs of state when making decisions that significantly affect the environment. It provides the minimum requirements for the procedures for investigating, assessing and communicating the potential impacts of activities on the environment and society and for the granting of Environmental Authorisation for any activity. It requires that any activity should not only be environmentally sustainable, but economically and socially as well. The cultural, social, economical, psychological, developmental and physical needs of people should be considered along with the environment.	Throughout the entire prospecting process	A Basic Assessment Process has been undertaken in accordance with NEMA to obtain Environmental Authorisation prior to the commencement of prospecting activities. The proposed prospecting programme has been assessed to promote environmentally, socially and economically sustainable development, and Interested and Affected Parties (I&APs) have been consulted throughout the assessment process. The Applicant must further comply with the Duty of Care in terms of Section 28 of NEMA by taking reasonable measures to prevent, minimise and rectify any pollution or environmental degradation that may arise during prospecting, and implement all mitigation and management measures contained in the approved EMPr.
Environmental Impact Assessment (EIA) Regulations, 2014 (as amended). The EIA regulations, 2014 (as amended) promulgated in term of Chapter 5 of NEMA controls certain listed activities. These activities are published as Listing Notice (LN) 1 in Government Notice (GN) No. R983 (as amended) as LN 2 in GN No.R 984 (as amended) and as LN 3 in GN No. R985 (as amended). These activities are prohibited until Environmental Authorisation (EA) has been granted by the competent authority. Activities triggered under LN 1 and 3 requires that a Basic Assessment be conducted, while activities triggered under LN 2 requires that a Scoping and Environmental Impact Assessment Report be conducted.	Throughout the entire prospecting process	The proposed project triggers Listing Notice (LN) 1. A Basic Assessment Process will be undertaken and a Basic Assessment Report and stakeholder consultation report submitted as part of the application for EA. No activity will commence before EA has been granted by the Competent Authority.
Mineral and Petroleum Resources Development Act, 2002. In terms of this Act, a Prospecting Right must be obtained before any prospecting activities may commence	Throughout the entire prospecting process	The Applicant must obtain a valid Prospecting Right and Environmental Authorisation prior to commencing prospecting activities. Prospecting must be undertaken in accordance with the approved Prospecting Work Programme (PWP), EMPr, conditions of the Prospecting Right and Environmental Authorisation, and all applicable provisions of the MPRDA.

APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT	REFERENCE WHERE APPLIED	HOW DOES THIS DEVELOPMENT COMPLY WITH AND RESPOND TO THE LEGISLATION AND POLICY CONTEXT.
ADDITIONAL LEGISLATION TO BE CONSIDERED AND ADHERED TO		
International Agreements and Obligations		
International Regulations for Preventing Collisions at Sea (Colregs 1972) These regulations refer to navigational rules that need to be adhered to by maritime vessels to minimise the likelihood of collisions.	Operation Phase	To prevent collision with other maritime vessels during survey operations, the operation vessel should adhered to this regulation, implement a safety zone and effectively signal this to other vessels.
National Legislation		
Constitution of South Africa This is the supreme law that provides the legal framework for the existence of the Republic of South Africa.	Throughout the entire prospecting process	The conducting of prospecting activities in the area shall be done in such a manner that avoids significant environmental impacts. In instances where this cannot be avoided, impacts must be minimised or mitigated in order to protect the environmental rights of South Africans.
National Environmental Management: Protected Areas Act Provides for the formal declaration and management of protected areas to conserve biodiversity, protect natural and cultural resources, and maintain ecological integrity. It requires management plans to guide conservation and land-use decisions.	During coring, drilling and grab sampling	Prospecting activities in Concession Area 6C must ensure that operations do not contravene the provisions or management objectives of any nearby declared protected areas, and the proponent must confirm that activities occur outside protected area boundaries and comply with any applicable restrictions or management measures established under the Act.
National Environmental Management: Biodiversity Act 10 of 2004. Governs biodiversity management and the protection of threatened species and ecosystems through regulations and permits. It gives effect to international agreements, supports planning tools and regulates alien and invasive species.	Throughout the entire prospecting process	Prospecting activities in Concession Area 6C must avoid, minimise and, where necessary, remedy impacts on biodiversity, including threatened species and ecosystems, and comply with applicable biodiversity management measures under the Act. The Applicant must take biodiversity planning tools, including Critical Biodiversity Areas (CBAs), into consideration and undertake activities in a manner that supports the protection and ecological functioning of areas of biodiversity importance. The EMPr must be implemented throughout the prospecting programme, with appropriate mitigation measures applied to minimise biodiversity disturbance and support natural recovery.
National Biodiversity Framework A national-level strategic policy document that provides a coordinated framework to guide the management, conservation, and sustainable use of South Africa's biodiversity.	Throughout the entire prospecting process	Guides the prospector to consider biodiversity priorities and avoid sensitive habitats when planning and conducting prospecting activities in the offshore environment.
National Environmental Management: Integrated Coastal Management Act (ICMA) 24 of 2008 Provides for the integrated management of South Africa's coastal environment and promotes the protection, conservation and sustainable use of coastal resources. The Act recognises the interconnected nature of coastal ecosystems and provides a framework for managing activities that may affect coastal waters,	Throughout the entire prospecting process	The proposed prospecting activities occur within South Africa's coastal waters as defined by ICMA, and must therefore comply with the applicable requirements of the ICMA. Accordingly, the Applicant must undertake the prospecting activities in a manner that avoids, minimises and remedies adverse impacts on the marine environment, while promoting the sustainable use and protection of coastal and marine resources.

APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT	REFERENCE WHERE APPLIED	HOW DOES THIS DEVELOPMENT COMPLY WITH AND RESPOND TO THE LEGISLATION AND POLICY CONTEXT.
coastal public property and other components of the coastal environment. It establishes principles for integrated coastal management, including the need to avoid, minimise and remedy adverse environmental impacts and to apply a precautionary approach where there is uncertainty regarding potential environmental harm.		The applicant must avoid or minimise impacts on sensitive coastal and marine environments and implement appropriate measures to protect these ecological resources. Furthermore, the Applicant must take reasonable measures to prevent pollution or degradation of the marine environment and implement appropriate measures for the management of sediment disturbance, marine fauna, vessel operations, hazardous substances, waste and pollution incidents. The Applicant must also comply with the requirements relating to discharges and dumping at sea. No waste or other material may be dumped at sea unless undertaken in accordance with the applicable legal requirements and any required permit.
Animals Protection Act (Act 71 of 1962) Consolidates and amends laws relating to the prevention of cruelty to animals.	Operation Phase / During coring, drilling and grab sampling	Ensures that all operations avoid unnecessary harm or distress to marine animals encountered during survey activities.
National Environmental Management: Air quality Act, 2004. The offshore area of activity and the South African Exclusive Economic Zone (EEZ) does not fall within any municipal or provincial jurisdiction. There is thus a no formal means by which an application can be made for incineration from vessels in the offshore area. This activity is, however, permitted in terms of the International Convention for the prevention of pollution from ships, 1973/1978 (MARPOL) to which South Africa is a signatory.	Throughout the entire prospecting process	South Africa is a signatory of the International Convention for the prevention of pollution from ships, 1973/1978 (MARPOL). As such, all vessels have the responsibility to ensure that they prevent, minimise and mitigate potential pollution by vessels. To manage the potential impact of air pollution by vessels, all contractors and employees will be subjected to an environmental awareness campaign.
Marine Pollution Act (Prevention of Pollution from Ships; Act 2 of 1986) Provides for the protection of the sea from pollution by oil and other harmful substances discharged from ships.	Operation Phase	Requires that all vessels and equipment prevent oil or pollutant discharges, with appropriate spill response measures in place during offshore operations.
Convention for the prevention of pollution from ships, 1973/1978 (MARPOL).	Throughout the entire prospecting process	Convention for the prevention of pollution from ships, 1973/1978 (MARPOL). As such, all vessels have the responsibility to ensure that they prevent, minimise and mitigate potential pollution by vessels. While a waste management license is not required for offshore waste management activities, such as those related to sewage, the generation of potential waste will be minimised through ensuring employees are subjected to the appropriate environmental awareness campaigns before commencement. All waste generated will be disposed of in a responsible and legal manner.
The Marine Living Resources Act (Act 18 of 1998) Provides for sustainable management of marine living resources, protection of marine ecosystems and biodiversity, the declaration of	Planning and Design Phase / Operation Phase	Requires the prospector to avoid over-exploitation or disturbance of marine species, comply with fishing restrictions, and conduct activities without harming protected ecosystems.

APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT	REFERENCE WHERE APPLIED	HOW DOES THIS DEVELOPMENT COMPLY WITH AND RESPOND TO THE LEGISLATION AND POLICY CONTEXT.
Marine Protect Areas with activity restrictions, and regulation of commercial, subsistence, and recreational fishing.		
Sea Birds And Seals Protection Act (Act 46 of 1973) Prohibits the harassment, disturbance, killing, or capture of seabirds and seals.	Operation Phase	Prohibits disturbance of seabirds and seals during survey operations, necessitating mitigation measures such as exclusion zones and careful vessel maneuvering.
National Environmental Management: Waste Act, 2008. Provides the framework for sustainable waste management through reduction, recycling, safe disposal, licensing of waste activities, hazardous waste control, and contaminated land remediation.	Throughout the entire prospecting process	Waste generated during prospecting operations in Concession Area 6C must be managed in accordance with the Act, including the safe storage, handling, and disposal of general and hazardous waste from vessels, and ensuring that no waste is discharged into the marine environment.
Hazardous Substances Act (Act 15 of 1973) Provides for the classification, control, and regulation of hazardous substances and products that may pose risks to human health or safety.	Planning and Design Phase / Operation Phase	Ensures safe storage, handling, and disposal of hazardous substances used in coring, drilling, or other sampling activities to prevent environmental or health risks.
Marine Spatial Planning Act of 2019 Makes provision for marine spatial planning system in South Africa so that the environment can be accessed by all users of the ocean, to facilitate responsible use of the ocean and conservation for future generations.	Planning and Design Phase	When planning the prospecting survey, areas of biological significance need to be taken into account and avoided.
Maritime Zones Act (No 15 of 1994) The Act defines the maritime zones of South Africa which include the contiguous zone, territorial waters, the maritime cultural zone, the exclusive economic zone and the continental shelf. South Africa has the right to exercise and implement all laws within the contiguous zone.	Throughout the entire prospecting process	Concession Area 6C lies within the territorial waters. Any offshore are subject to National law and should be adhered to.
National Heritage Resources Act, 25 of 1999. Sets the framework for protecting and managing heritage resources, which includes cultural, archaeological (including shipwrecks), and palaeontological resources.	During coring, drilling and grab sampling	A marine heritage impact assessment (including marine archaeological, submerged prehistoric archaeological and palaeontological resources) has been conducted to ensure that there are no substantial impacts on heritage sites. No prospecting activities shall take place within 50 m of any identified heritage resources such as shipwrecks.
Carbon Tax Act 15 of 2019 A taxpayer is liable to pay a carbon tax where it conducts any activities set out in Schedule 2 of the Carbon Tax Act and emits GHG emissions above the listed thresholds. Tax liability may be reduced through using the various allowances available and in some instances, the tax is only payable where the allowances are exceeded.	Throughout the entire prospecting process	The client has the responsibility to ensure that they pay carbon tax should they emit emissions above the listed thresholds or ensure that they reduce their emissions.

APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT	REFERENCE WHERE APPLIED	HOW DOES THIS DEVELOPMENT COMPLY WITH AND RESPOND TO THE LEGISLATION AND POLICY CONTEXT.
The Climate Change Act (Act 22 of 2024) Supports South Africa's transition to a low-carbon, climate-resilient economy and society, promoting an effective climate change response in line with sustainable development principles. Provides guidance across all levels of government, sectors, and stakeholders in terms of climate change adaptation efforts in South Africa in the short to medium-term. Financial institutions must integrate environmental considerations into their decision-making frameworks and contribute to climate change mitigation and resilience. The paper acknowledges that financial institutions can play an important role in mobilizing finance to mitigate the impacts of climate change in South Africa and supporting a just transition to a low carbon economy.	Throughout the entire prospecting process	The client has the responsibility to ensure that they integrate environmental considerations and mitigation measures to reduce the impacts of climate change as a result of any operations they conduct into their decision-making frameworks and business plans.
Promotion of Access to Information Act (Act 2 of 2000) Gives effect to the constitutional right of access to information held by the state or by another person when required to exercise or protect rights, and assigns related powers and duties to the Information Regulator.	Throughout the entire prospecting process	Requires the provision of relevant environmental and planning information to the public and authorities, supporting transparency during the public participation process.
Promotion of Administrative Justice Act (Act 3 of 2000) Gives effect to the constitutional right to lawful, reasonable and procedurally fair administrative action, including the right to written reasons for such action.	Throughout the entire prospecting process	Guarantees that decisions regarding approvals, permits, or refusals are made lawfully and with proper reasoning, ensuring fair administrative procedures.
The Occupational Health and Safety Act No. 85 of 1993 The Act governs health and safety at all workplaces. It is focused on the health and safety of persons at work and places the responsibility on employers "to do everything reasonably practical" to protect the welfare of their employees The Act requires that every company with more than 20 employees has to have a health and safety committee, which should be tasked with identifying potential hazards, examining the causes of any workplace incidents, investigating employee complaints and consulting with health and safety inspectors. The Act also directs employers to provide and establish precautionary measures and systems to prevent workplace injuries.	Throughout the entire prospecting process	The client has to ensure that they adhere to the conditions set out in this act throughout the entire process. They also have to appoint a Health and Safety Officer to supervise the health and safety performance of the company, as well as to represent the employer and management at Health and Safety Committee meetings.
Companies Act 71 of 2008 The aim of this act is to: provide for the incorporation, registration, organisation and efficient management of companies, the	Throughout the entire	The client must ensure that this act is adhered to throughout the entire process.

APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT	REFERENCE WHERE APPLIED	HOW DOES THIS DEVELOPMENT COMPLY WITH AND RESPOND TO THE LEGISLATION AND POLICY CONTEXT.
capitalisation of profit companies, and the registration of offices of foreign companies carrying on business within the Republic; record-keeping and reporting by companies;	prospecting process	
Relevant Provincial Legislation		
Northern Cape Nature Conservation Act 9 of 2009 This Act provides for the conservation and sustainable management of the Northern Cape's indigenous biodiversity and regulates activities involving protected species. It regulates activities involving protected species and habitats through a system of permits and conservation measures.	Planning and Design Phase	Guides site selection and operational planning to align with provincial biodiversity priorities, including the Biodiversity Spatial Plan for marine and coastal ecosystems.
Northern Cape Provincial Biodiversity Spatial Plan This is a provincial biodiversity planning tool that identifies terrestrial and freshwater biodiversity priority areas to support conservation planning and sustainable land-use decision-making. Includes Critical Biodiversity Areas and Ecological Support Areas to inform sustainable development.	Planning and Design Phase	This spatial plan should be taken into account during the plan and design phase to inform areas for prospecting and activities should be adjusted accordingly.
Northern Cape Spatial Planning and Land Use Management Act 16 of 2013 The Act provides the legal framework for spatial planning, land use management, and sustainable development within the Northern Cape Province. The Act regulates land use applications and promotes orderly, integrated, and environmentally sustainable development.	Planning and Design Phase	Requires alignment of prospecting activities with provincial spatial planning, including zoning considerations and coastal development frameworks.
Northern Cape Coastal Management Programme A programme which provides a strategic framework for the integrated management, protection, and sustainable use of the Northern Cape coastal zone. It aims to balance environmental conservation with social and economic development while promoting the responsible use of coastal and marine resources.	Planning and Design Phase / Throughout the entire prospecting process	Provides a framework and objectives for sustainable coastal management, ensuring that offshore prospecting activities avoid impacts on sensitive coastal and nearshore resources.
The Northern Cape Provincial Spatial Development Framework (Act 16 of 2013) The framework provides the province's long-term spatial vision to guide sustainable land use, infrastructure investment, and economic development. It promotes the efficient use of natural resources while supporting environmental protection, integrated planning, and coordinated spatial development. Furthermore, the framework also	Throughout the entire prospecting process	This legislative framework should be taken into account to promote growth and development of local communities and should be considered during the planning and design phase.

APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT	REFERENCE WHERE APPLIED	HOW DOES THIS DEVELOPMENT COMPLY WITH AND RESPOND TO THE LEGISLATION AND POLICY CONTEXT.
identifies strategic development priorities to facilitate sustainable economic growth and improve spatial resilience across the province.		
Namakwa Special Economic Zone The Namakwa Special Economic Zone is a strategic development initiative aimed at promoting investment, industrialisation, and economic growth within the Namakwa District. The SEZ focuses on sectors such as mining, mineral beneficiation, renewable energy, and associated infrastructure to stimulate regional development and job creation.	Throughout the entire prospecting process	Provides objectives to support investment in the regional mining sector and creating downstream economic development.
The Mining and Biodiversity Guideline (2013) Outlines six principles that should be applied during any stage of the mining for decision-making. The document uses biodiversity information for decision-making throughout the mining cycle	Throughout the entire prospecting process	This should be employed to provide a practical guideline when making decisions regarding impacts to biodiversity with respect to the prospecting activities.

4 NEED AND DESIRABILITY OF THE PROPOSED ACTIVITIES

(Motivate the need and desirability of the proposed development including the need and desirability of the activity in the context of the preferred location).

4.1 NEED AND DESIRABILITY OF MINERALS

The global population continues to grow, increasing the demand for goods and services such as food, housing, transport, healthcare, education and energy. This has, in turn, increased the demand for the raw minerals and metals required to manufacture these goods and provide these services. Gold, platinum, silver, diamonds, gemstones and other precious metals are not only used in the manufacture of jewellery, but also in a plethora of other applications. Platinum, gold and silver are commonly used as catalytic converters (for silicone production, for example), in modern medicine (including the treatment of cancer, rheumatoid arthritis and other diseases, pacemakers, dental implants and prostheses), in information technology (cell phones, laptops and computers), and in the manufacture of glass and fuel, to name but a few. Similarly, garnets are used in construction as skid-resistant road aggregates, in paints and as fillers in concrete used in harsh environments. Rare Earth Elements (REEs) are used in information technology, wind turbines and defence technologies. Ilmenite and rutile are the primary sources of titanium and titanium oxide, which are used to manufacture lightweight, high-strength metal alloys for aircraft parts, sporting equipment, artificial joints and a wide variety of industrial components. Zircon is used in high-accuracy optics, ceramics and construction materials because of its ability to withstand high temperatures. Iron ore is probably the most widely used metal in everyday life and is used in the manufacture of machinery, tools, ships, vehicles, aircraft, bridges, buildings and electric motors. Apart from their use in the jewellery industry, diamonds also have numerous industrial applications. Being the hardest naturally occurring material on Earth, they are widely used in polishing, cutting and drilling tools. Diamonds are also used in surgical instruments (including X-ray machines, dentist drills and 3-D non-invasive bioimaging machines), modern medicine (drug delivery systems, cancer treatment and tissue engineering) and information technology.

4.2 NEED AND DESIRABILITY OF PROSPECTING

It should be noted that the need for, and benefits of, prospecting are not confined to the Applicant. Given the importance of these minerals to modern society, it is essential to ensure a sustainable supply. Furthermore, the mining sector, which supplies these raw materials, is a significant contributor to economic growth, employment, infrastructure development and export earnings. To sustain both the mining sector and the supply of minerals required by society, new mineral resources must continually be identified and evaluated through prospecting. Prospecting is the intentional search for minerals to establish the existence, location, depth, grade and character of mineral deposits, and to determine their economic viability and whether future mining may be feasible. Without prospecting, the presence, extent and economic viability of mineral resources cannot be determined. Consequently, future mining, together with the goods and services that depend on these resources, would not be possible.

The importance of prospecting is recognised in several national and provincial policy frameworks. The National Development Plan (NDP) 2030 identifies mining as an industry with significant potential to contribute to economic growth, employment creation and poverty

alleviation. To sustain this contribution, the identification of new mineral resources through prospecting is essential. Similarly, Operation Phakisa was established to facilitate and boost the growth of the economy to help achieve the objectives of the NDP, and to operate across industries. Mining Phakisa is a programme established under this operation whose objective is to warrant the economic sustainability of the South African mining industry and to promote the growth and contribution thereof at a national level. Both frameworks recognise the importance of sustainably utilising the country's natural resources while promoting environmental conservation and responsible resource management. At a provincial level, the Northern Cape Provincial Spatial Development Framework (2012) and the Western Cape Provincial Spatial Development Framework (2014) recognise that the greatest value derived from marine and coastal resources is generated through the mining and fishing sectors. Both frameworks further acknowledge the abundance of mineral deposits along the west coast, which has resulted in mining becoming one of the dominant economic activities within the coastal zone. In addition to supporting national and provincial economic objectives, holders of prospecting rights are required to comply with various social, labour and environmental obligations. These include Social and Labour Plans, skills development initiatives, local procurement commitments and environmental management requirements throughout the prospecting phase. Prospecting itself also generates direct economic benefits through the appointment of geologists, surveyors, vessel crews, laboratory technicians and support staff, together with the procurement of equipment and services. It therefore creates employment and business opportunities at the local, regional and national level long before any decision is made on whether mining should proceed. Furthermore, the geological, geophysical and environmental information collected during prospecting contributes to South Africa's broader scientific knowledge of its mineral resources and marine environment. This information can support future planning, research and resource management, irrespective of whether mining ultimately proceeds. In light of the above, prospecting and mining-related activities are recognised as important contributors to national and provincial economies and play a role in supporting broader societal needs. Consequently, the benefits of prospecting extend beyond the commercial interests of the Applicant and have the potential to contribute to the broader public interest.

Note: Prospecting does not authorise mining. Any future mining would require a separate Mining Right application and Scoping and Environmental Impact Assessment (S&EIA) process before it could proceed.

4.3 DESIRABILITY OF THE LOCATION OF THE CONCESSION AREA

South Africa possesses some of the world's richest mineral resources and has long been recognised as a globally important mining jurisdiction. In this context, Trans Atlantic Diamonds (Pty) Ltd (TAD; the Applicant) proposes to undertake prospecting within offshore Sea Concession Area 6C in the Northern Cape to determine the economic viability of Chrome, Copper, Corundum, Diamonds (general), Garnet (abrasive), Gemstones, Gold Ore, Heavy Minerals (general), Iron Ore, Lithium Ore, Platinum Group Metals, Rare Earths, Silver Ore, Titanium and Uranium Ore. The proposed concession is located offshore of South Africa's West Coast within the Benguela region, which is internationally recognised for its mineral deposits, including marine diamond deposits (DME, 2006; Penney et al. 2007). Marine diamond deposits originate from diamonds eroded from inland kimberlite pipes and transported by rivers to the coastline, where they accumulated within ancient marine gravel deposits on the continental shelf. These deposits have supported a well-established mining industry for many decades, making Concession Area 6C an appropriate location for the proposed prospecting activities.

5 ASSESSMENT OF ALTERNATIVES

5.1 MOTIVATION FOR THE OVERALL PREFERRED SITE, ACTIVITIES AND TECHNOLOGY ALTERNATIVE.

Kimberlite pipes are believed to have formed by high-pressure and deep-rooted volcanic eruptions. They are igneous intrusions or "pipes" projecting through the Earth's crust and a major source of diamonds and other minerals such as rutile, zircon, garnets, ilmenite and magnetite (Gurney et al. 1991, Penney et al. 2007). These pipes transported the diamonds and minerals from the upper mantle to the surface of the Earth. These deposits were then further transported by means of erosion, wind, rain and rivers and deposited primarily in the sea in gravel terraces along riverbanks and on the coast. The Orange and Olifants rivers are believed to be the major westward transport mechanisms responsible for the deposition of diamondiferous sediments along west coast of South Africa and southern Namibia (Gurney et al. 1991, Penney et al. 2007). With the influence of currents, swell and tidal action, diamonds gradually accumulated on gravel beaches along the coast (Penney et al. 2007). Today, these deposits extend from the coast down to 150 m depth (approximately 50–60 km offshore) where they are found in gullies and potholes which have been covered with sediment over time. It is this marine diamondiferous gravel which is of interest to the modern marine diamond mining industry (Penney et al. 2007).

With the Benguela region being rich in diamond, mineral and other deposits, the Department of Mineral and Petroleum Resources (DMPR) established designated mineral sea concession areas in 1994, extending from Saldanha Bay to the Orange River mouth on the west coast of South Africa. Prospecting and mining activities are only permitted by individuals that are in possession of a mining or prospecting right, and only within specially designated areas that allow the industry; the trade of commodities; the associated activities and potential impacts; environmental management; and the responsible extraction of minerals to be monitored. Companies can apply for prospecting and/ or mining rights within concession areas for which rights are available. As this is a competitive industry, few concession areas are available at any given time. Although other concession areas were considered by the applicant, the prospecting and mining rights for many of these were already held by other companies. TAD, in turn, already holds prospecting rights/Environmental Authorisations for the following concessions in the broader region: 7C, 10B, 11C, 14A, and 14C.

As the intention of the proposed prospecting activity is to search for diamondiferous, gemstone, mineral and metal deposits—and to ensure the economic feasibility of mining within a certain concession area—an area known to contain these resources needs to be selected. As such, few location alternatives exist. Diamonds and other commodities have been discovered in neighbouring "C" concession areas and some are actively mined. In addition, the preferred site is thought to contain palaeo-beach deposits which are known from prospecting and mining in other concession areas, to contain diamondiferous gravels.

Accordingly, Concession Area 6C represents the preferred site because it is one of the limited concession areas available for application within the DMPRs designated marine concession system, is considered prospective for diamondiferous and associated mineral deposits, and complements TADs existing portfolio of prospecting rights in the region. Given that prospecting and mining may only occur within designated concession areas where rights are available, and that many neighbouring concessions are already held by other right holders, Concession Area 6C represents a logical and appropriate location for the proposed prospecting programme.

5.1.1 Motivation of the preferred activities

The preferred activities, i.e. geophysical surveys and drilling, are the primary methods used for mineral prospecting, and will facilitate the discovery and estimation of mineral resources within the concession area. These activities will include invasive and non-invasive methods such as geophysical surveys, sediment coring, drilling and baseline biological sampling outlined in Section 2.3.2, above. These methods have been developed through many years of research and development by the mining industry and are the preferred methods for resource estimation and cannot easily be replaced by any other methods.

5.2 FULL DESCRIPTION OF THE PROCESS FOLLOWED TO REACH THE PROPOSED PREFERRED ALTERNATIVES WITHIN THE SITE.

(NB!! – This section is about the determination of the specific site layout and the location of infrastructure and activities on site, having taken into consideration the issues raised by interested and affected parties, and the consideration of alternatives to the initially proposed site layout.)

5.2.1 Details of the development footprint alternatives considered.

With reference to the site plan provided as Appendix 4 and the location of the individual activities on site, provide details of the alternatives considered with respect to:

(a) the property on which or location where it is proposed to undertake the activity

Prospecting and mining activities are only permitted within the specially designated concession areas along the west coast. In addition to this, only a limited number of these concession areas are available. As such, a limited number of alternative sites for prospecting and mining activities are available. Results from prospecting and mining operations conducted within the neighbouring concession areas have indicated that the area is rich in mineral deposits. The study area is therefore expected to have similar resources. As the intention of the proposed prospecting activity is to determine the presence of diamondiferous, gemstone, mineral and metal deposits, and to ensure that they are present in quantities that will be economically viable to mine, it is important that a site known to be rich in resources, is selected. As such, few alternatives in terms of location exist. The preferred site has been identified as an area where palaeo-beach deposits are known to occur and these are known from other concession areas to contain diamondiferous gravels.

Areas to be avoided and/or protected

It is important to note that the exact location of the core and drill sites will only be confirmed after the completion of the acoustic surveys. Buffers will be applied around reef areas and areas of conservation concern. The final site layout plan is thus subject to change. Online databases and Geographical Information Systems (GIS) layers—containing marine spatial planning information data—were used to conduct broad-scale environmental sensitivity screening. This was done by overlaying the boundary of Concession 6C over each layer, and identifying areas of overlap/relative proximity. The following layers were considered: Ecosystem Threat Status (ETS), Marine Protected Areas (MPAs), Ecologically and Biologically Significant Areas (EBSAs), Critical Biodiversity Areas (CBAs), etc. This enabled the identification of areas of conservation concern that need to be considered, and ensures that prospecting activities align with any applicable management objectives within these area (Refer to Section 6.1 and 6.2).

In addition to the above, the geophysical surveying will be undertaken along survey lines spaced, at minimum 100 m to 1000 m apart throughout the concession area—thus limiting noise disturbance to any specific areas. Impacts/risks should be further mitigated by selecting of only calm sea and weather conditions for prospecting activities (in accordance with the described methodology); and by the survey vessel speed being only approximately 120 km/day during geophysical survey (thus reducing the chance of collisions with marine animals occurring).

Furthermore, no invasive sampling will be undertaken on reef areas as these are known to be hotspots for marine biodiversity. As no geophysical sampling has been conducted in this area to date, the exact position of reefs and other areas that need to be avoided have not yet been identified. These areas will be identified only after the non-invasive seismic (acoustic) surveys have been completed. Consultation with stakeholders during the Public Participation Process will further elucidate areas that need to be avoided. The preferred alternative within the site is thus subject to change pending results from the geophysical survey and consultation with stakeholders. No infrastructure will be placed on shore or in the sea.

(b) the type of activity to be undertaken

Alternatives considered include prospecting with or without bulk sampling. Bulk sampling typically involves the use of dredging equipment to recover large volumes of seabed material over relatively large areas and is generally associated with greater environmental disturbance than conventional prospecting methods. However, bulk sampling is not considered necessary to achieve the objectives of the current prospecting programme, which are to obtain geological, geotechnical and resource information through acoustic surveys, grab sampling, core sampling and drill sampling. The preferred alternative therefore excludes bulk sampling and limits seabed disturbance to discrete core and drill sample locations, each with a footprint of less than 5 m^2 per sample. In addition to meeting the project's objectives, this approach minimises the environmental footprint of the proposed prospecting activities.

(c) the design or layout of the activity

Areas of conservation concern in addition to reef areas will be avoided. As no geophysical sampling have been conducted in this area to date, the exact position of reefs and other areas that need to be avoided have not yet been identified. Consultation with stakeholder during the Public Participation Process will further elucidate areas that need to be avoided. The preferred alternative within the site is subject to change pending results from the geophysical survey and consultation with stakeholders.

(d) the technology to be used in the activity

The preferred activities will include invasive and non-invasive methods such as geophysical surveys, drilling and baseline biological sampling outlined in section 2.3.2 above. These are the primary methods used for mineral prospecting and will facilitate the discovery and estimation of natural mineral resources with the sea concession area.

Note: the specified technology/equipment, and their utilisation methodologies, are an integral part of the proposed "Preferred alternative"—and thus cannot be replaced by other methods.

A brief description of the technologies/equipped proposed to be used in the prospecting works and a motivation as to their suitability is provided below:

Desktop Study

The initial desktop study—facilitated by the rapid technological and computational advancements made over the past century—will allow for immediate improvements to the work plan/strategy, and ultimate prospecting efficiency, before any physical survey works occur. Such technology has been unavailable for the most of the mining/prospecting industries' history. Consequently, TAD can pre-emptively avoid many unnecessary environmental impacts—to a degree that would've been impossible previously. The utilisation of the environmental screening layers, described above, will be particularly useful in this respect.

Geophysical Exploration: Phase 1 (non-invasive)

The proposed prospecting programme will commence with a high-resolution geophysical survey undertaken from a dedicated survey vessel equipped with hull-mounted acoustic instruments, including a multibeam echo sounder (MBES), a TOPAS Chirp sub-bottom profiler and a magnetometer. As all survey equipment is hull-mounted, no towed gear or seabed contact is required, avoiding direct physical disturbance to the seabed during this phase. The MBES will produce detailed bathymetric maps of the seafloor, while the sub-bottom profiler will image sediment layers beneath the seabed, allowing geological conditions to be assessed to depths of approximately 60 m. The magnetometer will identify magnetic anomalies that may be associated with geological features. Together, these datasets will be used to develop a digital terrain model, identify prospective sampling targets, avoid environmentally sensitive areas where practicable, and optimise the location and methodology for subsequent sampling and drilling. The equipment selection, coupled with the proposed methodology, should minimise unnecessary seabed disturbance, by ensuring that intrusive activities are focused only on the most promising/viable areas—while incorporating flexibility to refine the survey programme based on the geophysical results.

Geophysical Exploration: Phase 2 (sediment grab sampling and coring)

Following interpretation of the geophysical survey data, a targeted seabed sampling programme will be undertaken to characterise seabed sediments, benthic habitats and geological conditions. Sampling locations will be selected based on the geophysical results and, where practicable, will avoid environmentally sensitive habitats, ensuring that intrusive sampling is limited to areas where it is required.

Baseline environmental data will be collected at 20–50 locations using a Van Veen grab sampler, which collects shallow surface sediments and associated benthic organisms from the upper 20–50 cm of the seabed. Samples will be analysed to characterise sediment properties and benthic macrofaunal communities, providing an important baseline for future environmental monitoring. The method is widely used, causes only localised disturbance, and will affect an estimated 5 m^2 of seabed.

Geotechnical information will be collected from 100–200 locations using vibracoring, gravity coring or sonic coring, depending on seabed conditions. These methods recover intact sediment cores for analysis of sediment stratigraphy, geological composition and engineering properties, providing information required for resource evaluation and the design of any subsequent drilling programme. As the recovered material remains contained within the core barrel and is transported ashore for analysis, no sediment processing or discharge occurs at sea, resulting in a very small physical and environmental footprint.

Geophysical Exploration: Phase 3 (drilling)

Following completion of the geophysical and geotechnical investigations, prospective target areas will be evaluated using a purpose-designed seabed drilling system to recover gravel and other sediments for resource assessment. Recovered material will be processed onboard the vessel, with fine tailings returned to the sea, resulting in temporary and localised sediment plumes that will dissipate naturally under prevailing ocean conditions.

The drilling programme will initially comprise approximately 300 samples, with additional sampling undertaken only where results indicate potentially viable mineral resources. Drill locations will be informed by the preceding survey phases, allowing effort to be focused on the most prospective areas while minimising unnecessary disturbance. Although drilling represents the most intrusive component of the prospecting programme, the total seabed disturbance across all prospecting phases is estimated at approximately 0.76 ha, representing only 0.0002% of the approximately 350 000 ha concession area.

The information collected will be used to evaluate the extent and economic viability of the mineral resource, characterise seabed conditions, and inform the design and planning of any potential future mining operations. This phased approach ensures that progressively more intensive investigation is undertaken only where justified by the results of earlier surveys, thereby maximising efficiency while minimising the environmental footprint of the prospecting programme.

Phase 4: Feasibility study and resource estimation

If the prospecting programme identifies potentially viable mineral resources, a desktop feasibility study will be undertaken using the data collected during the geophysical surveys, seabed sampling and drilling programme. The study will assess the size and economic viability of the resource and produce recommendations on future mining operations and mining vessel design and construction.

This phase will again benefit from the recent technological/computational advancements detailed in the "Desktop Study" section.

Summary of technological suitability

The proposed prospecting methodology represents a phased, technology-driven approach that progressively increases the level of investigation only where justified by the results of preceding phases. Modern computational tools, environmental screening datasets, high-resolution geophysical surveys, targeted seabed sampling and focused drilling are used to optimise prospecting efficiency, improve resource evaluation and minimise unnecessary environmental disturbance. This staged approach ensures that intrusive activities are confined to the most prospective areas, reducing the overall environmental footprint while providing the information required to assess the feasibility of future mining.

(e) the operational aspects of the activity

The preferred timing for this project is to undertake geophysical and sampling surveys over a period of five years. There is therefore some flexibility in terms of which months of the year the sampling and surveying will be undertaken and this will be informed by the specialist studies, in consultation with interested and affected parties (I&APs) and the acoustic surveys.

For example, every effort will be made to avoid sampling and prospecting during seasonal migrations of marine mammals, fish and birds and at times when fishing fleets are operating in

the concession area. Sampling and prospecting will also be avoided in MPAs or important conservation areas and also areas that are important for fisheries, particularly small-scale commercial fisheries (refer to Subsection d, above). Results of the BA and associated specialist studies will also be used to guide selection of the most appropriate survey and sampling equipment. This is detailed in the project EMPr.

(f) the option of not implementing the activity (No-go option)

According to EIA regulations and guidelines (as amended), a no-go option should also be included. As such, the absence or non-occurrence of prospecting in the concession area is considered to have both positive and negative implications. The advantage of the no-go option will mean that there are no impacts on the bio- and geophysical environment in the proposed prospecting area while the disadvantages of not prospecting will lead to a loss of opportunity to extract an economically viable natural resource, prevention of socioeconomic benefits and loss of economic and growth development opportunities. Given the high existing levels of unemployment and poverty within South Africa, this is considered significant. Refer to Section 7.7.5 for a detailed breakdown of the No-Go Assessment.

5.3 MOTIVATION WHERE NO ALTERNATIVE SITES WERE CONSIDERED.

In selecting a concession area, the Applicant considered other concession areas within the designated offshore mining concession system. Many concession areas were not available because the Prospecting or Mining Rights are already held by other right holders. The Applicant has previously secured Prospecting Rights and/or Environmental Authorisations for Concession Areas 7C, 10B, 11C, 14A and 14C, reflecting its strategy of applying for rights in concession areas that become available and are considered prospective. Concession Area 6C is one such available concession area and was identified as having favourable geological potential. It is therefore considered an appropriate location for the proposed prospecting programme.

5.4 STATEMENT MOTIVATING THE ALTERNATIVE DEVELOPMENT LOCATION WITHIN THE OVERALL SITE.

At this stage, no preferred sampling locations have been identified within Concession Area 6C.

The final locations of core and drill sampling sites will be determined following the geophysical survey, which is designed to identify both prospective geological targets and environmentally sensitive areas that should be avoided, where practicable. Consequently, the final sampling layout remains flexible and will be refined as information becomes available during the phased prospecting programme. Areas of conservation concern and any sensitive benthic habitats identified during the geophysical survey or subsequent verification surveys will be avoided, where practicable, during core and drill sampling. Although the Marine Specialist considers the occurrence of reef habitat within the proposed sampling areas to be unlikely, this will be confirmed through the geophysical survey prior to the finalisation of sampling locations.

5.5 Details of the Public Participation Process Followed

Describe the process undertaken to consult interested and affected parties including public meetings and one on one consultation. NB the affected parties must be specifically consulted regardless of whether or not they attended public meetings. (Information to be provided to affected parties must include sufficient detail of the intended operation to enable them to assess what impact the activities will have on them or on the use of their land.

Please refer to Appendix 2 for the Comments and Responses Table (CRR), the I&AP database, and all supporting proof of the public participation process undertaken during both the pre-consultation public participation period (20 June 2026 to 29 June 2026) and the official public participation period (25 July 2026 to 25 August 2026). This includes email notifications, hard copy notices, A2 site notices, newspaper advertisements, and all comments received.

5.5.1 Stakeholder Identification, registration and the creation of database

A stakeholder (I&AP) database was compiled and includes all I&APs as required under Sections 40(2), 42, and 43 of the EIA Regulations, as well as other key and potential stakeholders. I&APs on this list were notified of the project via email, while additional potential I&APs were informed through A2 and A4 site notices and newspaper advertisements. These individuals and organisations were invited to register as I&APs and added to the database upon request. Any person or organisation that submitted comments were also registered. The database was continually updated throughout the project.

5.5.2 Pre-Consultation Process

A Pre-Consultation Registration Period was undertaken from 20 June 2026 to 29 June 2026 to provide members of the public, government authorities, and surrounding communities with an opportunity to register as an I&AP and to submit preliminary comments on the Background Information Document (BID) made available for comment. The BID provided preliminary information on the proposed prospecting activities, the receiving environment and the potential environmental and socio-economic impacts to enable I&APs to identify issues and raise concerns at an early stage of the assessment process. The public was notified through the placement of A4 notices at key public locations in Kleinzee, Koingnaas, and Hondeklipbaai, respectively. Furthermore, the BID was distributed via email to all identified stakeholders and I&APs included on the project database. The BID was also accessible electronically on Achor Environmental Consultants' website, at: https://anchorenvironmental.co.za/public-documents. All registrations received during the period were captured and incorporated into the I&AP database, and all preliminary comments received were recorded and addressed in the CRR.

5.5.3 Public Participation Process

The Public Participation Process (PPP) was undertaken in accordance with Chapter 6 (Regulations 39–44) of the NEMA EIA Regulations, 2014 (as amended). Its purpose was to provide stakeholders, including interested and affected parties (I&APs), organs of state and the Competent Authority, with an opportunity to access project information and comment on the proposed development before the Basic Assessment process is finalised.

Methods of Notification and Availability of Documents

Notices were distributed between 17 July and 22 July 2026 to inform I&APs about the proposed project and their opportunity to provide comments. The following methods have been used for notification:

- **Site Notices:** Two A2-sized notice boards were displayed in visible locations near the project site including one on the c/o Third Avenue and the R355, in Kleinzee and the other on Checkpoint Drive, in front of the West Coast Resources office in Koinghaas.
- **Newspaper Advertisement**: Two newspaper advertisements were published, one in the Die Plattelander, an Afrikaans community newspaper circulated in the coastal area of the Northern Cape, and one in the Gemsbok, a provincial newspaper circulated in the Northern Cape.
- **Email Notifications and Official Correspondence**: Written notifications were sent via email to all relevant I&APs with email addresses, including: Relevant National and Provincial government departments; Relevant environmental and land use departments within the Kamiesberg and Nama-Khoi Local Municipalities; Relevant adjacent landowners and concession holders with email addresses; and Any other potential and / or registered I&APs currently listed on database.
- **Other hardcopy notices:** A4 notices/ posters were placed at various shops/ other public locations within Kleinzee, Hondeklipbaai and Koinghaas (See Comments and Reponses Report).

Circulation of draft BAR & Comment Period

The draft BAR was made available for a 30-day public review and comment period from **25 July to 23:59 on 25 August 2026**. The notification of the availability of the report was included in the notices and ads as outlined above. An email with a link to the draft BAR and EMPr on Anchor's website was also distributed to potential and registered I&APs as well as the relevant organs of state. During this period, the document was accessible digitally on Anchor's website and as hardcopies at the Kleinzee Library and the Hondeklipbaai SAPS. Potential or registered I&APs could submit comments during this period via email, post, or by phone. Proof of these notifications and the availability of the BAR is provided in the Comments and Reponses Report (Appendix 2).

Comments and Responses Report (Stakeholder Engagement Report)

A comprehensive record of all comments received from stakeholders during the pre-consultation registration process (20 June 2026 to 29 June 2026) and public participation process (25 July to 25 August 2026) has been documented in the CRR (See Appendix 2). The CRR also includes the corresponding responses from the EAP, relevant specialists, or the Applicant, as applicable and how these issues have been addressed in the Final BAR, if and where applicable. Copies of all written correspondence from I&APs and stakeholders are provided in the CRR.

Summary of comments received and influence on the assessment of alternative

Comments received during the public participation process resulted in one refinement to the preferred development layout, while no changes were required to the proposed activities, technology or operational alternatives.

The principal change arose from comments received from the DFFE Directorate: Biodiversity Conservation, which requested that the portion of the concession overlapping with the mapped Critical Biodiversity Area (CBA Natural) be excluded from intrusive prospecting activities and treated as a no-go area. In response, the preferred development layout was amended to exclude

the CBA Natural area entirely, and the no-go area has been incorporated into the BAR and EMPr. The Directorate: Biodiversity Conservation also recommended a number of additional biodiversity management measures, including pre-survey verification of sensitive marine habitats, exclusion buffers around sensitive benthic habitats, adaptive management, annual biodiversity monitoring, appointment of Marine Mammal Observers, implementation of marine fauna mitigation measures, and scheduling surveys outside peak migration periods where feasible. These recommendations have been incorporated into the BAR and EMPr as appropriate.

Comments from the DFFE Directorate: Sustainable Aquaculture Management raised concerns regarding potential cumulative impacts on nearby aquaculture operations. These concerns were considered during the Basic Assessment and informed the cumulative impact assessment, stakeholder engagement process and the development of mitigation measures, including ongoing engagement with aquaculture operators and communication of prospecting schedules. However, the specialist assessments concluded that, due to the offshore location of the prospecting activities, the limited scale and temporary nature of the proposed works, and the separation distance from the mariculture facilities, significant impacts are not anticipated. Consequently, the comments received to date have not altered the assessment of alternatives or the selection of the preferred alternative but have contributed to refining the environmental management measures incorporated into the EMPr.

Trans Hex Operations (Pty) Ltd (THO) submitted an objection to the granting of the Prospecting Right in terms of the MPRDA. The objection raised concerns regarding the disclosure of the section 16 Prospecting Right application and its supporting documentation, and alleged that the information made available during the public participation process was insufficient to enable meaningful consultation. THO further questioned whether the Applicant's technical ability, financial resources and proposed expenditure, as well as its compliance with the requirements for the granting of a Prospecting Right in terms of section 17 of the MPRDA, could be adequately established. Concerns were also raised regarding the Applicant's compliance and performance under its existing and previous Prospecting Rights, including whether the approved Prospecting Work Programmes had been implemented. Finally, THO disputed the use of the Basic Assessment process, contending that the proposed prospecting activities constitute bulk sampling and therefore require authorisation in terms of section 20(2) of the MPRDA and assessment in accordance with Listing Notice 2 Activity 19 through a Scoping and Environmental Impact Reporting process. The EAP has considered THO's objection and the matters raised therein. The EAP responded that the matters raised regarding the Applicant's technical ability, financial resources, proposed expenditure and compliance with section 17 of the MPRDA fall within the statutory decision-making functions of the DMPR. Similarly, concerns regarding compliance with existing and previous Prospecting Rights are matters for consideration by the DMPR and do not form part of the environmental assessment of the current application. The EAP confirmed that written guidance was obtained from the DMPR, which confirmed that prospecting without bulk sampling triggers a Basic Assessment process, while prospecting involving bulk sampling triggers a Scoping and Environmental Impact Reporting process. The DMPR confirmed that the proposed drilling and coring activities do not constitute bulk sampling. The application has therefore been assessed through the Basic Assessment process as determined by the Competent Authority.

PTWC commented on the minerals proposed for prospecting and requested clarification on the geological basis for the range of minerals included in the application, as well as the extent to which the geological information provided supports the potential occurrence of these minerals within the concession. PTWC also questioned the exclusion of bulk sampling from the proposed

prospecting programme and raised concerns regarding whether the proposed core, drill and benthic sampling methods would provide an adequate basis for assessing the resource potential and environmental impacts. Specific concerns were raised regarding the adequacy and representativeness of the proposed benthic sampling programme, the geological characteristics of the Mudbelt and the potential impacts associated with sediment plumes generated by prospecting activities. PTWC further commented on the alignment between the approved Prospecting Work Programme (PWP) and the prospecting programme assessed in the Draft BAR, including differences in the description and extent of the proposed activities and the concession area. Concerns were also raised regarding cumulative impacts associated with prospecting and existing marine activities in the region, and the need for a broader strategic assessment of these activities. In addition, PTWC questioned the adequacy of the financial provision for the proposed prospecting activities, the distinction between financial provision and the Applicant's financial resources, and the disclosure and adequacy of supporting financial and rehabilitation documentation. The EAP and Applicant provided clarification on the geological basis for the minerals proposed for prospecting and confirmed that the PWP provides the relevant geological motivation. It was confirmed that the proposed core and drill sampling is investigative in nature and does not constitute bulk sampling, and therefore does not require permission in terms of section 20(2) of the MPRDA. Clarification was also provided regarding the discrepancy in the concession area and the alignment between the PWP, BAR and MEIA, with the relevant documentation to be corrected where necessary. The EAP and Marine Specialist further addressed concerns regarding the benthic sampling methodology, sediment plume impacts and the assessment of the Mudbelt, and confirmed that prospecting activities will be targeted to specific areas rather than undertaken across the full concession. PTWC's concerns regarding cumulative impacts and the need for a strategic assessment were noted, but it was confirmed that the current application would not be held in abeyance pending completion of the marine spatial planning process. The EAP and Applicant also provided clarification regarding financial provision, rehabilitation and supporting documentation, including confirmation that the CBA Natural area will be excluded from the prospecting footprint and treated as a no-go area. The EMPr will be amended to include the relevant financial provision information.

DFFE Branch Oceans & Coasts commented on the applicability of the National Environmental Management: Integrated Coastal Management Act (ICMA), 2008, and requested that its requirements be addressed in the BAR and EMPr. The Branch also raised concerns regarding biodiversity screening and avoidance of sensitive habitats, sediment plume impacts, cumulative impacts, underwater noise and potential impacts on marine fauna. The Branch supported the proposed marine fauna mitigation measures and noted that oil spill and pollution management had been adequately addressed. The Branch further highlighted the applicant's duties in terms of NEMA and the ICM Act, including requirements relating to environmental damage, discharge into coastal waters and dumping at sea. The EAP and Marine Specialist confirmed that the ICMA has been included in the BAR and EMPr and that its objectives and principles have been considered in the Marine Impact Assessment. The CBA Natural areas will be excluded from all prospecting activities and treated as no-go areas, with final sampling locations screened against available biodiversity information. The recommendation for dedicated sediment plume modelling was considered but was not considered proportionate to the limited and localised nature of the proposed activities, with available published plume data used to inform the assessment. Cumulative impacts were considered based on available information, with limitations and uncertainties acknowledged. Underwater noise impacts were assessed using available scientific literature and comparable acoustic studies, and the relevant marine fauna mitigation measures have been retained in the EMPr. The Applicant also confirmed compliance with its duties under NEMA and the ICMA, including requirements relating to pollution

prevention, dumping at sea and consideration of coastal environmental and socio-economic factors.

The South African United Fishing Front requested clarification on the actions being undertaken to promote awareness of the proposed project at grassroots level and whether community consultation forms part of the awareness campaign. The EAP confirmed that the public participation process was undertaken in accordance with the NEMA EIA Regulations, 2014, including the erection of A2 notices, placement of newspaper advertisements, distribution of A4 posters and notification of local residents, community groups and associations. Hard copies of the Draft BAR and appendices were also made available at the Kleinzee Library and Hondeklipbaai SAPS. No local residents registered or submitted comments during the pre-consultation period.

5.6 SUMMARY OF ISSUES RAISED BY I&APS

(Complete the table summarising comments and issues raised, and reaction to those responses)

This table has been completed and included in the "CRR, which will be attached as Appendix 2 of the BAR.

Interested and Affected Parties List the names of persons consulted in this column, and Mark with an X where those who must be consulted were in fact consulted.		Date Comments Received	Issues raised	EAPs response to issues as mandated by the applicant	Section and paragraph reference in this report where the issues and or response were incorporated.
AFFECTED PARTIES					
Landowner/s	**X**				
Lawful occupier/s of the land					
Landowners or lawful occupiers on adjacent properties	**X**				
Municipal councillor	**X**				
Municipality	**X**				
Organs of state (Responsible for infrastructure that may be affected Roads Department,					
Eskom, Telkom, DWA e					
Communities					
Dept. Land Affairs					
Traditional Leaders					
Dept. Environmental Affairs					
Other Competent Authorities affected					
OTHER AFFECTED PARTIES					
INTERESTED PARTIES					

6 THE ENVIRONMENTAL ATTRIBUTES ASSOCIATED WITH THE ALTERNATIVES

(The environmental attributes described must include socio-economic, social, heritage, cultural, geographical, physical and biological aspects)

BASELINE ENVIRONMENT

6.1 TYPE OF ENVIRONMENT AFFECTED BY THE PROPOSED ACTIVITY.

(its current geographical, physical, biological, socio- economic, and cultural character).

6.1.1 Regional oceanography

The Benguela system is influenced predominantly by the wind-driven upwelling of deep nutrient rich water close to the coast. Wind is the primary driver of marine biodiversity in the system, strongly influencing both water temperature and nutrient levels, which, in turn, influence primary production. The prevailing south-easterly winds displace surface water offshore during the summer, and cause cold, nutrient rich water to rise from deeper water masses to replace this surface water (Branch & Griffiths 1988, Duncombe Rae 2005). The oceanic primary producers, phytoplankton, bloom when upwelled inorganic nutrients become available for photosynthesis in the presence of sunlight. These are consumed by zooplankton, which are in turn consumed by small pelagic fish species such as anchovy and sardine. The Benguela is one of the world's most productive systems, supporting rich fishing grounds and attracting large colonies of sea birds and seals (Branch & Branch 2018).

The West Coast is subject to semi-diurnal tides, with each successive high (and low) tide separated by 12 hours. Spring tides occur once a fortnight during full and new moons. Tidal activity greatly influences the biological cycles (feeding, breeding and movement) of intertidal marine organisms and has an influence on when people visit the coastline to partake in various activities such as bathing and the harvesting of marine resources. The tidal variation on the West Coast usually ranges between 0.28 m (relative to the chart datum) at mean low water springs and 1.91 m at mean high-water springs, with the highest and lowest astronomical tide being 2.25 m and 0.056 m, respectively.

The west coast of South Africa typically experiences high wave energy and is dominated by south-westerly swells with a long fetch and a period of 10 to 15 seconds (Branch & Griffiths 1988). Southerly and south-westerly waves frequently exceed 2 m. The predominant SW swell direction in this area results in a northward-flowing littoral current that runs parallel to the coast (MacDonald & Rozendaal 1995). The average water temperature during the summer months is cool due to upwelling (approximately 11°C) and slightly warmer during downwelling events, which are caused by westerly winds or occasional Benguela Niños, when unseasonal westerly winds result in a breakdown of the upwelling front with movement of warm oceanic water towards the coast (Laird & Clark 2018).

6.1.2 Biogeography

The classification and mapping of ecosystem types is the foundation to their assessment and management. The latest National Biodiversity Assessment (NBA) recognises 150 different marine ecosystem types in the South African Exclusive Economic Zone embedded within a hierarchical classification system (Sink et al. 2019b).

Concession Area 6C falls within the Southern Benguela Ecoregion, within the Namaqua inner shelf of the ecoregion (Figure 6.1) (Emanuel et al. 1992, Turpie et al. 2000, Branch et al. 2022).

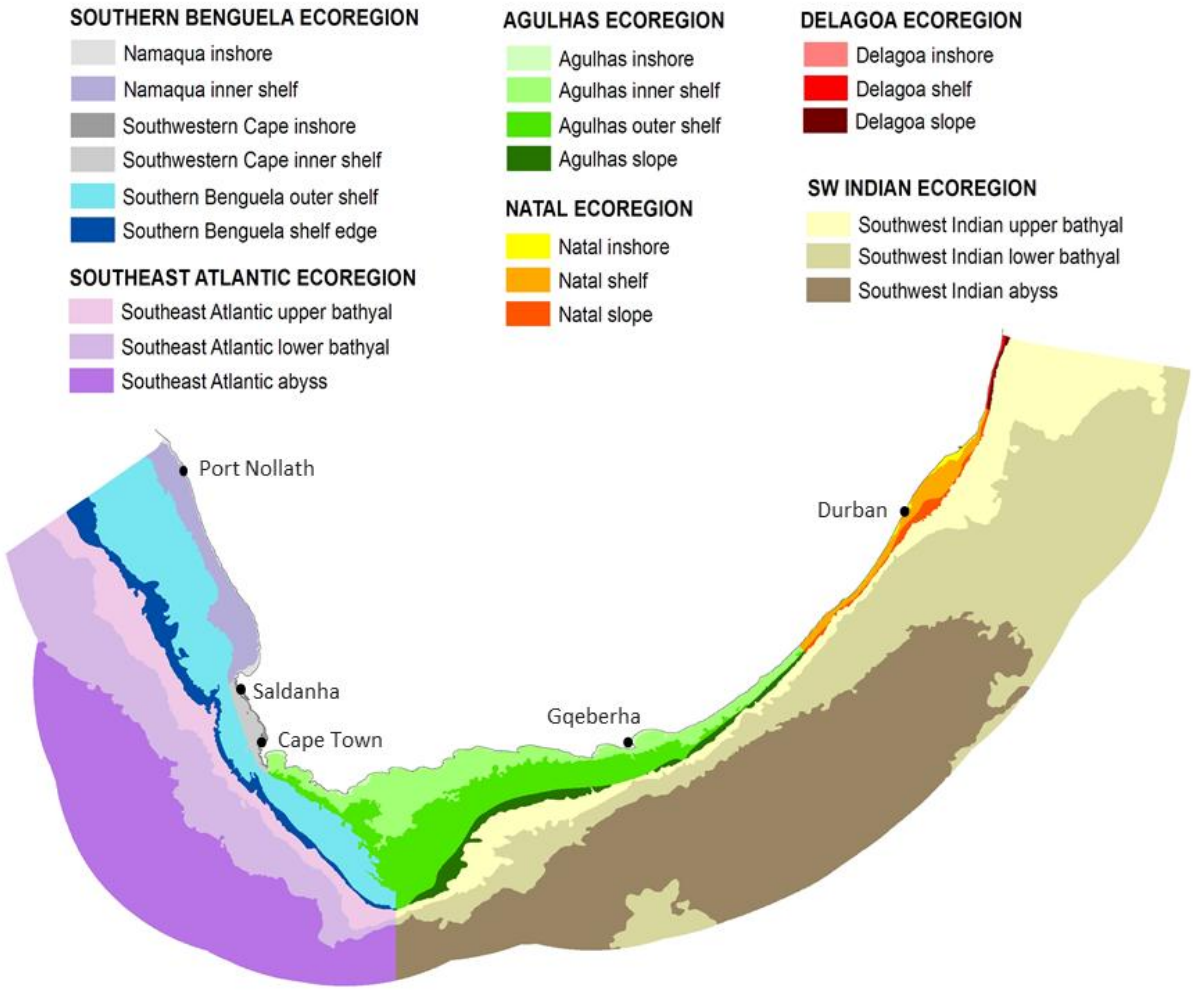

Figure 6.1. Inshore and offshore ecoregions in South Africa as defined by Sink et al. (2012).

