

**PROPOSED 2AFRICA/GERA (EAST) SUBMARINE FIBRE OPTIC
CABLE SYSTEM TO BE LANDED AT PORT ELIZABETH, SOUTH
AFRICA**

VODACOM (PTY) LTD (LANDING PARTNER)

FINAL SCOPING REPORT

EIA REFERENCE: 14/12/16/3/3/2/2057

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VODACOM (PTY) LTD

ENVIRONMENTAL IMPACT ASSESSMENT FOR THE PROPOSED 2AFRICA/GERA (EAST) SUBMARINE CABLE SYSTEM TO BE LANDED AT PORT ELIZABETH (EIA REFERENCE: 14/12/16/3/3/2/2057)

DOCUMENT CONTROL

Prepared and Submitted by	Checked by ASN	Approved by:
ACER (Africa) Environmental Consultants	Yes	Vodacom
Date: 15 April 2021	Date: 19 April 2021	Date: 19 April 2021

DRAFT SCOPING REPORT DISTRIBUTION

The Draft Scoping Report was made available for public review at the following public venue in the project area for a period of 30 days.

Venue	Street	Contact Person and Number
Walmer Public Library,	Main Road, Walmer, Port Elizabeth, 6070	Ms Tasmeema Whitebooi, Senior Librarian Tel: 041 506 4205 / 066 067 5295 Email: twhitebooi@mandelametro.gov.za

The Draft Scoping Report was also available on ACER's web site (www.acer africa.co.za) under the link: 'Projects/Current - Public Review/ASN 2AFRICA/GERA (East) Cable System – Port Elizabeth'.

The following authorities were also sent electronic copies of the Draft Scoping Report:

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PREFACE

The proposed 2AFRICA/GERA (East) submarine cable landing at Port Elizabeth requires Environmental Authorisation from the Department of Environment, Forestry and Fisheries (DEFF) in terms of the 2014 Environmental Impact Assessment Regulations (as amended April 2017) published under the National Environmental Management Act, 1998 (Act 107 of 1998) (NEMA) (as amended). In this context, ACER (Africa) Environmental Consultants (ACER) has been appointed by Alcatel Submarine Networks (ASN) to take responsibility for the application for environmental authorisation for the construction of the 2AFRICA/GERA (East) submarine cable landing at Port Elizabeth on behalf of the landing partner Vodacom (Pty) Ltd.

This Final Scoping Report has been compiled in accordance with the requirements of NEMA, in particular, Government Notice Regulation 982, published on 4 December 2014 (as amended April 2017), which outlines the requirements of Scoping for purposes of an Environmental Impact Assessment undertaken to apply for environmental authorisation for activities listed in Government Notice Regulation R 983, 984 and 985 of 4 December 2014 (as amended April 2017) under Section 24(5) read with Sections 24, 24D and 44 of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (as amended).

EXECUTIVE SUMMARY

Introduction

Submarine telecommunication cables are important for international telecommunication networks as they transport almost 100% of the transoceanic Internet traffic throughout the world. It is widely recognised that access to affordable international bandwidth is key to economic development in every country. As such, the improvement in Africa's information technology infrastructure via telecommunication cables will remove one of the current key inhibitors to development in Africa and support economic growth and opportunities on the continent.

Alcatel Submarine Networks (ASN) has been contracted to supply and install the proposed 2AFRICA/GERA (East) Cable System (2AFRICA) with one of the South African landings at the Nelson Mandela Bay Metropolitan Municipality (NMBMM) (also known as Port Elizabeth) on the east coast of South Africa. This is to be operated by Vodacom (Pty) Ltd as the South African landing partner (Project Applicant). In support to this initiative, ACER (Africa) Environmental Consultants (ACER) has been appointed to obtain the required Permits in Principle (PiPs) for implementation of the landing at Port Elizabeth.

Scope of Work

ACER's investigation of the Port Elizabeth cable landing deals with the proposed submarine cable from when it branches off the main trunk line offshore until it reaches the Cable Landing Station (CLS) to be located in Summerstrand within the NMBMM. This report deals with the cable offshore within South Africa's Exclusive Economic Zone (EEZ) (200 nautical miles/370 km from the seashore) through South Africa's territorial waters (12 nautical miles/22 km from the seashore) until it reaches the Beach Manhole (BMH) on shore at Pollock Beach and then onwards following a terrestrial alignment to the CLS as further described in this Final Scoping Report.

Project Activities

The proposed 2AFRICA/GERA (East) branch to Port Elizabeth will include the installation and operation of the following project components:

- Pre-installation activities including cable route survey, route engineering, route clearance and Pre-Lay Grapnel Run.
- Laying and burial of the cable in the offshore environment within South Africa's EEZ from where it branches off the trunk line until it reaches the shore.
- Laying and burial of the cable across the beach up to the position of the proposed BMH (requiring excavations within the intertidal zone to bury the cable before it will be anchored into the BMH) and installation of a sea earth system (System Earth).
- Installation of the onshore cable between the BMH and the CLS.
- Construction of a BMH on the inland side of the beach (underground structure with a volume of approximately 12 m³).

Legal Requirements

There are many legal requirements (National, Provincial and Local Government spheres) to which the project proponent must adhere for the proposed cable landing. A review of this legislation and guidelines applicable to the proposed project are provided in Chapter 3 of this report.

In the case of the proposed 2AFRICA/GERA (East) Cable System, environmental authorisation will be based on the current Environmental Impact Assessment Regulations, 2014, published in Government Notices R 982, 983, 984 and 985 of 4 December 2014 (as amended) under Section 24(5) read with Sections 24, 24D and 44 of the National Environmental Management Act, 1998 (Act No. 107 of 1998). A list of all regulated activities potentially triggered by the proposed development is provided in Table 2 of this Final Scoping Report.

As the project involves the installation of an international telecommunications cable, the competent authority for this development is the national Department of Environment, Forestry and Fisheries (DEFF) (in close consultation with the Eastern Cape Department of Economic Development, Environmental Affairs and Tourism (DEDEAT))

In addition to the environmental authorisation, the following permissions and licences may be required:

License/Permit	Authority
Heritage Permit (Offshore)	South African Heritage Resources Agency (SAHRA)
Heritage Permit (Onshore)	Eastern Cape Provincial Heritage Resources Authority (ECPHRA)
Beach Driving Permit	Oceans and Coast (DEFF)
Seashore Lease Permit	Department of Economic Development, Environmental Affairs and Tourism (DEDEAT)
Protected Tree and/or Plant Permits	Department of Environment, Forestry and Fisheries (DEFF)
Permit to construct infrastructure in the Coastal Public Property	Department of Public Works/NMBMM
Water Use License (If Required)	Eastern Cape Department of Human Settlements, Water and Sanitation.

Need and Desirability

Submarine telecommunication cables are essential for international telecommunications as they currently transport almost 100% of transoceanic Internet traffic throughout the world. It is widely recognised that access to affordable international bandwidth is key to unlocking economic development in every country.

Today, Africa relies primarily on satellites with few marine cables to provide its international communications. Improvement in Africa's information technology infrastructure via telecommunication cables will remove one of the current key inhibitors to development in Africa and support economic growth and opportunities on the continent. Following installation of the proposed 2AFRICA/GERA (East) Cable System, Vodacom will be to facilitate more affordable and effective transport of voice, data, Internet and television services. Furthermore, the cable will support the objectives set out by the New Partnership for Africa's Development (NEPAD), and provide a means of fulfilling the South African Government's requirements in terms of digital television broadcasting for the country.

By supplying increased bandwidth, the proposed 2AFRICA/GERA (East) Cable System landing at Port Elizabeth will support the following primary NEPAD objectives:

- To eradicate poverty in Africa and to place African countries both individually and collectively on a path of sustainable growth and development to thereby halt the marginalisation of Africa in the globalisation process.

Telecommunications is one of the fastest growing sectors of South Africa's economy which has been driven by rapid growth in the number of mobile phone users and their need for broadband connectivity. The proposed 2AFRICA/GERA (East) Cable System will provide an opportunity to facilitate the growth of the telecommunications infrastructure in South Africa and promote sustainable growth and development within South Africa and the African continent.

Alternatives

Alternatives are different means of achieving the purpose and need of a proposed development and include alternative sites, layouts or designs, operational, technology, and the “no development” or “no go” alternative.

To date Vodacom, ASN, Fugro and ACER have undertaken environmental screening to identify the best possible landing location alternatives and cable alignments to reach the proposed CLS site be located within an existing Telkom Exchange Building on the corner of Skegness and Bognor Streets in Summerstrand. The preferred location Alternative 1 will require the construction of a BMH to land the cable on Pollock beach in Summerstrand. The preferred location alternative (environmentally and economically) will affect isolated environments for the construction of the BMH and for the laying of the cable to the CLS.

The selection of the offshore route for the 2AFRICA/GERA (East) Cable System is required to take the fisheries industry and any existing or potential aquaculture zones into account. A section of the proposed offshore 2AFRICA/GERA (East) Cable System landing in the Nelson Mandela Bay Metropolitan Municipality traverses the southern-most section of the proposed Algoa 1 Aquaculture Project. Further investigation is required to understand the impacts associated with the 2AFRICA/GERA (East) Cable System and that of the Algoa 1 Aquaculture Project, as the aquaculture cages are kept in place using anchor cables and blocks installed on the seabed.

The timing from a tourism and recreational perspective of the construction required on the beach, will need to be taken into consideration as soon as the project’s scheduling is determined.

Technical Description

The section of the 2AFRICA Cable System which forms part of this Environmental Impact Assessment (EIA) includes the section of cable from where it branches off the main trunk line offshore until it reaches the (CLS) to be located in Summerstrand within the NMBMM.

The 2AFRICA Cable System comprises the following project components from where it enters South Africa’s EEZ until it reaches the CLS site in Summerstrand to be located in the existing Telkom Exchange Building:

- Marine Fibre Optic Cable (marine environment to the BMH).
- BMH.
- Installation of a sea earth system (System Earth).
- Terrestrial Fibre Optic Cable (BMH to the proposed CLS site in Summerstrand).

A detailed description of the various project components and the proposed construction methods is provided in Chapter 5 of this Final Scoping Report.

Details of the Public Participation Process

The public participation process has been designed to comply with the requirements of the NEMA EIA 2014 Regulations (as amended). The process is described in Chapter 2 of this Final Scoping Report. Given the level of interest in the proposed development since the project was advertised on 5 November 2020 a public meeting was not held during the 30-day project announcement. Key stakeholders were however consulted independently to ensure that their concerns and issues were captured and addressed in the Final Scoping Report which will be submitted to the Department of Environmental Affairs, Forestry and Fisheries (DEFF). Key stakeholders who have been consulted to date include:

- Department of Environment, Forestry & Fisheries
- Department of Environment, Forestry & Fisheries – Oceans & Coasts
- Department of Environment, Forestry & Fisheries - Aquaculture
- SADSTIA

- SAHRA
- Department of Mineral Resources (Eastern Cape)
- Petroleum Agency of South Africa
- Nelson Mandela Bay Metropolitan Municipality

To date, the opportunity to participate in the EIA has been announced as follows:

- Advertisements in local and provincial newspapers:
 - The Herald English and Afrikaans (05 November 2020)
- A Background Information Document (BID) was compiled and emailed to all key stakeholders on 5 November 2020. All Interested & Affected Parties who registered following the project announcement adverts were sent the BID for their records. Hard copies of the BID were posted to all government departments and other relevant commenting authorities.
- Notifications by telephone.
- Placement of an on-site notice board at Pollock Beach on the 5 November 2020.

The availability of the Draft Scoping Report for public comment was advertised as follows:

- All registered Interested and Affected Parties (I&APs) were notified in writing on 12 March 2021 of the availability of the Draft Scoping Report for their review and comment.
- The Draft Scoping Report was made available on ACER's website and at the Walmer Public Library on the 12 March 2021.

Issues raised to date by I&APs will be considered and incorporated into the impact assessment (as detailed in the Plan of Study for Impact Assessment in Chapter 9). The Comments and Responses Report is provided in Appendix 3.

Description of the Environment

The proposed construction and operation of the 2AFRICA/GERA (East) Cable System at Port Elizabeth takes place within the marine and terrestrial environment and a desk-top description of these environments is provided in Chapter 5 of this Final Scoping Report.

Within the marine environment, impacts on the biophysical environment are considered negligible; however, cognisance must be taken of the potential impact the proposed development may have on socio-economic environment comprised of the fishing industry and aquaculture farming, particularly the deep-sea trawling fleet, squid fishery, benthic/ shallow benthic ecosystems along the proposed offshore alignment and the offshore aquaculture sites within Algoa Bay. Further investigations into the impacts on the fishing industry, aquaculture and marine ecosystems will be required during the impact assessment phase of the environmental authorisation process.

The terrestrial component of the 2AFRICA/GERA (East) Cable System will have an isolated impact at the BMH and from the laying of cables within a trench from the BMH to the CLS. Trenching will take place within the existing road reserves and no significant impacts have been identified.

The proposed development will have an impact on the coastal dune cordon at Summerstrand. However, impacts on these biophysical environments are not considered significant given the ongoing disturbance and erosion taking place in these areas. Vegetation within the study area is subject to ongoing disturbance, primarily through beach goers (pedestrian traffic) accessing the beach. Fauna expected to be encountered within the project footprint is limited given the transformed nature of much of the terrestrial footprint and the locality of the project within the urban environment.

The desk-top assessment conducted during this scoping phase has confirmed that there are no wetlands within a 500 m radius of the site alternatives. The vegetation ecosystem type has recently been reviewed, which has been mapped using the SANBI BGIS Map Viewer. The conservation status of the project area based on the literature review and through accessing the SANBI BGIS Map Viewer, has revealed that the coastal dune corridor is more sensitive than the inland urban street environment. The biodiversity specialist will be required to determine whether there are any fauna or flora species of conservation significance and provide mitigation measures for inclusion in the Environmental Management Programme (EMPr), to be included in the Draft Environmental Impact Assessment Report.

Socio-economic impacts related to the beach as a holiday and recreation destination, and the timing of the construction activities will need to consider the peak holiday periods when the beach area and surrounding roads are likely to be congested making access and public safety, key concerns.

Environmental Issues and Potential Impacts

The issues identified during Scoping have been formulated as seven key questions (See Chapter 9), within which potential impacts are identified and described:

- What impacts will the construction and operation of the 2AFRICA/GERA (East) Cable System have on the terrestrial environment (flora and fauna)?
- What impacts will the construction and operation of the 2AFRICA/GERA (East) Cable System have on the fishing industry, in particular the squid fishery?
- What impacts will the construction and operation of the 2AFRICA/GERA (East) Cable System have on wetlands within the study area?
- What impacts will the construction and operation of the 2AFRICA/GERA (East) Cable System have on the beach and dune cordon at Port Elizabeth?
- What are the potential impacts that the proposed 2AFRICA/GERA (East) Cable System and related infrastructure will have on the Marine Benthic Environment based on the alignment selected?
- What impacts will the construction of 2AFRICA/GERA (East) Cable System have on cultural and heritage resources, including any paleontological resources (if any are identified during the study)?
- What cumulative impacts will the construction of the 2AFRICA/GERA (East) Cable System have?

It is important to note that although these aspects have been raised as issues, it is not a given that the potential impacts will occur. A baseline environmental desk-top assessment has been conducted using the online SANBI BGIS Map Viewer databases together with Google Earth, to determine the presence of surface water features, including the potential for wetlands. Vegetation ecosystems have been mapped, and the conservation significance of these ecosystems have been referenced.

The environmental issues and potential impacts listed above that need to be considered and that require further investigation to inform decision-making and to facilitate the relevant parties to proactively address any impacts if they do occur, have been listed under the Plan of Study of Scoping as studies that require specialist investigation. The no-development option will also be considered and assessed as part of the impact assessment process.

Plan of Study for Impact Assessment

The Plan of Study for Impact Assessment contained in Chapter 9 outlines how these issues and potential impacts will be taken forward for further investigation.

Specialists will be required to interact and discuss aspects in an integrated approach, to ensure a comprehensive understanding and assessment of the key issues. The proposed specialist studies are as follows:

- Beach and Coastal Dune Morphology Specialist Study.

- Terrestrial Biodiversity (Fauna and Flora) Specialist Study.
- Fisheries and Aquaculture Industry Specialist Study.
- Marine and Terrestrial Archaeological / Heritage Specialist Study.
- Marine Ecology Specialist Study: Benthic Assessment (deep-water) including a Benthic Assessment (shallow water up to a depth of 30 m) aided by surveys.

These specialist studies will be supported by current studies being undertaken on offshore avifauna and marine mammals.

Project Schedule

The current project schedule for this authorisation process is as follows:

Activity	Dates
Project Announcement	5 November 2020
Initial Comment Period (30 days)	5 November – 7 December 2020
Submit DSR and Application to DEFF	12 March 2021
DSR Public Review Period/	12 March – 14 April 2021
Submit Final Scoping Report and Plan of Study for Impact Assessment to DEFF	23 April 2021
DEFF acknowledgement of receipt	23 April 2021
Acceptance of Final Scoping Report and Plan of Study for Impact Assessment by DEFF (43 days from submission)	15 June 2021
Specialist studies and preparation of DEIAR & EMPr	7 April – 26 May 2021
DEIAR & EMPr Public Review Period (30 days)	19 July – 21 August 2021
Revision of EIAR and EMPr according to public comment	21 August – 22 Sept 2021
Submit FINAL EIAR and EMPr to DEFF	22 September 2021
DEFF Decision making (107 days) and issue of EA	27 January 2022

Concluding Remarks

The Environmental Assessment Practitioner (EAP) is of the opinion that due environmental process has been followed during the undertaking of this scoping process and associated public participation programme. Following the 30-day comment period for the Draft Scoping Report, the issues raised by stakeholders, together with those of technical specialists and the regulatory authorities, have been captured into this Final Scoping Report, which will be submitted to the Department of Environment, Fisheries and Forestry.

Potentially negative impacts have been identified and the significance of these impacts and possible mitigation measures need to be further investigated during the Impact Assessment phase (as outlined in the Plan of Study for Impact Assessment). The outcomes will be documented in an Environmental Impact Assessment Report, which will also be subject to public review before its finalisation and submission to DEFF for decision-making.

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DEFINITIONS

Alternatives - In relation to a proposed activity, means different means of meeting the general purpose and requirements of the activity, which may include alternatives to –

- i. The property on which or location where it is proposed to undertake the activity;
- ii. The type of activity to be undertaken;
- iii. The design or layout of the activity;
- iv. The technology to be used in the activity, and;
- v. The operational aspects of the activity.

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.

Benthic - Referring to organisms living in, or on, the sediments of aquatic habitats (lakes, rivers, ponds, etc.).

Biodiversity - The diversity, or variety, of plants, animals and other living things in a particular area or region. It encompasses habitat diversity, species diversity and genetic diversity.

Community - Those people who may be impacted upon by the construction and operation of the project. This includes neighbouring landowners, local communities and other occasional users of the area.

Construction Phase - The stage of project development comprising site preparation as well as all construction activities associated with the development.

Consultation - A process for the exchange of views, concerns and proposals about a project through meaningful discussions and the open sharing of information.

Critical Biodiversity Area - Areas of the landscape that must be conserved in a natural or near-natural state in order for the continued existence and functioning of species and ecosystems and the delivery of ecosystem services.

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.

Ecosystem - A community of plants, animals and organisms interacting with each other and with the non-living (physical and chemical) components of their environment.

Environment - The surroundings within which humans exist and that are made up of

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

Environmental Authorisation (EA) – The authorisation by a competent authority of a listed activity.

Environmental Assessment Practitioner (EAP) – The person responsible for planning, management and co-ordination of environmental impact assessment, strategic environmental assessments, environmental management plans or any other appropriate environmental instrument introduced through regulations.

Environmental Impact Assessment (EIA) – In relation to an application to which scoping must be applied, means the process of collecting, organizing, analysing, interpreting and communicating information that is relevant to the consideration of that application. This process necessitates the compilation of an Environmental Impact Report, which describes the process of examining the environmental effects of a proposed development, the anticipated impacts and proposed mitigatory measures.

Environmental Impact Report (EIR) - A report assessing the potential significant impacts as identified during the Scoping phase.

Environmental Management Programme (EMPr) - A management programme designed specifically to introduce the mitigation measures proposed in the Reports and contained in the Conditions of Approval in the Environmental Authorisation.

Epifauna - Organisms, which live at or on the sediment surface being either attached (sessile) or capable of movement.

Gross Domestic Product (GDP) by region - represents the value of all goods and services produced within a region, over a period of one year, plus taxes minus subsidies.

Habitat - The place where a population (.e.g., animal, plant, micro-organism) lives and its surroundings, both living and non-living.

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

Hydrocarbons – Oils used in machinery as lubricants, including diesel and petrol used as fuel.

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.

Infauna - Animals of any size living within the marine sediment. They move freely through interstitial spaces between sedimentary particles or they build burrows or tubes.

Interested and Affected Party (I&AP) – Any individual, group, organization or associations which are interested in or affected by an activity as well as any organ of state that may have jurisdiction over any aspect of the activity.

Marine environment - Marine environment includes estuaries, coastal marine and nearshore zones, and open-ocean-deep-sea regions.

Municipality –

- (a) Means a metropolitan, district or local municipality established in terms of the Local Government: Municipal Structures Act, 1998 (Act No. 117 of 1998); or
- (b) In relation to the implementation of a provision of this Act in an area which falls within both a local municipality and a district municipality, means
 - (i) The district municipality, or
 - (ii) The local municipality, if the district municipality, by agreement with the local municipality, has assigned the implementation of that provision in that area to the local municipality.

NEMA EIA Regulations - The EIA Regulations means the regulations made under section 24(5) of the National Environmental Management Act (Act 107 of 1998) (Government Notice No. R 982, R 983, R984

and R 985 in the Government Gazette of 4 December 2014 refer as amended by GNR 324, 325, 326 and 327 of 7 April 2017.

No-Go Alternative – The option of not proceeding with the activity, implying a continuation of the current situation / status quo

Public Participation Process (PPP) - A process in which potential Interested and Affected Parties are given an opportunity to comment on, or raise issues relevant to, specific matters.

Recruitment - The replenishment or addition of individuals of an animal or plant population through reproduction, dispersion and migration

Registered Interested and Affected Party (I&AP) – All persons who, as a consequence of the Public Participation Process conducted in respect of an application, have submitted written comments or attended meeting with the applicant or environmental assessment practitioner (EAP); all persons who have requested the applicant or the EAP in writing, for their names to be placed on the register and all organs of state which have jurisdiction in respect of the activity to which the application relates.

Scoping process - A procedure for determining the extent of and approach to an EIA, used to focus the EIA to ensure that only the significant issues and reasonable alternatives are examined in detail

Scoping Report – The report describing the issues identified during the scoping process.

Sediment - Unconsolidated mineral and organic particulate material that settles to the bottom of aquatic environment.

Significant impact – Means an impact that by its magnitude, duration, intensity or probability of occurrence may have a notable effect on one or more aspects of the environment.

Spatial Development Framework (SDF) - A document required by legislation and essential in providing conservation and development guidelines for an urban area, which is situated in an environmentally sensitive area and for which major expansion is expected in the foreseeable future.

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

Species - A group of organisms that resemble each other to a greater degree than members of other groups and that form a reproductively isolated group that will not produce viable offspring if bred with members of another group.

Stakeholders - All parties affected by and/or able to influence a project, often those in a position of authority and/or representing others.

Subtidal - The zone below the low-tide level, *i.e.*, it is never exposed at low tide.

Sustainable development - Sustainable development is generally defined as development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs. NEMA defines sustainable development as the integration of social, economic and environmental factors into planning, implementation and decision-making so as to ensure that development serves present and future generations.

Surf-zone- Also referred to as the 'breaker zone' where water depths are less than half the wavelength of the incoming waves with the result that the orbital pattern of the waves collapses and breakers are formed

Turbidity - Measure of the light-scattering properties of a volume of water, usually measured in nephelometric turbidity units.

Visibility - The area from which the project components would actually be visible and depends upon topography, vegetation cover, built structures and distance.

Visual Character - The elements that make up the landscape including geology, vegetation and land-use of the area.

Visual Quality - The experience of the environment with its particular natural and cultural attributes.

Visual Receptors - Individuals, groups or communities who are subject to the visual influence of a particular project.

ABBREVIATIONS AND ACRONYMS

2AFRICA	2AFRICA/GERA (East) Cable System
ABYC	Algoa Bay Yacht Club
ACER	ACER (Africa) Environmental Consultants
ASN	Alcatel Submarine Networks
BEE	Black Economic Empowerment
BGIS	Biodiversity Geographical Information System
BID	Background Information Document
BMH	Beach Manhole
CA	Competent Authority
CBA	Critical Biodiversity Area
CITES	Convention on International Trade in Endangered Species
CLS	Cable Landing Station
CPT	Cone Penetrometer Test
DEA	Department of Environmental Affairs (now DEFF)
DEDEAT	Department of Economic Development, Environmental Affairs and Tourism
DEFF	Department of Environment, Forestry and Fisheries
DEFF:OC	Department of Environment, Forestry and Fisheries: Oceans and Coast
DEIAR	Draft Environmental Impact Assessment Report
DGPS	Differential GPS
DHSWS	Department of Human Settlements, Water and Sanitation
DMR	Department of Mineral Resources
EAP	Environmental Assessment Practitioner
EAPASA	Environmental Assessment Practitioners Association of South Africa
ECBCP	Eastern Cape Biodiversity Conservation Plan
ECPHRA	Eastern Cape Provincial Heritage Resources Authority
EEZ	Exclusive Economic Zone
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
EMF	Electromagnetic Field
EMPr	Environmental Management Programme
ESA	Ecological Support Area
FEIAR	Final Environmental Impact Assessment Report
GDP	Gross Domestic Product
GHG	Green House Gas
GIS	Geographical Information System
GPS	Global Positioning System
HDD	Horizontal Directional Drilling
I&AP	Interested & Affected Party
IAIAsa	International Association for Impact Assessment in South Africa
ICMA	Integrated Coastal Management Act, 2008 (Act 24 of 2008)
ICPC	International Cable Protection Committee
IDP	Integrated Development Plan
IFC	International Finance Corporation
LWM	Low Water Mark
MBES	Multi-beam echo sounder
MPA	Marine Protected Area
MRDPA	Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002)
MSc	Master of Science
NCCAS	National Climate Change Adaptation Strategy
NDP	National Development Plan

NEM:WA	National Environmental Management: Waste Act, 2008 (Act 59 of 2008)
NEMA	National Environmental Management Act, 1998 (Act 107 of 1998)
NEPAD	New Partnership for Africa's Development
NGO	Non-Governmental Organisation
NHRA	National Heritage Resources Act, 1999 (Act 25 of 1999)
Nm	Nautical miles
NMBMM	Nelson Mandela Bay Metropolitan Municipality
NMMU	Nelson Mandela Metropolitan University
NWA	National Water Act, 1998 (Act 36 of 1998)
PEB	Public Exclusion Boundary
PDP	Eastern Cape Vision 2030 Provincial Development Plan, 2014
PhD	Doctor of Philosophy
PICC	Presidential Infrastructure Coordinating Commission
PiP	Permit in Principle
PLGR	Pre-Lay Grapnel Run (PLGR)
PoS	Plan of Study
ROV	Remotely Operated Vehicle
SACNASP	South African Council for Natural Scientific Professions
SADSTIA	South African Deep Sea Trawling Industry Association
SAHRA	South African Heritage Resources Agency
SAMSA	South African Maritime Safety Authority
SAMSA	South African Maritime Safety Authority
SANBI	South African National Biodiversity Institute
SARCA	South African Reptile Conservation Assessment
SASMIA	South African Squid Management Industrial Association
SDF	Sustainability Development Framework
SIP	Strategic Integrated Project
Telkom	Telkom Limited SOC
TNPA	Transnet National Ports Authority
TOPS	Threatened and Protected Species
UNCLOS	United Nations Convention on the Laws of the Sea
USBL	Ultra-short base line
WD	Water Depth

AUTHORS

The author of this Final Scoping Report is Mr. G. Churchill (ACER (Africa) Environmental Consultants). An external review was conducted by Mr J Merrett (ASN).

DECLARATION BY THE EAP

I, Giles John Churchill, declare that –

- I act as the independent environmental assessment practitioner in this application;
- I have expertise in conducting environmental impact assessments, including knowledge of the Act, Regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, Regulations and all other applicable legislation;
- I will perform 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;
- I will take into account, to the extent possible, the matters listed in Regulation 13 of the Regulations when preparing the application and any report relating to the application;
- I undertake to disclose to the applicant and the Competent Authority all material information in my 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 myself for submission to the Competent Authority, unless access to that information is protected by law, in which case it will be indicated that such information exists and will be provided to the Competent Authority;
- I will perform all obligations as expected from an environmental assessment practitioner in terms of the Regulations; and
- I am aware of what constitutes an offence in terms of Regulation 48 and that a person convicted of an offence in terms of Regulation 48(1) is liable to the penalties as contemplated in Section 49B of the Act.

Disclosure of Vested Interest

- I do not have and will not have any vested interest (either business, financial, personal or other) in the proposed activity proceeding other than remuneration for work performed in terms of the Regulations;



Signature of the Environmental Assessment Practitioner

ACER (Africa) Environmental Consultants

Name of Company:

23 April 2021

Date



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Adherence to Regulatory Requirements, Regulation No R. 982 published in terms of the National Environmental Management Act, 1998 (Act 107 of 1998) (as amended)

CONTENT OF SCOPING REPORT AS PER THE 2014 EIA REGULATIONS (APPENDIX 2)		RELEVANT SECTION WITHIN THE SCOPING REPORT
(a)	Details of:	-
	(i) the EAP who prepared the report; and	Section 1.2
	(ii) the expertise of the EAP, including a curriculum vitae;	Appendix 5
(b)	The location of the activity, including:	-
	(i) the 21-digit Surveyor General code of each cadastral land parcel;	Appendix 6
	(ii) where available, the physical address and farm name;	Appendix 6
	(iii) where the required information in items (i) and (ii) is not available, the coordinates of the boundary of the property or properties;	Appendix 6
(c)	A plan which locates the activities applied for at an appropriate scale, or, if it is:	Figures 1 and 4, and Appendix 7
	(i) a linear activity, a description and coordinates of the corridor in which the proposed activity or activities is to be undertaken; or	Appendix 7
	(ii) on land where the property has not been defined, the coordinates within which the activity is to be undertaken;	Appendix 7
(d)	A description of the scope of the proposed activity, including:	Chapter 5
	(i) all listed and specified activities triggered;	Table 2
	(ii) a description of the activities to be undertaken, including associated structures and infrastructure;	Chapter 5
(e)	A description of the policy and legislative context within which the development is proposed including an identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks and instruments that are applicable to this activity and are to be considered in the assessment process;	Chapter 3
(f)	A motivation for the need and desirability for the proposed development including the need and desirability of the activity in the context of the preferred location;	Chapter 4
(h)	A full description of the process followed to reach the proposed preferred activity, site and location within the site, including:	Chapter 6
	(i) details of all the alternatives considered;	Chapter 6
	(ii) details of the PPP undertaken in terms of regulation 41 of the Regulations, including copies of the supporting documents and inputs;	Chapter 2 and Appendix 2
	(iii) a summary of the issues raised by I&APs, and an indication of the manner in which the issues were incorporated, or the reasons for not including them;	Chapter 7 and Appendix 3
	(iv) the environmental attributes associated with the alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects;	Chapter 8
	(v) the impacts and risks identified for each alternative, including the nature, significance, consequence, extent, duration and probability of the impacts, including the degree to which these impacts: (aa) can be reversed; (bb) may cause irreplaceable loss of resources; and (cc) can be avoided, managed or mitigated;	Chapter 8
	(vi) the methodology used in determining and ranking the nature, significance, consequences, extent, duration and probability of potential environmental impacts and risks associated with the alternatives;	Chapter 8
	(vii) positive and negative impacts that the proposed activity and alternatives will have on the environment and on the community that may be affected focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects;	Chapter 8
	(viii) the possible mitigation measures that could be applied and level of residual risk;	Mitigation measures not included in DSR

CONTENT OF SCOPING REPORT AS PER THE 2014 EIA REGULATIONS (APPENDIX 2)		RELEVANT SECTION WITHIN THE SCOPING REPORT
	(ix) the outcome of the site selection matrix;	Chapters 5 and 6
	(x) if no alternatives, including alternative locations for the activity were investigated, the motivation for not considering such and	Not Applicable alternatives were considered
	(xi) a concluding statement indicating the preferred alternatives, including preferred location of the activity;	Chapters 5 and 6
(h)	A of plan of study for undertaking the environmental impact assessment process, including:	Chapter 9
	<input type="checkbox"/> A description of the alternatives to be considered and assessed within the preferred site, including the option of not proceeding with the activity;	Chapter 6
	<input type="checkbox"/> A description of the aspects to be assessed as part of the EIA process;	Chapter 9
	<input type="checkbox"/> Aspects to be assessed by specialists;	Chapter 9
	<input type="checkbox"/> A description of the proposed method of assessing the environmental aspects, including a description of the proposed method of assessing the environmental aspects including aspects to be assessed by specialists;	Chapter 9
	<input type="checkbox"/> A description of the proposed method of assessing duration and significance;	Chapter 9
	<input type="checkbox"/> An indication of the stages at which the competent authority will be consulted;	Section 9.4
	<input type="checkbox"/> Particulars of the PPP that will be conducted during the EIA process;	Chapter 9
	<input type="checkbox"/> A description of the tasks that will be undertaken as part of the EIA process;	Chapter 9
	<input type="checkbox"/> Identify suitable measures to avoid, reverse, mitigate or manage identified impacts and to determine the extent of the residual risks that need to be managed and monitored.	Not Applicable this will take place during the Impact Assessment phase of the EIA
(i)	An undertaking under oath or affirmation by the EAP in relation to:	-
	(i) the correctness of the information provided in the report;	Appendix 1
	(ii) the inclusion of comments and inputs from stakeholders and I&APs;	Appendix 3 (following comment on DSR)
	(iii) any information provided by the EAP to I&APs and any responses by the EAP to comments or inputs made by I&APs;	Appendix 2
(j)	An undertaking under oath or affirmation by the EAP in relation to the level of agreement between the EAP and I&APs on the plan of study for undertaking the EIA;	Appendix 1
(k)	Where applicable, any specific information required by the competent authority; and	Not applicable currently
(l)	Any other matter required in terms of section 24(4)(a) and (b) of the Act.	Not applicable currently

RELEVANT SECTIONS OF THE PUBLIC PARTICIPATION PROCESS AS PER THE 2014 EIA REGULATION (CHAPTER 6)		RELEVANT SECTIONS WITHIN THE SCOPING REPORT
41.1	This regulation only applies in instances where adherence to the provisions of this regulation is specifically required	Acknowledged and adhered to within Scoping Report
41.2	The person conducting a PPP must take into account any guidelines applicable to public participation as contemplated in section 24J of the Act and must give notice to all potential interested and affected parties of the application which is subjected to public participation by:	
a	Fixing a notice board at a place conspicuous to the public at the (i) site and (ii) alternative sites	Appendix 2
b	Giving written notice to (i) the owner or person in control of that land if the applicant is not the owner or person in control of the land; ii) the occupiers of the site where the activity is or is to be undertaken or to any alternative site where the activity is to be undertaken; iii) owners and occupiers of land adjacent to the site or alternative sites; iv) the municipal councillor of the ward in which the site or alternative site is situated and any organisation of ratepayers that represent the community in the area; v) the municipality which has jurisdiction in the area; vi) organ of state having jurisdiction and vii) any other party as required by the competent authority	Appendix 2
c	Placing an advertisement in (i) one local newspaper or (ii) official gazette that is published for the purpose of providing public notice	Appendix 2
d	Placing an advertisement in at least one provincial newspaper or national newspaper (if the activity impacts extend beyond boundaries of a metro or local municipality)	Appendix 2
e	Using reasonable alternative methods, as agreed to by the competent authority, in those instances where a person desires but is unable to participate in the process due to i) illiteracy; (ii) disability; or (iii) any other disadvantage	N/A in this process to date
41.3	A notice, notice board or advertisement referred to above must:	
a	Give details of the application which is subject to PPP	Appendix 2
b	State (i) application has been or is to be submitted to the authority in terms of these Regulations (ii) whether a basic assessment or scoping being applied (iii) nature and location of activity (iv) where further information can be obtained (v) manner in which and person to whom representations can be made	Appendix 2
41.4	A notice board must be (a) 60 cm by 42 cm (b) display the required information in lettering and format determined by authority	Appendix 2
41.7	Person conducting PPP must ensure that (a) information containing all relevant facts in respect of the application is made available to I&APs (b) participation by I&APs is facilitated to provide all with a reasonable opportunity to comment	Appendix 2
42.1	The Applicant or EAP must open and maintain a register with details of:	
a	Persons who have submitted written comment or attended meetings	Appendix 3
b	Persons who have requested to be registered as I&APs	Appendix 3
c	All organs of state which have jurisdiction	Appendix 3
43.1	EAP must give access to the register to any persons who requests this in writing	Appendix 2

RELEVANT SECTIONS OF THE PUBLIC PARTICIPATION PROCESS AS PER THE 2014 EIA REGULATION (CHAPTER 6)		RELEVANT SECTIONS WITHIN THE SCOPING REPORT
44.1	EAP must ensure that comments of I&APs are recorded in reports submitted to the authority (provided that comments may be attached to the report without recording in report itself)	Appendix 3
44.2	Where a person is desiring but unable to access written comments as contemplated in sub regulation (1) due to (i) a lack of skills to read or write. (ii) disability; or (iii) any other disadvantage reasonable alternative methods of recording comments must be provided for	N/A in this process to date

1 INTRODUCTION

1.1 Background

Submarine telecommunications cables are important for international telecommunications networks, transporting almost 100% of transoceanic Internet traffic throughout the world (www.iscpc.org). This is significant because it is widely recognised that access to affordable international bandwidth is key to economic development in every country. Today, Africa still relies primarily on satellites with only few submarine cables to provide its international communications. Communication via submarine telecommunication cables generally allows for lower cost, better performance, and greater capacity (throughput) than that available via satellite. Improvement in Africa's information technology infrastructure via telecommunication cables will remove one of the current key inhibitors to development in Africa and support economic growth and opportunities on the continent.

The International Cable Protection Committee (ICPC) represents 97% of the world's subsea telecom cables (<https://www.iscpc.org/>). A report prepared by the environmental advisor of the ICPC, Dr Mike Claire entitled: "Submarine Cable Protection and the Environment: A Bi-Annual Update" (30 September 2020) addresses the role of submarine cables in a post-Covid world, where submarine telecommunications cables are an enabler for changing people's behaviour away from hydrocarbons and climate impacting sources. Lessons learned from the lockdown will inform how businesses operate in future— leading to an increase in virtual, online meetings compared to those requiring long haul flights, and increased home-working— all of which will help in lowering greenhouse gas emissions. The ICPC estimates that internet traffic increased between 25% and 50% between November 2019 and the early stages of lockdown in April 2020, and this will likely continue as we adapt to the "new-normal" virtual world. Communications revenue for the quarter ending July 31, 2020 saw a 355% increase compared to the previous year. This is just one indication of the increased video conferencing occurring as a result of widespread remote work, remote education, and remote personal video communication.

Communication via submarine telecommunications cables generally allows for lower cost, better performance, and greater capacity (throughput) than that available via satellite. Improvement in Africa's information technology infrastructure via telecommunications cables will help strengthen development in Africa and support economic growth and opportunities on the continent.

Alcatel Submarine Networks (ASN) has been contracted to supply and install the proposed 2AFRICA/GERA (East) Cable System (2AFRICA) with one of the South African landings at Port Elizabeth on the east coast of South Africa. This is to be operated by Vodacom (Pty) Ltd (Vodacom) as the South African landing partner (Project Applicant). In support to this initiative, ASN has appointed ACER (Africa) Environmental Consultants (ACER) to obtain the required Permits in Principle (PiPs) for implementation of the landing at Port Elizabeth.

The 2AFRICA/GERA (East) Cable System will connect Africa the Middle East and Europe. The installation involves landings at the following destinations in South Africa as shown in Figure 1:

- South Africa: Port Elizabeth (this Application).
- South Africa: Amanzimtoti
- South Africa: West Coast (Duynefontein)



Figure 1 General overview of the proposed 2AFRICA/GERA (East) and (West) Cable Systems
(Source: 2africacable.com)

1.2 Qualifications and experience of the Environmental Assessment Practitioner

ACER (Africa) Environmental Consultants is a well-established company with wide ranging expertise in environmental management and assessment processes. ACER has twice won the IAIA's National Premium Award for excellence in environmental management and assessment. The qualifications and experience of the primary assessor, author and internal reviewer are listed in Table 1 and curriculum vitae are provided in Appendix 5.

Table 1 Qualifications and experience of the Environmental Assessment Practitioner (EAP) Team

EAP	Academic Qualification	Relevant Work Experience
Dr Dieter Heinsohn (EAP and internal reviewer)	PhD	28 years' experience in environmental management and impact assessments. He is registered with the South African Council for Natural Scientific Professions (SACNASP) in the field of environmental science (Registration No. 400442/04) and the Environmental Assessment Practitioners Association of South Africa (EAPASA) (Registration No.2019/963)
Mr. Giles Churchill (Lead EAP)	MSc	14 years' experience in environmental management, impact assessments and the monitoring of compliance with specifications contained in Environmental Management Programmes (EMPrs). He is registered with the SACNASP in the field of environmental science (Registration No 116348) and EAPASA (Registration No.2019/1687)

1.3 Environmental assessment requirements and process

In terms of the current Environmental Impact Assessment Regulations, 2014, published in Government Notices R 982, 983, 984 and 985 of 4 December 2014 (as amended) under Section 24(5) read with Sections 24, 24D and 44 of the National Environmental Management Act, 1998 (Act No. 107 of 1998), the proposed 2AFRICA/GERA (East) Cable System includes activities that are listed in the current environmental regulations. As such, the project may not commence without environmental authorisation from the relevant competent authority, in this case, the national Department of Environment, Forestry and Fisheries (DEFF)¹ (in close consultation with the Eastern Cape Department of Economic Development, Environmental Affairs and Tourism (DEDEAT)). In terms of the current regulations and environmental best practise, the potential impacts of the project on the environment (social, economic and biophysical) must be considered, investigated and assessed prior to implementation.

Given that the project triggers listed activities in these regulations (Table 2), the application for environmental authorisation requires a process of Scoping and Environmental Impact Assessment as outlined in Regulation R982 (as amended). The EIA process is currently in the Scoping Phase. This is the phase during which issues for further investigations are identified so that they can be considered for inclusion in the Specialist Studies that will be undertaken during the EIA, viz. the Impact Assessment Phase.

¹ DEFF is the authorising authority as the project crosses international boundaries and is of national importance.

Table 2 Listed activities potentially triggered by the proposed 2AFRICA/GERA (East) Cable System

Activity Numbers	Relevant Listed Activities as set out in Listing Notice 1 (GN No. R. 327) and reasons why they are triggered
<p>Listing Notice 1 (No. R. 327 of 2017) Activity 15</p> <p>The development of structures in the coastal public property where the development footprint is bigger than 50 square metres, excluding -</p> <ul style="list-style-type: none"> (i) [...]; (ii) [...]; (iii) [...]; or (iv) [...]. 	<p>The project will entail the landing of a marine telecommunications cable at Pollock Beach in Summerstrand, Port Elizabeth. This will require the digging of a trench along the beach (coastal public property) into the intertidal zone and the installation of the telecommunications cable.</p>
<p>Listing Notice 1 (No. R. 327 of 2017) Activity 17</p> <p>Development-</p> <ul style="list-style-type: none"> a. in the sea; b. [...]; c. within the littoral active zone; d. in front of a development setback; or e. if no development setback exists, within a distance of 100 metres inland of the high- water mark of the sea or an estuary, whichever is the greater; <p>in respect of-</p> <ul style="list-style-type: none"> i. [...]; ii. [...]; iii. [...]; iv. [...]; or v. infrastructure with a development footprint of 50 square metres or more - <p>but excluding-</p> <ul style="list-style-type: none"> (aa) [...]; (bb) [...]; (cc) [...]; or (dd) [...]. 	<p>The project will entail the landing of a marine telecommunications cable at Pollock Beach, Summerstrand. This will require the burying of the cable offshore where possible and the digging of a trench along the beach into the intertidal zone and the installation of the telecommunications cable to the Beach Manhole.</p> <p>As cable system earth will also be installed just offshore for the proposed 2AFRICA/GERA (East) Cable System landing in Port Elizabeth.</p>
<p>Listing Notice 1 (No. R. 327 of 2017) Activity 18</p> <p>The planting of vegetation or placing of any material on dunes or exposed sand surfaces of more than 10 square metres, within the littoral active zone, for the purpose of preventing the free movement of sand, erosion or accretion, excluding where -</p> <ul style="list-style-type: none"> (i) the planting of vegetation or placement of material relates to restoration and maintenance of indigenous coastal vegetation undertaken in accordance with a maintenance management plan; or (ii) [...]. 	<p>The project will entail the rehabilitation of the shoreline on Pollock Beach where construction activities associated with the laying of the underground telecommunications cable will disturb vegetation on the shoreline.</p>
<p>Listing Notice 1 (No. R. 327 of 2017) Activity 19A</p> <p>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 -</p>	<p>The project will entail the excavation and deposition of more than 5 m³ of material within a 100 m of the high-water mark of the sea when trenching for, and backfilling of, the marine telecommunications cable.</p>

Activity Numbers	Relevant Listed Activities as set out in Listing Notice 1 (GN No. R. 327) and reasons why they are triggered
<p>(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; —</p> <p>but excluding where such infilling, depositing, dredging, excavation, removal or moving -</p> <p>(a) [...]; (b) [...]; (c) [...]; (d) [...]; or (e) [...].</p>	
Activity Numbers	Relevant Listed Activities as set out in Listing Notice 2 (GN No. R. 325) and reasons why they are triggered
<p>Listing Notice 2 (No. R. 325 of 2017) Activity 14</p> <p>The development and related operation of-</p> <p>(i) [...]; (ii) an anchored platform; or (iii) any other structure or infrastructure – on, below or along the seabed;</p> <p>excluding -</p> <p>(a) [...]; or (b) [...].</p>	<p>The proposed 2AFRICA/GERA (East) Cable System will be placed on the seabed. In shallow waters (less than 1,500 m in depth) the cable will be buried under the seabed to provide extra protection.</p>
<p>Listing Notice 2 (No. R. 325 of 2017) Activity 26</p> <p>Development--</p> <p>i. in the sea; ii. [...]; iii. within the littoral active zone; iv. [...]; or v. if no development setback exists, within a distance of 100 metres inland of the high-water mark of the sea or an estuary, whichever is the greater;</p> <p>in respect of –</p> <p>a) [...]; b) [...]; c) inter- and sub-tidal structures for entrapment of sand; d) [...]; e) [...]; f) [...]; g) [...]; or h) underwater channels;</p> <p>but excluding the development of structures within existing ports or harbours that will not increase the development footprint of the port or harbour.</p>	<p>Although unlikely to be triggered, this listed activity has been included as the trench for the marine cable may result in the entrapment of sand within the inter- and sub-tidal zones. In addition, the trench in which to bury the cable may be construed as an underwater channel.</p>

Based on the current regulations, the EAP must complete Scoping and the Impact Assessment within 300 days of acceptance of the Application for Authorisation by DEFF. It is also likely that the following permits/licenses will also be required for the landing of the 2AFRICA cable in Port Elizabeth:

- Beach Driving Permit
- A Sea Shore Lease Permit

It is important to note that timeframes in the 2014 regulations (as amended April 2017) are based on calendar days and the following conditions apply:

- The period 15 December to 5 January is excluded from the calculation.
- No public participation may be undertaken between 15 December and 5 January unless justified by exceptional circumstances.
- Organs of State are to comment within 30 days from the date on which requested to submit comments.
- The Competent Authority (CA) must issue a decision within 107 days of receipt of the Final Environmental Impact Assessment Report.

The DEFF is the competent authority for the issuing of environmental authorisation for the proposed development due to the fact that the cable extends over international boundaries.

ACER will fulfil the role and responsibilities of the Environmental Assessment Practitioner (EAP) to undertake the EIA and the associated public participation process, and to submit the required application and supporting documentation for consideration and decision-making. The main phases of the environmental impact assessment process and legislated time frames are shown in Figure 2.

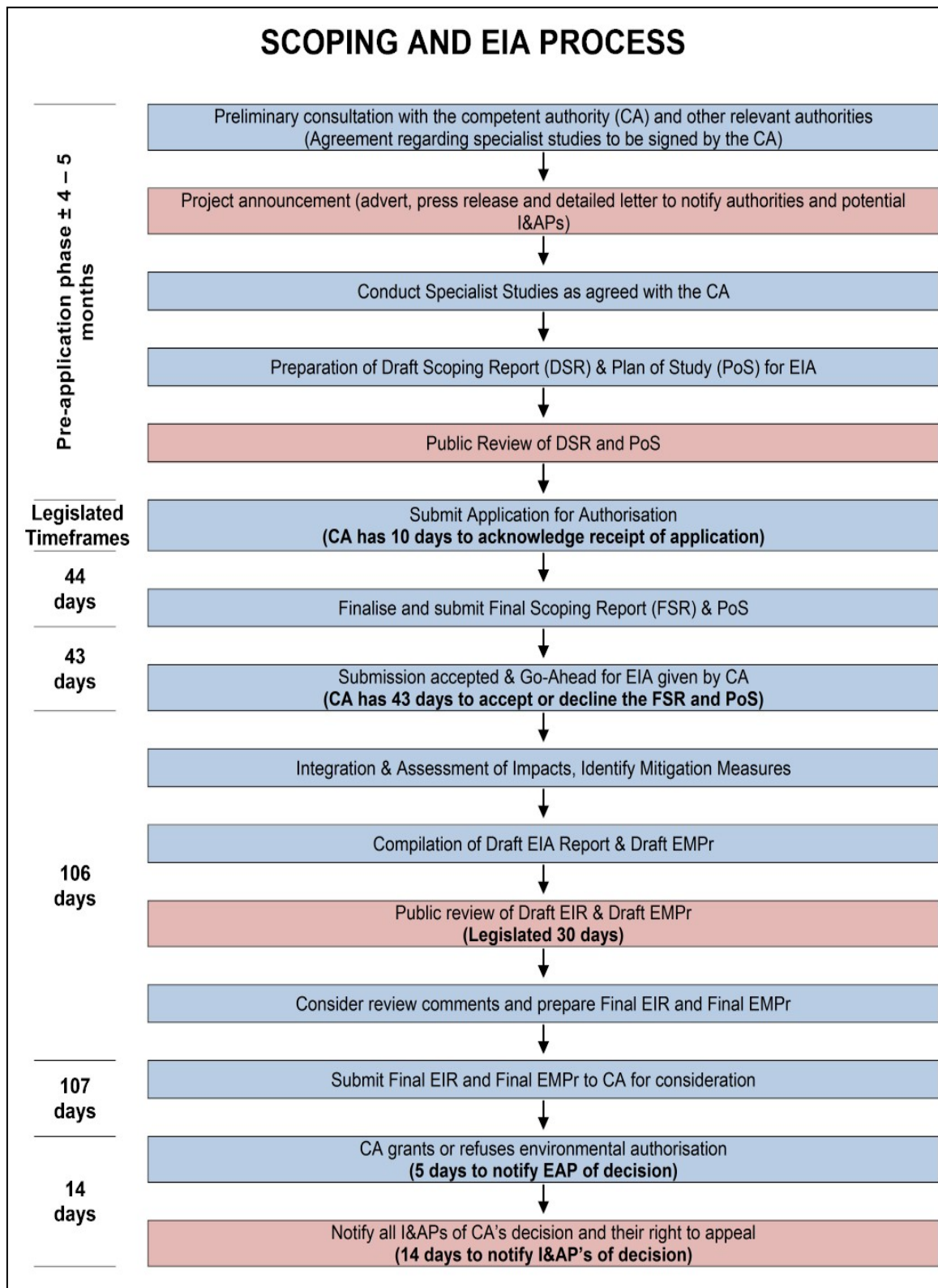


Figure 2 The phases of an environmental impact assessment, including legislated timeframes

2 SCOPING AND PUBLIC PARTICIPATION METHODOLOGY

Scoping is a process designed to define the limits of the assessment, to identify and elicit inputs from Interested and Affected Parties (I&APs), and to define an assessment framework with the purpose of focusing the scope of the assessment, thereby ensuring a focus on key issues and associated impacts. The framework (Figure 3) within which environmental aspects arising from or influencing the proposed project (and its alternatives) are considered has been undertaken using the following philosophy:

- The concept of sustainability, which considers the inter-related dimensions of the environment, viz. the social, economic and biophysical dimensions, underpinned by a system of sound governance through the legal/statutory requirements of South Africa (in particular, NEMA).

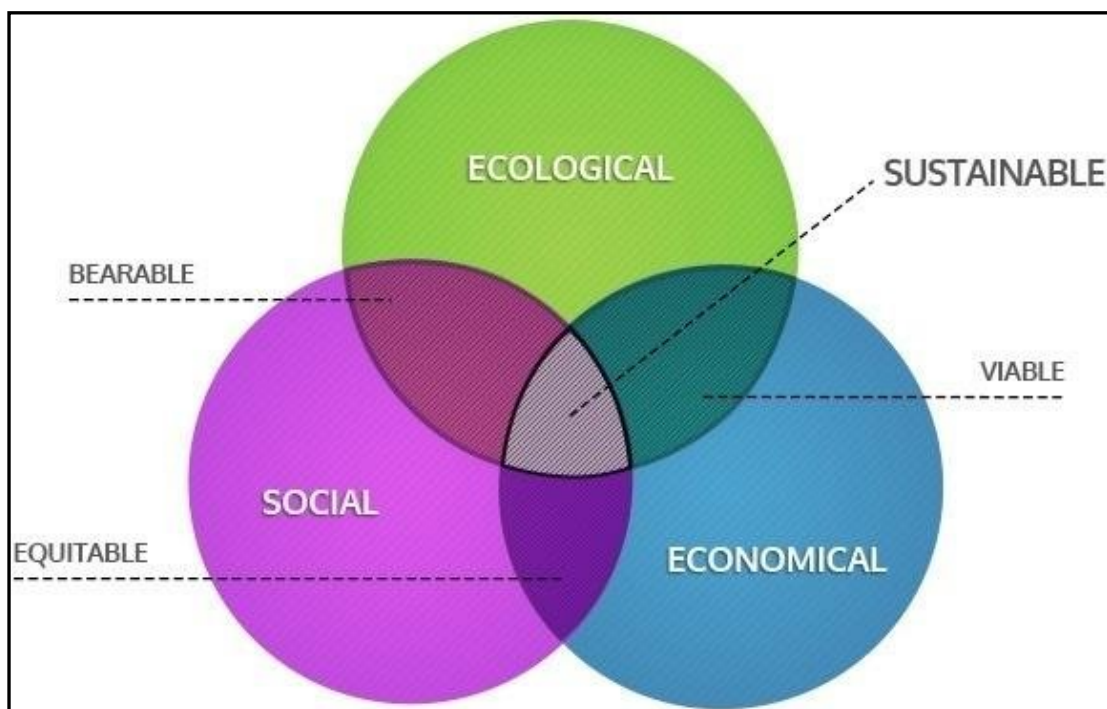


Figure 3 Assessment framework based on the concept of sustainability

Issues and impacts were identified by way of interlinked technical and public participation processes. Information gathering focused on gaining an understanding of the interactions between the different dimensions of the environment to identify potentially significant issues and impacts. This involved site visits, reference to existing documentation and maps, liaison with the project proponent and technical team, as well as consideration and incorporation of the issues raised during the public participation process. Information was collated, integrated and evaluated, and potentially significant issues and impacts were identified. This enabled the EAP to focus and tailor the scope of work for Specialist Studies and further detailed investigations to be taken forward to the Impact Assessment Phase.

In addition to the requirement for Scoping and an Environmental Impact Assessment, a review of legislation applicable to the proposed 2AFRICA/GERA (East) Cable System was undertaken

to establish what other licences and permits will be applicable to the project. Included in this review of legislation were the permit requirements of the Department of Human Settlements, Water and Sanitation (water use licences), the Beach Driving Permit requirements of the Department of Environment, Forestry and Fisheries – Oceans and Coasts (OC) (in terms of the proposed cable laying activities and beach access), plant permit requirements from DEFF, permit requirements from the South African Heritage Resources Agency (SAHRA) and permit requirements of DEFF in terms of the Waste Act. Findings from this review of applicable legislation and the required licence and permits are included in Chapter 3 of this Scoping Report.

2.1 Pre-application meetings and discussions with commenting authorities

Given the tight timeframes as legislated under the current environmental regulations, ACER notified the following commenting authorities prior to submission of the application for authorisation to DEFF to introduce them to the proposed development and to identify feasible alternatives to take forward into the EIA process:

- Nelson Mandela Bay Metropolitan Municipality – Planning and Environmental Department.
- Eastern Cape Department of Economic Development, Environmental Affairs and Tourism.
- Department of Environmental Affairs – Oceans and Coasts.
- Department of Environment, Forestry and Fisheries.
- Department of Mineral Resources.
- Department of Public Works.

2.2 Environmental screening

At the onset of project planning, ASN, Vodacom, Fugro and ACER undertook a preliminary screening exercise including a site visit on the 16-18 March 2020. The purpose of the preliminary screening exercise and site visit were as follows:

- Conduct a review of applicable information to gain an understanding of project activities and the receiving environment.
- Undertake preliminary engagement with authorities.
- The identification of potential risks, environmental red flags and permit requirements.
- An assessment of possible landing alternatives and front haul alignments to the proposed CLS site.
- To identify key stakeholders and sectors to be consulted during the EIA process.

The screening exercise drew from, inter alia, input provided by ASN representatives dealing with the cable route and shore end operations, Fugro representatives dealing with the marine cable survey and Vodacom dealing with the operational requirements of the proposed cable system. Findings from initial screening of the Port Elizabeth landing alternative were supported by DEFF's statutory screening tool (Appendix 4).

The cable alignment and landing locations were selected following consideration of not only environmental issues, but also those associated with marine engineering (e.g., security of the route against external risks) and commercial aspects (e.g., proximity to national networks and their international access points). During these screening assessments several factors were considered, including the following:

- Offshore anchorages for the port of Port Elizabeth and Ngqura.
- Profile of the beaches and primary dunes.
- Seabed characteristics and ocean currents.
- Distance from the beach landing points to the CLS site at Summerstrand.
- Presence of electrical infrastructure (Eskom transmission and distribution lines).
- Current land use between the proposed landing points and the CLS site.

The preferred landing locations were then assessed in more detail with specific sites proposed for further assessment. Findings from the initial screening of these landing alternatives are explained in detail in Chapter 5 of this report.

2.3 Technical Scoping

Scoping has several purposes:

- To delineate the boundaries of the environmental assessment.
- To gain an understanding of the proposed development and alternatives (alternatives can take several forms, including site, configuration, layout, technical/technological and the no-development alternatives).
- To gain an understanding of the receiving environment (biophysical and social).
- To project the proposed development on the receiving environment to identify possible issues arising, especially key issues.
- To understand key issues in terms of the legal and governance framework of the country and to identify potential impacts (of the proposed project on the environment and of the environment on the proposed project).
- To identify what needs to be investigated and to formulate terms of reference for specific specialist² studies to be undertaken during the Impact Assessment. Each discipline-specific specialist study will need to assess potential impacts according to a standard assessment framework and assessment conventions.

Technical Scoping included site visits, reference to existing documentation and maps, liaison with the project proponent and technical team, as well as consideration and incorporation of the issues raised during the public participation process. Information was collated, integrated, and evaluated, and potentially significant issues and impacts were identified. This enabled the EAP team to focus and tailor the scope of work for the specialist studies and other detailed investigations to be taken forward to the Impact Assessment.

The purpose of this Final Scoping Report is to provide commenting authorities and I&APs with detailed project information and to show how the EAP has undergone identifying project alternatives and impacts associated with the proposed development which will require further investigation during the Impact Assessment. In addition, the Final Scoping Report enables I&APs to verify that their contributions have been captured, understood and correctly interpreted. At the end of Scoping, the issues identified by I&APs, environmental technical specialists and the EAP will be used to define the terms of reference for the specialist studies that will be conducted during the Impact Assessment.

² Specialist studies are discipline-specific scientific investigations, the results of which are integrated to provide a comprehensive understanding of issues and potential impacts arising from the proposed development.

3 LEGAL ASPECTS

3.1 Applicable legislation

There are many legal requirements (national, provincial and local government spheres) to which ASN must adhere for the construction and placement of the proposed 2AFRICA/GERA (East) Cable System and related infrastructure. Fundamentally, ASN is required to include and integrate environmental principles and values into all planning and implementation procedures taken for development purposes.

Underlying the above reasoning is the constitutional right that people have to environmental protection as set out in the Bill of Rights in the Constitution (Section 24). These rights have been interpreted and included into NEMA, which, together with other national and provincial legislation, governs the way environmental principles are incorporated into any form of development.

Some of the key legislation that is applicable to this project is provided hereunder.

3.1.1 *Constitution of the Republic of South Africa Act, 1996 (Act 108 of 1996) (as amended)*

The Constitution is the supreme law of South Africa, against which all other laws are measured. It sets out a number of fundamental environmental rights.

The Environmental Clause

Section 24 of the Constitution outlines the basic framework for all environmental policy and legislation: It states:

Everyone has the right –

- a) to an environment that is not harmful to their health or well-being; and*
- b) to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that –*
 - i) prevent pollution and ecological degradation;*
 - ii) promote conservation; and*
 - iii) secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development.*

Access to Information

Section 32 of the Constitution provides that everyone has the right of access to any information held by the State or another juristic person, which is required for the exercise or protection of any rights.

Fair Administrative Action

Section 33 of the Constitution provides the right to lawful, reasonable and procedurally fair administrative action.

Enforcement of Rights and Administrative Review

Section 38 of the Constitution guarantees the right to approach a court of law and to seek legal relief in the case where any of the rights that are entrenched in the Bill of Rights are infringed or threatened.

3.1.2 *National Environmental Management Act, 1998 (Act 107 of 1998)*

NEMA is South Africa's overarching environmental legislation. It provides the legislative framework for Integrated Environmental Management in South Africa. The Act gives meaning to the right to an environment that is not harmful to health or well-being, entrenched in Section 24 of the Constitution. In addition, NEMA provides for equitable access to natural resources, environmental protection and the formulation of environmental management frameworks. The Act is underpinned by the global concept of sustainable development. Section 2 of NEMA provides a set of principles that apply to the actions of all organs of state that may significantly affect the environment.

The interpretation, administration and application of NEMA are guided by fundamental principles of sustainable development, provided in Chapter 1 of the Act. "Development must be socially, environmentally and economically sustainable" and requires the consideration of all relevant factors, which are guided by eight sub-principles, including:

- The sustainability principle.
- The lifecycle, cradle-to-grave principle.
- The 'polluter pays' principle.
- The precautionary principle.
- The duty of care principle.
- Fair and transparent public consultation.

The concept of sustainability underpinning this assessment considers three inter-related dimensions of the environment, viz. the social, economic and biophysical dimensions (Figure 3). For an option or project to be sustainable, it needs to demonstrate economic growth, social acceptability and soundness, and ecological integrity within a framework of good governance.

3.1.3 *The Environmental Impact Assessment Regulations, 2014 (as amended)*

The EIA Regulations contained in Government Notices R 982, R 983, R 984 and R 985 of 04 December 2014 (as amended April 2017), published in terms of Section 24 of NEMA, regulate environmental management in South Africa. Activities that require authorisation from the competent authority prior to their commencement are listed in Government Notices R 983, R 984 and R 985. The procedures dealing with the EIA Regulations are contained in GN R 982.

The Listed Activities applicable to the proposed establishment of the 2AFRICA/GERA (East) Cable System are presented in Table 2. Potential impacts associated with these Listed Activities will be identified and assessed in this EIA.

Environmental Authorisation obtained from this application will apply only to listed activities for which the application was made. Therefore, a precautionary approach is followed when identifying listed activities that could potentially be triggered by the development.

3.1.4 *National Water Act, 1998 (Act 36 of 1998)*

The National Water Act, 1998 (Act 36 of 1998) (NWA) has various sections of relevance to the proposed project. The Department of Human Settlements, Water and Sanitation is the responsible authority with regard to matters affecting water resource management, including water quality. Added to this, certain provincial and local authority powers influence the regulation of water resources, including agriculture, the environment, health services, nature conservation, pollution control, regional planning and development, soil conservation, and water and sanitation services.

The development or modification of water courses or wetlands in any form are governed by conditions provided in Chapter 4, Part 1 of the Act, which sets out general principles for regulating water use.

In general, a water use must be licensed unless:

- It is listed in Schedule 1 of the Act.
- Is an existing lawful water use.
- It is permissible under a general authorisation.
- A responsible authority waives the need for a license.

As development or modifications of watercourses or wetlands are not included in Schedule 1, a licence is required to carry out any activity involving modifications to watercourses or wetlands. It is, however, doubtful that this will apply to the 2AFRICA/GERA (East) Cable System landing in Port Elizabeth, as the proposed landing site does not require the crossing of wetlands or occur within 500 m of any wetlands.

3.1.5 *National Heritage Resources Act, 1999 (Act 25 of 1999)*

The National Heritage Resources Act (NHRA), 1999 (Act 25 of 1999) aims to promote an integrated system for the identification, assessment and management of the heritage resources of South Africa. Furthermore, it established the South African Heritage Resources Agency to implement the Act.

Section 38 (1) of the NHRA lists development activities that would require authorisation by the responsible heritage resources authority. Activities considered applicable to the proposed project include the following:

- (a) *The construction of a road, wall, powerline, pipeline, canal or other similar form of linear development or barrier exceeding 300 m in length.*
- (c) *Any development or other activity which will change the character of a site; and*
 - (i) *exceeding 5 000 m² in extent.*
- (d) *The re-zoning of a site exceeding 10 000 m² in extent.*

The NHRA requires that a person intending to undertake such an activity must notify the relevant national and provincial heritage authorities at the earliest stages of initiating such a development. The relevant heritage authority will then, in turn, notify the person whether a Heritage Impact Assessment Report should be submitted. SAHRA is the relevant heritage authority for all heritage resources located below the high-water mark of the sea up to a distance of 24 Nautical miles seaward. The Eastern Cape Provincial Heritage Resources Authority (ECPHRA), the provincial heritage authority, is responsible for heritage resources on land.

3.1.6 *National Forest Act, 1998 (Act 84 of 1998)*

In terms of the National Forests Act, 1998 (Act 84 of 1998), trees in natural forests or protected tree species (as listed in Government Gazette Notice 908 of 21 November 2014) may not be cut, disturbed, damaged, destroyed and their products may not be possessed, collected, removed, transported, exported, donated, purchased or sold, except under licence granted by DEFF. Each application is evaluated on merit before a decision is taken whether or not to issue a licence (with or without conditions). Such decisions must be in line with national policy and guidelines.

The proposed project will, however, not affect any natural forests or protected tree species and, therefore, no permits will be required from DEFF.

3.1.7 *Hazardous Substance Act (No 15 of 1973) and Regulations*

The purpose of the Act is:

- ❑ To provide for the control of substances which may cause injury or ill-health to or death of human beings by reason of their toxic, corrosive, irritant, strongly sensitising or flammable nature.
- ❑ To provide for the division of such substances or products into groups in relation to the degree of danger.
- ❑ To provide for the prohibition and control of the importation, manufacture, sale, use, operation, application, modification, disposal or dumping of such substances and products.
- ❑ To provide for matters connected therewith.

Based on a review of the proposed materials and construction methods to be employed in the construction and installation of the 2AFRICA.GERA (East) Cable System landing in Port Elizabeth, it is unlikely that the conditions of this Act or its regulations will be of relevance to the proposed development.

3.1.8 *Conservation of Agricultural Resources Act, 1983 (Act 43 of 1983)*

The Conservation of Agricultural Resources Act, 1983 (Act 43 of 1983) states that no degradation of natural land is permitted. The Act requires the protection of land against soil erosion and the prevention of water logging and salinisation of soils by means of suitable soil conservation works to be constructed and maintained. The utilisation of marshes, water sponges and watercourses are also addressed as well as protection of vegetation and the combating of weeds and invader plants.

3.1.9 *National Environmental Management: Waste Act, 2008 (Act 59 of 2008)*

The National Environmental Management: Waste Act, 2008 (Act 59 of 2008) (WA) has various sections of relevance to the proposed 2AFRICA/GERA (East) Cable System. The aims of the Act are to provide laws regulating waste management to protect health and the environment by providing reasonable measures for the prevention of pollution and ecological degradation, and for securing ecologically sustainable development. In fulfilling the rights contained in Section 24

of the Constitution, the State, through the organs of state responsible for implementing this Act, must put in place uniform measures that seek to reduce the amount of waste that is generated and, where waste is generated, to ensure that waste is re-used, recycled and recovered in an environmentally sound manner before being safely treated and disposed. By implication, the interpretation and application of the Act must be guided by the national environmental management principles set out in Section 2 of NEMA.

Based on a review of the proposed materials and construction methods to be employed in the construction and installation of the 2AFRICA/GERA (East) Cable System landing in Port Elizabeth, it is unlikely that the conditions of this Act or its regulations will be of relevance to the proposed development.