The South African National Biodiversity Institute (SANBI) has further delineated bathyregions for South Africa's biogeography, constituting the six main ecoregions divided by depth (Sink et al. 2019b). Concession Area 6C is positioned in the Southern Benguela Shelf bathyregion, which mainly follows the cool temperate West Coast (Figure 6.2).

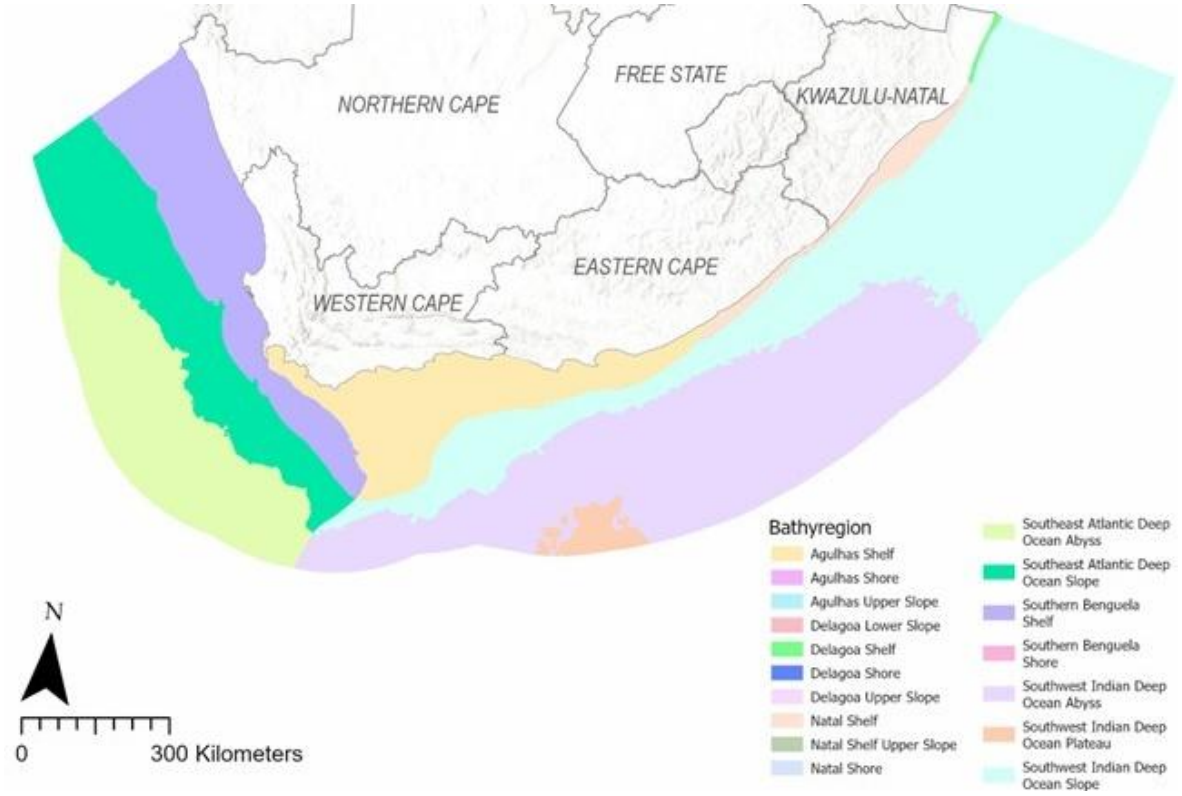

Figure 6.2. Marine bathyregions of South Africa's EEZ with incorporating biogeographic and depth divisions in the South African marine environment as defined by Sink et al. (2019b).

6.1.3 Marine Ecology and Habitats

As discussed above, wind-driven coastal upwelling is the predominant physical driver that shapes the high levels of biological productivity in the southern Benguela, providing nutrients for primary producers, and food for diverse fauna, such as pelagic (pilchards, anchovy) and demersal (hakes, kingklip) fish stocks, near shore fisheries (linefish, rock lobster), mammals (seals and whales) and seabirds (penguins, gannets, cormorants etc.). There are broad marine habitats within or adjacent to the 6C Concession Area, see below.

Subtidal sandy benthic habitat

Fauna and flora that inhabit the surfaces of subtidal sand are called benthic epifauna, while those that burrow or dig into the soft sediments are called benthic infauna (Castro & Huber 1997). The distribution of infauna and the depth at which organisms can live in the substrate is largely dependent on sediment particle size. More porous, larger grained substrates allow for greater water circulation through the sediment, thereby replenishing the oxygen that is used up during the decomposition processes. Concession Area 6C is mostly classified as 'Muddy sand' with an intrusion of 'Sand' through the middle (Rogers 1977). This is further confirmed by the NBA ecosystem map which classified the benthic substrata as Southern Benguela Muddy Shelf, almost entirely within 6C (Figure 6.3).

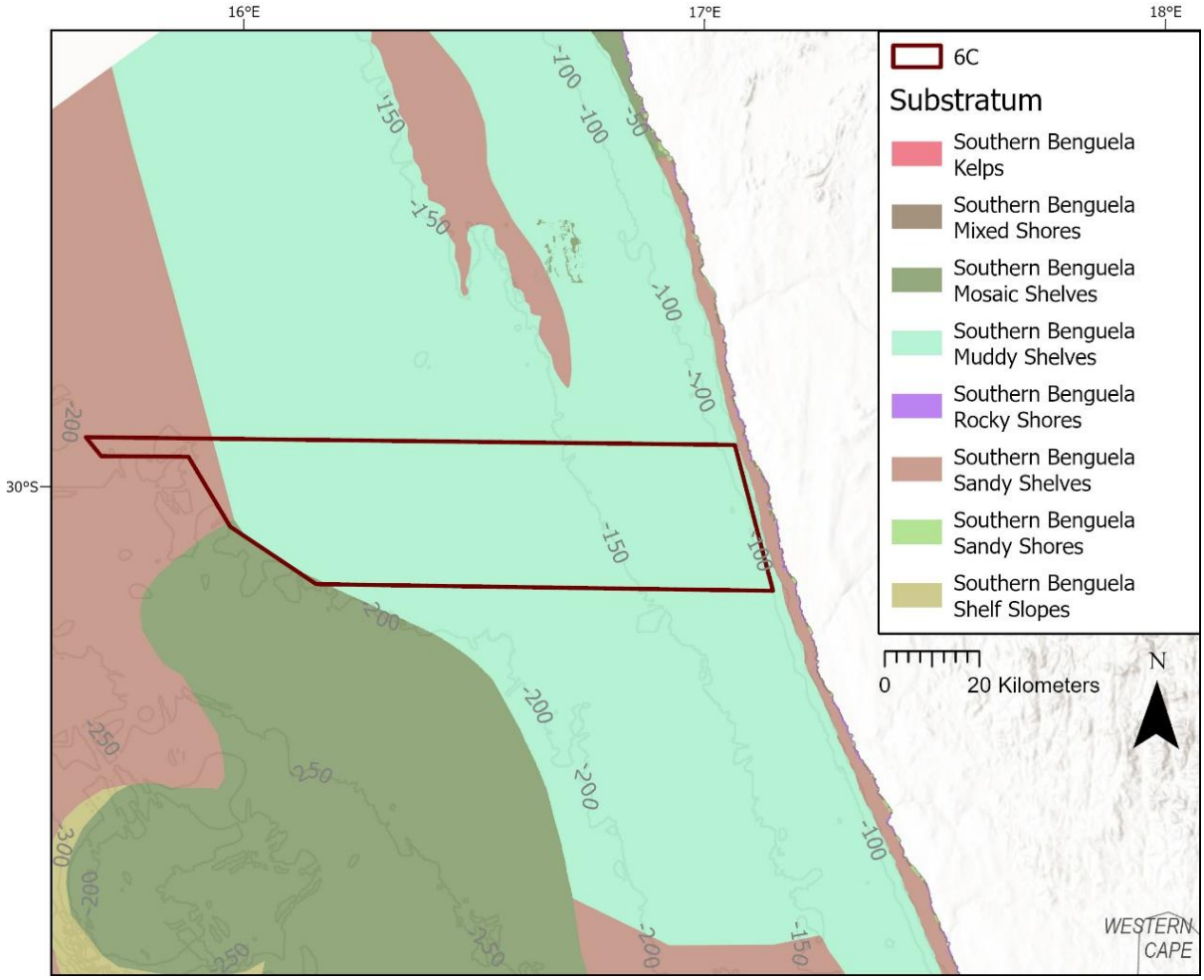

Figure 6.3. Marine substrate map of 6C, taken from the NBA Ecosystem Layer 2025 (Sink et al. 2026).

In terms of ecosystem types, 6C covers three ecosystem types from shallow to deep water: Namaqua Muddy Mid Shelf Mosaic, Namaqua Muddy Sands, and Southern Benguela Sandy Outer Shelf (Figure 6.4). These are described respectively as: (i) a mosaic of muddy and rocky seafloor within the highly productive mid-shelf zone (approximately 50–150 m depth) of the Namaqua Ecoregion; (ii) river-influenced muddy sand and associated turbid, productive pelagic habitat on the northern outer shelf (approximately 150–350 m depth); and (iii) sandy seafloor and associated highly productive benthic and pelagic habitat on the outer shelf of the Southern Benguela Ecoregion. In the nearshore portion of the alignment, the Namaqua Muddy Mid Shelf Mosaic ecosystem is expected to comprise predominantly muddy sediments interspersed with patches of consolidated substrate, resulting in a heterogeneous seabed that supports a diversity of benthic habitats.

Benthic macrofauna are the biotic component most frequently monitored to detect changes in the health of a marine environment as they are short-lived, and their community composition responds rapidly to environmental change (Warwick 1993). They also tend to be directly affected by pollution, are easy to sample quantitatively, and are scientifically well-studied compared to other sediment-dwelling components. Anthropogenic physical disturbance will negatively affect benthic macrofauna and is likely to result in the proliferation of opportunistic pioneer species following a disturbance event. Dean (2008) showed that polychaetes are generally most

abundant, in anthropogenically disturbed (e.g., poor environmental conditions) areas followed by amphipods and gastropods.

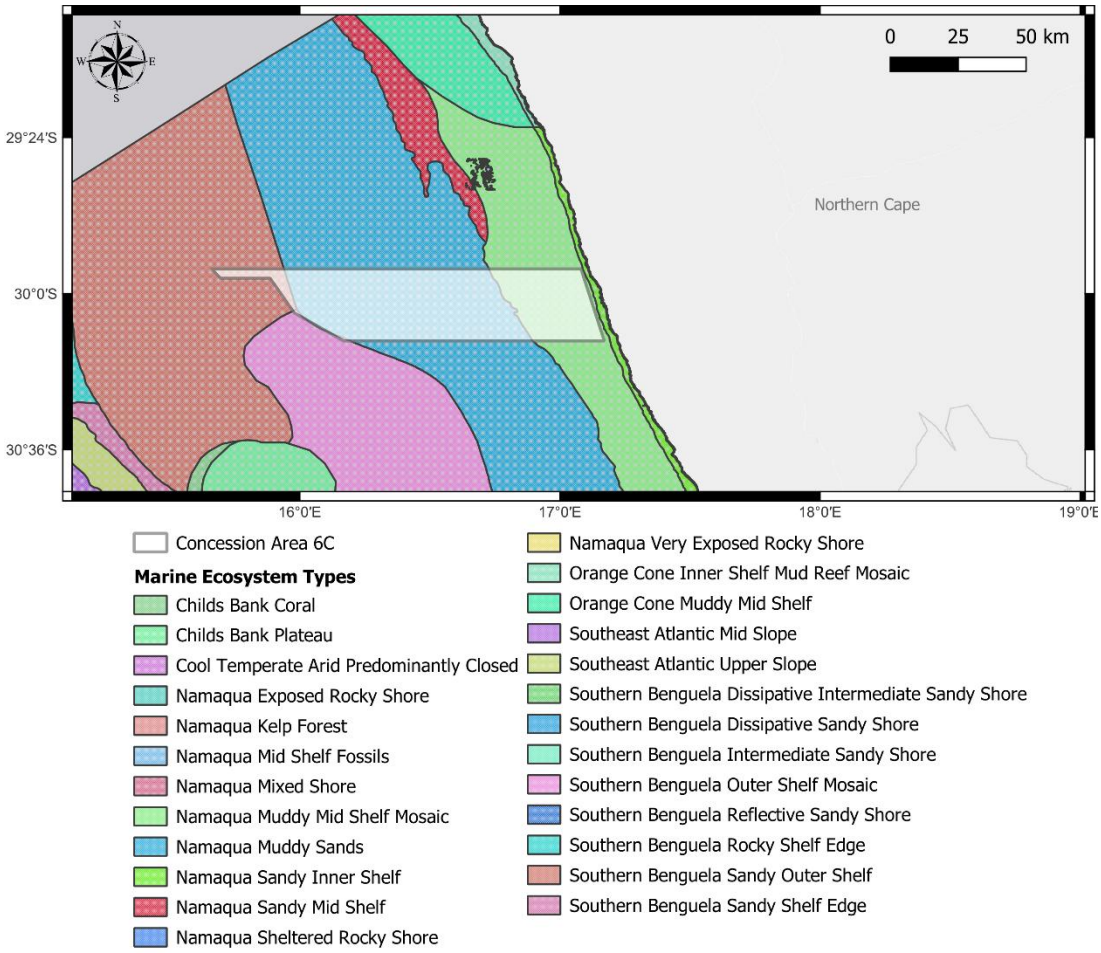

Figure 6.4. Marine ecosystem types found within and around Concession Area 6C as described by Sink et al. (2019b)

There is great diversity in benthic infauna, where much of the benthic infauna on the west coast of South Africa are deposit feeders (e.g., worms) (Castro & Huber 1997), which either ingest sediments and extract organic matter trapped between the grains, or actively collect organic matter and detritus (Castro & Huber 1997). Suspension feeders eat drifting detritus and plankton from the water column (e.g. seapens and some species of crabs), while filter feeders actively pump and filter water to extract suspended particles (e.g. bivalves and some species of amphipods and polychaetes). Predators in soft bottom habitats either burrow through sediments or catch their prey on the surface (Castro & Huber 1997). Most bottom-dwelling fish in soft bottom habitats are predators that scoop up prey (e.g. rays and skates), while flat fish (e.g. monkfish and sole) lie camouflaged on the bottom. Predators such as crabs, hermit crabs, lobsters and octopuses, which inhabit rocky areas, may move to sandy benthos to feed (Castro & Huber 1997). Similarly, reef-associated fish also rely on unconsolidated substrates for food, often feeding on the infaunal/epifaunal species that inhabit such habitats. Macrofauna living within benthic substrata play an important role in the reworking of sediments. These organisms assist in promoting the exchange of oxygen and nutrients within the substrate by enhancing sediment porosity.

The soft sediment infauna of the shelf ecosystem (Figure 6.3) of the west coast of South Africa is moderately well studied. Benthic sampling undertaken by Anchor in Concession Areas 1B, 1C and 2C (further north but of a similar depth range and biogeographical zone as 6C) had a benthic macrofaunal community comprised of 45 species with an average biomass of 85.9 g/m^2 (Concession Area 1B), 31.8 g/m^2 (1C) and 38.9 g/m^2 (2C) (Mostert et al. 2016, Biccard et al. 2020). This is much lower than the diversity and biomass of macrofaunal communities found in the shallower, sheltered and retentive bays along the West Coast (diversity: >150 species; biomass in St. Helena Bay of 846.53 g/m^2, and in Saldanha Bay of 970.78 g/m^2) (Clark et al. 2020, Biccard et al. 2021). Available evidence suggests that the macrofaunal communities of Concession Area 6C are more similar to those found in the offshore, open coast areas such as 1C and 2C than the sheltered, productive West Coast bays, but this should be confirmed during proposed future baseline sampling.

Pelagic habitat

This habitat type constitutes the largest of all habitats and is loosely defined as the water column of the open ocean, which can be further divided into regions by depth. Pelagic communities are largely defined by the physical properties of the water column. Main physical drivers include temperature, turbidity, dissolved oxygen, nutrient levels and light. These parameters vary with depth and play a large role in shaping the structure of pelagic communities. In contrast to demersal and benthic biota that are associated with the seabed, pelagic species live and feed in the open water column. Pelagic communities are divided into plankton and fish, and their main predators, seabirds, marine mammals (seals, dolphins and whales) and turtles.

Planktonic communities

The ecology of the open water pelagic habitat within Concession Area 6C is typical of the Benguela upwelling region and the Namaqua inshore ecozone (See Section 6.1.2). Pulsed inputs of nutrients (nitrates, phosphates and silicates) due to wind-driven upwelling result in high primary productivity with phytoplankton communities dominated by dinoflagellates and diatoms. Phytoplankton are consumed by a variety of zooplankton that typically consist of crustacean copepods, euphausiids, mysids and a myriad of larvae from almost all marine phyla. For example, ichthyoplankton in the southern Benguela is composed mainly of small pelagic anchovy and sardine fish eggs and larvae, with some hakes and mackerel (Shannon & Pillar 1986). Zooplankton are in turn the food source for large numbers of small pelagic fish, particularly sardine *Sardinops sagax*, anchovy *Engraulis encrasicolus*, red eye round herring *Etrumeus whiteheadi* and maasbanker *Trachurus capensis*. These small pelagic fish exert a controlling influence on the abundance of both their zooplankton prey and their predators that include commercially important fish species such as snoek *Thyrsites atun*, yellowtail *Seriola lalandi* and hake *Merluccius* spp. (Cury et al. 2000, Shannon et al. 2020).

Seabirds

Fourteen species of seabirds breed in southern Africa; Cape Gannet *Morus capensis*, African Penguin *Spheniscus demersus*, four species of Cormorant *Phalacrocorax* spp., White Pelican *Pelecanus onocrotalus*, three Gull *Larus* spp. and four Tern species *Hydroprogne caspia* and *Sterna* spp. (Table 6.1). Species listed as Endangered on the IUCN Red List include the Cape Gannet, Cape Cormorant and the Bank Cormorant, as well as the African Penguin which is listed as Critically Endangered. Breeding areas are distributed around the coast with islands being particularly important. The number of successfully breeding birds at each breeding site varies with the abundance of food. Most of the breeding seabird species forage for small pelagic fish at

sea with most birds being found relatively close inshore (within 30 km of the coast). Of the diving birds that occur along the coast, only the Cape Gannet regularly feeds from the inshore environment to as far as 100 km offshore while African Penguins have also been recorded as far as 60 km offshore. Most of the species listed here are likely to be encountered in Concession Area 6C (the inner margin is located only 5 km offshore).

Table 6.1. Breeding seabirds present on the west coast of South Africa (adapted from Pulfrich (2021)), and their Global and local IUCN Red List status (IUCN 2025, Lee et al. 2025).

Common name	Species name	Global and local IUCN Red List Status
African Penguin	*Spheniscus demersus*	Critically Endangered
Great Cormorant	*Phalacrocorax carbo*	Least Concern
Cape Cormorant	*Phalacrocorax capensis*	Endangered
Bank Cormorant	*Phalacrocorax neglectus*	Endangered
Crowned Cormorant	*Phalacrocorax coronatus*	Least Concern
White Pelican	*Pelecanus onocrotalus*	Least Concern
Cape Gannet	*Morus capensis*	Endangered (locally Vulnerable)
Kelp Gull	*Larus dominicanus*	Least Concern
Grey-headed Gull	*Larus cirrocephalus*	Least Concern
Hartlaub's Gull	*Larus hartlaubii*	Least Concern
Caspian Tern	*Hydroprogne caspia*	Least Concern (locally Vulnerable)
Swift Tern	*Sterna bergii*	Least Concern
Roseate Tern	*Sterna dougallii*	Least Concern (locally Vulnerable)
Damara Tern	*Sterna balaenarum*	Least Concern (locally Vulnerable)

Pelagic seabirds such as albatross, petrels and shearwaters are also likely to be encountered in the offshore waters of 6C. A large number of these seabirds are supported by the small pelagic fish stocks of the Benguela system. The area between Cape Point and the Orange River is said to support 38% and 33% of the overall population of pelagic seabirds in winter and summer, respectively (Baker & Arnott 2021). Pelagic seabirds classified as being common in the southern Benguela are listed in Table 6.2.

Threatened species include the Yellow-nosed Albatross *Thalassarche chlororhynchos*, White-chinned Petrel *Procellaria aequinoctialis*, and Leach's Storm Petrel *Oceanodroma leucorhoa*. Most of the species in the region reach highest densities offshore of the shelf break (200 – 500 m depth) (Baker & Arnott 2021), mostly offshore of Concession Area 6C.

Table 6.2. Pelagic seabirds common to the southern Benguela region (Crawford et al. 1991) and IUCN Global and local Red List status (IUCN 2025, Lee et al. 2025).

Common Name	Species name	IUCN Red List status
Shy Albatross	*Thalassarche cauta*	Near Threatened
Black browed Albatross	*Thalassarche melanophris*	Least Concern
Yellow nosed Albatross	*Thalassarche chlororhynchos*	Endangered
Giant Petrel sp.	*Macronectes halli/giganteus*	Least Concern (locally Near Threatened)
Pintado Petrel	*Daption capense*	Least Concern
Great-winged Petrel	*Pterodroma macroptera*	Least Concern (locally Near Threatened)

Common Name	Species name	IUCN Red List status
Soft plumaged Petrel	*Pterodroma mollis*	Least Concern (locally Near Threatened)
Prion spp.	*Pachyptila* spp.	Least Concern
White-chinned Petrel	*Procellaria aequinoctialis*	Vulnerable
Cory's Shearwater	*Calonectris diomedea*	Least Concern
Great Shearwater	*Puffinus gravis*	Least Concern
Sooty Shearwater	*Ardenna grisea*	Near Threatened
European Storm Petrel	*Hydrobates pelagicus*	Least Concern
Leach's Storm Petrel	*Oceanodroma leucorhoa*	Vulnerable
Wilson's Storm Petrel	*Oceanites oceanicus*	Least Concern
Black-bellied Storm Petrel	*Fregetta tropica*	Least Concern (locally Near Threatened)
Skua spp.	*Catharacta/Stercorarius* spp.	Least Concern
Sabine's Gull	*Larus sabini*	Least Concern

Marine mammals

The marine mammal fauna occurring off the southern African coast includes several species of baleen whales, toothed whales, beaked whales, dolphins and one resident seal species. Based on the available literature we have identified thirty-six marine mammals that may occur in the proposed survey area (Table 6.3); each of these have been placed into marine mammal hearing groups as per Southall et al. (2019). Various research papers and reports were used to ascertain the relative likelihood of occurrence within the proposed survey area, as presented in Table 6.3 (Lane & Carter 1999, Penney et al. 2007, Child et al. 2016, Biccard et al. 2018, Baker & Arnott 2021, Pulfrich 2021). Conservation status from the IUCN (2025) Red List is also provided.

Of the species listed, the blue whale is considered Critically Endangered, fin and sei whales are Endangered, and humpback and sperm whales are considered Vulnerable (IUCN 2025). Altogether 10 species are listed as Data Deficient underlining how little is known about cetaceans, their distribution and population trends (IUCN 2025). Current information on the distribution, population sizes and trends of most cetacean species occurring on the west coast of southern Africa is lacking (Pulfrich 2021). Our knowledge on the smaller cetaceans that occupy deeper waters is particularly poor and it is recommended that caution be applied when considering possible encounters with cetaceans in the area of interest (Pulfrich 2021). The most abundant baleen whales in the Benguela are humpback whales and southern right whales (Figure 6.5). During the last decade, the prevalence of both species on the west coast of South Africa outside of the usual June-November whale season has increased with feeding behaviour observed in upwelling zones off Kommetjie, Saldanha and St Helena Bay (Barendse et al. 2011, Mate et al. 2011). Increasing numbers of summer records of both species from the southern half of Namibia suggest that animals may also be feeding in the Lüderitz upwelling cell (NDP unpublished data) and will therefore occur in or pass through the area of interest (Pulfrich 2021).

Table 6.3. Marine mammals thought to occur within the proposed survey area. Each species listed has been placed into a marine mammal hearing group as defined by Southall et al. (2019). The relative abundance and likelihood of occurrence within the proposed survey area during the survey period in late summer is indicated for each species. Conservation status from the IUCN (2025) Red List is indicated.

Marine Mammal hearing group	Species	Shelf/Offshore	Likely encounter frequency in 6C (seasonality)	IUCN Red List status
Low frequency cetaceans (Baleen whales) Generalised hearing range: 7 Hz to 35 kHz	Balaenoptera bonaerensis (Antarctic minke whale)	Shelf and offshore	Monthly (winter)	Least Concern
	B. acutorostrata (Dwarf minke whale)	Shelf and offshore	Occasional (year-round)	Least Concern
	B. physalus (Fin whale)	Shelf and offshore	Occasional (rarely in summer)	Vulnerable
	B. musculus (Blue whale)	offshore	Unlikely (seasonality unknown)	Critically Endangered
	B. borealis (Sei whale)	Shelf and offshore	Occasional (winter)	Endangered
	B. brydei (offshore Bryde's whale)	Shelf and offshore	Occasional (summer)	Not assessed
	B. brydei (subspp) (inshore Bryde's whale)	Shelf and offshore	Occasional (year-round)	Vulnerable
	Eubalaena australis (Southern right whale)	Shelf	Daily (year-round, higher in early spring and summer)	Least Concern
	Megaptera novaeangliae (Humpback whale)	Shelf and offshore	Daily (year-round, higher in summer)	Least concern
High frequency cetaceans (Dolphins, toothed whales, beaked whales) Generalised hearing range: 150 Hz to 160 kHz	*Lagenorhynchus obscurus* (Dusky dolphin)	Shelf (0-800 m)	Daily (year-round)	Data Deficient
	Cephalorhynchus heavisidii (Heaviside's dolphin)	Shelf (0-200 m)	Daily (year-round)	Near Threatened
	Tursiops truncatus (Common bottlenose dolphin)	Shelf and offshore	Monthly (year-round)	Least Concern
	Delphinus delphis (Common short beaked dolphin)	Shelf and offshore	Monthly (year-round)	Least Concern
	Lissodelphis peronii (Southern right whale dolphin)	Shelf and offshore	Occasional (year-round)	Least Concern
	Stenella coeruleoalba (striped dolphin)	Offshore	Unlikely (unknown)	Least Concern
	S. attenuata (Pantropical spotted dolphin)	Shelf edge and offshore	Unlikely (year-round)	Least Concern
	Globicephala melas (Long-finned pilot whale)	Shelf edge and offshore	Monthly (year-round)	Least Concern
	G. macrorhynchus (Short-finned pilot whale)	Unknown	Unlikely (unknown)	Least Concern
	Steno bredanensis (Rough-toothed dolphin)	Unknown	Unlikely (unknown)	Least Concern
	Orcinus orca (Killer whale)	Shelf and offshore	Occasional (year-round)	Data Deficient

Marine Mammal hearing group	Species	Shelf/Offshore	Likely encounter frequency in 6C (seasonality)	IUCN Red List status
	Pseudorca crassidens (False killer whale)	Shelf and offshore	Monthly (year-round)	Near Threatened
	Feresa attenuata (Pygmy killer whale)	Offshore	Occasional (unknown)	Least Concern
	Grampus griseus (Risso's dolphin)	Shelf edge and offshore	Occasional (unknown)	Least Concern
	Kogia breviceps (Pygmy sperm whale)	Shelf edge and offshore	Occasional (year-round)	Data Deficient
	K. sima (Dwarf sperm whale)	Shelf edge	Unlikely (unknown)	Data Deficient
	Physeter macrocephalus (Sperm whale)	Shelf edge and offshore	Occasional (year-round)	Vulnerable
	Ziphius cavirostris (Cuvier's beaked whale)	Offshore	Occasional (year-round)	Data Deficient
	Beradius arnouxii (Arnoux's beaked whale)	Offshore	Occasional (year-round)	Data Deficient
	Hyperoodon planifrons (Southern bottlenose beaked whale)	Offshore	Occasional (year-round)	Least Concern
	Mesoplodon layardii (Layard's beaked whale)	Offshore	Occasional (year-round)	Data Deficient
	M. mirus (True's beaked whale)	Offshore	Unlikely (year-round)	Data Deficient
	M. grayi (Gray's beaked whale)	Offshore	Occasional (year-round)	Data Deficient
	M. densirostris (Blainville's beaked whale)	Offshore	Unlikely (year-round)	Data Deficient
Phocid carnivores in water (PCW)	*Mirounga leonine* (Southern elephant seal)	Shelf and offshore	Unlikely (unknown)	Least Concern
	Hydrurga leptonyx (Leopard seal)	Shelf and offshore	Unlikely (unknown)	Least Concern
Other marine carnivores in water (OCW)	*Arctocephalus pusillus pusillus* (Cape fur seal)	Shelf	Daily (year-round)	Least Concern

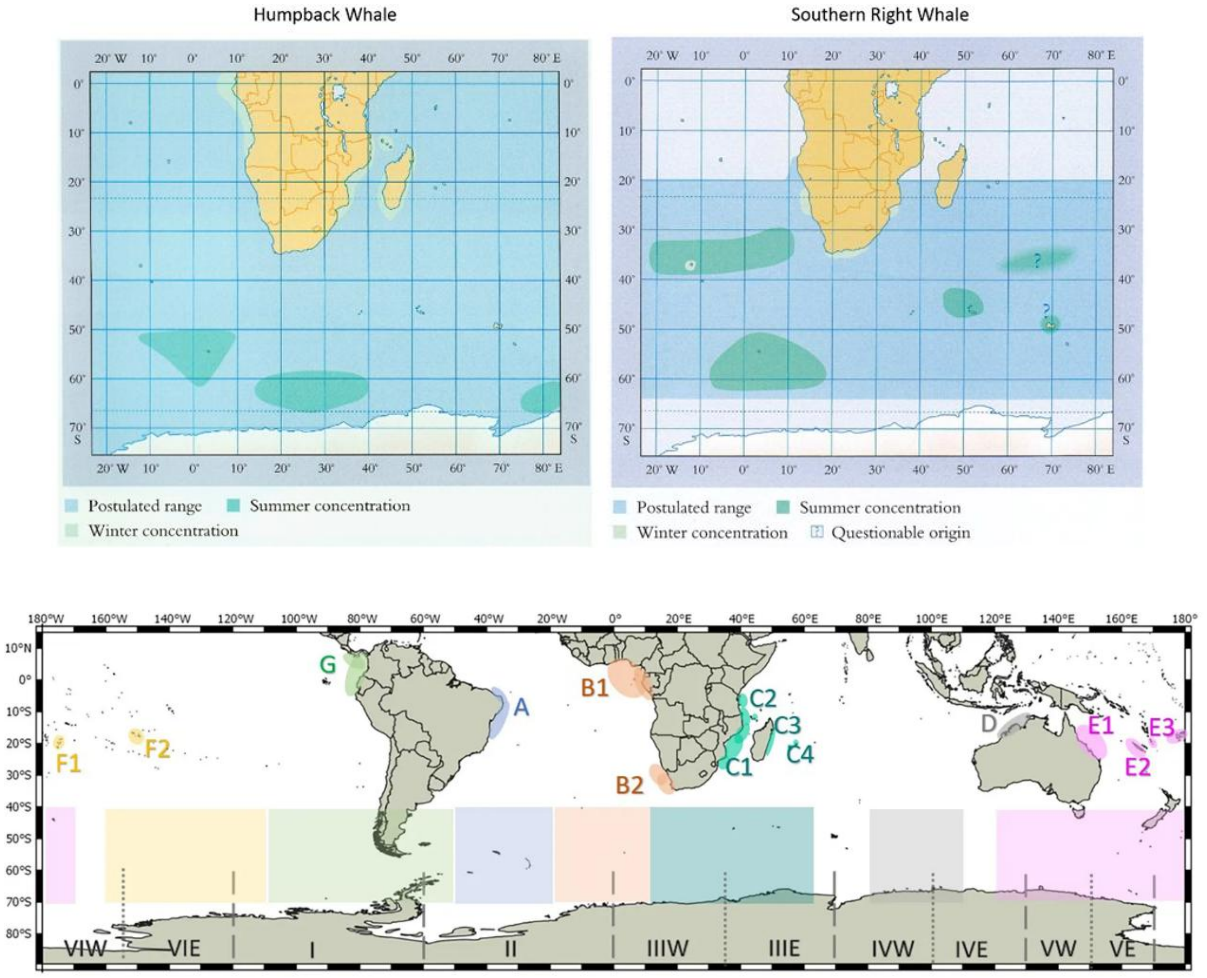

Figure 6.5. Migration routes are inferred from the seasonal distribution of humpback (top left) and southern right (top right) whales off the coast of southern Africa. Source: Best (2007). (Bottom) Distribution of the core breeding and primary feeding grounds of the Southern Hemisphere humpback whale (Breeding Stocks A – G, and Southern Ocean Management Areas I – VI and sub-areas) B2 = breeding grounds near Namibia and West Coast South Africa (Seyboth et al. 2023).

6.1.4 Sensitivity and significance of the system

Ecosystem Threat Status

The 2025 National Biodiversity Assessment (NBA) for marine benthic and coastal habitat threat status layer is shown in Figure 6.6 for Concession Area 6C. This Ecosystem Threat Status developed by SANBI is an indicator of how threatened ecosystems are, specifically the degree to which ecosystems are still intact or alternatively losing vital aspects of their structure, function or composition (Sink et al. 2025). Ecosystem types are categorised as “Critically Endangered”, “Endangered”, “Vulnerable”, “Near Threatened” or “Least Concern”, based on the proportion of the original extent of each ecosystem type that remains in good ecological condition relative to a series of biodiversity thresholds. According to the latest available data from the 2025 NBA, the entire area covered by Concession Area 6C is classified as “Least Concern” (Figure 6.6).

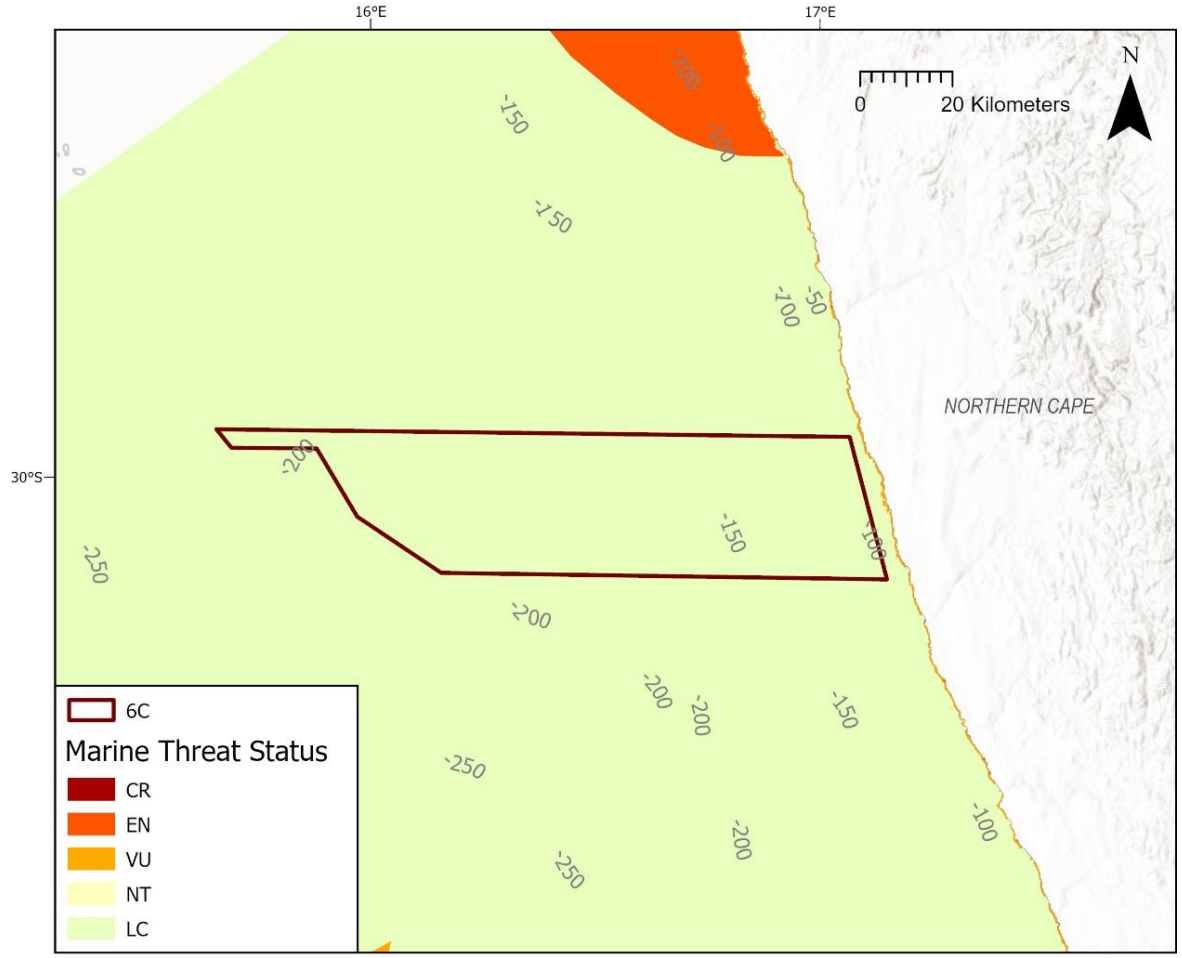

Figure 6.6 Marine Ecosystem Threat Status of the broader marine region surrounding and including Concession Area 6C.

Conservation designations

The 6C Concession Area does not overlap with any National Marine Protected Areas (MPAs), with the Namaqua Fossil Forest MPA found ~30 km north of the concession area and the Namaqua MPA ~50 km southeast. The area also does not overlap with any designated Ecological and Biologically Significant Areas (EBSA) (Figure 6.7).

Critical Biodiversity Areas (CBAs) are spatially identified areas required to meet biodiversity targets and safeguard ecological processes, as determined through systematic biodiversity planning and spatial prioritisation. In the marine environment, these typically include areas important for key habitats, species distributions, ecological connectivity, and ecosystem functioning. CBAs are used in South Africa as decision-support tools to guide sustainable development and biodiversity conservation. They have been developed through national-scale biodiversity planning processes, however their incorporation into regulatory and decision-making frameworks alignment with marine spatial planning instruments, and consistent application within ESIA processes are still developing in practice. A range of sea-use activities and recommendations as to their permissibility, subject to compatibility with different Critical Biodiversity Areas, is presented in Harris et al. (2022), the Draft Marine Biodiversity Sector Plan (DFFE 2023) and the Proposed Approach to Spatial Development and Management for South Africa's Marine Planning Areas 2019.

There are two categories of CBA, namely 'CBA Natural' areas and 'CBA Restore' areas. CBA Natural sites have natural/near-natural ecological condition, with the management objective of maintaining the sites in that natural/near-natural state. CBA Restore sites have moderately modified or poorer ecological condition, with the management objective to improve ecological condition and, in the long term, restore these sites to a natural/near-natural state, or as close to that state as possible. As a minimum in CBA Restore sites, further deterioration in ecological condition must be avoided, and options for future restoration must be maintained. The Ecological Support Areas (ESAs) include all portions of EBSAs that are not already within MPAs or CBAs, and a 5 km buffer area around all MPAs (where these areas are not already CBAs or ESAs). Within ESAs, negative impacts of human activities on key biodiversity features are managed and minimised to maintain the features in at least a functional, semi-natural state and/or to allow the area to improve in ecological condition. Around 9% (320 km^2 approximately) of 6C is classified as a CBA Natural area (Figure 6.7).

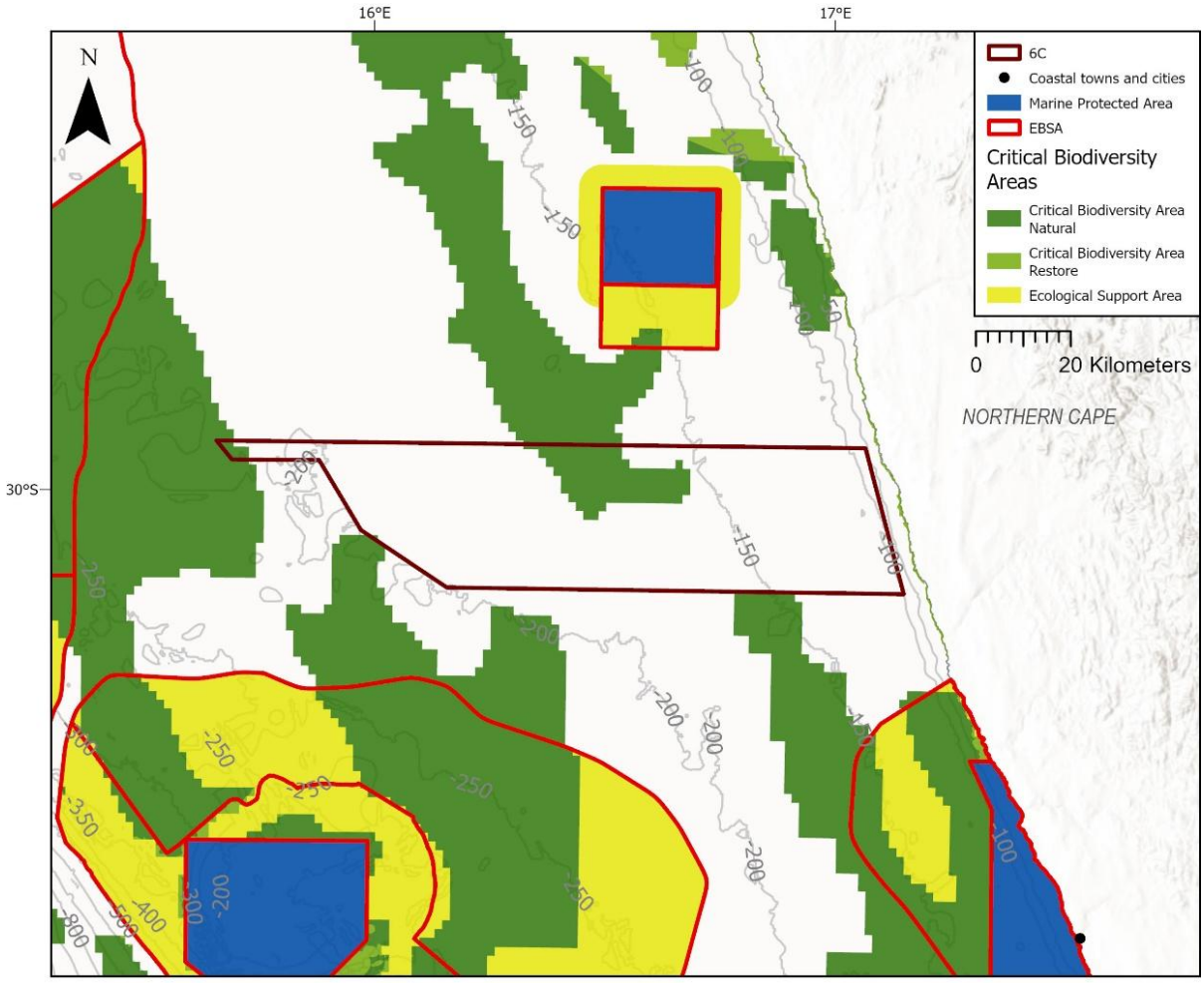

Figure 6.7 CBA, MPA and EBSA designations within the marine areas surrounding Concession Area 6C.

The CBAs of highest priority are CBA Natural areas. Mining prospecting (non-destructive) activities (including acoustic surveys, geotechnical sampling), are restricted within all CBA delineations, and so, as far as possible, prospecting activities in these areas should be avoided. Activities with restricted compatibility require a detailed assessment to determine whether the recommendation is that they should be permitted (general), permitted subject to additional

regulations (consent), or prohibited, depending on a variety of factors. This assessment is undertaken in Section 7. Management recommendations and regulations for these activities need to consider the context in which the activities take place or are proposed to take place. It is also critical to take cumulative impacts into account, which may have implications for the intensity, extent or even the presence of activities, especially new or expanding activities in a biodiversity priority area (Harris et al. 2022).

There is a degree of misalignment between permitting prospecting activities and prohibiting mining within CBA Natural areas. As such, the suitability of allowing prospecting in these areas should be re-evaluated in the context of its potential to enable or support future mining activities and the associated cumulative impacts on biodiversity priorities.

6.1.5 Socio-economic and cultural context and character

To assess the potential socio-economic impacts of the proposed prospecting operations it is important to understand the socio-economic context in which the proposed project is to be developed and its potential area of impact. To this end, the Specialist provided a description of the socio-economic context at a district and local scale. The proposed prospecting activity falls offshore of the Namaqua District Municipality and local Kamiesberg Municipality. The closest community to the offshore prospecting activity is the small town of Koingnaas. This section provides information about the demographic profile, general employment trends and sectoral contributions.

Namakwa District Municipality

The Namakwa District Municipality is located in the north-western part of the Northern Cape Province and encompasses a vast, sparsely populated region characterised by arid landscapes, small settlements, and dispersed rural communities. It is comprised of six local municipalities namely, Kamiesberg, Nama Khoi, Hantam, Khai-Ma, Karoo Hoogland and Richtersveld. The Namakwa District Municipality is the largest district municipality in the province, making up over a third of its geographical area. It covers around 126,836 km2 and has a total population of just 148,935 inhabitants and around 33,947 households (Namakwa District Municipality 2025). . The district's economy is traditionally based on mining, agriculture, fishing and nature-based tourism, with mining historically playing a significant role in regional economic development and employment generation.

There has been a relatively slow population growth between 1996 and 2016, followed by a marked increase between 2016 and 2022. The population declined slightly from approximately 110,000 in 1996 to 108,000 in 2001, before increasing to around 116,000 in 2011 and remaining largely stable through 2016. Between 2016 and 2022, however, the population grew substantially to approximately 149,000, representing the most significant period of growth over the observed timeframe. Overall, the trend reflects moderate long-term population growth, driven primarily by the sharp increase recorded between 2016 and 2022.

Most of the population in the Namakwa District Municipality identifies as Coloured (85.5%), followed by White (7.5%) and Black African (5.9%). There is a balanced gender distribution in the Namakwa District with 49.1% of the population being Male. The population of the district exhibits a youthful age structure, with the largest proportion of the population concentrated in the younger age cohorts (0–34 years) and a gradual decline in population size with increasing age, indicating relatively high historical birth rates and a comparatively small elderly population. The distribution between males and females is broadly balanced across most age groups, although

females slightly outnumber males in the older age cohorts, reflecting higher female life expectancy (Namakwa District Municipality 2025). Most of the population are Afrikaans speaking (93.9%), with a small proportion speaking Setswana (1.7%), isiXhosa (1.6%) and English (1.2%).

The educational profile of the Namakwa District population indicates relatively low levels of educational attainment, with the largest proportion of residents (44.9%) having attended some secondary school but not completed Grade 12 (Namakwa District Municipality 2025). A further 26.2% have completed Grade 12 (Matric), while only 6.2% have attained higher education qualifications. Smaller proportions of the population have completed primary school (8.5%), attended some primary school (10.3%), or received no formal schooling (3.1%). Overall, the data suggest that while access to basic and secondary education is widespread, a relatively small share of the population has progressed to tertiary-level education. The overall functional literacy rate in Namakwa District stands at 62.27% (Namakwa District Municipality 2025).

The number of people in poverty in the Namakwa District increased from 48,500 in 2010 to 60,800 in 2020, which is a 25.4% increase (Northern Cape Provincial Government 2021). The region also saw an increase in its Gini coefficient from 0.548 in 2010 to 0.582 in 2020, which shows an increased level of income inequality, with most of this change occurring within the Coloured population. Despite this increase in the number of impoverished people and income inequality, the Human Development Index (HDI) for the district, which is an indicator of average quality of life, determined by combining statistics such as schooling, average life expectancy, and standard of living, increased from 0.61 in 2010, to 0.73 in 2020 (Northern Cape Provincial Government 2021).

The Namakwa District Municipality contributes approximately 10.1% to the Northern Cape Province's Gross Domestic Product (GDP; Namakwa District Municipality 2025). While it is the largest district geographically, its economic share is smaller than other districts in the province due to its low population density and reliance on specialized sectors. The economy of the Namakwa District is strongly influenced by the mining sector, which is the largest contributor to employment and economic activity, accounting for approximately 39.8% of the economically active population (Figure 6.8). Community services represent the second-largest sector (18.0%), reflecting the importance of government and public service employment in the district. Agriculture and fishing contribute 11.7% of employment, highlighting the continued significance of fisheries, livestock farming and other agricultural activities in the region. Trade (10.1%) and finance (9.3%) also make notable contributions to the local economy, while transport accounts for 5.9% of employment. Smaller proportions of the workforce are employed in manufacturing (2.1%), construction (1.5%) and electricity-related activities (1.5%). Overall, the district's economy is characterised by a strong dependence on mining, supported by public sector employment, agriculture and service-based industries.

Along the coast, communities such as Port Nolloth, Hondeklipbaai, Kleinzee and Koingnaas have historically been closely associated with the diamond mining industry. While mining remains an important economic sector, declining mineral production in some areas has contributed to economic challenges, including high unemployment levels and limited opportunities for economic diversification. The total number of equivalent full-time jobs in Namakwa District in 2022 was 16,049 and the unemployment rate was 28% (Namakwa District Municipality 2025). Small-scale commercial fishing and marine-related activities continue to support livelihoods in several coastal communities, while nature-based tourism associated with the Namaqualand coastline and seasonal wildflower displays within the Namaqua National Park contributes to local economic activity.

The district has a relatively small population distributed across a large geographic area, resulting in limited access to services and infrastructure in some communities. Socio-economic challenges include unemployment, poverty, skills shortages and out-migration of younger residents seeking employment opportunities elsewhere. Despite these challenges, the region's coastal and marine resources remain important contributors to local livelihoods, cultural identity and future economic development opportunities.

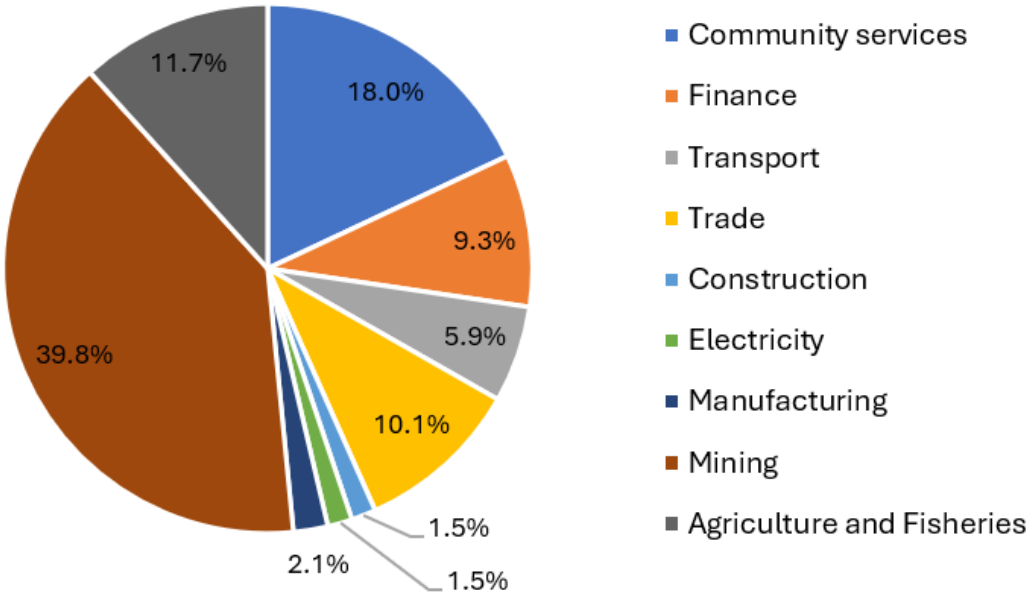

Figure 6.8. The main economic sectors in the Namakwa District Municipality. Source: Namakwa District Municipality (2025).

Kamiesberg Municipality

The Kamiesberg Local Municipality is situated on the south-west coast of the Northern Cape and borders the Western Cape Province to the south, the Nama Khoi Municipality in the north, the Khâi-Ma Municipality to the north-east, the Hantam Municipality to the south-east, and the Atlantic Ocean to the west. The Kamiesberg Local Municipality consists of three main geographical regions, the sandy coastal lowlands, the mountainous central Kamiesberg escarpment, and the eastern plateau known as Bushmanland (Kamiesberg Local Municipality 2025a). The Kamiesberg Local Municipality consists of several small, sparsely populated rural towns and settlements, including Garies, Kamieskroon, Leliefontein, Hondeklipbaai and Koingnaas, that serve as local service centres for the surrounding agricultural and mining communities.

The Kamiesberg Local Municipality has a population of 15,130 people residing in 3,576 households across an area of approximately 11,742 km^2. This reflects a low population density of just over one person per square kilometre, characteristic of the municipality's predominantly rural and sparsely populated nature. The population is distributed across several small towns and settlements, with Garies serving as the administrative centre. The demographic profile is dominated by the Coloured population group, which comprises 85.6% of the total population.

The gender distribution within the municipality is relatively balanced, with males comprising 50.4% of the population and females 49.6%. This near-equal distribution suggests the absence of significant gender-based migration patterns that are often associated with major urban centres. Afrikaans is overwhelmingly the dominant first language, spoken by 96.4% of residents, highlighting the municipality's strong linguistic and cultural homogeneity. IsiXhosa is the second most common home language, spoken by 1.4% of the population, while English accounts for only 0.2%. The municipality has a dependency ratio of 57.9%, higher than the district ratio, indicating that there are approximately 58 dependants (children and elderly persons) for every 100 working-age individuals. This relatively high dependency ratio places additional pressure on economically active residents and underscores the importance of employment opportunities, social support systems and public services within the municipality. The functional literacy rate in Kamiesberg Local Municipality is below the district average and sits at 60% (Namakwa District Municipality 2025).

The Kamiesberg Local Municipality contributes roughly R764 million (or around 8%) to the total Namakwa District Municipality GDP (Namakwa District Municipality 2025). This makes it the smallest municipal contributor to the district's economy. According to census data, the largest employment sectors within the municipality were mining and quarrying (21.5%), government services (19.4%), community, social and personal services (18.1%), wholesale and retail trade, catering and accommodation (14.3%), and agriculture, forestry and fisheries (10.0%). Economic activities vary considerably across the municipality, with agriculture dominating the rural areas, fishing and tourism playing a significant role in Hondeklipbaai, and government, commercial and service-sector employment concentrated in the larger towns and settlements (Kamiesberg Local Municipality 2025a).

Tourism is an important contributor to the local economy of the Kamiesberg Local Municipality, although the sector is highly seasonal and largely driven by the annual wildflower season, which attracts visitors between August and October (Figure 6.9). The municipality is internationally recognised for its exceptional floral diversity, containing approximately one-third of the world's succulent flora species, nearly 40% of which are endemic to the region (Kamiesberg Local Municipality 2025b). The coastal settlement of Hondeklipbaai contributes a smaller but important marine tourism component to the local economy through its fishing heritage, recreational activities and holiday accommodation offerings.

Agriculture in the region is dominated by livestock farming, particularly the rearing of sheep and goats, which account for 56.9% of agricultural households, while poultry farming represents a further 25.4% (Stats SA 2011). The municipality has no perennial rivers and is therefore entirely dependent on groundwater resources, which are accessed through boreholes, windmills and natural springs (Kamiesberg Local Municipality 2025b a). These arid environmental conditions and limited water availability constrain opportunities for crop production and make extensive livestock farming the most viable agricultural activity. However, the sector faces several challenges, including livestock losses due to predation, as well as stock theft, both of which negatively affect farm productivity and profitability.

Figure 6.9. Spring wildflower display within the Kamiesberg Local Municipality, illustrating the region's internationally renowned floral diversity and the seasonal landscape that supports nature-based tourism during the annual Namaqualand flower season. Source: Gaynor, https://tulipsandphoenixes.co.za/

Koingnaas

Koingnaas is a small settlement located within the Kamiesberg Local Municipality of the Namakwa District in the Northern Cape Province. The town lies approximately 11 km east of Concession Area 6C, 5 km inland from the coast, 65 km south of the coastal town of Kleinzee and 20 km north of the coastal town of Hondeklipbaai. Established in 1970 as a company town supporting offshore and coastal diamond mining operations along the Namaqualand coast, the settlement experienced significant population and economic decline following the contraction of illuvial diamond mining and the withdrawal of De Beers from the area. Like several former mining settlements along the Northern Cape coast, Koingnaas has experienced significant depopulation and now functions largely as a remnant mining settlement with limited economic activity (Kamiesberg Local Municipality 2025a).

Over the past two decades the population of Koingnaas has fluctuated in response to mining operations along the Namaqualand coast, with numbers peaking at around 1000 individuals at the height of the De Beers operations. In 2008, De Beers withdrew from the area and the population decreased significantly with people moving to other settlements in search of economic opportunities. Following the purchase of the Koingnaas Mine by West Coast Resources (owned by Trans Hex) in 2011, there was a resurgence of the town. However, the termination of mining activities in 2019 due to low profitability, resulted in another depopulation from the small mining town. According to the 2011 Census[1], Koingnaas had a population of just 107 residents from 62 households (Stats SA 2011). The population is predominantly Afrikaans speaking, with the majority identifying as Coloured (63.8%) and White (31.4%). There were slightly more males (53.8%) than females and most of the population was of working age between 15 and 64 years (83.8%). The elderly (>65 years) made up 4.8% of the population and

[1] While Statistics South Africa's Census 2022 provides the most recent population data available, concerns regarding undercounting and data quality have been widely acknowledged. Consequently, Census 2011 remains the most comprehensive and statistically robust national census dataset for South Africa and is therefore used as an important reference point in this assessment.

children aged 0-14 years made up 11.4%. The entire adult population had received some formal education, with close to 26% having a matric pass.

In 2011, most of the population in Koingnaas earned between R19 601 and R307 600 per year, with around one third earning an income in the category R76 401 and R153 800. There were just three households that did not earn an income. Koingnaas recorded a very low dependency ratio of 19.3 in 2011, which indicates that there were very few people in the town for the working population to support. The population data supports the town's identity primarily as a mining town, through the relatively high level of formal education and annual income, when compared to other coastal towns in the region, such as Hondeklipbaai.

The small town of Koingnaas is located within a restricted access area, where visitors are required to register and present identification at the entrance gate. The town is accessed via a gravel road and has limited services, including two general stores and a library. The local clinic is currently not operational, with residents relying on healthcare services in Hondeklipbaai. There are no schools in Koingnaas, and learners either attend schools in Hondeklipbaai or Kleinzee, or receive home-based education. Situated within the ecologically significant Namaqualand coastal region, the town forms part of a broader landscape characterised by low population densities, a strong mining heritage, and emerging opportunities associated with nature-based tourism, conservation and coastal resource management.

Employment opportunities in Koingnaas vary from residual mining opportunities, environmental rehabilitation work related to mining activities, and the services industry (e.g., shops and supplies) for the local community. The old coastal diamond diving village of Noup, located approximately 10.4 km north-west of Koingnaas, has been converted to accommodation for tourists to the area, and there is also a campsite located approximately 5.7 km north of Noup. However, since Koingnaas is not located adjacent to the coast, opportunities to diversity into tourism, fishing or mariculture-based activities are relatively limited.

Summary

In summary, the socio-economic environment of the Namakwa District and Kamiesberg Local Municipality is characterised by a small, dispersed population, a strong reliance on primary industries, and a limited but important tourism sector. Mining, agriculture, fishing and government services remain the key drivers of economic activity and employment, while the region continues to face challenges associated with unemployment, poverty, skills shortages and limited economic diversification. The coastal settlements of the region, including Koingnaas, have historically been closely linked to the mining sector and continue to exhibit the socio-economic legacy of fluctuating mining activity. Koingnaas itself is a small, remote settlement with a declining population, limited services and relatively few economic opportunities outside of mining-related activities.

Given the offshore location of the proposed prospecting activities, approximately 11 km from the nearest settlement, direct interactions with local communities and existing land-based economic activities are expected to be limited. The socio-economic baseline nevertheless highlights the importance of considering the potential effects of the project on existing marine-based industries, employment opportunities and broader regional development objectives, particularly within a region where economic opportunities remain constrained and natural resources continue to play an important role in supporting local livelihoods.

6.1.6 Heritage Context: Maritime Heritage Resources, including submerged prehistoric archaeological, maritime archaeological and palaeontological resources

The underwater cultural heritage of South Africa is rich in historical shipwrecks, shell middens and tidal fish traps reflecting a long history of human exploitation of marine resources. Evidence related to pre-colonial submerged archaeological sites is scarce, although based on the terrestrial archaeology of the West Coast and similar offshore sites offshore globally, there is potential for pre-colonial submerged archaeological sites around the West Coast. South Africa's maritime heritage remains mostly unexplored, although it is known to have a diverse underwater cultural heritage with at least 2,500 shipwrecks reported since the 1500s.

Seabed Geology and Palaeontology

Concession Area 6C is characterised by a relatively steep inner continental shelf that transitions seawards to the gently sloping middle and outer shelf (Figure 6.10). The inner shelf bedrock is comprised of Precambrian basement gneisses and metasediments of the Namaqualand Metamorphic Province (1200–800 Ma), which are not of palaeontological concern. Offshore, the hard seabed geology becomes progressively younger seawards, reflecting sediment accumulation following the breakup of Gondwana (130–120 Ma). Cretaceous and Paleogene strata form most of the continental shelf and are overlain by Miocene and Pliocene deposits. The eroded surfaces of the inner-shelf bedrock and the offshore Cretaceous, Paleogene and Miocene formations are the bottom or "footwall" to overlying, much younger Quaternary to present-day deposits shown in Figure 6.11. These bedrock units are, in turn, overlain by a veneer of Quaternary to modern sediments, which become substantially thicker at the break between the inner and middle shelf, forming the regional Mudbelt (Figure 6.10 and Figure 6.11). The Mudbelt comprises coarse sediments deposited during periods of low sea level, overlain by thick terrigenous muds derived primarily from the Orange/Gariep River and transported southwards by the Benguela Undercurrent since sea levels stabilised approximately 11 ka. Within Concession Area 6C, the Mudbelt thins southwards but occupies much of the shallow portion of the concession, where these muds form the present-day seabed (Figure 6.11)

The shallow half of Concession Area 6C is predominantly covered by a Quaternary veneer of terrigenous (land-derived) sands and silts, including an extensive glauconite-rich area—known as "greensand" due to the colour of its sand grains (Figure 6.12). Glauconite is an iron-rich mineral that forms in marine sediments by infilling pore spaces and has been derived through the erosion and reworking of older shelf formations, such as the underlying Paleogene formations. Further offshore, seabed sediments are dominated by calcareous, sand-sized shells of microfossil foraminifera that have settled from the water column. The coarse-scale sediment thicknesses shows an offshore Quaternary sediment body, corresponding to the lowstand deposit shown in Figure 6.12, which was deposited primarily during the Last Ice Age when sea level was about -125 m below sea level.

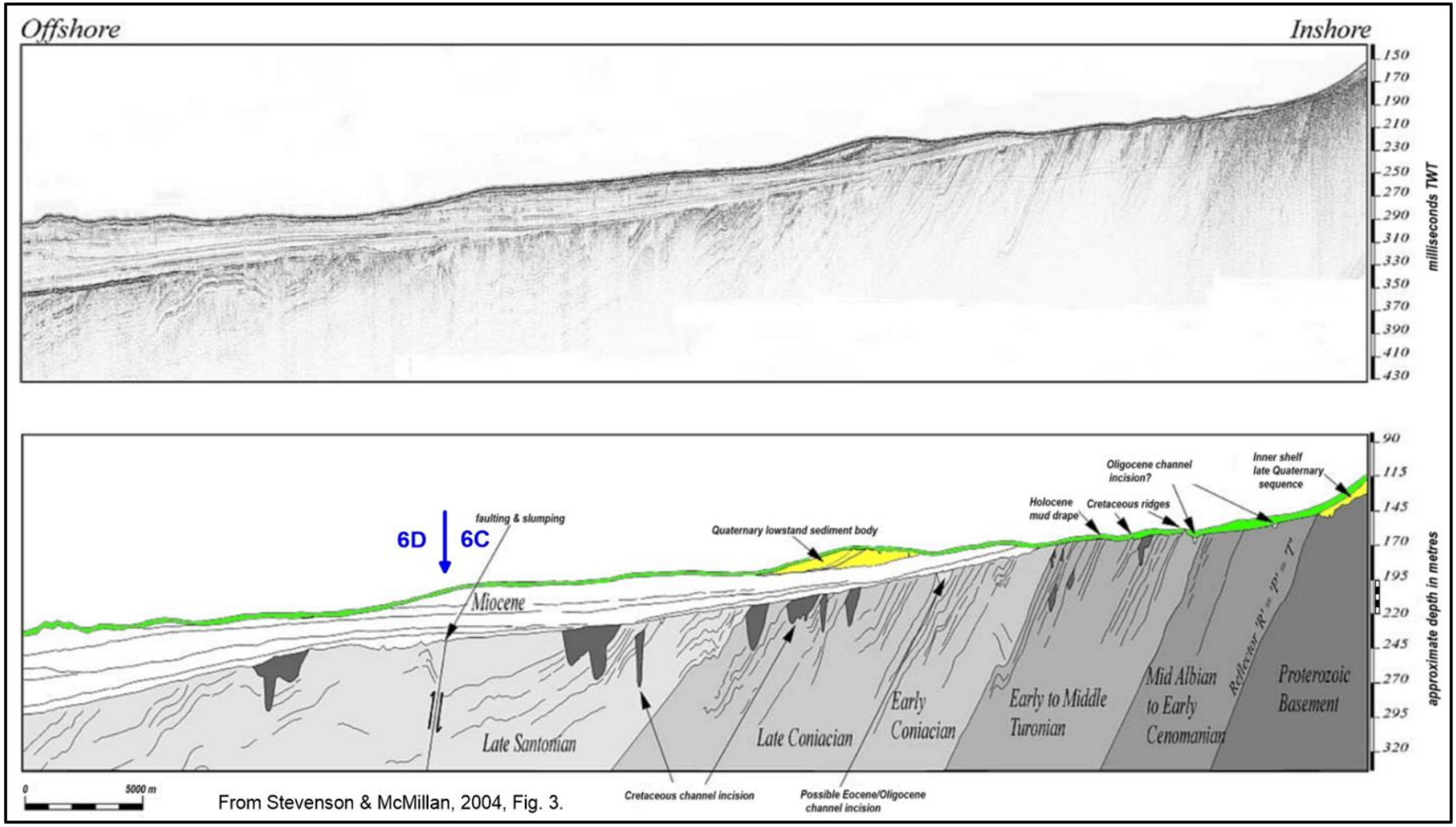

Figure 6.10. Regional onshore and offshore geological setting of Concession Area 6C(Pether 2026).

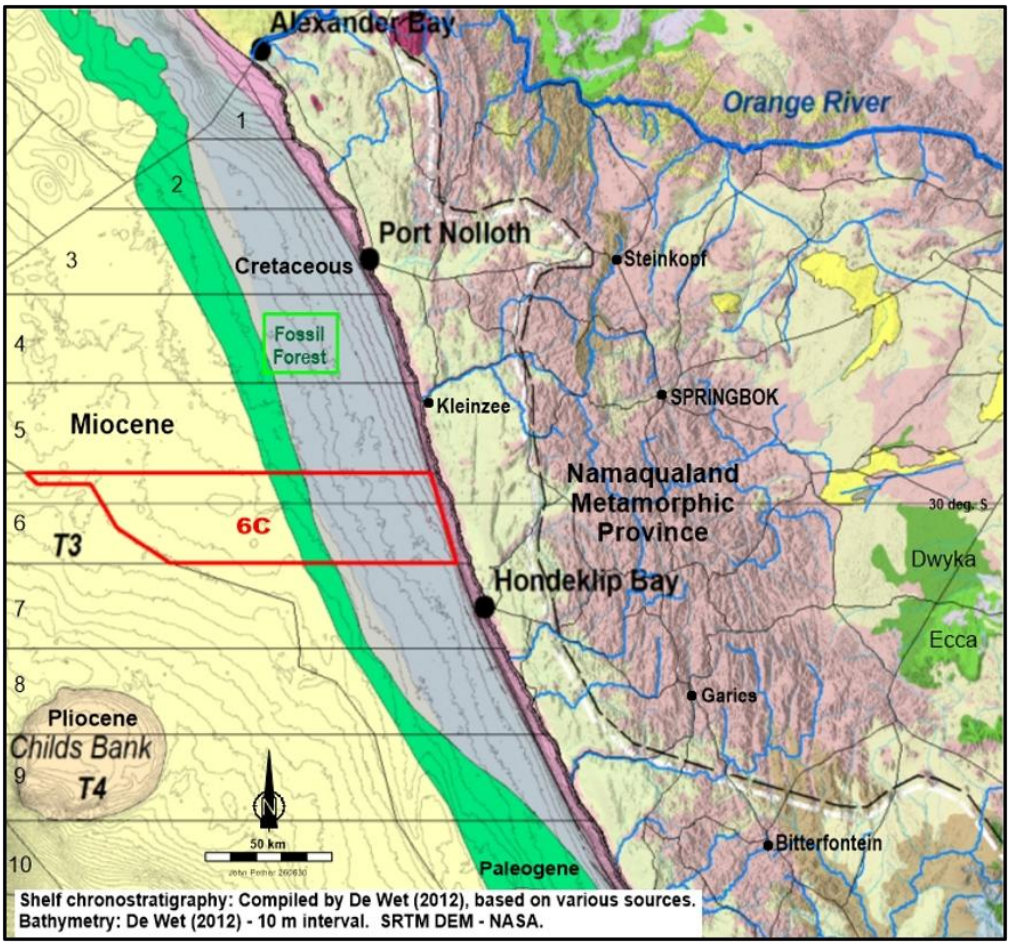

Figure 6.11. Regional onshore and offshore geological setting of Concession Area 6C (Pether 2026).

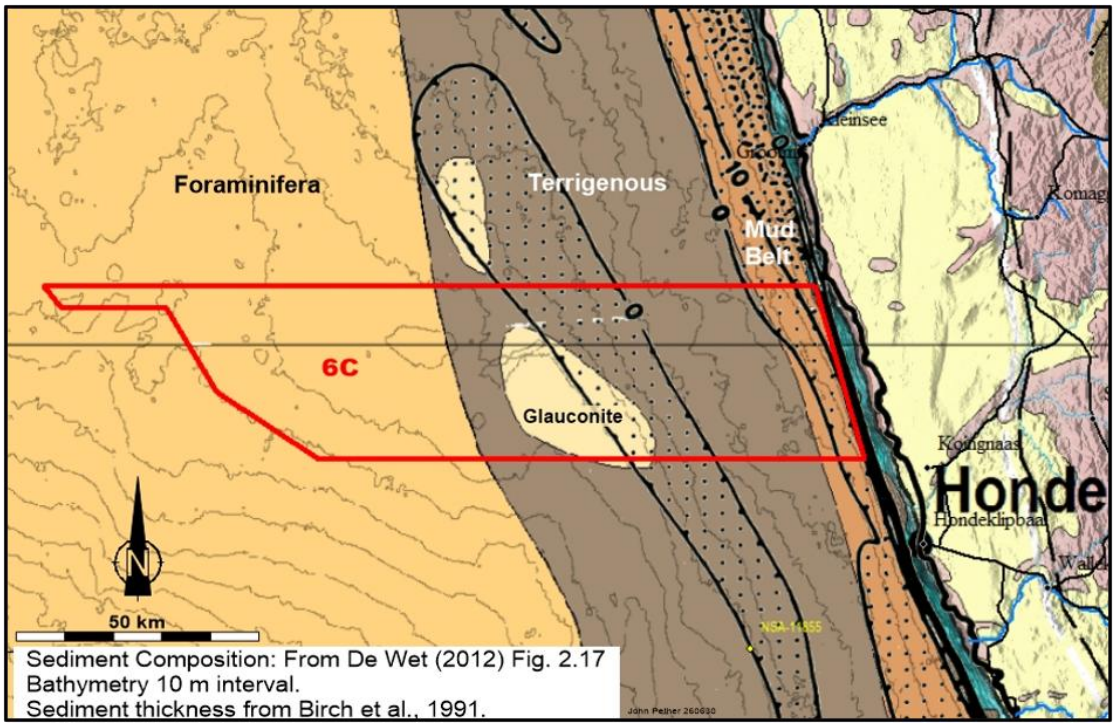

Figure 6.12: Surficial sediment compositions and Quaternary sediment thickness (Pether 2026).

Quaternary Deposits

Within Concession Area 6C, Quaternary sediments are dominated by the Holocene Mudbelt, which primarily overlies the Albian–Cenomanian bedrock of the middle continental shelf. The Mudbelt reaches its greatest thickness (exceeding 18 m) in the northeastern portion of the concession area, where the presence of shallow gas obscures deeper seismic reflections. Sediment-filled depressions also occur within the Precambrian inner shelf and are interpreted as offshore extensions of buried palaeochannels and ancient river valleys associated with the adjacent coastal plain.

The Quaternary stratigraphy of the inshore portion of Concession Area 6C is largely represented by the Last Transgression Sequence (LTS), which was deposited during the post-glacial rise in sea level following the Last Glacial Maximum (approximately 20 000 years ago). As sea level rose, high-energy wave action eroded and reworked older shoreline and dune deposits, leaving behind basal gravel deposits that were subsequently overlain by upward-fining sequences of shelly sands, fine sands, and modern bioturbated muds. In sheltered bedrock depressions, remnants of older Quaternary deposits have been preserved, reflecting multiple glacial and interglacial sea-level cycles and recording alternating marine, coastal, and terrestrial depositional environments.

In deeper offshore areas below the Last Glacial Maximum shoreline, terrestrial deposits are absent because these areas remained continuously submerged. Across much of the middle shelf, Quaternary sediments form only a thin veneer, generally around 0.5 m thick, although thicker accumulations occur where bedrock depressions provided accommodation space for sediments deposited during successive glacial–interglacial cycles.

Submerged Prehistory

The exposed continental shelf was repeatedly populated by terrestrial flora and fauna, and also by our human ancestors who were dependant on these resources (Compton 2011), and for periods numbering in the tens of thousands of years, on at least three occasions during the last 500,000 years, covering the latter part of the Earlier Stone Age (ESA), the MSA, and the early Later Stone Age (LSA), our ancestors inhabited areas of what is now seabed around the South African coast. This means that a large part of the archaeological record of the later Earlier, Middle and early Late Stone Age is located on the continental shelf and is now “inundated and for all practical purposes absent from [that] record” (Van Andel 1989).

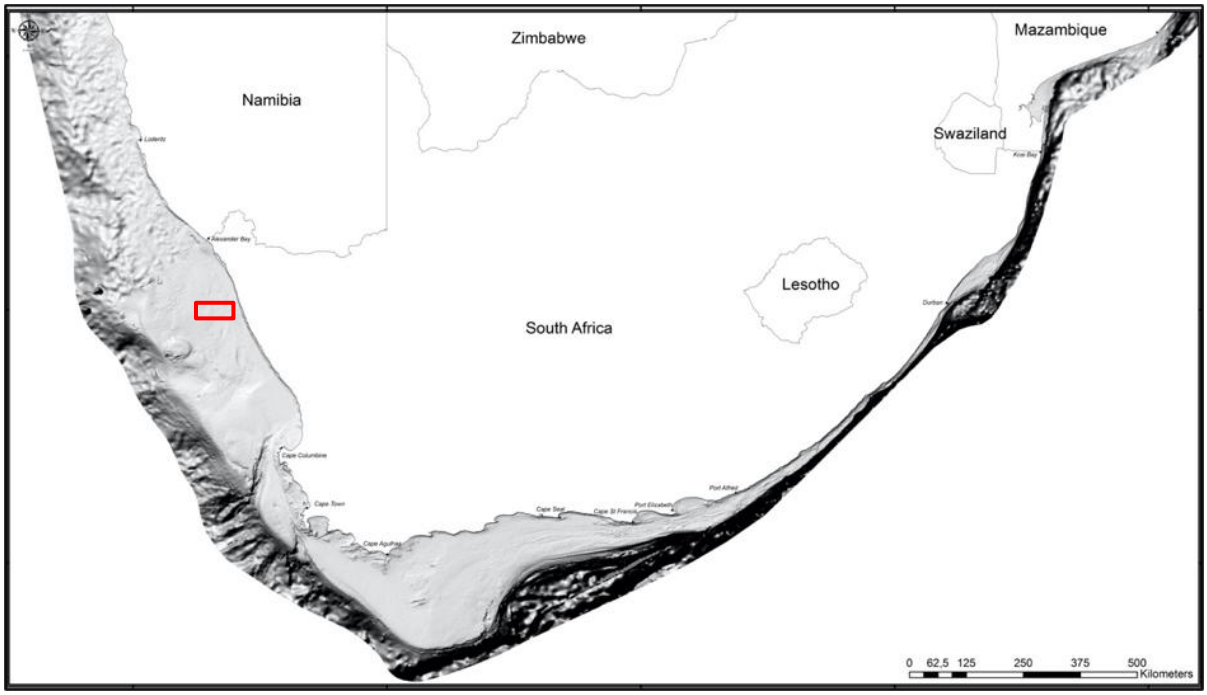

Figure 6.13: Shaded relief map showing the entire extent of the South African continental shelf. The approximate location of Concession Area 6C is marked by the red box, After (De Wet 2013).

There is archaeological evidence for a prehistoric human presence in what is now Table Bay. In 1995 and 1996 during the excavation of two Dutch East India Company shipwrecks, the Oosterland and Waddinxveen, divers recovered three ESA handaxes from the seabed under the wrecks.

The stone tools, which are between 300,000 and 1.4 million years old, were found at a depth of 7-8 m below mean sea level and were associated with Pleistocene sediments from an ancient submerged and infilled river channel. Their unrolled and unworn condition indicate that they had not been carried to their current position by the ancient river and suggests that they were found more or less where they were dropped ESA hominins more than 300,000 years ago (possibly during MIS 8 (~301,000 years ago) or MIS 12 (~478,000 years ago)), when the sea level was at least 10 m lower than it is today (Werz & Flemming 2001; Werz et al. 2014).

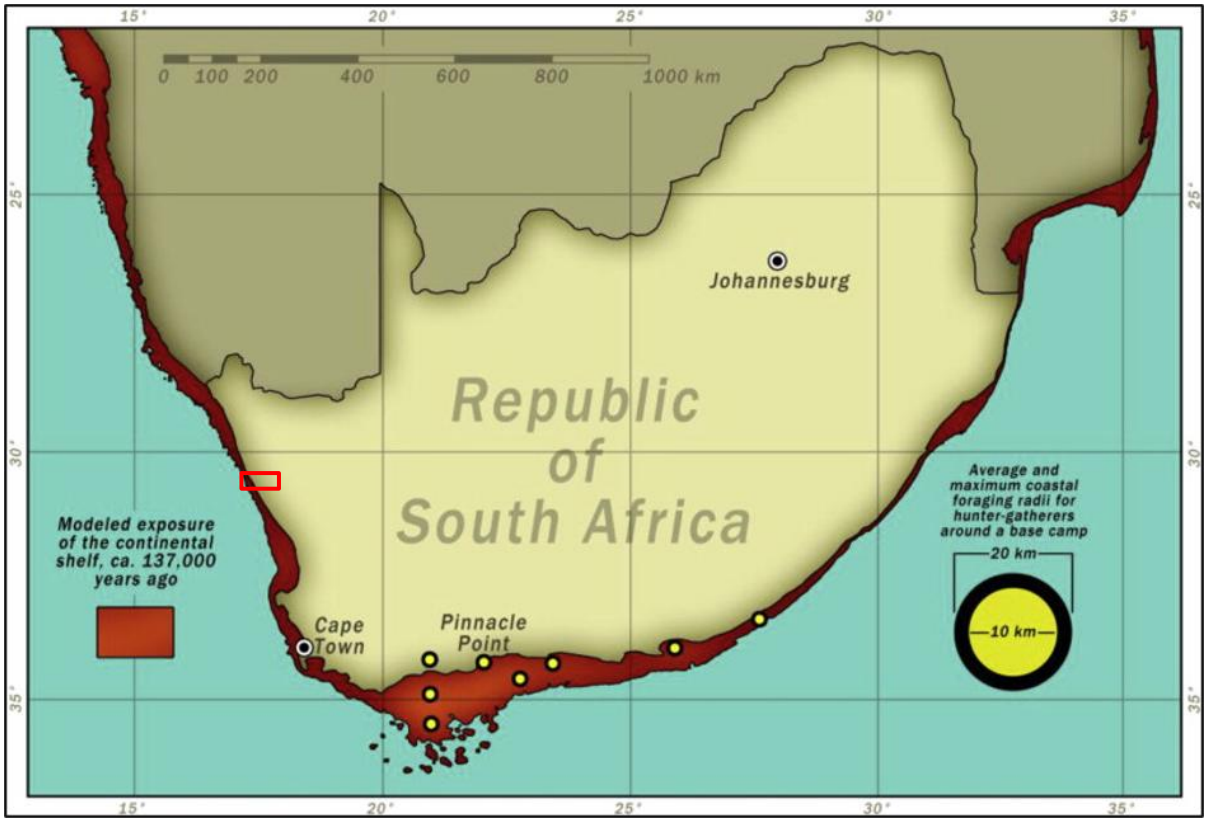

Figure 6.14: Possible extent of the South African continental shelf c.137,000 years ago. The approximate location of Concession Area 6C is marked by the red box (After Franklin et al, 2015)

Submerged Prehistory Potential of Concession Area 6C

There have, to date, been no studies of the submerged prehistory of the West Coast but the terrestrial. archaeological evidence for a hominin presence along the coast in the vicinity of the study area during the ESA, MSA and LSA is plentiful.

Diepkloof Rock Shelter, inland of Elands Bay and south of the concession area, for example, contains evidence of a nearly continuous human occupation for nearly 85,000 years (see Parkington et al. 2013; Texier et al. 2010) while Elands Bay Cave, on the coast at the mouth of the Verloren Vlei, preserves archaeological evidence of the Pleistocene / Holocene transition during the LSA (Mitchell et al. 1998)

Further south at Hoedjiespunt in Saldanha Bay, four hominid teeth, four or five small fragments of cranium, and two postcranial bones from up to two individuals have been found in an ancient hyena lair and are associated with uranium series dates on ostrich eggshell fragments which imply an ESA / MSA age of 130,000 to 180,000 years for these hominids (Berger & Parkington 1995).

Nearby, at Churchaven on the Langbaan Lagoon a set of fossilized human footprints were discovered in an aeolianite slab in 1995. They are thought to be those of a female hominin (hence their nickname “Eve’s footprints”) and have been dated to approximately 117,000 years ago, during the MSA and very close to the start of the last glaciation when sea levels were starting to fall (see http://www.sawestcoast.com/fossileve.html).

LSA coastal shell middens are ubiquitous along the West Coast, as are numerous MSA shell middens; the latter being some of the earliest evidence in the world for the exploitation by our ancestors of marine resources.

Older, ESA lithics are also commonly found along on the West Coast where extensive evidence of an ESA presence in this landscape has been uncovered as a result of mining operations at Tronox Namaqua Sands (David Halkett, ACO Associates, pers. comm.; Orton, 2017). ESA material has also been reported from the Tormin Mineral Sands Operation south of the concession area (Halkett, D. 2023a, 2023b; Halkett, D., & Webley, L. 2016b).

The maximum sea level low stand during the Quaternary, when hominins would have been present in and on the South African landscape, was c. -120 m. Any areas of South Africa's current seabed shallower than c. -120 m thus have the potential to have been used by our ancestors and to preserve the archaeological evidence of that use.

As described by Pether (2026) in the sections above, a relatively small portion of the current seabed of Concession Area 6C would have been exposed as subaerial land surfaces for much of the last 200 000 years: for ~65 000 years during the MIS 6 ice age, and again between the start of the MIS 5a marine incursion at 80 000 years ago and about 9 000 years ago (Figure 6.15).

However, the preservation potential of the Last Regression Sequence (LRS) terrestrial deposits that comprised this exposed landscape is low, as they would have mostly been eroded away and reworked as sea-level rose during the Last Transgression around 9 000 years ago.

Despite this, remnants of LRS deposits are known to occur in deep gullies, in sheltered areas landward of high bedrock ridges and in larger, deeper palaeo-channels, and it is possible that in such areas within Concession Area 6C, in situ archaeological material may survive.

According to Pether (2024), buried river palaeo-channels occur along the entire Namaqualand coast, although they are not shown on the geological maps, being covered by younger deposits. Examples of such channels are known at Kleinzee, directly north of the concession area where seabed sediment mapping by O'Shea (1971) indicates that a channel cut by the palaeo-Buffels River extends offshore to the west of Kleinzee. Further up the coast, "submerged fluvial channels extending seawards from Langklip Bay and between Hondeklip Bay and the Swartlintjies River are clearly indicated by the bathymetry" (Hattingh, 2015:5).

Such channels and their associated sediment bodies have the potential for associated, now submerged, archaeological material and palaeo-environmental evidence and are illustrative of the likely situation with many of the other major rivers that feed into the Atlantic along the West Coast and which have submerged palaeo-channels extending offshore, including the Olifants River to the south. These channels and the mobile sediment they contain are an important target for mineral prospecting.

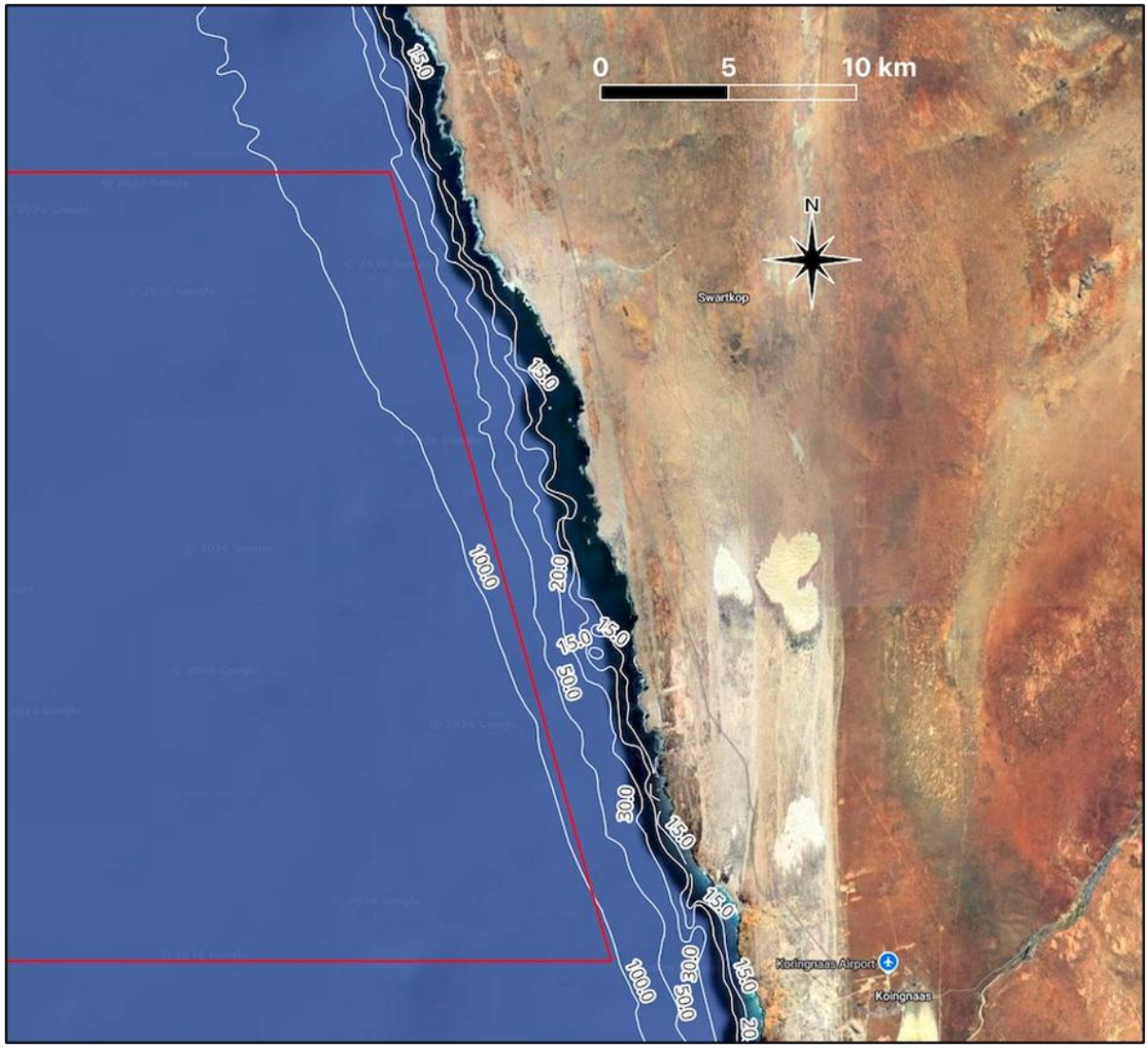

Figure 6.15: Inshore portion of Concession Area 6C (red polygon) showing the -100 m seabed contour. This provides an indication of the portion of the concession area within which there is the potential for submerged pre-colonial archaeological resources. (Source: Google Earth; SANHO).

As demonstrated in Table Bay, there is the potential for the occurrence of ancient, submerged archaeological material in association with palaeo-channels. This may take the form of archaeological artefacts or, where ancient alluvial sediment within these channels has survived post-glacial marine transgressions, there is the potential to recover palaeo-environmental data (pollens, foraminifera and diatoms, for example) which can contribute contextual information to our understanding of the ancient human occupation of South Africa.

Along most of the West Coast, however, as the rising sea during the Last Marine Transgression eroded terrestrial sediments, stone age sites present within such deposits are likely to have been destroyed and their lithic component reworked to form part of seabed gravels.

Ex situ stone age artefacts may thus be present within the surficial seabed sediments within Concession Area 6C, that will be recovered during seabed sampling associated with the prospecting activities.

Maritime Heritage of the West Coast and Concession Area 6C

The maritime history of the West Coast dates to almost the early days of the Dutch settlement in Table Bay. The Dutch settlers were quick to recognise and exploit the rich marine resources of the West Coast and fishing and sealing flourished, with the catches transported down the coast to supply the VOC settlement in Table Bay. This industry led to the development of fishing villages at Saldanha Bay and Lamberts Bay: the former, together with places like Elands Bay, also later becoming ports for the export of grain and other produce from the Swartland and Cederberg (Ingpen 1979).

During the early nineteenth century the West Coast islands became the focus of an international 'white gold' rush to exploit their rich guano resources (Watson 1930; Snyders 2011). The guano was soon depleted but the discovery of copper deposits in Namaqualand and the Richtersveld led to the use of Alexander Bay, Robbe Bay (now Port Nolloth) and Hondeklip Bay as established anchorages by the early 1850s and the development of local, coasting shipping services to support this new industry (The Nautical Magazine and Naval Chronicle 1855: 297-303; Ingpen 1979).

Except for Saldanha Bay, the West Coast historically lacked good harbours and combined with the regular coastal fogs, a largely rocky shoreline and dangerous inset currents this took its toll on shipping over the years.

According to the available sources, there are at least 89 shipping casualties recorded between the Berg and Orange Rivers, many of which were vessels involved in coastal trade and fishing. Two of these maritime casualties are recorded as having taken place inshore of Concession Area 6C while several others are located on the coast to the north and south of the concession area. These wrecks listed in Table 6.4.

Table 6.4: Shipwrecks in the vicinity of Concession Area 6C

Ship Name	Approx Position	Place	Event Type	Vessel Category	Year	Notes
Arosa	-30.0358 S / 17.1622 E	40km south of Kleinsee	Wrecked	Steel Freighter	1976	It was still visible on the rocks in 1987and 1995
Border	-29.9387 S / 17.1245 E	Naganas Point / Elands Klip	Wrecked	Motor Coaster	1947	Lost just south of Port Nolloth in dense fog. No lives were lost.
Wrecks to the north and south of Concession Area 6C						
Aristea	-30.3454 S 17.2783 E/	4.8km south of Hondeklip Bay	Wrecked	Motor Trawler	1945	Wreck visible on beach
Bechuana	-29.7238 S / 17.0540 E	48.3km south of Port Nolloth	Wrecked	Coasting Freighter	1950	The crew got ashore without much difficulty once the vessel had been hurled up on the beach on her side
Dundoon	-29.6963 S / 17.0428 E	3km south of Kleinsee	Wrecked	Wooden trawler	1949	Engine remains at the wreck site
Dunotter	-29.6534 S / 17.0314 E	Approximately 5km north west of Kleinsee	Wrecked	Steel trawler	1950	Parts of her steel hull and her engine are still occasionally visible on the beach below the high water mark

Ship Name	Approx Position	Place	Event Type	Vessel Category	Year	Notes
Luna	-30.3167 S / 17.2704 E	Near Hondeklip Bay	Wrecked	Wooden Steam Coaster	1945	Ran aground in fog and become total loss with all hands.
Natal	-30.3155 S / 17.2708 E	West of Espiegle Bay	Wrecked	Schooner	1852	Wrecked in a south easterly gale. No lives lost.
Piritiny	-29.7105 S / 17.0527 E	Schulp Point, south of Kleinsee	Wrecked	Steel Steamship	1943	Ran ashore in bad weather and broke up
Poseiden Cape	-29.6747 S / 17.0396 E	Rocks off Kleinsee	Wrecked	Diving Maintenance Support Ship	1985	Dragged her anchors while laying moorings. Came ashore and became a total loss.
Runnymede	-29.6079 S / 17.0053 E	Ostara Rock, 45 km south of Port Nolloth	Sank	Steel Coaster	1923	Foundered. Crew reached Port Nolloth in the boats.

The two historical wrecks recorded shoreward of the eastern boundary of the concession area are the Arosa, wrecked in 1976 and the Border, lost in 1947. The wreck of the Arosa is not yet 60 years of age so is not yet protected by the NHRA. The Border, however, is protected.

Historical records indicate that both the Arosa and the Border were wrecked on the coast, and this is confirmed by their remains which are still visible on the beach. Neither wreck is thus within Concession Area 6C, and both have been scoped out of this assessment as potential impact receptors.

The positions of the other wrecks listed in Table 6.4 are all sufficiently well-established or distant from the concession area that they can be ruled out as being present in Concession Area 6C, and they too, have been scoped out of this assessment.

Lastly, it must be stated that although unlikely, the possibility does exist for the remains of currently unknown and unrecorded wrecks to be present in the concession area. The historical records contain many references to vessels that were lost without trace between their points of departure and arrival. Where survivors of such events were subsequently rescued, the loss was recorded, but in many cases, vessels simply never arrived at their destination and could thus lie anywhere along their intended route.

The potential for the occurrence of such unrecorded wrecks was illustrated in 2008 when a 16th century Portuguese wreck, since identified as the Bom Jesus, was unexpectedly found during the diamond mining south of Oranjemund in Namibia (see Alves 2011).

6.2 DESCRIPTION OF THE CURRENT LAND USES AND USER GROUPS

The main users of the sea space in Concession Area 6C are the commercial shipping and fishing industries. The wave exposed and linear nature of the coast and lack of nearby ports suitable for large vessels means that most merchant shipping would travel offshore of the concession area along the continental shelf edge. Most shipping crossing the Concession Area would be fishing vessels and other prospecting or mining vessels. The potential spatial overlap of commercial fisheries with the Concession Area 6C was investigated based on analysis of spatially referenced commercial catch return data obtained from the Department of Forestry, Fisheries and the Environment (DFFE). The large commercial fishing sectors that are active along the west coast (the demersal trawl, demersal hake longline and large pelagic longline fishing sectors) all typically operate well offshore of the 6C Concession Area, while the West Coast rock lobster fishery operates inshore, in water shallower than the concession area (Norman et al. 2018, DFFE 2025). Possible spatial overlap with the commercial linefish and tuna pole fisheries was identified. These fisheries are considered in more detail below.

6.2.1 Tuna pole and line

The South African tuna pole and line (TPL) sector targets longfin tuna *Thunnus alalunga*, yellowfin tuna *T. albacares*, bigeye tuna *T. obesus* and skipjack tuna *Katsuwonus pelamis* seasonally between November and May. Due to the seasonality of the TPL fishery, fishers also have access to snoek *Thyrsites atun* and yellowtail *Seriola lalandi* that are also important targets of the traditional linefishery. The tuna pole fleet consists of approximately 100 vessels ranging from small outboard powered skiboats (7–9 m length) to inboard diesel-powered deck boats (6–25 m length). The reported longfin tuna catch in 2018 was 2 471 tonnes, with a wholesale value of R124 Million, or 1.2% of the total South African commercial fisheries value (Japp & Wilkinson 2021).

The commercial tuna pole fishing grounds lie between Cape Agulhas and the Orange River, but the fleet operates predominantly out of Cape Town and Hout Bay harbours and most fishing effort takes place within 100 nautical miles of these ports (particularly in the Cape Canyon area). Some effort does take place further up the West Coast, although this is mostly far to the south of Concession Area 6C. On average, a small amount of effort (estimated to be 10–50 days) occurs to the south-west of the 6C Concession Area and there is limited overlap with the fishing grounds (Figure 6.16). The TPL fleet also targets snoek inshore of the 100 m depth contour (SLR 2021), which may be more likely to occur within 6C than tuna. Snoek fishing activity within the region is seasonal with all fishing reported within the period April to May inclusive (SLR 2021). Snoek utilizes extensive offshore (150–400 m depth) breeding grounds between the Agulhas Bank and central Namibia with generally random longshore movement (Griffiths 2002). This species is targeted by the commercial linefish and TPL sectors throughout this extensive range usually during inshore movements between offshore spawning and inshore feeding grounds (Hutchings et al. 2002). Due to the minimal overlap between Concession Area 6C and the TPL fishing effort, coupled with the short-term nature of the prospecting activities and small spatial and temporal overlap with snoek fishing activity, impacts on the TPL fleet due are expected to be insignificant.

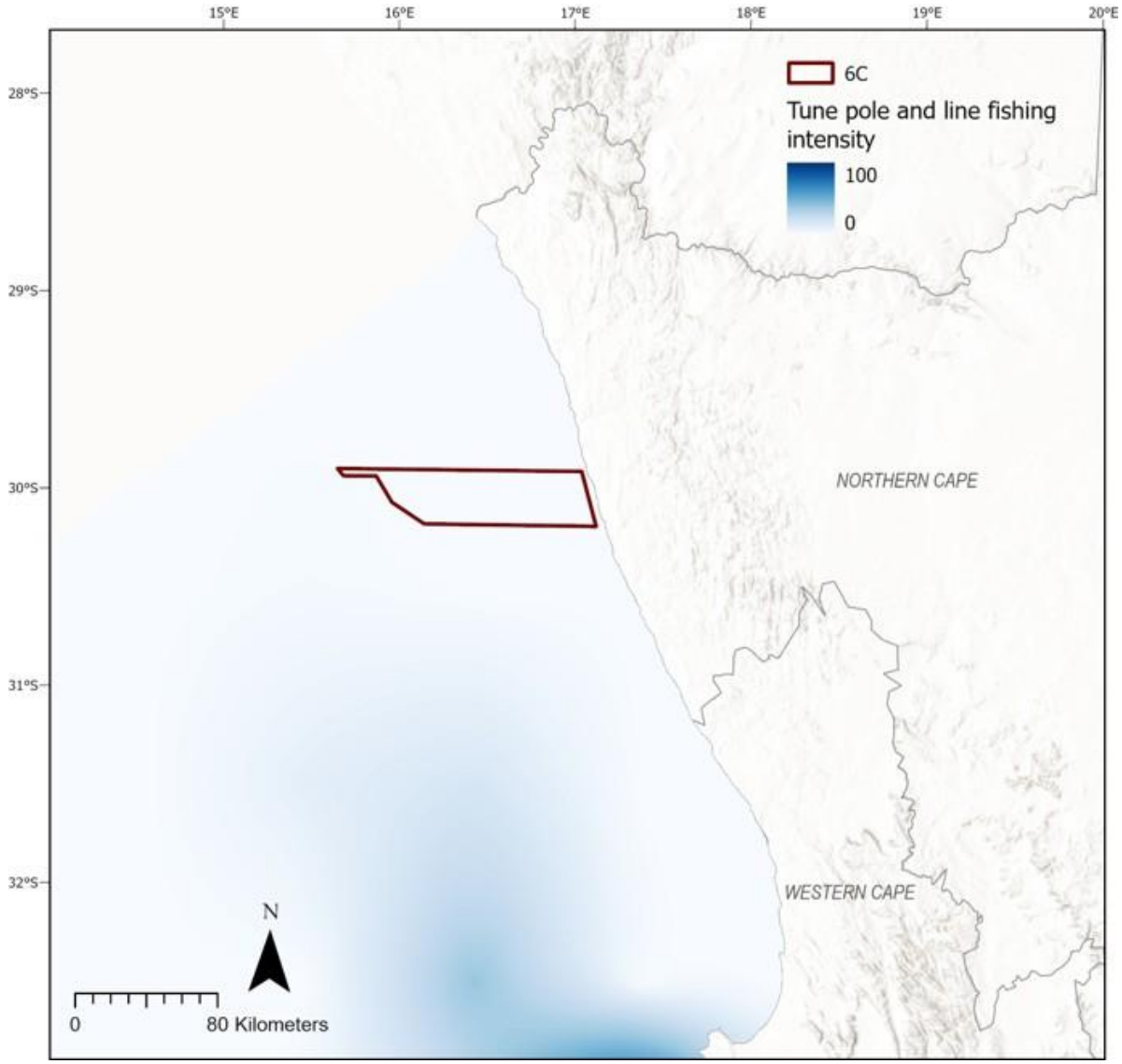

Figure 6.16. Tuna Pole and Line west coast fishing intensity (average annual effort 2010-2019, taken from NBA 2018 (Sink et al. 2019a).

6.2.2 Traditional/commercial linefish

Catching fish with hook and line is amongst the oldest form of fishing in South Africa and can be traced back to the fishing activities of indigenous Khoi and European seafarers in the 1500s. Commercial, recreational and subsistence line fishers target up to 200 different fish species, both from boats and the shore. Commercial line fishing effort peaked in the 1990s with about 3 000 registered boats (only about 700 were active commercially), whilst recreational boat fishing (currently estimated at about 4 000 vessels), shore angling (~1 million participants) and subsistence fishing (largely shore-based with an estimated 25–30 000 participants), continues to grow.

A management framework that included a comprehensive suite of line fish regulations was introduced in 1985, including revised minimum size limits equal to sizes at maturity (when known), daily bag limits, closed seasons, commercial fishing bans for certain species and the capping of the commercial effort at the 1984 level. CPUE data and stock assessments conducted since the mid-1980s have revealed that, with the exception of fast-growing species

such as snoek and yellowtail, most commercially exploited traditional line fishes have been depleted to dangerously low levels. This suggested that the line fish management framework in place at the time was failing to provide adequate protection for line fish stocks. In an effort to rebuild depleted line fish stocks, an environmental emergency in the traditional line fishery was declared in December 2000. In terms of the emergency, the Minister determined that a Total Allowable Effort (TAE) of no more than 450 vessels and 3 450 persons may fish commercially for line fish. Revised bag and size limits for commercial and recreational line fishers were implemented in 2005. The commercial line fishery was split into three regional management zones, restricting the movement of vessels from one region to the next with the long-term rights allocation. Marine protected areas are a key component of line fish management, providing research opportunities in the absence of fishing effects, whilst numerous studies have demonstrated protection of spawner biomass in these areas and potential enhancement of adjacent fisheries through export of adults and juveniles. These measures have been met with some success and improved standardized CPUE trends are apparent for some species. However, the reduction in effort and resource recovery has been somewhat undermined by effort creep (via crew exemptions and interim relief measures), illegal fishing activity and unregulated subsistence fishing in important nursery habitats such as estuaries.

Line fishers operate in shallow water (generally <100 m depth) and would potentially be negatively impacted by coastal and nearshore exploration, prospecting and mining operations (particularly recreational, small scale and subsistence shore fishing). Concession Area 6C is, however, relatively far offshore in water that is mostly deeper than 100m. The area is located offshore of Hondeklipbaai, which has a small traditional linefishing community. Based on spatial analysis, there is no overlap between commercial linefish operations and Concession Area 6C (Figure 6.17). This fact, combined with the low intensity potential impacts, small spatial scale and short duration of the proposed prospecting activities means that negligible impacts on the traditional linefish sector as a whole are anticipated. Small-scale linefishing activity by local Hondeklipbaai fishers that takes place on the inshore edge of the 6C concession is, however, likely very important at the individual vessel, right holder or fisher level and mitigation measures to minimise potential negative impacts on local fishers are provided in the Impact Assessment (Section 7).

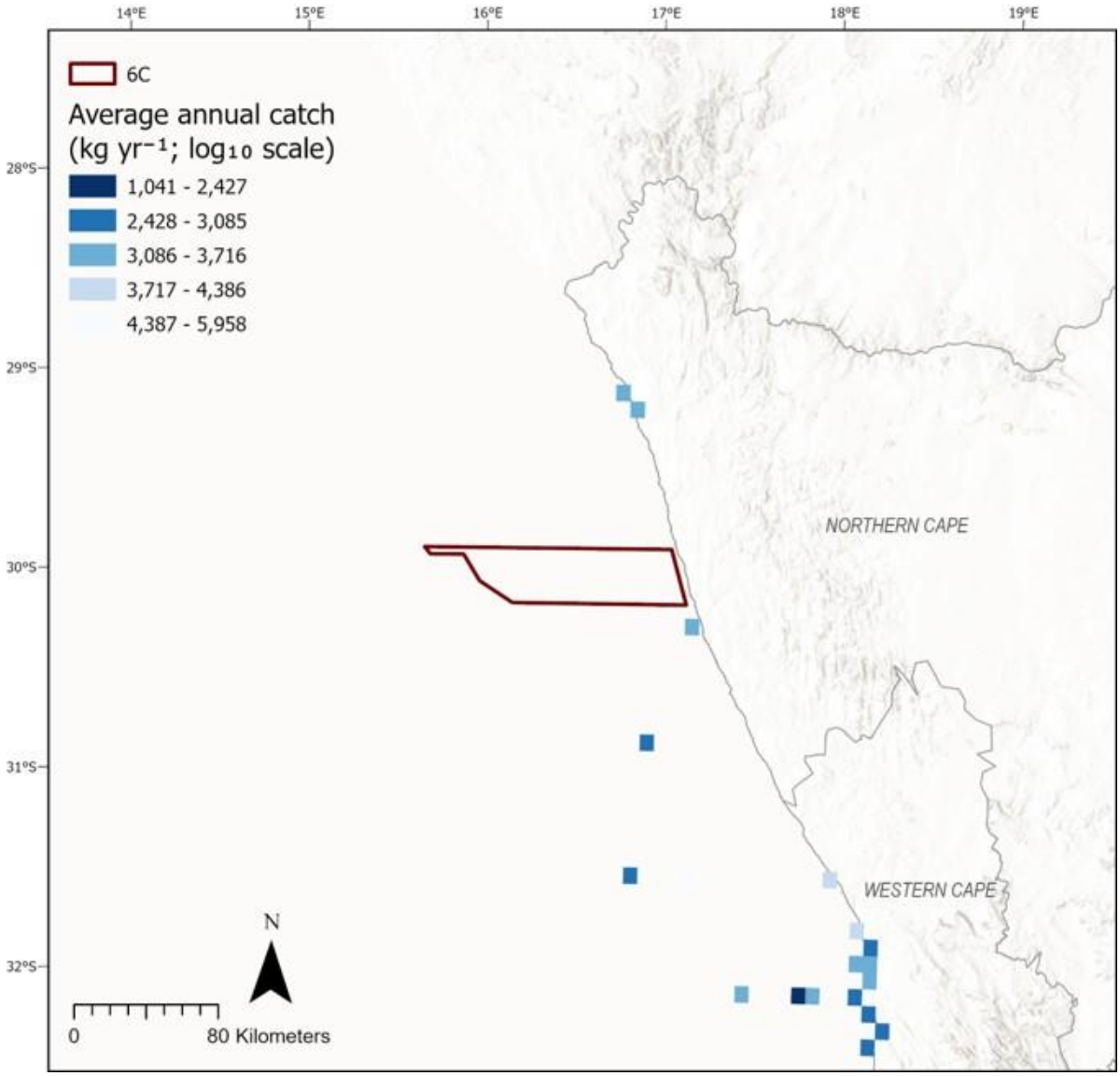

Figure 6.17. Commercial linefishing average annual catch (kg) (2010-2020) along the west coast, reported on the 5' National Marine Linefish reporting grid (Data sourced from DFFE).West Coast rock lobster

6.2.3 West Coast rock lobster

The West Coast rock lobster *Jasus lalandii* is a marine crustacean with a range extending from Walvis Bay, Namibia, to Gqeberha on the South Coast of South Africa (Jones 2008). West Coast rock lobsters are under heavy harvesting pressure in South Africa, and their population is considered severely depleted. Harvesting began in the late 1800s and peaked at 18 000 tonnes/annum in the 1950s. Despite the introduction of more efficient traps and motorboats, this yield decreased to 10 000 tonnes/annum in the 1960s and has continued to decrease since, with catches declining to 1 500 tonnes/annum in 1996 and not recovering since (DFFE 2025). A minimum size limit was implemented in 1979, and in the 1980s, a total allowable catch (TAC) system was implemented (DEFF 2020). The TAC is divided across different geographically defined fishing zones and different fishing sectors. There are two regions for his activity the offshore commercial and the nearshore commercial, plus some allocation for Small-Scale. The TAC has continued to decrease since 2005, with a TAC of 400 tonnes (offshore commercial component), 135 tonnes (inshore commercial component) instituted for the 2025/2026 season, although the allocated TAC has not been reached for the past eight years (DFFE 2025).

The most recent West Coast rock lobster stock assessment in 2022 found that the resource is substantially more depleted than estimated in previous assessments, which did not have complete datasets. The harvestable portion (males) of the West Coast rock lobster population is estimated to be only 1.2% of "pristine" levels (Johnston & Butterworth 2024). Despite this, the species continues to support a fishing industry worth R500 million per annum (DFFE 2025). For recreational fishing, there is a bag limit of four West Coast rock lobsters per person per day, which may only be harvested during the summer months on specific days (currently only 12 days per summer season) between 8am and 4 pm, and without the use of traps (baited hoop nets, diving and shore-based pole fishing is permitted) or SCUBA (DAFF 2017).

Apart from the strictly controlled commercial, recreational and subsistence harvest, it is the illegal harvest of West Coast rock lobster that has a major impact on the population (Brill & Raemaekers 2013, DFFE 2025). In 2015, the illegal harvest of West Coast rock lobster was estimated at 1 500 tonnes per year, worth R345 million/year in 2017 (Johnston & Butterworth 2016, Blamey & Bolton 2018). Poaching continues to drive local population declines, undermines management efforts, and creates significant economic losses, both for regulated fisheries and coastal communities dependent on sustainable harvests.

Similar to line fishing, West Coast rock lobster fishing constitutes an important economic activity for residents of Hondeklipbaai, Kleinzee etc., where few other livelihood options exist. Information as to the exact distribution of these Small-Scale rights is presently unavailable, hence it is not possible to quantify the full extent of lobster fishing in the area of interest for this project.

West Coast rock lobster is a nearshore, west coast species and any mining or prospecting activities that negatively impact the kelp bed and reef habitat required by this crustacean will further impact this depleted stock. However, the proposed prospecting activity will take place relatively far offshore (5 km) in sandy inner shelf habitat, as opposed to the inshore rocky-reef habitat that the lobster prefer. It is therefore highly unlikely that the proposed prospecting will have any significant impact on this fishery and it is screened out of the assessment at commercial, small-scale, and interim relief levels.

6.2.4 Small-scale/subsistence/recreational fisheries

Small-scale fisheries, both in South Africa and abroad, are an important source of income and food security for many thousands of people, and has been so for generations (Clark et al. 2002, Sowman et al. 2014, Auld & Feris 2022). Small-scale fishing in South Africa has been considered to include various fishing methods targeting more than 30 species (Griffiths & Branch 1997) from a range of habitats (Branch et al. 2002, Clark et al. 2002). Although small-scale fisheries contribute less than 1% to South Africa's GDP, they play an important role in the provision of protein and employment for an estimated 136 coastal communities distributed along South Africa's 3 000 km coastline (Figure 6.18). The extent and spread of small-scale fishers covers the four provinces with coastlines, especially the Western Cape, where fishing has been an important source of protein among the coastal communities since the 1700s (Isaacs 2013). Small-scale fishers are found both in urban and rural coastal areas.

Small-scale fishery operations have historically not been included in the fisheries policy development in South Africa — the definition of "commercial fishing" as per the 1998 Marine Living Resources Act (MLRA) excluded small-scale and artisanal fishers who catch and sell fish to sustain livelihoods, despite commercial fisheries around South Africa spanning a wide

spectrum, and in 2005, the government adopted long-term fishing policies that made no provision for small-scale fishers.

In response to an Equality Court order in 2007, South Africa's cabinet adopted the Small-Scale Fisheries Policy (SSFP) in June 2012, which sought to address imbalances of the past and ensure that small-scale fishers were accommodated and properly managed. The policy proposed that fishing rights be allocated on a group, rather than an individual, basis. The policy further aimed to support investment in community entities who could take joint responsibility for sustainably managing the fisheries resources and assist in addressing the depletion of critical fisheries stocks. Accordingly, the MLRA was amended in 2014 (commencement date 8 March 2016) to allow the DFFE to proceed with the SSFP implementation process. As part of the amendments, a definition of 'small-scale fishers' and the communities involved was provided (Section 1) as follows:

- 'small-scale fisher' means a member of a small-scale fishing community engaged in fishing to meet food and basic livelihood needs, or directly involved in processing or marketing of fish, who—
- traditionally operate in near-shore fishing grounds;
- predominantly employ traditional low technology or passive fishing gear;
- undertake single day fishing trips; and
- is engaged in consumption, barter or sale of fish or otherwise involved in commercial activity, all within the small-scale fisheries sector.
- 'small-scale fishing community' means a group of persons who—
- are, or historically have been, small-scale fishers;
- have shared aspirations and historical interests or rights in small-scale fishing;
- have a history of shared small-scale fishing and who are, but for the impact of forced removals, tied to particular waters or geographic area, and were or still are operating where they previously enjoyed access to fish, or continue to exercise their rights in a communal manner in terms of an agreement, custom or law; and
- regard themselves as a small-scale fishing community;''

The amended MLRA also replaces any refence to 'subsistence fisheries' with 'small-scale fisheries', essentially encasing the 'subsistence' definition within the larger understanding of 'small-scale fisheries'. In terms of resource management, the amended MLRA includes 'small-scale fishing' alongside 'commercial fishing' in terms of fisheries management and explicitly includes small-scale fishing within the definition of total allowable catch alongside commercial, recreational and foreign fishing. In this way, small-scale operations range from fulfilling food security to full-blown commercial operations.

In 2016, a Schedule pertaining to the Small-Scale Fishing Regulations in terms of Section 19 of the MLRA (as amended) was published. As per these regulations, communities wishing to be recognised as small-scale fishing communities needed to register their expression of interest with the Department, organise themselves into cooperatives. Later that same year, the former Department of Agriculture, Forestry, and Fisheries (DAFF) verified 8 488 individuals in fishing communities that had expressed interest in the small-scale fisheries sector. This was followed by the declaration of 2 802 registered small-scale fishers, but this process was considered inadequate which prompted re-evaluation.