3.1.10 *National Environmental Management: Biodiversity Act 10 of 2004*

This Act provides for the management and conservation of South Africa's biodiversity, protects species and ecosystems, ensures sustainable use of indigenous biological resources, ensures fair and equitable sharing of benefits arising from the commercial use of these resources, and to establish a South African National Biodiversity Institute. The Act also covers alien and invasive species and genetically modified organisms that pose a threat to biodiversity. As such, it controls and regulates:

- ❑ Threatening activities occurring in identified ecosystems.
- ❑ Activities which may negatively impact on the survival of identified threatened or protected species.
- ❑ Restricted activities involving alien or listed invasive species.
- ❑ The Act also provides for regulations and lists regarding Threatened and Protected Species (TOPS).

In accordance with the Biodiversity Act, specialist studies will be commissioned to ensure that sensitive vegetation and benthic ecosystems are not detrimentally affected by the installation and construction activities associated with the terrestrial and marine components of the 2AFRICA/GERA (East) Cable System landing in Port Elizabeth.

3.1.11 *National Environmental Management: Protected Areas Act (Act 57 of 2003)*

The National Environmental Management: Protected Areas Act 57 of 2003 intends:

- ❑ To provide for the protection and conservation of ecologically viable areas representative of South Africa's biological diversity and its natural landscapes and seascapes.
- ❑ For the establishment of a national register of all national, provincial and local protected areas.
- ❑ For the management of those areas in accordance with national norms and standards.
- ❑ For intergovernmental co-operation and public consultation in matters concerning protected

The terrestrial component of the project is located within the residential area of Summerstrand within the NMBMM. As such, no significant impacts on protected areas will take place and the conditions of this act are unlikely to be of relevance.

3.1.12 *Integrated Coastal Management Act (Act No. 24 of 2008) (ICMA)*

In general, ICMA promotes the use of defensible scientific information in conjunction with the principles of cooperative governance to achieve sustainable coastal development.

ICMA is a specific environmental management Act under the umbrella of NEMA. Due to the broad spectrum of issues covered by the ICMA it necessitates links to other legislation such as the Marine Living Resources Act (Act No. 18 of 1998). As such, the interpretation and understanding of the ICMA must be read in conjunction with other legislation to fully understand the responsibilities, regulations and objectives encompassed in this Act. It is important to note that the ICMA has been amended by the National Environmental Management: Integrated Coastal Management Amendment Act, 2014 (Act No. 36 of 2014).

In terms of the proposed 2AFRICA/GERA (East) Cable System landing in Port Elizabeth, several sections of the ICMA are and will be relevant to the project. The most significant of these deal with matters (such as development activity in the coastal zone and construction of infrastructure on or in the coastal public property) that must be considered by the authorities when evaluating the application for environmental authorisation.

3.1.13 *Seashore Act. 1935 (Act 21 of 1935)*

The Seashore Act 21 of 1935 provides that ownership of the seashore (which includes the water and land between the low-water mark and the high-water mark in those estuaries which fall within the definition of tidal lagoons and/or tidal rivers) and the sea vests in the state unless it was in private ownership before the commencement of the Act.

All of the provisions of the Act have been assigned to the four coastal provinces (in terms of Proclamation R27 dated 7 April 1995), excluding those that regulate the seashore and the sea within ports or harbours. The Act provides that the State President or the assigned provinces, as deemed owner, may grant leases over any part of the seashore and the sea, for specific purposes.

The Minister is further entitled to regulate sand-winning and other mining activities as well as the removal of aquatic plants, salt and shells from the sea and seashore owned by the State President. The letting or transfer of the seashore and the sea to local authorities is also regulated.

Different regulations have been passed by provincial and local authorities, that relate to specific areas of the seashore under their control.

3.1.14 *The Marine Living Resources Act (Act No. 18 of 1998)*

This Act provides for the conservation and management of the marine ecosystem, the long-term sustainable utilisation of marine living resources and equitable access to exploitation, utilisation and protection of certain marine living resources.

In terms of the proposed 2AFRICA/GERA (East) Cable System landing in Port Elizabeth, this Act is applicable as most of the project occurs within the marine environment.

3.1.15 *Maritime Zones Act No. 15 of 1994*

This Act determines and defines the territorial sea, internal waters, Exclusive Economic Zone (EEZ) and continental shelf of South Africa. In compliance with the UN Law of the Sea, the Act declares the territorial sea of South Africa to be the sea within a distance of 12 nautical miles measured from the low water mark on the shore (baseline). The sea beyond the territorial waters but within 200 Nm of the baseline shall be the EEZ of South Africa. Within the EEZ, South Africa shall have the same rights and powers as it has in its territorial waters, in respect of natural resources.

The Act also states that all installations, which are defined to include telecommunications lines as defined in section 1 of the Post Office Act, 1958 (Act No. 44 of 1958), situated within internal waters, territorial waters or the EEZ or on or above the continental shelf must be constructed and operated within the current laws of South Africa³.

3.1.16 *Telecommunications Act 103 of 1996*

This Act makes provision for the regulation of telecommunication activities other than broadcasting, for the control of the radio frequency spectrum; and to establish an independent South African Telecommunications Regulatory Authority and a Universal Service Agency. It provides that no person may offer telecommunications services without a licence authorising them to do so.

In terms of the proposed 2AFRICA/GERA (East) Cable System landing in Port Elizabeth, Section 36 of the Act applies as Vodacom is licensed to provide national long distance and international telecommunication services. In addition, in terms of Section 75, a local authority may install a conduit pipe or other facilities for the installation of underground cables on any premises.

3.1.17 *Marine Traffic Act 2 of 1981*

The function of this Act is to regulate marine traffic in South African waters and matters incidental thereto. It is governed by the South African Maritime Safety Authority (SAMSA) established by Section 2 of the South African Maritime Safety Authority Act (Act No 5 of 1998), under the Department of Transport.

3 South Africa is also a signatory to the United Nations Convention on the Laws of the Sea (UNCLOS). Article 79 of UNCLOS, in particular, concerns the installation of "submarine cables and pipelines on the continental shelf" and specifies the following: "Subject to its right to take reasonable measures for the exploration of the continental shelf, the exploitation of its natural resources and the prevention, reduction and control of pollution from pipelines. The coastal State may not impede the laying or maintenance of such cables or pipelines".

Of particular importance to the proposed 2AFRICA/GERA (East) Cable System landing in Port Elizabeth, is the stipulation that no ship may drop or drag anchor or fishing gear (bottom trawl nets) nearer than 0.5 Nm to a pipeline or a telecommunications line.

3.1.18 *Applicable Provincial Environmental Legislation: Eastern Cape*

The following provincial legislation may also be applicable to the proposed landing of the 2AFRICA/GERA (East) Cable System particularly the Eastern Cape Nature Conservation Regulations:

- Draft Eastern Cape Environmental Management Bill of 2019.
- Transkei Environmental Conservation Decree (9 of 1992).
- Ciskei Nature Conservation Act (1987).
- Land Use and Planning Ordinance (1985).

3.2 **International Treaties, Conventions and Protocols**

South Africa is signatory to several international conventions and agreements relating to marine issues, industry, development, environmental management and energy. In certain cases, these have influenced policy, guidelines and regulations and must be complied with during the planning, construction, and operation of the proposed development. In terms of South African law, international conventions are binding upon individuals when they have been specifically enacted in national laws.

There are International Conventions that have been ratified by South Africa that are related to pollution and/or environmental protection of the sea:

- The National Convention for the Prevention of Pollution by Ships of 1973 and 1978, and the Protocol of 1997, is the main international convention covering prevention of pollution of the marine environment by ships from operational or accidental causes. The convention covers pollution from ships, whether accidental or from routine operations, by oil, chemicals, harmful substances in packaged form, sewage and garbage.
- South Africa is a signatory of The Convention on the Prevention of Marine Pollution through the Disposal of Waste and Other Matter, 1972 or the London Convention, 1972. This Convention aims to control pollution of the sea and to encourage regional agreements supplementary to the Convention. It identifies the types of substances or materials which may not be disposed of at sea, and those for which a license is required.
- The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal is the most comprehensive global environmental agreement on hazardous and other wastes. The Convention aims to protect human health and the environment against the adverse effects resulting from the generation, management, transboundary movements and disposal of hazardous and other wastes.

South Africa is also a signatory to the United Nations Convention on the Laws of the Sea (UNCLOS). Under this convention South Africa claims rights within a 12 nautical mile (Nm) territorial water and a 200 Nm Exclusive Economic Zone (EEZ).

Article 79 of UNCLOS⁴, in particular, concerns the installation of “submarine cables and pipelines on the continental shelf” and specifies the following:

4 Source: http://www.un.org/depts/los/convention_agreements/texts/unclos/unclos_e.pdf. Article 79 of UNCLOS, in particular, concerns the installation of “submarine cables and pipelines on the continental shelf” and specifies the

- All States are entitled to lay submarine cables and pipelines on the continental shelf, in accordance with the provisions of this article as follows:
 - Subject to its right to take reasonable measures for the exploration of the continental shelf, the exploitation of its natural resources and the prevention, reduction and control of pollution from pipelines.
 - The coastal State may not impede the laying or maintenance of such cables or pipelines.
 - The delineation of the course for the laying of such pipelines on the continental shelf is subject to the consent of the coastal State.
 - Nothing affects the right of the coastal State to establish conditions for cables or pipelines entering its territory or territorial sea, or its jurisdiction over cables and pipelines constructed or used in connection with the exploration of its continental shelf or exploitation of its resources or the operations of artificial islands, installations and structures under its jurisdiction.
 - When laying submarine cables or pipelines, due regard shall be taken of cables or pipelines already in position. In particular, possibilities of repairing existing cables or pipelines shall not be prejudiced.

UNCLOS is enforced within the South African legal regime through the Marine Traffic Act and Maritime Zones Act (described previously).

3.3 National, Provincial and Local Policies and Plans

3.3.1 National Development Plan 2030 (NDP)

The National Development Plan (NDP) (2012) offers a long-term perspective. It defines a desired destination and identifies the role different sectors of society need to play in reaching that goal. The NDP aims to eliminate poverty and reduce inequality by 2030. According to the plan, South Africa can realise these goals by drawing on the energies of its people, growing an inclusive economy, building capabilities, enhancing the capacity of the state, and promoting leadership and partnerships throughout society.

Of relevance and identified as an enabling milestone is the making of high-speed broadband internet universally available at competitive prices. The NDP identifies critical actions that include interventions to ensure environmental sustainability and resilience to future shocks.

3.3.2 National Climate Change Adaptation Strategy (NCCAS)

South Africa's National Climate Change Adaptation Strategy (NCCAS)⁵ (DEFF; 2019) supports the country's ability to meeting its obligations in terms of the Paris Agreement on Climate Change. The Strategy defines the country's vulnerabilities, plans to reduce those vulnerabilities and leverage opportunities, outlines the required resources for such action, whilst demonstrating progress on climate change adaptation. The NCCAS outlines a set of objectives, interventions and outcomes to enable the country to give expression to its commitment to the Paris Agreement. The 2015 Paris Agreement elevated the importance of climate change

following: "Subject to its right to take reasonable measures for the exploration of the continental shelf, the exploitation of its natural resources and the prevention, reduction and control of pollution from pipelines. The coastal State may not impede the laying or maintenance of such cables or pipelines"

5 <https://www.gov.za/speeches/environment-forestry-and-fisheries-approval-south-africa%E2%80%99s-national-climate-change>

adaptation through the establishment of a global goal on adaptation of enhancing adaptive capacity, strengthening resilience and reducing vulnerability to climate change.

Developed in consultation with all relevant stakeholders and approved by Cabinet on 18 September 2020, it aims to reduce the vulnerability of society, the economy and the environment to the effects of climate change. It gives effect to the National Development Plan's vision of creating a low-carbon, climate resilient economy and a just society. Adaptation to climate change presents South Africa with an opportunity to transform the health of the economy and build resilience, thus strengthening the social and spatial fabric, and enables the country to remain globally competitive. It will ensure that food production is not threatened, infrastructure is resilient and enable continued sustainable economic development.

3.3.3 *National Climate Change Response White Paper*

This White Paper published by DEA in 2012 presents the South African Government's vision for an effective climate change response and the long-term, just transition to a climate-resilient and lower-carbon economy and society. South Africa's response to climate change has two objectives:

- Effectively manage inevitable climate change impacts through interventions that build and sustain South Africa's social, economic and environmental resilience and emergency response capacity.
- Make a fair contribution to the global effort to stabilise greenhouse gas (GHG) concentrations in the atmosphere at a level that avoids dangerous anthropogenic interference with the climate system within a timeframe that enables economic, social and environmental development to proceed in a sustainable manner.

In terms of strategic priorities, the White Paper sets out South Africa's climate change response strategy to achieve the National Climate Change Response Objective in a manner consistent with the outlined principles and approach and which is structured around the following strategic priorities: risk reduction and management; mitigation actions with significant outcomes; sectoral responses; policy and regulatory alignment; informed decision making and planning; integrated planning; technology research, development and innovation; facilitated behaviour change; behaviour change through choice; and resource mobilisation.

Of relevance to this project, is the risk reduction and management related to the increase in the frequency of extreme storm surges along the coastline coupled with the predicted rise in sea-level.

This risk management relates to the need for ongoing operational management to ensure the protection of the cable from erosion of supporting sediments or rock features where it is landed in the coastal zone.

3.3.4 *Eastern Cape Vision 2030 Provincial Development Plan (PDP) (2014)*

The NDP sets out a vision and roadmap for the development of South Africa up to the year 2030, and it sets out a number of important premises to underpin a reconsidered approach to development. These premises also inform the Eastern Cape's plan. They are reiterated and rephrased in this Eastern Cape Vision to reflect emphases from stakeholders consulted in the formulation of this PDP, of which the need to foster equitable economic growth and investment,

as well as opportunities for meaningful work, are referenced in terms of applicability to this project.

The demand for new connectivity reflects an end-user and business environment in which high-capacity data transmission is essential for sustainable growth and development.

3.3.5 Nelson Mandela Bay Metropolitan Municipality Development Plan (2017/18 – 2012/22)

A vision and mission are important to give strategic guidance to an IDP and to focus the allocation of the Municipality's resources and budget for the IDP period. The following is the vision and mission statement identified by Nelson Mandela Bay Municipality:

“To be a globally competitive and preferred Metropole that works collectively with the people to improve lives, boost the economy, advocating zero corruption, and to have a transformed administration aimed at enhancing service delivery.”

The Mission Statement is:

“Nelson Mandela Bay Municipality is a global city that is governed by an inclusive and innovative administration, focused on sustainable service delivery, socio-economic development, infrastructure development, local and regional integration through comprehensive initiatives.”

Strategic objectives of relevance to this project are:

- ❑ Respond to the COVID-19 economic impacts by stabilising and ensuring recovery of the Nelson Mandela Bay economy with a view to grow and diversify the local economy by attracting new investment and facilitating an enabling environment for business growth and job creation.
- ❑ Ensure proactive planning for sustainable city development, conservation of resources and natural and built environment.

3.3.6 Nelson Mandela Bay Municipality Climate Change and Green Economy Action Plan (August 2015)

Climate scientists predict that unless global greenhouse gas emissions are reduced, Nelson Mandela Bay residents are likely to see more hot days, more frequent droughts, more intense floods, greater wind speeds and a change in the prevailing wind directions, as well as sea level rise and a probability of extreme storm surges. The ability to adapt to the changing circumstances will necessarily determine the range and scale of the impacts.

In recent years various plans, strategies and guidelines in support of climate resilience have been developed by the Nelson Mandela Bay Municipality (NMBM). As it stands the NMBM have adopted an Integrated Environmental Policy with sector specific commitments (2012) and have a Disaster Management Policy as well as Enterprise Risk Management Policy. All of which builds towards climate resilience and the green economy.

Climate change will affect service delivery and infrastructure development, such as water shortages, droughts and floods. The report highlights that coastal storm surges are already posing challenges to sustainable service delivery and the provision of infrastructure. The report details the climate change threats (of relevance to this project) as:

- ❑ Sea level rise: from between 58 cm to 75 cm
- ❑ Change in storm surge patterns: higher probability of extreme storm surges
- ❑ Wind patterns: strengthening of easterly (onshore winds) and weakening of westerly winds.

3.4 Commenting and relevant authorities

Following a review of the legislation applicable to the proposed development, the following key authorities have been identified which have been consulted during Scoping and whose comments will be taken into consideration during the Impact Assessment phase of the EIA.

3.4.1 *Department of Environment, Forestry and Fisheries – Oceans and Coasts*

An integral part of the South African environment is undoubtedly the Oceans and Coasts along South Africa's almost 2,500 km long coastline stretching from the border with Mozambique on the east coast to the border with Namibia on the west coast. The marine and coastal environments provide and sustain a wide range of economic, social and ecological services that are a foundation for the livelihoods of millions of South Africans. The DEFF Directorate, Oceans and Coasts (OC) is primarily focused on marine protection services and ocean governance, which entails the protection of the ocean environment from all illegal activities and promotion of its multiple socio-economic benefits.

Some of the main functions this directorate undertakes include the following:

- ❑ The establishment of management frameworks and mechanisms for the ocean and coastal environment.
- ❑ The strengthening of national science programmes for integrated oceans and coastal management.
- ❑ The development of and contribution to effective knowledge and information management for the sector.
- ❑ The participation and support to international agreements and bodies supportive of South African environmental and sustainable development priorities.

It should be noted that OC is also directly involved with Operation Phakisa which includes the sustainable utilisation of the oceans around South Africa to meet Government's development targets. It is estimated that the oceans around South Africa have the potential to contribute up to ZAR 177 billion to the country's Gross Domestic Product (GDP) and create just over one million jobs by 2033 (<http://www.operationphakisa.gov.za>).

Operation Phakisa consists of four critical areas to unlock the potential of South Africa's coastline:

- ❑ Marine Transport and Manufacturing.
- ❑ Offshore Oil and Gas Exploration
- ❑ Aquaculture.
- ❑ Marine Protection Services and Ocean Governance.

The Department of Environment, Forests and Fisheries, as the custodian of fisheries resources in South Africa, is responsible for the following:

- ❑ Fisheries administration.

- ❑ Fisheries research.
- ❑ Protection of marine resources (through control and enforcement).
- ❑ Co-ordinating development.

The department promotes co-operation between management, scientists and all user and other interest groups, and the Chief Directorate of Sea Fisheries will be the instrument of implementation in carrying out these tasks, as appropriate. As custodian of fisheries and the marine environment, DEFF's core responsibilities include the following:

- ❑ Undertake research on living marine resources and advise on and promote sustainable resource utilisation, including commercial, recreational, and small-scale fisheries.
- ❑ Apply an ecosystem approach to sustainable utilisation of living marine resources and conservation of marine ecosystems.
- ❑ Advise on the development of under-utilised or new living marine resources and rebuilding of depleted stocks where necessary.
- ❑ Undertake long-term monitoring of resources.
- ❑ Undertake environmental and climate change research relevant to fisheries.
- ❑ Promote the development of marine aquaculture through appropriate research.
- ❑ Understand the dynamics and functioning of the marine environment as they impact on ecosystem variability.
- ❑ Provide decision-makers with the best scientific advice available, considering international best practice.
- ❑ Build capacity in Fisheries and Marine Sciences within the Department, in Government and in South Africa through collaboration with institutions within and outside of Government.
- ❑ Ensure that South Africa's regional and international commitments with regard to marine science are effectively met.

As a Directorate of DEFF, OC will provide comment and recommendations on all EIA documents submitted, which are pertaining to the proposed 2AFRICA/GERA (East) Cable System landing in Port Elizabeth. As such, OC has been added as a key stakeholder (commenting authority).

3.4.2 *National Ports Authority*

Transnet National Ports Authority (TNPA) is one of five operating divisions of Transnet SOC Ltd and is responsible for the safe, effective and efficient economic functioning of South Africa's ports (<http://www.transnetnationalportsauthority.net>). TNPA controls the eight commercial seaports in South Africa and operates within a legislative and regulatory environment created by the National Ports Act 2005 (Act No. 12 of 2005). In line with the provisions of the National Ports Act, the core functions of the National Ports Authority are as follows:

- ❑ To plan, provide, maintain and improve port infrastructure.
- ❑ To provide or arrange marine-related services.
- ❑ To ensure the provision of port services, including the management of port activities and the port regulatory function at all South African ports and to provide aids to navigation and assistance to the manoeuvring of vessels within port limits and along the coast.
- ❑ The National Ports Authority is responsible for port regulatory functions at the ports, i.e., controlling the provision of port services through licensing or entering into agreements with port operators to ensure that efficient port services are provided.

As the proposed development involves the placement of a marine telecommunications cable through the coastal waters of Port Elizabeth, TNPA (Port Elizabeth Port and Ngqura) will be registered as an interested and affected party as information on the position of the 2AFRICA/GERA (East) Cable System is important for commercial fishing and shipping industries operating within the region.

3.4.3 *The South African Maritime Safety Authority (SAMSA)*

The South African Maritime Safety Authority was established on 1 April 1998 in terms of the South African Maritime Safety Authority Act (Act 5 of 1998) as a juristic person. Accountable to the Minister of Transport, SAMSA is tasked with the following objectives in terms of the Act:

- To ensure safety of life and property at sea.
- To prevent and combat pollution of the marine environment by ships.
- To promote the country's maritime interests.

In terms of Section 2 of the Act, SAMSA is responsible to administer the following pieces of legislation:

- Merchant Shipping Act, 1951.
- Marine Traffic Act, 1981.
- Marine Pollution (Control and Civil Liability) Act, 1981.
- Carriage of Goods by Sea Act, 1986.
- Marine Pollution (Prevention of Pollution from Ships) Act, 1986.
- Marine Pollution (Intervention) Act, 1987.
- Maritime Zones Act, 1994.
- Wreck and Salvage Act, 1996.
- SAMSA Act, 1998.
- SAMSA Levies Act, 1998.
- Ship Registration Act, 1998.

(Source: <http://www.samsa.org.za/sites/samsa.org.za/files/SAMSA%20Act%2C%201998.pdf>)

As the proposed development involves the placement of a marine telecommunications cable through the coastal waters of Port Elizabeth, SAMSA has been registered as an interested and affected party as they are ultimately responsible for the safety of vessels at sea, and they are the respondents to any incidents which could occur during the installation and operation of the proposed 2AFRICA/GERA (East) Cable System.

3.4.4 *Department of Mineral Resources*

The primary legislation governing the South African mining and petroleum sector is the Mineral and Petroleum Resources Development Act (Act No. 28 of 2002) (MPRDA), which should be read together with the Mineral and Petroleum Resources Development Regulations, 2004 (GNR.527 of 23 April 2004); (MPRDA Regulations). These regulations are enforced by the Department of Mineral Resources (DMR), which is the regulatory authority for all offshore mining and exploration activities.

The proposed 2AFRICA/GERA (East) Cable System crosses two of these offshore oil and gas concessions awarded to various companies from where it enters the EEZ of South Africa until it makes landfall at Nelson Mandela Bay as outlined below:

- ExxonMobil
- Stabil/OK Energy
- New Age/Rift

3.5 Summary

In summary, Vodacom (Pty) Ltd. has a number of legal obligations in terms of legislation, the pertinent obligations being:

- An obligation to undertake an EIA for activities that fall within the scope of Government Notices R 982, R 983, R 984 and R 985 of 04 December 2014 (as amended April 2017).
- An obligation to obtain permits in terms of other relevant environmental legislation (for example, heritage, water, and biodiversity).
- Adherence to the principles of sustainability which is supported by the DEA guidelines which have been developed to provide a detailed consideration on the practical implementation of the regulations. Specifically, the guidelines provide clarity on the processes to be followed when applying for environmental authorisation in terms of the EIA regulations and gives a comprehensive interpretation of the listed activities.

3.5.1 Summary of required licenses/permits

The licenses/permits required for the landing of the 2AFRICA/GERA (East) Cable System landing at Port Elizabeth, South Africa are detailed in Table 3 below.

Table 3 Licenses/permits required for the proposed 2AFRICA/GERA (East) Cable System

License/Permit	Authority
Environmental Authorisation	Department of Environment, Forestry and Fisheries (DEFF)
Heritage Permit (Offshore)	South African Heritage Resources Agency (SAHRA)
Heritage Permit (Onshore)	Eastern Cape Provincial Heritage Resources Authority (ECPHRA)
Beach Driving Permit	Oceans and Coast (DEFF)
Seashore Lease Permit	Department of Economic Development, Environmental Affairs and Tourism (DEDEAT)
Protected Tree and/or Plant Permits (if required)	Department of Environment, Forestry and Fisheries (DEFF) and Department of Economic Development, Environmental Affairs and Tourism (DEDEAT)
Water Use License (if required)	Department of Human Settlements, Water and Sanitation (DHSWS)
Permit to construct infrastructure in the Coastal Public Property	Department of Public Works
Local municipal permits and approvals	Nelson Mandela Bay Metropolitan Municipality (NMBMM)

4 NEED AND DESIRABILITY

The need and desirability of a proposed development is a key component of an application for environmental authorisation. In essence, need and desirability are based on the principle of sustainability, viz. that a development is ecologically sustainable and socially and economically justifiable.

Sustainability in this context implies ecological sustainability, recognising that the maintenance of healthy ecosystems and natural resources are preconditions for human wellbeing and recognising that there are limits to the goods and services that can be provided by the environment. Sustainable development is the process that is followed to achieve the goal of sustainability, viz. achieving justifiable social and economic development without compromising the natural system on which it is based.

DEFF has published guidelines (GN No. 891 on Government Gazette No. 38108) on addressing need and sustainability from which Tables 6 and 7, addressing ecological and economic and social development aspects, respectively, are derived. In this Scoping Report, where applicable, these tables are populated with commentary on how the proposed development will address the aspects under consideration, alternatively, what must be investigated during the specialist studies to obtain a better understanding of the proposed project's sustainability aspects. Once the Impact Assessment has been finalised, the tables will be populated with more detailed explanations with corresponding cross-references to where the sustainability aspects are dealt with in the Environmental Impact Assessment Report.

In this context, what is proposed is a submarine telecommunication cable which is important for international telecommunication networks, transporting almost 100% of transoceanic Internet traffic throughout the world (www.iscpc.org). It is widely recognised that access to affordable international bandwidth is key to economic development in every country. Today, Africa relies primarily on satellites with few submarine cables to provide its international communications. Communication via submarine telecommunication cables generally allows for lower cost, better performance, and greater capacity (throughput) than that available via satellites.

Improvement in Africa's information technology infrastructure via telecommunication cables will remove one of the current key inhibitors to overall development in Africa and support economic growth and opportunities on the continent. In South Africa, the Presidential Infrastructure Coordinating Commission (PICC) launched the Strategic Integrated Project (SIP) 15: Expanding Access to Communication Technology. This is led by the Department of Communications and supported by the Department of Public Enterprises and Department of Science and Technology. SIP 15 aims to ensure universal service and access to reliable, affordable and secure broadband services by all South Africans, prioritising rural and under-serviced areas and stimulating economic growth. While expanding access to communication technology will be done primarily through broadband infrastructure roll-out, this requires a national backbone connected to the rest of the world. In this case, the proposed 2AFRICA/GERA (East) Cable System supports SIP 15 via its international connectivity, capacity and speed.

Vodacom, via ASN, intends installing a submarine telecommunications cable, referred to as the 2AFRICA/GERA (East) Cable System, to link South Africa, the East Coast of Africa and Europe with key international telecommunication hubs in Europe. Following installation of the proposed 2AFRICA/GERA (East) Cable System, Vodacom will facilitate more affordable and effective transport of voice, data, Internet and television services.

Table 4 Need and desirability aspects considered for securing ecological sustainable development and use of natural resources

Ref #	Description	Comment
1	How will this development (and its separate elements/aspects) impact on the ecological integrity of the area?	Implementation of the marine component of the cable is expected to have localised impacts on the marine benthic and shallow benthic environment. The terrestrial cable component is expected to have a highly localised impact on Pollock beach in Summerstrand and very limited impacts inland between the BMH and CLS.
1.1	How will the following ecological integrity considerations be taken into account?	
1.1.1	Threatened ecosystems.	<p>The project involves the onshore landing of the cable on Pollock Beach (Summerstrand) and the offshore laying of the cable through the waters/ benthic ecosystem at Port Elizabeth.</p> <p>The onshore environment will experience some localised impacts along within the existing road reserve, between the Beach Manhole (BMH) at Pollock Beach and the Cable Landing Station (CLS) at the corner of Skegness and Bognor Street in Summerstrand.</p> <p>The offshore environment will experience minimal impacts. The proposed cable will traverse a small portion of Algoa 1 Aquaculture zone within Algoa Bay.</p> <p>Although Algoa Bay features many endemic species, the cable will not significantly affect threatened ecosystems.</p>
1.1.2	Sensitive, vulnerable, highly dynamic or stressed ecosystems, such as coastal shores, estuaries, wetlands, and similar systems which require specific attention in management and planning procedures, especially where they are subject to significant human resource usage and development pressure.	Potential impacts associated with the development were identified during Screening and Scoping and qualified specialists will be appointed to investigate these aspects.
1.1.3	Critical Biodiversity Areas and Ecological Support Areas.	N/A
1.1.4	Conservation targets.	N/A
1.1.5	Ecological drivers of the ecosystem.	Findings from the specialist studies will be used to identify the ecological drivers of the ecosystem.
1.1.6	Environmental Management Frameworks (EMF).	Although the preferred alternative for the BMH is a Greenfield site, the principles of sustainable development will be adopted to enhance the vision associated with the EMF for the metropolitan. All proposed impacts will be localised and mitigated to reduce and increase in significance.
1.1.7	Spatial Development Frameworks (SDF).	The proposed development applies to the SDF as it is aimed at improving telecommunications which will stimulate economic growth through data connectivity which supports local and international

Ref #	Description	Comment
		business development. For the Nelson Mandela Bay to grow and develop a sustainable economy, it is important to develop improved telecommunications and networking facilities.
1.1.8	Global and international responsibilities relating to the environment (e.g. RAMSAR sites, climate change, etc).	N/A
2	How will this development disturb or enhance ecosystems and/or result in the loss or protection of biological diversity? What measures were explored to firstly avoid these negative impacts, and where these negative impacts could not be avoided altogether, what measures were explored to minimise and remedy (including offsetting) the impacts? What measures were explored to enhance positive impacts?	Benthic ecosystems are associated with microorganisms that are essential for ecological functions. Initially, the installation of the marine cable will disturb both shallow and deep benthic ecosystems along its alignment. However, once installed, the cable and its legislated buffer zone and the continuation of this buffer zone will have a positive impact on benthic communities as no trawling or anchoring of ships is permitted in the buffer zone. This will preserve the ecological longevity of these sensitive systems.
3	How will this development pollute and/or degrade the biophysical environment? What measures were explored to firstly avoid these impacts, and where impacts could not be avoided altogether, what measures were explored to minimise and remedy (including offsetting) the impacts? What measures were explored to enhance positive impacts?	<p>Potential pollution is limited to the offshore environment during cable installation and the terrestrial environment in Summerstrand during construction of the BMH and trenching of the cable alignment from the BMH to the CLS. Sources of pollution will be limited to hydrocarbon spills and light industrial and domestic waste. An Environmental Management Programme (EMPr) will be compiled which will contain specifications for the handling of waste and dealing with incidents.</p> <p>Potential offshore pollution will be isolated and maintained, until disposed of at a registered landfill site. Further details may be found in the EMPr.</p>
4	What waste will be generated by this development? What measures were explored to firstly avoid waste, and where waste could not be avoided altogether, what measures were explored to minimise, reuse and/or recycle waste? What measures have been explored to safely treat and/or dispose of unavoidable waste?	Waste will be limited to light industrial waste (cable offcuts and reclaimed cable from the seabed) in the marine environment and domestic waste in the terrestrial environment. Volumes are anticipated to be very small. Waste management specifications will be provided in the EMPr.
5	How will this development disturb or enhance landscapes and/or sites that constitute the nation's cultural heritage? What measures were explored to firstly avoid these impacts, and where impacts could not be avoided altogether, what measures were explored to minimise and remedy (including offsetting) the impacts? What measures were explored to enhance positive impacts?	<p>The project will have no significant impact on cultural heritage resources. However, a Heritage Specialist will be appointed to identify and verify all possible off/onshore impacts.</p> <p>Offshore activities:</p> <ul style="list-style-type: none"> <input type="checkbox"/> The laying of a cable in the shallow water environment will involve direct shore end operation. The cable will be buried in sediment wherever possible.
6	How will this development use and/or impact on non-renewable natural resources? What measures were explored to ensure responsible and equitable use of the resources? How have the consequences of the depletion of the non-renewable natural resources been considered? What measures were	N/A

Ref #	Description	Comment
	explored to firstly avoid these impacts, and where impacts could not be avoided altogether, what measures were explored to minimise and remedy (including offsetting) the impacts? What measures were explored to enhance positive impacts?	
7	How will this development use and/or impact on renewable natural resources and the ecosystem of which they are part? Will the use of the resources and/or impact on the ecosystem jeopardise the integrity of the resource and/or system taking into account carrying capacity restrictions, limits of acceptable change, and thresholds? What measures were explored to firstly avoid the use of resources, or if avoidance is not possible, to minimise the use of resources? What measures were taken to ensure responsible and equitable use of the resources? What measures were explored to enhance positive impacts?	N/A
7.1	Does the proposed development exacerbate the increased dependency on increased use of resources to maintain economic growth or does it reduce resource dependency (i.e. de-materialised growth)? (Sustainability requires that settlements reduce their ecological footprint by using less material and energy demands and reduce the amount of waste they generate, without compromising their quest to improve their quality of life).	N/A
7.2	Does the proposed use of natural resources constitute the best use thereof? Is the use justifiable when considering intra- and inter-generational equity and are there more important priorities for which the resources should be used (i.e., what are the opportunity costs of using these resources for this proposed development?).	N/A
7.3	Do the proposed location, type and scale of development promote a reduced dependency on resources?	N/A
8	How will a risk-averse and cautious approach be applied in terms of ecological impacts?	Where possible, the alignment of the cable will avoid sensitive offshore environments, as identified, and protected in terms of the National Environmental Management: Protection Areas Act (Act 57 of 2003) and supported in terms of Operation Phakisa which promotes the sustainability of on/ offshore environments.
8.1	What are the limits of current knowledge (the gaps, uncertainties and assumptions must be clearly stated)?	Investigations are required to understand the impacts on: <ul style="list-style-type: none"> <input type="checkbox"/> The deep-sea trawling industry. <input type="checkbox"/> Benthic ecosystems. <input type="checkbox"/> Shallow Benthic ecosystems. <input type="checkbox"/> Beach and dune dynamics. <input type="checkbox"/> Sensitive environments within the study area.