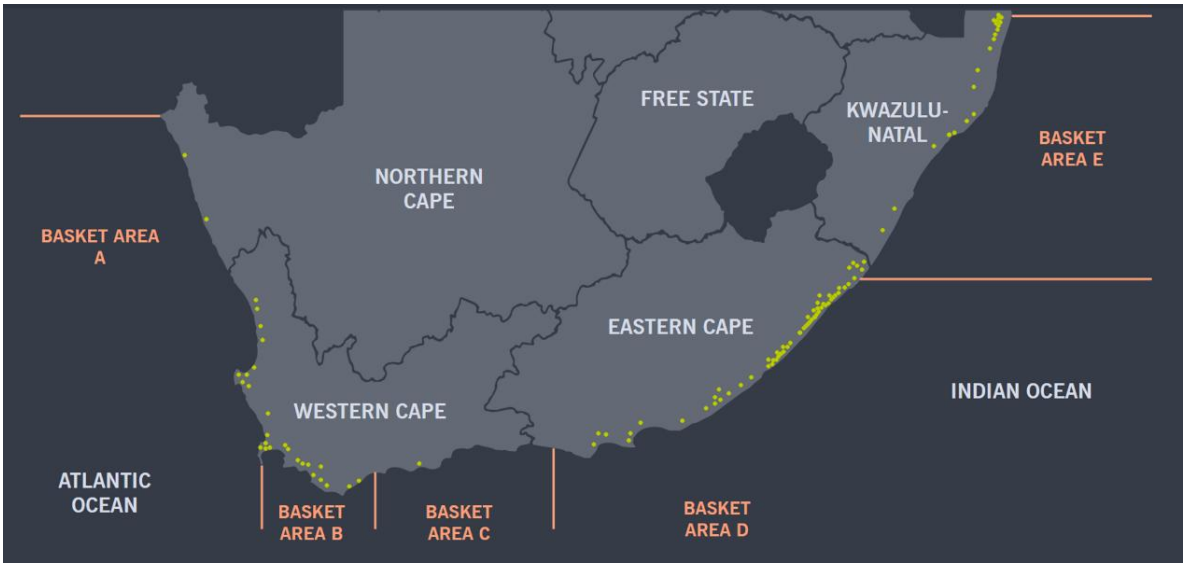

Figure 6.18 Small-scale fishing communities in South Africa (Isaacs et al. 2022). Yellow dots = small-scale fishing community within each recognised 'basket' area.

Of the estimated 30 000 small-scale fishers active along the South African coastline in 2002, 85% of them harvested linefish (Clark et al. 2002). The basket of species granted to these fishers included squid (see below), hake hand line, traditional linefish, seaweed, South Coast rock lobster and abalone ranching. The majority of species applied for were linefish species, some of which required use of a vessel. The small-scale fishing sector has been allocated a portion of the TAE in the finalised 2023 rights-allocation process for the Sector. Allocations as part of other Sectors are still being finalised pending the 2021 Fishing Rights Allocation appeals process.

The west coast area of South Africa in closest proximity to the 6C has a number of recognised small-scale fishing communities (Figure 6.18). These communities comprise of estuarine fishers (30%) and marine fishers (70%) which target a range of intertidal invertebrates (marine and estuarine) and fish (Figure 6.19).

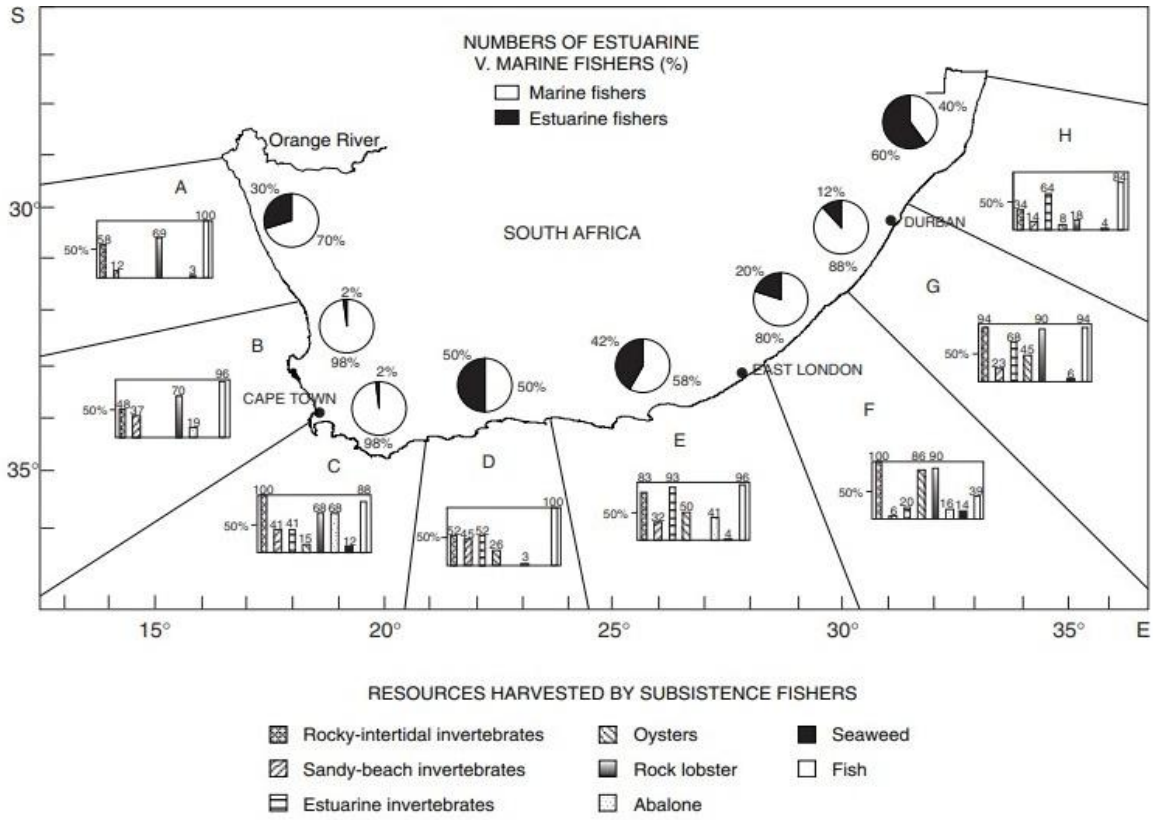

Figure 6.19 Proportions of marine and estuarine fishers, and relative importance of various different resources to 'subsistence' fishers in each of the eight regions taken from (Clark et al. 2002).

At time of writing, spatial activity and catch data for these fishers is lacking but is presumed to be similar to that of the existing fishery. The outcomes of the rights allocation appeals process are also currently not known. However, it is considered likely that any offshore operations will overlap with existing spatial footprints for these resources, given that fisheries, both "traditionally commercial" and small-scale, are likely to operate where the resource is present. Given that the TAC for these small-scale offshore fisheries operations will come from the existing commercial sector, the overlap with the 6C is considered to be suitably captured in the commercial linefishing assessment.

As such there is no perceived overlap between the 6C and commercial line fishing effort. Therefore, it is unlikely that there will be any overlap with the offshore small-scale line fishery.

Recreational fishers

Recreational fisheries in South Africa include line fisheries, rock lobster fisheries and harvesting of intertidal resources such as mussels, redbait and oysters (Griffiths et al. 2004, Cooke & Cowx 2006, Lewin et al. 2006, Winker et al. 2014, Maggs et al. 2016, Parker et al. 2016, Kerwath et al. 2019, Steyn et al. 2019). In the MLRA, "recreational fishing" means any fishing done for leisure or sport and not for sale, barter, earnings or gain. Recreational linefishing is a popular activity in South Africa and takes place along the entire coast. Between 1994 and 1997, the first nation-wide survey was conducted to evaluate participation in South Africa's recreational shore angling fishery, and its management (Brouwer et al. 1997, Mann et al. 2003). Recreational fishing in South Africa includes participation from approximately 1.32 million fishers, of which approximately half are marine, targeting mainly linefish and rock lobster (Saayman et al. 2017). The MLRA legally

recognises ‘recreational fishers’, and along South Africa’s south coast there are a number of areas where recreational fishers operate very close to shore. It is therefore assumed this sector is largely shore based and so impacts from the proposed prospecting activities on the marine ecology, as they will occur > 5 km from the coast, are not considered relevant.

6.2.5 Mariculture

Diamond Coast Abalone was granted a right to undertake an abalone (*Haliotis midae*) ranching operation in ranching Concession Area NC4 on the Namaqualand coast, in the vicinity of Hondeklipbaai and near to 6C (Figure 6.20). Ranching takes place in kelp beds in water predominantly shallower than 20 m, and mostly in water shallower than 5 m. Concession Area NC4 extends 40 km from Skulpfontein (30°6’8.16”S; 17°11’8.03”E) in the north to about 10 km south of Hondeklipbaai in the south (30°25’56.26”S; 17°20’5.43”E). Juvenile abalone for the ranching operation are sourced from Diamond Coast Abalone’s land-based abalone farm in Kleinzee, situated near the southern border of the NC2 ranching Concession Area. Juvenile abalone are spawned, settled, and grown-out in the land-based facility until they were of a suitable size for seeding in the wild (approximately 25–65 g = 50–70 mm shell length). The juvenile abalone are then seeded by divers into identified suitable habitat (kelp beds) in ranching Concession Area NC2. Harvesting of adult abalone is undertaken by divers in accordance with the Permit conditions.

Port Nolloth Sea Farms (Ranching) (Pty) Ltd was granted a right to undertake an abalone ranching operation in ranching Concession Area NC3 on the Namaqualand coast, south of Kleinzee (Figure 6.20). Concession Area NC3 extends from Kleinzee (29°40’43.9”S; 17°03’03.05”E) to Swartduine (30°02’52.04”S; 17°10’39.69”E) and falls within the Namaqua Inshore Ecoregion (see Section 2.2) (Sink et al. 2026).

Kleinzee Mariculture CC (previously operated by De Beers Ltd) is located at Kleinzee (29°39'46"S, 17°02'47"E) and operates a small land-based Pacific oyster (*Crassostrea gigas*) hatchery and production facility within a flooded, disused diamond mining pit. The facility historically received seawater via overflow from the adjacent Diamond Coast Abalone Farm, with intake infrastructure serving the abalone facility and outfalls located north of the oyster ponds. Current production volumes are understood to be small, although the ownership structure and operational status are uncertain. Available information indicates that the facility primarily produces oyster seed rather than market-size oysters.

Concession 6C lies approximately 5 km from these mariculture facilities (Figure 6.20). Given this distance, together with the fact that seawater abstraction and discharge occur close to shore, any temporary increases in suspended sediment concentrations associated with offshore drilling activities are not expected to affect the hatchery or production ponds.

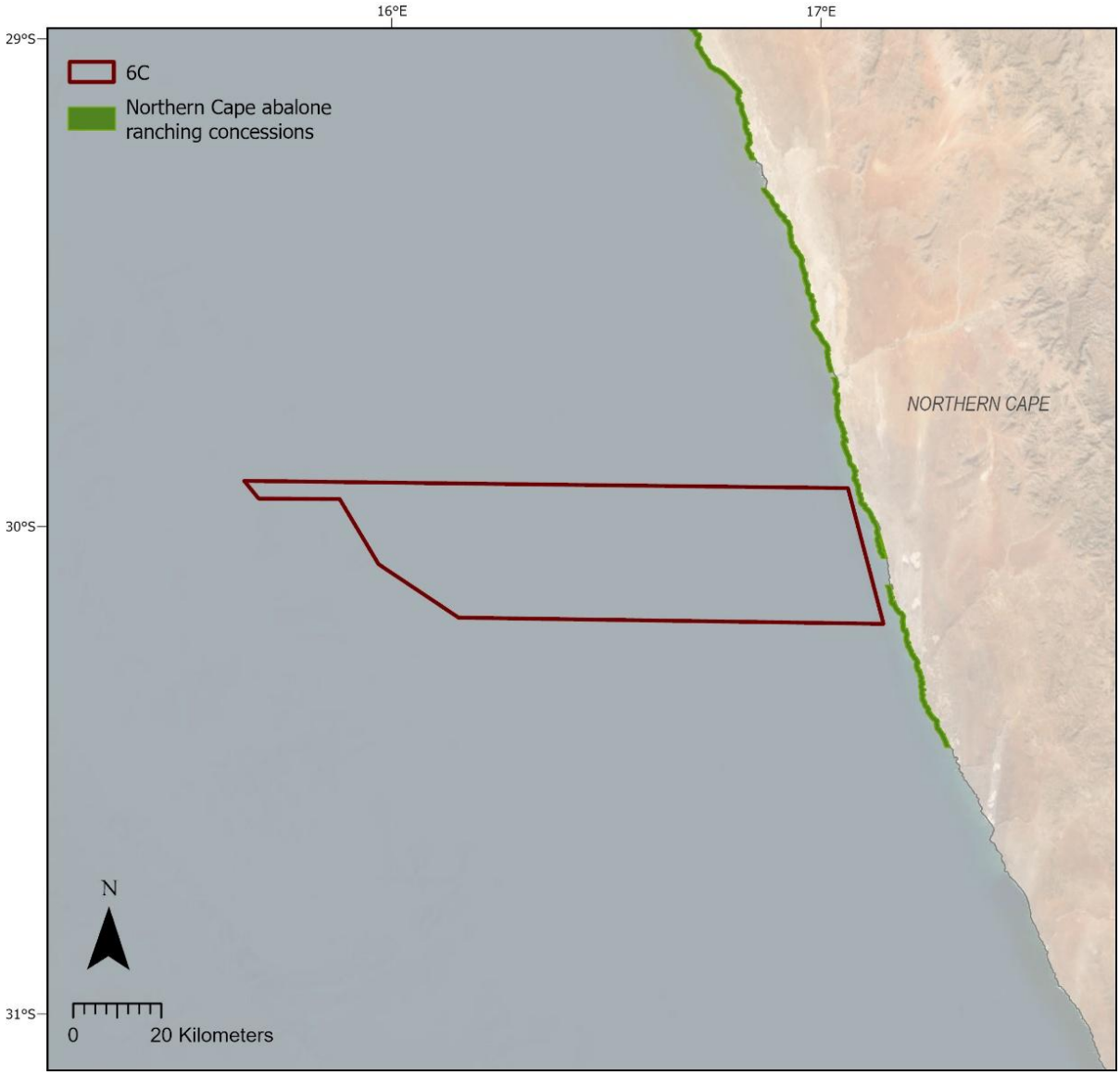

Figure 6.20 Abalone Ranching Concession Areas near to Sea Concession 6C.

6.2.6 Shipping

The main users of the sea space in Concession Area 6C are the commercial shipping and fishing industries. The wave exposed and linear nature of the coast and lack of nearby ports suitable for large vessels means that most merchant shipping would travel offshore of the concession area along the continental shelf edge. Most shipping crossing the Concession Area would be fishing vessels and other prospecting or mining vessels. The potential spatial overlap of commercial fisheries with the Concession Area 6C was investigated based on analysis of spatially referenced commercial catch return data obtained from the Department of Forestry, Fisheries and the Environment (DFFE). The large commercial fishing sectors that are active along the west coast (the demersal trawl, demersal hake longline and large pelagic longline fishing sectors) all typically operate well offshore of the 6C Concession Area, while the West Coast rock lobster fishery operates inshore, in water shallower than the concession area (Norman et al. 2018, DFFE 2025). Possible spatial overlap with the commercial linefish and tuna pole fisheries was identified.

6.3 DESCRIPTION OF SPECIFIC ENVIRONMENTAL FEATURES AND INFRASTRUCTURE ON THE SITE.

The proposed prospecting area is located approximately 4 to 5 km offshore and, as such, there is no existing infrastructure or associated structures within the site. In addition, the proposed prospecting activities are temporary in nature and do not involve the establishment of permanent infrastructure or long-term occupation of the area. The existing environmental and heritage features, together with the current uses of the sea space, are described below.

The proposed prospecting area is located approximately 4 to 5 km offshore within the Benguela Current Large Marine Ecosystem, a highly productive marine environment characterised by cool, nutrient-rich waters and a diversity of soft-sediment and locally rocky seabed habitats. The concession area supports a wide range of marine fauna, including benthic communities, commercially important fish species, marine mammals, seabirds and turtles, several of which are protected or threatened. The area is largely in a natural condition and is classified as "Least Concern" under the National Biodiversity Assessment, although a small portion overlaps a Critical Biodiversity Area (CBA) Natural.

The principal existing uses of the area are commercial fishing and commercial shipping, with limited overlap expected between the proposed prospecting activities and certain fishing sectors. The concession area also has the potential to contain submerged prehistoric archaeological, maritime archaeological and palaeontological resources, although no known heritage resources occur within the concession area. Appropriate avoidance, monitoring and chance-find procedures have been incorporated into the project to protect any previously unidentified heritage resources that may be encountered.

6.4 ENVIRONMENTAL AND CURRENT LAND USE MAP.

(Show all environmental, and current land use features)

Refer to Figure 2.1, Figure 2.2, Figure 6.6, Figure 6.7, Figure 6.16, and Figure 6.17.

7 IMPACT ASSESSMENT

7.1 IMPACTS AND RISKS IDENTIFIED INCLUDING THE NATURE, SIGNIFICANCE, CONSEQUENCE, EXTENT, DURATION AND PROBABILITY OF THE IMPACTS, INCLUDING THE DEGREE TO WHICH IMPACTS CAN BE AVOIDED, MANAGED OR MITIGATED

(Provide a list of the potential impacts identified of the activities described in the initial site layout that will be undertaken, as informed by both the typical known impacts of such activities, and as informed by the consultations with affected parties together with the significance, probability, and duration of the impacts. Please indicate the extent to which they can be reversed, the extent to which they may cause irreplaceable loss of resources, and can be avoided, managed or mitigated).

Table 7.1 summarises all potential impacts identified by the specialists and the EAP during the Basic Assessment process. For each impact, the assessment includes the extent, intensity, duration, consequence, probability, significance, status, reversibility, and the degree to which the impact can be avoided, managed and mitigated. The assessment identified 25 potential environmental, socio-economic and heritage impacts or benefits that could result from the proposed prospecting. Following the implementation of mitigation/ optimisation measures, 16 of these remain negative, but all are assessed to be of "Low" or "Insignificant" significance, indicating that no significant residual environmental impacts are anticipated. The remaining nine impacts are assessed as positive, with significance ratings ranging from "Low Positive" to "Medium Positive". Cumulative impacts have been summarised in Table 7.2, below. The detailed impact assessments and specialist findings are presented in Section 7.7.

Table 7.1. Potential impacts associated with prospecting in Concession area 6C, as identified during the Basic Assessment Process. These include impacts on Marine Ecology, Socio-Economic Resources and Marine Heritage Resources. * Note that the "Intensity" refers to the magnitude of the impact in relation to the sensitivity of the receiving environment, taking into account the degree to which the impact may cause irreplaceable loss of resources.

Impact	Extent	Intensity	Duration	Consequence	Probability	Significance	Status	Reversibility	Degree impact can be avoided	Degree impact can be managed:	Degree impact can be mitigated / optimised
MARINE ECOLOGY											
Impact 1: Geophysical survey related disturbance on plankton: **No mitigation**	Regional	Low	Short term	Very Low	Probable	**VERY LOW**	**-ve**	Reversible	Cannot be fully avoided	No management required	No mitigation needed/ possible
Impact 2: Geophysical survey related disturbance on benthic invertebrates: **No mitigation**	Local	Low	Short term	Very Low	Possible	**INSIGNIFICANT**	**-ve**	Reversible	Cannot be fully avoided	No management required	No mitigation needed/ possible
Impact 3: Geophysical survey related disturbance on fish: **No mitigation**	Regional	Low	Short term	Very Low	Probable	**VERY LOW**	**-ve**	Reversible	Cannot be fully avoided	No management required	No mitigation needed/ possible
Impact 4: Geophysical survey related disturbance on marine mammals: **Without mitigation**	Regional	High	Short term	Medium	Probable	**MEDIUM**	**-ve**	Reversible	Can be partially avoided	Manageable	Moderately effective
With mitigation	Regional	High	Short term	Medium	Possible	**LOW**	**-ve**				
Impact 5: Geophysical survey related disturbance on seabirds: **Without mitigation**	Regional	High	Short term	Medium	Probable	**MEDIUM**	**-ve**	Reversible	Can be partially avoided	Manageable	Moderately effective
With mitigation	Regional	High	Short term	Medium	Possible	**LOW**	**-ve**				
Impact 6: Impacts of drilling noise on marine fauna: Phase 2: **Without mitigation**	Local	Medium	Short term	Very Low	Probable	**VERY LOW**	**-ve**	Reversible		Manageable	Moderately effective

Impact	Extent	Intensity	Duration	Consequence	Probability	Significance	Status	Reversibility	Degree impact can be avoided	Degree impact can be managed:	Degree impact can be mitigated / optimised
With mitigation	Local	Low	Short term	Very Low	Probable	**VERY LOW**	**-ve**		Can be partially avoided		
Impact 7: Impacts of drilling noise on marine fauna: Phase 3: **Without mitigation**	Regional	Medium	Short term	Low	Probable	**LOW**	**-ve**	Reversible	Can be partially avoided	Manageable	Moderately effective
With mitigation	Local	Low	Short term	Very Low	Probable	**VERY LOW**	**-ve**				
Impact 8: Marine megafauna collisions with survey vessels. **Without mitigation:**	Local	High	Short term	Low	Possible	**VERY LOW**	**-ve**	Reversible	Can be partially avoided	Manageable	Moderately effective
With mitigation	Local	High	Short term	Low	Improbable	**VERY LOW**	**-ve**				
Impact 9: Direct benthic impacts associated with prospecting activities (all phases): **Without mitigation**	Local	High	Medium term	Medium	Definite	**MEDIUM**	**-ve**	Reversible	Can be partially avoided	Manageable	Moderately effective
With mitigation	Local	Medium	Medium term	Low	Definite	**LOW**	**-ve**				
Impact 10: Indirect impacts associated with tailings discharge and fine sediment plumes: **Without mitigation**	Local	Medium	Short term	Very Low	Definite	**VERY LOW**	**-ve**	Reversible	Can be partially avoided	Manageable	Moderately effective
With mitigation	Local	Low	Short term	Very Low	Probable	**VERY LOW**	**-ve**				
Impact 11: Impact of artificial light at night from vessels on marine fauna: **Without mitigation**	Regional	Low	Short term	Low	Probable	**LOW**	**-ve**	Reversible	Can be partially avoided	Manageable	Moderately effective
With mitigation	Regional	Low	Short term	Low	Possible	**VERY LOW**	**-ve**				
Impact 12: Waste discharges during vessel operations: **Without mitigation**	Local	Low	Medium term	Very Low	Probable	**VERY LOW**	**-ve**	Reversible	Can be partially avoided	Manageable	Moderately effective
With mitigation	Local	Low	Short term	Very Low	Improbable	**INSIGNIFICANT**	**-ve**				
SOCIO-ECONOMIC RESOURCES AND FISHERIES											
Impact 13: Impact on fisheries: **No Mitigation**	Local	Medium	Short term	Very Low	Possible	**INSIGNIFICANT**	**-ve**	Reversible	Cannot be fully avoided	No management required	No mitigation needed/ possible
Impact 14: Potential impacts on commercial shipping: **No mitigation**	Local	Low	Short term	Very Low	Possible	**INSIGNIFICANT**	**-ve**	Reversible	Cannot be fully avoided	No management required	No mitigation needed/ possible
Impact 15: Impact on sense of place and wellbeing: **With and without mitigation**	Local	Medium	Short term	Very Low	Possible	**INSIGNIFICANT**	**-ve**	Reversible	Cannot be fully avoided	Manageable	Moderately effective
Impact 16: Impact on tourism and recreation: **Without mitigation**	Local	Medium	Short term	Very Low	Probable	**VERY LOW**	**-ve**	Reversible	Cannot be fully avoided	Manageable	Moderately effective
With mitigation	Local	Medium	Short term	Very Low	Improbable	**INSIGNIFICANT**	**-ve**				
Impact 17: Impact on employment and economic opportunities: **Without optimisation**	Regional	Low	Short term	Very Low	Probable	**VERY LOW**	**+ve**	Not desirable to avoid as this is a benefit	Not desirable to avoid as this is a benefit	Manageable	Moderately effective
With optimisation	Regional	Medium	Short term	Low	Probable	**LOW**	**+ve**				

Impact	Extent	Intensity	Duration	Consequence	Probability	Significance	Status	Reversibility	Degree impact can be avoided	Degree impact can be managed:	Degree impact can be mitigated / optimised
Impact 18: Impact on procurement and expenditure: **Without optimisation**	Local-Regional	Low	Short term	Very Low	Probable	**VERY LOW**	**+ve**	Not desirable to avoid as this is a benefit	Not desirable to avoid as this is a benefit	Manageable	Moderately effective
With optimisation	Local-Regional	Medium	Short term	Low	Probable	**LOW**	**+ve**				
Impact 19: Impact on skills development, capacity building and transformation: **Without optimisation**	Local-Regional	Low	Medium term	Low	Possible	**VERY LOW**	**+ve**	Not desirable to avoid as this is a benefit	Not desirable to avoid as this is a benefit	Manageable	Moderately effective
With optimisation	Local-Regional	Medium	Medium term	Low	Probable	**LOW**	**+ve**				
Impact 20: Impact on environmental and scientific knowledge generation: **Without optimisation**	National	Low	Short-medium term	Low	Possible	**VERY LOW**	**+ve**	Not desirable to avoid as this is a benefit	Not desirable to avoid as this is a benefit	Manageable	Moderately effective
With optimisation	National	Medium	Short-medium term	Low	Probable	**LOW**	**+ve**				
MARITIME HERITAGE RESOURCES: SUBMERGED PREHISTORIC ARCHAEOLOGICAL, MARITIME ARCHAEOLOGICAL AND PALAEONTOLOGICAL RESOURCES											
Submerged prehistoric archaeological Heritage Resources (prehistoric stone artefacts and tools)											
Impact 21: Impact on Submerged Prehistory: **Without mitigation**	Local	Medium	Long-term (permanent)	Medium	Probable	**MEDIUM**	**-ve**	Irreversible	Cannot be fully avoided	Manageable	Very effective
With Mitigation	Local	Medium	Long-term (permanent)	Medium	Probable	**MEDIUM**	**+ve**	Irreversible	Cannot be fully avoided	Manageable	Very effective
Palaeontological Resources (fossils)											
Impact 22: Impact on cretaceous fossil wood: **Without mitigation**	Local	Medium	Long-term (permanent)	Medium	Probable	**MEDIUM**	**-ve**	Irreversible	Cannot be fully avoided	Manageable	Very effective
With Mitigation	Local	Medium	Long-term (permanent)	Medium	Probable	**MEDIUM**	**+ve**	Irreversible	Cannot be fully avoided	Manageable	Very effective
Impact 23: Impact on cenozoic shelly macrofauna (fossil shells of relatively large marine organisms from ancient geological deposits): **Without mitigation**	Local	Medium	Long-term (permanent)	Medium	Probable	**MEDIUM**	**-ve**	Irreversible	Cannot be fully avoided	Manageable	Very effective
With Mitigation	Local	Medium	Long-term (permanent)	Medium	Probable	**MEDIUM**	**+ve**	Irreversible	Cannot be fully avoided	Manageable	Very effective
Impact 24: Impact on fossil bones and teeth: **Without mitigation**	Local	High	Long-term (permanent)	High	Improbable	**MEDIUM**	**-ve**	Irreversible	Cannot be fully avoided	Manageable	Very effective
With Mitigation	Local	High	Long-term (permanent)	High	Possible	**MEDIUM**	**+ve**	Irreversible	Cannot be fully avoided	Manageable	Very effective
Impact 25: Impact on shells from the Last Transgression Sequence (younger shells from more recent marine deposits): **Without mitigation**	Local	Medium	Long-term (permanent)	Medium	Possible	**LOW**	**-ve**	Irreversible	Cannot be fully avoided	Manageable	Effective
With Mitigation	Local	Medium	Long-term (permanent)	Medium	Possible	**LOW**	**+ve**	Irreversible	Cannot be fully avoided	Manageable	Effective
Maritime archaeological resources (shipwrecks): Scoped Out											

Table 7.2 Potential cumulative impacts associated with prospecting activities in Concession Area 6C identified during the Basic Assessment Process.

Receptor	Impact Nature and Significance
Marine Ecology and Fisheries	MEDIUM NEGATIVE
Socio-Economic Receptors	VERY LOW POSITIVE
Palaeontological Resources	POSITIVE (NO RATING GIVEN)
Submerged prehistorical Resources	LOW NEGATIVE
Maritime archaeological resources	LOW NEGATIVE

7.2 METHODOLOGY USED IN DETERMINING AND RANKING THE NATURE, SIGNIFICANCE, CONSEQUENCES, EXTENT, DURATION AND PROBABILITY OF POTENTIAL ENVIRONMENTAL IMPACTS AND RISKS;

(Describe how the significance, probability, and duration of the aforesaid identified impacts that were identified through the consultation process was determined in order to decide the extent to which the initial site layout needs revision).

7.2.1 Screening Tool and Site Sensitivity Verification

The National Environmental Screening Tool was first used in accordance with the National Environmental Management Act (NEMA) and the EIA Regulations to identify the environmental sensitivities associated with the concession area (Appendix 3). The Screening Tool generated a report identifying the environmental themes requiring consideration and assigned each a sensitivity rating (Very High, High, Medium or Low) relative to the proposed development footprint.

The Screening Tool identified the following environmental themes for consideration:

- Agricultural Impact Assessment
- Archaeological and Cultural Heritage Impact Assessment
- Palaeontological Impact Assessment
- Terrestrial Biodiversity Impact Assessment
- Aquatic Biodiversity Impact Assessment
- Noise Impact Assessment
- Radioactivity Impact Assessment
- Plant Species Assessment
- Animal Species Assessment

The environmental sensitivities identified by the Screening Tool were subsequently verified through a Site Sensitivity Verification (SSV) undertaken by the EAP and relevant specialists, the results of which are presented in Appendix 4, 5, 6 and7, and summarised in Table 7.5, below. As the application relates to an offshore concession area, the SSV comprised a desktop assessment rather than a site inspection.

The SSV confirmed the applicable environmental sensitivities and determined which specialist studies were required. Several themes were screened out because the proposed activities are located offshore and would not affect terrestrial resources (e.g. agriculture, terrestrial biodiversity and plant species), or because the proposed activities would not result in impacts

relating to those themes (e.g. radioactivity). The EAP also identified the need for an additional socio-economic assessment based on the nature of the proposed activities.

Table 7.3. Summary of environmental themes and prescribed sensitivity ratings from the STRs; the EAPs explanation for the ST results, and their recommendation as to the requirement for a specialist study (and the required level of assessment).

Theme/ Identified Assessment (Per STRs)	Screening Tool Sensitivity Rating	Explanation of STR Rating and EAP/Specialist Recommendation
Aquatic Biodiversity Impact Assessment	**No rating** only indicates that an assessment is required.	**Reason for STR Inclusion:** Likely due to the selected Application Category, which often triggers this assessment by default, or due to limitations in the spatial datasets used by the ST, **EAP/Specialist Recommendation:** Since Aquatic Assessments pertain to freshwater and estuarine environments, the far-offshore location of the proposed works means that no aquatic impacts are expected. **Consequently, this study was screened-out.**
Marine Impact Assessment	**Not identified by STR** Theme identified for inclusion by EAP.	**Reason for STR Exclusion:** Despite being located marine environment, this sensitivity was likely not identified due to limitations in the datasets used by the ST. **EAP/Specialist Recommendation:** Given the project location and proposed works, **a comprehensive Marine Impact Assessment was prescribed by the EAP and Specialists—and has since been completed.**
Animal Species Assessment	**No rating** only indicates that an assessment is required.	**Reason for STR Inclusion:** Likely due to the selected Application Category, which often triggers this assessment by default/ due to the offshore nature of the study area. **EAP/Specialist Recommendation: While a discrete Animal Species Assessment is not required,** any sensitivities/impacts on marine animal species (birds, fish, mammals, invertebrates, etc.) were included in the Marine Impact Assessment.
Plant Species Assessment	**No rating** only indicates that an assessment is required.	**Reason for STR Inclusion:** Likely due to broad-scale spatial layers used that may flag areas based on regional vegetation types. **EAP/Specialist Recommendation:** As the concession area is located far offshore, the prospecting works will have no effect on terrestrial vegetation. **Consequently, no discrete study is required.** However, any potential impacts/sensitivities related to marine plant species have been included within the prescribed Marine Impact Assessment.
Noise Impact Assessment	**No rating** only indicates that an assessment is required.	**Reason for STR Inclusion:** Likely due to the selected Application Category, which often triggers this assessment by default. **EAP/Specialist Recommendation: While a discrete Noise Impact Assessment is not required**, all noise sensitivities/impacts on marine animals were identified for inclusion in the Marine Impact Assessment—which has since been completed.
Archaeological and Cultural Heritage Impact Assessment	**No rating** only indicates that an assessment is required.	**Reason for STR Inclusion:** Likely due to the potential occurrence of submerged prehistoric archaeological sites or material within the seabed sediments in portions of the concession area that are shallower than 120 m. **Specialist Recommendation:** The appointed specialist was in agreement with the STR, and agreed that Archaeological/Cultural Heritage Resources may be present in prospecting areas. **Consequently, an Archaeological and Cultural Heritage Impact Assessment was prescribed—which has since been completed.**
Palaeontological Impact Assessment	**No rating** only indicates that an assessment is required.	**Reason for STR Inclusion:** Likely due to the potential occurrence of Cretaceous fossil wood, Paleogene, Miocene shelly macrofauna, Phosphatized/ petrified bones and skulls of extinct marine mammal species, shark teeth and other fish, and/ or exotic or extralimital seashells with palaeontological significance within the offshore concession area. **Specialist Recommendation:** The appointed specialist was in agreement with the STR, and agreed that Palaeontological Resources may be present in prospecting areas.

Theme/ Identified Assessment (Per STRs)	Screening Tool Sensitivity Rating	Explanation of STR Rating and EAP/Specialist Recommendation
		Consequently, a Palaeontological Impact Assessment was prescribed—which has since been completed.
Socio-Economic Assessment	**Not identified by STR** Theme identified for inclusion by EAP.	**Reason for STR Exclusion:** Potentially not included due to lack of overlap with Socio-Economic Spatial data upon which the STR relies. **Specialist Recommendation:** Both the EAP and appointed specialist were in agreement that the proposed works may have impacts on Socio-Economic receptors. **Consequently, a Socio-Economic Assessment was prescribed—which has since been completed.**
Agriculture Impact Assessment	**No rating** only indicates that an assessment is required.	**Reason for STR Inclusion:** Likely due to the selected Application Category, which often triggers this assessment by default. **EAP/Specialist Recommendation:** The proposed works will have no bearing on agricultural receptors, due to them occurring far offshore. **This assessment was thus screened-out.**
Terrestrial Biodiversity Impact Assessment	**No rating** only indicates that an assessment is required.	**Reason for STR Inclusion:** Likely the result of national-scale spatial datasets used in the tool/errors in these datasets. **EAP/Specialist Recommendation:** Given the far-offshore location of the proposed works, no Terrestrial Biodiversity Impacts are expected. **Consequently, this study was screened-out.**
Radioactivity Impact Assessment	**No rating** only indicates that an assessment is required.	**Reason for STR Inclusion:** Likely due to the selected Application Category, which often triggers this assessment by default. **EAP/Specialist Recommendation:** None of the proposed prospecting works are expected to produce significant radiological impacts. **Consequently, this study was screened-out.**

7.2.2 Pre-Consultation with Interested and Affected Parties

A Background Information Document (BID) was prepared and circulated during the pre-consultation period from 20 June to 29 June 2026. The BID provided preliminary information on the proposed prospecting activities, the receiving environment and the potential environmental and socio-economic impacts to enable Interested and Affected Parties (I&AP) to identify issues and raise concerns at an early stage of the assessment process. **No comments or concerns were received from community members during the pre-consultation period.**

The only comment received was from the DFFE Directorate: Sustainable Aquaculture Management, which identified two operational land-based aquaculture facilities and abalone ranching sites located east of the concession area. This information was provided to the marine specialist, who concluded that the proposed prospecting activities are expected to result in no or insignificant impacts on these facilities due to their distance from the concession area. Nevertheless, these receptors have been included in the marine specialist assessment.

7.2.3 Previous Public Participation Processes

Comments and issues raised during previous public participation processes for similar prospecting applications by the Applicant (Concession Areas 14A, 14C, 11C, 7C and 10B), together with comments received during a previous application for Concession Area 6C by another applicant, were also considered by the EAP and specialists when identifying and assessing potential impacts.

7.2.4 Current Public Participation

Comments received during the official Public Participation Process, undertaken from 25 July to 25 August 2026, were considered by the EAP and relevant specialists in the identification and assessment of potential impacts and the ranking of impact significance.

A key issue raised during the PPP was the overlap of approximately 9% of the concession with a Critical Biodiversity Area (CBA Natural). The DFFE Directorate: Biodiversity Conservation recommended that the CBA Natural area be excluded from the prospecting footprint and treated as a no-go area. In response, the preferred prospecting layout was amended to exclude the CBA Natural area. This avoidance measure was therefore incorporated into the assessment and reduced the potential for direct impacts on this sensitive biodiversity area.

The Directorate also recommended additional measures relating to sensitive marine habitats, benthic biodiversity, marine fauna, cumulative impacts and adaptive management. These recommendations were considered in the assessment and have been incorporated into the BAR and EMPr where appropriate.

The DFFE Branch: Oceans & Coasts also raised concerns regarding biodiversity screening and the avoidance of sensitive habitats, sediment plume impacts, cumulative impacts, underwater noise and potential impacts on marine fauna. These comments were considered by the EAP and relevant specialists and informed the assessment and refinement of mitigation measures. The Branch's comments regarding the applicability of the ICMA were also considered, with the relevant requirements incorporated into the BAR and EMPr. The Branch's support for the proposed marine fauna and pollution management measures was noted, and these measures have been retained in the EMPr.

7.2.5 Specialist Studies

Based on the SSV, consultation with I&APs, and issues identified during previous public participation processes, the following specialist studies were commissioned:

1. Marine Ecology Impact Assessment (the Aquatic Biodiversity theme was adapted for the offshore environment and includes marine fauna, flora and underwater noise);
2. Socio-economic Assessment (including fisheries); and
3. Marine Heritage Impact Assessment (including submerged prehistoric archaeological, maritime archaeological and palaeontological resources).

Each specialist undertook a desktop assessment informed by published scientific literature, previous environmental studies, available spatial datasets, specialist knowledge and experience, and the characteristics of the receiving environment described in Section 6. The specialist studies identified and assessed potential impacts on marine ecology, socio-economic resources (including fisheries) and marine heritage resources, while also considering the No-Go Alternative and cumulative impacts.

7.2.6 Impact Assessment Methodology

All impacts identified through the specialist studies, consultation process and the EAP's assessment were evaluated using a standard impact assessment methodology. Each impact was assessed in terms of its nature, extent, duration, intensity, consequence, probability, significance, status, reversibility, and the degree to which it can be avoided, managed or mitigated. The detailed methodology is provided in Appendix 8, with a summary included below.

Potential impacts (both positive and negative) associated with the proposed development were identified, described, and assessed in terms of their significance. The significance of impacts was determined using the following criteria:

- The extent and location of the potential impact (i.e. local, regional, national);
- The duration of the potential impact (i.e. short term, medium term, long term);
- The intensity (or magnitude) of the potential impact (i.e. low, medium, high); and
- The likelihood or probability of the impact occurring (improbable, possible, probable, definite).

Impacts were first assessed without mitigation and then re-assessed assuming that effective mitigation and/or optimisation measures are implemented. Impacts that remain after mitigation measures have been implemented are referred to residual impacts.

For negative impacts, mitigation measures were identified where applicable, with the aim of reducing the overall impact significance to an acceptable level. Mitigation / impact management measures were classified as either:

- **Essential**: Mandatory measures that must be implemented and are non-negotiable. These measures are assumed to be implemented in the "with mitigation" impact scenario and are therefore incorporated into the post mitigation impact assessment significance rating; or

- **Recommended/ best practice**: Non-mandatory measures that should be implemented where feasible and appropriate. Alternative measures or approaches may be adopted, provided that the required environmental outcome is still achieved and a clear and defensible motivation is provided for not implementing the recommended measure. These do not affect the overall impact rating if not implemented.

Optimisation measures aimed at enhancing potential benefits are generally considered Best Practice / Recommended and are non-mandatory.

Overall, mitigation and optimisation measures aim to:

- Promote more environmentally sound design, layout, or technology where feasible;
- Avoid, minimise, or remedy negative impacts;
- Enhance environmental and socio-economic benefits of the proposed development; and
- Ensure residual impacts remain within acceptable levels.

Impacts were assessed only for the operational phase, i.e., the prospecting activities. As there is no construction or decommissioning associated with these activities, impacts associated with construction and decommissioning on the various receptors have not been assessed.

Cumulative impacts and the No-Go / Do-Nothing alternative were also assessed. Where relevant, these were assessed using the impact assessment methodology. The table below presents the colour scheme used to visually convey the significance of positive and negative impacts identified for this development:

Table 7.4 Colour scheme used to indicated impact significance, including negative impacts, neutral (insignificant) impacts, and positive impacts (benefits).

Positive Impacts	**Very High**
	High
	Medium
	Low
	Very Low
Neutral Impacts	**Insignificant**
Negative Impacts	**Very Low**
	Low
	Medium
	High
	Very High

The detailed findings of each specialist study, including the basis on which the significance, extent, duration, consequence, probability and reversibility of each impact were determined, are presented in Section 7.7 of this report.

7.2.7 Revision of initial site layout

The specialist studies and consultation process were used to identify environmental sensitivities, assess potential impacts and develop appropriate mitigation and management measures. Following the public participation process, the preferred prospecting layout was revised to exclude the portion of the concession overlapping with the Critical Biodiversity Area (CBA): Natural.

Unlike a conventional land-based development, the application relates to prospecting within a defined offshore concession area rather than a fixed development footprint. The precise locations of sampling sites have not yet been determined and will be identified following interpretation of the geophysical survey data. The impact assessment therefore focused on identifying environmentally sensitive features and informing the detailed planning and siting of prospecting activities.

Pre-survey verification of sensitive marine habitats will also be undertaken before intrusive sampling. Final sampling locations will be screened against available biodiversity information, and sensitive habitats identified during geophysical surveys will be avoided, with appropriate exclusion buffers implemented where required.

Accordingly, the initial preferred layout has been revised to exclude the CBA Natural area, while the findings of the assessment continue to inform the detailed operational planning, site-specific avoidance measures and environmental controls applicable to the prospecting programme.

7.3 THE POSITIVE AND NEGATIVE IMPACTS THAT THE PROPOSED ACTIVITY (IN TERMS OF THE INITIAL SITE LAYOUT) AND ALTERNATIVES WILL HAVE ON THE ENVIRONMENT AND THE COMMUNITY THAT MAY BE AFFECTED.

(Provide a discussion in terms of advantages and disadvantages of the initial site layout compared to alternative layout options to accommodate concerns raised by affected parties)

A detailed summary of the positive and negatives impacts assessed for the site, is provided in Table 7.2 and Table 7.1, above. As discussed in Section 5, no reasonable alternative site layouts or development alternatives were identified for comparative assessment. Consequently, no comparative assessment of impacts between alternative layouts has been undertaken.

7.4 THE POSSIBLE MITIGATION MEASURES THAT COULD BE APPLIED AND THE LEVEL OF RISK.

(With regard to the issues and concerns raised by affected parties provide a list of the issues raised and an assessment/ discussion of the mitigations or site layout alternatives available to accommodate or address their concerns, together with an assessment of the impacts or risks associated with the mitigation or alternatives considered).

7.4.1 Environmental management outcomes and associated mitigation/optimisation measures

Environmental management outcomes and associated mitigation and optimisation measures have been developed to guide implementation of the Environmental Management Programme (EMPr) and ensure that the project is undertaken in an environmentally responsible manner. These measures have been developed in accordance with the internationally recognised mitigation hierarchy of avoid, minimise, rehabilitate/restore, offset and, where necessary, no-go. Mitigation measures are actions aimed at avoiding or reducing negative impacts and are classified as either Essential (mandatory to implement and should reduce the impact significance rating after implementation) or Recommended/ Best Practice mitigation (not mandatory and implemented where feasible to further improve environmental performance). Optimisation measures are applied to enhance positive impacts and are generally considered Recommended/ Best Practice. Together, these measures are designed to achieve the environmental management outcomes identified for the project, minimise adverse environmental impacts, enhance project benefits, and ensure compliance with the Environmental Authorisation and EMPr. The mitigation and optimisation measures were initially developed based on the findings and recommendations of the specialist assessments for each environmental receptor. For implementation within the EMPr, these measures have been consolidated, expanded where appropriate, and reorganised according to the project phase during which they are to be implemented, namely the Planning, Design and Establishment Phase; Operational Phase; and Decommissioning and Closure Phase. The environmental management outcomes and actions (mitigation/ optimisation measures) applicable to each phase are summarised below.

I. Planning, design and establishment phase

1.1 Environmental awareness training

Outcome: Provide environmental awareness training to ensure all staff are aware of and understand their individual responsibilities in terms of this EMPr, ensuring effective implementation and compliance.

- **Essential Mitigation Measures:**
  - All personnel must receive environmental awareness training before commencing work, with refresher training provided where required.
  - Training must cover the requirements of the EA and EMPr, environmental sensitivities of the concession area, protection of marine fauna and heritage resources, pollution prevention, waste management, emergency response, and environmental incident reporting procedures.
  - Environmental and safety notices, including emergency contacts, spill response, waste management and pollution prevention requirements, must be displayed onboard the survey vessel where practicable.
  - Environmental toolbox talks or briefings must be conducted, where appropriate, throughout the survey programme to reinforce environmental requirements and communicate site-specific risks or procedural changes.
  - Training records must be maintained, and training material must be provided in languages understood by personnel.

1.2 Interested and Affected party (I&APs) notification

Outcome: Notify registered and relevant I&APs of the commencement of prospecting activities to promote stakeholder awareness, transparency and communication, and to enable affected parties to anticipate and respond to survey activities.

- **Essential Mitigation Measures:**
  - Registered I&APs and relevant stakeholders must be notified in writing prior to commencement of prospecting activities.
  - Notifications must include the survey location, anticipated programme, contact details, safety exclusion zones, and emphasise the temporary, offshore and localised nature of the activities.
  - Key stakeholders include relevant government authorities, heritage authorities, maritime authorities, adjacent right holders, tourism stakeholders, fishing organisations, mariculture operators and local fishing communities.
  - A Fishing Liaison Officer (FLO) must be appointed to facilitate communication with the fishing and mariculture sectors and provide operational updates throughout the survey programme.

1.3 Protection of marine benthic and sensitive habitats

Outcome: Ensure that seabed sampling, drilling and tailings disposal result only in localised and temporary disturbance to benthic habitats, with sensitive habitats avoided and the CBA Natural area excluded from the prospecting footprint, no significant impacts on biodiversity features of concern, and no long-term loss of benthic ecosystem structure or function.

- **Essential Mitigation Measures:**
  - A pre-survey verification of sensitive marine habitats before intrusive sampling is mandatory.
  - Exclusion buffer zones must be implemented around sensitive habitats identified during geophysical surveys. The recommended exclusion buffer zone is 500 m.
  - All sensitive benthic habitats identified during geophysical surveys should be avoided, including exclusion zone buffers (500 m recommended) around such habitats.
  - The CBA Natural area must be clearly demarcated as a no-go area and be excluded from the prospecting footprint entirely, prior to prospecting. No prospecting may occur in the CBA.
  - Potential discharges must be planned and managed to ensure that tailings are not discarded onto potentially sensitive habitats.

1.4 Protection of submerged prehistoric archaeological, maritime archaeological and palaeontological resources

Outcome: Avoid or minimise damage to submerged prehistoric archaeological resources (e.g. prehistoric stone artefacts and tools), maritime archaeological resources (e.g. shipwrecks), and palaeontological (fossil) resources, including older fossil material from ancient geological deposits (e.g. Cretaceous fossil wood, Cenozoic macrofauna shells, fossil bones and teeth) and younger shells from more recent marine deposits (the Last Transgression Sequence), and ensure that any heritage resources identified during prospecting activities are appropriately protected, recorded and managed.

- **Essential Mitigation Measures:**
  - Obtain all required heritage permits from the South African Heritage Resources Agency (SAHRA) before commencement of prospecting activities.
  - Prepare and implement a Chance Find Procedure (Method Statement) for the identification, recording, handling and management of submerged archaeological and palaeontological material encountered during prospecting.
  - Provide environmental awareness training to relevant personnel on the identification, protection and reporting procedures for submerged archaeological resources (e.g. stone artefacts and shipwrecks) and palaeontological (fossil) material.

1.5 Management of employment, procurement and economic opportunities

Outcome: Optimise the positive socio-economic and scientific outcomes of the prospecting programme by promoting local and South African participation in employment, procurement and skills development where feasible, and by ensuring that environmental and scientific data generated during the project are appropriately managed and utilised.

- **Recommended/ best practice mitigation and optimisation measures:**
  - Communicate employment, procurement and local/regional business opportunities to stakeholders, where appropriate as well as the limited and temporary nature of employment opportunities associated with the prospecting phase.
  - Implement procurement in a fair, transparent and non-discriminatory manner in accordance with applicable legislation, the Mining Charter (where applicable), contractual obligations, and the Applicant's B-BBEE and supplier development policies.
  - Give preference, where feasible and commercially competitive, to South African and, where possible, local and regional suppliers and service providers.
  - Where training and capacity-building opportunities are available, implement them in a fair and transparent manner, giving preference, where feasible, to suitably qualified local and regional candidates.

2. Operational phase

2.1 Overall environmental management

Outcome: Ensure effective environmental management to achieve compliance with the EA, EMPr and applicable legislation, and to facilitate effective monitoring and reporting of environmental performance.

- **Essential Mitigation Measures:**

- Confine prospecting activities to the approved footprint.
- Ensure compliance with the EA, EMPr, Method Statements and applicable environmental legislation.
- Monitor environmental compliance throughout operations by the ECO.
- Record environmental incidents, non-conformances and corrective actions, including photographs where practicable.

2.2 Ongoing I&AP liaison and coordination, including marine users and the fishing sector

Outcome: Maintain effective communication with relevant stakeholders, particularly marine users and the fishing sector, throughout the operational phase to minimise potential conflicts, facilitate coordination of activities, communicate operational updates where appropriate, and ensure that complaints and concerns are addressed in a timely manner.

- **Essential Mitigation Measures:**

- Maintain ongoing communication and an operational alert protocol with key stakeholders, particularly marine users, fishing organisations and mariculture operators.
- Keep relevant authorities, registered I&APs and affected stakeholders informed of survey activities, where applicable.
- Record interactions or conflicts with other marine users and fishing activities.
- Maintain a Complaints and Communications Register and respond to complaints as soon as reasonably practicable.
- Refer unresolved disputes with adjacent or overlapping right holders to the relevant competent authority.

2.3 Staff, public and other sea users' health, safety and emergency management

Outcome: Ensure the health and safety of personnel, other sea users and the public through compliance with applicable health, safety and maritime legislation, recognised industry standards and emergency preparedness procedures.

- **Essential Mitigation Measures:**

- Comply with applicable occupational health and safety, maritime safety and emergency management legislation and recognised industry standards.
- Ensure survey vessels are seaworthy, appropriately equipped and operated in accordance with statutory requirements.
- Maintain required safety exclusion zones and implement measures to minimise conflicts with other marine users.
- Implement emergency response procedures, maintain emergency equipment and contact details, and conduct regular emergency drills.
- Provide and use appropriate PPE, and maintain fire prevention and firefighting measures, including no smoking in hazardous storage areas.

2.4 Management of impacts on tourism and recreation

Outcome: Minimise disruption to tourism and recreational activities through appropriate planning, communication and management of prospecting operations.

- **Essential Mitigation Measures:**
  - Confine prospecting activities to the approved concession area and comply with applicable environmental and operational requirements.
  - Notify relevant tourism stakeholders and local authorities of the timing and duration of prospecting activities prior to commencement.
- **Recommended/ Best Practice mitigation measures:**
  - Where feasible, schedule prospecting activities outside peak tourism periods.
  - Maintain communication with tourism stakeholders and emphasise the temporary, offshore and localised nature of the activities.
  - Minimise unnecessary vessel lighting at night and avoid prolonged stationary presence near the coastline, where feasible.

2.5 Management of impacts on sense of place and wellbeing

Outcome: Minimise impacts on the sense of place and well-being of affected communities and other stakeholders arising from the prospecting activities.

- **Essential Mitigation Measures:**
  - Clearly communicate the temporary nature, limited extent and findings of the prospecting programme to stakeholders.
  - Provide regular project updates and communicate specialist study and monitoring results in an accessible, non-technical format, where feasible.
  - Clearly communicate that any future exploration or mining activities will be subject to separate environmental assessment and stakeholder engagement processes.

2.6 Protection of marine megafauna from vessel operations

Outcome: Avoid injury and mortality of marine megafauna resulting from vessel operations, including vessel strikes, underwater noise and artificial lighting, and ensure that any disturbance arising from geophysical survey or prospecting activities (including drilling) is limited to short-term, localised and reversible behavioural effects, with no significant interference with migration, feeding or breeding behaviour, and no measurable ecological or population-level impacts.

- **Essential Mitigation Measures:**
  - Implement the JNCC (2017) Guidelines for minimising impacts on marine mammals during geophysical surveys.
  - Appoint a minimum of two suitably qualified Marine Mammal and Seabird Observers (MMSOs), which should also serve as the Passive Acoustic Monitoring (PAM) observers, and utilise PAM during periods of poor visibility or darkness.
  - Establish a 500 m mitigation zone, undertake pre-survey observations (30 to 60 minutes), implement soft-start/ramp-up procedures, and delay survey commencement where marine fauna are present.
  - Maintain dedicated marine fauna watches throughout operations, record all sightings and behavioural observations, suspend operations if injury or mortality is observed, and report findings in a report to the relevant authorities.
  - Use the quietest practicable drilling methods.

- Where practicable, avoid surveys during the peak baleen whale migration period (June to November).
- Limit vessel speeds to <12 knots offshore and <10 knots within 25 km of the coast, with further reductions where marine megafauna are present.
- Consult relevant marine stakeholders, including the fishing industry, before survey commencement.
- Minimise and appropriately direct vessel lighting to reduce attraction of seabirds and other fauna, monitor bird interactions, implement procedures for handling grounded seabirds, and report ringed birds where encountered.

2.7 Protection of benthic and sensitive habitats

Outcome: Ensure that seabed sampling, drilling and tailings disposal result only in localised and temporary disturbance to benthic habitats, with sensitive habitats avoided and the CBA Natural area excluded from the prospecting footprint, no significant impacts on biodiversity features of concern, and no long-term loss of benthic ecosystem structure or function.

- **Essential Mitigation Measures:**

- A pre-survey verification of sensitive marine habitats before intrusive sampling is mandatory.
- Exclusion buffer zones must be implemented around sensitive habitats identified during geophysical surveys. The recommended exclusion buffer zone is 500 m.
- All sensitive benthic habitats identified during geophysical surveys should be avoided, including exclusion zone buffers (500 m recommended) around such habitats.
- The CBA Natural area must be clearly demarcated as a no-go area and be excluded from the prospecting footprint entirely, prior to prospecting. No prospecting may occur in the CBA.
- Potential discharges must be planned and managed to ensure that tailings are not discarded onto potentially sensitive habitats.
- Information gathered during all seabed sampling, reef identification and seabed video/camera assessments must be made available in a usable, geo-referenced format to the South African government (DFFE) and SANBI to inform future Marine Spatial Planning and confirmation of CBA status.

- **Recommended/ Best Practice mitigation:**

- Annual benthic biodiversity monitoring could be undertaken to assess changes in ecological conditions and identify whether cumulative impacts may be increasing over time. The findings could be used to inform the need for additional mitigation measures, where required.

2.8 Protection of submerged prehistoric archaeological, maritime archaeological and palaeontological resources

Outcome: Avoid or minimise damage to submerged prehistoric archaeological resources (e.g. prehistoric stone artefacts and tools), maritime archaeological resources (e.g. shipwrecks), and palaeontological (fossil) resources, including older fossil material from ancient geological deposits (e.g. Cretaceous fossil wood, Cenozoic macrofauna shells, fossil bones and teeth) and younger shells from more recent marine deposits (the Last Transgression Sequence), and ensure that any heritage resources identified during prospecting activities are appropriately protected, recorded and managed.

- **Essential Mitigation Measures:**

- Monitor all geophysical survey, grab, core and drill samples for submerged archaeological and palaeontological resources in accordance with the approved Method Statement.

- Treat any identified shipwrecks as no-go areas, avoid destructive sampling, and immediately report discoveries to SAHRA.
- Record, retain and, where appropriate, submit significant fossil and archaeological material for specialist assessment and curation, in accordance with the required permits.
- Record all heritage finds and maintain liaison with the appointed palaeontologist and/or archaeologist throughout the prospecting programme.

2.9 Pollution management

Outcome: Prevent pollution of the marine environment while protecting water quality, marine habitats, marine fauna and human health through the appropriate management of waste, hazardous substances and spill risks, in compliance with MARPOL and other applicable legislation.

- **Essential Mitigation Measures:**

- Comply with MARPOL requirements, maintain a Shipboard Oil Pollution Emergency Plan (SOPEP) and spill-response capability, implement pollution prevention measures, and provide spill response training.

2.10 Management of employment, procurement and economic opportunities

Outcome: Optimise the positive socio-economic benefits of the prospecting programme by promoting local and South African participation in employment, procurement and skills development where feasible.