Ref #	Description	Comment
		These gaps in the current knowledge will be filled through the undertaking of specialist investigations during the impact assessment phase of the EIA.
8.2	What is the level of risk associated with the limits of current knowledge?	Given our current knowledge of the project and study area, the risk is considered low. However, short term Isolated impacts are expected onshore (for the landing of the cable and connection of the cable to the CLS in Summerstrand) and offshore (as the proposed cable may potentially traverse the offshore aquaculture site, Algoa 1).
8.3	Based on the limits of knowledge and the level of risk, how and to what extent will a risk-averse and cautious approach be applied to the development?	Please see Item 8.
9	How will the ecological impacts arising from this development impact on people's environmental rights in terms following:	
9.1	Negative impacts, e.g., access to resources, opportunity costs, loss of amenity (e.g., open space), air and water quality impacts, nuisance (noise, odour, etc), health impacts, visual impacts, etc. What measures will be taken to firstly avoid negative impacts, but if avoidance is not possible, to minimise, manage and remedy negative impacts?	If managed and implemented soundly, the project will have no significant negative impacts. All negative impacts will be isolated within the necessary construction footprint and mitigated through management procedures and monitoring. Some nuisance related impacts are anticipated during cable landing (e.g., restricted access for beach users), but these are highly localised and of short duration (two weeks).
9.2	Positive impacts, e.g., improved access to resources, improved amenity, improved air or water quality, etc. What measures will be taken to enhance positive impacts?	The project is expected to have a significant positive impact on the South African economy through improved telecommunications which, in turn, promotes economic development and job creation. This development along the Eastern Cape Coastline will promote further infrastructure and telecommunications infrastructure development. Numerous short- and long-term employment opportunities will be created via the establishment of this development, and through skills transfer.
10	Describe the linkages and dependencies between human wellbeing, livelihoods, and ecosystem services applicable to the area in question and how the development's ecological impacts will result in socio-economic impacts (e.g., on livelihoods, loss of heritage sites, opportunity costs, etc).	No ecological impacts associated with this development are anticipated to result in socio-economic impacts.
11	Based on the above, how will this development positively or negatively impact on ecological integrity objectives/targets/considerations of the area?	N/A
12	Considering the need to secure ecological integrity and a healthy biophysical environment, describe how the alternatives identified (in terms of all the different elements of the development and all the different impacts being projected) will result in the selection of the "best practicable environmental option" in terms of ecological considerations.	The landing of the cable at the preferred landing site has taken into consideration the receiving environment and tried to avoid as best possible those areas set aside for conservation. The use of the existing Telkom Exchange Building for the CLS will also reduce impacts on the receiving environment.

Ref #	Description	Comment
		Furthermore, construction of a new BMH outside of Summerstrand will require the construction of a new CLS. The construction of a new CLS will result in further ecological disturbances to the receiving environment.
13	Describe the positive and negative cumulative ecological/biophysical impacts bearing in mind the size, scale, scope and nature of the project in relation to its location and existing and other planned developments in the area.	Overall, the cable is anticipated to have a positive ecological impact through the provision of a buffer zone along the marine component of the cable alignment. The buffer zone within Algoa bay will minimise illegal trawling/ fishing activities and promote the structured growth and development within the identified offshore aquaculture site Algoa 1.

Table 5 Need and desirability aspects considered for promoting justifiable economic and social development

Ref #	Description	Comment
1	What is the socio-economic context of the area, based on, amongst other considerations, the following considerations?	
1.1	The Integrated Development Plan (IDP) (and its sector plans' vision, objectives, strategies, indicators and targets) and any other strategic plans, frameworks or policies applicable to the area.	The proposed development is in line with the vision of the city of Port Elizabeth's' strategic plans in terms of improving telecommunications technologies to unlock investment and stimulate both the regional and national economy.
1.2	Spatial priorities and desired spatial patterns (e.g., need for the integration of segregated communities, need to upgrade informal settlements, need for densification, etc.).	N/A
1.3	Spatial characteristics (e.g., existing land uses, planned land uses, cultural landscapes, etc.)	The proposed development will use the existing Telkom Exchange Building as a CLS site in Summerstrand. The construction of a new BMH at Pollock beach will have minimal, isolated impacts to the dune habitat. The floral and faunal composition of the area will not be compromised given the disturbed nature of the urban environment and it is unlikely that heritage/ cultural landscapes will be affected as the terrestrial component of the project is located with existing road reserves and service corridors previously disturbed through construction.
1.4	Municipal Economic Development Strategy.	The project conforms to the Nelson Mandela Bay Metropolitan Municipality's development strategy in that it will improve the telecommunications infrastructure within the province and in South Africa. This is intended to stimulate the local and international economy and open the gateway to further international trade agreements.
2	Considering the socio-economic context, what will the socio-economic impacts be of the development (and its separate elements/aspects) and specifically also on the socio-economic objectives of the area?	The socio-economic impacts associated with the proposed development are anticipated to positive as telecommunications infrastructure is a key driver for economic development.
2.1	Will the development complement the local socio-economic initiatives (such as local economic	Improved telecommunications capacity in South Africa is anticipated to positively impact on skills

Ref #	Description	Comment
	development initiatives), or skills development programs?	development programs and education.
3	How will this development address the specific physical, psychological, developmental, cultural, and social needs and interests of the relevant communities?	Improved telecommunications, as a key driver for economic development, is expected to benefit all communities within South Africa.
4	Will the development result in equitable (intra- and inter-generational) impact distribution, in the short- and long-term? Will the impact be socially and economically sustainable in the short- and long-term?	The investment in the 2AFRICA/GERA (East) Cable System is substantial and the telecommunications cable is anticipated to stay in operation for 25 years. There is no planned decommissioning date; however, technology will improve, and it is possible that the cable system will be replaced by enhanced technology in years to come.
5	In terms of location, describe how the placement of the proposed development will:	
5.1	Result in the creation of residential and employment opportunities in proximity to or integrated with each other.	Employment opportunities will be created via the appointed contractor through the employment of skilled and unskilled labour.
5.2	Reduce the need for transport of people and goods.	N/A
5.3	Result in access to public transport or enable non-motorised and pedestrian transport (e.g., will the development result in densification and the achievement of thresholds in terms of public transport?).	N/A
5.4	Complement other uses in the area.	N/A
5.5	Be in line with the planning for the area.	The proposed development complements the development initiatives of the Nelson Mandela Bay Metropolitan Municipality and South Africa as a whole.
5.6	For urban related development, make use of underutilised land available within the urban edge.	N/A
5.7	Optimise the use of existing resources and infrastructure.	The proposed development will make use of the existing infrastructure associated with the Telkom Exchange Building for the proposed CLS.
5.8	Opportunity costs in terms of bulk infrastructure expansions in non-priority areas (e.g. not aligned with the bulk infrastructure planning for the settlement that reflects the spatial reconstruction priorities of the settlement).	N/A
5.9	Discourage urban sprawl and contribute to compaction/densification.	N/A
5.10	Contribute to the correction of the historically distorted spatial patterns of settlements and to the optimum use of existing infrastructure in excess of current needs.	N/A
5.11	Encourage environmentally sustainable land development practices and processes.	By utilizing existing infrastructure for the CLS, a substantial amount of land will be conserved (as opposed to a greenfield site). Furthermore, the distance between the preferred BMH and CLS is not significant enough to result in the deterioration of the receiving environment.
5.12	Take into account special locational factors that might favour the specific location (e.g., the location of a strategic mineral resource, access to a port,	The offshore alignment will need to consider any localized infrastructural constraints that may be incompatible, such as the Algoa 1 Aquaculture

Ref #	Description	Comment
	access to rail, etc.).	zone. With cable burial no impacts on the Algoa 1 aquaculture zone are anticipated.
5.13	The investment in the settlement or area in question will generate the highest socio-economic returns (i.e., an area with high economic potential).	N/A
5.14	Impact on the sense of history, sense of place and heritage of the area and the socio-cultural and cultural-historic characteristics and sensitivities of the area.	N/A
5.15	In terms of the nature, scale and location of the development, promote or act as a catalyst to create a more integrated settlement.	N/A
6	How will a risk-averse and cautious approach be applied in terms of socio-economic impacts?	The use of existing infrastructure (associated with the existing CLS site linked to the Telkom Exchange Building) was selected to reduce socio-economic impacts on the residents of Summerstrand. Furthermore, excavation will be isolated within the road reserves, between the BMH and CLS.
6.1	What are the limits of current knowledge? (The gaps, uncertainties and assumptions must be clearly stated).	Impacts on the benthic/shallow benthic environment are unknown; therefore, they will be investigated by the relevant specialists.
6.2	What is the level of risk? (Related to inequality, social fabric, livelihoods, vulnerable communities, critical resources, economic vulnerability, and sustainability) associated with the limits of current knowledge).	Nil.
6.3	Based on the limits of knowledge and the level of risk, how and to what extent will a risk-averse and cautious approach be applied to the development?	See Item 6.
7	How will the socio-economic impacts resulting from this development impact on people's environmental right in terms following?	
7.1	Negative impacts: e.g., health (e.g., HIV/AIDS), safety, social ills, etc. What measures will be taken to firstly avoid negative impacts, but if avoidance is not possible, to minimise, manage and remedy negative impacts?	N/A
7.2	Positive impacts. What measures will be taken to enhance positive impacts?	The use of existing infrastructure was promoted.
8	Considering the linkages and dependencies between human wellbeing, livelihoods, and ecosystem services, describe the linkages and dependencies applicable to the area in question and how the development's socio-economic impacts will result in ecological impacts (e.g., over utilisation of natural resources, etc.).	N/A
9	What measures will be taken to pursue the selection of the "best practicable environmental option" in terms of socio-economic considerations?	The use of existing infrastructure was promoted.
10	What measures will be taken to pursue environmental justice so that adverse environmental impacts shall not be distributed in such a manner as to unfairly discriminate against	N/A

Ref #	Description	Comment
	any person, particularly vulnerable and disadvantaged persons (who are the beneficiaries and is the development located appropriately)? Considering the need for social equity and justice, do the alternatives identified allow the “best practicable environmental option” to be selected or is there a need for other alternatives to be considered?	
11	What measures will be taken to pursue equitable access to environmental resources, benefits, and services to meet basic human needs and ensure human wellbeing, and what special measures will be taken to ensure access thereto by categories of persons disadvantaged by unfair discrimination?	N/A
12	What measures will be taken to ensure that the responsibility for the environmental health and safety consequences of the development have been addressed throughout the development’s life cycle?	Project screening was undertaken followed by an assessment of impacts associated with the proposed development. Where gaps in knowledge were encountered, specialists were appointed to address these gaps.
13	What measures will be taken to:	
13.1	Ensure the participation of all interested and affected parties.	The project was advertised in local and provincial newspapers. Background Information Documents (BIDs) were sent to all key stakeholders and identified I&APs. An onsite notice was erected on site and copies of the BID were placed in local libraries within the project area. Meetings will also be held with local government and the NMBMM to discuss their requirements with regards to the proposed development.
13.2	Provide all people with an opportunity to develop the understanding, skills, and capacity necessary for achieving equitable and effective participation.	If the need is indicated, virtual meetings will be held during the public review period for the DSR. Similarly, online one-on-one and focus group meetings will be held if the need is indicated.
13.3	Ensure participation by vulnerable and disadvantaged persons.	Not applicable to this development as the project area is located within Summerstrand which is an affluent suburb of Port Elizabeth with high levels of both household income and education. Disadvantaged individuals will be involved in the project during the construction phase, via local contractors who adopt unskilled, disadvantaged workers as part of their company policies/ BEE principles.
13.4	Promote community wellbeing and empowerment through environmental education, the raising of environmental awareness, the sharing of knowledge and experience and other appropriate means.	N/A
13.5	Ensure openness and transparency, and access to information in terms of the process.	All I&APs are kept informed of progress through the different stages of the Environmental Authorisation process (all people requesting to be registered as an I&AP are entered onto the project database and automatically receive project information/documentation).

Ref #	Description	Comment
13.6	Ensure that the interests, needs and values of all interested and affected parties will be taken into account, and that adequate recognition is given to all forms of knowledge, including traditional and ordinary knowledge.	This is being undertaken throughout the environmental authorisation process as per the regulations.
13.7	Ensure that the vital role of women and youth in environmental management and development were recognised and their full participation therein is promoted.	This is being undertaken throughout the environmental authorisation process as per the regulations.
14	Considering the interests, needs and values of all the interested and affected parties, describe how the development will allow for opportunities for all the segments of the community (e.g., a mixture of low-, middle-, and high-income housing opportunities) that are consistent with the priority needs of the local area (or that are proportional to the needs of an area).	N/A
15	What measures will be taken to ensure that current and/or future workers will be informed of work that potentially might be harmful to human health or the environment or of dangers associated with the work, and what measures have been taken to ensure that the right of workers to refuse such work will be respected and protected?	None to date; however, an EMPr will be compiled, and environmental awareness training will be provided to staff once cable laying commences. Furthermore, ASN is an internationally acclaimed cable laying company with stringent Health, Safety and Environment protocols.
16	Describe how the development will impact on job creation in terms of, amongst other aspects:	
16.1	The number of temporary versus permanent jobs that will be created.	Job creation during the installation of the 2AFRICA/GERA (East) Cable System will be limited to temporary jobs during cable landing activities. The project is, however, expected to promote economic development within South Africa which could result in significant job opportunities (albeit not directly related to the project).
16.2	Will the labour available in the area be able to take up the job opportunities (i.e., do the required skills match the skills available in the area?).	Specific skills are required for the cable landing activities and, therefore, the use of local labour will be limited.
16.3	The distance from where labourers will have to travel.	N/A
16.4	The location of job opportunities versus the location of impacts (i.e., equitable distribution of costs and benefits).	N/A. The project will not result in any additional permanent local job opportunities directly related to the project.
16.5	The opportunity costs in terms of job creation (e.g., a mine might create 100 jobs but impact on 1,000 agricultural jobs, etc.).	It is anticipated that 10-20 temporary jobs will be created during project implementation but not at the expense of job losses in other sectors either directly or indirectly affected by the proposed development.
17	What measures will be taken to ensure:	
17.1	That there is inter-governmental coordination and harmonisation of policies, legislation and actions relating to the environment.	Local, provincial, and national Government departments were consulted with the purpose of aligning requirements.
17.2	That actual or potential conflicts of interest between organs of state are resolved through conflict resolution procedures.	This is ongoing to achieve alignment between the three spheres of Government.
18	What measures will be taken to ensure that the environment will be held in public trust for the	The environmental authorisation process will be undertaken as per the prescribed environmental

Ref #	Description	Comment
	people, that the beneficial use of environmental resources will serve the public interest, and that the environment will be protected as the people's common heritage?	legislation and associated regulations. Impacts will be mitigated to ensure the long-term sustainability of the proposed development.
19	Are the mitigation measures proposed realistic and what long-term environmental legacy and managed burden will be left?	It is the EAP's opinion that the proposed mitigation measures will be realistic and achievable. No legacy issues are anticipated.
20	What measures will be taken to ensure that the costs of remedying pollution, environmental degradation and consequent adverse health effects and of preventing, controlling or minimising further pollution, environmental damage or adverse health effects will be paid for by those responsible for harming the environment?	These will be addressed in the EMPr and the conditions of authorisation issued by the competent authority.
21	Considering the need to secure ecological integrity and a healthy biophysical environment, describe how the alternatives identified (in terms of all the different elements of the development and all the different impacts being proposed), will result in the selection of the best practicable environmental option in terms of socio-economic considerations.	The use of existing infrastructure was selected as the preferred alternative as it limits additional risks and impacts to the environment. It is the EAP's opinion that the best practicable environmental option has been selected for the proposed development.
22	Describe the positive and negative cumulative socio-economic impacts bearing in mind the size, scale, scope and nature of the project in relation to its location and other planned developments in the area.	The proposed development is anticipated to have a significant positive cumulative impact given that telecommunications is a key driver for economic growth. This project is anticipated to benefit South Africa and southern Africa as a whole.

By supplying increased bandwidths, the proposed 2AFRICA/GERA (East) Cable System will support the NEPAD objective to eradicate poverty in Africa and to place African countries both individually and collectively on a path of sustainable growth and development; thereby halting Africa's marginalisation in the globalisation process.

Telecommunications is one of the fastest growing sectors of South Africa's economy which has been driven by rapid growth in the number of mobile phone users and their need for broadband connectivity. The proposed 2AFRICA/GERA (East) Cable System will provide an opportunity to facilitate the growth of telecommunications infrastructure in South Africa and promote sustainable growth and development within South Africa and Africa as a whole.

5 PROJECT DESCRIPTION

This chapter describes the infrastructure and operational aspects of the 2AFRICA/GERA (East) Submarine cable system to be landed at Port Elizabeth. The aim of this chapter is to enable readers to gain a better understanding of how the cable system will be installed and maintained and to understand the possible impacts the development may have on the receiving environment.

5.1 General description

The main 2AFRICA/GERA (East) cable trunk will be located approximately 100 km from the shoreline off Port Elizabeth within South Africa's EEZ. From the main cable the Port Elizabeth branch will run through exclusive economic zone and territorial waters to the landing site in Port Elizabeth. The proposed Port Elizabeth landing site in South Africa (Figure 4) is the southern-most landing point of the cable on the east coast of South Africa.

The 2AFRICA/GERA (East) cable system will enter South African Territorial Waters approximately 22 km from the seashore (12 Nm). The exact position of the final section of the cable will be identified based on a combination of engineering, environmental and economic factors and will require offshore and nearshore surveying of the seabed; however, the general alignment for this landing will make landfall at Pollock Beach in Summerstrand. The proposed 2AFRICA/GERA (East) branch to Port Elizabeth will include the installation and operation of the following project components:

- Laying of the cable in the offshore environment, including cable burial to a water depth of 1,500 m.
- The laying of the cable within the shallow water environment is likely to involve a direct shore end operation where the shore end of the subsea cable is installed directly from the main subsea cable installation vessel and floated to the beach landing point using buoys and assisted by small boats and divers. It will then be buried in the seabed using the diver jet burial technique. The cable will be buried in sediment wherever possible, and the route will be adjusted to avoid obvious visible rock. The aim is to bury the cable to a depth of 1 m where possible. This burial is intended to provide protection to the cable from the hazards posed by ships' anchors, fishing trawls/lines and the like
- Excavations within the intertidal zone are to bury the cable before it is anchored into a cable anchor block and BMH which need to be constructed. The BMH is a concrete utility vault where the marine portion of the subsea cable is connected to the terrestrial portion.
- Excavations within the intertidal zone and beach to bury the system earth cable and installation of a system earth just offshore from Pollock Beach.
- On the beach, the cable will be buried to a depth of 2 meters, substrate permitting. If cable burial is not possible, Horizontal Directional Drilling (HDD) may be required to install the cable through the shallow water environment (1-2 m water depth below the low water mark of the sea), underneath the beach and coastal dune cordon, to the BMH.

Once the 2AFRICA/GERA (East) cable has been installed to the BMH, a cable trench will be required for the front haul alignment from the BMH to the CLS site, which will be accommodated within the existing Telkom Limited SOC (Telkom) Exchange Building located on the corner of Skegness and Bognor Streets in Summerstrand. Therefore, there will be construction related disturbances in the terrestrial environment between the BMH and CLS site.

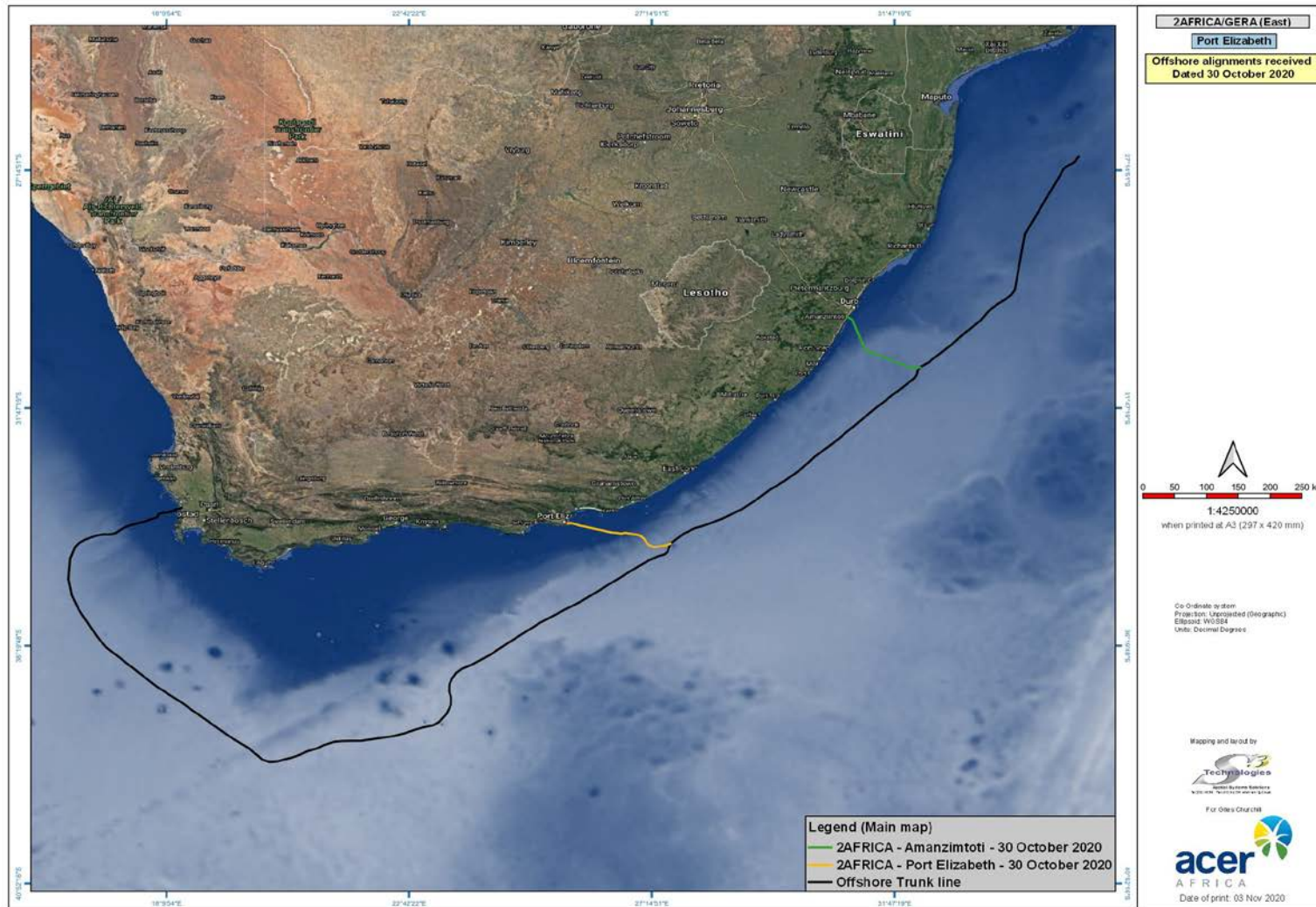


Figure 4 2AFRICA/GERA (EAST) Cable System and Port Elizabeth Branch Cable

5.2 Marine components and installation methods

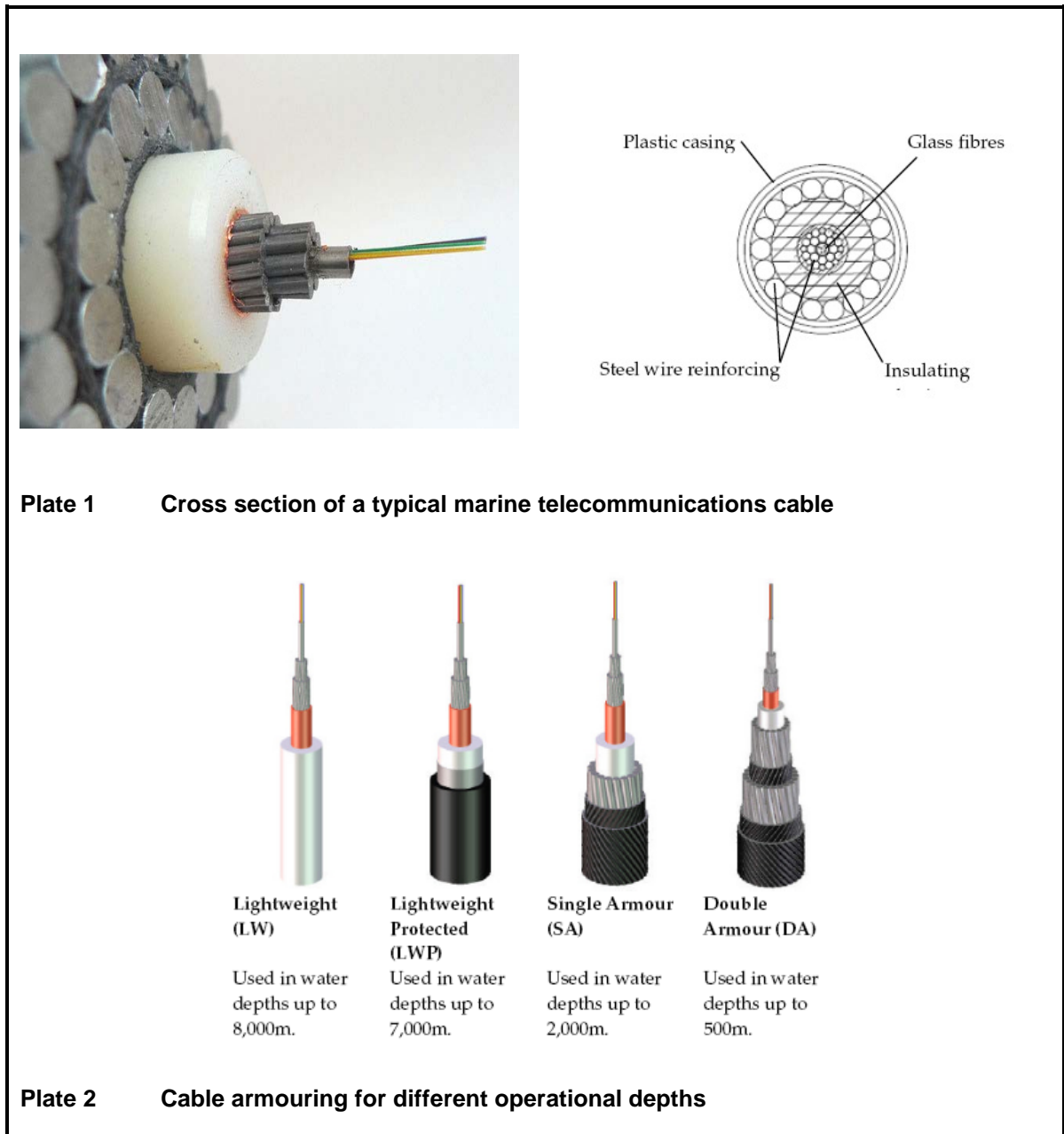
5.2.1 Marine Fibre Optic Cable Description

The proposed cable route branches off the main 2AFRICA/GERA (East) Trunkline which runs down the East Coast of Africa (generally parallel to the coastline) and approaches South African coastal waters from the north (i.e., from Mozambican waters). Offshore, the cable is laid by a purpose-built cable-laying ship. Consistent with industry practice, the unarmoured cable (Plates 1 and 2) will rest on the seabed in water depths greater than 1,500m where the risk of inadvertent damage from human activities is negligible.

As the cable route changes direction to approach the coastline of Port Elizabeth, the cable will be buried beneath the sandy seabed of these shallower marine waters. This is typically achieved with the use of a specially designed plough, which is submerged onto the seabed by the cable laying ship. The cable is then fed from the ship to the plough which effectively buries the cable to a depth of approximately 1 m. This burial is intended to provide protection to the cable from the hazards posed by ships' anchors, fishing trawls/lines and the like. In good sea conditions, up to 20 km of cable can be installed and buried per day.

The diameters of the marine fibre optic cables range from 17 mm diameter (cables installed at a water depth of between 7,000 – 1,500 m) to 37.5 mm diameter (double armoured cable which is installed in shallow water depths (< 200 m).

Within the shallow water environment, the cable will be buried in sediment wherever possible, and the route will be adjusted to avoid obvious visible rock. The aim is to bury the cable to a depth of 1 m where possible. If rock is encountered at a depth shallower than 1 m no effort will be made to trench through or excavate any rock but rather lay the cable upon the rock substrate. The cable, in such situations, will be securely held in place by its own weight and the weight of the rest of the cable more deeply buried in sand. Where sand profiles are shallower the cable will be securely anchored in place by anchoring the cable to the underlying rock using pins or clamps to attach the cable to the underlying rocky substrates. In the near shore zone (generally in waters less than 9 m in depth) external protective measures such as articulated split pipes will be installed around the 2AFRICA/GERA (East) Cable to guard against cable damage. The articulated iron pipe shells also make the cable heavy thus aiding burial and stability of the cable on the ocean floor.



5.2.2 Repeaters and Branching Units

Repeaters

Repeaters are optical amplifiers that are installed along the length of the cable and are used to extend the reach of optical communications links by overcoming loss due to attenuation of the optical fibre (Plate 3). Repeaters will be installed at specific distances along the route making up the cable system.

Repeaters are designed to function continuously without maintenance for 25 years in depths of up to 8,000 m with no degradation in mechanical, electrical, and optical performance. This requires among other a controlled ambient internal climate and a durable enclosure. Internal atmosphere is controlled to 20% relative humidity over the operating temperature range by the

hydrogen getters⁶ and moisture absorbing desiccants. The controlled internal gas atmosphere is suitable for maintaining the life expectations of all internal components.

The main structural component of the repeater housing is a monobloc tubular case fabricated from high tensile steel. The bulkhead and composite gland assembly provide full protection against water and gas ingress, either directly from the surrounding sea or from axial cable leakage due to a cable break close to the repeater. The repeater housing is protected against corrosion with an organic electrically insulating barrier coating with additional mechanical reinforcement. This prevents seawater contact with the repeater housing steel surface and eliminates risk of metal wastage and galvanic corrosion and magneto-hydrodynamic effects that could generate hydrogen.

Repeaters are electrically powered. Voltage insulation is maintained between the internal unit and the repeater housing by two insulation paths: the polyethylene liner and the power conductor feeding through the gland assembly.

The repeaters will have the following specifications:

- ❑ The diameter of the rigid sea-case (white tube section in the photo) is approximately 270 mm.
- ❑ The length of the sea-case section of the repeater is approximately 980 mm.
- ❑ The total length of repeater is approximately 3,900 mm to 4,240 mm depending on cable coupling.
- ❑ The spacing between repeaters is approximately 75 km to 83 km varying with the route plan.

Branching units

Branching Units create junctions in submarine telecommunications cable systems so that the cable can be split to serve more than one destination.



5.2.3 Physical characteristics of fibre optic cables

External chemical properties of the cable

⁶ A “getter” is a deposit of reactive material placed inside a vacuum system to maintaining the vacuum. Gas molecules striking the getter material combine with it chemically or by absorption, and the gas is removed from the evacuated space.

The external protection of the cable comprises a naturally occurring bitumen (asphalt) as a compound to adhere the outer polypropylene roving to the armour wires on the armoured shallow water cables. No form of additive to prevent biodegradation or anti-fouling is used in the cable's outermost layers. The other cable components in contact with the sea are the galvanized steel armour wires and the polyethylene sheath, which also contain no additives harmful to marine life (Heath; 2001).

Electrical Current

According to Heath (2001), optical fibre cables carry a constant dc⁷ current of 1.6 Amps to feed power to the underwater repeaters. This current is fed along the copper clad steel inner conductor and depending on the length of the cable span it may require several thousands of volts to maintain it. In very approximate terms the cable resistance is about 1 Ohm per kilometre and the repeaters, spaced at 50 km, drop about 30 volts each. Therefore, a cable spanning 4,000 km would have about 80 repeaters and require a power feed voltage of about 6,500 volts.

It is normal practice to apply half this voltage at positive polarity to one end of the system and half the voltage at negative polarity to the other end to establish a zero-voltage point midway along the cable span. This reduces the level of voltage stress on the cable and repeaters.

There is no external electric field associated with the power on the inner conductor. The ratio of the conductivity of the polyethylene insulation to that of seawater means that the electric field remains only within the cable insulation.

Electromagnetic Fields (EMFs)

Electromagnetic fields (EMFs) are generated by current flow passing through cables and can be divided into electric fields (called E-fields, measured in volts per metre, $V m^{-1}$) and magnetic fields (called B-fields, measured in μT) (Taormina *et al.*, 2018). The dc current in the inner conductor does set up a stationary magnetic field in the form of concentric rings emanating from the cable. The magnetizing force produced by this field diminishes with increasing radius from the cable. EMF's are generally effectively confined inside cables by armouring (Taormina *et al.*, 2018). As reference from Heath (2001), for a cable carrying 1.6 amps this means that the magnetic flux density due to the cable at a distance 1 metre away is 0.32 micro-Tesla. This is two orders of magnitude lower than the vertical component of the earth's magnetic field on the West Coast of the United States, which is about 43 micro-Tesla. This means that marine life forms would need to approach to within less than half an inch of the cable to detect its magnetic field above that of the earth.

Audible sound and frequency association with "toning"

Audible sound lies in the range 15 to 40,000 Hertz and neither coaxial nor optical cables emit this range, or any other frequencies, during their normal operation. During the laying of the cable, it does vibrate as a result of regular vortex shedding as it descends the water column. This is a low frequency phenomenon, at approximately 10 Hertz, and ceases when the cable comes to rest on the bottom.

The injection of a low frequency electrical signal from the land station is known as "toning". Toning is undertaken as an aid to cable location in the event of a fault on the cable or where other marine work is being conducted, which involves keeping a safe distance from the working cable. Toning works on the principle of a coaxial transmission line, formed by the inner conductor of the cable and the external armouring, providing a circuit for a low frequency signal.

⁷ Dc is direct current: the one directional or unidirectional flow electric charge

At low frequency, a current applied to the inner conductor will propagate along the line, with its return path provided by a combination of the steel armour wires and the surrounding seawater. It is the proportion of current in the seawater, which enables electrodes trailed from a ship to detect the cable by locating the maximum level of the tone. During toning the level of the signal injected is usually around 160 mA at 25 Hz as the threshold level of detection on the ship electrodes is normally around 20 mA. The attenuation of the cables at low frequency is such that the tone injected at the terminal should be detectable across the length of the cable.

Toning is undertaken infrequently and is only really required prior to or during a repair operation on the cable. Toning is also undertaken during the installation of new cables, which have to cross or come close to the existing working cables. To increase safety margins in this situation, it helps the new installer to know the precise whereabouts of existing cables, which are mostly buried on the shelf area. Although toning is less effective in buried cables, it is much more reliable than visual or magnetometer detection in shallow water regions.

Toning has been used for many years on telegraph, coaxial, and optical fibre submarine cables throughout the world. From video evidence of ROV's tracking toned cables, the short-term presence of a low frequency, low level electric field in seawater does not appear to have any influence on the behaviour of fish.

Heat dissipation

When electric energy is transported, a certain amount is lost as heat by the Joule effect, leading to an increase in temperature at the cable surface and subsequent warming of the immediate surrounding environment (OSPAR, 2012). This is commonly referred to as thermal radiation. Thermal radiation in buried cables can warm the surrounding sediment in direct contact with a high voltage cable (Emeana *et al.*; 2016). High voltage cables are used for transferring electricity related to offshore energy projects. Heat emission is higher in AC than DC cables at equal transmission rates (Taormina *et al.*, 2018). According to Taormina *et al.* (2018), the impacts of local temperature increase caused by electric cables on benthic communities have rarely been examined and *in situ* investigations are lacking. They refer to this knowledge gap as preventing conclusions from being drawn about ecological impacts of long-lasting thermal radiation on ecosystems. They conclude that considering the narrowness of the corridor and the expected weakness of thermal radiation, impacts are not considered to be significant, referring to the need for new field measurements and experiments under operational conditions

5.2.4 Marine Fibre Optic Cable Installation

Prior to the installation of the 2AFRICA/GERA (East) cable system taking place, the following offshore marine investigations will be performed by ASN to install the cable system.

Cable Route Survey

The proposed cable routes were surveyed by the project team to identify whether the substrate and topography of the ocean floor were suitable for the installation of the 2AFRICA/GERA (East) Cable System. The survey included the following activities:

- ❑ A geophysical survey of the deep water, shallow water, and inshore sections of each proposed cable route was undertaken. This included the establishment of bathymetric corridor widths of 500 m (inshore and up to a depth of 500 m). In deeper water this corridor extended up to three times the water depth centred on the proposed cable route.
- ❑ Conducting a side scan sonar and survey of a 500 m corridor width (inshore and up to a depth of 500 m) centred along the proposed cable route.

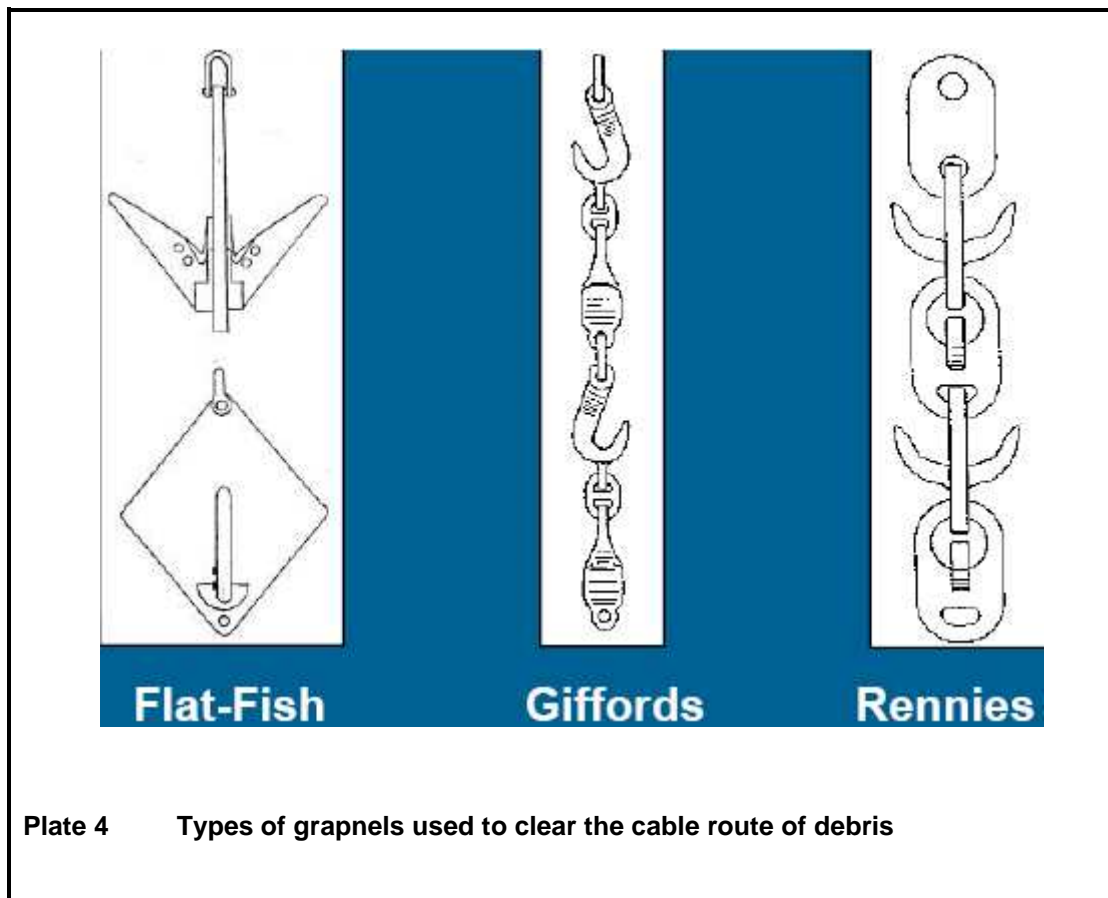
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- ❑ Bottom samples were taken at an average 10 km spacing in shallow water (less than 500 m in depth) (Sample sizes were approximately the size of a standard 10 l bucket).
 - ❑ The cable route was surveyed using a multi-beam echo sounder (MBES) Swath Bathymetry system (the MBES equipment is integrated with the ship's surface navigation equipment (GPS)).
 - ❑ Bathymetric data was processed using the onboard workstation with specialised software to verify the coverage and accuracy of the collected bathymetry data and to provide colour contour charts. These charts were used to review the proposed route and where necessary plan offset lines.
 - ❑ In the shallow water sections, an integrated Side Scan Sonar and a Sub-bottom Profiler was used. These were housed in a device which was towed behind the ship to get to an optimum position close to the seabed. The position of this towed device was tracked acoustically using an ultra-short base line (USBL) tracking system.
 - ❑ A burial assessment survey was undertaken from the shoreline up to a depth of 1,500 m to test the suitability of the substrate for cable burial. The survey included Cone Penetrometer Tests (CPTs) with an average of 1 CPT taken at 4 km intervals in planned burial areas.
 - ❑ The landing sites for all cable segments were positioned utilising Global Positioning System (GPS) and topographic surveying practices. (The in-shore survey vessels used a GPS navigation system).
 - ❑ At each landing site, the survey of the shore approaches was supported where appropriate by a diver/swim team equipped with both video camera and bar probes. Any obstructions, potential hazards or engineering constraints to the submarine cable were located and fully documented.

Cable Route Clearance Operations

Prior to the installation of the 2AFRICA/GERA (East) Cable System, route clearance operations will be conducted along those sections of the route where burial is to be performed to ensure that, as far as practically possible, the burial operation will not be hindered by out of service cables or discarded fishing gear. This route clearance operation is typically called the Pre-Lay Grapnel Run (PLGR). The objective of the PLGR operation is the clearance of any seabed debris, for example wires or hawsers, fishing equipment etc., which may have been deposited along the route.

PLGR is undertaken by dragging grapnels (Plate 4) behind a ship along the proposed cable route to clear the route of debris. Different types of grapnels can be used depending on the seabed conditions (Gifford in rockier areas and Rennies and Flat Fish in softer sandy sediments). The PLGR operations are normally carried out by a vessel specifically fitted out with winches and grapnels, and capable of sustaining good slow speed positional control. The vessel will be equipped with navigation and positioning system to the same specification as the main lay vessel.

Any debris recovered during these operations will be discharged ashore on completion of the operations and disposed in accordance with local regulations. If any debris cannot be recovered, then a local re-route of the 2AFRICA/GERA (East) Cable System will be planned to avoid the debris.



Installation of the marine telecommunications cable

The 2AFRICA/GERA (East) Cable System will be installed using a purpose-built cable ship fully equipped with all the necessary equipment, tools and facilities to safely handle and install, join, test, and power the submerged plant, including simultaneous lay and plough burial. The vessel will have sufficient power and dynamic positioning capability to carry out the installation in the expected weather and current conditions. During cable laying an automatic log of all critical operational parameters will be kept including navigational data, speed, tension, slack, cable counter and plough data.

Surface Laying Operations

Surface laying implies that the cable will be laid on the surface of the seabed. The objective is to install the cable as close as possible to the planned route with the correct amount of cable slack to enable the cable to conform to the contours of the seabed without loops or suspensions.

Plough Burial Operations

The cable will be buried to a target depth as defined in the burial plan, and as determined by the cable route and burial assessment surveys. Burial depth will be controlled by adjusting the height of the plough's front skids. The depth of burial achieved will be continuously recorded by the plough and logged with the ship's data. In areas where plough burial is planned, the cable will be buried to a target depth of up to 1 m (Plate 5). The footprint of the cable trench is generally less than a 1 m in width with the plough skids having a width of less than 6 m.

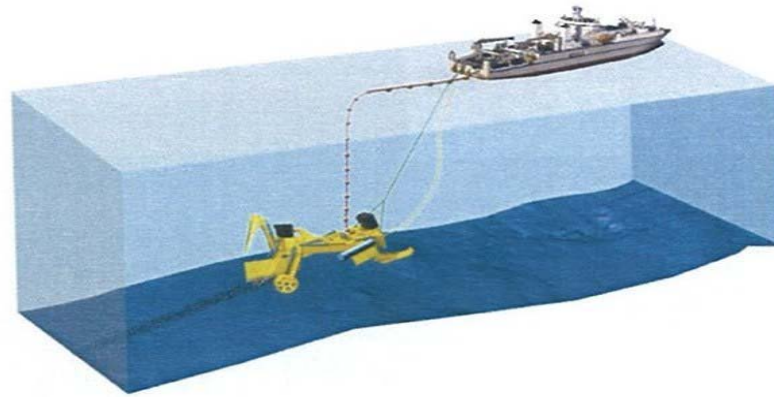


Plate 5 Sea plough to be used to bury the cable along sections of the cable alignment where conditions permit burial

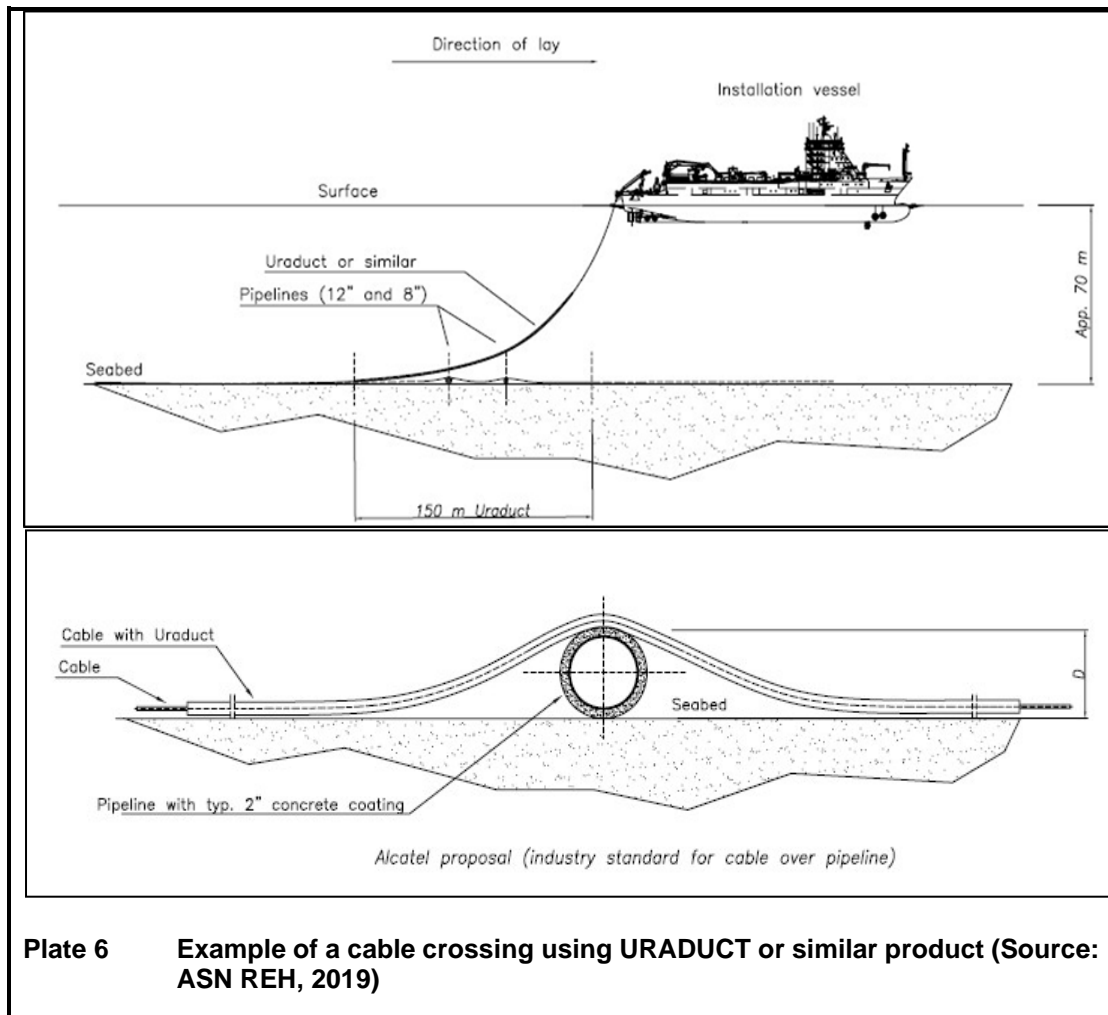
Crossing of existing submarine cables and pipelines

For cable route planning, ASN uses the Global Marine Cable Database (Global Marine, 2019) augmented by ASN's own internal databases and Admiralty Charts (UKHO, 2019) to identify all known existing and proposed telecommunication and power cable systems that will be crossed by the 2AFRICA/GERA (East) Cable System. Where existing cables are crossed, the industry norm is to ensure that the crossing is undertaken using a similar type cable, i.e., an armoured cable crosses an armoured cable or an un-armoured cable crosses an un-armoured cable. Where seabed conditions allow, post lay cable burial using a Remote Operated Vehicle (ROV) can be performed to afford additional protection to the cables at the crossing point.

If the 2AFRICA/GERA (East) Cable System requires a pipeline crossing, ASN recommends the application of URADUCT (or similar product) (Plate 6) to the cable at the point of contact with the pipeline. URADUCT is a protection system designed and developed to protect subsea fibre optic cables, power cables, umbilical's, flexible flowlines, rigid flowlines, hoses and bundled products from abrasion and impact. Generally, the length of URADUCT required for a pipeline crossing is 50 m each side of the crossing or quarter the water depth either side of the crossing. Mattressing⁸ can also be used when crossing pipelines; however, this is not considered

⁸ Generally, mattresses are made of high strength concrete segments linked together with a network of high strength polypropylene ropes to form a continuous flexible concrete barrier which is used to separate structures ensuring the protection of infrastructure.

necessary for standard pipeline crossings but may be installed in special circumstances at the request of the pipeline operator. (There will be no such pipeline crossing in South African waters, but there are pipeline crossings in other parts of the system).



Shore End Operations

Shore end operations refer to the installation of the cable through the shallow water near shore, through the intertidal zone and up onto the beach (Plates 7 and 8). The Pollock Beach shore-end landing will be performed directly from the main cable installation vessel.

During cable landing at Pollock Beach (Summerstrand), the following activities will be performed by the appointed contractor:

- Preparation of a detailed operational plan based on the findings of the survey, with site visits as necessary.
- Provision of an advance party to establish the beach equipment and to prepare the beach, cordon off a working area to protect the public, etc.
- The marking of any existing in-service cables at the shore end location (with the assistance of the cable owners).
- Performance of the installation of the shore end section of the sea cable and support of the cable vessel activity (Plate 7).
- Installation of cable slack at the beach, as required.
- Installation of a cable loop in the BMH to facilitate re-terminations.
- Securing the cable in the BMH by means of an armour wire anchor clamp.

- ❑ Burial of the cable from the BMH to the Low Water Mark (LWM) to a depth of 2 m (or to bedrock, if reached sooner) (Plate 8).
- ❑ This may also include installation and burial of the sea earth plate and earth cable (System Earth).
- ❑ All digging will start the day before the planned cable landing.
- ❑ Reinstatement of the beach to the required standards.
- ❑ All testing, reporting, and accurate as-built records.
- ❑ Articulated pipe (Plate 9), where required across the beach up to the BMH, will be fixed to the BMH outside wall by means of a flange adapter.



Plate 7 Bringing the cable to shore from the cable laying vessel. The cable is buoyed off and pulled to shore with smaller vessels



Plate 8 Landing of the cable on shore. Similar works will be undertaken for the landing of the 2AFRICA/GERA (East) Cable System in Port Elizabeth.

In the near shore zone (generally in waters less than 9 m in depth) external protective measures such as articulated split pipes will be installed around the 2AFRICA/GERA (East) Cable to guard against cable damage due to the following:

- ❑ Surf zone wave action.
- ❑ Small vessel anchoring.
- ❑ Nearshore currents and tidal ebb and flow.

Using articulated pipe in the near shore environment increases cable protection against chafing by providing an additional physical barrier of protection against external forces. Articulated pipe is usually made of cast iron and the additional weight it provides to the cable aids in stabilising the cable and in maintaining cable burial depth where that is possible. Standard practice is to apply articulated pipe to beyond the surf zone, however, at landings where burial may prove difficult, articulated pipe can be extended further offshore.



5.2.5 *Post construction maintenance of the cable*

Once installed, marine telecommunications cables generally require little to no maintenance if the cable is not damaged by natural disasters (underwater landslides, earthquakes, etc.) or through human activities (fishing trawlers, anchors, etc.). If the cable is damaged, a cable repair ship is dispatched to repair the cable fault (Plate 10) which usually entails the following:

- ❑ Localization of the cable failure point and recovery of the failed cable section onto the ship.
- ❑ Cutting and removal of the cable failure section and then joining the recovered cable to the new cable section on board the ship.
- ❑ Testing of the cable followed by reburial of the cable on the exact same alignment.

The cable ship is navigated to the location by a Differential GPS (DGPS). Once the fault is located, a cable cutting tool attached to the rope is paid out to the seabed. This tool and grapnel (Cable Catch) are then used to hook the cable before cutting the cable.

Once cut, the cable is recovered to the ship (Cable Recovery). Once on board the cable is tested to find the fault and that section of cable is removed. The cable is then waterproofed and dropped back to the sea floor attached to a buoy.

The same procedure is then carried out on the other section of cable still on the sea floor.

Once both sides of the fault have been repaired, the cables are once again brought up to the ship where a new section of cable is joined to the cable sections. Once completed the cable is placed back onto its original alignment and if necessary reburied.

Plate 10 Protocol for repairing cable faults to marine telecommunications cables
 (Source: <http://www.k-kcs.co.jp/english/solutionRepairingMethod.html>)

5.2.6 Cables in Operation – Life Cycle Analysis

A life cycle analysis study suggests that over a typical operational lifetime of 25 years (manufacture-to-decommissioning)⁹ the main environmental impacts of a cable system are carbon emissions emanating from power consumption at the terminal station (chiefly related to air conditioning and powering of the terminal equipment); and b) vessel transits for cable maintenance.

“The results show that the use and maintenance phase clearly dominates all impact categories at an average of 66 percent. By comparison, the raw materials and design and manufacturing phases account for, on average, only 6 percent of the total potential impact.

⁹ Donovan, 2009. “Twenty thousand leagues under the sea: A life cycle assessment of fibre optic submarine cable systems”.

This clearly highlights that the greatest impact over the life cycle of a submarine cable system comes from the use and maintenance activities. Namely, electricity use at the terminal to power the terminal equipment and the combustion of marine fuel during cable maintenance with purpose-built ships.”

5.3 Terrestrial components and installation methods

5.3.1 Beach Manhole

Once the fibre optic cable has made landfall and been buried through the beach section of the cable alignment, the cable will be anchored at the BMH. The preferred alternative will require the construction of a BMH. Typically, a BMH is a concrete utility vault where the marine portion of the cable is connected to the terrestrial portion. The BMH will be buried and have an access port at ground level. As the proposed site for the BMH is in an existing service corridor, it is unlikely that unnecessary disturbance to surrounding vegetation or infrastructure will be required for installation.

5.3.2 Cable trenching

From the BMH, the land cable will be installed to the Telkom Exchange Building located on the corner of Skegness and Bognor Streets in Summerstrand (Appendix 8). As the proposed instrumentation required for the CLS will be accommodated within the Telkom Exchange Building, no unnecessary disturbance of surrounding vegetation or infrastructure will be required for the installation of the 2AFRICA/GERA (East) cable system.

5.3.3 Construction Programme

It is anticipated that construction of all infrastructure required for the landing of the 2AFRICA/GERA (East) Cable System will not take longer than 3 – 6 months to complete including the offshore and onshore cable installation. Construction and installation of the offshore cable infrastructure is not anticipated to take longer than 2 – 3 weeks to complete.

5.3.4 Project implementation

The landing of the cable is entirely dependent on receiving a positive environmental authorisation from DEFF. Only once the environmental authorisation process is nearing its completion will the project proponent be able to realistically set dates for project implementation. Vodacom is planning to have the 2AFRICA/GERA (East) cable system installed and operational in 2022.

5.4 Existing services and project implementation

During construction and installation of the 2AFRICA/GERA (East) cable system on land, the following services will be utilised by the appointed service providers.

5.4.1 Water

Water for construction purposes will be sourced from the closest municipal supply point and tankered to site when required. Water use during construction is however very limited and confined to the concrete works required for the construction of the BMH and inspection manholes along the front haul alignment to the CLS.

5.4.2 Sewage

During installation of the 2AFRICA/GERA (East) cable system on land, chemical toilets will be provided for construction workers. These chemical toilets will be routinely serviced by the appointed service provider and all waste will be disposed at a licensed waste treatment works within the area. Given the short installation period associated with this project the impact associated with sewage is not expected to pose any significant risk.

5.4.3 Roads, private property access and road reserves

Based on visual inspections of the proposed front haul alignment, sufficient space is available within the existing road reserves to accommodate the 2AFRICA/GERA (East) cable system although the NMBMM will have to be consulted with regards to existing service infrastructure along these roads/servitudes.

During the construction and installation of the terrestrial section of the 2AFRICA/GERA (East) cable system some roads may be impacted locally due to trenching activities. Where major roads need to be crossed by the cable, horizontal directional drilling (commonly called HDD) may be employed to install the cable. This will allow the cable to be installed without disrupting traffic and road users.

If the cable alignment is installed within the road reserve, some impacts on private property and driveways are anticipated. Where possible, these will be avoided but if trenching results in damage to private properties along the cable alignment this damage will be recorded, and the areas affected be reinstated to what is currently in place. Prior to construction commencing, the appointed contractor and Vodacom will notify all surrounding landowners of the construction activities to take place and the scheduling thereof.

5.4.4 Storm water

The proposed development should not have any impact on storm water once construction is completed. During construction, however, the appointed contractor will take cognisance that the NMBMM does have storm water structures within the project area and these structures must be avoided during construction. While trenching of the cable alignment is underway, stockpiles of soil will be located outside any storm water drains to prevent the wash away of material and siltation of downstream habitats.

5.4.5 Waste streams

During the installation of the terrestrial section of the 2AFRICA/GERA (East) cable system, little waste is expected to be generated on site and waste will be limited to litter and material off cuts. It is envisaged that a skip will be hired for the duration of the installation period where all waste will be stored and then disposed by an appointed service provider in separate waste streams where possible.

5.4.6 Decommissioning

Submarine Cables are designed to have a life-span of 25 years. Currently most of the installed cables are operating beyond this so decommissioning of the 2AFRICA/GERA (East) Cable System in the near future is unlikely given the current growth in the telecommunications sector

within South Africa. If, and when decommissioning takes place, all activities would be subject to legislation relevant at the time.

6 ALTERNATIVES

Alternatives are different means of achieving the purpose and need of a proposed development and include alternative sites, layouts or designs, technologies and the “no development” or “no go” alternative. This chapter describes the various alternatives assessed for the proposed installation and operation of the 2AFRICA/GERA (East) cable system. The alternatives considered during screening **do not include CLS alternatives or front haul alternatives from the preferred landing point (Alternative 1)** as the 2AFRICA/GERA (East) CLS will be hosted in an existing Telkom Exchange Building in Summerstrand. As such, the front haul alignment considered in this assessment is based on discussions held during the site visit with the ASN team and ACER’s review of possible front haul alignments from the BMH to the CLS building in Port Elizabeth.

The offshore alignment put forward in this assessment has been based on survey data and represents the best alignment for the offshore cable in terms of maintaining cable integrity and longevity as well as avoiding unsuitable seabed substrates (rocky outcrops, undersea canyons etc.) which are also known to support diverse benthic communities.

There are two potential shore landing points under consideration for the 2AFRICA/GERA (East) Cable System at Pollock Beach (Figure 5) as further detailed below:

- **Alternative 1: Pollock Beach Landing Point (1) (33°59'14.70"S and 25°40'21.00"E)**
- **Alternative 2: Pollock Beach Landing Point (2) a landing point on Pollock Beach approximately 300m northwest of the proposed Alternative 1 landing point (33°59'5.97"S and 25°40'18.99"E)**

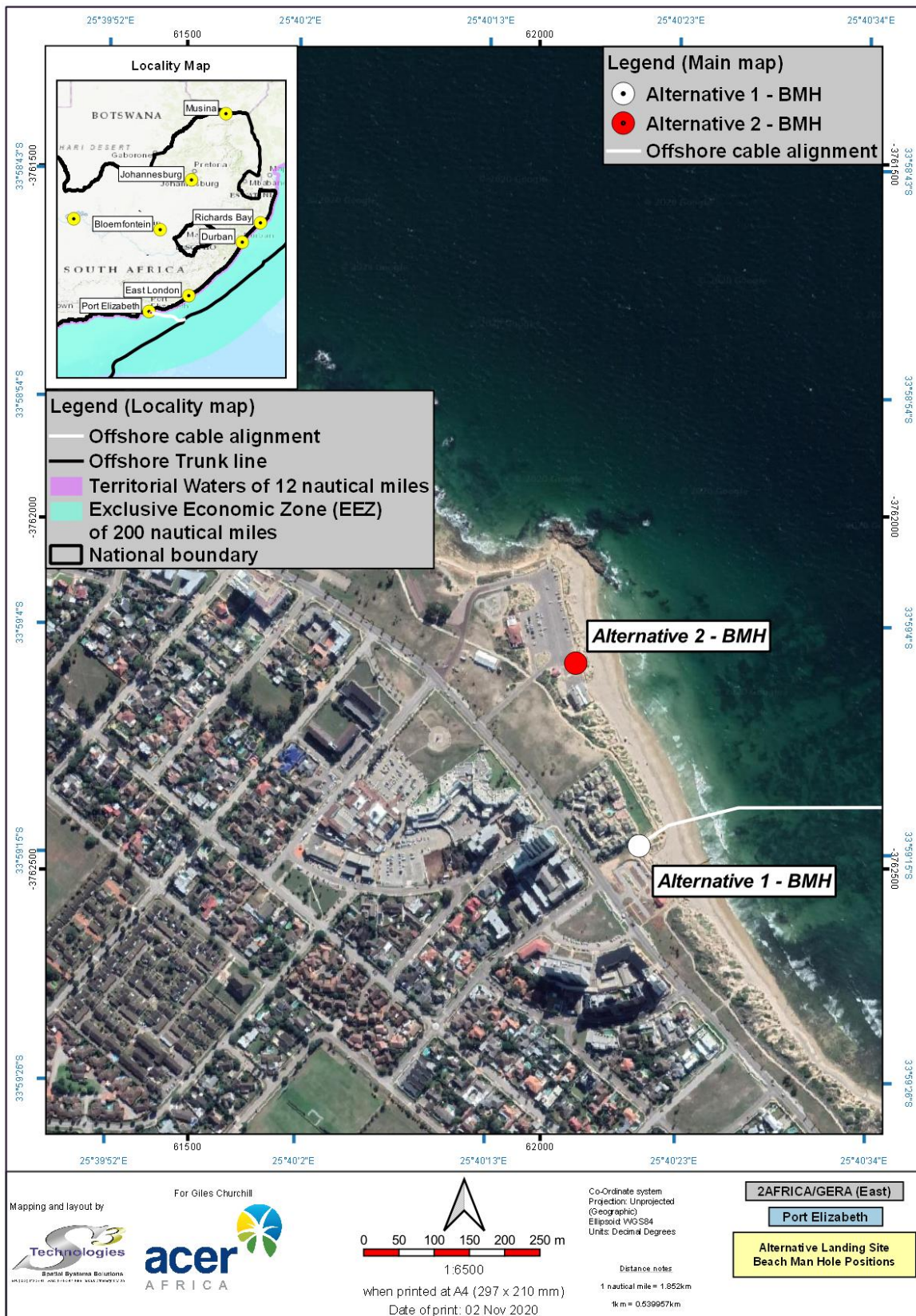


Figure 5 Location of Alternative Beach Manholes 1 and 2, Nelson Mandela Bay Municipality

6.1 Site alternatives (landing alternatives)

6.1.1 Landing Alternative 1

The preferred landing point (Alternative 1) is located along the southern section of Pollock Beach with the proposed BMH located directly adjacent to the Summerseas Beachfront Apartments within an existing service corridor which extends from Marine Drive down to the beach and separates the residential complex to the north from a public parking area to the south (Figure 6).



Figure 6 Alternative 1 - Preferred landing site at Pollock Beach

Co-ordinates for the proposed Alternative 1 BMH and front haul alignment to the CLS as given as follows:

Feature	Latitude [WGS84]; Longitude [WGS84]
Proposed BMH (Alternative 1)	33°59'14.70"S and 25°40'21.00"E
Landing Point Alternative 1	33°59'13.68"S and 25°40'22.70"E
Front haul alignment from Alternative 1 BMH to the CLS Building	Start: 33°59'14.70"S and 25°40'21.00"E Mid-point: 33°59'8.43"S and 25°40'3.34"E End: 33°59'20.87"S and 25°39'58.77"E

Following environmental screening of the two landing alternatives, this site has been selected as the preferred landing alternative based on the following factors:

- The proposed landing site has less rock outcrops in the nearshore environment than Alternative 2.

- ❑ The proposed BMH site can be accommodated within an existing service corridor close to the proposed landing site.
- ❑ The coastal dune cordon is very narrow and highly disturbed, and the landing site has a relatively gentle beach profile.
- ❑ The proposed landing site and location of the BMH can be easily accessed along existing access roads.
- ❑ The vegetation within the service corridor is highly disturbed and little impact on indigenous vegetation is anticipated.
- ❑ The proposed landing site is located within 1,200 m (front haul length) of the existing Telkom Exchange Building in Summerstrand in which the CLS will be housed.

The site does, however, have some negative attributes which will have to be taken into consideration as outlined below:

- ❑ The beach at the proposed landing site has a very shallow sand profile and burial of the cable may not be possible. If this is the case HDD may be required from the BMH underneath the coastal dune cordon and beach daylighting below the low water mark of the sea.
- ❑ The marine cable will have to be anchored to rocks within the nearshore environment as cable burial will be limited.
- ❑ The proposed offshore cable passes through a section of an offshore aquaculture concession area. Discussions between the landing partner and/or route planners and the aquaculture concession holder will need to be undertaken to establish if the cable can traverse the concession area or if the anchors for the aquaculture cages pose a risk to the cable. Refer to Figure 21 in Section 8.
- ❑ The proposed offshore cable alignment passes through an area earmarked for a Humpback Dolphin Marine Sanctuary (although not yet established) as shown in Figure 15 in Section 8.



View from the sea to the proposed BMH site on Pollock Beach



View of the service corridor from the proposed BMH site



Public parking area located adjacent to the proposed BMH site



Beach profile at the preferred landing site

Plate 11 Preferred landing site (Alternative 1) at Pollock Beach adjacent to the Summerseas Beachfront Apartments

6.1.2 Landing Alternative 2

The Alternative 2 landing point at Pollock Beach is approximately 300 m northwest of the proposed Alternative 1 landing point (33°59'5.97"S and 25°40'18.99"E) and an alternative site for the BMH (33°59'6.23"S and 25°40'17.50"E). The second landing site alternative considered (Alternative 2) is located along the Northern section of Pollock Beach. The proposed BMH is located to the southeast of the Something Good Roadhouse and within the public beach parking area directly inland from the beach (Figure 7).



Figure 7 Alternative 2 – Landing Site and position of the 2AFRICA/GERA (East) cable landing at Pollock Beach

Feature	GPS Co-ordinates
Proposed BMH Alternative 2	33°59'6.23"S and 25°40'17.50"E
Landing Point Alternative 2	33°59'5.97"S and 25°40'18.99"E
Front haul alignment from Alternative 2 BMH to the CLS site	Start: 33°59'6.23"S and 25°40'17.50"E Mid-point: 33°59'10.10"S and 25°40'1.80"E End: 33°59'21.21"S and 25°39'58.96"E

Following environmental screening of the area, this site has not been selected as the preferred landing site for cable landing due to the following factors:

- The beach at the proposed Alternative 2 landing site has a very shallow sand profile and burial of the cable will not be possible. As such, HDD will be required from the BMH underneath the coastal dune cordon and beach, daylighting below the low water mark of the sea.

- ❑ The marine cable will have to be anchored to rocks within the nearshore environment as cable burial will be limited.
- ❑ Several rock outcrops are present close to the beach and if HDD is utilised to install the cable, the drilling would have to extend further out to sea beyond these rock outcrops.
- ❑ As for the Preferred Landing Site Alternative 1, the proposed offshore cable passes through a section of an offshore aquaculture concession area, and through an area earmarked for a Humpback Dolphin Marine Sanctuary (although not yet established).
- ❑ As for the Preferred Landing Site Alternative 1, the proposed offshore cable passes through a section of an offshore aquaculture concession area. Discussions between the landing partner and/or route planners and the aquaculture concession holder will need to be undertaken to establish if the cable can traverse the concession area or if the anchors for the aquaculture cages pose a risk to the cable. Refer to Figure 21.



6.2 Terrestrial cable alignment alternatives

Installation of the terrestrial component of the cable will be required from the BMH to the CLS site located within Summerstrand. This will involve trenching within existing road reserves and HDD/Pipe Jacking to install the cable underneath roads where road crossings are required. The front haul alignment of the cable for the preferred front haul alignment is approximately 1,400 m in length and will require seven road crossings of which only three are considered to carry significant traffic volumes namely Marine Drive, Brighton Drive and Skegness Road (Figure 8).

The second alternative fronthaul alignment considered, although shorter, was discarded from further assessment as the alignment would require at least 5 road crossings over busy roads along 10th Avenue and Brighton Drive. Impacts associated with these additional road crossings will result in increased disturbance to residents, motorists and increase the construction period during which time residents within the area will be inconvenienced.

Both front haul alignments are located within an urban environment within Summerstrand and although impacts to vegetation will be limited there is the possibility of some trees adjacent to the road being damaged during trenching operations. To assess the impacts on vegetation a suitably qualified vegetation specialist will be appointed to assess the impacts associated with the installation of the cable system within the terrestrial environment.