- **Recommended/ best practice mitigation and optimisation measures:**

- Communicate employment, procurement and local/regional business opportunities to stakeholders, where appropriate as well as the limited and temporary nature of employment opportunities associated with the prospecting phase.
- Implement procurement in a fair, transparent and non-discriminatory manner in accordance with applicable legislation, the Mining Charter (where applicable), contractual obligations, and the Applicant's B-BBEE and supplier development policies.
- Give preference, where feasible and commercially competitive, to South African and, where possible, local and regional suppliers and service providers.
- Where training and capacity-building opportunities are available, implement them in a fair and transparent manner, giving preference, where feasible, to suitably qualified local and regional candidates.
- Maintain records of procurement, supplier development, training and economic contributions.

3. Decommissioning and closure phase

3.1 Survey/ sampling vessel to leave area

Outcome: Ensure that the prospecting area is left in a condition that is safe for other maritime users.

- **Essential Mitigation Measures:**

- Ensure the survey area is left safe for navigation and other marine users.
- Recover lost items where practicable and environmentally appropriate, and report any unrecovered navigational hazards to the relevant maritime authorities.

3.2 Information sharing: contribution to environmental and scientific knowledge

Outcome: Maximise the environmental and scientific benefits arising from the prospecting programme by ensuring that environmental and scientific data are appropriately collected, managed, documented and, where appropriate, shared to support future environmental management, scientific research and marine spatial planning.

- **Essential Mitigation Measures:**
  - Record and manage environmental and scientific data in accordance with legal requirements and, where appropriate, share non-sensitive data with government authorities, research institutions and conservation organisations to support environmental management, biodiversity mapping and marine spatial planning.

3.3 Final waste disposal

Outcome: Ensure that all waste generated during the prospecting programme is removed from the vessel and disposed of responsibly so that no pollution or long-term environmental impacts remain following completion of the survey.

- **Essential Mitigation Measures:**
  - Remove all waste and hazardous substances from the vessel and dispose of them at licensed facilities in accordance with MARPOL and applicable legislation.
  - Retain waste disposal records and ensure no pollutants are discharged into the marine environment during demobilisation.

3.4 Closure

Outcome: Ensure that the prospecting programme is appropriately concluded through stakeholder notification and compliance with applicable closure requirements.

- **Essential Mitigation Measures:**
  - Notify stakeholders and relevant authorities on completion of the prospecting programme.
  - Submit any required closure documentation to the DMPR, where applicable.

7.4.2 Cumulative impacts on the environment and community

Mitigation measures recommended for each individual impact should be implemented. However, given the nature of cumulative impacts and the many factors acting across the broader region, it cannot be assumed that these measures will be implemented consistently by all parties. Consequently, no additional project-specific mitigation measures have been prescribed for cumulative impacts. Furthermore, a strategic Environmental Impact Assessment (EIA), informed by marine spatial planning principles, should be undertaken by the relevant government authority to assess and manage cumulative impacts holistically and identify any additional mitigation measures required.

7.5 MOTIVATION WHERE NO ALTERNATIVE SITES WERE CONSIDERED.

Please refer to section 5 for the discussion on this point.

7.6 STATEMENT MOTIVATING THE ALTERNATIVE DEVELOPMENT LOCATION WITHIN THE OVERALL SITE.

Please refer to section 5 for the discussion on this point.

7.7 FULL DESCRIPTION OF THE PROCESS UNDERTAKEN TO IDENTIFY, ASSESS AND RANK THE IMPACTS AND RISKS THE ACTIVITY WILL IMPOSE ON THE PREFERRED SITE

(In respect of the final site layout plan) through the life of the activity. (Including (i) a description of all environmental issues and risks that were identified during the environmental impact assessment process and (ii) an assessment of the significance of each issue and risk and an indication of the extent to which the issue and risk could be avoided or addressed by the adoption of mitigation measures.)

Based on the process described in Section 7.2, the potential environmental, socio-economic and heritage impacts associated with the proposed prospecting activities were identified, assessed and ranked. The detailed findings of each specialist assessment, including the significance ratings, mitigation measures and impact assessment tables, are presented below under the relevant environmental receptors.

7.7.1 Potential impacts on marine ecology

Potential impacts to the marine environment as a result of exploration and prospecting are identified based on available literature, previous EIA and monitoring reports (Lane & Carter 1999, Penney et al. 2007, Biccard et al. 2018, Baker & Arnott 2021) and the specialist's own knowledge. It is assumed that a vessel with dynamic positioning will be used for all survey and sampling activities and potential impacts of anchoring on the seabed are therefore not assessed. Should this not be the case the potential impacts of anchoring must be assessed, and appropriate mitigation included in a revised EMPr. Identified potential impacts include:

- Noise disturbance to marine fauna due to geophysical surveys and drilling/coring;
- Marine megafauna collisions with survey vessels;
- Direct impact of seabed excavation and tailings disposal during drill sampling on benthic habitats e.g. soft sediments and associated infaunal and epifaunal communities;
- Impact on surrounding benthos and water column via fine sediment plumes;
- Waste discharges during vessel operations;
- Impacts on fisheries (and livelihoods of those who depend on these fisheries) due to exclusion zones around survey vessels and direct potential impacts on target species and supporting ecosystems; and,

Geophysical survey noise disturbance to marine receptors

It has become increasingly evident that noise from human activities in and around underwater environments can have an impact on marine species. The extent to which intense underwater sound might cause an adverse impact on a species is dependent upon the incident sound level, sound frequency, duration of exposure and/or repetition rate of the sound wave (Hastings & Popper 2005). As a result, scientific interest in the hearing abilities of aquatic animal species, which may be affected by noise, has increased. These studies are primarily based on evidence from high level sources of underwater noise such as blasting or impact piling, as these sources are likely to have the greatest environmental impact. Adverse impacts of underwater sound can be broadly summarised into three categories:

- Physical traumatic injury and fatality;
- Auditory injury (either permanent threshold shift (PTS) or temporary threshold shift (TTS); and; and
- Disturbance.

Sounds generated by vessels in addition to the noise from geophysical surveys have been related to negative impacts on marine animals (Koper & Plön 2012). These negative impacts include direct effects, such as physical injury (i.e. auditory and non-auditory), stress, perceptual interference, behavioural changes, chronic responses, and indirect effects on predator species as a consequence of a change in prey distribution or abundance due to direct effects of sound on the prey (NRC 2003, Koper & Plön 2012). The impacts associated with acoustic surveys are not yet fully understood and further research is ongoing. Exposure to intense sounds for even short periods of time can lead to permanent hearing damage. Concerns over these disturbing effects have been raised in international literature (Richardson et al. 1986, 1990, 1995, Finley et al. 1990, Gordon et al. 1992, Richardson & Malme 1993, Bauer et al. 1993, Maybaum 1993, McCauley 1994, Bain & Dahlheim 1994, Janik & Thompson 1996, Richardson & Würsig 1997, Gisiner 1998, Würsig et al. 1998, Lesage et al. 1999, Terhune & Verboom 1999, McCauley et al. 2000, Miller et al. 2000, Au & Green 2000, Nowacek et al. 2001b a, 2004, Erbe 2002, Leung Ng & Leung 2003). However, the potential effects of diamond prospecting on marine mammals have been reported to be minimal (Findlay 1996).

During prospecting, sounds and vibrations emanating from geophysical sampling tools only last a few days but can be intense. The source sound level of the MBES (echosounder) is variable but will be a maximum of 221 dB re 1µPa at 1 m, with a frequency range of between 200 and 400 kHz. The sub-bottom profiler uses shallow (35 to 45 kHz) and medium penetration (1 to 10 kHz) “Chirp” acoustic pulses (this differs to airguns used in seismic surveys). 221 dB re 1µPa at 1m is a high noise source in absolute terms when measured at the source. However, source level alone is not a reliable indicator of potential environmental impact, as the propagation characteristics, frequency, beam pattern, and duration of the sound must also be considered. The MBES operates at very high frequencies (200–400 kHz), substantially higher than those used in conventional seismic surveys, and emits sound in very short pulses directed towards the seabed.

Due to the high operating frequency of the MBES, sound energy is rapidly attenuated through absorption in seawater, limiting the distance over which the signal propagates. Furthermore, the acoustic energy is concentrated within narrow beams rather than being radiated broadly in all directions. As a result, the area exposed to elevated sound levels is relatively small compared to that associated with lower-frequency acoustic sources.

Although the source level of the MBES is only slightly lower than that of some seismic survey systems, the environmental implications are markedly different. Conventional airgun seismic

surveys typically operate at low frequencies (generally below 100 Hz) in combination with high source levels (230–260 dB re 1 µPa at 1 m), and therefore produce sound that can propagate over tens to hundreds of kilometres (McCauley et al. 2000, Han et al. 2023). In contrast, the high-frequency signals generated by the MBES are more readily absorbed in the marine and therefore have a much smaller zone of influence. In general, the potential for physiological injury, including permanent hearing damage, is considered low under normal operating conditions.

The shallow Chirp component (35–45 kHz) operates at relatively high acoustic frequencies compared to most sub-bottom profiling systems. At these frequencies, sound attenuates more rapidly in seawater and sediments, resulting in a limited propagation distance. This means that the potential zone of influence is typically small and highly localised around the vessel. Any biological effects are therefore expected to be confined to short-range, temporary behavioural responses, particularly in fish or marine mammals located directly beneath or very near the survey vessel.

The medium penetration low-frequency Chirp sub-bottom profiler (typically ~1–10 kHz) is more relevant ecologically than the MBES, and it can potentially cause broader and more noticeable behavioural responses, although it still sits well below the impact levels of airgun seismic surveys. Chirp signals do overlap more with the hearing range of many marine organisms, including some fish and marine mammals (especially odontocetes, and to a lesser extent mysticetes at the very low end). Unlike the MBES, these frequencies also propagate more effectively through seawater, meaning the zone of audibility and potential disturbance is larger. In terms of effects, the most likely outcomes are still non-injurious and sublethal.

Considering the proposed geophysical surveys and the range of impacts that could occur depending on the source and the receptor, the impacts of various marine receptor groups have been assessed separately. Note, turtles are included as marine megafauna but they are not anticipated to be present in abundance within 6C and at risk from the prospecting activities, so are not formally assessed. If turtles are identified by the Marine Megafauna and Seabird observers then mitigations still apply (see below).

Plankton

Zooplankton and fish larvae and eggs (ichthyoplankton) cannot actively avoid the pressure from survey equipment and can be killed within a distance of less than 2 m where non-lethal injuries are possible within 5 m (Vereide et al. 2025). Given the rapid attenuation of acoustic energy with distance, the proportion of the water column (plankton habitat) affected at biologically meaningful thresholds is very small. Consequently, population-level effects are generally considered negligible (Prosnier 2024). Regional assessments of potentially more lethal seismic surveys, such as that conducted for the Disko West Area, Greenland, concluded that 3D seismic surveys were unlikely to have measurable impacts on fish recruitment at a stock level (Mosbech et al. 2007). Studies investigating the impacts of airguns (more powerful than the acoustic equipment suggested in this study) on zooplankton, found that there were no discernible negative effects on the zooplankton communities as a whole (Richardson et al. 2017, Fields et al. 2019).

The abundance and distribution of zooplankton are highly variable, reflecting seasonal production cycles and hydrodynamic processes such as upwelling. Consequently, ichthyoplankton densities in offshore environments (i.e. the project area) are typically low and spatially dispersed. Most regional fish species spawn in a temporally staggered manner, with spawning peaks occurring in winter or spring (e.g. horse mackerel in winter; sardine in early spring and autumn; hake in late winter to early spring; kingklip in August to September) (Punt & Japp 1994, Barange et al. 1998, Grote et al. 2012). In addition, ichthyoplankton in the Benguela

system are not restricted to near-surface waters. Eggs and larvae are frequently distributed throughout the upper water column and are often advected offshore below the surface mixed layer. Studies suggest that eggs and larvae drift slowly though the assessment area at depths of 13–40 m, further reducing potential exposure to peak sound levels near the surface (Gibbons & Hutchings 1996). This combination of vertical and horizontal dispersion further reduces the likelihood of sustained exposure to concentrated acoustic energy or peak pressure levels.

While there is limited site-specific information on zooplankton and ichthyoplankton densities in the assessment area, available evidence suggests that densities are unlikely to be substantially higher than those reported in comparable offshore systems (Prosnier 2024). Importantly, recruitment in Benguela fish populations is driven primarily by large-scale environmental variability (e.g. upwelling intensity, transport processes, and food availability), rather than localised mortality events (Ekau et al. 2001). Due to the potential impacts being over the short term, relatively localised and the temporal overlap between spawning of key fish species and therefore reduced interaction with potential elevated densities of ichthyoplankton, it is therefore most likely that impacts of the proposed geophysical survey on planktonic communities are **"Very Low Negative"** (Table 7.5).

Table 7.5. Geophysical survey related disturbance on plankton

	Extent	Intensity	Duration	Consequence	Probability	Significance	Status	Confidence
Without mitigation	Regional 2	Low 1	Short term 1	Very Low 4	Probable	**VERY LOW**	-'ve	Med
• No mitigation available								

Invertebrates

Invertebrates mostly do not possess hearing organs, but many do have tactile organs or hairs that are sensitive to underwater sound pressure (Mason 2017). Some invertebrates have highly sophisticated statocysts, which resemble the ears of fishes. While there is very little published information available about the effects of acoustic survey noise on marine invertebrates, it has been postulated that benthic invertebrates can only hear such sounds at very close range. This implies that only surveys conducted in very shallow water will have any detrimental effects on benthic invertebrates. The impacts of the acoustic survey (as proposed for this study) on benthic communities is therefore anticipated to be **"Insignificant"**. The overall impact of noise disturbance to marine invertebrates is assessed to be Insignificant (Table 7.6). No mitigation is considered necessary.

Table 7.6. Geophysical survey related disturbance on benthic invertebrates

	Extent	Intensity	Duration	Consequence	Probability	Significance	Status	Confidence
Without mitigation	Local 1	Low 1	Short term 1	Very Low 4	Possible	**INSIGNIFICANT**	-'ve	Med
• No mitigation required								

Fish

The impacts of survey noise on spawning behaviour of fish have not been suitably quantified to date, but it is predicted that if fish are exposed to powerful external forces on their migration paths or spawning grounds, they may be disturbed or even cease spawning altogether, possibly affecting recruitment to fish stocks. The MBES to be used in this study is a high-frequency system

(frequencies in excess of 10 kHz) and it is known that fish are unable to perceive the high frequencies that characterise these sources (Popper et al. 2014, Barham & Mason 2021). The lowest frequency of the chirp SBP is in the 'mid-frequency' (from Popper et al. (2014)) (1 kHz to 10 kHz) which is also mostly inaudible to fish (Mason 2017). Some fish species, particularly those that possess swim bladders, can suffer serious injury, but the majority of fish are highly mobile and are able to avoid acoustic noise at levels that can cause injury (seismic airguns as an example) (Mason 2017). Popper & Schilt (2008) conclude that, because the vast majority of fish exposed to acoustic survey sounds are not expected to be in close proximity to the acoustic source, they will be exposed to substantially lower sound levels owing to sound attenuation in seawater. Consequently, only a very small proportion of individuals within a population are likely to experience injury or mortality as a result of survey-generated sound. Possible injury or mortality in pelagic species could occur on initiation of a sound source at full power in the immediate vicinity of fish, or where reproductive or feeding behaviour may override a flight response to noise generating survey methods. The overall noise related impact of the geophysical surveys on fish is assessed to be of **"Very Low Negative"** significance (Table 7.7).

Table 7.7. Geophysical survey related disturbance on fish

	Extent	Intensity	Duration	Consequence	Probability	Significance	Status	Confidence
Without mitigation	Regional 2	Low 1	Short term 1	Very Low 4	Probable	**VERY LOW**	-'ve	Med
• No mitigation available								

Marine mammals

All marine mammals, through adaptation to the marine environment, have developed broader hearing ranges than are common to land mammals. These broader hearing ranges make them susceptible to acoustic trauma from geophysical survey activity. Such injuries may include both TTS and PTS. Such injuries are likely to result in a reduction in foraging efficiency, reproductive potential, social cohesion and ability to detect predators (Weilgart 2007). The prevalence of geophysical survey data acquisition has increased across the globe in recent years, and this has prompted scientists to establish noise exposure criteria to predict the onset of auditory effects in marine mammals in order to avoid or mitigate for such impacts (Southall et al. 2019). To date, extensive acoustic surveys (including geophysical and seismic) have been conducted on the continental shelf on the west and south coasts of South Africa (Branch & Branch 2018). The scientific community have voiced their concern over the potential impacts associated with seismic surveys on various groups of marine fauna. It is known that migrating whales are frequently encountered on the west coast of southern Africa during the summer months (due to feeding activity) and encounters with odontocetes such as dusky dolphins, Heaviside's dolphins and pilot whales are possible throughout the year. The timing of acoustic survey activity in Concession Area 6C should be confined to seasons when cetaceans are scarce to ensure minimal disturbance (Gründlingh et al. 2006).

There is little information available on the levels of noise that would potentially result in physiological injury to cetaceans, and no PTSs have been recorded (Mason 2017). Available information suggests that the animal would need to be in close proximity to operating acoustic survey equipment to suffer severe physiological injury (Koper & Plön 2012). As whales are highly mobile, it is assumed that they would avoid sound sources before such injury occurs. Observations show that responses to anthropogenic elevated low frequency acoustic activities varies between species with smaller odontocetes displaying the strongest avoidance response, while the responses of medium and large odontocetes (killer whales and pilot whales) being less

marked (Mason 2017). Baleen whales showed fewer responses to such survey activities than small odontocetes, but all baleen whales showed changes in behavioural responses. McCauley et al. (2000) found no obvious evidence that humpback whales were displaced by acoustic surveys and no apparent gross changes in the whale's migratory path could be linked to survey activities, although localised avoidance of survey vessel has been noted. Such avoidance is generally considered of minimal impact in relation to the distances of migrations of the majority of whale species.

Of the proposed survey activities, the sub-bottom profiler system which uses shallow (35-45 kHz) and medium penetration (1-10 kHz) Chirp pulses to map the sediment horizon could present a comparatively higher risk to marine mammals including dolphins that are known to occur in the area (mainly dusky and Heaviside's dolphins). Heaviside's dolphins are listed as Near Threatened on the IUCN Red List, are known to occur in the area, and fall into the category of mid-frequency cetaceans that could be at risk during the proposed acoustic survey. Dusky dolphins (Least Concern) are also known to occur in the area and could also be at risk.

A noise modelling study (using marine mammal noise exposure criteria from Southall et al. (2019) that was undertaken in Greenland in 50–250 m water depth for a similar MBES and Chirp sub-bottom profiler geophysical survey system predicted worst case scenario impact ranges for HF and LF cetacean hearing groups of less than 100 m for both PTS and TTS (Barham & Mason 2021). That said, it is recommended that two designated Marine Mammal and Seabird Observer (MMSO) be on duty during the proposed acoustic survey activities and as a precaution, the listed mitigation measures are followed. A passive acoustic monitoring (PAM) system must also be used during survey activity to detect cetaceans that could be at risk. Implementation of these mitigation measures should ensure that PTS and TTS impacts arising from the proposed acoustic survey activities in Concession Area 6C would be unlikely.

Cape fur seals *Arctocephalus pusillis pusillus* are highly mobile animals with a general foraging area covering the continental shelf (which extends approximately 220 km offshore). It is likely that seals will be encountered during prospecting activities in Concession Area 6C. In general, seals display considerable tolerance to underwater noise (Richardson et al. 1995). This has been confirmed by a study in Arctic Canada in which ringed seals *Phoca hispida* showed only limited avoidance of measured seismic operations (Lee et al. 2005). In another study, ringed seals were shown to habituate to industrial noise (Blackwell et al. 2004). It is noted that these studies are on phocid seals (true seals without ears). The anticipated Cape fur seal is an otariid (eared seal). There is currently no evidence that otariids are inherently more susceptible to seismic noise than phocids , although otariids generally exhibit lower underwater hearing sensitivity to low-frequency sounds than phocid seals. Species-specific data for Cape fur seals remain limited. Southall et al. (2019)'s Marine Mammal Noise Exposure Criteria places phocids and otariids into separate hearing groups because of measured differences in underwater hearing. Compared with phocid (true) seals, otariids (fur seals and sea lions) generally exhibit lower underwater hearing sensitivity to low-frequency sounds, with hearing that is relatively more sensitive at higher frequencies.

In summary, it is likely that seals would only suffer significant injury if they were diving directly below the vessel in close proximity to such a noise source. The likelihood of this occurring is considered very low. Based on the above, impacts to marine mammals was assessed to be of Medium significance and with the implementation of mitigation (see below) this is reduced to **"Low Negative"** significance (Table 7.8).

Table 7.8 Geophysical survey related disturbance on marine mammals

	Extent	Intensity	Duration	Consequence	Probability	Significance	Status	Confidence
Without mitigation	Regional 2	High 3	Short-term 1	Medium 6	Probable	**MEDIUM**	-ve	Medium
Essential mitigation measures: • Employ a minimum of two independent, designated, appropriately qualified Marine Mammal and Seabird Observers (MMSOs) experienced in marine mammal, seabird and turtle identification to ensure compliance with mitigation measures during geophysical surveying – as per the JNCC 2017 guidelines. MMSOs shall be on duty throughout all daylight survey operations. • Where surveys are undertaken during darkness, fog or other periods of poor visibility, the survey vessel shall be equipped with Passive Acoustic Monitoring (PAM) and operated by at least two suitably trained PAM operators. o Note, the PAM operators and MMSOs can be the same individual but a minimum of two (for both PAM and MMSO) are required. • MMSOs/ PAM operators to implement the JNCC (2017) mitigation protocols before and during all geophysical survey operations. As prescribed below: o Monitor a 500 m mitigation zone around the acoustic source before and during surveys. o Undertake pre-survey visual and/or Passive Acoustic Monitoring (PAM) observations for 30 minutes in water depths <200 m and 60 minutes in water depths >200 m. PAM must supplement visual observations in deeper water to improve detection of deep-diving species. o Commence all applicable acoustic sources using an approved soft-start (ramp-up) procedure. Where equipment design limits conventional soft starts (e.g. certain sub-bottom profilers), the closest practicable equivalent procedure shall be adopted. o Delay commencement or recommencement of acoustic operations until marine mammals (and turtles) have moved beyond the 500 m mitigation zone, with a minimum 20-minute delay from the last detection before initiating the soft start, in accordance with the JNCC guidelines. o In accordance with the JNCC guidelines, there is no requirement to halt an ongoing survey should marine mammals or turtles enter the mitigation zone once full-power operations have commenced. o Record all observations of marine mammals, seabirds, turtles, seals and other notable marine fauna, including species, location, distance from the vessel, swimming direction, behaviour and any observable responses to survey activity. Seabird attraction and feeding behaviour around the survey vessel must also be recorded. o Suspend survey operations immediately must any injury or mortality of marine fauna be observed. o Prepare an MMSO survey close-out report for submission to DFFE and make marine fauna observation data and acoustic source information available, upon request, to the Marine Mammal Institute (MMI), DFFE and DMPR. o Maintain dedicated visual watches for marine fauna during all vessel operations. • "Soft starts" must be carried out for equipment with source levels greater than 210 dB re 1 µPa at 1 m over a period of 20 minutes to give adequate time for marine mammals to leave the vicinity. Where this is not possible, the equipment must be turned on and off over a 20-minute period to act as a warning signal and allow cetaceans to move away from the sound source. • Terminate the survey if any marine mammals show affected behaviour within 500 m of the survey vessel or equipment until the mammal has vacated the area. o Avoid geophysical surveys during the movement of migratory cetaceans (i.e., humpback and southern right whales) from their feeding grounds into low latitude waters (i.e., winter - beginning of June to end of November) and ensure that migration paths are not blocked by acoustic survey operations.							
With mitigation	Regional 2	High 3	Short term 1	Medium 6	Possible	**LOW**	-ve	Medium

Desired impact management outcome to be achieved

To avoid injury to marine mammals and ensure that any disturbance arising from geophysical survey activities is limited to short-term, localised and reversible behavioural effects, with limited significant interference with migration, feeding, or breeding behaviours, and no measurable population-level impacts.

Seabirds

As with other vertebrates, the assessment of indirect effects of acoustic surveys on diving seabirds is limited by the complexity of trophic pathways in the marine environment (Mason 2017). Impacts of Chirp pulses to marine birds (diving or resting on water surface) include physiological injury, behavioural avoidance of acoustic survey areas and indirect impacts due to effects on prey. The Critically Endangered African Penguin *Spheniscus demersus* is particularly susceptible to impacts from underwater noise. Due to the continuous nature of the intermittent survey pulses, African Penguins and other diving birds would be expected to hear the sound sources at distances where levels would not induce mortality or injury and likely avoid the approaching sound source (Mason 2017). This is supported by the findings of Pichegru et al. (2017) who have shown that feeding areas within 50 km of acoustic (seismic in the case of the research discussed) surveys are completely avoided by African Penguins.

Most of the impacts identified depend on the diet of the bird species concerned and the effect of acoustic surveys on the diet species. For example, plunge-diving birds forage on small shoaling fish prey species relatively close to the shore (Mason 2017). Of the diving birds that occur along the coast, only the Cape Gannet *Morus capensis* regularly feeds from the inshore environment as far as 100 km offshore. Other seabirds found close inshore that may be impacted along the inner margin of Concession Area 6C include the Cape Cormorant, and various terns and gull species. Pelagic seabirds such as albatross, petrels and shearwaters are likely to be encountered in the offshore waters of 6C and may also be impacted.

The overall impact is assessed to be of "Medium" significance prior to mitigation. However, with the implementation of mitigation measures, this can be reduced to **"Low Negative"** (Table 7.9).

Table 7.9 Geophysical survey related disturbance on seabirds

	Extent	Intensity	Duration	Consequence	Probability	Significance	Status	Confidence
Without mitigation	Regional 2	High 3	Short-term 1	Medium 6	Probable	**MEDIUM**	-ve	Medium
Essential mitigation measures: • Designated onboard Marine Mammal and Seabird Observers (MMSOs) to ensure compliance with mitigation measures during geophysical surveying – as per the JNCC 2017 guidelines. More detail presented in report conclusions. • If spotted wait until all seabirds have cleared an area of 500 m radius (mitigation zone) of the centre of the emanating noise source before resuming with acoustic survey (initiate soft start procedure when resuming geophysical surveys). • Terminate the survey, if any seabirds show affected behaviour within 500 m of the survey vessel or equipment, until they have vacated the area. • Record incidences of encounters with seabirds, their behaviour and response to survey activity. • Suspend operations if any obvious mortalities or injuries to seabirds are observed.								
With mitigation	Regional 2	High 3	Short term 1	Medium 6	Possible	**LOW**	-ve	Medium

Desired impact management outcome to be achieved: To avoid injury and mortality of seabirds, and to ensure that any disturbance associated with geophysical survey operations is limited to short-term, localised and reversible behavioural effects only, with no significant ecological or population-level consequences.

Impact of Coring and Drilling Noise on Marine Fauna

Geotechnical samples to assist in understanding the sea floor geology and resource evaluation will be collected at 100–200 sites using either vibracoring, gravity coring or sonic coring during **Phase 1 and 2**. The latter is an advanced form of drilling that employs high-frequency, resonant energy generated inside the sonic head to advance a core barrel or casing into subsurface formations, i.e. can penetrate some subsurface rock, whilst gravity and vibracoring can only sample unconsolidated material. Overall, the sampling will affect a total surface area of about 1.57 m^2 and yielding approximately 4.71 m^3 of material in total (details are provided in Section 6.1.3). There is no planned release or spillage of material into the ocean during sampling, as the material remains intact within the core tube and is brought back to the vessel for secure storage. Collecting around 200 cores will take approximately 10 working days. Exact sampling locations will be determined using results from geophysical surveys and recommendations from this marine ecology specialist study. This information is then used to engineer a drilling like tool (used for Phase 3 of the prospecting activities – see below - and by the future mining vessel). Prospective target areas will be investigated using a specially designed drilling tool that can collect gravel and other seabed materials.

All three coring methods generate non-impulsive sound. While this sound may still contribute to underwater noise and result in behavioural disturbance or acoustic masking for marine fauna, it is generally considered to have lower ecological impacts than impulsive sound because it lacks the high peak pressures and rapid rise times associated with impulsive noise sources (Lenchine 2023). In general, studies have found that coring is less likely to induce hearing damage in marine mammals than hammering noises (Huang et al. 2023). Furthermore, due to the small (10 cm) core diameter of these sampling methods, relatively low levels of energy would be required to undertake this drilling, and noise levels are not expected to be intense. Sonic coring/drilling is anticipated to produce non-impulsive noise of a source level of 189 dB SPL, across 50–16 000 Hz (MMRPS 2015), with another study reporting 50-200 Hz (Sun et al. 2017). Noise modelling of a survey conducted in the Irish Sea found that exceedance of TTS for VHF cetaceans was up to 600 m, and less than 240 m distance for other hearing groups (MMRPS 2015).

For the **Phase 3 drilling** prospective target areas will be investigated using a specially designed drilling tool to collect gravel and other seabed materials. Depending on the final tool design, the drill will impact an area of approximately 3 to 5 m^2 per sample. A total of 300 drilling samples may be collected over approximately 10 days, excluding potential weather delays.

Considering the relatively low source levels associated with coring and drilling activities, the non-impulsive nature of the sound produced, and the limited duration and spatial extent of Phase 2 operations, the overall significance of acoustic disturbance to marine fauna is rated as Very Low. While some temporary behavioural responses may occur in acoustically sensitive species within the immediate vicinity of the operations, significant impacts are not anticipated. The zone of potential disturbance is expected to remain relatively localised around active sampling sites, with effects limited to the duration of the activity and rapidly reversible following its cessation.

Overall, the noise-related impacts associated with geotechnical sampling and resource evaluation drilling are anticipated to be of local extent, medium magnitude and short duration, resulting in a **"Very Low Negative"** overall significance (Table 7.10). However, to apply precaution, mitigation measures have been prescribed.

Table 7.10. Impacts of Phase 2 coring and drilling noise on marine fauna.

	Extent	Intensity	Duration	Consequence	Probability	Significance	Status	Confidence
Without mitigation	Local 1	Medium 2	Short-term 1	Very Low 4	Probable	**VERY LOW**	-ve	Med
Essential mitigation measures: • MMSOs /PAM operators to undertake JNCC mitigation measures as stated above for acoustic surveys. Once drilling can go ahead, soft starts must be employed. • The quietest drilling method possible must be employed.								
With mitigation	Local 1	Low 1	Short-term 1	Very Low 3	Probable	**VERY LOW**	-ve	Med

If follow-up results indicate a potentially viable resource, a more detailed phase of resource evaluation will be undertaken. It will result in a total disturbed area of about 6 000 m^2 (based on a 5 m^2 drill footprint) over approximately 40 days. These impacts have been assessed separately, with a higher intensity and greater extent of impacts anticipated (Table 7.11). However, with mitigation, the significance is also rated as **"Very Low Negative"**.

Table 7.11 Impacts of Phase 3 coring and drilling noise on marine receptors.

	Extent	Intensity	Duration	Consequence	Probability	Significance	Status	Confidence
Without mitigation	Regional 2	Medium 2	Short term 1	Low 5	Probable	**LOW**	-ve	Medium
Essential mitigation measures: Same Table 7.10 as above. **Recommended mitigation measures:** Limit drilling footprint where at all possible.								
With mitigation	Local 1	Low 1	Short-term 1	Very Low 3	Probable	**VERY LOW**	-ve	Medium

Desired impact management outcome to be achieved: To ensure that noise generated by coring and drilling activities does not result in injury or significant disturbance to marine fauna, and that any behavioural responses are temporary, localised and fully reversible, with no measurable population-level effects.

Marine megafauna collisions with survey vessels

Additional vessel time at sea increases risk of survey vessel interactions with marine megafauna such as whales and turtles— an increase in vessel traffic through habitat used by these animals can increase the risk of collision whilst the deployment of towed survey gear carries a risk of entanglement. The main causes of cetacean (mainly southern right and humpback whales) entanglement in South Africa involve static fishing gears particularly rock lobster traps and long lines (Meÿer et al. 2011). The potential for collision between cetaceans and other megafauna and the survey vessel, or entanglement in the deployed sampling equipment, is directly proportional to the vessel speed and the abundance and behaviour and cetaceans in the area during the surveys. The 6C Concession Area is part of the natural range of several species of marine mammals including large whales such as humpback and southern right whales, but it is not considered an important aggregation site (see 6.1.3). Dusky dolphins, Heaviside's dolphins and pilot whales are also possible throughout the year.

While the intensity of the impact is considered high for the individual affected animal and medium for the population as a whole, the number of marine fauna expected to be encountered

during the limited time that the survey vessel is active is expected to be low. As such, the potential impact of marine megafauna collision with the survey vessel or entanglement in sampling equipment is therefore assessed to be of **"Very Low Negative"** significance (Table 7.12).

Table 7.12. Marine megafauna collisions with survey vessels.

	Extent	Intensity	Duration	Consequence	Probability	Significance	Status	Confidence
Without mitigation	Local 1	High 3	Short-term 1	Low 5	Possible	**VERY LOW**	-ve	High
Essential mitigation measures: • Designated onboard Marine Mammal and Seabird Observers (MMSOs) and vessel operator to keep watch for marine megafauna in the path of the vessel during all daylight vessel operations, including geophysical surveying. • If surveys are to be undertaken at night, the vessel must be fitted with Passive Acoustic Monitoring (PAM) technology and employs at least two PAM operators. Utilise PAM technology when surveying at night or during adverse weather conditions and thick fog (commonly encountered on the west coast of South Africa), throughout the year. Note, the PAM operators and MMSOs can be the same individual but a minimum of two (for both PAM and MMSO) are required. • Vessel transit speed to not exceed 12 knots (22 km/hr), except within 25 km of the coast where it must be kept to less than 10 knots (18 km/hr) as well as when sensitive marine fauna are present in the vicinity.								
With mitigation	Local 1	High 3	Short term 1	Low 4	Improbable	**VERY LOW**	-ve	High

Desired impact management outcome to be achieved: To avoid injury/mortality of marine megafauna from vessel strikes.

Direct benthic impacts associated with prospecting activities (all phases)

As part of **Phase 2,** approximately 100–200 sites will be core sampled in Concession Area 6C using either vibracoring, gravity coring or sonic coring techniques. The 200 cores will cover a total surface area of 1.57 m^2, although the core might impact a surface area slightly larger than this. In addition to this, prospective targets will be analysed by a uniquely designed drill tool that can dredge gravel from the seabed. A Van Veen grab will be used to collect baseline environmental data on sediments and benthic macrofauna at between 20 and 50 sampling sites. The sampling programme will disturb a total seabed area of approximately 5 m^2 and will result in the collection of approximately 1.5 m^3 of sediment. In **Phase 3**, approximately 1 200 additional samples will be collected covering a total disturbed area of about 6 000 m^2.

The material brought to the surface will be processed onboard a vessel using a processing plant, and the remaining fine material (tailings) will be discharged back into the sea. This can result in temporary sediment plumes in the water column and sediment being deposited on the seabed surface. The formation and persistence of these sediment plumes depend mainly on the size of the particles and the prevailing ocean conditions. Coarser material such as sand settles quickly and produces short-lived plumes, while finer muddy sediments can remain suspended for longer periods.

Overall, the total seabed area disturbed across Phases 1, 2, and 3 is estimated at approximately 7 600 m^2 (0.76 ha). This represents a small proportion (0.0002 %) of the total Concession Area 6C (~346 000 ha/ 3 500 km^2).

Impacts from sampling are likely to result in localised removal of benthic organisms and their habitat within the footprint of the sampling tool, which due to the relatively small size of the

various coring tools, is expected to be virtually negligible. However, the impacts from Phase 2 drill sampling are expected to be more extensive (total area affected is approximately 1500 m^2 initially and potentially rising to an additional 6 000 m^2. Impacts associated include direct habitat loss and smothering of the benthos adjacent to sampling sites associated with localised tailings discard. The samples are discrete (not contiguous), and as a result, recolonisation from adjacent undisturbed areas is possible (based on understanding of habitats along the continental shelf in similar, adjacent areas). Considering the available area of similar habitat on the continental shelf of the West Coast, the reduction in benthic biodiversity through sediment removal can be considered relatively low.

The impact on the offshore benthos as a result of the cumulative removal of sediments from sampling is considered to be of medium intensity at a local scale (i.e. the sampling location only, plus slight surrounds for tailings disposal). Full recovery is expected to take place within the short to medium term (i.e. 6-15 years), as the sampled areas are expected to have slow infill rates and may persist for extended periods (years). Furthermore, biomass often remains reduced for several years as long-lived species like molluscs and echinoderms need longer to re-establish the natural age and size structure of the population. It is generally accepted that offshore disturbed areas take longer to recover than those in shallow water further inshore (Figure 7.1). Important drivers of inshore habitat recovery are related to the exposure to dynamic physical processes such as wave action and sediment refill from river mouths (Biccard et al. 2020). Hence, recovery times greatly increase with depth and distance from sources of sedimentation (limited terrigenous input due to lack of nearby estuarine/riverine systems).

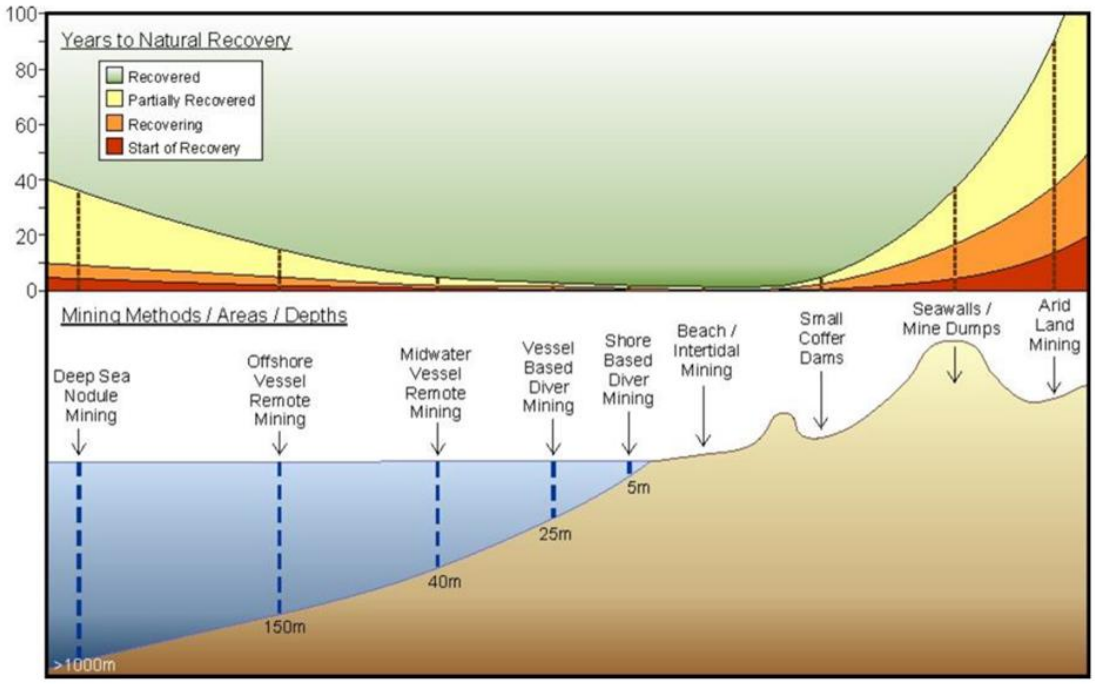

Figure 7.1 Maximum times to various stages of natural recovery (still impacted, recovering, partially recovered and recovered) reported in the literature for various local studies of marine mining, and relevant international studies on other seabed disturbances (Penney et al. 2007).

It is possible to implement careful planning and management of potential discharges to ensure that tailings are not discarded onto sensitive habitat (Penney et al. 2007, Pulfrich 2017). To this end, CBA Natural Areas should be avoided to avoid impacts of prospecting activities (direct and indirect) on the 'Natural' habitat. This is part of the mitigation hierarchy adopted by industry

leaders. The assessment of benthic habitat impacts is based on the best available regional datasets, including detailed continental shelf habitat mapping and the current understanding of soft-sediment benthic ecosystems along the West Coast. However, as no site-specific benthic survey data are currently available for Concession 6C, some uncertainty remains regarding the fine-scale distribution of benthic communities within the licence area. Consequently, the confidence in the impact assessment has been rated as medium (Table 7.13). Nevertheless, given the generally good understanding of continental shelf soft-sediment habitats in the region, the broad habitat mapping available, and the commitment to avoid mapped CBA Natural areas, the assumptions underpinning this assessment are considered reasonable and sufficiently precautionary.

Considering the forecasted area of impact, across all phases, this impact is assessed as "Medium" negative significance without mitigation, however, it can be reduced to **"Low Negative"** with suitable mitigation (Table 7.13).

Table 7.13 Direct benthic impacts associated with prospecting activities (all phases)

	Extent	Intensity	Duration	Consequence	Probability	Significance	Status	Confidence
Without mitigation	Local 1	High 3	Medium term 2	Medium 6	Definite	**MEDIUM**	-ve	Med
Essential mitigation: • A pre-survey verification of sensitive marine habitats before intrusive sampling is mandatory. • Exclusion buffer zones must be implemented around sensitive habitats identified during geophysical surveys. The recommended exclusion buffer zone is 500 m. • All sensitive benthic habitats identified during geophysical surveys should be avoided, including exclusion zone buffers (500 m recommended) around such habitats. • The CBA Natural area must be clearly demarcated as a no-go area and be excluded from the prospecting footprint entirely, prior to prospecting. No prospecting may occur in the CBA. • Potential discharges must be planned and managed to ensure that tailings are not discarded onto potentially sensitive habitats. • Information gathered during all seabed sampling, reef identification and seabed video/camera assessments must be made available in a usable, geo-referenced format to the South African government (DFFE) and SANBI to inform future Marine Spatial Planning and confirmation of CBA status. **Recommended/ Best Practice mitigation**: • Annual benthic biodiversity monitoring could be undertaken to assess changes in ecological conditions and identify whether cumulative impacts may be increasing over time. The findings could be used to inform the need for additional mitigation measures, where required.								
With mitigation	Local 1	Medium 2	Medium term 2	Low 5	Definite	**LOW**	-ve	Med

Desired impact management outcome to be achieved: Ensure that seabed sampling, drilling and tailings disposal result only in localised and temporary disturbance to benthic habitats, with sensitive habitats avoided and the CBA Natural area excluded from the prospecting footprint, no significant impacts on biodiversity features of concern, and no long-term loss of benthic ecosystem structure or function.

Indirect impacts associated with tailings discharge and fine sediment plumes

During the sampling process, sedimentary material that has been brought to the surface will be processed onboard and unwanted material (tailings) will be discarded overboard, thereby causing sediment plumes (See Section 3.2.3). These plumes can affect light penetration through the water column and can adversely affect phytoplankton productivity in the water column (Johnston 1981, Poopech 1982, Kirk 1985, Parsons et al. 1986a b, O'Toole 1997, Monteiro 1998, Pulfrich 2017). Suspended sediment plumes can also develop either near the seabed, or in mid-water due to the dynamic collapse and diffusion of the sediment jet following the discharge. Suspended sediment concentrations generated at the point of discharge, the extent and area over which plumes disperse, and their duration, depend largely on the proportions of silts, muds and clays in the mined sediments, as well as the sea-surface conditions during disposal. The finer sediments discharged at the surface generate a plume in the upper water column, which is dispersed away from the vessel by prevailing currents, diluting to background levels at increasing distances from the vessel.

In addition to reduced phytoplankton productivity, suspended sediments may also affect the biological responses of consumers (hatching success, larval survival and foraging behaviour) provided they contain inorganic particles (Wilber & Clarke 2001). Although these plumes differ in intensity and timing from natural background conditions, marine communities in the muddy shelf areas of the Benguela are well adapted to such events as they are frequently exposed to naturally elevated suspended-sediment levels (Penney et al. 2007). Where deep-water sampling/prospecting is practiced, increased turbidity in the pelagic offshore environment as result of tailings plumes is not expected to have any significant effects on the marine biota (Penney et al. 2007, Pulfrich 2017). The latter statement is well supported as numerous modelling studies and aerial observations of plumes generated from mining vessels have shown that concentration of suspended sediments reduce rapidly with distance from the vessel, allowing a fairly fast settlement and dilution of fine sediment fractions (Poopech 1982, Hitchcock & Drucker 1996, Shillington & Probyn 1996, CSIR 1998, Carter & Midgley 2000). In addition, studies conducted on dredge-mining operations have recorded that water-column turbidity returns to natural background levels within a few hours after dredging has ceased (Whiteside et al. 1995).

Sampling activities in 6C will not be contiguous. This will result in a delay in time while the seabed tool is transferred to the new sampling site before additional sediment is released overboard with the next sample. Furthermore, the volumes of sediment that are expected to be collected and processed in this project are relatively small and hence impacts on the environment are expected to be of **"Very Low Negative"** significance (Table 7.14). No direct mitigation is feasible as tailings disposal is an integral part of this sampling method.

Table 7.14. Indirect impacts associated with tailings discharge and fine sediment plumes

	Extent	Intensity	Duration	Consequence	Probability	Significance	Status	Confidence
Without mitigation	Local 1	Medium 2	Short-term 1	Very Low 4	Definite	**VERY LOW**	-ve	High
Essential mitigation measures (Indirect): • When planning where to undertake seabed sampling, sites outside of CBA: Natural areas, EBSAs and otherwise previously identified sensitive habitats must be selected.								
Without mitigation	Local 1	Low 1	Short-term 1	Very low 3	Probable	**VERY LOW**	-ve	High

Impact of Artificial Light at Night from Vessels

Artificial light at night is a significant source of light pollution that interferes with the natural cycles of light and darkness and modifies the intensity, spectra, frequency and duration of light reaching and penetrating the natural water bodies, including the ocean's surfaces, and natural landscapes (Zapata et al. 2019, Nelson et al. 2021). During this project phase, vessels associated with survey activities are likely to be the greatest source of artificial light at night.

The impact of artificial light at night on natural ecosystems and wildlife populations is receiving increasing research attention, and there is a wealth of information that illustrates that artificial light at night influences animal orientation, circadian rhythm (nocturnal and diel activity), spatial distribution, habitat use, migration/dispersal, foraging efficiency and predatory behaviour, schooling behaviour in fish, stress hormones, and reproduction and life history traits (Brüning et al. 2018, Nelson et al. 2021, Bassi et al. 2022). Artificial light at night can influence the different levels of ecosystem organisation from individual organisms' physiology and behaviour through to ecosystem function and provision of ecosystem services (Zapata et al. 2019).

The biological effects of artificial light at night include metabolic disruption, oxidative stress, immunological dysfunction, sleep loss, energy expenditure and altered growth rate (Navara & Nelson 2007, Bedrosian et al. 2011, Wyse et al. 2011, Gaston et al. 2015, Raap et al. 2015). These effects are linked to organisms' internal rhythms that are driven by daily, seasonal, and lunar light cycles (Gaston & Sánchez De Miguel 2017).

Sensitivity to light and requirements for optimal living conditions and ecological functioning varies between groups of organisms (e.g., invertebrates, fish, birds, reptiles, humans) and even within species (CWA 2020). Most organisms utilise light or visual cues to locate and capture food. For aquatic species, it is well known that different taxa (such as phytoplankton, zooplankton, fish, squid and prawns) respond to artificial light (Timmer & Magellan 2011, Grubisic 2018, Bassi et al. 2022) and biological responses will vary with the magnitude, duration, frequency, and predictability of exposure to artificial light at night (Zapata et al. 2019).

Fish have exhibited changes in circadian rhythm at illuminances (1 lux) that occur in indirectly illuminated environments (Brüning et al. 2018). Values well below 1 lux are commonly found for moonlight and skyglow (Jägerbrand & Bouroussis 2021). Normal working light from a ship has been found to disrupt fish and zooplankton behaviour to at least 200 m depth across an area of >0.125 km^2 around the ship (Berge et al. 2020). It is important to note that behavioural responses to artificial light vary among taxa. While some species are known to be attracted to light, others are known to avoid light (Marangoni et al. 2022). Zooplankton tend to avoid light, undertaking diel vertical migration to depth during daylight to avoid the threat of visual predation, and surfacing at night to feed. Diurnal vertical migration is a characteristic feature in all oceans and is considered to be the largest synchronised movement of biomass on the planet (Hays 2003). This process has a strong effect on the movements of pelagic communities and as it occurs in response to light, has the potential to be greatly affected by artificial light (Berge et al. 2020).

Offshore, where oceanscapes tend to have less artificial lighting than near the coast, an intense source point of artificial light can attract marine birds across long distances (Montevecchi 2006). Bird strikes, involving a variety of species, on artificially lit vessels at sea are common at night (Merkel 2010). Many nocturnal seabird species are highly attracted to artificial light, as they forage on bioluminescent prey (Imber 1975, Montevecchi 2006). Intense artificial light can cause birds, particularly migrating passerines, to circle the light source for hours to days, especially during foggy and overcast conditions, such as those frequently occurring on the West Coast, sometimes resulting in the birds collapsing from exhaustion, potentially limiting them from having sufficient energy to make landfall or survive winter and/or reproduction. The attraction of

marine birds, especially seabirds such as prions, storm petrels, and petrels, to offshore hydrocarbon platforms due to artificial lighting often results in collisions due to disorientation, which may cause mortality. Storm-petrels, petrels and shearwaters are more attracted to artificial light in their fledgling stage than when they are adults, making the fledglings more vulnerable to impacts such as collisions. Marine birds have also been observed feeding in the artificial light from vessels and hydrocarbon platforms, as the light tends to concentrate their prey (Montevecchi 2006, Marangoni et al. 2022). The amount of light spill that will reach the areas surrounding the vessels is unknown but will be influenced to a large degree by climate/atmospheric conditions. Artificial skyglow (direct lighting emitted or reflected upwards, scattered in the atmosphere and reflected back to the ground; see Kyba et al. (2011)) can spread light pollution hundreds of kilometres from its source (Luginbuhl et al. 2014).

Due to their extensive distributions, the numbers of pelagic species (large pelagic fish, turtles and cetaceans) encountered during the proposed geophysical survey is expected to be low. Given that the Concession Area is located near to a main marine traffic route, the area is already impacted by increased anthropogenic lighting and the intensity of the impact is considered to be of low significance (meaning the impacts are anticipated to result in minor/slight change, disturbance, or nuisance with minor consequences or deterioration, given the small number of additional vessels this work will involve). Due to anticipated numbers and the proximity of survey area to the main traffic routes, the increase in ambient lighting in the offshore environment would be of low intensity and regional in extent (although limited to the area in the immediate vicinity of the vessel) over the short- term (4 months). While the sensitivity of receptors to vessel lighting is considered to be high, the impact is assessed as of low significance prior to mitigation because of the short-term duration and small extent. While the use of lighting on project vessels cannot be eliminated due to safety and navigational requirements, and the vessel will operate as per its owner approved operating procedures, the application should ensure that these procedures encourage angling lights downwards rather than out to sea, restricting use of lights to a minimum and the use of red filters. With the implementation of these mitigation measures, this impact can be reduced to **"Very Low Negative"** significance (Table 7.15).

Table 7.15 Impact of artificial light at night from vessels on marine fauna.

	Extent	Intensity	Duration	Consequence	Probability	Significance	Status	Confidence
Without mitigation	Regional 2	Medium 2	Short-term 1	Low 5	Probable	**LOW**	-ve	High
Essential mitigation measures: • Reduce the lighting to a minimum compatible with safe operations whenever and wherever possible to reduce nocturnal faunal attraction. • Position light sources, if possible and consistent with safe working practices, in places where emissions to the surrounding environment can be minimised i.e., aim lighting downward rather than out to sea. • Plan procedures for how to care for downed seabirds and ensure that personnel are adequately trained in this regard. • Monitor the presence of seabirds and identify mortalities, even when birds do not land on the vessel, especially in foggy conditions and at night. • Report ringed/banded birds to the appropriate ringing/banding scheme (details are provided on the ring).								
With mitigation	Regional 2	Medium 2	Short-term 1	Low 5	Possible	**VERY LOW**	-ve	High

Waste discharges during vessel operations

Water quality in the vicinity of survey vessels may be impaired by various forms of waste discharged into the marine environment. During operation, normal discharges to the sea can come from a variety of sources but these are all regulated generally by onboard waste management plans which must be MARPOL compliant. The impacts on marine life depend on the properties of the waste discharged. The various kinds of waste produced at sea; their associated impacts and management protocols are outlined below.

Vessel operators may experience **accidental spills** from operational machinery, which could include hydrocarbons such as hydraulic fluids, diesel, oils and/or hazardous substances. Spills of this nature are highly toxic and unless carefully managed, may pollute nearshore and coastal environments as well as damage and potentially destroy, marine organisms (wreckage of a vessel). The duration of the impact would depend on the biodegradation of the type of waste. Solid wastes (e.g. plastics, scrap metals) may take decades or centuries to degrade. Strict waste management plans must be enforced for all operators; all deck drainage from workspaces and ballast water to be discharged must meet the MARPOL compliance level of 15 ppm oil in water. This is achieved through use of an oily-water separation system. The oily substances must be skimmed off the top of the discharge water and added to the waste (oil) lubricants and disposed of on land.

In accordance with MARPOL, **sewage effluent** must not produce visible floating solids in, nor cause discolouration of the surrounding water. The treatment system must provide primary settling, chlorination and dechlorination before the treated effluent can be discharged into the sea. The discharge depth is variable, depending upon the draught of survey vessel at the time, but must not be less than 5 m below the surface.

The problem of **litter** entering the marine environment has escalated dramatically in recent decades, with an ever-increasing proportion of litter consisting of non-biodegradable plastic materials. Objects that are particularly harmful to marine fauna include plastic bags and bottles, pieces of rope and small plastic particles (Wehle & Coleman 1983). Large numbers of marine organisms, including fish, birds and marine mammals, are killed or injured by becoming entangled in debris (Wallace 1985) while others, including seabirds, are at risk through the ingestion of small plastic particles (Shomura & Yoshida 1985). All reasonable measures must be implemented to ensure that no littering takes place during installation, operation and closure of oil and gas production facilities.

Food waste may be discharged after it has been passed through a grinder in cases where the drilling unit or production facility is located more than 3 nautical miles offshore. Discharge of whole food waste is permitted beyond 12 nautical miles offshore. The ground wastes must be capable of passing through a screen with openings <25 mm. The daily volume of discharge from a standard drilling unit is expected to be <0.5 m^3 (Pulfrich 2015). This volume is not expected to be exceeded for exploration and prospecting activities in Concession Area 6C.

Detergents used for washing exposed marine deck spaces are discharged overboard. The toxicity of detergents varies greatly depending on their composition, but low-toxicity, biodegradable detergents should preferably be used. Those used on work deck spaces would be collected with the deck drainage and treated as described above.

Electricity on exploration, sampling and associated support vessels is typically provided by diesel-powered engines and generators, which are cooled by pumping water through a set of heat exchangers. The **cooling water** is then discharged overboard. Other equipment is cooled

through a closed loop system, which may use chlorine as a disinfectant. Such water would be tested prior to discharge and would comply with relevant Water Quality Guidelines.

Based on the relatively small volumes of waste that can be expected, the potential impact of operational discharges from exploration and sampling/prospecting on the marine environment are of very low consequence, and the extent is likely to be limited to the immediate area around the vessel(s). Overall, the potential impact of operational discharges on the marine environment is considered to be of "Very Low" significance. With the implementation of the essential mitigation measures this is reduced to **"Insignificant"** (Table 7.16).

Table 7.16 Waste discharge during vessel operation.

	Extent	Intensity	Duration	Consequence	Probability	Significance	Status	Confidence
Without mitigation	Local 1	Low 1	Medium-term 2	Very low 4	Probable	**VERY LOW**	-ve	High
Essential Mitigation measures: • Inform & empower all staff about sensitive marine species & suitable disposal of waste; • Ensure compliance with relevant MARPOL standards; • A Shipboard Oil Pollution Emergency Plan (SOPEP) must be prepared for all vessels and must be in place at all times during operations; • Deck drainage must be routed to a separate drainage system (oily water catchment system) for treatment to ensure compliance with MARPOL (15 ppm); • All hydraulic systems must be adequately maintained and hydraulic hoses must be frequently inspected; • Spill management training and awareness must be provided to crew members of the need for thorough cleaning-up of any spillages immediately after they occur in order to minimise the volume of contaminants washing off decks; and • The prospecting vessel must maintain a certified oil spill contingency plan with rapid-response containment equipment optimized for high-energy nearshore environments to ensure zero hydrocarbon or hazardous waste entry into the surf zones where these facilities source their production water. **Recommended mitigation**: • Develop a waste management plan using waste hierarchy; • All process areas should be bunded to ensure drainage water flows into the closed drainage system; • Drip trays should be used to collect run-off from equipment that is not contained within bunded areas and the contents routed to the closed drainage system; • Low-toxicity biodegradable detergents should be used in the cleaning of all deck spillages.								
With mitigation	Local 1	Low 1	Short term 1	Very low 3	Improbable	**INSIGNIFICANT**	-ve	High

7.7.2 Potential socio-economic impacts and benefits (including fisheries)

Overview and identified impacts

The principal socio-economic impact pathways relate to temporary interactions with marine users, particularly fishing activities, and the generation of direct and indirect economic benefits through procurement and employment at regional and national scales. Due to the offshore location, limited duration of activities, absence of onshore infrastructure, and lack of reliance on local labour, direct impacts on nearby communities are expected to be negligible. Consequently, the significance of socio-economic impacts is likely to be low, with no material effects anticipated on local population dynamics, community services, infrastructure or livelihoods.

Potential socio-economic impacts as a result of exploration and prospecting were identified based on available literature, information collated from the Client, previous EIA and monitoring reports and the specialist's own knowledge. Identified potential impacts include:

- Impacts on fisheries (and livelihoods of those who depend on these fisheries);
- Potential interference with commercial shipping traffic;
- Impacts on sense of place and wellbeing;
- Impacts on nature-based tourism and recreation;
- Impacts on direct employment;
- Impacts on procurement and expenditure;
- Impacts on training and skills development; and
- Impacts on scientific data and knowledge generation.