Based on visual inspections of the proposed front haul alignment, sufficient space is available within the existing road reserves to accommodate the 2AFRICA/GERA (East) cable system (Plate 13) although the NMBMM will have to be consulted with regards to existing service infrastructure along these roads/servitudes.

Both alternative front haul alignments will terminate at the existing Telkom Exchange Building located on the corner of Skegness and Bognor Streets in Summerstrand. As the proposed instrumentation required for the CLS will be accommodated within the Telkom Exchange Building (Plate 14) there will be limited disturbance to natural vegetation on site., From the BMH, to the Telkom Exchange building, new manholes will be constructed along the proposed cable alignment which will be located within existing road reserves. Driveways (paved and concrete) as well as tarred roads will be crossed which will require the following:

- Approximately 31 m² of brick paving
- Approximately 162 m² of tar surfacing
- Approximately 32 m² of concrete works
- Approximately 1,060 m² of grass planting to reinstate disturbed areas.

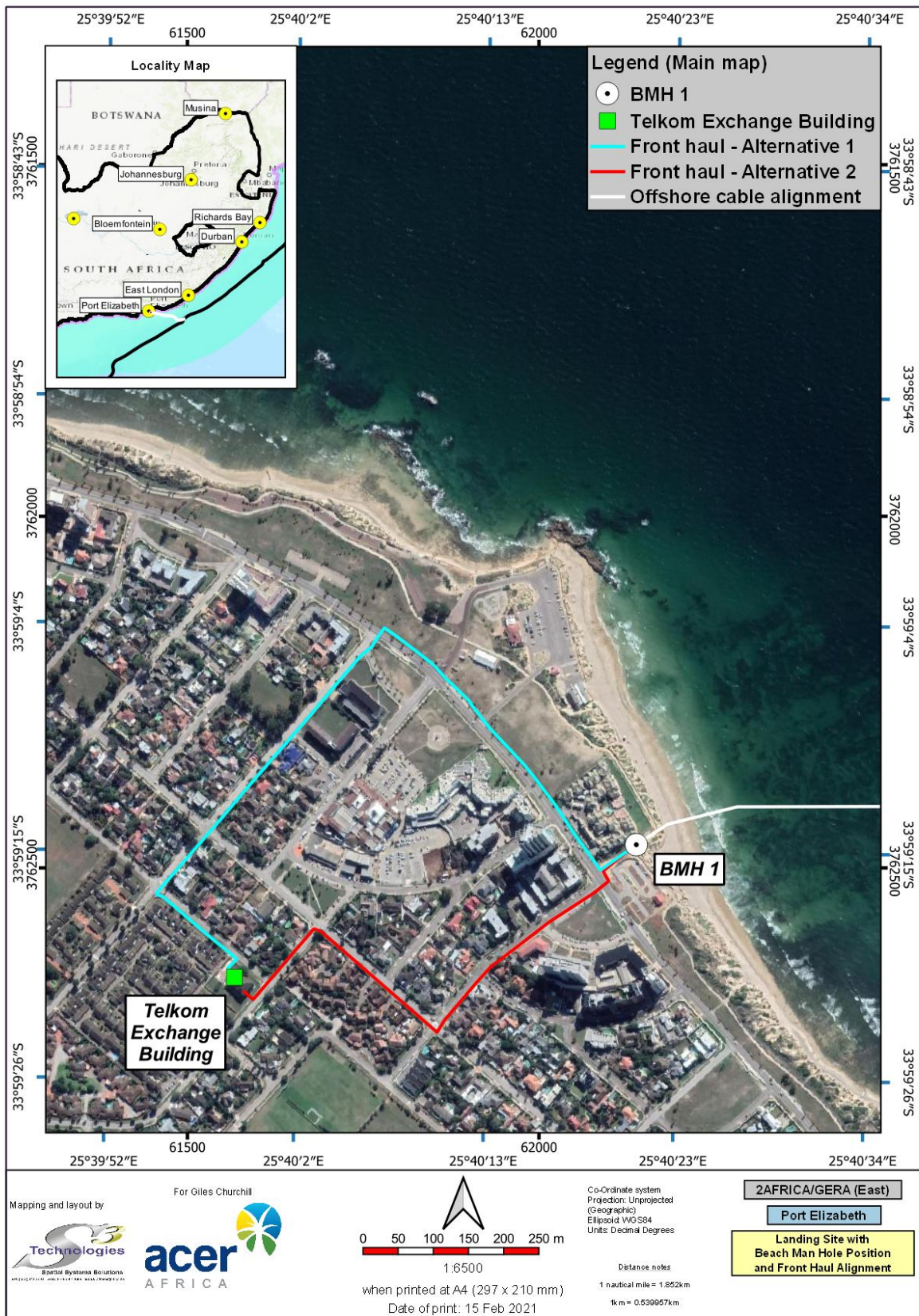


Figure 8 Landing Site at BMH 1 and Front Haul Alignment to CLS at the Telkom Exchange Building



View of the service corridor from the proposed BMH site with Summerseas Beachfront Apartments to the right towards Marine Drive.



View of preferred route – Summerseas Beachfront Apartments fence visible to the right of the photograph.



View of route towards Marine Drive, and Manhole position



Route across section of access road in front of Summerseas Beachfront Apartments with Marine Drive to the left of the photograph.



View along route with access road of Summerseas Beachfront Apartments to the right of the photograph.



Trench across access road to Summerseas Beachfront Apartments





Crossing of both Brighton Drive and Skegness Road



Install Manhole on outside of Summerstrand Telkom Exchange Building located to the right of the photographs

Plate 13 Preferred landing site (Alternative 1) at Pollock Beach adjacent to the Summerseas Beachfront Apartments, with haul route to the Telkom Exchange Building



Summerstrand Telkom Exchange Building



Inside the Telkom Exchange Building

Plate 14 Telkom Exchange Building which will be used to house the 2AFRICA/GERA (East) cable system

6.3 Marine cable alignment alternatives

The main cable trunk will be located approximately 100 km from the shoreline within South Africa's EEZ as shown in Figure 4. From the main cable the Port Elizabeth branch will run through EEZ and territorial waters to the landing site in Port Elizabeth.

In order to reduce impacts on seabed user groups (fishing, trawling, offshore exploration and mining, etc.) when selecting the preferred offshore alignment for the 2AFRICA/GERA (East) Cable System, the following factors were taken into consideration by the cable engineers:

- ❑ Marine telecommunications cables are afforded a legislated buffer (0.5 Nm either side of the cable) as defined in the Marine Traffic Act (Act No. 2 of 1981) read together with the Maritime Zones Act (Act No. 15 of 1994). This buffer zone effectively protects the cable from damage due to bottom trawling activities, mineral exploration and the anchoring of vessels.
- ❑ The location of the soon to be authorised Algoa 1 Aquaculture Project as the proposed 2AFRICA/GERA (East) cable will traverse the southern section of the Algoa 1 Aquaculture block. This may be problematic if the aquaculture site becomes operational due to the cages that are kept in place using anchor cables and blocks installed on the seabed. Impacts on the cable were however not considered to be significant given that the cable can be buried to a depth of 1-2 m below the seabed and the fact that the cable alignment traverses the southernmost section of the demarcated aquaculture block. The anchoring of cages will not be possible over or near to the cable in a manner that would pose a risk to or prevent access for maintenance operations to the cable. 2AFRICA are willing to engage constructively with the aquaculture concession holder to optimise the cable route within the already surveyed corridor. The cable co-ordinates (once installed) will be provided to the aquaculture concession holder for consideration when planning of the aquaculture project cage/raft layout.
- ❑ Within the shallow water environment, the cable will be buried in sediment wherever possible, and the route will be adjusted to avoid obvious visible rock and sub-surface rock detected by the cable route survey. The aim is to bury the cable to a depth of 1 m where possible. If rock is encountered at a depth shallower than this, no effort will be made to trench through or excavate any rock but rather lay the cable upon the rock

substrate. The cable, in such situations, will be securely held in place by its own weight and the weight of the rest of the cable buried in the sand. Approximately 1,300 meters of cable from the BMH out to approximately 8 m water depth will be protected by encasement in articulated iron pipe shells which will make it very heavy thus aiding burial and stability of the cable on the ocean floor. In the shallow areas where reef is present the cable may be anchored to the reef by means of clamps to prevent cable movement.

- No viable landing points were considered suitable from Pollock Beach towards the Port of Port Elizabeth and Ngqura as the offshore cable alignment would pass through demarcated anchorages for the Port of Port Elizabeth. The anchoring of vessels (especially larger vessels) poses a risk to the marine cable through snagging.
- Where possible known fisheries trawling grounds were avoided as best possible.
- Offshore reefs and steep canyons which could pose a risk to cable integrity were avoided as best possible.
- To mitigate the impact of the surface current on installation operations it is preferable to install either 'into' or 'with' the current. The less perpendicular the cable route is to the current the more its impact is reduced. By carefully selecting the direction of the cable route the impact of seabed currents can be reduced by ensuring the cable is at an oblique angle as possible to the prevailing current flow. i.e., the more perpendicular the cable is to the current flow the more exposed it is to abrasion/damage.

Based on the factors above the preferred offshore cable alignment for the 2AFRICA/GERA (East) Cable System moves offshore in an easterly direction (Figure 9) slightly oblique to the coastline to reduce the impacts prevailing ocean currents until joining the main trunk cable which is located 100 km from the shoreline in deep waters.

6.4 Technology alternatives

Although there are a number of available telecommunication mechanisms used world-wide and in South Africa, the scale of customer demand and expectation of ever faster data transfer have made many of these inadequate or obsolete. Radio has largely been phased out due to restricted bandwidth and poor data transmission. Currently, Africa relies primarily on satellites with few submarine cables to provide its international communications. Satellite and microwave transmissions are unable to offer the capacity required for South Africa and other African countries to remain part of the global community in terms of communication services.

Within South Africa, fibre optic networks are currently the only available technology able to transmit sufficiently high volumes of voice and data traffic, with higher security, reliability and at a lower cost. This is the current preferred technology for meeting demand for data and voice transmission on a global scale and is one of the main reasons why the 2AFRICA/GERA (East) Cable System is based on a fibre optic network.

6.5 Operational Alternatives

The timing from a tourism and recreational perspective of the construction required on the beach, will need to be taken into consideration as soon as the project's timing is determined.

Operational alternatives are also applicable to the seasonal timing of the offshore installation of the 2AFRICA/GERA (East) Cable System related to seasonal whale migration patterns and the offshore fisheries sector (in particular, the squid fishery) where certain species are targeted at a specific time of the year.

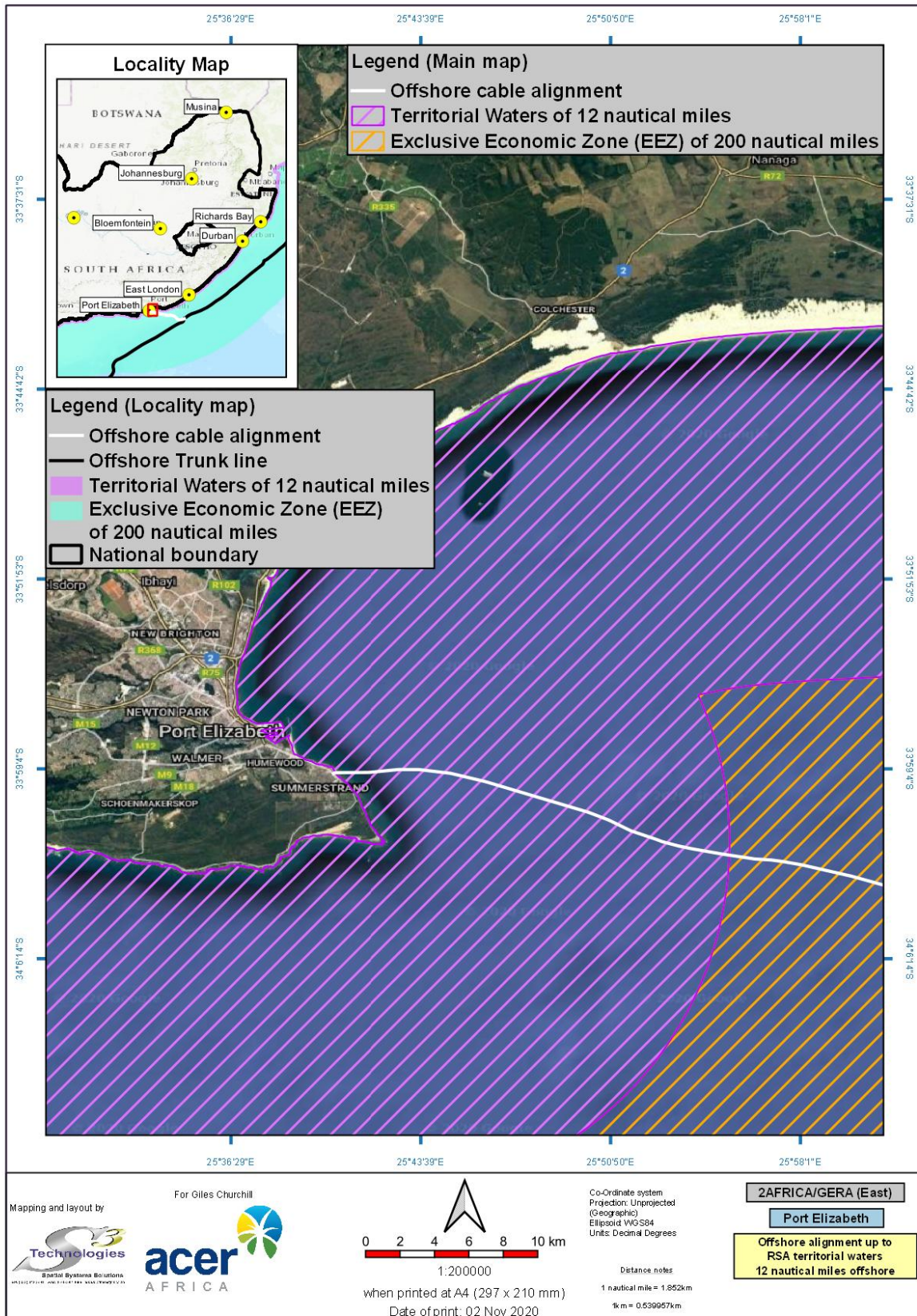


Figure 9 Proposed alignment of the 2AFRICA/GERA (East) Cable System to be landed in Port Elizabeth

6.6 No-Go Alternative

In the context of the proposed development, the No-Go alternative would involve Vodacom not installing the proposed 2AFRICA/GERA (East) Cable System. Although impacts on the marine and terrestrial environments would be avoided entirely, submarine telecommunication cables are important for international telecommunications. Also, it is widely recognised that access to affordable international bandwidth is key to economic development in every country.

Africa relies primarily on satellites with few submarine cables to provide its international communications. Communication via submarine telecommunication cables generally allows for lower cost, better performance, and greater capacity (throughput) than that available via satellite. If the No-Go alternative is selected, Vodacom and South Africa as a whole, will be missing out on an opportunity to unlock economic development within the country. In addition, should the No-Go alternative be selected, it would mean that Vodacom will not be able to strengthen their network on the east coast of South Africa through the operation of an international fibre-optic bandwidth and they will be unable to facilitate more affordable and effective transport of voice, data, Internet and television services to South Africa's population.

6.7 Other considerations

6.7.1 *Community safety*

The main safety issues during project implementation of the proposed cable system are that construction activities may pose a safety risk to residents and visitors to the beach as there will be working machinery and open trenches associated with the construction of the proposed project. Mitigation measures will be included in the EMP of the Draft EIA Report to manage these safety risks including:

- ❑ Construction vehicles must obey regulated speed limits, lights will be always switched on and no large vehicles will use the roads at dawn, dusk, at night or in heavy mist conditions to reduce the risk of accidents with other vehicles and pedestrians.
- ❑ Deliveries of materials and large components will be scheduled for times that fall within, or outside of the school day, and not in the early morning or mid-afternoon when there are school children using the access roads.
- ❑ All trenches must be dug with digging, placement of infrastructure and backfilling taking place on a progressive basis to limit the amount of open trench on site.
- ❑ All trenches must be suitably barricaded to prevent access by surrounding residents or children.

6.7.2 *Sustainable management and natural resources*

Over recent years, private sector finance for infrastructure projects, both in the developed and developing world, has increased in importance. This has exposed financial institutions to increasing pressure from Non-Governmental Organisations (NGOs) for their involvement in a variety of controversial projects and the need for greater transparency, accountability, and tighter standards in the operations of commercial banking. Stemming from these demands and concerns is a set of standards known as the Equator Principles, which are based on the International Finance Corporation (IFC) performance standards on social and environmental sustainability, and on the World Bank Group's Environmental, Health and Safety General

Guidelines. The Equator Principles promote socially responsible conduct and sound environmental practices in relation to project financing initiatives.

The single most important factor in reducing the environmental (and social) impacts of marine telecommunications infrastructure projects is good site selection and the ease at which marine telecommunications cable can tie into the existing land-based telecommunications network (distance from landing site to the CLS and existing network). The best option is, as much as possible, to avoid negative impacts on the environment from the outset, thereby minimising the amount of environmental mitigation measures required.

6.7.3 *Cumulative Impacts*

A cumulative impact is an incremental impact upon the environment that results from the impact of a proposed action when added to past, existing and reasonably foreseeable future actions. Cumulative effects can be both positive and negative.

The construction of the 2AFRICA/GERA (East) Cable System will add to any cumulative impacts already likely to occur from a wide range of development interventions, i.e., increased employment, increased investment, etc. The aim of this section is to focus on the key cumulative impacts raised as concerns by stakeholders and identified by the specialists, as well as those associated with the project that may trigger different development pathways. In this regard, a key cumulative impact has been identified to date which will require further investigation, viz. the combined impact of current and future marine telecommunication cable systems on the deep-sea trawling industry and the offshore Oil & Gas Sector.

Cumulative impacts associated with climate change such as the increase in severity and occurrence of storm events and the predicted rise in sea-level will be included in the management and mitigation component of the Draft EIA Report in the EMP, to monitor for erosion of the beach environment.

7 PUBLIC PARTICIPATION PROCESS

The public participation process has been designed to comply with the requirements of the EIA Regulations (Sections 41 to 44 of Regulation 982) and NEMA. The important elements relating to the public participation process that are required by the Regulations are the following:

- The manner in which I&APs were notified of the application for environmental authorisation. This includes on-site notice boards, giving written notice to landowners, letters, Background Information Documents (BID) and advertisements in the media (Section 41).
- Opening and maintaining a register containing the names and addresses of I&APs. These include all persons who have submitted comments, attended meetings, and are organs of State who have jurisdiction in the assessment process, and all those who have requested that they be placed on the register as registered I&APs (Section 42).
- Registered I&APs are entitled to comment, in writing, on all written submissions made to the competent authority by the applicant or the Environmental Assessment Practitioner managing the application, and to bring to the attention of the competent authority any issues, which that party believes may be of significance when the application is considered for authorisation (Section 43).
- The comments of registered I&APs must be recorded and included in the reports submitted to the competent authority (Section 44).

The objectives of public participation in an EIA are to provide sufficient and accessible information to I&APs in an objective manner to assist them to:

- During the Scoping Phase.
 - Identify issues of concern and provide suggestions for enhanced benefits and alternatives.
 - Contribute local knowledge and experience.
 - Verify that their issues have been considered.
- During the Impact Assessment.
 - Verify that their issues have been considered either by the EIA Specialist Studies, or elsewhere.
 - Comment on the findings of the Environmental Impact Assessment Report (EIAR), including the measures that have been proposed to enhance positive impacts and reduce or avoid negative ones.

The key objective of public participation during Scoping is to assist in defining the scope of the technical specialist studies to be undertaken during the Impact Assessment.

7.1 Notification of the application

Stakeholders were informed of Vodacom's intention to apply for environmental authorisation via a Background Information Document (BID), media advertisements and on-site notice board. The application is also posted on ACER's website for stakeholder review.

7.2 Identification and registration of Interested and Affected Parties (I&APs)

Key stakeholders and other I&APs, who include local, provincial, and national government authorities, conservation authorities, community-based organisations, local businesses, environmental interest groups, affected landowners/users and neighbours were identified and their contact details incorporated in a project database.

The direct mailing list for this EIA consists of individuals and organisations from both within the project area and beyond. A copy of the stakeholder database is provided in Appendix 2. Table 6 shows that these I&APs represent a broad spectrum of sectors of society.

Table 6 Sectors of society represented by I&APs on the direct mailing list

Government (National, Provincial and Local, Management Authorities)
Parastatals (Eskom, SAMSA, Transnet National Ports Authority)
Representative Associations:
<input type="checkbox"/> Nelson Mandela Bay MM Rate Payers Association
<input type="checkbox"/> South African Deep Sea Trawling Industry Association
<input type="checkbox"/> South African Squid Management Industrial Association (SASMIA)
<input type="checkbox"/> Offshore Mining Concession Holders
<input type="checkbox"/> Conservation Organisations
<input type="checkbox"/> Tourism Organisations
Non-Governmental Organisations
Landowners and Local Residents Associations
Conservation Authorities and Conservation Groups
Business and Industry

While consultation has taken place with representatives of different sectors of society, special efforts have been made to obtain the contributions of all people who may be directly affected by the proposed project. These efforts will be on-going for the duration of the EIA.

7.3 Project announcement

The opportunity to participate in the EIA was announced as follows:

- Advertisements in local and provincial newspapers:
 - The Herald English and Afrikaans (05 November 2020)
- A Background Information Document (BID) was compiled and emailed to all key stakeholders on 5 November 2020. All I&APs who registered following the project announcement adverts were sent the BID for their records. Hard copies of the BID were posted to all government departments and other relevant commenting authorities.
- Notifications by telephone.
- Placement of an on-site notice board at Pollock Beach on the 5 November 2020 (photos of the onsite notices are provided in Appendix 2).

7.4 Obtaining and dealing with comments from I&APs

The following opportunities will be provided to I&APs during Scoping to contribute comments:

- Completing and returning Registration and Comment Sheets.
- Providing comments telephonically or by email.
- Due to a lack of interest by I&APs no virtual Public Open Day was held during the Draft Scoping Report review period.

Public participation documentation is provided in Appendix 2.

7.5 Comments and Responses Report

Issues and concerns raised by I&APs will be captured in a Comments and Responses Report (CRR), which is appended to this report (Appendix 3). This report will be updated to include any additional inputs from I&APs that may be received as the EIA process proceeds, and as the findings of the EIA become available.

7.6 Draft Scoping Report

The purpose of the Draft Scoping Report was to enable I&APs to provide comment. At the end of Scoping, the issues identified by I&APs and by the environmental technical specialists, will be used to define the terms of reference for the specialist studies that will be conducted during the Impact Assessment Phase of the EIA.

The availability of the Draft Scoping Report for public comment was advertised as follows:

- All registered Interested and Affected Parties (I&APs) were notified in writing on 12 March 2021 of the availability of the Draft Scoping Report for their review and comment.
- The Draft Scoping Report was made available on ACER's website and at the Walmer Public Library on the 12 March 2021.
- All registered I&APs were notified in writing on the 12 March 2021 of the availability of the Draft Scoping Report for their review and comment.
- Notification letters were sent to all registered I&APs on the 12 March 2021 and notices were placed at strategic points (local shops, library, etc.) within and around Summerstrand notifying the public of the availability of the Draft Scoping Report for review and comment.
- The Draft Scoping Report was uploaded to ACER's website where members of the public can download the report for review and comment.
- ACER engaged with I&APs who do not have access to the internet telephonically where the EAP undertook the following:
 - Disseminate information regarding the proposed project to I&APs.
 - Provide I&APs with an opportunity to interact with the relevant project team members.
 - Discuss the studies to be undertaken during the Environmental Impact Assessment.
 - Supply more information regarding the EIA process.
 - Answer questions regarding the project and the EIA process.
 - Receive input regarding the public participation process and the proposed development.

- Provide I&APs not previously registered on the project database with an opportunity to be formally registered and, therefore, be informed of progress for the remainder of the project.

The Draft Scoping Report was made available at the venues indicated in Table 7 for public review (with a 30-day comment period (12 March 2021 – 14 April 2021)).

Comments submitted during this period were considered when compiling this Final Scoping Report and will be included in the Final Comments and Response Report that will be submitted to DEFF.

Table 7 Public venue in the project area where the Draft Scoping Report was placed for public review

Venue	Street	Contact Person and Number
Walmer Public Library,	Main Road, Walmer, Port Elizabeth, 6070	Ms Tasmeema Whitebooi, Senior Librarian Tel: 041 506 4205 / 066 067 5295 Email: twhitebooi@mandelametro.gov.za

7.7 Final Scoping Report

Following the updating of the Draft Scoping Report with comments and issues raised by I&APs during the public review process, the Final Scoping Report will be submitted to DEFF, with a request for the EIA to proceed to the next phase, viz. the Impact Assessment phase.

Once DEFF has approved the Final Scoping Report and Plan of Study, the Impact Assessment Phase of the EIA will commence. This will comprise various specialist studies to assess the potential positive and negative impacts of the proposed project, and to recommend appropriate measures to enhance positive impacts and to avoid or reduce negative ones.

8 DESCRIPTION OF RECEIVING ENVIRONMENT

This section describes relevant characteristics of the receiving environment that may affect or be affected by the proposed 2AFRICA/GERA (East) Cable System and associated infrastructure. It is important to understand these environmental characteristics and what is proposed (Chapter 5) so that effects of the proposed project on the environment and the environmental constraints on the proposed project can be contextualised for assessment purposes.

8.1 Beach and Terrestrial Environment

The branch of the 2AFRICA/GERA (East) Cable System which makes landfall in Port Elizabeth, South Africa involves the installation of the cable through the intertidal zone, across the beach and then approximately 1,200 m of land cable until reaching the CLS site in Summerstrand. This section briefly describes the biophysical, social and economic environments.

8.1.1 *Beach and Coastal Environments*

Beach Environment

With the development of Port Elizabeth and the expansion of residential areas within the Summerstrand area, there has been a major shift in the dynamics of the coastline and beach characteristics from Cape Recife to Humewood (Port Elizabeth). Historically, this area was made up of three important headland-bypass dune systems which transported sand from the high energy coastline to the south of Cape Recife across to the coastline between Cape Recife and Humewood. Since development within this area commenced, most of these headland-bypass dune systems have been transformed through development and active interventions from the late 1800s to limit the movement of sand to protect the Summerstrand area and the port of Port Elizabeth. These interventions have had a significant impact on the coastline between Cape Recife and Humewood where sand transport along the beach is now limited with most of the sand feeding into this section coming from the small headland-bypass dune systems of Noordhoek and Cape Recife (Figure 10). Sand movement from the Noordhoek headland-bypass dune system was effectively blocked in the 1960s by the construction of sewerage maturation ponds at Cape Recife.



Figure 10 Noordhoek headland-bypass dune system which has been blocked off by the development of a sewage works and the smaller Cape Recife headland-bypass dune system near Cape Recife point.

Coastal Environment

The coastal zone of NMBMM provides an array of recreational and sustainable resource utilisation opportunities and underpins a substantial segment of the municipality's economy. The Swartkops Estuary lies about 8 km north of the Port Elizabeth city centre and is an important nursery for marine fish, including several angling species. The functioning of the estuary is also threatened by pollution, enrichment, sand mining, overfishing, insufficient inflow of freshwater due to damming, and inappropriate development (NMBM SDF, 2015). The foredune vegetation along the NMBMM coastline helps to buffer against the high energy influences of the tides, wind and waves. These systems are sensitive to disturbance and are susceptible to the formation of blow-outs. The coastal area is often targeted for development, primarily due to the desirability of ocean views. The protection of the coastal foredune system is important to safeguard the scenic attributes of the coastal zone and to provide protection against the natural coastal agents of change, particularly in light of the implications of global sea-level rise (NMBM¹⁰ SDF, 2015).

The Alexandria Dunefield has its beginnings at the north-eastern extent of the municipal area. The dunefield is one of the largest and most pristine active coastal dunefields in the world (NMBM SDF, 2015). The net result of development within the area has resulted in a significant reduction in sand recharge to the Summerstrand beaches with some estimates claiming that over 75% of the historical feeder sand available to the beaches is now blocked off. The only beach between Cape Recife and the port of Port Elizabeth which is showing a net increase in sand deposition is Kings Beach which, due to the construction of the port breakwaters, acts as

¹⁰ Nelson Mandela Bay Municipality

a sand trap to beach sand moving in a westerly direction along the beaches between Cape Recife and Humewood (<http://thecasualobserver.co.za/port-elizabeths-driftsands-dune-fields-natures-equilibrium-disturbed/>).

The reduction in sand transport to this section of the coastline may explain the current beach profiles between Cape Recife and Humewood which are generally sand deficient having very shallow sand profiles underlain by rock. This is particularly evident at Pollock Beach where sand profiles on the beach are seldom deeper than 50 – 100 cm before encountering underlying rock. At Kings Beach, sand profiles are much deeper (greater than 100 cm) with a characteristically wide beach (which supports the findings that sand is actively deposited on this beach).

8.1.2 Fauna

Reptiles

According to the *Southern African Reptile Conservation Assessment* (SARCA) Southern Africa has the richest reptile diversity in Africa, with a fauna that currently comprises 498 species (578 taxa if one includes subspecies) in 116 genera and 23 families. In addition to its diversity, the southern African reptile fauna have a high level of endemism, i.e., many of the species found in the subcontinent are found nowhere else on earth. Of nearly 500 species recognised from the subcontinent, 391 are endemic (78.5%) to it (<http://sarca.adu.org.za/about.php>). Several venomous snakes are known to occur within the study area, particularly the Puff Adder (*Bitis arietans*) which is encountered frequently at the Grysbok Nature Reserve located approximately 3 km from the proposed landing site. In terms of the likely impacts of the development on reptiles, habitat loss is not likely to be significant as the terrestrial cable alignment is located entirely within the urban environment with little habitat suitable for reptile species. Although construction will cause some disturbance which may negatively impact reptiles, this will be temporary and in the long-term, impacts on reptiles are likely to be low.

Amphibians

The diversity of amphibians within the project area is quite low given the urban setting of the development footprint and lack of suitable habitat for amphibians. Given the small terrestrial footprint of the cable system, impacts on amphibians are likely to be low and if any, limited to the construction phase.

Mammals

The study area is likely to have relatively low mammalian species richness given its urban setting within the NMBMM. Although the site falls within or the distribution range of numerous terrestrial mammals, the high degree of transformation within the study area means that only species tolerant of human development are likely to be present.

8.1.3 Vegetation

Vegetation types

Port Elizabeth and its surrounds is the confluence point of five of the seven South African biomes and represents a large percentage of South Africa's biological diversity (https://www.nmbt.co.za/port_elizabeth_5_biome_city.html). These biomes consist of the Thicket, Grassland, Nama-Karoo, Fynbos and Forest Biomes as shown in Figure 11. The Global significance of the biodiversity of the NMBMM is emphasized by the fact that the area falls within two recognized biodiversity hotspots. The rich diversity within the municipality is partly attributed to the fact that it is in an area of convergence of South Africa's biomes (Low and Rebelo, 1998).

Figure 12 provides an overview of the types of ecosystems within Summerstrand and surrounds. Within the project area, vegetation near the coast is dominated by St Francis Dune Thicket vegetation, which is characterised by clumps of thicket occurring within a matrix of Dune Fynbos including species such as buchu (*Agathosma stenopetala*) and Erica (*Erica chloroloma*) which typically grow on poor, stony mountain soils and on infertile coastal sands and limestone (<https://grysbok.mandela.ac.za/Vegetation>). The area is also known to have a significant number of endemic species (i.e., species that are only found here and nowhere else in the world), which results in a wide diversity of landscapes, plants and animals.

The most threatened vegetation types within the NMBMM area are the Lowland Fynbos, Subtropical Thicket mosaic and Forest vegetation types. The Lowland Fynbos vegetation types in the NMBMM area are predominantly grassy Fynbos systems. Since much of the urban expanse of Port Elizabeth was developed on these ecosystems, they are also some of the most threatened vegetation types within the municipal area. The most threatened Lowland Fynbos vegetation types within the municipal area are Critically Endangered Colleen Glen Grassy Fynbos, Lorraine Transitional Grassy Fynbos, Baakens Grassy Fynbos and Walmer Grassy Fynbos. Threatened plant species in these systems include South Africa's national flower, the king protea, *Protea cynaroides* (Critically Endangered), *Cyclopia pubescens* (Critically Endangered) and *Brunsvigia litoralis* (Endangered). Pressures on the Lowland Fynbos within the NMBM area include invasion by alien vegetation, urban expansion, inappropriate fire regimes, habitat fragmentation and global climate change.

Forests

Forests within the municipality occur in a solid form and in a mosaic with thicket. The solid forest within the NMBMM is mostly confined to steep riverine gorges, which are sheltered from fire, and confined to a band along the wetter southern portion of the municipal area (NMBM SDF, 2015). Threatened forest types within the municipal area include Critically Endangered Chelsea Forest Thicket Mosaic, Bushy Park Indian Ocean Forest, Van Stadens Afromontane Indian Ocean Forest, Van Stadens Forest Thicket, Kragga Kamma Indian Ocean Forest and Thornhill Forest and Thornveld. The protected milkwood *Sideroxylon inerme*, dwarf Cape Beach *Rapanea gilliana*, and yellowwood *Afrocarpus falcatus* trees are prominent in many of the forest types. The southern population of blue duiker *Philantomba monticola*, which is confined to the Maputaland-Pondoland-Albany hotspot, occurs in the southern forested portions of NMBMM. The forest within the Municipality is threatened by increased prevalence of fire, harvesting of forest products and the development of informal and formal housing.

Impacts on natural vegetation/ forests at the proposed landing site are, however, expected to be minimal given the disturbed nature of the receiving environment at Pollock Beach and that most of the coastal dune areas are either disturbed by anthropogenic influences or currently are under rehabilitation.