Commercial and small-scale fishing activities

According to the International Regulations for Preventing Collisions at Sea (COLREGS 1972), vessels engaged in geophysical surveys are recognised as vessels limited in their ability to manoeuvre and as such, vessels engaged in other activities (such as fishing) are obliged to give way. Furthermore, the implementation of a safety (exclusion) zone around the survey vessel will exclude any other users of the sea from these areas. In practice, this exclusion zone takes form of a moving footprint extending around the survey vessel (Mason 2017). In this case, the size of the footprint can be expected to be around 500 m in extent.

Exclusion of fishing vessels from fishing areas, possible altered behaviour of fish due to acoustic survey activities and interference with shipping could have (indirect) socio-economic implications for the affected industries. Fisheries might be affected by target species avoiding survey areas for several days after the survey has terminated or the vessel has moved on (Mason 2017).

Fisheries sectors operating within Concession Area 6C that could be impacted include those listed in Section 6.2. Given the limited spatial overlaps, the catches from these sectors made within the Concession Area 6C are all of limited significance as a proportion of the national total catch of each of these fisheries. Furthermore, the remote, offshore location of the 6C Concession Area (north and offshore of the nearest coastal fishing community at Hondeklipbaai and with a landward boundary 5 km offshore) means that impacts on local small-scale fishers due to prospecting in this concession area will not occur. Overall, the impact is assessed to be **"Insignificant"** and recommended Best Practice would be to inform key stakeholders from the potentially affected sectors (Table 7.17).

Table 7.17. Impact on fisheries (and livelihoods of those who depend on these fisheries).

	Extent	Intensity	Duration	Consequence	Probability	Significance	Status	Confidence
Without mitigation	Local 1	Medium 2	Short-term 1	Very Low 4	Possible	**INSIGNIFICANT**	-ve	High
Recommended/best practice mitigation measures: • Prior to survey commencement, key stakeholders (see below) should be consulted and informed of the proposed survey activity and the likely implications thereof.								

Recommended/best practice mitigation measures:
Prior to survey commencement, the following key stakeholders should be consulted and informed of the proposed survey activity (including navigational co-ordinates of the survey area, timing and duration of proposed activities), the 'operational alert protocol', and the likely implications thereof:

- Fishing industry / associations (contactable via liaison@fishsa.org):
  - SA Marine Linefish Management Association (SAMLMA);
  - South African Tuna Association (SATA);
  - South African Tuna Longline Association (SATLA);
  - Mariculture farm operators.
  - Large Pelagic Small Medium & Micro Enterprises Association (LPSMME); and
  - Local fishing communities.
- Other associations and organs of state
  - DFFE;
  - SAMSA;
  - South African Navy Hydrographic office; and
  - Overlapping and neighbouring right holders.

These stakeholders should again be notified at the completion of surveying when the survey vessel(s) is/are off location. The operator must request, in writing, that the South African Navy Hydrographic office release Radio Navigation Warnings and Notices to Mariners throughout the survey periods. The Notice to Mariners should give notice of (1) the co-ordinates of the proposed survey area, (2) an indication of the proposed timeframes of surveys and day-to-day location of the survey vessel(s), and (3) an indication of the required safety zone(s) and the proposed safe operational limits of the survey vessel. These Notices to Mariners should be distributed timeously to fishing companies and directly onto vessels where possible.

Potential interference with commercial shipping traffic

The main users of the sea space in Concession Area 6C are the commercial shipping and fishing industries. The wave exposed and linear nature of the coast and lack of nearby ports suitable for large vessels means that most merchant shipping would travel offshore of the concession area along the continental shelf edge. Most shipping crossing the Concession area would be fishing vessels and other prospecting or mining vessels. However, given that the majority of shipping traffic is located on the outer edge of the continental shelf, which is well offshore of the outer edge of Concession Area 6C (Figure 7.2). The inshore traffic of the continental shelf along the West Coast is largely comprised of fishing and mining vessels, especially between Kleinzee and Oranjemund. Thus, there is unlikely to be much interaction between vessels involved with prospecting in Area 6C, and other vessel. The impact on shipping traffic is considered to be local, of low intensity, and to be short-term in duration. The significance of this impact is therefore assessed to be "**Insignificant"**, and no specific mitigation is required (Table 7.18).

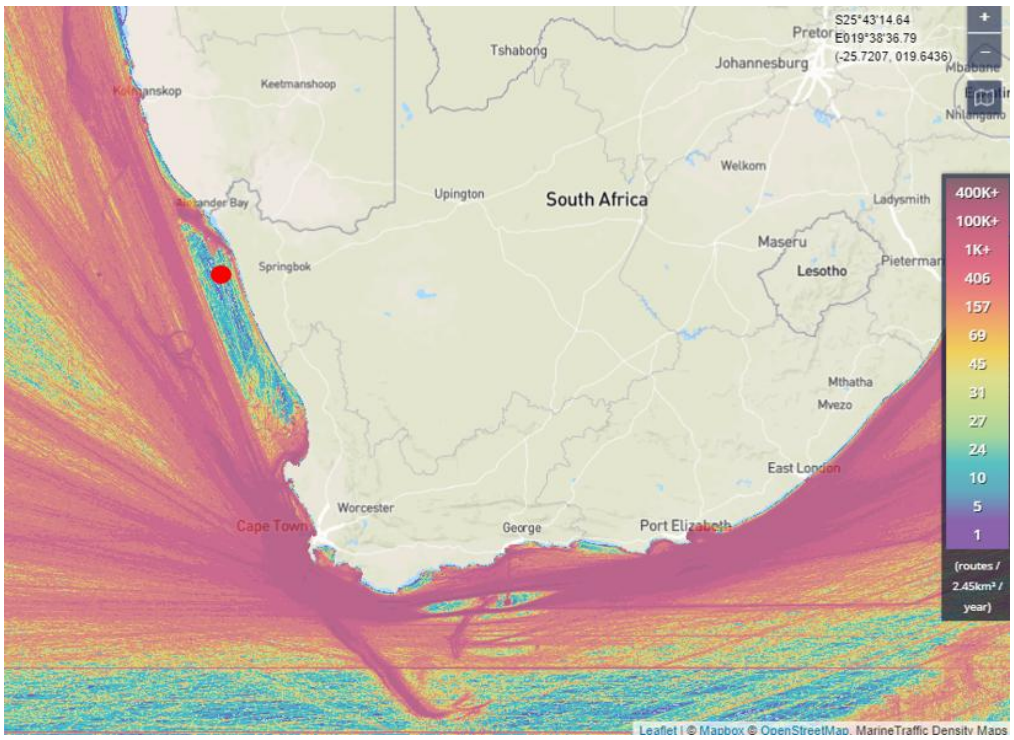

Figure 7.2 Commercial shipping traffic intensity surrounding South Africa. Approximate location of Concession 6C indicated by red dot Source: https://www.marinetraffic.com/en/ais/home/centerx:16.4/centery:-32.5/zoom:7. Accessed 16 July 2021.

Table 7.18 Assessment of impacts pertaining to interaction with other vessels.

	Extent	Intensity	Duration	Consequence	Probability	Significance	Status	Confidence
Without mitigation	Local 1	Low (Negligible) 1	Short-term 1	Very Low 3	Possible	**INSIGNIFICANT**	-ve	Low
No necessary mitigation measures								

Sense of place and wellbeing

Sense of place refers to the meanings, values and emotional connections that people associate with a particular environment, while wellbeing encompasses the social, cultural and psychological benefits derived from living in, working in or visiting that place. In the context of the Kamiesberg and Namaqualand coastline, sense of place is closely linked to the region's natural beauty, biodiversity, coastal character, cultural heritage and the relatively undeveloped nature of the marine environment.

Although the proposed prospecting activities are temporary in nature and located offshore, some stakeholders may perceive them as a precursor to future mining activities. This may give rise to concerns regarding potential long-term impacts on the marine environment, fisheries resources, local livelihoods and the natural character of the Namaqualand coastline. Such concerns can influence people's sense of place, attachment to the local environment and overall wellbeing, even where no direct socio-economic impacts occur during the prospecting phase. As a result, perceived impacts on sense of place and wellbeing may be more significant than the direct socio-economic effects associated with the proposed prospecting activities themselves.

For a prospecting project located 11 km offshore from a small, sparsely populated coastline with limited direct dependence on the concession area, the impact on sense of place and wellbeing is expected to be **"Insignificant"** (Table 7.19) and recommended Best Practice is for the Applicant to maintain transparent and ongoing communication with interested and affected parties by providing clear information on the nature, duration and findings of the prospecting programme, as well as any future development processes that may be proposed.

Table 7.19. Perceived impact on sense of place and wellbeing arising from concerns regarding future mining and environmental change.

	Extent	Intensity	Duration	Consequence	Probability	Significance	Status	Confidence
With/Without mitigation	Local 1	Medium 2	Short-term 1	Very Low 4	Possible	**INSIGNIFICANT**	-ve	Med
Recommended/best practice mitigation measures: • Project information materials should clearly explain the temporary nature of the prospecting activities, the limited spatial extent of the survey area and the outcomes of specialist environmental studies. • Regular project updates should be provided to key stakeholder groups particularly prior to the commencement of offshore activities. • Where feasible, the Applicant should communicate the findings of specialist studies and environmental monitoring programmes in an accessible and non-technical format to improve transparency and build trust. • Any future applications for exploration or mining activities should be subject to separate environmental assessment and stakeholder engagement processes, and this should be clearly communicated during the prospecting phase.								

Tourism and recreation

The Namaqualand region is internationally recognised for its exceptional biodiversity and forms part of the Succulent Karoo biome, a global centre of plant endemism. Tourism is an important economic sector within the Kamiesberg Local Municipality, particularly during the annual wildflower season between August and October, when visitors contribute to local accommodation, retail and hospitality businesses. The municipality has identified tourism as a key sector for future economic growth, with development opportunities focused on the uplands, plateau and coastal areas through the promotion of natural heritage, cultural attractions and tourism infrastructure. Coastal tourism is currently limited but includes activities centred on Hondeklipbaai and tourist accommodation at the former diamond-diving settlement of Noup.

Potential impacts of the proposed prospecting activities on tourism and recreation relate primarily to the temporary presence of offshore survey vessels and the possible formation of localised sediment plumes, which could affect the visual quality of the marine environment. However, given that the concession area is located offshore and begins approximately 5 km from the coastline, these effects are expected to be negligible from coastal viewpoints. Furthermore, the short duration and localised nature of the prospecting activities mean that impacts on tourism and recreation are expected to be very low. Avoiding prospecting activities during key tourism periods, particularly the flower season, would further reduce potential disturbances. Consequently, the impact on nature-based tourism and recreation is assessed as "Very Low" and reduces to **"Insignificant"** with mitigation (Table 7.20).

Table 7.20. Impact on nature-based tourism and recreation

	Extent	Intensity	Duration	Consequence	Probability	Significance	Status	Confidence
Without mitigation	Local 1	Medium 2	Short-term 1	Very Low 4	Probable	**VERY LOW**	-ve	Med
Essential mitigation measures: • The Prospecting activities must be confined to the approved concession area and footprint. • All vessels must comply with applicable environmental management and operational requirements to prevent pollution or unnecessary disturbance of the marine environment. • Relevant tourism stakeholders and local authorities must be informed of the timing and duration of prospecting activities prior to commencement. **Recommended/best practice mitigation measures:** • The Prospecting activities should, where feasible, be scheduled outside peak tourism periods, particularly the Namaqualand flower season (August–October). • The Applicant should maintain communication with local tourism operators and tourism authorities regarding the progress and duration of offshore activities. • Information provided to stakeholders should emphasise the temporary, offshore and localised nature of the prospecting activities to reduce misconceptions regarding impacts on tourism and recreation. • Where feasible, survey vessels should minimise unnecessary lighting at night and avoid prolonged stationary presence near the coastline.								
With mitigation	Local 1	Medium 2	Short-term 1	Very Low 4	Improbable	**INSIGNIFICANT**	-ve	Med

Employment and Economic Opportunities

It is important to recognise that the prospecting phase is a highly specialised, short-term activity that offers limited opportunities for direct local employment. Offshore prospecting vessels typically accommodate a small crew comprising qualified maritime personnel, technical specialists, environmental observers and support staff, most of whom require specialised training, certifications and experience. Consequently, the majority of employment opportunities associated with prospecting are unlikely to be filled from nearby coastal communities. In addition, prospecting activities are generally undertaken as intermittent survey campaigns separated by periods of data processing and analysis, further limiting the potential for sustained employment and local economic benefits during this phase. As a result, any employment, procurement and skills development opportunities arising from the prospecting phase of the project should be viewed as supplementary rather than transformative in nature.

Therefore, the proposed prospecting programme has the potential to generate only a small number of short-term employment and procurement opportunities at the local, provincial and national levels. At the local level, direct employment opportunities are expected to be very limited and may include casual labour associated with vessel provisioning, port-based security services, the appointment of a Fishing Liaison Officer from the local fishing community, and the possible use of local fishing vessels as support or standby vessels during certain survey activities. Given the offshore nature of the project and the specialised skills required, local employment benefits are expected to be negligible and are unlikely to result in any material reduction in unemployment within nearby communities. At the provincial and national levels, a broader range of opportunities may arise through the procurement of goods and services associated with vessel operations, marine logistics, equipment supply, environmental monitoring, laboratory analysis, technical support and professional services. These opportunities are expected to benefit a small number of skilled and semi-skilled workers and

service providers. However, the employment generated will be temporary, project-based and limited in scale.

Therefore, the prospecting programme is expected to have a low positive impact on employment and economic opportunities. While the project will contribute modestly to economic activity through direct and indirect expenditure, the short duration of the programme and the specialised nature of the work mean that employment benefits will be limited and largely concentrated at the provincial and national levels rather than within local coastal communities. Consequently, the impact is positive but of "Very Low" significance (Table 7.21). With best practice optimisation measures the impact is expected to be of **"Low Positive"** significance.

Table 7.21. Impact on employment and economic opportunities

	Extent	Intensity	Duration	Consequence	Probability	Significance	Status	Confidence
Without optimisation	Regional 2	Low 1	Short-term 1	Very Low 4	Probable	**VERY LOW**	+ve	High
Recommended/ best practice optimisation/enhancement measures: • Where suitably qualified and available, South African individuals and service providers must be afforded reasonable opportunities to participate in project-related employment and procurement. • A Fishing Liaison Officer must be appointed where required to facilitate communication between the project and potentially affected fishing stakeholders. • Preference should be given, where feasible, to local and regional suppliers for goods and services associated with vessel provisioning, security and logistics. • Employment opportunities and procurement requirements should be communicated to local stakeholders and businesses where appropriate. • The Applicant should manage stakeholder expectations by clearly communicating the limited and temporary nature of employment opportunities associated with the prospecting phase.								
With optimisation	Regional 2	Medium 2	Short-term 1	Low 5	Probable	**LOW**	+ve	High

Procurement and Expenditure

According to the TAD document which sets out the socio-economic considerations associated with the prospecting phase of operations, the proposed prospecting programme will result in expenditure on a range of goods and services, including fuel, food and catering supplies for the vessel, accommodation for crew during shore-based intervals, transport services for crew to and from the port, port services, specialist contractors and professional services. Additional economic benefits may arise through compliance-related expenditure, environmental monitoring, laboratory analysis and regulatory processes. These expenditures will contribute to economic activity and support businesses involved in the marine, logistics, environmental and professional services sectors.

However, the majority of procurement and expenditure is expected to occur through established service providers located in larger economic centres such as Cape Town and Saldanha Bay, where the necessary infrastructure, technical expertise and marine support services are available. Consequently, direct economic benefits to local communities adjacent to the concession area, including Koingnaas and Hondeklipbaai, are expected to be limited. While the project will generate some government revenue through permitting, regulatory compliance and associated economic activity, these benefits will primarily accrue at the regional and national levels.

Therefore, the prospecting phase is expected to have a very low positive impact (Table 7.22) on procurement and economic activity due to the temporary nature of the project and the limited

opportunities for local participation. Nevertheless, project expenditure will contribute modestly to economic activity within the broader South African economy. With best practice optimisation measures the impact is expected to be of **"Low Positive"** significance (Table 7.22).

Table 7.22. Impact on procurement and expenditure

	Extent	Intensity	Duration	Consequence	Probability	Significance	Status	Confidence
Without optimisation	Local - Regional 2	Low 1	Short-term 1	Very Low 4	Probable	**VERY LOW**	+ve	High
Recommended/ best practice optimisation/enhancement measures: • The Applicant must implement its procurement and supplier development policies in a fair, transparent and non-discriminatory manner. • All procurement activities must comply with applicable legal, contractual and regulatory requirements. • Where feasible and commercially competitive, preference should be given to South African suppliers and service providers. • Opportunities for local and regional businesses to provide goods and services should be communicated where appropriate. • The Applicant should maintain records of local, regional and national procurement expenditure to demonstrate economic contributions arising from the project.								
With optimisation	Local-Regional 2	Medium 2	Short-term 1	Low 5	Probable	**LOW**	+ve	High

Skills development, capacity building and transformation

The prospecting phase provides an opportunity to support skills development and transformation objectives through targeted training and capacity-building initiatives. Although direct employment opportunities during the prospecting phase are expected to be limited, the development of transferable skills can provide longer-term benefits to participants and improve access to future opportunities within the marine, environmental and maritime sectors. Potential training initiatives include Marine Mammal Observer (MMO) training, Passive Acoustic Monitoring (PAM) operator training, environmental monitoring and compliance training, Occupational Health and Safety (OHS) awareness training, and basic seamanship and vessel safety training. These interventions would contribute to local capacity building and could enhance the employability of participants beyond the life of the prospecting programme.

The project also has the potential to contribute to national transformation objectives through the procurement of goods and services from South African and B-BBEE-compliant suppliers, consistent with the requirements of the Mining Charter applicable to prospecting activities. While the scale of these benefits is likely to be modest given the short-term nature of the programme, they represent a positive contribution towards skills development, economic participation and transformation. Consequently, the impact is considered positive as it has the potential to create a lasting influence through the development of human capital and support for B-BBEE-aligned procurement and supplier participation. However, the significance is expected to be "Very Low" (Table 7.23). However, with essential and best practice optimisation measures the impact is expected to be of **"Low Positive"** significance.

Table 7.23. Impact on skills development, capacity building and transformation

	Extent	Intensity	Duration	Consequence	Probability	Significance	Status	Confidence
Without optimisation	Local - Regional 2	Low 1	Medium-term 2	Low 5	Possible	**VERY LOW**	+ve	High
Recommended/ Best Practice optimisation measures: • Any training commitments must be implemented and appropriately documented. • Procurement processes must be undertaken in accordance with applicable Mining Charter requirements and the Applicant's B-BBEE and supplier development policies. • Training opportunities must be offered in a fair and transparent manner, with clear selection criteria. • Preference should be given to candidates from local and regional communities for training and capacity-building opportunities. • Training programmes should focus on transferable skills that remain valuable beyond the prospecting phase. • The Applicant should track and report on training outcomes, participant numbers and B-BBEE-related procurement expenditure as part of its project reporting.								
With optimisation	Local-Regional 2	Low 1	Medium-term 2	Low 5	Probable	**LOW**	+ve	High

Contribution to environmental and scientific knowledge generation

The proposed prospecting activities have the potential to contribute positively to environmental and scientific knowledge through the collection of geological, oceanographic and ecological data. Prospecting activities will generate information on seabed characteristics, marine habitats and the geological composition of the continental shelf, thereby improving understanding of the offshore environment. In addition, observations collected by Marine Mammal Observers (MMOs) and other environmental monitoring personnel may contribute valuable information on the distribution and occurrence of marine fauna, including whales and dolphins.

Beyond its environmental value, the geological information generated through prospecting may assist in informing future resource assessments and investment decisions, thereby contributing to broader national economic development objectives. While these benefits are indirect and strategic in nature, the data generated may support government agencies, research institutions and conservation organisations in improving knowledge of the marine environment. Consequently, the prospecting programme is expected to result in a positive contribution to environmental and scientific knowledge generation, with a significance of **"Low Positive"**, with optimisation/enhancement measures (Table 7.24).

Table 7.24. Impact on environmental and scientific knowledge generation

	Extent	Intensity	Duration	Consequence	Probability	Significance	Status	Confidence
Without optimisation	National 3	Low 1	Short to medium-term 2	Low 5	Possible	**VERY LOW**	+ve	Med
Recommended/ best practice optimisation/enhancement measures: • Environmental and scientific data must be collected, stored and managed in accordance with applicable legal, permitting and reporting requirements. • Results of environmental monitoring and survey activities must be reported to the relevant regulatory authorities as required. • Where appropriate and subject to confidentiality requirements, non-sensitive environmental and scientific data should be made available to relevant government agencies, research institutions and conservation organisations.								

	Extent	Intensity	Duration	Consequence	Probability	Significance	Status	Confidence
• Opportunities should be explored to share marine mammal observation data and other biodiversity information with recognised conservation and research bodies. • Survey findings should be documented in a manner that facilitates their future use in environmental management, scientific research and marine spatial planning processes.								
With optimisation	National 3	Medium 2	Short to medium-term 2	Low 5	Probable	**LOW**	+ve	Med

7.7.3 Potential impacts on maritime heritage resources

The target resource of the proposed mineral prospecting is seabed sediments which have the potential to contain palaeontological resources, submerged (previously terrestrial) archaeological sites and artefacts, and maritime archaeological (mainly shipwreck) sites and materials. The disturbance and/or removal of such sediments during prospecting can damage or destroy heritage resources where they are present.

The exception may be shipwrecks, the component parts of which tend to be large enough to be identified in advance of, and avoided during prospecting activities.

Impacts to heritage resources are likely to arise from the following proposed prospecting activities in Concession 6C:

- Vibracore sampling; and
- Drill Sampling.

Conversely, the geophysical survey programme will have no direct impact on heritage resources.

In particular, impacts on the following receptors were identified for consideration:

- **Palaeontological resources**
  - Cretaceous Fossil Wood
  - Cenozoic Shelly Macrofauna
  - Fossil Bones and Teeth
  - Shells from the Last Transgression Sequence;
- **Submerged prehistorical resources; and**
- **Maritime archaeology**

Palaeontological Resources

Fossils are rare objects, often preserved due to unusual circumstances. This is particularly applicable to vertebrate fossils (bones), which tend to be sporadically preserved and have high value with respect to palaeoecological and biostratigraphic (dating) information. Such fossils are non-renewable resources.

Provided that no subsurface disturbance occurs, the fossils remain sequestered. The absence of management and operator mitigatory actions to be alert for fossils and retrieve them will result in their loss. This loss of the opportunity to recover fossils and record their contexts when exposed at a particular site is a negative, irreversible impact.

If mitigatory efforts are made to watch out for and rescue the fossils then the impact is positive for palaeontology. However, there remains a medium to high risk of valuable fossils being lost in spite of management actions to mitigate such loss. The fossils may simply not be noticed or not recognized. Even the most diligent attempts at mitigation can only hope to acquire some fraction of the fossils. This is particularly the case if the fossils are sparsely distributed in the deposits, which is generally the case for scientifically-valuable fossil bone material. A misperception exists that if fossils are sparse in a deposit then the intensity of impact will be low. This is not the case as it is the valuable fossils that are usually scarce, such as fossil bones. The very scarcity of such fossils makes for the added importance of watching for them.

The proposed grab samples are purposed for obtaining the upper, modern fauna and are unlikely to capture fossils which are usually lower down. Notwithstanding, the grabs may capture poorly-known modern species.

In the vibracores the small volumes involved greatly reduce to likelihood of capturing the sparse fossils reworked from the older, pre- late Quaternary formations and the “extralimitals” in the Last Transgression Sequence. However, should extralimital Subantarctic and Agulhas species occur in the cores they are more important specimens than those selected from the loose, mixed shells crossing the oversize screens on sampling/mining vessels, as they have context in the geological and faunal succession in the core and the expense to have specimens radiocarbon dated is more worthwhile.

The drillship sampling involves a considerable volume of the shelf deposits (up to 1500 sites). For the most part the excavated material is the Last Transgression Sequence deposits with expected “subfossil” extant shell species and a ‘sprinkling” of scientifically important extralimital species and rare reworked old fossil shells, bones and teeth in the gravels.

Extent of Impacts: During prospecting, the fossil content of a prescribed volume of deposit is destroyed, which is the physical extent of the impact. The extent of impacts to palaeontogical material arising from the prospecting in Concession Area 6C will, thus, be local.

Duration of Impacts: The impact of both the finding or the loss of fossils is permanent. Destroyed fossils are lost, while found fossils must be preserved for posterity.

Intensity of Impacts: The intensity or magnitude of the potential impacts of prospecting activities in Concession Area 6C on fossil resources is determined by the palaeontological sensitivity of the affected formations or fossil types – i.e. the potential scientific value of the fossils assessed against the degree or volume of disturbance.

Reversibility of Impacts: Palaeontological resources are unique and their loss is **irreversible.**

Irreplaceability of Impacts: Without mitigation and rescue of fossils there will be a **complete loss of resources** within the footprints of sampling and mining. Valuable fossils will be lost despite management actions to mitigate such loss.

Impact intensity and significance: The intensity and significance (both pre-and-post mitigation) of impacts for each of the palaeontological receptors is described as follows:

Impact Assessment: Cretaceous Fossil Wood

During sampling on the middle shelf, pebbles, cobbles and small boulders of both silicified wood and black lignitic wood, which occur in the Latest Quaternary basal gravels, are fairly routinely sucked up from the seabed, pass rapidly over the oversize screen and then are disposed of overboard again. Although the fossil wood is not in situ in the source formation, the specimens

are accorded a moderate palaeontological sensitivity due to the scientific value. This impact is rated of "Medium" negative significance prior to mitigation, however, this can be improved to **"Medium Positive"** significance with the implementation of essential mitigation measures, due to the potential scientific and heritage knowledge gained from the prospecting works (Table 7.25).

Table 7.25. Impact on cretaceous fossil wood

	Extent	Intensity	Duration	Consequence	Probability	Significance	Status	Confidence
Without mitigation	Local 1	Medium 2	Long-Term (permanent) 3	Medium 6	Probable	**MEDIUM**	-ve	Med
Essential mitigation measures: • The Prospecting EMPr must include provisions for the collection of representative examples of the fossils. • Geological staff involved in logging to be informed of the need to watch for fossil wood and rescue such from the gravel oversize screen. • Fossils to be labelled and bagged, with recording of context data, and stored. • Appointed palaeontologist to evaluate fossils collected and compile report for company and SAHRA.								
With mitigation	Local 1	Medium 2	Long-Term (permanent) 3	Medium 6	Probable	**MEDIUM**	+ve	Med

Impact Assessment: Cenozoic Shelly Macrofauna

The moulds of dissolved shells in cobbles and boulders derived from Miocene and Eocene formations preserve the external sculpture and are generally identifiable. The loose internal moulds of shells such as gastropod coils and bivalve casts (endocasts, also called steinkerns), which are quite common in the Quaternary gravels, are less easy to identify when worn, unless of taxa with very distinctive shapes. In rare places on the middle shelf practically pristine fossil shells are drilled up in from sample sites penetrating Miocene footwall. The impact of sampling on the Cenozoic shelly macrofauna is considered to be moderate. This impact is rated of "Medium" negative significance prior to mitigation, however, this can be improved to **"Medium Positive"** significance with the implementation of essential mitigation measures, due to the potential scientific and heritage knowledge gained from the prospecting works (Table 7.26).

Table 7.26. Impact on cenozoic shelly macrofauna.

	Extent	Intensity	Duration	Consequence	Probability	Significance	Status	Confidence
Without mitigation	Local 1	Medium 2	Long-Term (permanent) 3	Medium 6	Probable	**MEDIUM**	-ve	Med
Essential mitigation measures: • The Prospecting EMPr must include provisions for the collection of representative examples of the fossils. • Geological staff involved in logging to be informed of the need to watch for fossil shells and rescue such from the gravel oversize screen. • Fossils to be labelled and bagged, with recording of context data, and stored. • Appointed palaeontologist to evaluate fossils collected and compile report for company and SAHRA.								
With mitigation	Local 1	Medium 2	Long-Term (permanent) 3	Medium 6	Probable	**MEDIUM**	+ve	Med

Impact Assessment: Fossil Bones and Teeth

This category includes fossil bones and teeth of any origin as there is no purpose for distinctions when they must be captured before going overboard. Recent "fresh" bones such as those of seals and fish, and pieces of freshly-broken whalebone ribs, are common and are excluded. This fossil material is phosphatized (petrified) to various degrees and probably also worn by transport and/or pitted by boring organisms. This material is scarce, but the large volumes involved increase the probability that some will be encountered and could be of high scientific value. This impact is rated of "Medium" negative significance prior to mitigation, however, this can be improved to **"Medium Positive"** significance with the implementation of essential mitigation measures, due to the potential scientific and heritage knowledge gained from the prospecting works (Table 7.27).

Table 7.27. Impact on fossil bones and teeth.

	Extent	Intensity	Duration	Consequence	Probability	Significance	Status	Confidence
Without mitigation	Local 1	High 3	Long-Term (permanent) 3	High 7	Improbable	**MEDIUM**	-ve	Med
Essential mitigation measures: • The Prospecting EMPr must include provisions for the collection of representative examples of the fossils. • Geological staff involved in logging to be informed of the need to watch for fossil bones and teeth and rescue such from the gravel oversize screen. • Fossils to be labelled and bagged, with recording of context data, and stored. • Appointed palaeontologist to evaluate fossils collected and compile report for company and SAHRA.								
With mitigation	Local 1	High 3	Long-Term (permanent) 3	High 7	Possible	**MEDIUM**	+ve	Med

Impact Assessment: Shells from the Last Transgression Sequence

Quaternary fossil shell assemblages consist mainly of well-known, usual taxa and it is the unexpected, out of range or unknown shell species which are important. The concern here are shell species which are not typical of the normal faunal assemblages of the Namaqua shelf and are generally sparse, although several may occur in the same area. It is important to obtain a comprehensive sample of the Algoa species extralimital occurrences for future study. In addition to radiocarbon dating the incursions on Agulhas influence, the individual shells are snapshot archives of the palaeoceanographic conditions at the time, as revealed by incremental analyses of the shell stable isotopes and trace elements. Sampling in Concession Area 6C has a strong potential to yield fossil shells of extralimital Algoa species and is accorded moderate palaeontological sensitivity. This impact is rated of "Low" negative significance prior to mitigation, however, this can be improved to **"Low Positive"** significance with the implementation of essential mitigation measures, due to the potential scientific and heritage knowledge gained from the prospecting works (Table 7.28).

Table 7.28. Impact on shells from the Last Transgression Sequence

	Extent	Intensity	Duration	Consequence	Probability	Significance	Status	Confidence
Without mitigation	Local 1	Medium 2	Long-Term (permanent) 3	Medium 6	Possible	**LOW**	-ve	Med
Essential mitigation measures: • The prospecting EMPr must include provisions for the collection of representative examples of the fossils. • Geological staff involved in logging to be informed of the need to watch for unusual shells and rescue such from the gravel oversize screen, as well as from grab samples and vibracores. • Fossils to be labelled and bagged, with recording of context data, and stored. • Appointed palaeontologist to evaluate fossils collected and compile report for company and SAHRA.								
With mitigation	Local 1	Medium 2	Long-Term (permanent) 3	Medium 6	Possible	**LOW**	+ve	Med

Submerged prehistorical resources

The past use by our hominin ancestors of the exposed continental shelf is beyond doubt and archaeological evidence of the occupation, through the ESA, MSA and LSA, of the terrestrial hinterland of Concession Area 6C, suggests that it is likely that the material evidence of the same, now submerged terrestrial archaeological occupation of the shallow continental shelf will be found within the seabed sediments of the concession area.

The evidence of this presence is possible where the water depth is less than c. 120 m and where archaeological material has survived post-glacial marine transgressions. Although some such material may be found in situ, it is more likely that it will be found reworked within seabed sediments and survive as isolated, particularly stone artefacts.

Prospecting activities will have a direct impact on seabed sediments. Impacts will be local, confined to the footprint of the activity, and of medium intensity. The duration of any impacts will be irreversible and permanent, and should there be archaeological material in the affected sediments this will be disturbed and may be destroyed. This impact is rated of "Low" negative significance prior to mitigation, however, this can be improved to **"Low Positive"** significance with the implementation of essential mitigation measures, due to the potential scientific and heritage knowledge gained from the prospecting works (Table 7.29).

Table 7.29. Impact on Submerged Prehistory

	Extent	Intensity	Duration	Consequence	Probability	Significance	Status	Confidence
Without mitigation	Local 1	Medium 2	Long-Term (permanent) 3	Medium 6	Probable	**MEDIUM**	-ve	Med
Essential mitigation measures: • The contractors and Trans Atlantic Diamonds staff are informed during Environmental Awareness Training of the need to watch for prehistoric archaeological material during the processing of prospecting grab, core and drill samples; • Contractors and Trans Atlantic Diamonds staff are provided with information about how to identify prehistoric stone artefacts; • The EMPr for Concession Area 6C includes provision for the collection of pre-colonial archaeological artefacts if these are found during the course of prospecting activities or the processing of seabed samples;								

	Extent	Intensity	Duration	Consequence	Probability	Significance	Status	Confidence
• When a collection of archaeological material has been accumulated, the appointed archaeologist undertakes the identification and evaluation of the material and compiles a report for submission to SAHRA.								
With mitigation	Local 1	Medium 2	Long-Term (permanent) 3	Medium 6	Probable	**MEDIUM**	+ve	Med

Maritime archaeological resources

Based on the discussion above of maritime heritage resources in and around Concession Area 6C, there appears to be no evidence for historical wrecks in the concession area.

The possibility that currently unknown historical wrecks or maritime debris are present on the seabed in Concession Area 6C is also so low that it has been discounted.

Maritime archaeology has, therefore, been Scoped Out of this assessment. However, the following essential mitigation measure must be included in the EMPr—should maritime archaeological resources be identified:

- Should an unknown wreck or shipwreck material be discovered in the concession area during prospecting, the position of the find must be recorded and must immediately be reported to SAHRA who will make arrangements to assess the significance of the find and decide on how best to deal with it.

7.7.4 Cumulative Impacts

Preamble

Anthropogenic activities can result in numerous and complex effects on the natural environment. While many of these are direct and immediate, the environmental effects of individual activities or projects can interact with each other in time and space to cause incremental or aggregate effects. Impacts from unrelated activities may accumulate or interact to cause additional effects that may not be apparent when assessing the activities individually. Cumulative effects are defined as the total impact that a series of developments, either present, past or future, will have on the environment within a specific region over a particular period of time (DEAT IEM Guideline 7, Cumulative effects assessment 2004).

Marine mining is a well-established industry along the west coast of South Africa between St Helena Bay and the Orange River mouth (Figure 7.3). There are prospecting and mining permits allocated for most of the nearshore, land-based and surf zone coastal concessions between the Olifants- and Orange River mouths (Figure 7.3). These concessions (and the activities therein) are largely extracting diamondiferous gravels. There are also offshore oil and gas production and prospecting licenses with additional exploration applications currently underway (Figure 7.3). The prospecting and exploration methods for oil and gas exploration (acoustic surveys (sometimes seismic) and core/drill sampling) are similar (although normally of greater intensity as the oil and gas reserves are typically deeper and located in pockets of sedimentary rock below the sea floor) to those used for offshore diamond and other mineral exploration.

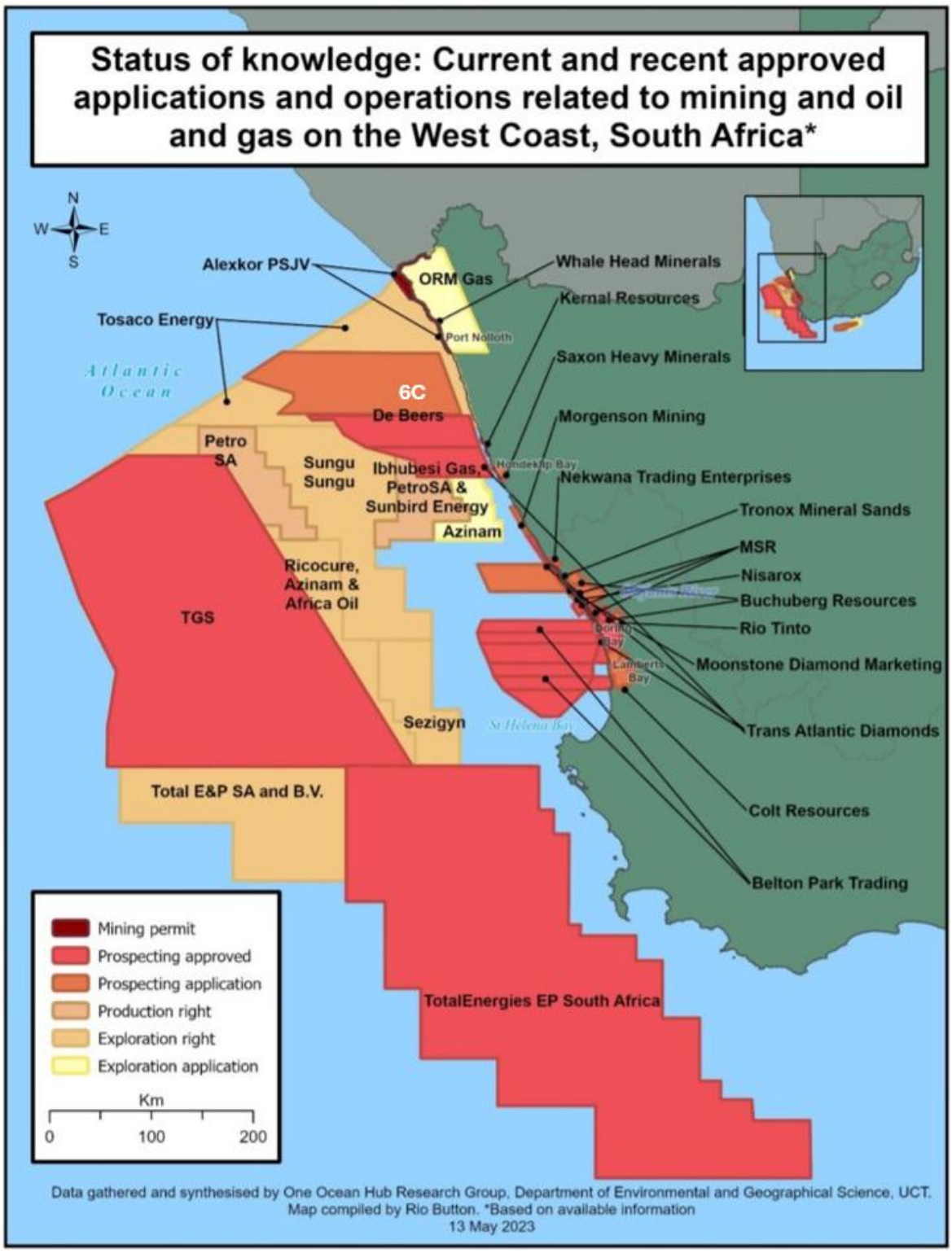

Figure 7.3. Extent of prospecting and mining applications and operations along South Africa's West Coast (Source: Sowman et al. (2023)).Concession 6C labelled in white.

There has been a recent increase in applications for offshore diamond prospecting rights along South Africa's west coast, indicating that marine prospecting activity is likely to increase over the short to medium term. In addition to the proposed activities within Concession Area 6C, prospecting rights have already been approved for the adjacent Concession Area 7C to the north (Trans Atlantic Diamonds) and Concession Areas 4C and 5C to the south (De Beers Consolidated

Mines). These projects include similar prospecting methodologies, comprising geophysical (acoustic) surveys, grab sampling, coring and drilling. Should these programmes be undertaken over similar timeframes, there is potential for cumulative environmental effects across a broader regional area. Nevertheless, it is reasonable to conclude that if prospecting activities within Concession Areas 5C, 6C and 7C were undertaken concurrently, cumulative impacts would primarily result from an increase in the spatial extent and duration of otherwise localised impacts, rather than an increase in impact intensity. Consequently, impacts assessed as local and short-term for an individual prospecting programme could become regional in extent and medium-term in duration where multiple surveys occur simultaneously.

This means that cumulative impacts of marine prospecting and mining must be considered at a broader spatial scale in a strategic manner for each potential impact identified. Obtaining detailed information on the scale, extent, methodology (and hence intensity) of various current and pending applications is, however, not possible within the prescribed timeframes of a Basic Assessment Process for a single application (such as this one). This requires a revised strategic level Environmental Impact Assessment to assess cumulative impacts with a medium to high level of confidence. The last strategic level EIA that assessed marine and coastal diamond mining Impacts in the region was a Benguela Current Large Marine Ecosystem Programme (BCLME) study undertaken over the period 2004–2007 (Penney et al 2007).

It is, however, logical and reasonable, to anticipate that many of the potential impacts assessed for this project would continue together with other projects that are ongoing or scheduled to come on-line. The result is that the spatial Extent would change from “local” to “regional”, whilst the duration would change from “short-term” (<2 years) to at least “medium term” (2–15 years) or even “long-term” (>15 years, mostly reversible in the case of prospecting, but not always for mining). The intensity of impacts is anticipated to remain as they are assessed here for operations of this nature, but may be higher for other sea-based mineral and energy projects in different areas with different objectives.

Marine Ecology and Fisheries

The principal cumulative ecological consideration is underwater noise associated with geophysical surveys. Concurrent acoustic surveys in adjacent concession areas could increase the spatial footprint and duration of acoustic exposure experienced by marine mammals, turtles and certain fish species. However, prospecting surveys are temporary, mobile and intermittent, and most sensitive marine fauna exhibit behavioural avoidance of approaching survey vessels. Provided that internationally recognised mitigation measures, including the JNCC (2017) guidelines, are implemented consistently across all prospecting operations, cumulative acoustic impacts are expected to remain of low significance, although marine mammals remain the most sensitive receptor group. Similarly, cumulative physical disturbance of the seabed from grab sampling, coring and limited drilling would remain highly localised. The total seabed footprint associated with prospecting is negligible when compared with historical and active diamond mining operations on the west coast. Localised sediment plumes generated during sampling are expected to disperse rapidly under the high-energy oceanographic conditions characteristic of the region and would only potentially become ecologically significant if multiple prospecting campaigns repeatedly sampled the same sensitive habitats over a short period (even then, the ecological risk remains low considering both the spatial scale of the Concession Area and then proposed activities to occur within them). At present, there is no evidence that such spatial or temporal overlap is planned.

Potential cumulative impacts on commercial fisheries are also expected to remain low. Prospecting vessels occupy relatively small operational areas for short periods and are readily

avoided by fishing vessels through normal communication and operational planning. Engagement with fisheries stakeholders and coordination of survey timing would further minimise the likelihood of cumulative disruption to fishing activities.

While the proposed prospecting programme will contribute incrementally to cumulative environmental pressures within the west coast offshore diamond province, the contribution of Concession Area 6C is expected to be small relative to existing and historic marine mining activities. The project does not introduce a new impact pathway but rather contributes marginally to existing regional pressures. Consequently, cumulative impacts associated with the proposed prospecting programme are considered to be of **"Medium Negative"** significance, although confidence in this assessment remains low owing to uncertainty regarding the timing, extent and intensity of future prospecting and mining activities within adjacent concession areas (Figure 7.3). A revised strategic level Environmental Impact Assessment to assess cumulative impacts would increase this confidence. The last strategic level EIA that assessed marine and coastal diamond mining Impacts in the region was a Benguela Current Large Marine Ecosystem Programme (BCLME) study undertaken over the period 2004–2007 (Penney et al. 2007).

Socio-economic receptors

The prospecting programme is temporary, offshore, spatially limited and does not involve permanent infrastructure or an influx of workers. As such, it is unlikely to result in meaningful cumulative adverse effects when considered alongside existing mining, fishing and tourism activities in the region. Instead, it makes a small incremental contribution to regional economic activity through expenditure, procurement, employment, skills development and the generation of scientific information, without compromising existing livelihoods or development opportunities. The proposed prospecting programme may also contribute incrementally to the broader body of geological and environmental information available for the Namaqualand offshore environment, which could support future marine spatial planning, resource management and informed decision-making. Given the limited scale and duration of the activities, the absence of significant cumulative negative effects, and the modest but positive contribution to regional economic activity and knowledge generation, the overall cumulative socio-economic impact is assessed to be of **"Very Low Positive"** significance.

Heritage Resources

Given the nature of seabed heritage resources and the extent of our knowledge about their occurrence and distribution, an assessment of the cumulative impact of current and future seabed activities on these resources in the area surrounding Concession Area 6C can only be qualitative and descriptive.

Palaeontology

In respect of palaeontology, Pether (2026) states that the cumulative result of offshore prospecting in Concession Area 6C and surrounding concession areas is the inevitable and permanent loss of fossils and associated scientific knowledge.

If, however, attention is given across projects in the area to mitigation and the successful rescue of a representative sample of fossils, the accumulation of scientific evidence and knowledge about the stratigraphy of the continental shelf formations, their palaeoenvironments, past faunas and their ages, and sea-level history, this is likely to outweigh the negative impacts, and the cumulative effects are likely to be reduced. The palaeontological impacts are thus **"Positive"**, but no rating is provided.

Submerged prehistorical resources
Although there is very little concrete evidence for the distribution of submerged prehistoric sites and materials in and on the seabed around the South African coast, it is clear these sites and material will exist. Using the terrestrial archaeology of the West Coast, and the archaeological evidence generated from work associated with the mining operations at Tronox Namakwa Sands and Tormin mines, for example, as proxies for the spatial distribution of sites on the now inundated continental shelf, it is also clear that significant archaeological sites and material will be highly localised and most of the seabed will not contain such material.

Thus, while other current and future seabed activities, such as prospecting or mining, which disturb the seabed have the potential to impact submerged prehistoric sites and materials, the likely low density of such material in the seabed suggests that impacts are unlikely and will be of **"Low Negative"** cumulative significance.

Maritime archaeological resources
With respect to potential cumulative impacts on historical shipwrecks, Section 7.7.3, above, indicates that this area of South Africa's West Coast has relatively few wrecks, when compared to places like Table Bay which alone had more than 400 maritime casualties. The majority of West Coast wrecks are located close to the coast, and cumulative impacts arising from seabed prospecting are thus potentially more of a risk in the A-concession areas. Generally, however, wherever they occur, historical wrecks and related maritime archaeological debris are avoidable, through the prior collection and analysis of geophysical data, and actively avoided by seabed activities such as prospecting because of potential damage they can cause to sampling and other seabed machinery. Impacts on historical shipwrecks arising from seabed activities are likely to be accidental where they do occur, and once a wreck has been encountered on the seabed it is likely to be excluded from the area of activities as an operational obstruction or risk. Cumulative impacts on maritime archaeological resources, principally historical shipwrecks, arising out of current and future seabed activities in the area surrounding Concession Area 6C is, therefore, unlikely and cumulative impact significance is assessed to be of "Low Negative" significance.

7.7.5 The "No-go" alternative

The No-Go Alternative refers to the potential impacts associated with not pursuing the proposed development, or "doing nothing". It therefore considers the implications of not proceeding with the proposed prospecting works in Concession 6C. Under this scenario, the project area would remain in its current state, with only natural environmental processes and any existing marine will continue to influence the site. This alternative would avoid the "Low", "Very Low", or "Insignificant" negative impacts associated with the prospecting works (as identified and assessed in this BAR and supporting specialist studies EIA)—and would prevent this project from adding to the cumulative burden/impact placed on the surrounding marine environment within Concession 6C (and the surrounding concessions)—due to other prospecting and mining activities. While the contributions of the proposed prospecting works to the overall "Medium Negative" cumulative impact rating (assigned by the Marine and Fisheries specialist) would be small—relative to existing/historical mining/prospecting activities—it will still contribute marginally to these regional cumulative pressures.

However, pursuing the No-Go would also result in the loss of the anticipated positive project outcomes, which includes:

Lost socio-economic benefits

These include the limited, but still meaningful ("Low Positive" significance), short-to-medium term benefits relating to employment, procurement and capital expenditure, and skills development; as well as general gains in terms of scientific knowledge generation—and thus a loss of the "Very Low Positive" cumulative socio-economic benefit, determined by the specialist.

Lost marine heritage benefits

While the prospecting works have the potential to result in significant damage to, and loss of, palaeontological and archaeological resources/artefacts ("Low to Medium, Negative" significance), should these works not be subject to appropriate mitigation, the potential for gaining valuable heritage knowledge and resources outweighs this considerably ("Low to Medium, Positive significance) with mitigation. Such prospecting works allow for the sampling of material from marine areas that would likely never be sampled by archaeologist/palaeontologists conducting their own independent research. Consequently, appropriately mitigated and appropriately conducted prospecting works can provide the financial and logistical foundation upon which significant heritage advancements can (and have been) made. The No-Go will further result in the loss of the "Low Positive" cumulative impacts relating to submerged prehistoric resources and maritime archaeological resources (assessed by the Maritime Archaeological and Heritage Specialist); as well as the un-rated "Positive" cumulative impact, assessed by the Palaeontological specialist.

Broader implications relating to the project's "Need and Desirability"

Further to the above, the No-Go Alternative would not address the underlying need and desirability of the project. Prospecting is the first practical step towards potentially establishing a viable mining operation and gaining access to mineral resources that can stimulate the South African economy and benefit society through their use in technology, healthcare, construction, energy and everyday consumer products. Consequently, without prospecting, the location, extent and quality of these resources will remain unknown, and future mining, together with the goods and services that depend on these resources, cannot occur. Further, as alluded to briefly above, prospecting is itself an economic activity requiring the appointment of geologists, surveyors, vessel crews, scientists (for EMPr and EA compliance), laboratory technicians, support staff, and the procurement of equipment and services. Prospecting can therefore generate employment and business opportunities at the local, regional and national level for the duration of the prospecting programme, well before any decision is made on whether mining should proceed.

Furthermore, as custodian of the nation's mineral and petroleum resources on behalf of all South Africans, the State requires holders of prospecting rights to comply with social and labour obligations. These include Social and Labour Plans, skills development and local procurement commitments, as well as environmental management obligations that apply throughout the prospecting phase. The baseline geological, geophysical and environmental information generated during prospecting, as indicated in the Socio-Economic and Heritage Sections above, may also contribute to the broader understanding of South Africa's mineral resources and marine environment. This information can inform future planning and research beyond the immediate interests of the Applicant, even if mining does not ultimately proceed. In this respect, prospecting can contribute to the objectives of the National Development Plan and Operation Phakisa by improving the knowledge base available for longer-term resource, environmental and economic decision-making, thereby providing potential benefits that extend beyond the commercial interests of the Applicant.

Overall, while the specialist assessments found that the No-Go Alternative would result in Insignificant impacts on the marine, socio-economic and heritage environments, as maintaining the status quo would neither improve nor worsen existing conditions, the No-Go Alternative is not considered the preferred option. Provided that the essential mitigation and management measures contained in the BAR, EMPr and Environmental Authorisation are effectively implemented, the EAP does not identify any environmental reason why the proposed prospecting programme should not proceed on the basis of the limited impacts identified and considering the potential societal, economic and scientific benefits associated with the prospecting programme.

7.8 ASSESSMENT OF EACH IDENTIFIED POTENTIALLY SIGNIFICANT IMPACT AND RISK

(This section of the report must consider all the known typical impacts of each of the activities (including those that could or should have been identified by knowledgeable persons) and not only those that were raised by registered interested and affected parties)

Note that the Impact Assessment Methodology Used is outlined in Section 7.2 and attached as Appendix 8.

Table 7.30 Summary of all identified impacts of prospecting in Concession Area 6C

NAME OF ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE In which impact is anticipated	SIGNIFICANCE if not mitigated	MITIGATION TYPE	SIGNIFICANCE if mitigated
(E.g. For prospecting - drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office, access route)	(Including the potential impacts for cumulative impacts) (dust, noise, drainage surface disturbance, fly rock, surface water contamination, groundwater contamination, air pollution)		(e.g. Construction, commissioning, operational Decommissioning, closure, post-closure)		(modify, remedy, control, or stop) through (e.g. noise control measures, stormwater control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activity etc.) E.g. Modify through alternative method. Control through noise control. Control through management and monitoring through rehabilitation.	
Planning Phase	N/A	N/A	Planning Phase	N/A	N/A	N/A
Geophysical acoustic survey and seafloor mapping	Noise/Acoustic disturbance	Plankton	Operational Phase	Very Low Negative	N/A	N/A
Geophysical acoustic survey and seafloor mapping	Noise/Acoustic disturbance	Benthic invertebrates	Operational Phase	Insignificant	N/A	N/A
Geophysical acoustic survey and seafloor mapping	Noise/Acoustic disturbance	Fish	Operational Phase	Very Low Negative	N/A	Insignificant
Geophysical acoustic survey and seafloor mapping	Noise/Acoustic disturbance	Marine mammals	Operational Phase	Medium Negative	Control through noise control; Control and modify activities through avoidance in terms of time and space;	Low Negative
Geophysical acoustic survey and seafloor mapping	Noise/Acoustic disturbance	Seabirds	Operational Phase	Medium Negative	Control through noise control; Control and modify activities through avoidance in terms of time and space;	Low Negative
Geotechnical coring and drilling sampling (Phase 2)	Noise/Acoustic disturbance	Marine Fauna	Operational Phase	Very Low Negative	Control through noise control; Control and modify activities through avoidance in terms of time and space;	Very Low Negative
Geotechnical coring and drilling sampling (Phase 3)	Noise/Acoustic disturbance	Marine Fauna	Operational Phase	Low Negative	Control through noise control; Control and modify activities through avoidance in terms of time and space;	Very Low Negative
All activities including acoustic surveys, core, grab and drill sampling	Injury or death due to collision with survey vessels	Megafauna such as whales	Operational Phase	Very Low Negative	Stop impacts through avoidance and terminating activities; Remedy through design measures and noise control of survey equipment; Control through management such as through use of an independent Marine Mammal Observer;	Very Low Negative

NAME OF ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE In which impact is anticipated	SIGNIFICANCE if not mitigated	MITIGATION TYPE	SIGNIFICANCE if mitigated
					Remedy through suspending activities.	
Vessel and equipment operation during all activities including acoustic surveys, core, grab and drill sampling	Disturbance, sediment plumes, and smothering.	Benthic macrofauna	Operational Phase	Medium Negative	Control and modify activities through avoidance in terms of time and space; Stop impacts through avoidance and terminating activities; Remedy through suspending activities. No direct mitigation measures identified, although Planning and management of potential discharges to ensure that tailings are not discarded onto potentially sensitive habitats must be implemented.	Low Negative
Vessel and equipment operation during all activities including acoustic surveys, core, grab and drill sampling	Discharge of fine sediment plumes	Pelagic species: Phytoplankton and consumers such as fish and invertebrates	Operational Phase	Very Low Negative	Control and modify activities through avoidance in terms of time and space;	Very Low Negative
Vessel and equipment operation at night, including acoustic surveys, core, grab and drill sampling	Light pollution at night	Fish, birds, turtles, marine mammals, etc.	Operational Phase	Low Negative	Control through adjusting lighting positioning.	Very Low Negative
Vessel and equipment operation during all activities including acoustic surveys, core, grab and drill sampling	Waste discharges and pollution – deteriorating water quality	The marine environment and ecosystem functions	Operational Phase	Very Low Negative	Control through informing staff; Control through compliance with relevant waste standards and protocols; Control and modify activities; Stop impacts through avoidance and terminating activities; Remedy through design measures	Insignificant
Vessel and equipment operation during all activities including acoustic surveys, core, grab and drill sampling	Noise and physical disturbance	Fishing operations, South African fishing sectors dependent upon these resources and species targeted during fishing	Operational Phase	Insignificant	Control through stakeholder engagement	N/A
Vessel and equipment operation during all activities including	Interference with commercial shipping traffic	Primarily fishing vessels and other prospecting or	Operational Phase	Insignificant	N/A	N/A

NAME OF ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE In which impact is anticipated	SIGNIFICANCE if not mitigated	MITIGATION TYPE	SIGNIFICANCE if mitigated
acoustic surveys, core, grab and drill sampling		mining vessels				
Vessel and equipment operation during all activities including acoustic surveys, core, grab and drill sampling	Interference with "Sense of Place" due to visual alteration and creation of noise, light, and tailings pollution, etc.	Visual landscape, and local communities, and tourists	Operational Phase	Insignificant	Control through stakeholder engagement	Insignificant
Vessel and equipment operation during all activities including acoustic surveys, core, grab and drill sampling	Interference with visual landscape and creation of noise, light, and tailings pollution, etc.	Potential reduction in tourist value/environmental qualities for tourism.	Operational Phase	Very Low Negative	Control through stakeholder engagement	Insignificant
Vessel and equipment operation during all activities including acoustic surveys, core, grab and drill sampling	Creation of job opportunities for individuals.	Individuals involved in the prospecting industry, include those working on/supporting the vessel operations, data analyses, environmental compliance, etc.	Operational Phase	Very Low Positive	Control through stakeholder engagement Control through appointment of fisheries liaison officer	Low Positive
Vessel and equipment operation during all activities including acoustic surveys, core, grab and drill sampling	Increased procurement and expenditure relating to prospecting works, environmental compliance, etc.	Primarily businesses and individuals in Cape Town and Saldanha Bay, with some trickle-down to West Coast Communities	Operational Phase	Very Low Positive	Control through stakeholder engagement	Low Positive
Vessel and equipment operation during all activities including acoustic surveys, core, grab and drill sampling	Provision of access to skills development, capacity building and facilitation of transformation.	Primarily individuals employed in various roles on prospecting vessels/relate	Operational Phase	Very Low Positive	Control through stakeholder engagement	Low Positive

NAME OF ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE In which impact is anticipated	SIGNIFICANCE if not mitigated	MITIGATION TYPE	SIGNIFICANCE if mitigated
		d supporting jobs				
Vessel and equipment operation, and all subsequent data analyses (scientific and otherwise) during all activities including acoustic surveys, core, grab and drill sampling	Improvements made to the environmental and scientific knowledge base, and supporting of this sector.	The people of South Africa, the environmental competent authorities, scientists employed in the prospecting sector (and university researchers).	Operational Phase	Very Low Positive	Control through scientific information sharing	Low Positive
Core, drill and grab sampling	Disturbance, destruction and loss of Marine Heritage Resources	Cretaceous Fossil Wood	Operational Phase	Medium Negative	Control through avoidance of sensitive habitats Remedy through collecting marine heritage resources from core drill and grab sampling	Medium Positive
Core, drill and grab sampling	Disturbance, destruction and loss of Marine Heritage Resources	Cenozoic Shelly Macrofauna	Operational Phase	Medium Negative	Control through avoidance of sensitive habitats Remedy through collecting marine heritage resources from core drill and grab sampling	Medium Positive
Core, drill and grab sampling	Disturbance, destruction and loss of Marine Heritage Resources	Fossil Bones and Teeth	Operational Phase	Medium Negative	Control through avoidance of sensitive habitats Remedy through collecting marine heritage resources from core drill and grab sampling	Medium Positive
Core, drill and grab sampling	Disturbance, destruction and loss of Marine Heritage Resources	Shells from the Last Transgression Sequence	Operational Phase	Low Negative	Control through avoidance of sensitive habitats Remedy through collecting marine heritage resources from core drill and grab sampling	Low Positive
Core, drill and grab sampling	Disturbance, destruction and loss of Marine Heritage Resources	Submerged prehistorical resources	Operational Phase	Medium Negative	Control through avoidance of sensitive habitats Remedy through collecting marine heritage resources from core drill and grab sampling	Medium Positive
Core, drill and grab sampling	Disturbance, destruction and loss of Marine Heritage Resources	Marine Archaeological resources	Scoped Out	N/A	NA	N/A
Prospecting and mining activities from this project and other current and past works within the region (including adjacent concession areas)	Cumulative Impacts	Marine Ecology and Fisheries	All physical prospecting, mining, rehabilitation, and associated works (both past and present) broader mining/prospecting sector within the region (including adjacent concession areas).	Medium Negative	N/A	N/A

NAME OF ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE In which impact is anticipated	SIGNIFICANCE if not mitigated	MITIGATION TYPE	SIGNIFICANCE if mitigated
Prospecting and mining activities from this project and other current and past works within the region (including adjacent concession areas)	Cumulative Impacts	Socio-Economic Receptors	All physical prospecting, mining, rehabilitation, and associated works (both past and present) broader mining/prospecting sector within the region (including adjacent concession areas).	Very Low Positive	N/A	N/A
Prospecting and mining activities from this project and other current and past works within the region (including adjacent concession areas)	Cumulative Impacts	Palaeontological Resources	All physical prospecting, mining, rehabilitation, and associated works (both past and present) broader mining/prospecting sector within the region (including adjacent concession areas).	Positive (no rating provided)	N/A	N/A
Prospecting and mining activities from this project and other current and past works within the region (including adjacent concession areas)	Cumulative Impacts	Submerged prehistorical resources	All physical prospecting, mining, rehabilitation, and associated works (both past and present) broader mining/prospecting sector within the region (including adjacent concession areas).	Low Negative	N/A	N/A
Prospecting activities	Impacts associated with the "No-go" alternative impacts	All impacts and receptors considered in specialist studies & BAR	All phases	Net positive impact (no specific significance)	N/A	N/A

The supporting impact assessment conducted by the EAP must be attached as an appendix, marked **Appendix**

7.9 SUMMARY OF SPECIALIST REPORTS.

Table 7.31 Summary of all specialist reports completed and used informed the impact assessment and final site layout process (Specialist Reports are included as appendices to this BAR.