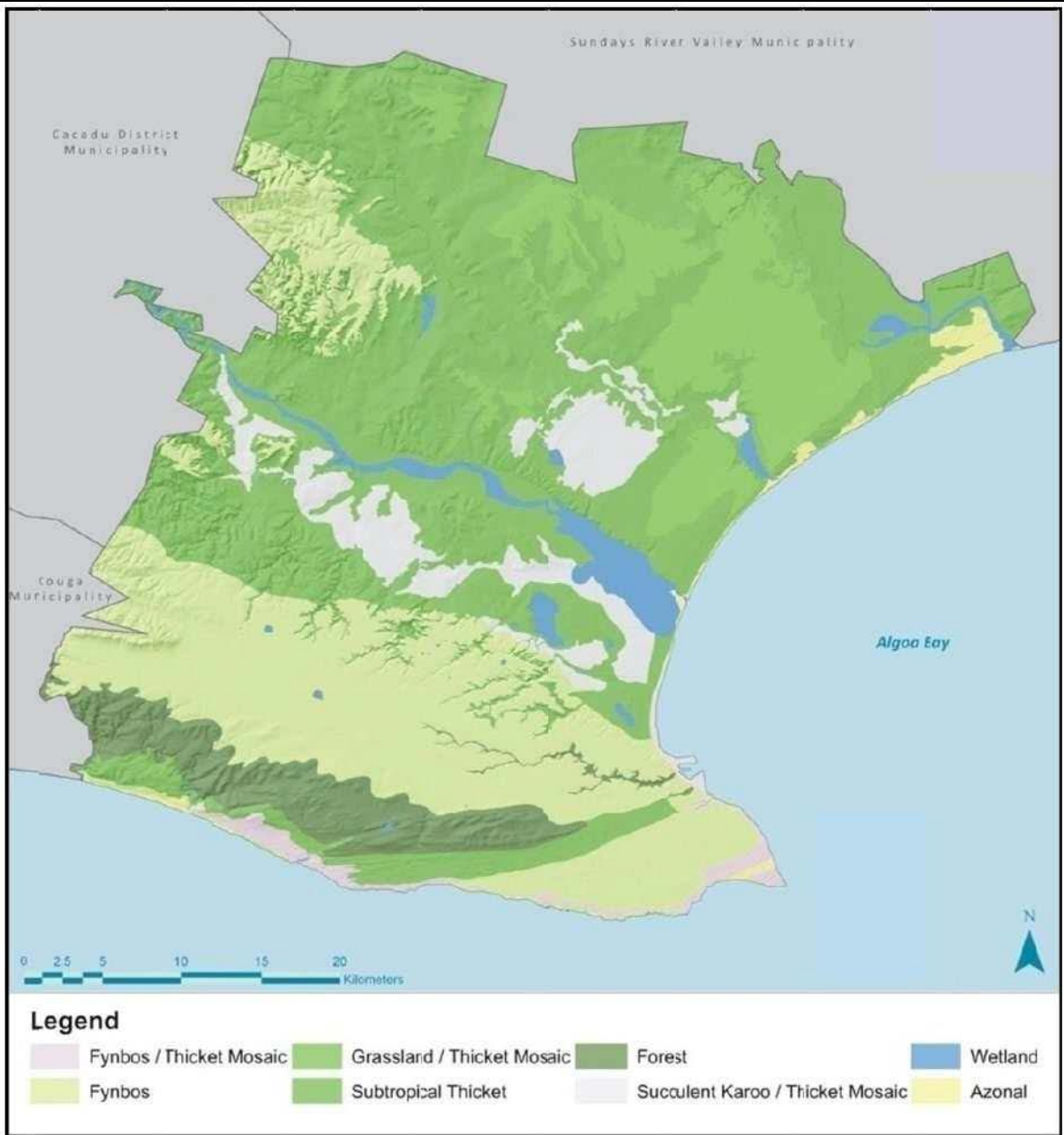


Figure 11 Biomes within the Nelson Mandela Bay Municipal area

(Source: NMBM SDF, 2015)

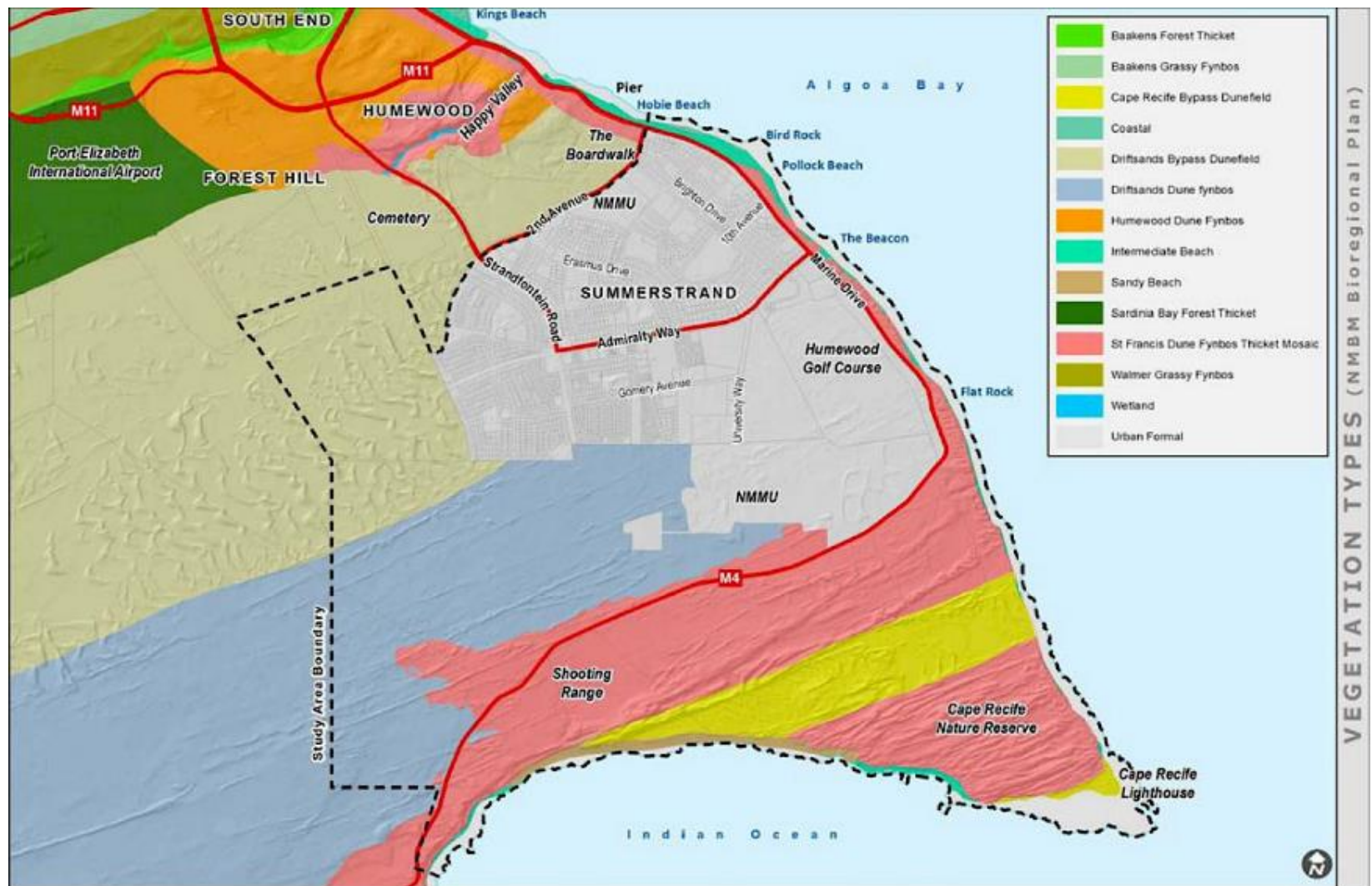


Figure 12 Ecosystems within Summerstrand and surrounds

(Source: <http://nmbm.co.za/datarepository/documents/summerstrand-lsdf-web.pdf>)

The Municipal conservation assessment identified a total of 58 vegetation types within the municipal area. A high proportion of the vegetation types within the municipal area are threatened (twenty-three are Critically Endangered and a further ten are Endangered) and now face collapse unless efforts are made to ensure their persistence (Stewart et al., 2008). The threatened status of these habitats is mirrored by the number of threatened species within the Municipal area – the NMBMM has the highest number of red listed species of all the Municipalities in the Eastern Cape (CSIR, 2004).

Vegetation types found at Location Alternatives

The vegetation type found at Alternative 1 and 2 is Cape Seashore Vegetation (AZd 3) and St. Francis Dune Thicket (AT 57) according to the SANBI BGIS Map Viewer Vegetation 2018 (Figure 13).

Cape Seashore Vegetation (AZd 3) is found on young coastal sandy sediments forming beaches and dunes (Strandveld Formation) exposed to reworking by relentless winds and frequent sea storms and is found in the Western Cape and Eastern Cape Provinces; temperate coasts of the Atlantic and Indian Ocean (Cape Agulhas to East London). The vegetation and landscape features beaches, coastal dunes, dune slacks and coastal cliffs of open grassy, herbaceous and dwarf-shrubby (sometimes succulent) vegetation, often dominated by a single pioneer species. The conservation status of this vegetation type is Least Threatened (Mucina and Rutherford; 2006).

Initial mapping using the SANBI BGIS Map Viewer placed Algoa Dune Strandveld (AZs 1) within the site area. This vegetation ecosystem is found on aeolian dune sands of the Schelm Hoek Formation of the Algoa Group along a narrow coastal strip along the Indian Ocean seaboard from the mouth of the Tsitsikama River to the Sundays River mouth in the Eastern Cape Province. The vegetation and landscape features exhibit tall (up to 5 m) dense thickets on dunes mainly outside the influence of the salt spray, dominated by stunted trees, shrubs (often with spines and thorns), abundant lianas and sparse herbaceous and grassy undergrowth. (Mucina and Rutherford; 2006).

The SANBI BGIS Map Viewer Vegetation 2018, places the vegetation ecosystem as “St. Francis Dune Thicket (AT 57)” within the project site as shown in Figure 13, and not Algoa Dune Strandveld (AZs 1) as per the 2006 Vegetation database. There appears to be an academic debate around dune fynbos in this area (Grobler; 2019).

Algoa Sandstone Fynbos (FFs 29) located further south and not impacted on by the site alternatives has a “threatened ecosystem status” and is classified as Vulnerable (VU) according to the SANBI BGIS Map Viewer database.

Given the sensitive nature of the coastal dune cordon and the number of endemic species within the area, it is recommended that a dune vegetation specialist be appointed to ascertain the impacts on vegetation assemblages within the development footprint and to identify any species needing permits for their translocation or destruction.

8.1.4 Critical Biodiversity Areas

Refer to Figure 13, which provides the terrestrial Critical Biodiversity Area (CBA) classification based on the Eastern Cape Biodiversity Conservation Plan (ECBCP) Addo Biodiversity Sector Plan¹¹. Both Landing Alternative 1 and 2 intersect CBAs or Other Natural Areas located on the

11 SANBI BGIS Map Viewer Addo Biodiversity Sector Plan

coastal dune system where potentially Cape Seashore Vegetation and St. Francis Dune Thicket vegetation could be found.

A coastal dune vegetation specialist will confirm the current conservation status of the sections of the project area in their report. Ground-truthing the vegetation on site will enable the identification of any plant species of conservation significance that may need to be relocated through “search and rescue”, including any other potential additional mitigation measures that may need to be applied.

A CBA Map is a spatial plan for ecological sustainability. It shows the places that are priorities for conserving species and ecosystems, and for maintaining natural ecological processes. The network of protected areas, Critical Biodiversity Areas (CBAs) and Ecological Support Areas (ESAs) is designed to ensure that a viable sample of all ecosystem types and species is conserved and to maximise connectivity of natural areas. This supports landscape-level ecological functioning as well as the ability of ecosystems and species to adapt to climate change. CBAs must be kept in a natural or near-natural state to support ecological sustainability of the landscape. ESAs do not need to be completely natural but must be kept at least semi-natural so that they retain their ecological functioning (SANBI; 2018).

8.1.5 *Freshwater Surface Resources including potential wetlands*

Figure 13 provides an overview of the conservation land uses, including surface water rivers and wetlands. There is a potential wetland observed from a desktop analysis on Google Earth located further than 500m in a southerly direction from Alternative 1 BMH, that is not mapped on Figure 13.

The SANBI BGIS Map Viewer of the freshwater resources shows a number of man-made features associated with coastal recreation facilities along the beach front, which have not been mapped as these are not of conservation significance to the project.

A Water Use Licence General Authorisation in terms of Section 21(c) and 21(i) will not be required for Alternative 1 or 2 as they are located further than 500m from any potential wetland features.

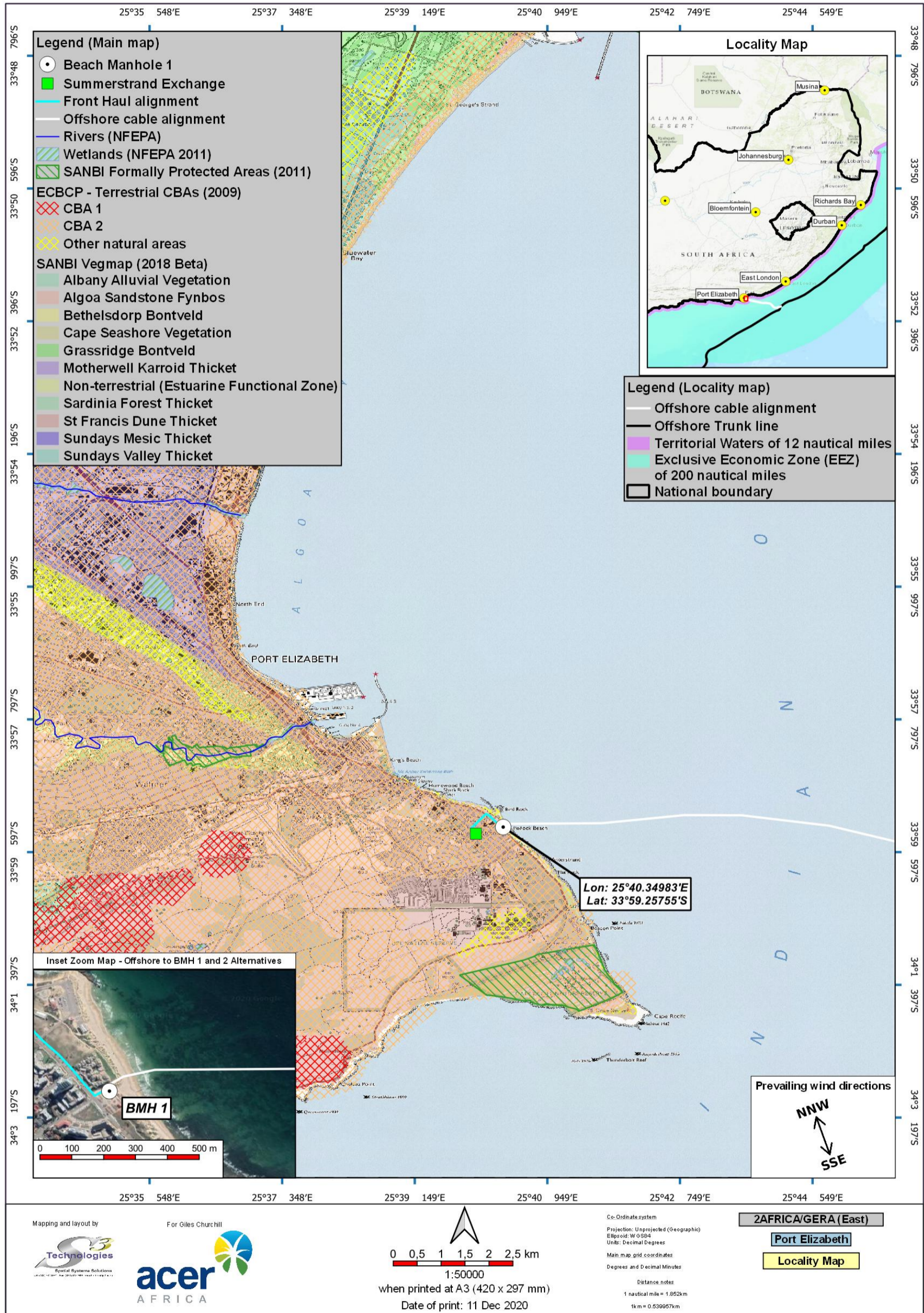


Figure 13 Vegetation types based on SANBI Vegmap (2018 Beta) and Conservation Areas

8.2 Marine and Offshore Environment

At each landing country associated with the 2AFRICA/GERA (East) Cable System, the proposed fibre-optic cable will transit coastal waters and be brought on shore using industry-standard installation methodologies. When selecting the route alignment for the 2AFRICA/GERA (East) Cable System, the following criteria were taken into account by the engineering team in order to find the most practical and cost-effective alignments:

- ❑ The placing of the cable close to and along existing alignments of submarine telecommunications cables entering South Africa's waters (this is undertaken to reduce impacts on seabed user groups).
- ❑ The placement of the cable on suitable seabed substrate to allow for cable burial in shallow waters and to avoid substrates which could result in cable faults/breaks (rocky substrates, steep canyons, etc.). This ensures the longevity of the cable system and reduces the need for maintenance activities during operation.
- ❑ Large swells and the strong Agulhas Current flowing parallel to the coast in a south westerly direction impact vessel capability by restricting speed and station keeping whilst undertaking cable lay activities. To mitigate the impact of the surface current on installation operations it is preferable to install either 'into' or 'with' the current. The less perpendicular the cable route is to the current the more its impact is reduced. By carefully selecting the direction of the cable route the impact of seabed currents can be reduced by ensuring the cable is at an as oblique angle as possible to the prevailing current flow. i.e., the more perpendicular the cable is to the current flow the more exposed it is to abrasion/damage.
- ❑ Identification of a suitable landing beach that minimises onshore environmental and infrastructure constraints and enables the cable to be linked to the proposed or existing land-based networks.

In the case of the Port Elizabeth landing the following criteria were also taken into consideration by the engineering team to find the most practical and cost-effective alignment:

- ❑ Avoidance of offshore anchorages for the ports Port Elizabeth and Ngqura.
- ❑ Avoidance of Marine Protected Areas as best possible.
- ❑ Avoidance of known fishing grounds with a high percentage of bottom trawls which poses a risk to the cable during operation.

8.2.1 Marine Protected Areas (MPAs)

South African marine biodiversity is under threat from a range of anthropogenic activities, the intensity and variety of which have increased significantly over the past hundred years. Direct exploitation of coastal resources ranges from traditional subsistence exploitation and recreational fishing to full-scale commercial activities.

It must be noted that the proposed alignment of the 2AFRICA/GERA (East) cable branch to Port Elizabeth does not pass through any declared MPAs however the cable does pass through a zone referred to as "Focus areas for offshore protection" (Figure 14).

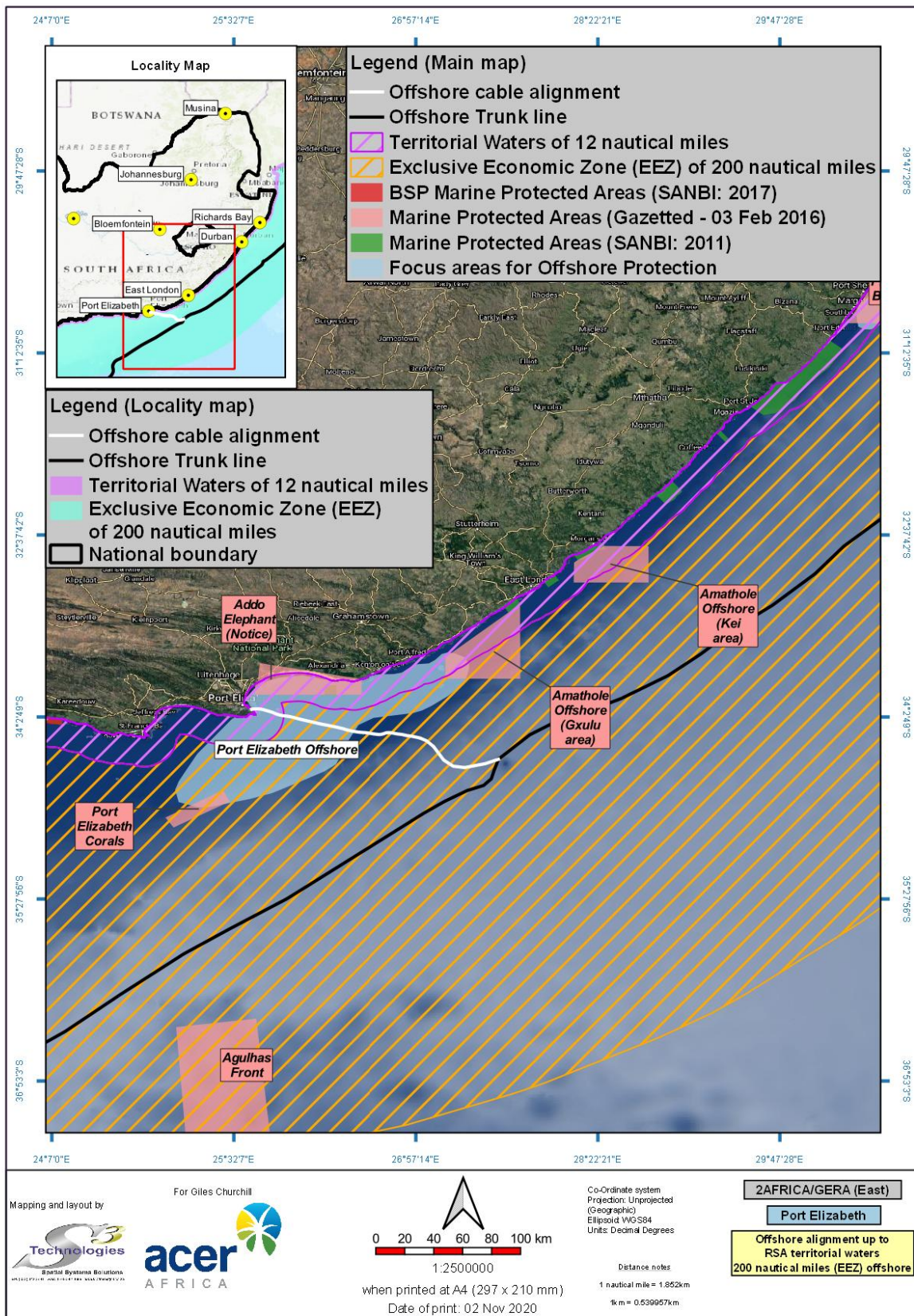


Figure 14 Marine Protected Areas

The proposed submarine cable route lies between the Addo Elephant National Park MPA and the Port Elizabeth Corals MPA as described below:

- The Addo Elephant National Park MPA. Nelson Mandela Bay has the highest percentage of endemic marine invertebrates and seaweeds along the entire South African coastline. The MPA which is 1,200 km² in size was proclaimed in 2019 and expands on the original Bird Island MPA established in 2013. The MPA protects a wide range of ecosystems, including sandy beaches, rocky shores, reefs, and estuary and islands. (Source: <https://www.marineprotectedareas.org.za/addo-elephant-national-park-mpa>).
- The Port Elizabeth Corals MPA and is located between Port Elizabeth and Cape St Francis on a long narrow rocky ridge and series of underwater hills that creates a unique seascape on the continental shelf. The MPA has a size of 270 km² and was proclaimed 2019. The bathymetry of the MPA ranges from 200 m to 5,000 m in depth and is recognized as an Ecologically and Biologically Significant Area because of its importance in the life history of a wide variety of marine species, including Kingklip. In addition, the MPA protects important seabed features that provide important habitat for corals, including the giant mushroom coral, which is a soft coral with unusually large coral polyps. (Source: <https://www.marineprotectedareas.org.za/port-elizabeth-corals-mpa>).

The proposed cable route traverses the proposed Humpback Dolphin Marine Sanctuary (proposed to limit the impact of boating activities on the dolphins) as shown in Figure 15. Research has shown that degradation of Indo-Pacific Humpback Dolphins' shallow inshore habitat and an increase in boating activity have been attributed as the primary causes of their unfavourable conservation status and these dolphins are now classified as "Vulnerable to Extinction" in the Red Data Book of Mammals of South Africa and listed as highly endangered in the Convention on International Trade in Endangered Species (CITES). Approximately 200 – 500 individuals of this species are known to be located within the region and given their vulnerable status, the proposed Humpback Dolphin Marine Sanctuary has been proposed to protect the shallow water environment utilised by this species from speeding watercraft, where the speed will be restricted, and inflatable boats and personal watercraft will not be permitted. The proposed sanctuary extends from Bird Rock (the western point of Pollock Beach) to Cape Recife and extends 800 m out to sea from the shoreline as shown in Figure 15. (Source: https://www.nelsonmandelabay.gov.za/datarepository/documents/5BOhh_016_Overall%20BASZ%20Map_A0_HobieBeach_300dpi.pdf).

Both the proposed landing alternatives fall within this proposed sanctuary and impacts on these dolphins arising from the landing of the 2AFRICA/GERA (East) cable will be assessed by the marine ecologist during the EIA phase.

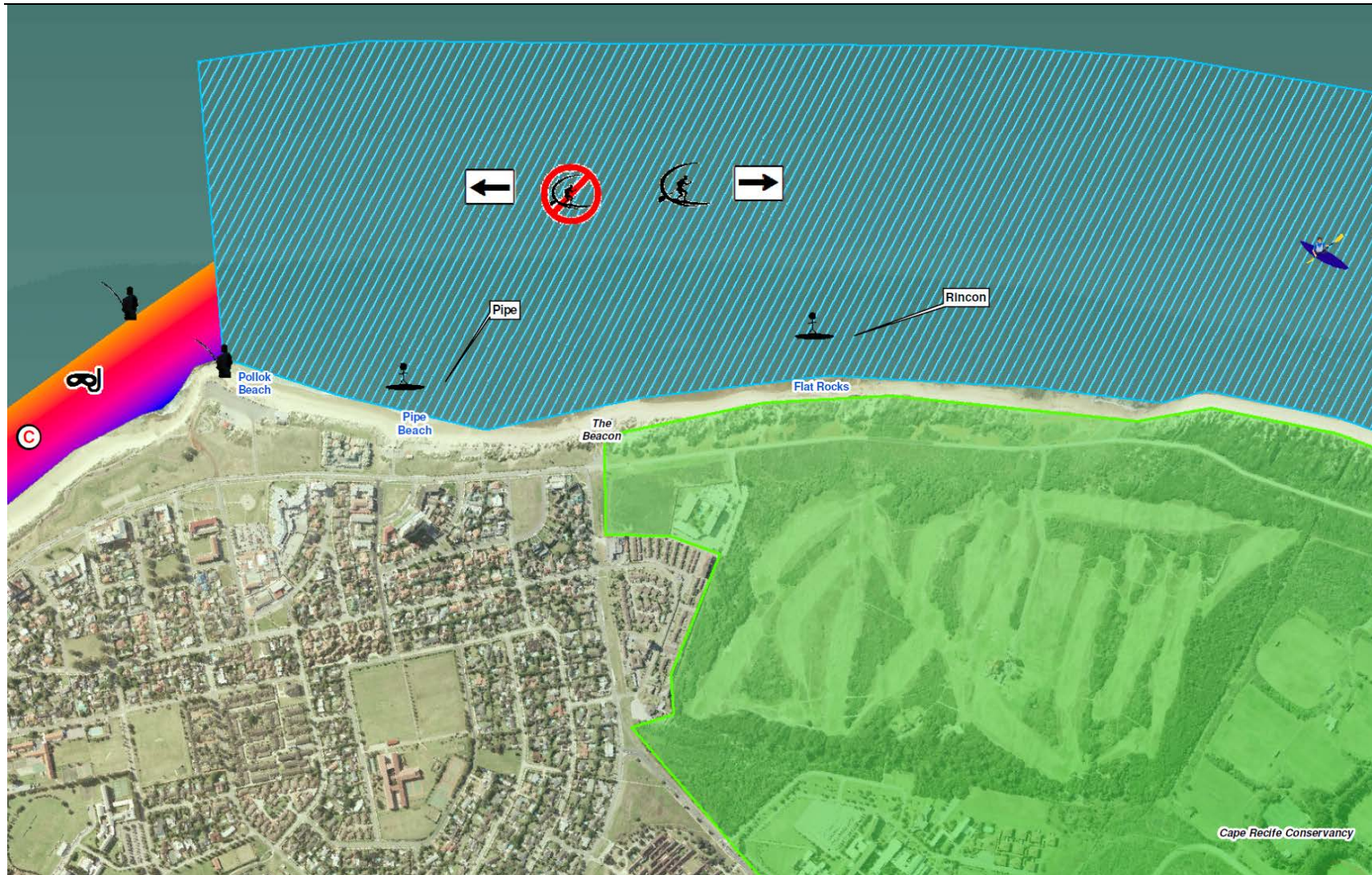


Figure 15 Proposed Humpback Dolphin Marine Sanctuary

8.2.2 *Geophysical Characteristics*

An understanding of geological principles is key to understanding the unique environmental aspects of the coastal zone because the environmental make-up of that zone is controlled to a large extent by its geological features, geo-environmental processes and geomorphology (Rust, 1991). Summerstrand, within which the proposed cable landing is located, has a relatively flat topography being located on the coastal plain. The geology of the area is predominantly made up of coastal sands which are recent in age and contain a significant portion of shelly beach sand (<http://www.wrc.org.za/wp-content/uploads/mdocs/515-1-97.pdf>). These sands are underlined by sedimentary strata with hard strata belonging to the Table Mountain Group (quartzites, shale) and the Bokkeveld Group (shale, sandstone). The shape of the coastline in Algoa Bay is a logarithmic-spiral shape which has been caused by wave refraction and longshore sediment transport (Rust, 1991) around Cape Recife.

Bathymetry

The 2AFRICA Subsea cable route survey presents the results obtained during the Inshore, Shallow Water and Deep-Water Survey conducted by FUGRO (2020) and comprises an investigation of the bathymetry, seabed features, and shallow geology along the proposed route. In addition, a geotechnical sampling programme was undertaken to establish sediment types for correlation with geophysical data. Based on results of the screening studies undertaken and the survey of the route alignment the shallow water bathymetry along the proposed 2AFRICA/GERA (East) Cable System can be described as follows:

- The Inshore Survey covers an area from a water depth (WD) of 2.6 m to a WD of 22 m. The bathymetry of this section of the offshore alignment is relatively flat with a gentle gradient of less than 5° as one moves offshore. The proposed cable route runs in an almost due east direction and the area is characterised by outcropping and sub cropping rock.
- From the 22 m WD the bathymetry continues to slope at a gentle gradient of less than 5° until it reaches a WD of 41.6 m. the bathymetry in this section is characterised by outcropping and sub cropping rock covered by loose sands.
- From 41.6 to 75 m WD the seafloor is characterised by mega ripples and current striations which indicate an enhanced bottom current regime.
- From 75 m WD the route continues over sand to the south of an area with a rough seafloor morphology composed of outcropping and sub cropping rock alternating with sand.
- At deeper depths, the seafloor is characterised by sand and clay sediments with occasional rock outcrops which the cable alignment avoids.

8.2.3 *Biophysical Characteristics*

Two types of water masses have been documented to move into Algoa Bay, namely warm Agulhas Current water and cold upwelled water originating from upwelling at Cape Recife. Warm water from the Agulhas Current is associated with occasional large meanders shorewards as the current moves southward (Figure 16). Upwelled water moving into the bay has been known to cause sharp changes in temperature by approximately 8°C within a 24-hour period (Goschen and Schumann, 1995). During summer there is a strong thermocline present in the water column in waters deeper than 15 m with intense temperature gradients of up to 3°C.m-1. In winter the thermocline disappears, and water temperatures are relatively homogenous (Beckley, 1983 & 1988). the annual sea temperature fluctuations are provided in Figure 17 below.

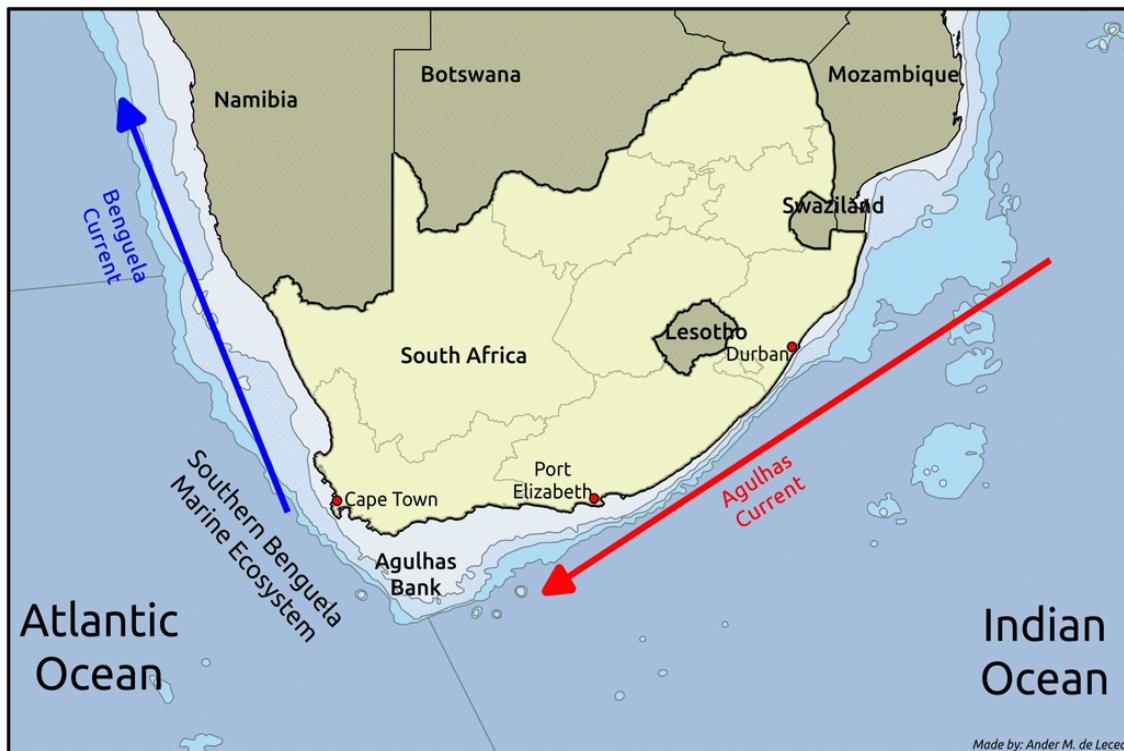


Figure 16 Agulhas Current along the east coast of South Africa

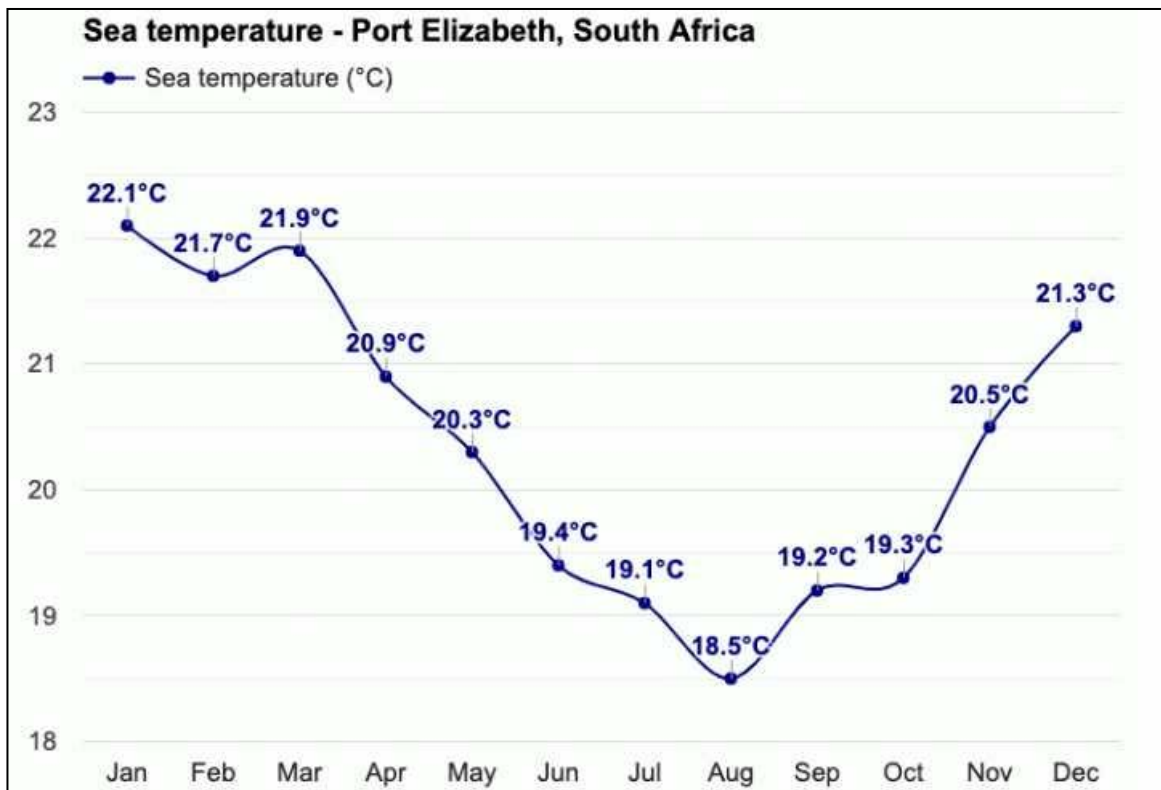


Figure 17 Sea temperature at Port Elizabeth

(Source: www.weatheratlas.com)

8.2.4 *The biological environment*

Ecoregions

Biogeographically, the 2AFRICA/GERA (East) Cable System will traverse the Agulhas Bioregions as it moves from the trunk line towards Port Elizabeth.