LIST OF STUDIES UNDERTAKEN	RECOMMENDATIONS OF SPECIALIST REPORTS	SPECIALIST RECOMMENDATIONS THAT HAVE BEEN INCLUDED IN THE EIA REPORT (Mark with X where applicable)	REFERENCE TO APPLICABLE SECTION OF REPORT WHERE SPECIALIST RECOMMENDATIONS HAVE BEEN INCLUDED.
Marine and Fisheries Specialist Study	**Specialist General Summary/Recommendation:** The proposed diamond prospecting programme in Concession Area 6C is expected to result in temporary, localised environmental impacts associated with geophysical surveys, seabed sampling and vessel operations. Prior to mitigation, impacts range from Medium Negative to Insignificant significance, but all can be reduced to Low, Very Low or Insignificant with the mitigation measures. The most significant potential impact is underwater noise affecting marine mammals, particularly migrating whales and resident dolphins during geophysical surveys. In addition, parts of the concession overlap Critical Biodiversity Areas and potentially sensitive benthic habitats, requiring survey planning to avoid these areas and to verify habitats before seabed sampling occurs. Overall, the proposed prospecting programme is not considered to present a fatal flaw from a marine ecological perspective. Subject to implementation of the essential mitigation measures, the project is considered acceptable. **The specialist prescribed mitigation measures for inclusion in the EMPr, relating to the following themes:** • **Marine mammal and seabird protection** • **Survey timing and vessel operations** • **Benthic habitat protection, and** • **Pollution prevention**	**X**	**Section 7.4;** **Section 7.7.1;**
Socio-economic study	**Specialist General Summary/Recommendation:** The proposed offshore prospecting activities in Sea Concession Area 6C are temporary, spatially limited and located well offshore, meaning they are unlikely to significantly affect nearby communities or existing land-based economic activities. Negative impacts on fisheries, tourism, recreation, and sense of place were assessed as “Low” or “Insignificant” due to the limited overlap with fishing grounds, the offshore location, and the temporary nature of the programme. The project is expected to provide modest socio-economic benefits through limited employment, procurement, skills development, B-BBEE initiatives, and the generation of geological and environmental knowledge. Overall, no significant adverse socio-economic impacts or fatal flaws were identified, with most impacts assessed as “Very Low” or “Insignificant” and positive impacts as “Very Low to Low significance”. It was recommended that the Applicant implement all essential mitigation measures, with particular emphasis on stakeholder engagement, managing employment	**X**	**Section 7.4** **Section 7.7.2**

LIST OF STUDIES UNDERTAKEN	RECOMMENDATIONS OF SPECIALIST REPORTS	SPECIALIST RECOMMENDATIONS THAT HAVE BEEN INCLUDED IN THE EIA REPORT (Mark with X where applicable)	REFERENCE TO APPLICABLE SECTION OF REPORT WHERE SPECIALIST RECOMMENDATIONS HAVE BEEN INCLUDED.
	expectations, supporting local procurement where feasible, and promoting skills development. Subject to these measures, there are no socio-economic reasons why the proposed prospecting activities should not proceed. **The specialist prescribed <u>mitigation (essential and recommended)</u> measures for inclusion in the EMPr, relating to the following themes:** • **Maintaining communications with fishing stakeholders and authorities** • **Sense of place and wellbeing** • **Tourism and recreation** **They likewise recommended <u>best practice optimisation/enhancement</u> measures relating to the following themes:** • **Employment and economic opportunities** • **Procurement and expenditure** • **Skills development, capacity building and transformation** • **Contribution to environmental and scientific knowledge generation**		
Marine Heritage (Including Palaeontology, Submerged Prehistory, and Maritime Archaeology)	**Specialist General Summary/Recommendation:** The assessment found a potential for palaeontological and submerged prehistoric archaeological material within Concession Area 6C, while the likelihood of impacting shipwrecks is considered very low. Although prospecting may disturb non-renewable heritage resources, it also presents an opportunity to recover scientifically valuable fossils and prehistoric artefacts that could improve understanding of South Africa's offshore history. The EMPr should require the collection, recording and specialist assessment of any fossils or archaeological material recovered during sampling, with staff trained to recognise potential finds and a permit obtained from SAHRA before prospecting begins. Any shipwreck material encountered must be reported immediately to SAHRA for assessment and management. Provided the mitigation measures are implemented, the proposed prospecting in Concession Area 6C is expected to have only minor impacts on palaeontological, submerged prehistoric and maritime heritage resources and is considered archaeologically and palaeontologically acceptable. **The specialist prescribed mitigation measures for inclusion in the EMPr, relating to the following themes:** • **Palaeontological resources** • **Submerged prehistorical resources** • **Marine archaeological resources**	**X**	**Section 7.4** **Section 7.7.3**

7.10 ENVIRONMENTAL IMPACT STATEMENT

7.10.1 Summary of the key findings of the environmental impact assessment, including the positive and negative impacts and risks of the proposed activity and identified alternatives

The potential positive and negative impacts associated with the proposed prospecting activities in Concession Area 6C were assessed for the following key environmental and social receptors:

1. Marine Ecology
2. Socio-Economic and Fisheries
3. Maritime Heritage Resources

In addition, cumulative impacts and the "No-Go" alternative were also assessed.

Table 7.1 provides a summary of the significance ratings assigned to each impact before and after the implementation of mitigation and optimisation measures. Mitigation measures are actions aimed at avoiding or reducing negative impacts and are classified as either Essential (mandatory to implement and should reduce the impact significance rating after implementation) or Best Practice/Recommended (not mandatory and implemented where feasible). Optimisation measures are applied to enhance positive impacts and are generally considered Best Practice/Recommended.

The assessment identified **25 potential environmental, socio-economic and heritage impacts or benefits** that could result from the proposed prospecting activities. Before the implementation of mitigation and optimisation measures, **21 of these were assessed as negative**, while the remaining **four were assessed as positive.**

Negative Impacts

The **21 negative impacts** relate primarily to temporary disturbance of marine fauna (including benthic invertebrates, fish, marine mammals, seabirds and turtles), disturbance of the seabed, effects on fisheries, commercial shipping, tourism, recreation and community well-being, and, in the absence of appropriate management, damage to valuable submerged heritage resources, including palaeontological, archaeological and prehistoric material. These negative impacts were assessed to have significance ratings ranging from **"**Medium" to "Insignificant" before the implementation of mitigation measures. The impacts of highest negative significance ("Medium") relate to temporary disturbance of marine mammals and seabirds from geophysical surveys, and localised disturbance of benthic habitats associated with seabed sampling and drilling. Following implementation of mitigation and optimisation measures, the five negative impacts relating to maritime heritage resources change from “Low” or “Medium Negative” to "Low” or "Medium Positive", as the discovery, protection and curation of archaeological or palaeontological material would contribute to scientific knowledge and heritage conservation. The significance of the remaining 16 negative impacts can all be reduced to between "Low" and "Insignificant", indicating that no significant residual environmental impacts are anticipated.

Positive Impacts

The proposed prospecting activities also have the potential to generate positive socio-economic benefits through temporary employment, procurement, skills development and scientific knowledge generation. **Accordingly, four of the 25 identified impacts were assessed as**

positive, all relating to socio-economic benefits. These were assessed to be of "Very Low Positive" significance before optimisation—due to the short-term and specialised nature of the activities— improving to "Low Positive" significance with the implementation of best-practice optimisation measures. As discussed above, the five heritage-related impacts also change from negative to positive following mitigation, resulting in a potential net gain in scientific and heritage knowledge through the recovery, documentation and assessment of valuable archaeological and palaeontological material.

Summary

In summary, the assessment identified 25 potential environmental, socio-economic and heritage impacts or benefits that could result from the proposed prospecting activities. Following the implementation of mitigation and optimisation measures, 16 of these remain negative, but all are assessed to be of "Low" or "Insignificant" significance, indicating that no significant residual environmental impacts are anticipated. The remaining nine impacts are assessed as positive, with significance ratings ranging from "Low Positive" to "Medium Positive".

Marine ecology

The proposed diamond prospecting works have the potential to result in a number of temporary and localised impacts associated with geophysical surveying, seabed sampling and vessel operations. Assessment of these impacts indicates that, prior to mitigation, significance ranges from “Medium Negative” to “Insignificant”. With implementation of the essential mitigation measures, all impacts are reduced to “Low”, “Very Low” or “Insignificant” negative significance.

The impact of greatest concern is the potential disturbance of marine mammals arising from underwater noise generated during geophysical surveys. The west coast of South Africa supports seasonally important populations of migrating humpback and southern right whales, while odontocetes such as dusky dolphins and Heaviside's dolphins may occur throughout the year. Of the proposed acoustic equipment, the chirp sub-bottom profiler (operating primarily between approximately 1 and 45 kHz) presents the greatest potential for interaction with mid-frequency cetaceans. However, provided recognised international mitigation measures are implemented, the residual impact is expected to be of “Low Negative” significance.

Concession Area 6C also overlaps areas identified as Critical Biodiversity Areas (CBA: Natural) and may contain additional sensitive benthic habitats. Consequently, survey planning must prioritise avoidance of these areas wherever practicable, with seabed sampling undertaken only after habitat verification where avoidance is not possible.

Overall, the specialist identified the proposed prospecting programme to not present a fatal flaw from a marine ecological perspective, and that, subject to implementation of the essential mitigation measures, the project is considered acceptable.

Socio-economic and fisheries receptors

The proposed prospecting programme is expected to generate a range of modest positive socio-economic benefits, although these will be limited by the short-term, highly specialised nature of the activities. Temporary employment, procurement and expenditure will contribute to economic activity primarily at the provincial and national levels, while opportunities for local communities are expected to be limited. The programme also has the potential to support skills development and transformation through targeted training, capacity building and preferential

procurement, while the collection of geological, oceanographic and ecological data will improve scientific understanding of the offshore environment and may support future resource management, conservation initiatives and marine spatial planning. With the implementation of best-practice optimisation measures—including local procurement and employment preferences where feasible, skills development initiatives, stakeholder engagement, transparent procurement and recruitment processes, and appropriate management and sharing of environmental data—the significance of these benefits can be enhanced from "Very Low Positive" to "Low Positive".

The specialist therefore concluded that no socio-economic fatal flaws were identified and that the proposed prospecting activities can proceed from a socio-economic perspective.

Heritage resources

Although prospecting activities have the potential to disturb or permanently remove submerged heritage prehistoric resources, they also present a valuable opportunity to enhance scientific and heritage knowledge through the recovery, documentation and assessment of previously unknown fossils and archaeological material. Prior to mitigation, impacts on Cretaceous fossil wood, Cenozoic shelly macrofauna, fossil bones and teeth, and submerged prehistoric resources are assessed as "Medium Negative", while impacts on shells from the Last Transgression Sequence are assessed as "Low Negative". With the implementation of mitigation measures—including environmental awareness training for geological and survey personnel, the systematic identification, collection, labelling and recording of significant fossil and archaeological material, specialist palaeontological and archaeological assessment (where relevant), and reporting of important finds to the relevant heritage authorities—these impacts are improved to "Medium Positive" and "Low Positive" significance, respectively. These measures ensure that scientifically valuable material, which might otherwise be lost, is preserved and contributes to a better understanding of the geological, palaeoenvironmental, palaeontological and archaeological context of the region. No impacts on maritime archaeological resources are anticipated due to the extremely low likelihood of shipwrecks occurring within the concession area, although any unexpected discoveries must be reported and managed in accordance with statutory heritage requirements.

The heritage specialist therefore concluded that, provided the essential mitigation measures are implemented, the proposed prospecting in Concession Area 6C is likely to have relatively minor impacts on palaeontological, submerged prehistoric and maritime and underwater cultural heritage resources, and is thus archaeologically and palaeontologically acceptable.

Cumulative Impacts

Cumulative impacts arise when the effects of an individual activity combine with those of past, existing and reasonably foreseeable future activities, resulting in incremental or aggregate impacts over broader spatial and temporal scales. This is particularly relevant along South Africa's west coast, where marine diamond mining has been undertaken for several decades and extensive areas of the nearshore and offshore environment are already subject to prospecting and mining rights. In addition to existing diamond mining operations, offshore oil and gas exploration activities also occur within the region, often using similar survey methods such as acoustic surveys, coring and drilling. There has also been a recent increase in applications for offshore diamond prospecting rights, including in concession areas adjacent to Concession Area 6C, indicating that marine prospecting activity is likely to increase over the short- to medium-term. Consequently, the cumulative effects of multiple concurrent prospecting programmes

must be considered. In most cases, cumulative impacts are expected to arise through an increase in the spatial extent and duration of otherwise localised, short-term impacts, rather than an increase in their intensity. However, the absence of a recent strategic regional assessment means that uncertainty remains regarding the timing, extent and interaction of future activities.

Marine ecology and fisheries

From an ecological perspective, the principal cumulative considerations relate to underwater noise, localised seabed disturbance and temporary interactions with commercial fisheries. Should prospecting programmes in adjacent concession areas occur simultaneously, these impacts may extend over a larger regional area and persist for longer periods. However, because prospecting activities are temporary, mobile and spatially limited, the proposed programme is considered to make only a small incremental contribution to existing regional pressures. Consequently, the overall cumulative ecological impact is assessed to be of "Medium Negative" significance, although confidence in this assessment is low due to uncertainty regarding the timing, scale and intensity of future regional activities.

Socio-economic considerations

From a socio-economic perspective, the prospecting programme is not expected to result in meaningful cumulative adverse effects because it is temporary, offshore, requires no permanent infrastructure and will not generate a substantial influx of workers. Instead, it will make a modest incremental contribution to regional economic activity through expenditure, procurement, employment, skills development and the generation of geological and environmental information that may support future marine spatial planning and resource management. Consequently, the cumulative socio-economic impact is assessed to be of "Very Low Positive" significance.

Heritage considerations

From a heritage perspective, cumulative impacts differ between resource types. Cumulative impacts on submerged prehistoric resources and maritime archaeological resources are expected to be of "Low Negative" significance—reflecting the low density and highly localised distribution of submerged archaeological material, the limited likelihood of encountering shipwrecks within the concession area, and the ability to avoid known heritage features where identified. In contrast, although prospecting will inevitably result in the permanent loss of some palaeontological material, coordinated fossil recovery, documentation and specialist assessment across multiple prospecting programmes has the potential to substantially improve understanding of the continental shelf's geological, palaeoenvironmental, palaeontological, and archaeological context. As a result, cumulative palaeontological impacts have the potential to become be of "Positive" significance (no specific rating assigned)—assuming appropriate fossil rescue and documentation programmes are generally implemented across the region.

The No Go Alternative

The No-Go Alternative refers to the potential impacts associated with not pursuing the proposed development, or "doing nothing". It therefore considers the implications of not proceeding with the proposed prospecting works in Concession 6C. Under this scenario, the project area would remain in its current state, with only natural environmental processes and any existing marine will continue to influence the site.

This alternative would avoid the “Low”, “Very Low”, or “Insignificant” negative impacts associated with the prospecting works (as identified and assessed in this BAR and supporting specialist studies EIA)—and would prevent this project from adding to the cumulative burden/impact placed on the surrounding marine environment within Concession 6C (and the surrounding concessions)—due to other prospecting and mining activities. While the contributions of the proposed prospecting works to the overall “Medium Negative” cumulative impact rating (assigned by the Marine and Fisheries specialist) would be small—relative to existing/historical mining/prospecting activities—it will still contribute marginally to these regional cumulative pressures. **However, pursuing the No-Go would also result in the loss of the anticipated positive project outcomes, which includes:**

Lost socio-economic benefits

Under the No-Go Alternative, the limited but meaningful socio-economic benefits associated with the prospecting programme would not be realised. This includes the loss of “Low Positive” project-level benefits relating to temporary employment, procurement, capital expenditure, skills development and scientific knowledge generation, as well as the “Very Low Positive” cumulative socio-economic benefits identified by the specialist. In addition, the economic activity associated with the prospecting phase itself, including the use of specialist services, vessel operations and associated procurement, would not occur.

Lost marine heritage benefits

The No-Go Alternative would also result in the loss of important opportunities to advance South Africa's marine heritage knowledge. Although prospecting has the potential to disturb palaeontological and archaeological resources, appropriate mitigation enables the recovery, documentation and scientific assessment of valuable fossils and artefacts that would otherwise remain inaccessible. Consequently, the “Low” to “Medium” Positive project-level heritage benefits associated with the proposed prospecting works—together with the “Low Positive” cumulative benefits for submerged prehistoric and maritime archaeological resources, and the un-rated Positive cumulative palaeontological benefits—would not be realised.

Broader implications relating to the project's "Need and Desirability"

The No-Go Alternative would not address the underlying need and desirability of the project, as prospecting is the essential first step in determining the location, extent and economic viability of offshore mineral resources. Without prospecting, these resources would remain unquantified, preventing informed decisions regarding any future mining development. The baseline geological, geophysical and environmental information generated during prospecting further contributes to South Africa's broader mineral resource knowledge base, environmental management and marine spatial planning, while supporting national development objectives. As a result, the No-Go Alternative would forgo not only potential future economic opportunities, but also valuable information that could benefit the broader public interest beyond the immediate objectives of the applicant.

7.10.2 Final Site Map

(Provide a map at an appropriate scale which superimposes the proposed overall activity and its associated structures and infrastructure on the environmental sensitivities of the preferred site indicating any areas that should be avoided, including buffers .Attach as **Appendix**

Refer to Figure 2.1, Figure 2.2, Figure 6.6, Figure 6.7, Figure 6.16, and Figure 6.17 (See Appendix 9).

7.10.3 Summary of the positive and negative impacts and risks of the proposed activity and identified alternatives;

Please refer to Section 7.10.1, which summarises the positive and negative impacts and risks of the proposed activity and identified alternative. Likewise, refer to Table 7.2 and Table 7.1 for visual summaries of these impacts.

7.11 Proposed impact management objectives and the impact management outcomes for inclusion in the EMPr;

Based on the assessment and where applicable the recommendations from specialist reports, the recording of proposed impact management objectives, and the impact management outcomes for the development for inclusion in the EMPr as well as for inclusion as conditions of authorisation.

7.11.1 Impact management outcomes

The proposed impact management outcomes are as follows:

Planning, design and establishment phase

- Provide environmental awareness training to ensure all staff are aware of and understand their individual responsibilities in terms of this EMPr, ensuring effective implementation and compliance.
- Notify registered and relevant I&APs of the commencement of prospecting activities to promote stakeholder awareness, transparency and communication, and to enable affected parties to anticipate and respond to survey activities.
- Ensure that seabed sampling, drilling and tailings disposal result only in localised and temporary disturbance to benthic habitats, with sensitive habitats avoided and the CBA Natural area excluded from the prospecting footprint, no significant impacts on biodiversity features of concern, and no long-term loss of benthic ecosystem structure or function.
- Avoid or minimise damage to submerged prehistoric archaeological (e.g. prehistoric stone artefacts), maritime archaeological (shipwrecks) and palaeontological resources (including Cretaceous Fossil Wood, Cenozoic Shelly Macrofauna, Fossil Bones and Teeth, and Shells from the Last Transgression Sequence), and ensure that any heritage resources identified during prospecting activities are appropriately protected and managed.
- Optimise the positive socio-economic and scientific outcomes of the prospecting programme by promoting local and South African participation in employment, procurement and skills development where feasible, and by ensuring that environmental and scientific data generated during the project are appropriately managed and utilised.

Operational phase

- Ensure effective environmental management to achieve compliance with the EA, EMPr and applicable legislation, and to facilitate effective monitoring and reporting of environmental performance.

- Maintain effective communication with relevant stakeholders, particularly marine users and the fishing sector, throughout the operational phase to minimise potential conflicts, facilitate coordination of activities, communicate operational updates where appropriate, and ensure that complaints and concerns are addressed in a timely manner.

- Ensure the health and safety of personnel, other sea users and the public through compliance with applicable health, safety and maritime legislation, recognised industry standards and emergency preparedness procedures.

- Minimise disruption to tourism and recreational activities through appropriate planning, communication and management of prospecting operations.

- Minimise impacts on the sense of place and well-being of affected communities and other stakeholders arising from the prospecting activities.

- Avoid injury and mortality of marine megafauna resulting from vessel operations, including vessel strikes, underwater noise and artificial lighting, and ensure that any disturbance arising from geophysical survey or prospecting activities (including drilling) is limited to short-term, localised and reversible behavioural effects, with no significant interference with migration, feeding or breeding behaviour, and no measurable ecological or population-level impacts.

- Ensure that seabed sampling, drilling and tailings disposal result only in localised and temporary disturbance to benthic habitats, with sensitive habitats avoided and the CBA Natural area excluded from the prospecting footprint, no significant impacts on biodiversity features of concern, and no long-term loss of benthic ecosystem structure or function.

- Avoid or minimise damage to submerged prehistoric archaeological (e.g. prehistoric stone artefacts), maritime archaeological (shipwrecks) and palaeontological resources (including Cretaceous Fossil Wood, Cenozoic Shelly Macrofauna, Fossil Bones and Teeth, and Shells from the Last Transgression Sequence), and ensure that any heritage resources identified during prospecting activities are appropriately protected and managed.

- Prevent pollution of the marine environment while protecting water quality, marine habitats, marine fauna and human health through the appropriate management of waste, hazardous substances and spill risks, in compliance with MARPOL and other applicable legislation.

- Optimise the positive socio-economic benefits of the prospecting programme by promoting local and South African participation in employment, procurement and skills development where feasible.

Decommissioning and closure phase

- Ensure that the prospecting area is left in a condition that is safe for other maritime users.
- Maximise the environmental and scientific benefits arising from the prospecting programme by ensuring that environmental and scientific data are appropriately collected, managed, documented and, where appropriate, shared to support future environmental management, scientific research and marine spatial planning.
- Ensure that all waste generated during the prospecting programme is removed from the vessel and disposed of responsibly so that no pollution or long-term environmental impacts remain following completion of the survey.
- Ensure that the prospecting programme is appropriately concluded through stakeholder notification and compliance with applicable closure requirements.

7.11.2 Impact management objectives

The proposed impact management objectives of are as follows:

- Provide a practical and effective framework for avoiding, minimising, managing and monitoring the environmental, social, economic and heritage impacts associated with the proposed prospecting activities.
- Facilitate the strategic planning and implementation of the prospecting programme to avoid or minimise impacts, particularly on environmentally sensitive areas.
- Ensure compliance with the conditions of the Environmental Authorisation (EA), the EMPr and all applicable international, national and regional legislation, guidelines and permit requirements.
- Identify, monitor and manage environmental risks through ongoing inspections, monitoring, reporting and adaptive management.
- Establish clear roles, responsibilities and mitigation measures to ensure effective implementation of the EMPr throughout all phases of the prospecting programme.
- Provide procedures for responding to environmental incidents, non-compliances and unforeseen impacts, and for implementing corrective actions where required.
- Promote continual improvement of environmental performance through compliance monitoring, performance evaluations, routine inspections and independent environmental audits.

Achievement of the above objectives and outcomes will be evaluated through environmental monitoring, compliance reporting and independent environmental audits, as prescribed in the EMPr and the Environmental Authorisation.

8 ASPECTS FOR INCLUSION AS CONDITIONS OF AUTHORISATION.

(Any aspects which must be made conditions of the Environmental Authorisation)

It is the opinion of the EAP that the following conditions should form part of the authorisation:

- The information collected during the acoustic survey must be reviewed by the geologist, the ECO and, where appropriate, an independent specialist to identify environmentally sensitive areas that should be avoided before grab, core and drill sampling locations are finalised.
- The CBA Natural area within Concession Area 6C must be clearly demarcated as a no-go area prior to the commencement of prospecting activities. No coring or drilling may take place within the CBA Natural area.
- Baseline benthic grab samples must be collected prior to sediment coring and drill sampling to establish pre-disturbance benthic conditions.
- Grab samples must be analysed as soon as reasonably practicable after collection. The results must be used to verify baseline conditions and, where necessary, refine mitigation measures before subsequent sampling phases commence.
- The final locations of all grab, core and drill samples must, where practicable, avoid environmentally sensitive habitats identified during the geophysical surveys.
- Registered interested and affected parties and relevant authorities must be notified within a reasonable period prior to the commencement of each survey campaign.
- The holder must comply with all applicable environmental legislation, permit conditions and the conditions of the Environmental Authorisation.
- All essential mitigation measures contained in the approved EMPr must be implemented to achieve the prescribed impact management outcomes.
- Should new environmental information become available before or during the prospecting programme, including the results of the acoustic surveys, benthic sampling or new scientific or legislative requirements, the mitigation measures and sampling programme must be reviewed and amended where necessary to avoid or minimise environmental impacts.
- Appropriate non-sensitive environmental and scientific data collected during the prospecting programme, including seabed imagery, habitat mapping, biodiversity records, marine megafauna observations and other relevant environmental information, should be shared with relevant government authorities, research institutions and conservation organisations, where appropriate and subject to confidentiality and intellectual property requirements, to support marine research, biodiversity conservation, environmental management and marine spatial planning.

9 DESCRIPTION OF ASSUMPTIONS, UNCERTAINTIES AND GAPS IN KNOWLEDGE.

(Which relate to the assessment and mitigation measures proposed)

- It is assumed that all project information provided by Trans Atlantic Diamonds (Pty) Ltd is accurate, complete and representative of the proposed prospecting activities.
- There is currently no high-resolution bathymetric data available for Concession Area 6C. Accordingly, information relating to the seabed topography, bathymetry and geology is based on available desktop information from the surrounding area and may be refined following completion of the acoustic surveys. The results of these surveys should be reviewed to confirm the continued applicability of the EMPr.
- The exact locations of the grab, core and drill sampling sites have not yet been determined and will be selected following interpretation of the acoustic survey data and consideration of environmental sensitivities.
- It is assumed that the project description and proposed prospecting activities will not materially change following completion of this assessment.
- The assessment assumes that all mitigation measures contained in the Environmental Management Programme (EMPr) and Environmental Authorisation (EA) will be fully implemented throughout the prospecting programme.

10 REASONED OPINION AS TO WHETHER THE PROPOSED ACTIVITY SHOULD OR SHOULD NOT BE AUTHORISED

10.1 REASONS WHY THE ACTIVITY SHOULD BE AUTHORIZED OR NOT.

The Basic Assessment and specialist studies indicate that the proposed prospecting programme is environmentally acceptable and does not present any fatal flaws that would preclude the project from proceeding, provided that the “Essential Mitigation Measures” are implemented.

The proposed prospecting activities are temporary, localised and of relatively small spatial extent, disturbing an estimated 7 600 m^2 (0.76 ha) of seabed within a concession area of approximately 350 000 ha. Although the prospecting programme has the potential to result in temporary disturbance to marine fauna, localised seabed disturbance, limited interactions with marine users and fisheries, and potential impacts on submerged heritage resources, the specialist assessments demonstrate that these impacts can be effectively avoided, minimised or managed through the implementation of the EMPr. Following mitigation, all remaining negative impacts are assessed to be of “Low”, “Very Low” or “Insignificant” significance, indicating that no significant residual environmental impacts are anticipated.

The assessment also identified a number of positive outcomes associated with the project. These include temporary socio-economic benefits through employment, procurement, skills development and scientific knowledge generation, although these benefits are of “Low Positive”

significance due to the short-term and specialised nature of the prospecting programme. The project also has the potential to contribute to scientific knowledge through the appropriate management and, where feasible, sharing of non-sensitive environmental and scientific data collected during the prospecting programme. In addition, should previously unknown submerged archaeological or palaeontological resources be encountered, their identification, documentation, specialist assessment and appropriate management would provide valuable opportunities to improve understanding of South Africa's offshore geological, palaeontological and archaeological heritage.

From a cumulative impact perspective, the proposed prospecting programme is expected to make only a small incremental contribution to existing regional environmental pressures because the activities are temporary, highly localised and mobile. While cumulative marine ecological impacts remain of Medium Negative significance at a regional scale due to uncertainty associated with other existing and future offshore activities, the contribution of the proposed prospecting programme to this cumulative impact is expected to be limited. The cumulative socio-economic impacts are positive, while cumulative palaeontological impacts also have the potential to be positive where fossil recovery, documentation and scientific assessment are implemented.

The No-Go Alternative would avoid the limited environmental impacts associated with the proposed prospecting activities but would also prevent the collection of important geological, environmental and scientific information required to determine the economic viability of the mineral resource. It would further result in the loss of temporary socio-economic benefits and opportunities to improve scientific understanding of the offshore environment and South Africa's submerged heritage resources.

Overall, the findings of the Basic Assessment demonstrate that the proposed prospecting activities are compatible with the receiving environment and surrounding marine uses, that the identified environmental risks can be effectively managed through the implementation of the EMPr, and that the project is expected to result in an acceptable balance between potential environmental risks and anticipated socio-economic and scientific benefits.

The EAP recommends that Environmental Authorisation for the proposed prospecting activities within Sea Concession Area 6C be granted, subject to the implementation of all essential mitigation measures contained in the EMPr. With the implementation of these measures, all identified negative impacts are expected to be reduced to **“Low”**, **Very Low**” or **“Insignificant”** significance. In addition, potential impacts on submerged heritage resources may result in a positive outcome where archaeological or palaeontological material is identified, appropriately managed and contributes to scientific knowledge.

The proposed prospecting programme is therefore considered environmentally acceptable, and the anticipated environmental, socio-economic and scientific benefits are considered to outweigh the limited residual environmental impacts.

10.2 CONDITIONS THAT MUST BE INCLUDED IN THE AUTHORISATION

See section 8 above.

11 PERIOD FOR WHICH THE ENVIRONMENTAL AUTHORISATION IS REQUIRED.

The authorisation is required for five years.

12 UNDERTAKING

Confirm that the undertaking required to meet the requirements of this section is provided at the end of the EMPr and is applicable to both the Basic assessment report and the Environmental Management Programme report.

An undertaking is provided at the end of this report. See section 15.9.

13 FINANCIAL PROVISION

(State the amount that is required to both manage and rehabilitate the environment in respect of rehabilitation.)

An amount of R170 000.00 has been set aside as financial provision for the management of environmental incidents, emergency response, pollution remediation and any other environmental liabilities that may arise as a result of the proposed prospecting activities.

The Applicant also holds prospecting rights for Concession Areas 7C and 10B in the Northern Cape, for which separate financial provision has been made. As prospecting activities within these concession areas are intended to be undertaken as part of the same offshore campaign, and the environmental risks associated with prospecting each concession individually are not expected to increase when undertaken concurrently, the financial provision allocated to these concession areas will also be available, where necessary, to respond to environmental incidents or undertake remediation. Accordingly, adequate financial provision has been made available to address potential environmental liabilities and to undertake remediation, should this become necessary.

In addition to the financial provision described above, the Applicant has made separate operational budget provision for the implementation of the approved EMPr. This includes, amongst others, the implementation of environmental management measures, environmental monitoring, pollution prevention and response measures, careful planning and management of tailings discharges to avoid sensitive benthic habitats, and the appointment of suitably qualified personnel, including the Environmental Control Officer (ECO), Marine Mammal and Seabird Observers (MMSOs), Passive Acoustic Monitoring (PAM) Operators and Fisheries Liaison Officer (FLO). In the unlikely event of a major emergency, such as a vessel collision, significant oil spill or other unforeseen incident requiring additional resources, additional contingency funding is also available to implement the necessary emergency response and remediation measures, if required.

13.1 EXPLAIN HOW THE AFORESAID AMOUNT WAS DERIVED.

It is well established in marine science and generally accepted in the context of offshore marine environments that recovery occurs naturally over time through dynamic physical processes, including sediment movement and redistribution, particularly within soft sediment habitats. Active rehabilitation of the seabed is therefore generally neither necessary nor logistically feasible due to the depth and nature of the receiving environment.

Given the above, together with the limited and localised disturbance associated with the proposed prospecting activities, natural recovery of the seabed within Concession Area 6C is anticipated. The cumulative physical footprint of all grab, core and drill sampling is estimated to be approximately 7 600 m^2 (0.76 ha), representing an extremely small proportion of the approximately 350 000 ha concession area.

Application of the Department of Mineral Resources Guideline for the Evaluation of the Quantum of Closure-Related Financial Provision confirmed that none of the prescribed closure components are applicable to the proposed offshore prospecting activities and, accordingly, no rehabilitation liability is generated through the guideline methodology. Refer to Appendix 10 for the detailed Financial Quantum Determination.

Nevertheless, the Applicant has made financial provision of R170 000.00 for the management of environmental incidents, emergency response, pollution remediation and any other environmental liabilities that may arise during the prospecting programme. This amount was determined with reference to the anticipated environmental risks associated with the proposed activities, the scale of the proposed prospecting programme, market-related costs, quotations and information from comparable offshore prospecting surveys. Note that the implementation of the approved EMPr, including all essential mitigation measures and environmental management obligations, remains the responsibility of the Applicant in terms of the EA and EMPr.

In determining the adequacy of this provision, consideration was also given to the fact that the Applicant has made separate financial provision for the concurrent prospecting programmes in Concession Areas 7C and 10B. As these prospecting activities are intended to be undertaken as part of the same offshore campaign, and the environmental risks associated with prospecting each concession individually are not expected to increase when undertaken concurrently, the financial provision allocated to these concession areas will also be available, where necessary, to respond to environmental incidents or undertake remediation.

The financial provision is therefore considered appropriate and sufficient for the nature, scale and environmental risk profile of the proposed prospecting activities.

13.2 CONFIRM THAT THIS AMOUNT CAN BE PROVIDED FOR FROM OPERATING EXPENDITURE.

(Confirm that the amount, is anticipated to be an operating cost and is provided for as such in the Mining work programme, Financial and Technical Competence Report or Prospecting Work Programme as the case may be).

Funding for the proposed prospecting activities, including the required financial provision, will be provided by Trans Atlantic Diamonds (Pty) Ltd. The required amount is anticipated to form part of the Applicant's operating expenditure and has been provided for in the Prospecting Work Programme and associated financial documentation submitted to the DMPR.

Supporting financial documentation and proof of funds have been submitted as part of the Prospecting Work Programme on the SAMRAD system. In addition, financial guarantees from banks and investors have been provided to the DMPR, confirming the availability of sufficient funds to undertake the proposed prospecting activities, implement the approved EMPr, undertake decommissioning and closure activities where required, and address any environmental liabilities or remediation that may become necessary. The Applicant has also demonstrated its ability to provide the required financial provision through the payment of the prescribed financial provision for Concession Areas 7C and 10B into the designated DMPR account. Accordingly, it is confirmed that the required financial provision can be met from the Applicant's operating expenditure and available financial resources.

14 SPECIFIC INFORMATION REQUIRED BY THE COMPETENT AUTHORITY

14.1 COMPLIANCE WITH THE PROVISIONS OF SECTIONS 24(4)(A) AND (B) READ WITH SECTION 24 (3) (A) AND (7) OF THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT (ACT 107 OF 1998). THE EIA REPORT MUST INCLUDE THE:-

14.1.1 Impact on the socio-economic conditions of any directly affected person.

(Provide the results of Investigation, assessment, and evaluation of the impact of the mining, bulk sampling or alluvial diamond prospecting on any directly affected person including the landowner, lawful occupier, or, where applicable, potential beneficiaries of any land restitution claim, attach the investigation report as an **Appendix** .

Please refer to Section 7.7.2 for a full description of the potential benefits and negative impacts on socio-economic resources. Also refer to Appendix 5 for the Socio-Economic Specialist Impact Assessment.

The proposed prospecting programme is expected to generate a range of modest positive socio-economic benefits, although these will be limited by the short-term, highly specialised nature of the activities. Temporary employment, procurement and expenditure will contribute to economic activity primarily at the provincial and national levels, while opportunities for local communities are expected to be limited. The programme also has the potential to support skills development and transformation through targeted training, capacity building and preferential procurement, while the collection of geological, oceanographic and ecological data will improve scientific understanding of the offshore environment and may support future resource management, conservation initiatives and marine spatial planning. With the implementation of best-practice optimisation measures—including local procurement and employment preferences where feasible, skills development initiatives, stakeholder engagement, transparent procurement and recruitment processes, and appropriate management and sharing of environmental data—the significance of these benefits can be enhanced from “Very Low Positive” to “Low Positive”.

The specialist therefore concluded that no socio-economic fatal flaws were identified and that the proposed prospecting activities can proceed from a socio-economic perspective.

14.1.2 Impact on any national estate referred to in section 3(2) of the National Heritage Resources Act

(Provide the results of Investigation, assessment, and evaluation of the impact of the mining, bulk sampling or alluvial diamond prospecting on any national estate referred to in section 3(2) of the National Heritage Resources Act, 1999 (Act No. 25 of 1999) with the exception of the national estate contemplated in section 3(2)(*i*)(vi) and (vii) of that Act, attach the investigation report as Appendix 2.19.2 and confirm that the applicable mitigation is reflected in 2.5.3; 2.11.6.and 2.12.herein).

Please refer to Section 7.7.3 for a full description of the potential negative and positive impacts on Maritime Heritage Resources. Also refer to Appendix 6 for the Heritage Impact Assessment and Appendix 7 for the Palaeontology Impact Assessment.

Although prospecting activities have the potential to disturb or permanently remove submerged heritage prehistoric resources, they also present a valuable opportunity to enhance scientific and heritage knowledge through the recovery, documentation and assessment of previously unknown fossils and archaeological material. Prior to mitigation, impacts on Cretaceous fossil wood, Cenozoic shelly macrofauna, fossil bones and teeth, and submerged prehistoric resources are assessed as "Medium Negative", while impacts on shells from the Last Transgression Sequence are assessed as "Low Negative". With the implementation of mitigation measures—including environmental awareness training for geological and survey personnel, the systematic identification, collection, labelling and recording of significant fossil and archaeological material, specialist palaeontological and archaeological assessment (where relevant), and reporting of important finds to the relevant heritage authorities—these impacts are improved to "Medium Positive" and "Low Positive" significance, respectively. These measures ensure that scientifically valuable material, which might otherwise be lost, is preserved and contributes to a better understanding of the geological, palaeoenvironmental, palaeontological and archaeological context of the region. No impacts on maritime archaeological resources are anticipated due to the extremely low likelihood of shipwrecks occurring within the concession area, although any unexpected discoveries must be reported and managed in accordance with statutory heritage requirements.

The heritage specialist therefore concluded that, provided the essential mitigation measures are implemented, the proposed prospecting in Concession Area 6C is likely to have relatively minor impacts on palaeontological, submerged prehistoric and maritime and underwater cultural heritage resources, and is thus archaeologically and palaeontologically acceptable.

14.2 Other matters required in terms of sections 24(4)(a) and (b) of the Act.

(the EAP managing the application must provide the competent authority with detailed, written proof of an investigation as required by section 24(4)(b)(i) of the Act and motivation if no reasonable or feasible alternatives, as contemplated in sub-regulation 22(2)(h), exist. The EAP must attach such motivation as **Appendix 4)**.

Alternatives were investigated and assessed in Section 5 of this BAR, with a detailed assessment provided in the relevant specialist studies. The assessment considered alternative locations, activities, technologies, operational aspects, the no-go alternative, and the selection of sampling locations within the concession area. While alternative offshore concession areas were considered, prospecting is constrained to designated concession areas where prospecting rights are available, and Concession Area 6C was selected based on its geological prospectivity and availability. Within the concession area, the final sampling and drilling locations remain flexible and will be refined following the geophysical surveys to avoid, where practicable,

environmentally sensitive areas such as Critical Biodiversity Areas (CBAs), Ecologically or Biologically Significant Areas (EBSAs), reef habitats and other identified sensitive benthic habitats. The preferred prospecting methodology comprises a phased programme of desktop investigations, high-resolution geophysical surveys, targeted seabed sampling and drilling, which represents industry best practice and minimises unnecessary environmental disturbance while meeting the objectives of the prospecting programme. Having considered the feasible alternatives and the proposed mitigation measures, the preferred alternative was identified as the most environmentally acceptable means of achieving the objectives of the proposed prospecting programme.

PART B
ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

15 FINAL ENVIRONMENTAL MANAGEMENT PROGRAMME

Please note that the Environmental Management Programme (EMPr) for this project ahs been prepared as a separate standalone document. The information presented below is a summary of this EMPr and should not be considered the Official document for implementation. Please refer to the document: "Final Environmental Management Programme as part of the application for environmental authorisation and prospecting rights for prospecting in offshore sea Concession Area 6C, Northern Cape, by Trans Atlantic Diamonds (Pty) Ltd" for the Official EMPr.

15.1 Details of the EAP

(Confirm that the requirement for the provision of the details and expertise of the EAP are already included in PART A, section 1(a) herein as required)

It is confirmed that the details of the EAP is included in Part A. The EAPs CV has also been Attached as Appendix 1.

15.2 Description of the Aspects of the Activity.

(Confirm that the requirement to describe the aspects of the activity that are covered by the environmental management programme is already included in PART A, section (1)(h) herein as required)

It is confirmed that the aspects of the activity are included in Part A of this report.

15.3 Composite Map

(Provide a map (Attached as an Appendix 7) at an appropriate scale which superimposes the proposed activity, its associated structures, and infrastructure on the environmental sensitivities of the preferred site, indicating any areas that any areas that should be avoided, including buffers)

The proposed prospecting area is located approximately 4–5 km offshore, and no permanent infrastructure or associated structures are proposed. The environmental sensitivities of the concession area are illustrated in Figure 6.3, Figure 6.4, Figure 6.6 and Figure 6.7 showing the environmental sensitivities of the site. When selecting and planning seabed sampling locations, sites outside Critical Biodiversity Areas (CBA: Natural), Ecologically or Biologically Significant Areas (EBSAs) and other previously identified sensitive benthic habitats must be prioritised, where practicable. Where these areas cannot reasonably be avoided, habitats identified through geophysical surveys as potentially less sensitive must first be verified by camera or Remotely Operated Vehicle (ROV) surveys before sediment sampling is undertaken. Sensitive habitats

should be considered only as a last resort. No site-specific no-go areas or buffers have been identified at this stage. Any additional sensitive features identified during the geophysical survey (e.g. rocky reefs or other sensitive benthic habitats) will be delineated and avoided, where practicable, during the planning of seabed sampling activities.

15.4 DESCRIPTION OF IMPACT MANAGEMENT OBJECTIVES INCLUDING MANAGEMENT STATEMENTS

15.4.1 (i) Determination of closure objectives.

(ensure that the closure objectives are informed by the type of environment described)

Upon completion of the prospecting activities:

- the survey vessel will leave the area.
- it will be ensured that the sampling area is left in a condition that does not pose a risk to navigation or other lawful marine users.
- any items lost overboard during the operational phase that could not be retrieved at the time, will be retrieved, provided that the environmental benefits of recovery outweigh the potential environmental impacts and health and safety risks associated with retrieval (only if practicable and applicable).
- appropriate non-sensitive environmental and scientific datasets, including marine mammal observations, seabed imagery, habitat mapping, biodiversity records and survey data, will be shared with relevant government authorities (including the DFFE), research institutions (including the South African National Biodiversity Institute (SANBI)) and conservation organisations to support environmental management, scientific research, marine spatial planning, biodiversity mapping and the refinement of CBAs (subject to confidentiality and intellectual property requirements).
- any waste on the ship will be disposed of in a responsible manner.
- the EA Holder will notify the relevant stakeholders and registered I&APs in writing that the survey vessel(s) have completed the prospecting activities.
- the EA Holder will notify the SAN Hydrographic office when the campaign is complete so that the Navigational Warning can be cancelled.
- the EA Holder will apply for closure and submit the relevant closure documentation to the DMPR, as and where required by the DMPR.
- a feasibility study will be conducted to determine the feasibility of mining in Concession 6C.

15.4.2 (ii) Volumes and rate of water use required for the operation.

No water use is required as this is an offshore application

15.4.3 (iii) Has a water use licence has been applied for?

No. As this is an offshore application, no water will be required and a such a water use licence is not required.

15.4.4 **(iv) Impacts to be mitigated in their respective phases**

Measures to rehabilitate the environment affected by the undertaking of any listed activity

Please note that a detailed description of the impacts to be mitigated (together with their respective phases) are provided in Section 7 above. Furthermore, the information below has been considered in the separate Environmental Management Programme (EMPr), where they are presented in a more comprehensive and user-friendly format. The table below provides only a brief summary of this information.

Table 15.1 Summary of the activities, impacts, mitigation measures and how these will comply with environmental management standards.

ACTIVITIES	**PHASE**	**POTENTIAL IMPACT**	**SIZE AND SCALE OF DISTURBANCE**	**MITIGATION MEASURE**	**COMPLIANCE WITH STANDARDS**	**TIME PERIOD FOR IMPLEMENTATION**
(E.g. For prospecting - drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office, access route. E.g. For mining,- excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors)	of operation in which activity will take place. State; Planning and design, Pre-Construction' Construction, Operational, Rehabilitation, Closure, Post closure).	(Including the potential impacts for cumulative impacts) (e.g. dust, noise, drainage surface disturbance, fly rock, surface water contamination, groundwater contamination, air pollution etc)	(volumes, tonnages and hectares m^2)	(describe how each of the recommendations herein will remedy the cause of pollution or degradation and migration of pollutants)	(A description of how each of the recommendations herein will comply with any prescribed environmental management standards or practices that have been identified by Competent Authorities)	Describe the time period when the measures in the environmental management programme must be implemented Measures must be implemented when required. With regard to Rehabilitation specifically this must take place at the earliest opportunity. .With regard to Rehabilitation, therefore state either:- .. Upon cessation of the individual activity or. Upon the cessation of mining, bulk sampling or alluvial diamond prospecting as the case may be.
Environmental Awareness Training	Planning, design and establishment Phase	Breaching conditions of the EMPr and EA due to lack of awareness	N/A	**Essential Management Actions/Mitigation Measures** a) All personnel must receive environmental awareness training, in accordance with the Environmental Awareness Training Method Statement, prior to commencing work. b) Environmental awareness training must include as a minimum the following: i. The conditions of the EA, the requirements of the EMPr, and the roles and responsibilities of personnel in ensuring compliance;	Environmental training: Provide environmental awareness training to ensure all staff are aware and understands the individual responsibilities in terms of this EMPr	Prior to boarding the vessel and a refresher course prior to each subsequent prospecting activities.

ACTIVITIES	PHASE	POTENTIAL IMPACT	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURE	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
				ii. The environmental sensitivities of the concession area, including protected and sensitive marine species and submerged prehistoric archaeological, maritime archaeological and palaeontological resources, the potential impacts of the prospecting activities on these resources, and the mitigation measures and procedures required to avoid or minimise impacts; iii. Marine megafauna observation, reporting and interaction procedures; iv. Emergency preparedness and response procedures, including spill prevention, containment, clean-up, reporting, and the correct use of spill response equipment; v. Waste management procedures, including pollution prevention, the safe handling, storage and disposal of waste and hazardous substances, and measures to protect the marine environment and sensitive species from pollution. vi. Procedures for reporting environmental incidents, complaints and non-conformances; and vii. Procedures to be followed when operating within or near environmentally sensitive areas. c) Refresher environmental awareness training must be provided as required, including where new personnel join the vessel or where environmental incidents or non-compliances indicate that additional training is necessary. d) Environmental and safety notices relevant to the prospecting activities must be displayed in appropriate locations onboard the survey vessel, where practicable. These should include, as a minimum:: i. Emergency contact details and emergency procedures; ii. Spill response procedures; iii. Waste segregation and disposal requirements; and iv. Pollution prevention requirements, including the prohibition of littering. i) Records of all environmental awareness training and inductions must be maintained and made available on request.	to ensure effective implementation and compliance.	

ACTIVITIES	PHASE	POTENTIAL IMPACT	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURE	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
				j) Training material must be available in languages understood by the personnel attending the training. k) Environmental toolbox talks or briefings must be conducted, where appropriate, throughout the survey programme to reinforce key environmental requirements and communicate any changes to environmental procedures or site-specific risks.		
Vessel operation and physical presence	Planning, design and establishment Phase	Disturbance/ risk to other marine users and fisheries	To be determined. Only a portion of the full concession will be surveyed.	**Essential Management Actions/Mitigation Measures** a) Prior to commencement of the prospecting survey, the EA Holder must notify key stakeholders and registered I&APs, in writing, of the commencement of the prospecting activities. b) The notification should, where applicable, include: i. A brief description of the project and the location (including the coordinates of the proposed survey area); ii. Contact details of the EA Holder, Contractor, FLO and ECO; iii. A high-fidelity operational schedule indicating the anticipated commencement dates, duration, and planned drilling locations, including their proximity to the Kleinzee mariculture and other potentially affected marine users, where this information is available and operationally feasible to provide. The schedule must provide sufficient detail to enable potentially affected users, including land-based operations at Kleinzee, to monitor activities and, where necessary, implement precautionary operational measures such as temporarily adjusting water intake thresholds; iv. The applicable safety exclusion zone(s) and operational safety requirements around the survey vessel(s); and v. Should emphasise the temporary, offshore and localised nature of the prospecting activities to reduce misconceptions regarding impacts. c) The following stakeholders should be notified: i. Registered I&APs; ii. Relevant local municipality and authorities; iii. The South African Heritage Resources Agency (SAHRA) and the Northern Cape Provincial Heritage Resources Authority (NCHRA);	Notify registered and relevant I&APs of the commencement of prospecting activities: To promote stakeholder awareness, transparency and communication, and to enable affected parties to anticipate and respond to survey activities. Occupational Health and Safety Act No. 85 of 1993	20 days prior to commencement of operations or as stipulated in the EA

ACTIVITIES	PHASE	POTENTIAL IMPACT	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURE	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
				iv. DFFE (including Fisheries Research and the Vessel Monitoring, Control and Surveillance (VMS) Unit); v. South African Maritime Safety Authority (SAMSA); vi. South African Navy (SAN) Hydrographic Office; vii. Relevant port authorities or harbour control; viii. National Sea Rescue Institute (NSRI); ix. Relevant tourism stakeholders; x. Adjacent and overlapping prospecting or mining right holders; and xi. Fishing organisations and associations, including (contactable via liaison@fishsa.org): i. SA Marine Linefish Management Association (SAMLMA); ii. South African Tuna Association (SATA); iii. South African Tuna Longline Association (SATLA); iv. Mariculture farm operators, including Kleinzee Mariculture CC and Diamond Coast Aquaculture (Pty) Ltd; v. Large Pelagic Small, Medium and Micro Enterprises (SMME); and vi. Local fishing communities in Kleinsee, Hondeklipbaai and other affected areas. d) The EA Holder must appoint a Fishing Liaison Officer (FLO) to facilitate communication with the fishing and mariculture sector. The FLO must provide updates on vessel activities, as required, and advise on appropriate actions should fishing gear or fishing vessels be encountered within the survey area.		
Grab, core and drill sampling. Tailings disposal	Planning, design and establishment Phase	Water contamination, Disturbance and contamination of the Benthos	Total surface Area: 7 600m^2 (0.76 ha). This represents a very small proportion	**Essential Management Actions/Mitigation Measures** a) A pre-survey verification of sensitive marine habitats before intrusive sampling is mandatory. b) Exclusion buffer zones must be implemented around sensitive habitats identified during geophysical surveys. The recommended exclusion buffer zone is 500 m. c) All sensitive benthic habitats identified during geophysical surveys should be avoided, including exclusion zone buffers (500 m recommended) around such habitats.	Protection of benthic and sensitive habitats: Ensure that seabed sampling, drilling and tailings disposal result only in localised and temporary	Prior to commencement of prospecting activities

ACTIVITIES	PHASE	POTENTIAL IMPACT	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURE	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			(0,0002 %) of the total Concession Area 6C (~346 000ha/ 3 500km^2).	d) The CBA Natural area must be clearly demarcated as a no-go area and be excluded from the prospecting footprint entirely, prior to prospecting. No prospecting may occur in the CBA. e) Potential discharges must be planned and managed to ensure that tailings are not discarded onto potentially sensitive habitats.	disturbance to benthic habitats, with sensitive habitats avoided and the CBA Natural area excluded from the prospecting footprint, no significant impacts on biodiversity features of concern, and no long-term loss of benthic ecosystem structure or function. National Environmental Management: Integrated Coastal Management Act, 2008 Northern Cape Provincial Biodiversity Spatial Plan	
Grab, core and drill sampling	Planning, design and establishment Phase	Disturbance, destruction and loss of submerged prehistoric archaeological	Total surface Area: 7 600m^2 (0.76 ha). This	**Essential Management Actions/Mitigation Measures** a) The prospecting company must, prior to commencement of prospecting activities, obtain the necessary permit(s) from the South African Heritage Resources Agency (SAHRA), in terms of the National Heritage Resources Act (Act No. 25 of 1999), for the	Protection of submerged prehistoric archaeological, maritime archaeological and	During planning phase prior to survey commencing

ACTIVITIES	PHASE	POTENTIAL IMPACT	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURE	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
		, maritime archaeological and palaeontological resources	represents a very small proportion (0,0002 %) of the total Concession Area 6C (~346 000ha/ 3 500km^2).	collection, disturbance or removal of fossil material that may be encountered during prospecting activities. b) A Method Statement must be prepared describing the procedures for the identification, handling, recording, retention and, where applicable, collection of any submerged prehistoric archaeological or palaeontological material identified within recovered prospecting samples. c) The ECO, relevant Contractor personnel and geological staff must receive Environmental Awareness Training on: i. the potential occurrence of maritime archaeological resources (e.g. shipwrecks) identified during geophysical surveys; ii. the potential occurrence of submerged prehistoric archaeological material (e.g. stone artefacts) and palaeontological material (including fossil wood, fossil shells, fossil bones and teeth, unusual shells and other significant fossil remains) that may be identified during the examination of grab, core and drill samples or other recovered prospecting material, as applicable; and iii. the procedures to be followed should any suspected heritage resources be identified during geophysical surveys or the processing and examination of recovered prospecting samples.	palaeontological resources: Avoid or minimise damage to submerged prehistoric archaeological (e.g., prehistoric stone artefacts), maritime archaeological (shipwrecks) and palaeontological resources (including Cretaceous Fossil Wood, Cenozoic Shelly Macrofauna, Fossil Bones and Teeth and Shells from the Last Transgression Sequence), and ensure that any heritage resources identified during prospecting activities are appropriately protected and managed.	

ACTIVITIES	PHASE	POTENTIAL IMPACT	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURE	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
					Heritage Act; NEMA; EIA Regulations	
Employment, procurement and training	Planning, design and establishment Phase	Socio-Economic	NA	**Recommended/Best Practice Optimisation Measures** a) Employment opportunities, procurement requirements and opportunities for local and regional businesses to provide goods and services should, where appropriate, be communicated to stakeholders. b) The Applicant should manage stakeholder expectations by clearly communicating the limited and temporary nature of employment opportunities associated with the prospecting phase. c) The Applicant must implement procurement in a fair, transparent and non-discriminatory manner in accordance with applicable legislation, the Mining Charter (where applicable), contractual obligations, and the Applicant's B-BBEE and supplier development policies. d) Where suitably qualified, available and commercially competitive, preference should be given to South African, and where feasible, local and regional suppliers and service providers, particularly for vessel provisioning, logistics and associated services. e) Where training and capacity-building opportunities are available, they should be offered in a fair and transparent manner using clear selection criteria, with preference given, where feasible, to suitably qualified candidates from local and regional communities.	Management of employment, procurement and economic opportunities: To optimise the positive socio-economic and scientific outcomes of the prospecting programme by promoting local and South African participation in employment, procurement and skills development where feasible, and by ensuring that environmental and scientific data generated during the project are appropriately managed and utilised. The Occupational Health and Safety Act No. 85 of 1993	Prior to the commencement of prospecting activities

ACTIVITIES	PHASE	POTENTIAL IMPACT	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURE	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
Environmental Management	Operational Phase	Disturbing the environment beyond the approved concession area. Breaching conditions of the EMPr and EA	N/A	**Essential Management Actions/Mitigation Measures** a) Constrain the spatial extent of prospecting activities and associated impacts to the approved prospecting footprint. b) The EA Holder, Contractor and all vessel personnel must comply with the conditions of the EA, the requirements of the EMPr, applicable Method Statements, and all relevant environmental legislation. c) Environmental compliance must be monitored throughout the operational phase by the ECO. d) Environmental incidents, non-conformances and, where relevant, corrective actions should be photographed, where practicable, to support environmental records, reporting and compliance verification	Overall environmental management: Ensure effective environmental management to achieve compliance with the EA, EMPr and applicable legislation, and to facilitate effective monitoring and reporting of environmental performance.	Throughout Operational Phase
Vessel operation and physical presence	Operational Phase	Disturbance/ risk to other marine users and fisheries	To be determined. Only a portion of the full concession will be surveyed.	**Essential Management Actions/Mitigation Measures** a) The EA Holder, Contractor and/or FLO, as appropriate, must establish and maintain a direct communication and operational alert protocol with key stakeholders and registered I&APs, particularly marine users and mariculture operators who may be affected by the prospecting activities. The protocol must provide timely updates on survey activities and facilitate communication throughout the prospecting programme. Liaison should occur where operationally necessary, including where changes to the survey programme may affect other sea users, where interactions or potential conflicts arise, or where information sharing would assist in minimising disruption to fishing, navigation or other lawful marine activities. b) The following may be relevant stakeholders and should be kept informed as and where applicable: i. Registered I&APs; ii. Relevant local municipality and authorities; iii. SAHRA and NCHRA; iv. DFFE (including Fisheries Research and the VMS Unit);	Ongoing stakeholder liaison and coordination, including marine users and the fishing sector: Maintain effective communication with relevant stakeholders, particularly marine users and fisheries, throughout the operational phase to minimise potential conflicts, facilitate coordination of	Throughout Operational Phase

ACTIVITIES	PHASE	POTENTIAL IMPACT	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURE	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
				v. SAMSA; vi. SAN Hydrographic Office; vii. Relevant port authorities or harbour control; viii. NSRI; ix. Relevant tourism stakeholders; x. Adjacent and overlapping prospecting or mining right holders; and xi. Fishing organisations and associations, including (contactable via liaison@fishsa.org): i. SAMLMA; ii. SATA; iii. SATLA; iv. Mariculture farm operators, including Kleinzee Mariculture CC and Diamond Coast Aquaculture (Pty) Ltd; v. Large Pelagic SMME; and vi. Local fishing communities in Kleinsee, Hondeklipbaai and other affected areas. c) Ensure that the vessel master records any sightings of, communications with, or interactions involving other vessels, including any incidents or potential conflicts relating to navigation, right of passage, access to marine resources, or interactions with fishing gear. d) The ECO must maintain a Complaints and Communications Register recording all complaints, enquiries and other stakeholder communications received. All complaints must be investigated and responded to as soon as reasonably practicable. Where a response requires information from personnel onboard the survey vessel, the response must be provided as soon as reasonably practicable following receipt of the required information or, where necessary, the vessel's return to port. e) Any disputes arising with adjacent or overlapping prospecting or mining right holders that cannot be resolved through engagement should be referred to the DMPR or the Petroleum Agency of South Africa (PASA), as applicable.	activities, communicate operational updates where appropriate, and ensure that complaints and concerns are addressed in a timely manner. The Occupational Health and Safety Act No. 85 of 1993	

ACTIVITIES	PHASE	POTENTIAL IMPACT	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURE	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
Vessel operation	Operational Phase	Employee health and safety. risk to other marine users and fisheries	N/A	**Essential Management Actions/Mitigation Measures** a) The EA Holder and Contractor must comply with all applicable occupational health and safety, maritime safety and emergency management legislation, as well as recognised industry standards and vessel-specific safety management systems. b) The survey and sampling vessels must be certified as seaworthy and operated in accordance with applicable statutory requirements and recognised international maritime standards. c) Appropriate navigational equipment, communication systems, collision avoidance measures and safety equipment must be maintained in accordance with applicable legal requirements and vessel certification requirements. d) The required safety exclusion zone around the survey vessel(s) must be maintained in accordance with applicable maritime legislation and navigational requirements. e) Measures to minimise disruption to fisheries and other marine users must be implemented in accordance with the previous line item. f) Emergency response procedures appropriate to the proposed activities must be in place prior to commencement of operations and implemented throughout the prospecting programme. These procedures must address, as applicable, medical emergencies, fires, spills, vessel incidents, evacuation and other foreseeable emergencies. g) Suitable personal protective equipment (PPE) must be available, maintained and worn where required. h) Current emergency contact details must be readily available onboard the vessel. i) Emergency drills and exercises must be undertaken in accordance with the vessel's approved safety management system and applicable legislative requirements. j) No smoking within hazardous storage areas. k) Adequate fire-fighting equipment must be available at hazardous substance storage areas.	Staff, public and other sea users' health, safety and emergency management: Ensure the health and safety of personnel, other sea users and the public through compliance with applicable health, safety and maritime legislation, recognised industry standards and emergency preparedness procedures. The Occupational Health and Safety Act No. 85 of 1993	Throughout Operational Phase

ACTIVITIES	PHASE	POTENTIAL IMPACT	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURE	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
Physical presence of the vessel	Operational Phase	Visual Impact	N/A	**Essential Management Actions/Mitigation Measures** a) The Prospecting activities must be confined to the approved concession area and footprint. b) All vessels must comply with applicable environmental management and operational requirements to prevent pollution or unnecessary disturbance of the marine environment. c) Relevant tourism stakeholders and local authorities must be informed of the timing and duration of prospecting activities prior to commencement. **Best Practice Management Actions/Mitigation Measures** d) The Prospecting activities should, where feasible, be scheduled outside peak tourism periods, particularly the Namaqualand flower season (August–October). e) The Applicant should maintain communication with local tourism operators and tourism authorities regarding the progress and duration of offshore activities. f) Information provided to stakeholders should emphasise the temporary, offshore and localised nature of the prospecting activities to reduce misconceptions regarding impacts on tourism and recreation. g) Where feasible, survey vessels should minimise unnecessary lighting at night and avoid prolonged stationary presence near the coastline.	Impact management outcome: management of impacts on tourism and recreation: Minimise disruption to tourism and recreational activities through appropriate planning, communication and management of prospecting operations.	Throughout Operational Phase
Physical presence of the vessel	Operational Phase	Impacts on Sense of Place and Wellbeing	N/A	**Best Practice Management Actions/Mitigation Measures** a) Project information materials should clearly explain the temporary nature of the prospecting activities, the limited spatial extent of the survey area and the outcomes of specialist environmental studies. b) Regular project updates should be provided to key stakeholder groups particularly prior to the commencement of offshore activities. c) Where feasible, the Applicant should communicate the findings of specialist studies and environmental monitoring programmes in an accessible and non-technical format to improve transparency and build trust.	Management of impacts on sense of place and wellbeing: Minimise impacts on the sense of place and well-being of affected communities and other stakeholders arising from the	Throughout Operational Phase

ACTIVITIES	PHASE	POTENTIAL IMPACT	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURE	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
				d) Any future applications for exploration or mining activities should be subject to separate environmental assessment and stakeholder engagement processes, and this should be clearly communicated during the prospecting phase.	prospecting activities	
Geophysical acoustic survey and drilling operations. Physical presence of the vessel	Operational Phase	Noise disturbance Impacting marine fauna. Disturbance, injury or death of Megafauna such as whales due to collision with survey vessels	To be determined. Only a portion of the full concession will be surveyed.	**Essential Management Actions/Mitigation Measures** a) The Joint Nature Conservation Committee (JNCC) Guidelines for Minimising the Risk of Injury to Marine Mammals from Geophysical Surveys (2017) represent international best practice and shall be implemented throughout all geophysical survey and other prospecting operations (including drilling). The following measures are consistent with the JNCC Guidelines, together with recommendations by Mason (2017) and Koper and Plön (2012), and must be implemented: i. Employ a minimum of two independent, designated and appropriately qualified Marine Mammal and Seabird Observers (MMSOs), experienced in the identification of marine mammals, seabirds and turtles. The appointed MMSOs must implement the mitigation measures and observation protocols contained in the JNCC Guidelines, the EA and this EMPr throughout all daylight survey operations. ii. The survey vessel shall be equipped with Passive Acoustic Monitoring (PAM), operated by at least two suitably trained PAM operators. PAM must be used where survey operations are undertaken during periods of darkness, fog or other poor visibility. The appointed PAM operators must implement the mitigation measures and monitoring protocols contained in the JNCC Guidelines, the EA and this EMPr whenever PAM is in use. iii. The appointed MMSOs and PAM operators may be the same individuals, provided that a minimum of two suitably qualified personnel are available to fulfil these functions. One of the appointed personnel may also fulfil the role of the ECO, provided that all responsibilities can be effectively discharged.	Protection of marine megafauna from vessel operations: Avoid injury and mortality of marine megafauna resulting from vessel operations, including vessel strikes, underwater noise and artificial lighting, and ensure that any disturbance arising from geophysical survey or prospecting activities (including drilling) is limited to short-term, localised and reversible behavioural effects, with no significant interference with migration, feeding or breeding behaviour, and no	Throughout Operational Phase

ACTIVITIES	PHASE	POTENTIAL IMPACT	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURE	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
				iv. Monitor a 500 m mitigation zone around the vessel before and during surveys. v. Undertake pre-survey visual and/ PAM observations for 30 minutes in water depths <200 m and 60 minutes in water depths >200 m. PAM must supplement visual observations in deeper water to improve detection of deep-diving species. vi. Commence all applicable acoustic sources (geophysical sampling and drilling) using an approved soft-start (ramp-up) procedure. Where equipment design limits conventional soft starts (e.g. certain sub-bottom profilers), the closest practicable equivalent procedure shall be adopted. vii. Soft starts" must be carried out for equipment with source levels greater than 210 dB re 1 µPa at 1 m over a period of 20 minutes to give adequate time for marine mammals, turtles and seabirds to leave the vicinity. Where this is not possible, the equipment must be turned on and off over a 20-minute period to act as a warning signal and allow cetaceans to move away from the sound source. viii. Delay commencement or recommencement of acoustic operations until marine mammals, diving seabirds and turtles have moved beyond the 500 m mitigation zone, with a minimum 20-minute delay from the last detection before initiating the soft start, in accordance with the JNCC guidelines. ix. Suspend operations if any marine mammals/ turtles/ seabirds show affected behaviour within 500 m of the survey vessel or equipment until the animals have vacated the area x. In accordance with the JNCC guidelines, there is no requirement to halt an ongoing survey should marine animals enter the mitigation zone once full-power operations have commenced. xi. Record all observations of, encounters with, or incidents involving marine mammals, seabirds, turtles, seals and other notable marine fauna, including species, location, distance from the vessel, swimming direction, behaviour and	measurable ecological or population-level impacts. National Environmental Management: Biodiversity Act 10 of 2004. National Biodiversity Framework Animals Protection Act (Act 71 of 1962) Sea Birds And Seals Protection Act (Act 46 of 1973)	

ACTIVITIES	PHASE	POTENTIAL IMPACT	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURE	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
				any observable responses to survey activity. Seabird attraction and feeding behaviour around the survey vessel must also be recorded. xii. Suspend survey operations immediately should any injury or mortality of marine fauna be observed. xiii. Prepare an MMSO survey close-out report for submission to DFFE and make marine fauna observation data and acoustic source information available, upon request, to the Marine Mammal Institute (MMI), DFFE and DMPR. xiv. Maintain dedicated visual watches for marine fauna during all vessel operations. xv. Where practicable, avoid scheduling geophysical surveys during the peak migration periods of cetaceans and baleen whales (i.e., humpback and southern right whales) from their feeding grounds into low latitude waters (i.e., beginning of June to end of November) and ensure that migration paths are not blocked by acoustic survey operations. xvi. The quietest practicable drilling method must be employed. b) Reduce the lighting to a minimum compatible with safe operations whenever and wherever possible to reduce nocturnal faunal attraction. c) Position light sources, if possible and consistent with safe working practices, in places where emissions to the surrounding environment can be minimised i.e., aim lighting downward rather than out to sea. d) Plan procedures for how to care for downed seabirds and ensure that personnel are adequately trained in this regard. e) Monitor the presence of seabirds and identify mortalities, even when birds do not land on the vessel, especially in foggy conditions and at night. f) Report ringed/banded birds to the appropriate ringing/banding scheme (details are provided on the ring). g) Vessel transit speed to not exceed 12 knots (22 km/hr), except within 25 km of the coast where it must be kept to less than 10		

ACTIVITIES	PHASE	POTENTIAL IMPACT	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURE	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
				knots (18 km/hr), with further speed reductions where marine megafauna are present. h) Where practicable, avoid scheduling geophysical surveys during the peak migration periods of cetaceans/ baleen whales (i.e., humpback and southern right whales) from their feeding grounds into low latitude waters (i.e., beginning of June to end of November) and ensure that migration paths are not blocked by acoustic survey operations. The quietest practicable drilling method must be employed.		
Grab, core and drill sampling. Tailings disposal	Operational Phase	Impact on water quality. Disturbing and damaging the Benthos. Damaging and disturbing sensitive habitats	Total surface Area: 7 600m^2 (0.76 ha). This represents a very small proportion (0,0002 %) of the total Concession Area 6C (~346 000ha/ 3 500km2).	**Essential Management Actions/Mitigation Measures** a) A pre-survey verification of sensitive marine habitats before intrusive sampling is mandatory. b) Exclusion buffer zones must be implemented around sensitive habitats identified during geophysical surveys. The recommended exclusion buffer zone is 500 m. c) All sensitive benthic habitats identified during geophysical surveys, such as rocky reefs or kelp habitats, should be avoided, including exclusion zone buffers (500 m recommended) around such habitats. d) The CBA Natural area must be clearly demarcated as a no-go area and be excluded from the prospecting footprint entirely, prior to prospecting. No prospecting may occur in the CBA. e) Potential discharges must be planned and managed to ensure that tailings are not discarded onto potentially sensitive habitats. f) Information gathered during all seabed sampling, reef	Protection of benthic and sensitive habitats: Ensure that seabed sampling, drilling and tailings disposal result only in localised and temporary disturbance to benthic habitats, with sensitive habitats avoided and the CBA Natural area excluded from the prospecting footprint, no significant impacts on biodiversity features of concern, and no long-term loss of benthic ecosystem structure or function.	Throughout Operation Phase

ACTIVITIES	PHASE	POTENTIAL IMPACT	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURE	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
					National Environmental Management: Integrated Coastal Management Act, 2008 National Environmental Management: Biodiversity Act 10 of 2004. Marine Pollution Act (Prevention of Pollution from Ships; Act 2 of 1986) Northern Cape Provincial Biodiversity Spatial Plan	
Grab, core and drill sampling	Operational Phase	Disturbance, destruction and loss of submerged prehistoric archaeological, maritime archaeological and palaeontological resources	Total surface Area: 7 600m² (0.76 ha). This represents a very small proportion (0,0002 %) of the total Concession Area 6C	**Essential Management Actions/Mitigation Measures** a) The monitoring, identification and handling of any submerged prehistoric archaeological, maritime archaeological and palaeontological resources must be undertaken in accordance with the approved Method Statement. b) Any potential shipwrecks identified during the geophysical survey must be treated as no-go areas. Destructive sampling activities must be planned to avoid these features. The position of the find must be recorded and immediately reported to SAHRA, which will determine the significance of the find and advise on the appropriate management actions. c) Grab, core and drill samples, as well as material retained on the oversize screen during drill sampling, must be monitored for the	Protection of submerged prehistoric archaeological, maritime archaeological and palaeontological resources: Avoid or minimise damage to submerged prehistoric archaeological	Throughout Operation Phase

ACTIVITIES	PHASE	POTENTIAL IMPACT	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURE	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			(~346 000ha/ 3 500km2).	occurrence of fossil material and pre-colonial archaeological artefacts. d) Where fossil material is identified within recovered prospecting samples, representative specimens should, where practicable and subject to the necessary permits and approvals, be retained and made available to the appointed suitably qualified palaeontologist for identification, recording and assessment. Where considered significant, the specimens must be deposited in an appropriate curatorial institution (e.g. the Iziko South African Museum). The palaeontologist must further prepare a report for the Company and SAHRA. e) Where pre-colonial archaeological artefacts are identified within recovered prospecting samples, representative specimens should, where practicable and subject to the necessary permits and approvals, be retained and made available to the appointed suitably qualified archaeologist for identification, recording and assessment. Where considered significant, the artefacts must be deposited in an appropriate curatorial institution (e.g. the Iziko South African Museum). The archaeologist must further prepare a report for the Company and SAHRA. i. The ECO must liaise with the appointed palaeontologist and/or archaeologist regarding the progress of fossil and artefact collection and the scheduling of specialist evaluations. ii. Particular attention should be given to the identification of extralimital Agulhas/Algoa subfossil shell species within loose shell material from the Last Transgression Sequence, as these require a high level of taxonomic expertise. Where appropriate, recovered cores should be made available for detailed scientific investigation (for example, as part of a B.Sc. Honours or M.Sc. research project), including radiocarbon dating where appropriate. Lagoonal deposits intersected during coring may be of particular scientific importance as they can provide valuable information on past sea-level changes along the West Coast.	(e.g., prehistoric stone artefacts), maritime archaeological (shipwrecks) and palaeontological resources (including Cretaceous Fossil Wood, Cenozoic Shelly Macrofauna, Fossil Bones and Teeth and Shells from the Last Transgression Sequence), and ensure that any heritage resources identified during prospecting activities are appropriately protected and managed. Heritage Act; NEMA; EIA Regulations	

ACTIVITIES	PHASE	POTENTIAL IMPACT	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURE	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
				f) The following information must be recorded for all fossil and archaeological material collected: the date of collection, vessel name, company name, sample number, collector's name, coordinates, water depth, sample subsurface depth, a brief description of the recovered material, and a photographic record of the find. g) During operations, personnel may submit queries and photographs electronically to the appointed palaeontologist and/or archaeologist for evaluation and prompt feedback. Collected fossil and archaeological specimens must be securely stored by Trans Atlantic Diamonds until they are transferred to the appointed specialist or an approved curatorial institution, as applicable.		
Vessel operation	Operational Phase	Waste discharges and pollution possibly causing deteriorating water quality, and disturbance and mortality of species	To be determined. Only a portion of the full concession will be surveyed.	**Essential Management Actions/Mitigation Measures** a) Ensure compliance with the International Convention for the Prevention of Pollution from Ships (MARPOL), all applicable national legislation, and any other relevant regulations, policies and guidelines relating to the prevention of marine, air and other forms of pollution. b) Contractor personnel and vessel staff must receive Environmental Awareness Training covering waste management, pollution prevention, spill prevention and response, including the immediate containment and clean-up of spillages to minimise contamination of the marine environment, the protection of the marine environment and sensitive species from pollution, and the appropriate handling and disposal of waste. c) A Shipboard Oil Pollution Emergency Plan (SOPEP) must be available and implemented on all vessels throughout the operational phase. d) Deck drainage must be routed to a separate oily water drainage and collection system for treatment to ensure compliance with the MARPOL discharge standard of 15 ppm. e) All hydraulic systems must be adequately maintained, and hydraulic hoses and fittings must be regularly inspected for leaks and signs of wear.	Pollution Management: Prevent pollution of the marine environment while protecting water quality, marine habitats, marine fauna and human health through the appropriate management of waste, hazardous substances and spill risks, in compliance with MARPOL and other applicable legislation. Adherence to South African	Throughout entire prospecting operation

ACTIVITIES	PHASE	POTENTIAL IMPACT	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURE	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
				f) No waste or pollutants may be discharged into the marine environment. The Applicant shall be responsible for the cost of any remedial action required as a result of pollution, in addition to any penalties or fines imposed by the relevant authority. g) General waste must be disposed of at a licensed waste disposal or recycling facility, while hazardous waste must be disposed of at a licensed hazardous waste disposal facility. Records and waste disposal certificates for general, hazardous and recycled waste must be maintained. h) The prospecting vessel must maintain a certified oil spill contingency plan and appropriate spill response equipment capable of providing a rapid response to spills under the expected operating conditions. i) All hazardous substances must be stored in suitable containers in accordance with the approved Method Statement and be accompanied by the relevant Safety Data Sheets (SDS). j) Diesel, fuel, oils, lubricants and hydraulic fluids must be stored in appropriate storage tanks or containers designed for the intended purpose. k) All hazardous substance storage areas must be bunded with sufficient capacity to contain any leaks or spills. l) Spill response kits appropriate to the nature and scale of the hazardous substances onboard must be readily available at all times. m) Personnel responsible for handling hazardous substances and responding to spills must be appropriately trained in the safe handling of hazardous substances and the correct use of spill response equipment. **Recommended/Best Practice Mitigation Measures** a) Develop and implement a Waste Management Plan based on the waste hierarchy principles. b) Process areas should be bunded, where applicable, to ensure that drainage water is directed to a closed drainage system.	Water Quality Guidelines and MARPOL Marine Pollution Act (Prevention of Pollution from Ships; Act 2 of 1986) Hazardous Substances Act (Act 15 of 1973) National Environmental Management: Integrated Coastal Management Act, 2008	

ACTIVITIES	PHASE	POTENTIAL IMPACT	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURE	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
				c) Drip trays should be used to collect run-off from equipment located outside bunded areas, with the collected contents directed to the closed drainage system. d) Low-toxicity, biodegradable detergents should be used for cleaning deck spillages. e) The use and storage of hazardous substances should be minimised, and non-hazardous or less hazardous alternatives should be used where practicable.		
Employment, procurement and training	Operational Phase	Socio-economic	N/A	**Recommended/Best Practice Optimisation Measures** a) Ensure conditions relating to impacts on tourism and recreation are implemented. b) Implement procurement and supplier development commitments in accordance with the approved procurement procedures and maintain records of local, regional and national procurement expenditure, including B-BBEE-related procurement expenditure, where applicable, to demonstrate economic contributions arising from the project. c) Implement and document all training commitments and maintain records of participants, training provided, outcomes achieved and B-BBEE-related procurement expenditure. Training programmes should focus on transferable skills that remain valuable beyond the prospecting phase.	Management of employment, procurement and economic opportunities: To optimise the positive socio-economic benefits of the prospecting programme by promoting fair, local and South African participation in employment, procurement and skills development where feasible.	Throughout entire prospecting operation
Leaving the concession area	Decommissioning Phase	Contamination of the seabed. Navigational hazards	To be determined. Only a portion of the full concession will be surveyed.	**Recommended/Best Practice Optimisation Measures** a) Upon completion of the prospecting activities, ensure that the sampling area is left in a condition that does not pose a risk to navigation or other lawful marine users. b) Where practicable, recover any items lost overboard during the operational phase that could not be retrieved at the time, provided that the environmental benefits of recovery outweigh the potential environmental impacts and health and safety risks associated with retrieval (if applicable).	Survey/ Sampling Vessel to Leave Area: Ensuring that the prospecting area is safe for other maritime users.	Upon completion of prospecting activities

ACTIVITIES	PHASE	POTENTIAL IMPACT	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURE	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
				c) Where unrecovered items may constitute a seafloor or navigational hazard, the following actions must be implemented: i. Record the location, date and cause of the loss, details of the item, and the prevailing weather and sea conditions. ii. Notify SAMSA and the SAN Hydrographer. iii. Request that the South African Navy Hydrographer issue a Notice to Mariners, where appropriate.	National Environmental Management: Integrated Coastal Management Act, 2008	
Information Sharing	Decommissioning Phase	Loss of scientific information	N/A	**Recommended/Best Practice Optimisation Measures** a) Environmental and scientific data collected during the prospecting programme must be recorded, stored and managed in accordance with applicable legal, permitting and reporting requirements. Subject to confidentiality and intellectual property requirements, appropriate non-sensitive environmental and scientific datasets, including marine mammal observations, seabed imagery, habitat mapping, biodiversity records and survey data, should be made available in a usable format (e.g. geo-referenced format) to relevant government authorities (including the DFFE), research institutions (including the South African National Biodiversity Institute (SANBI)) and conservation organisations to support environmental management, scientific research, marine spatial planning, biodiversity mapping and the refinement of CBAs.	Information Sharing: Contribution to Environmental and Scientific Knowledge: Maximise the environmental and scientific benefits arising from the prospecting programme by ensuring that environmental and scientific data are appropriately collected, managed, documented and, where appropriate, shared to support future environmental management, scientific research and marine spatial planning.	Upon completion of prospecting activities

ACTIVITIES	PHASE	POTENTIAL IMPACT	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURE	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
Vessel Operation	Decommissioning Phase	Waste discharges and pollution possibly causing deteriorating water quality, and disturbance and mortality of species	To be determined. Only a portion of the full concession will be surveyed.	**Recommended/Best Practice Optimisation Measures** a) Remove all waste, hazardous substances and surplus materials from the survey vessel upon completion of the prospecting programme. b) Segregate, transport and dispose of all waste in accordance with MARPOL, applicable legislation and the approved waste management procedures. c) Dispose of general waste at a licensed waste disposal or recycling facility and hazardous waste at a licensed hazardous waste disposal facility. d) Retain all waste disposal certificates, hazardous waste manifests and recycling records as proof of lawful disposal. e) Ensure that no waste, hazardous substances or other pollutants are intentionally discharged into the marine environment during demobilisation or completion of the prospecting programme. f) Ensure that all temporary storage areas, containers and waste handling equipment are emptied, cleaned where necessary, and removed from the vessel or disposed of in accordance with applicable requirements.	Final Waste Disposal: Ensure that all waste generated during the prospecting programme is removed from the vessel and disposed of responsibly, such that no pollution or long-term environmental impacts remain following completion of the survey. Adherence to South African Water Quality Guidelines and MARPOL National Environmental Management: Integrated Coastal Management Act, 2008	Upon completion of prospecting activities
Closure of prospecting activities	Decommissioning Phase	N/A	N/A	**Recommended/Best Practice Optimisation Measures** a) Upon completion of the survey programme, the EA Holder must notify the relevant stakeholders and registered I&APs in writing that the survey vessel(s) have completed the prospecting activities. See Section 6.3.	Closure: Ensure that the prospecting programme is appropriately concluded through	Upon completion of prospecting activities

ACTIVITIES	PHASE	POTENTIAL IMPACT	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURE	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
				b) Notify the SAN Hydrographic office when the campaign is complete so that the Navigational Warning can be cancelled. c) Where required by the DMPR, apply for closure and submit the relevant closure documentation, which may include: i. A final layout plan; ii. A Closure Plan; iii. An Environmental Risk Report; iv. A Final Audit Report; and v. A completed application form to transfer environmental responsibilities and liabilities, if such transfer has been applied for.	stakeholder notification and compliance with applicable closure requirements.	

15.5 Impact Management Outcomes

(A description of impact management outcomes, identifying the standard of impact management required)

Please note the impact management outcomes and actions are provided in the separate Environmental Management Programme (EMPr), where they are presented in a more comprehensive and user-friendly format. The table below provides only a brief summary of this information.

Table 15.2 A description of impact management outcomes.

ACTIVITY (whether listed or not listed).	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	MITIGATION TYPE	STANDARD TO BE ACHIEVED
(E.g. Excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc…etc…etc.).	(e.g. dust, noise, drainage surface disturbance, fly rock, surface water contamination, groundwater contamination, air Pollution, etc)		In which impact is anticipated (e.g. Construction, commissioning, operational Decommissioning, closure, postclosure	(modify, remedy, control, or stop) through (e.g. noise control measures, stormwater control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activity etc. etc) •Modify through alternative method. •Control through noise control •Control through management and monitoring •Remedy through rehabilitation.	(Impact avoided, noise levels, dust levels, rehabilitation standards, end use objectives) etc.
Environmental Awareness Training	Breaching conditions of the EMPr and EA due to lack of awareness	NA	Planning, design and establishment Phase	Control through Awareness Training	Avoiding and mitigating impacts. NEMA; EIA Regulations
Vessel operation and physical presence	Disturbance/ risk to other marine users and fisheries	Local communities	Planning, design and establishment Phase	Control through stakeholder engagement	Avoiding and mitigating impacts. NEMA; EIA Regulations
Grab, core and drill sampling. Tailings disposal	Water contamination, Disturbance and contamination of the Benthos	Benthic macrofauna	Planning, design and establishment Phase	Management through avoidance of sensitive habitats	Limit noise levels Limit impacts, injury or death to animals; Limit disturbance of the seabed

ACTIVITY (whether listed or not listed).	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	MITIGATION TYPE	STANDARD TO BE ACHIEVED
					Limit contamination of water quality National Environmental Management: Integrated Coastal Management Act, 2008
Grab, core and drill sampling	Disturbance, destruction and loss of submerged prehistoric archaeological, maritime archaeological and palaeontological resources	Archaeological resources Palaeontological remains	Planning, design and establishment Phase	Management through avoidance of sensitive habitats	Avoid known heritage areas
Employment, procurement and training	Socio-Economic	Employees Local Communities	Planning, design and establishment Phase	Management through stakeholder engagement	Ensure inclusion of local communities
Environmental Management	Disturbing the environment beyond the approved concession area. Breaching conditions of the EMPr and EA	NA	Operational Phase	Management through informing staff	Avoiding and mitigating impacts. NEMA; EIA Regulations
Vessel operation and physical presence	Disturbance/ risk to other marine users and fisheries	Local Communities	Operational Phase	Management through stakeholder engagement	Communication with local communities
Vessel operation	Employee health and safety. risk to other marine users and fisheries	Employees Local Communities	Operational Phase	Management through informing staff Management through stakeholder engagement	Communication with local communities
Physical presence of the vessel	Visual Impact	Local communities	Operational Phase	Management through stakeholder engagement	Communication with local communities
Physical presence of the vessel	Impacts on Sense of Place and Wellbeing	Local communities	Operational Phase	Management through stakeholder engagement	Communication with local communities
Geophysical acoustic survey and drilling operations. Physical presence of the vessel	Noise disturbance Impacting marine fauna. Disturbance, injury or death of Megafauna such as whales due to collision with survey vessels	Fish, Marine mammals, Marine mammals, Turtles	Operational Phase	Control through noise control; Control and modify activities through avoidance in terms of time and space;	Limit noise levels Limit impacts, injury or death to animals; SANS 10103 To limit impacts by means of selecting specific sites for

ACTIVITY (whether listed or not listed).	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	MITIGATION TYPE	STANDARD TO BE ACHIEVED
				Stop impacts through avoidance and terminating activities; Remedy through design measures and noise control of survey equipment; Control through management such as through use of an independent Marine Mammal Observer; Remedy through suspending activities.	drilling and avoiding sensitive sites
Grab, core and drill sampling. Tailings disposal	Impact on water quality. Disturbing and damaging the Benthos. Damaging and disturbing sensitive habitats	Benthos Sensitive habitats Water quality	Operational Phase	Control and modify activities through avoidance in terms of time and space; Stop impacts through avoidance and terminating activities; Remedy through suspending activities. Planning and management of potential discharges to ensure that tailings are not discarded onto potentially sensitive habitats	Limit impacts and disturbance; Listing Notice 1 To limit impacts by means of selecting specific sites for drilling and avoiding sensitive sites Adherence to National Environmental Management: Integrated Coastal Management Act, 2008
Grab, core and drill sampling	Disturbance, destruction and loss of submerged prehistoric archaeological, maritime archaeological and palaeontological resources	Archaeological resources Palaeontological remains	Operational Phase	Management through avoidance of sensitive habitats	Avoid known heritage areas Heritage Act; NEMA; EIA Regulations
Vessel operation	Waste discharges and pollution possibly causing deteriorating water quality, and disturbance and mortality of species	The marine environment and ecosystem functions	Operational Phase	Management through informing staff; Management through compliance with relevant	Limit impacts; limit waste through management; NEM:WA. Adherence to South African Water Quality Guidelines and MARPOL.

ACTIVITY (whether listed or not listed).	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	MITIGATION TYPE	STANDARD TO BE ACHIEVED
				waste standards and protocols; Control and modify activities; Stop impacts through avoidance and terminating activities; Remedy through design measures;.	National Environmental Management: Integrated Coastal Management Act, 2008
Employment, procurement and training	Socio-economic	Employees Local Communities	Operational Phase	Management through stakeholder engagement	Ensure inclusion of local communities
Leaving the concession area	Contamination of the seabed. Navigational hazards	Seabed, other maritime users	Decommissioning Phase	Management through informing staff; Management through compliance with relevant waste standards and protocols; Control and modify activities Communication with relevant authorities	Limit impacts; limit waste through management
Information Sharing	Loss of scientific information	NA	Decommissioning Phase	Control through scientific information sharing	NA
Vessel Operation	Waste discharges and pollution possibly causing deteriorating water quality, and disturbance and mortality of species	The marine environment and ecosystem functions	Decommissioning Phase	Management through informing staff; Management through compliance with relevant waste standards and protocols; Control and modify activities; Stop impacts through avoidance and terminating activities; Remedy through design measures;.	Limit impacts; limit waste through management; NEM:WA. Adherence to South African Water Quality Guidelines and MARPOL. National Environmental Management: Integrated Coastal Management Act, 2008

ACTIVITY (whether listed or not listed).	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	MITIGATION TYPE	STANDARD TO BE ACHIEVED
Closure of prospecting activities	NA	NA	Decommissioning Phase	Management through communication with relevant authorities	Closure certificate; NEMA

15.6 Impact Management Actions

(A description of impact management actions, identifying the manner in which the impact management objectives and outcomes contemplated in paragraphs (c) and (d) will be achieved).

Please note the impact management outcomes and actions are provided in the separate Environmental Management Programme (EMPr), where they are presented in a more comprehensive and user-friendly format. The table below provides only a brief summary of this information.

Table 15.3 A description of impact management actions, identifying the manner in which the impact management objectives and outcomes will be achieved.

ACTIVITY whether listed or not listed.	**POTENTIAL IMPACT**	**MITIGATION TYPE**	**TIME PERIOD FOR IMPLEMENTATION**	**COMPLIANCE WITH STANDARDS**
(E.g. Excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc…etc…etc.).	(e.g. dust, noise, drainage surface disturbance, fly rock, surface water contamination, groundwater contamination, air pollution etc….etc…)	(modify, remedy, control, or stop) through (e.g. noise control measures, storm-water control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activity etc. etc) •Modify through alternative method. •Control through noise control •Control through management and monitoring •Remedy through rehabilitation.	Describe the time period when the measures in the environmental management programme must be implemented Measures must be implemented when required. With regard to Rehabilitation specifically this must take place at the earliest opportunity. .With regard to Rehabilitation, therefore state either:-. Upon cessation of the individual activity or. Upon the cessation of mining, bulk sampling or alluvial diamond prospecting as the case may be.	(A description of how each of the recommendations in 2.11.6 read with 2.12 and 2.15.2 herein will comply with any prescribed environmental management standards or practices that have been identified by Competent Authorities)
Environmental Awareness Training	Breaching conditions of the EMPr and EA due to lack of awareness	Control through Awareness Training	Prior to boarding the vessel and a refresher course prior to each subsequent prospecting activities.	Environmental training: Provide environmental awareness training to ensure all staff are aware and understands the individual responsibilities

ACTIVITY whether listed or not listed.	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
				in terms of this EMPr to ensure effective implementation and compliance.
Vessel operation and physical presence	Disturbance/ risk to other marine users and fisheries	Control through stakeholder engagement	20 days prior to commencement of operations or as stipulated in the EA	Notify registered and relevant I&APs of the commencement of prospecting activities: To promote stakeholder awareness, transparency and communication, and to enable affected parties to anticipate and respond to survey activities. Occupational Health and Safety Act No. 85 of 1993
Grab, core and drill sampling. Tailings disposal	Water contamination, Disturbance and contamination of the Benthos	Management through avoidance of sensitive habitats	Prior to commencement of prospecting activities	Protection of benthic and sensitive habitats: Ensure that seabed sampling, drilling and tailings disposal result only in localised and temporary disturbance to benthic habitats, with sensitive habitats avoided and the CBA Natural area excluded from the prospecting footprint, no significant impacts on biodiversity features of concern, and no long-term loss of benthic ecosystem structure or function. National Environmental Management: Integrated Coastal Management Act, 2008 Northern Cape Provincial Biodiversity Spatial Plan
Grab, core and drill sampling	Disturbance, destruction and loss of submerged prehistoric archaeological, maritime archaeological and palaeontological resources	Management through avoidance of sensitive habitats	During planning phase prior to survey commencing	Protection of submerged prehistoric archaeological, maritime archaeological and palaeontological resources: Avoid or minimise damage to submerged prehistoric archaeological (e.g., prehistoric stone artefacts), maritime archaeological (shipwrecks) and palaeontological resources (including Cretaceous Fossil Wood, Cenozoic Shelly Macrofauna, Fossil Bones and Teeth and Shells from the Last Transgression Sequence), and ensure that any heritage resources identified during prospecting activities are appropriately protected and managed.

ACTIVITY whether listed or not listed.	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
				Heritage Act; NEMA; EIA Regulations
Employment, procurement and training	Socio-Economic	Management through stakeholder engagement	Prior to the commencement of prospecting activities	Management of employment, procurement and economic opportunities: To optimise the positive socio-economic and scientific outcomes of the prospecting programme by promoting local and South African participation in employment, procurement and skills development where feasible, and by ensuring that environmental and scientific data generated during the project are appropriately managed and utilised. The Occupational Health and Safety Act No. 85 of 1993
Environmental Management	Disturbing the environment beyond the approved concession area. Breaching conditions of the EMPr and EA	Management through informing staff	Throughout Operational Phase	Overall environmental management: Ensure effective environmental management to achieve compliance with the EA, EMPr and applicable legislation, and to facilitate effective monitoring and reporting of environmental performance.
Vessel operation and physical presence	Disturbance/ risk to other marine users and fisheries	Management through stakeholder engagement	Throughout Operational Phase	Ongoing stakeholder liaison and coordination, including marine users and the fishing sector: Maintain effective communication with relevant stakeholders, particularly marine users and fisheries, throughout the operational phase to minimise potential conflicts, facilitate coordination of activities, communicate operational updates where appropriate, and ensure that complaints and concerns are addressed in a timely manner. The Occupational Health and Safety Act No. 85 of 1993
Vessel operation	Employee health and safety. risk to other marine users and fisheries	Management through informing staff Management through stakeholder engagement	Throughout Operational Phase	Staff, public and other sea users' health, safety and emergency management: Ensure the health and safety of personnel, other sea users and the public through compliance with applicable health, safety and maritime legislation,

ACTIVITY whether listed or not listed.	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
				recognised industry standards and emergency preparedness procedures. The Occupational Health and Safety Act No. 85 of 1993
Physical presence of the vessel	Visual Impact	Management through stakeholder engagement	Throughout Operational Phase	Impact management outcome: management of impacts on tourism and recreation: Minimise disruption to tourism and recreational activities through appropriate planning, communication and management of prospecting operations.
Physical presence of the vessel	Impacts on Sense of Place and Wellbeing	Management through stakeholder engagement	Throughout Operational Phase	Management of impacts on sense of place and wellbeing: Minimise impacts on the sense of place and well-being of affected communities and other stakeholders arising from the prospecting activities
Geophysical acoustic survey and drilling operations. Physical presence of the vessel	Noise disturbance Impacting marine fauna. Disturbance, injury or death of Megafauna such as whales due to collision with survey vessels	Control through noise control; Control and modify activities through avoidance in terms of time and space; Stop impacts through avoidance and terminating activities; Remedy through design measures and noise control of survey equipment; Control through management such as through use of an independent Marine Mammal Observer; Remedy through suspending activities.	Throughout Operational Phase	Protection of marine megafauna from vessel operations: Avoid injury and mortality of marine megafauna resulting from vessel operations, including vessel strikes, underwater noise and artificial lighting, and ensure that any disturbance arising from geophysical survey or prospecting activities (including drilling) is limited to short-term, localised and reversible behavioural effects, with no significant interference with migration, feeding or breeding behaviour, and no measurable ecological or population-level impacts. National Environmental Management: Biodiversity Act 10 of 2004. National Biodiversity Framework Animals Protection Act (Act 71 of 1962) Sea Birds And Seals Protection Act (Act 46 of 1973)
Grab, core and drill sampling. Tailings disposal	Impact on water quality. Disturbing and damaging the	Control and modify activities through avoidance in terms of time and space;	Throughout Operation Phase	Protection of benthic and sensitive habitats: Ensure that seabed sampling, drilling and tailings disposal result only in localised and

ACTIVITY whether listed or not listed.	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
	Benthos. Damaging and disturbing sensitive habitats	Stop impacts through avoidance and terminating activities; Remedy through suspending activities. Planning and management of potential discharges to ensure that tailings are not discarded onto potentially sensitive habitats		temporary disturbance to benthic habitats, with sensitive habitats avoided and the CBA Natural area excluded from the prospecting footprint, no significant impacts on biodiversity features of concern, and no long-term loss of benthic ecosystem structure or function. National Environmental Management: Integrated Coastal Management Act, 2008 National Environmental Management: Biodiversity Act 10 of 2004. Marine Pollution Act (Prevention of Pollution from Ships; Act 2 of 1986) Northern Cape Provincial Biodiversity Spatial Plan
Grab, core and drill sampling	Disturbance, destruction and loss of submerged prehistoric archaeological, maritime archaeological and palaeontological resources	Management through avoidance of sensitive habitats	Throughout Operation Phase	Protection of submerged prehistoric archaeological, maritime archaeological and palaeontological resources: Avoid or minimise damage to submerged prehistoric archaeological (e.g., prehistoric stone artefacts), maritime archaeological (shipwrecks) and palaeontological resources (including Cretaceous Fossil Wood, Cenozoic Shelly Macrofauna, Fossil Bones and Teeth and Shells from the Last Transgression Sequence), and ensure that any heritage resources identified during prospecting activities are appropriately protected and managed. Heritage Act; NEMA; EIA Regulations
Vessel operation	Waste discharges and pollution possibly causing deteriorating water quality, and disturbance and mortality of species	Management through informing staff; Management through compliance with relevant waste standards and protocols; Control and modify activities; Stop impacts through avoidance and terminating activities;	Throughout entire prospecting operation	Pollution Management: Prevent pollution of the marine environment while protecting water quality, marine habitats, marine fauna and human health through the appropriate management of waste, hazardous substances and spill risks, in compliance with MARPOL and other applicable legislation.

ACTIVITY whether listed or not listed.	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
		Remedy through design measures.		National Environmental Management: Integrated Coastal Management Act, 2008 Adherence to South African Water Quality Guidelines and MARPOL Marine Pollution Act (Prevention of Pollution from Ships; Act 2 of 1986) Hazardous Substances Act (Act 15 of 1973)
Employment, procurement and training	Socio-economic	Management through stakeholder engagement	Throughout entire prospecting operation	Management of employment, procurement and economic opportunities: To optimise the positive socio-economic benefits of the prospecting programme by promoting fair, local and South African participation in employment, procurement and skills development where feasible.
Leaving the concession area	Contamination of the seabed. Navigational hazards	Management through informing staff; Management through compliance with relevant waste standards and protocols; Control and modify activities Communication with relevant authorities	Upon completion of prospecting activities	Survey/ Sampling Vessel to Leave Area: Ensuring that the prospecting area is safe for other maritime users. National Environmental Management: Integrated Coastal Management Act, 2008
Information Sharing	Loss of scientific information	Control through scientific information sharing	Upon completion of prospecting activities	Information Sharing: Contribution to Environmental and Scientific Knowledge: Maximise the environmental and scientific benefits arising from the prospecting programme by ensuring that environmental and scientific data are appropriately collected, managed, documented and, where appropriate, shared to support future environmental management, scientific research and marine spatial planning.
Vessel Operation	Waste discharges and pollution possibly causing deteriorating water quality, and disturbance and mortality of species	Management through informing staff; Management through compliance with relevant waste standards and protocols; Control and modify activities;	Upon completion of prospecting activities	Final Waste Disposal: Ensure that all waste generated during the prospecting programme is removed from the vessel and disposed of responsibly, such that no pollution or long-term environmental impacts remain following completion of the survey.

ACTIVITY whether listed or not listed.	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
		Stop impacts through avoidance and terminating activities; Remedy through design measures.		Adherence to South African Water Quality Guidelines and MARPOL
Closure of prospecting activities	NA	Management through communication with relevant authorities	Upon completion of prospecting activities	Closure: Ensure that the prospecting programme is appropriately concluded through stakeholder notification and compliance with applicable closure requirements.

15.7 FINANCIAL PROVISION

15.7.1 1) Determination of the amount of Financial Provision.

(a) Describe the closure objectives and the extent to which they have been aligned to the baseline environment described under the Regulation.

The closure objectives have been developed with due consideration of the baseline environmental conditions and the nature of the proposed offshore prospecting activities. The receiving environment comprises an offshore marine ecosystem where no permanent infrastructure will be established and where the proposed activities will result in only temporary and highly localised disturbance to the seabed. In recognition of the dynamic nature of the marine environment, particularly the natural redistribution and recovery of soft sediments through prevailing oceanographic processes, the closure objectives focus on preventing pollution, removing or appropriately managing any remaining navigational hazards, ensuring the responsible disposal of waste, completing the required regulatory closure processes, and making environmental information available to support future environmental management and scientific research. The closure objectives are therefore aligned with the baseline environment and are intended to ensure that no unacceptable residual environmental impacts remain following completion of the prospecting programme.

(b) Confirm specifically that the environmental objectives in relation to closure have been consulted with landowner and interested and affected parties.

As the proposed prospecting activities are located offshore, there are no landowners associated with the project area. The environmental objectives relating to closure have been, and continue to be, communicated to Interested and Affected Parties (I&APs) through the Public Participation Process undertaken as part of the Basic Assessment process. A pre-consultation process was undertaken in June 2026 to provide government authorities, stakeholders and members of the public with an opportunity to register as I&APs and submit preliminary comments on the proposed project. The Draft Basic Assessment Report (BAR), including the proposed closure objectives and associated environmental management measures, were made available for public review and comment for a 30-day period from 25 July 2026 to 25 August 2026. Comments received during the public participation process were considered and, where appropriate, incorporated into the final BAR and EMPr. Accordingly, the environmental objectives relating to closure have been made available for consultation with all relevant Interested and Affected Parties.

(c) Provide a rehabilitation plan that describes and shows the scale and aerial extent of the main mining activities, including the anticipated mining area at the time of closure.

It is well established in marine science and generally accepted in the context of offshore marine environments that recovery occurs naturally over time through dynamic physical processes, including sediment movement and redistribution, particularly within soft sediment habitats. Active rehabilitation of the seabed is therefore generally neither necessary nor logistically feasible due to the depth and nature of the receiving environment. The proposed prospecting activities are temporary in nature and do not involve the establishment of permanent infrastructure or long-term occupation of the site. At closure, the survey vessel will leave the concession area and no infrastructure, equipment or materials will remain on the seabed. The

cumulative physical disturbance associated with grab sampling, coring and drilling is estimated to be approximately 7 600 m^2 (0.76 ha), representing approximately 0.0002% of the 350 000 ha concession area. This disturbance is expected to recover naturally over time through normal marine sediment transport and redistribution processes.

As no active rehabilitation measures are possible or required in this context, a detailed rehabilitation plan as contemplated in Appendix 3 of GNR 1147 cannot be meaningfully developed in the same manner as for land-based prospecting or mining activities. The purpose of such a plan is to prescribe physical rehabilitation measures, timeframes and responsibilities, which are not applicable where no direct rehabilitation interventions can be undertaken. Nevertheless, closure measures, monitoring requirements and environmental management actions applicable to the proposed prospecting programme have been incorporated into the BAR and EMPr to ensure that the concession area is left in a safe and environmentally acceptable condition following completion of the prospecting activities.

(d) Explain why it can be confirmed that the rehabilitation plan is compatible with the closure objectives.

The rehabilitation approach is compatible with the closure objectives because the proposed prospecting activities are temporary, highly localised and do not involve the establishment of permanent infrastructure. It is generally accepted that active rehabilitation is neither necessary nor feasible within the offshore marine environment, as habitat recovery occurs naturally through dynamic physical processes, including sediment transport, redistribution and natural infilling. Accordingly, the closure objectives focus on removing the survey vessel, preventing pollution, ensuring the responsible disposal of waste, leaving no navigational hazards, completing the required regulatory closure processes, and allowing the affected seabed to recover naturally. This approach is considered appropriate for the nature and scale of the proposed prospecting activities and is consistent with current scientific understanding of offshore marine environments.

(E) Calculate and state the quantum of the financial provision required to manage and rehabilitate the environment in accordance with the applicable guideline.

An amount of R170 000.00 has been set aside as financial provision for the management of environmental incidents, emergency response, pollution remediation and any other environmental liabilities that may arise from the proposed prospecting activities.

Application of the Department of Mineral Resources' Guideline for the Evaluation of the Quantum of Closure-Related Financial Provision confirmed that none of the prescribed closure components are applicable to the proposed offshore prospecting activities and, accordingly, no rehabilitation liability is generated. This is because the proposed activities are temporary, do not involve permanent infrastructure, and the limited and localised seabed disturbance is expected to recover naturally. Refer to Appendix 10 for the detailed Financial Quantum Determination.

In addition to the financial provision, the Applicant has made separate operational budget provision for implementation of the approved EMPr and has separate contingency funding available to respond to major environmental incidents, should these occur. The Applicant has also made separate financial provision for Concession Areas 7C and 10B, which will be available, where necessary, during the concurrent prospecting campaign.

Accordingly, the financial provision is considered appropriate and sufficient for the nature, scale and environmental risk profile of the proposed prospecting activities.

(f) Confirm that the financial provision will be provided as determined.

Funding for the proposed prospecting activities, including the required financial provision, will be provided by Trans Atlantic Diamonds (Pty) Ltd and has been provided for in the Prospecting Work Programme and associated financial documentation submitted to the DMPR. Supporting proof of funds and financial guarantees have been submitted through the SAMRAD system, and the Applicant has also demonstrated its ability to provide the required financial provision through payment of the prescribed financial provision for Concession Areas 7C and 10B into the designated DMPR account. Accordingly, it is confirmed that the required financial provision will be provided as determined.

15.8 MECHANISMS FOR MONITORING COMPLIANCE WITH AND PERFORMANCE ASSESSMENT AGAINST THE ENVIRONMENTAL MANAGEMENT PROGRAMME AND REPORTING THEREON, INCLUDING

a) Monitoring of Impact Management Actions
b) Monitoring and reporting frequency
c) Responsible persons
d) Time period for implementing impact management actions
e) Mechanism for monitoring compliance

Please note that the information in this section is provided in the separate Environmental Management Programme (EMPr), where they are presented in a more comprehensive and user-friendly format. The table below provides only a brief summary of this information.

Table 15.4 Mechanisms for monitoring compliance with and performance assessment against the EMPr.

SOURCE ACTIVITY	IMPACTS REQUIRING MONITORING PROGRAMMES	FUNCTIONAL REQUIREMENTS FOR MONITORING	ROLES AND RESPONSIBILITIES (FOR THE EXECUTION OF THE MONITORING PROGRAMMES)	MONITORING AND REPORTING FREQUENCY and TIME PERIODS FOR IMPLEMENTING IMPACT MANAGEMENT ACTIONS
All prospecting activities	See below	Ensure that the Prospecting Work Programme, mitigation measures and conditions as set out in the EMPr, are being adhered to.	See below	Submit an annual prospecting progress report to DMPR. Undertake and submit an environmental performance audit every two years to DMPR.
Geophysical acoustic survey	Noise	Ensure that the Prospecting Work Programme, mitigation measures and conditions as set out in the EMPr, are being adhered to.	Geologist. Marine Mammal and Seabird Observer (MMSO); Environmental Control Officer; On-board	Impact management actions should be implemented at all times during the activities or as per the EMPr. An environmental performance audit report should be submitted to the

				DMPR within the timeframe as required in the EA or legislation. Internal auditing should be done by an internal auditor Environmental Control Officer (ECO) on a monthly basis, while the environmental performance audit should be done by an independent external auditor.
Vessel operation	Collision causing injury or death of Megafauna	See above	MMO, On-board Environmental Control Officer, Captain	See above
Grab sampling, core and drill sampling	Disturbance of marine fauna	See above	MMO, Geologist;	See above
Grab sampling, core and drill sampling	Sediment plumes	See above	Geologist;	See above
Grab, core and drill sampling	Destruction and loss of Prehistoric Heritage, palaeontological and Maritime archaeological resources, particularly historical shipwrecks	See above	Geologist and trained Trans Atlantic Diamonds heritage representative	See above
Tailings disposal	Disturbance and destruction	See above	Geologist, Environmental Control Officer	See above
Waste discharges	Waste discharges and pollution, deteriorating water quality	See above & Implementation of effective waste management	Environmental Control Officer	See above
Vessel operation and physical presence	Disturbance to vessels	See above	Captain	See above
Vessel and equipment operation during all activities	Reduction in fishing success and decline in socio-economic conditions	See above & Ensure stakeholders and regularly consulted and implement a stakeholder complaints register.	Fishing Liaison Officer, Environmental Control Officer	See above

15.8.1 Indicate the frequency of the submission of the performance assessment/ environmental audit report.

The Environmental Audit Report must be submitted at the frequency specified in the Environmental Authorisation (EA). Where no audit frequency is specified in the EA, independent external environmental audits must be undertaken at intervals not exceeding five years, in

accordance with Section 34 of the EIA Regulations, 2014 (as amended). Audit reports must comply with the requirements of Appendix 7 of the EIA Regulations and be submitted to the competent authority.

15.8.2 Environmental Awareness Plan

Manner in which the applicant intends to inform his or her employees of any environmental risk which may result from their work.

Trans Atlantic Diamonds (Pty) Ltd will implement an Environmental Awareness Training Programme for all personnel involved in the prospecting activities. All personnel will undergo induction training prior to commencing work, with refresher training provided where required, including for new personnel or following environmental incidents or non-compliances. Weekly toolbox talks and task-specific training will also be conducted where appropriate.

Environmental awareness training will be conducted in accordance with the approved EMPr and will include, as a minimum, the environmental risks associated with the prospecting activities; the conditions of the Environmental Authorisation (EA) and requirements of the EMPr; the environmental sensitivities of the concession area; marine fauna interaction procedures; pollution prevention, waste and hazardous substance management; spill response procedures; emergency preparedness; environmental incident reporting; and the roles and responsibilities of personnel in ensuring compliance.

Refer to Section 3.3 and Section 5.2 of the separate EMPr for more detail.

Manner in which risks will be dealt with in order to avoid pollution or the degradation of the environment.

Environmental risks will be managed through implementation of the approved EMPr, supported by environmental awareness training and induction of all personnel prior to commencing work. The EMPr prescribes the mitigation measures, monitoring requirements, emergency response procedures and reporting requirements necessary to prevent pollution and environmental degradation. Ongoing toolbox talks and supervision by the ECO will reinforce compliance throughout the prospecting programme.

15.8.3 Specific information required by the Competent Authority

(Among others, confirm that the financial provision will be reviewed annually).

Financial provision will be reviewed annually.

15.9 UNDERTAKING

The EAP herewith confirms

a) the correctness of the information provided in the reports;	✓
b) the inclusion of comments and inputs from stakeholders and I&APs;	✓
c) the inclusion of inputs and recommendations from the specialist reports where relevant; and	✓
d) that the information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested and affected. parties are correctly reflected herein.	✓

Signature of the environmental assessment practitioner:

Anchor Environmental Consultants Pty Ltd

Name of company:

17 July 2026

Date: -**END-**

I, Cheruscha Swart declare that I:

i. Act as the independent specialists in this application;
ii. Have performed the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;
iii. Declare that there are no circumstances that may compromise our objectivity in performing such work;
iv. Have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, Regulations and any guidelines that have relevance to the proposed activity;
v. Will comply with the Act, Regulations and all other applicable legislation;
vi. Have not, and will not engage in, conflicting interests in the undertaking of the activity;
vii. Undertake to disclose to the applicant and the competent authority all material information in our possession that reasonably has or may have the potential of influencing any decision to be taken with respect to the application by the competent authority and the objectivity of any report, plan or document to be prepared by ourselves for submission to the competent authority;
viii. The particulars furnished in this form are true and correct; and
ix. Realise that a false declaration is an offence in terms of regulation 48 and is punishable in terms of section 24F of the NEMA.

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