South Africa's marine environment includes the Atlantic, Indian and Southern oceans with the cold Benguela upwelling systems and the warm fast-flowing Agulhas current (SANBI; 2019). There are three shelf ecoregions that are recognised, these being the Cool Temperate Southern Benguela, the Warm Temperate Agulhas and the Subtropical Natal–Delagoa, whilst the deep ocean beyond the shelf edge includes two further ecoregions in the form of the Southeast Atlantic and the South-west Indian as shown in Figure 18, referenced from SANBI (2019).

The benthic habitats of South Africa were mapped as part of the 2018 National Biodiversity Assessment to develop assessments of the ecosystem threat status and ecosystem protection level. The benthic ecosystem types were subsequently mapped and assigned an ecosystem threat status based on their level of protection.

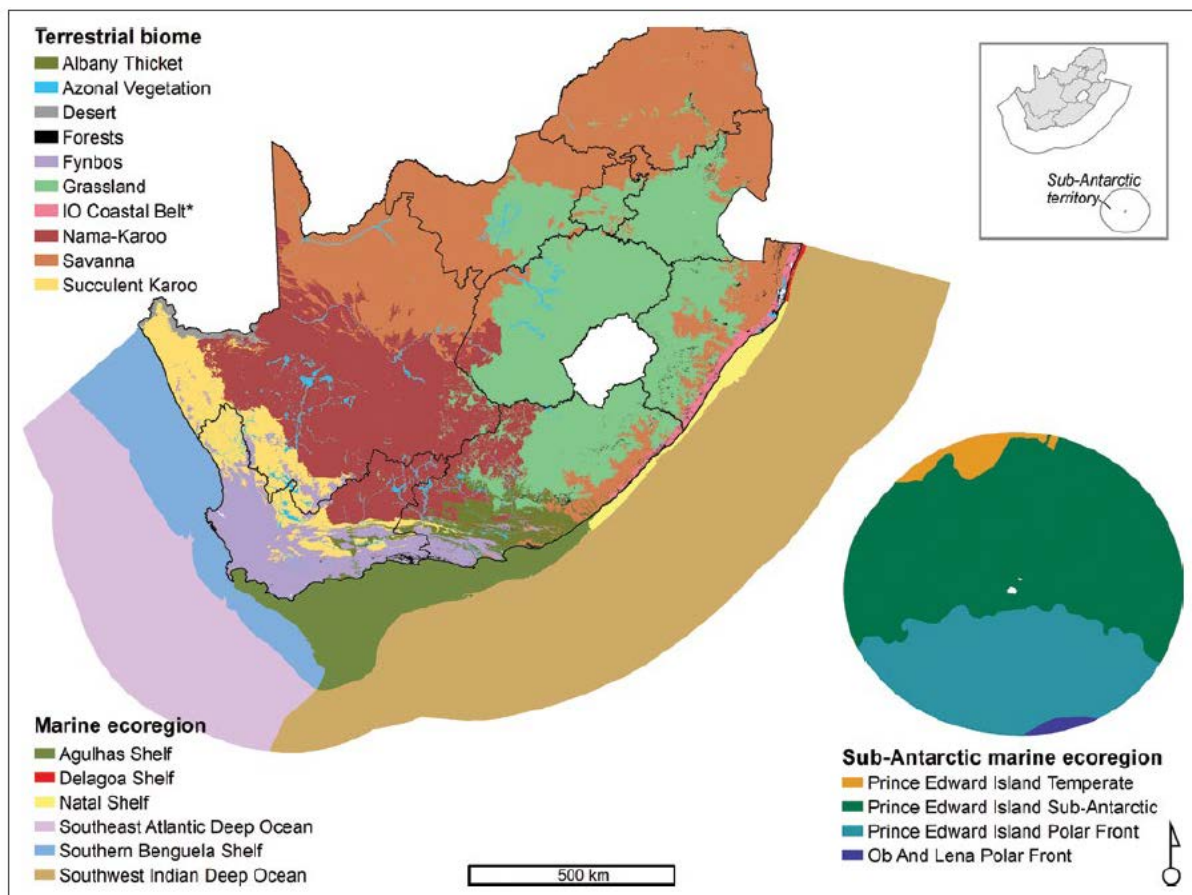


Figure 18 Marine Ecoregions and Terrestrial Biomes of South Africa

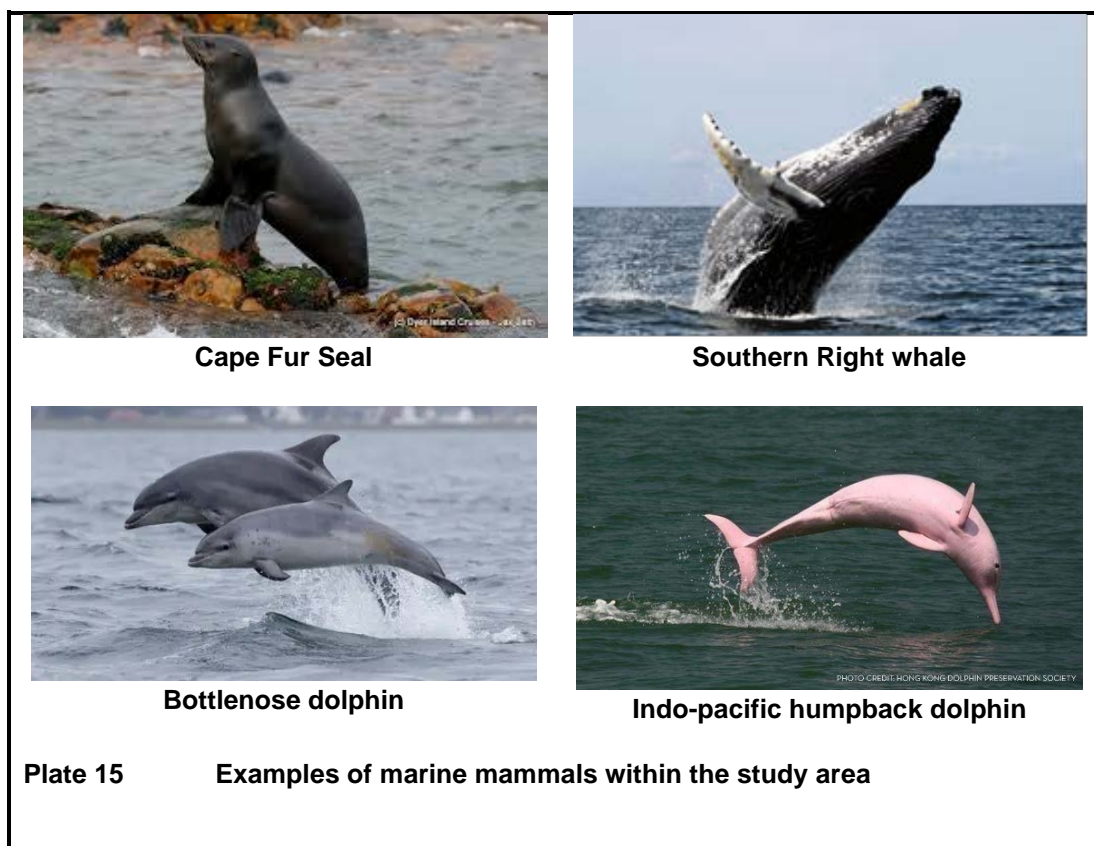
(Sourced from SANBI, 2019)

Marine ecoregions, habitats and associated biological communities specific to the study area is to be described in detail by the marine ecological specialist report for inclusion in the EIA Phase, and which will include:

- Sandy intertidal beaches and subtidal substrates,
- Intertidal rocky shores and subtidal reefs, and
- The offshore environment including demersal fish species that live and feed on or near the seabed; pelagic communities that live and feed in the water column; plankton associated with the upwelling characteristic of the area; cephalopods that are distributed on the mid-shelf or on the edges of a shelf at varying depths; turtles; seabirds, and marine mammals (whales, dolphins and seals).

8.2.5 Marine Fauna

Marine mammals known to occur within the Algoa Bay area include the Cape Fur Seal (*Arctocephalus pusillus*), bottlenose, common and humpback dolphins, Southern Right-, Humpback- and Bryde's- whales. One dolphin species in particular, the endangered Indo-Pacific Humpback Dolphin (*Sousa plumbea*) uses the shallow water (depth < 15m) reef areas of Algoa Bay for social interaction and feeding. The Indo-Pacific humpback dolphin inhabits coastal waters of the Indian Ocean and Western Pacific and are known to occur along the east and south coast of South Africa (Ross, 1984). These coastal dolphins do not appear to be abundant anywhere, and their inshore distribution renders them particularly susceptible to the effects of human activities in the coastal zone and general degradation of inshore habitats (Klinowska, 1991). Algoa Bay is the eastern most distribution of the Cape fur seal and breeding takes place on Black Rocks in Algoa Bay (Mills and Hes, 1997)



Birds

Bird life within the project area is diverse given that Port Elizabeth is located at the convergence of five South African biomes and represents a large percentage of South Africa's biological diversity. Bird Island (19 ha) is the largest of the Algoa Bay islands and is relatively flat rising by only 9 m. Seal Island is much smaller (0.6 ha) lying 360 m north of Bird Island, and Stag Island is even smaller (0.1 ha), lying 320 m north-west of Bird Island (Bird Life International, 2012). These islands are home to many endangered, vulnerable and near-threatened birds including breeding colonies of African penguins (Crawford et al. 1990; Barnes 1998), Cape gannet (Crawford, 1997b; Barnes, 1998), African black oystercatchers (Martin, 1997), Roseate tern (Randall et al. 1991; Crawford, 1997a) and winter visiting Antarctic terns (Williams, 1997).

Within the project area, bird species likely to be encountered fall within four categories, viz. pelagic, coastal, bush and freshwater birds (<https://www.birdlife-ec.co.za/cape-recife-nature-reserve-bir>). Of these four categories, the pelagic and coastal birds are most likely to be impacted by the proposed development especially those birds who frequent the intertidal habitats and beaches. Notable species include the African Black Oyster Catcher (*Haematopus moquini*) which is listed as near threatened having a total known population of 6,000 individuals (http://en.wikipedia.org/wiki/African_oystercatcher). Other birds known to occur within the area include the Purple Heron, African Jacana., African Swamphen, Little Bittern, African Rail, Roseate tern, Swift tern, Sandwich tern, Common and Artic Terns, African Black Oystercatcher, Grey Plover and the Black Headed gul (Plate 16).



8.2.6 Offshore Marine Environment

Algoa Bay is located on the south eastern coast of South Africa with Port Elizabeth being its economic hub (Figure 19). It faces into the South-West Indian Ocean, where the dominant oceanic-scale feature is the Agulhas Current, which flows pole wards along the continental shelf edge. Given the prevalent calm sheltered sea conditions and rich fishing grounds off this section of the coast, there are several user groups who make use of the bay including the line and squid fishing industries.

In addition to the fishing industries, other user groups include recreational boaters, recreational fishermen and scuba divers who dive on many of the reefs and rock outcrops found within the bay. These diverse user groups, combined with the marine biodiversity in the area and recently promulgated marine protected areas such as the Addo Marine Protected Area (MPA), have resulted in a relatively high level of user conflict within the bay.

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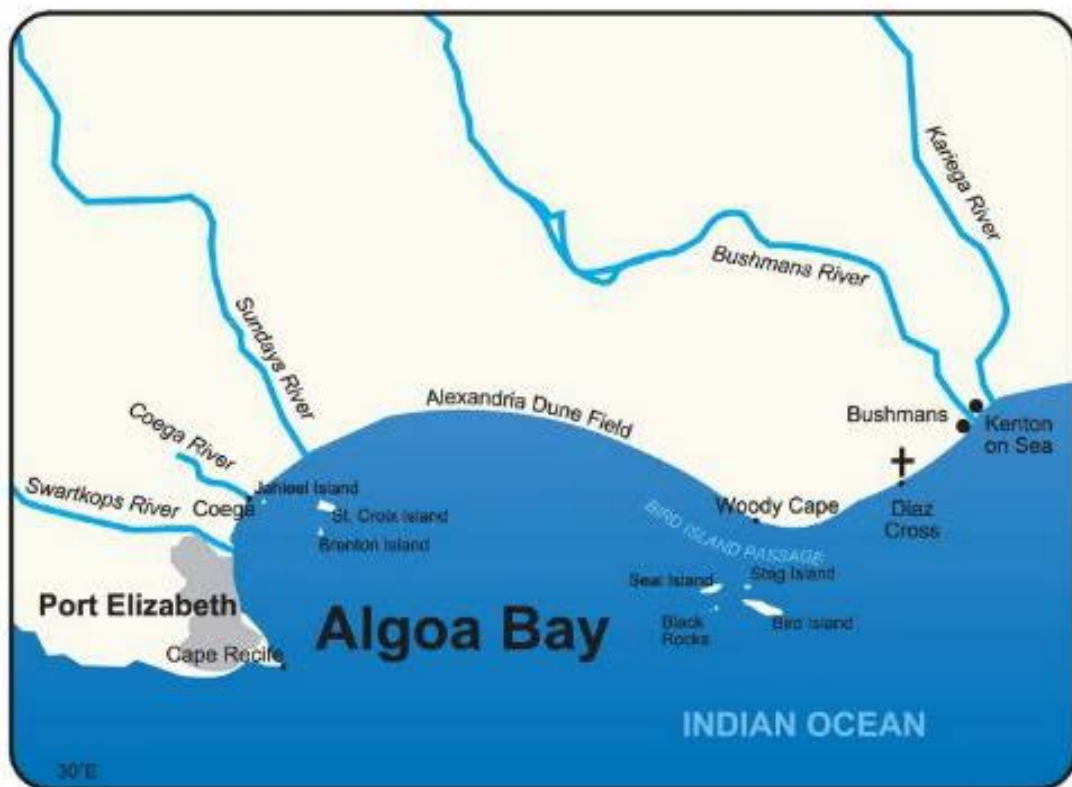


Figure 19 Algoa Bay

8.2.7 Offshore Mining and Exploration Concession Holders

Approximately 98% of South Africa's EEZ is subject to a right or lease for offshore oil and gas exploration or production. The Petroleum Agency of South Africa is responsible for the 'promotion and regulation of offshore exploration and production' and maintains a national database of petroleum exploration and production. Since 2006, this database has shown a rapid increase in the application and grant of offshore rights and leases. The South African Government has also actively promoted offshore oil and gas exploration through Operation

Phakisa which seeks to support the rapid development of the offshore oil and gas sector by “creating an environment that promotes exploration”.

The proposed 2AFRICA/GERA (East) Cable to Port Elizabeth crosses three of these offshore oil and gas concessions from where it branches off the trunk line until it makes landfall at Port Elizabeth (Figure 20).

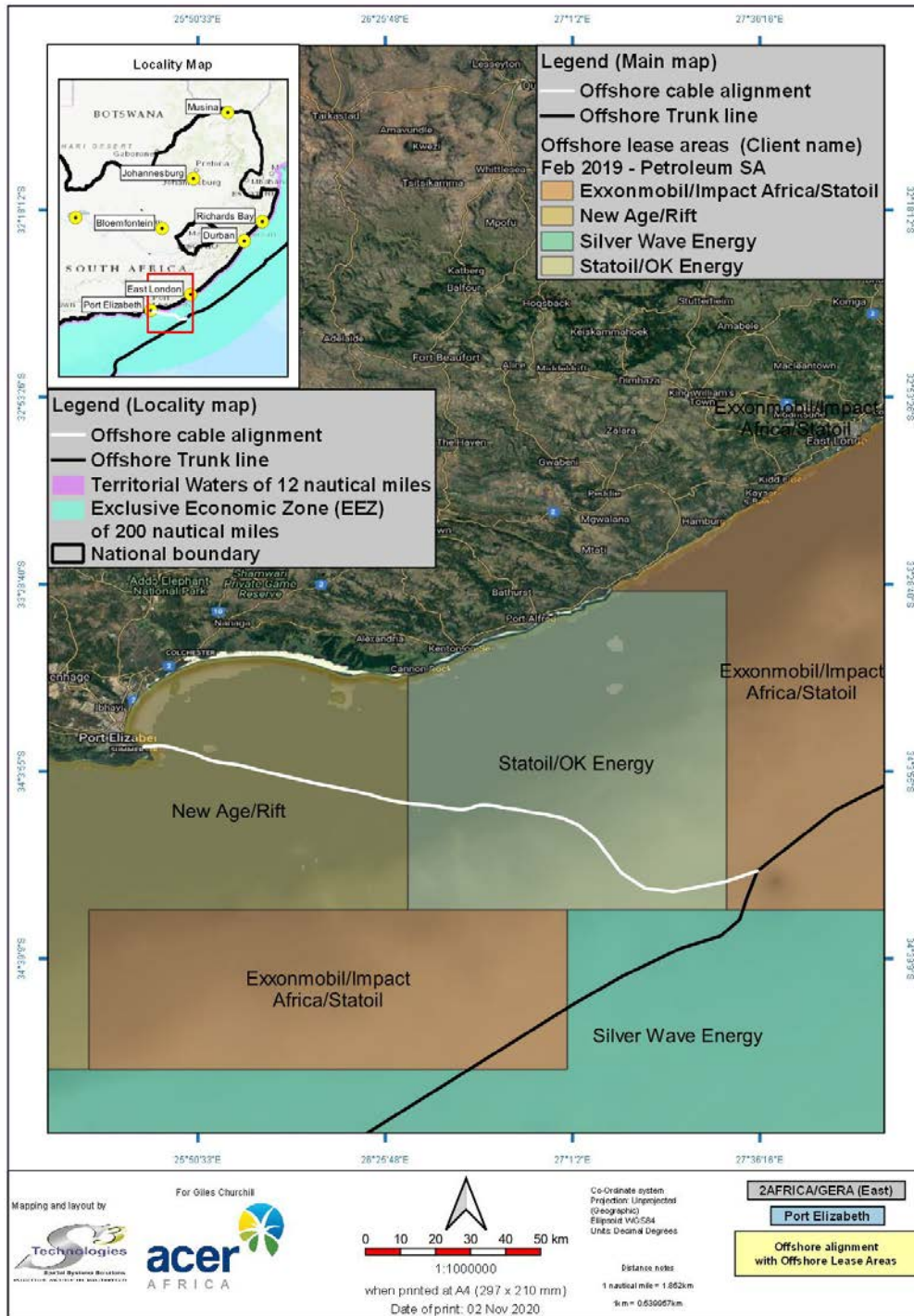


Figure 20 Offshore mining and exploration blocks along the 2AFRICA/GERA (East) branch to Port Elizabeth

Boundary	KP	Latitude	Longitude	Source
ENTER NewAge - Algoa-Gamtoos	0.142	33° 59.2159'S	025° 40.4347'E	Database
EXIT NewAge - Algoa-Gamtoos / ENTER Equinor - East Algoa (on RPL named as OCB 257 ER (EQUINOR ENERGY AS)	79.360	34° 09.9336'S	026° 30.0000'E	Database, RPL
EXIT Equinor - East Algoa / ENTER ExxonMobil - Transkei Permit (on RPL named as OCB 252 ER (IMPACT AFRICAL LTD)	183.867	34° 24.6352'S	027° 30.0000'E	Database, RPL

ACER will engage with each of these concession holders at the onset of the environmental authorisation process and it is recommended that the South African landing partner engage directly with the concession holders to draw up a Memorandum of Understanding (MoU) which outlines the rights, obligations and roles and responsibilities of both parties in terms of the installation and operation of subsea infrastructure.

8.2.8 Fishing Industry

Recreational fishing

Recreational fishing along the shoreline by Rock & Surf anglers is concentrated along a relatively short stretch of coastline between Schoenmakerskop and Flat Rocks. The coast between Schoenmakerskop and Cape Recife is exposed to the open ocean and is characterized by jagged ridges of quartzitic sandstone running parallel to the shore, with numerous pools and gullies. Within Algoa Bay, from Cape Recife to Flat Rocks, the shore is sheltered and consists of a gently sloping rock platform of calcareous sandstone (Clarke & Buxton, 1989). In addition to shore angling the recreational fishery also includes the offshore recreational fishery which generally use small boats (less than 10 m in length). The recreational fisheries are reported to catch over 250 marine species, although fewer than 5% of these are actively targeted by commercial fisheries, which comprise 90% of the landed catch. Common species encountered within these waters include:

- Elf Pomatomus saltatrix
- Musselcracker Sparodon durbanensis
- Blacktail Diplodus mustelus, and
- Bronze bream Pachymetopon grande

Industrial fishing

The intensity of marine fishing has increased dramatically over time in response to pollution of freshwater ecosystems, cultural changes, human population increase and improved technologies (Roberts, 2007). The South African fisheries sector plays a small part in the economy of the country contributing less than 1% to the Gross Domestic Product (GDP). This said however, the commercial fisheries sector plays a major role in the economy of Port Elizabeth. Additionally, traditionally fisheries have contributed significantly to the livelihoods of coastal communities, extending from the Port Nolloth on the West Coast to the KwaZulu-Natal coastline (<http://www.fao.org/fi/oldsite/FCP/en/ZAF/body.htm>).

Due to the diverse range of ecosystems and irregular coastlines around South Africa the marine fisheries in South Africa are diverse both with respect to species caught and gear deployed. In the offshore sector, the industrial fisheries are dominated in terms of volume and value, by the

demersal hake trawl fishery and the small pelagic purse seine fishery for anchovy and sardine (<http://www.fao.org/fishery/facp/ZAF/en>). One of the biggest fishery sectors in terms of areas fished and numbers of fishers involved is the line fish sector. This multi-faceted sector is complex with many fishers, subsistence fishers and recreational users. There is a dedicated commercial line fish sector (350 boats) distributed around the whole coast targeting primarily snook and cob as well as numerous other line-caught species (Griffiths *et al.*, 1999).

In Port Elizabeth, primary fisheries in terms of highest economic value are the demersal (bottom) trawl and long-line fisheries targeting the Cape hakes (*Merluccius paradoxus* and *M. capensis*) and the purse-seine fishery targeting small pelagic species, including pilchard (*Sardinops ocellatus*) and anchovy (*Engraulis encrasicolus*). Highly migratory tuna and tuna-like species are caught in deeper waters and seasonally within the South African EEZ by the pelagic long-line and pole fisheries with the targeted species being albacore (*Thunnus alalunga*), bigeye tuna (*T. obesus*), yellowfin tuna (*T. albacares*) and swordfish (*Xiphias gladius*).

Outside the Western Cape, the only “significant fishery activity” occurs in the Eastern Cape (Port Elizabeth and Port St Francis) where the squid fishery is based (<http://www.stfrancistourism.co.za/industries/fishing-industry>) and a small proportion of South Africa’s sardine, inshore trawl and line-fish catch are landed. The squid (*Loligo vulgaris reynaudii*) fishery is an important fishery in the Eastern Cape particularly around Port Elizabeth and Cape St Francis where between 6,000–10,000 tonnes are landed annually (<http://www.fao.org/fi/oldsite/FCP/en/ZAF/body.htm>). The fishery has approximately 170 rights holders and up to 200 boats in the sector and is one of the main employers in the fisheries based in and around Port Elizabeth.

Major fishing companies

There are two major fishing companies situated off Port Elizabeth, namely, Eyethu Fishing (Pty) Ltd and Talhado Fishing.

Eyethu Fishing (Pty) Ltd is the largest fishing company dealing with finfish in the Port Elizabeth harbour. Their infrastructure consists of eight boats with trawler nets to catch mainly hake, sardine and horse mackerel, as well as a small number of squid. On average, 5 000 tons of hake, 4 000 tons of sardine, 3 000 tons of horse mackerel and about 800 tons of squid are caught annually. Eyethu has sufficient cold storage facilities for 500 tons of fish per month. There are no other cold storage facilities available in the harbour except the Port Elizabeth Cold Storage (Pty) Ltd, which only caters for fruit exports (Umcebis, 2013).

Talhado Fishing is considered as the second largest fishing company dealing with finfish in the harbour. They focus on three main types of fish, i.e., sardines, mackerel, and hake, which are caught with seine nets. A small number of the fish are sold directly to the public, whilst the rest are used for bait and protein (Umcebis, 2013).

Squid

The South African Squid Management Industrial Association (SASMIA) is the officially recognised industrial association that collectively represents permit holders, boat owners and traders in the South African squid fishery¹². Its primary purpose is to ensure, on behalf of its members, that the squid resource and fishery in South Africa is properly managed. This function is performed within the ambit of the Marine Living Resources Act, which is promulgated by Marine & Coastal Management (a branch of the Department of Environment, Forestry and

¹² <http://bcre.org.za/sasmia/>

Fisheries, DEFF). The core focus of SASMIA is to provide a two-way communication channel between government and the industry, and to fund squid resource research.

Loligo reynaudii commonly called Cape hope squid¹³, occurs in coastal waters of the eastern cape coast mainly between Port Alfred and the Great Fish River (Guerra, *et al*). Off South Africa's east coast and outer Agulhas Bank the distribution of *L. reynaudii* is strongly influenced by the warm, fast-flowing Agulhas Current. In South African waters more than two thirds of the adult biomass is concentrated on the south east coast (Roberts and Sauer, 1994).

Cape hope squid conservation status has been assessed by biomass-based stock assessment models and results are expressed in terms of the number of person-days permitted in the fishery (DAFF, 2014). The current reviewed results indicated a decline in the biomass and limited resources in the production of the squid in comparison to the previous years (DAFF, 2014), which can have devastating economic consequences to the fishing industry during years of reduced production.

ACER considers the fishing industry (trawling, long-line and squid) as key stakeholders and they will be consulted during the EIA to record and incorporate concerns or comments they have with regards to the proposed landing of the 2AFRICA/GERA (East) cable in Port Elizabeth.

8.2.9 Offshore Aquaculture

Algoa Bay (also known as Nelson Mandela Bay) is a favoured destination for beach and water sport enthusiasts and is fast becoming known as South Africa's water sport capital as it offers activities throughout the year, especially windsurfing and fishing (Umcebisi, 2013). A number of mariculture activities are prevalent in Algoa Bay and at the Port Elizabeth harbour including following on-going mariculture activities:

- A private fish breeding facility at the harbour, producing only fish for bait purposes.
- A small oyster breeding station about 2 km from the harbour, maintained by the Nelson Mandela Metropolitan University (NMMU) for research purposes.

Aquaculture is one of the sectors that form part of Operation Phakisa under the Ocean's Economy in South Africa. Operation Phakisa is an initiative of the South African government which aims to implement priority economic and social programmes better, faster and more effectively (Anchor, 2019). Recently, applications were made for an offshore aquaculture site called the Algoa Bay Sea-Based Aquaculture Development Zone which has been identified as a possible site for bivalve and/or finfish culture (Algoa 1). The site measures approximately 312 ha in size and lies approximately 2 km offshore from the popular beaches of the southern suburbs of Port Elizabeth (King's Beach, Humewood Beach, Hobie Beach, and Pollock Beach). Findings from the studies conducted have identified Algoa 1 as a suitable site for bivalve culture and not finfish culture due to possible impacts on the receiving environment and potential economic losses in the tourism and water sports sectors of Port Elizabeth.

Based on co-ordinates provided in the study conducted by Anchor Environmental, the proposed 2AFRICA/GERA (East) cable will traverse the Algoa 1 Aquaculture development Zone as shown in Figure 21. It is unlikely that the proposed 2AFRICA/GERA (East) cable will have any impact on the Algoa 1 Aquaculture development Zone as the cable alignment passes through the southernmost section of the site (approximately 845 m in length) and the cable will be buried to a depth of 1 m below the substrate. Further engagements with the Department of Agriculture,

¹³ <https://www.sanbi.org/animal-of-the-week/cape-hope-squid/>

Forestry and Fisheries will however be required to establish the proposed layout of the Algoa 1 aquaculture zone. As such, this department is considered a key stakeholder.

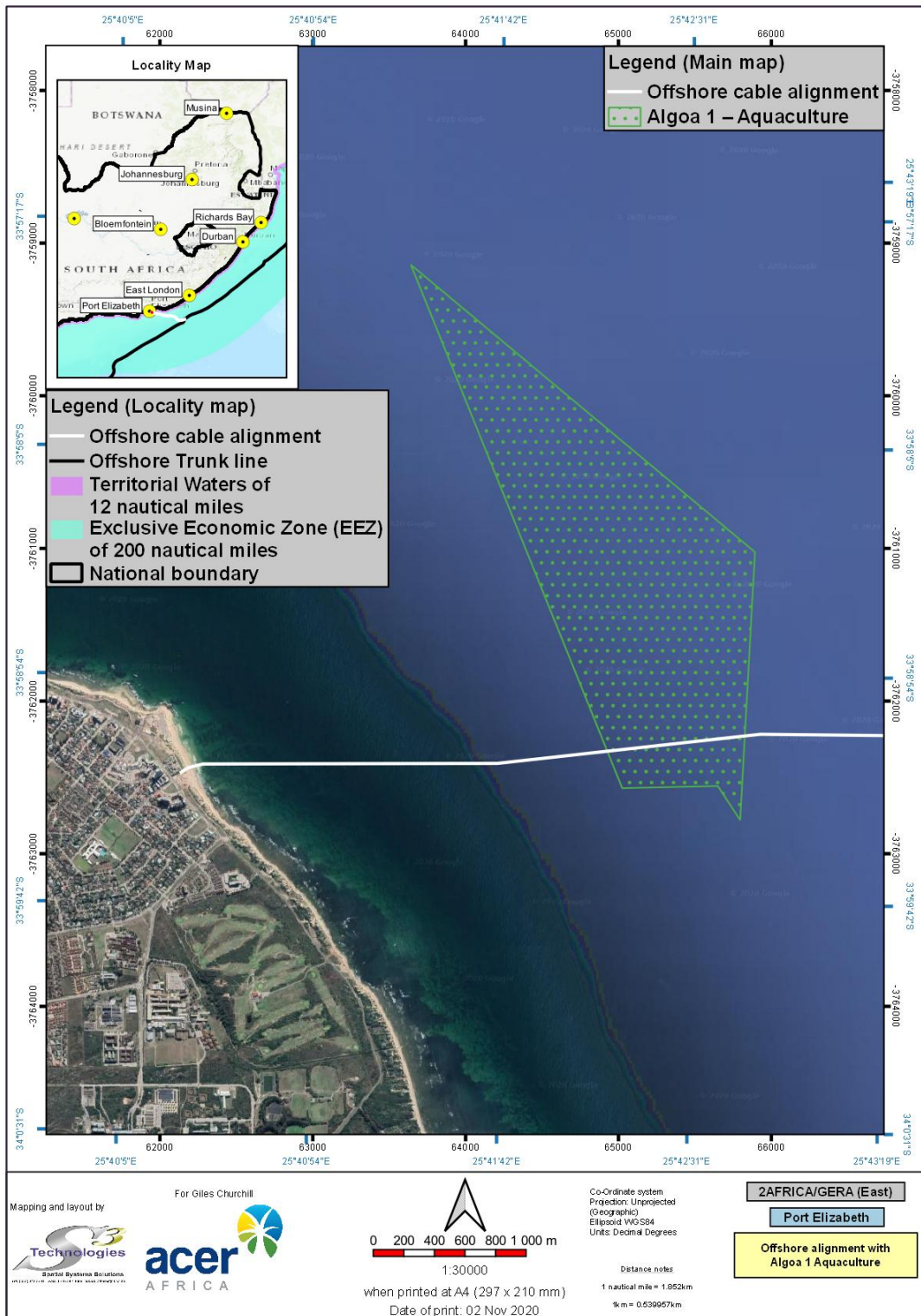


Figure 21 Algoa 1 Offshore Aquaculture Block

8.2.10 Offshore recreational areas

Marine user groups can be broadly defined as recreational or commercial. Recreational marine activities that most likely to be affected by offshore aquaculture boat (skiboat) fishing, recreational scuba diving and yacht sailing. The proposed cable will temporarily impact on these recreational areas during the construction phase however during operation no significant impact on all of these sectors is anticipated.

Non-motorised water sports

Water sports such as surfing, kite boarding, surf-ski paddling, stand up paddle boarding, open water swimming and sea kayaking have seen significant growth in Nelson Mandela Bay over recent years. These activities are regularly undertaken at Pollock Beach where the proposed landing site of the 2AFRICA/GERA (East) cable system will make landfall. As such, some negative impacts on non-motorised water sports are anticipated during cable installation however these impacts are considered negligible given the short construction period and the fact that once operational the cable system will have no impact on this user group.

Yachting

Algoa Bay Yacht Club (ABYC) was established approximately 54 years ago. The club now includes a large clubhouse and marina with approximately 130 yachts moored within the Port of Port Elizabeth. The regular yacht sailing area is shown in Figure 22. ABYC has been host to many national and international sailing events including the long running Algoa Bay week regatta (<https://abyc.co.za/>). A portion of the proposed 2AFRICA/GERA (East) cable will traverse an area regularly used by yachts and cognisance must be taken of scheduled international sailing events when scheduling installation of the cable. The ABYC will be consulted to obtain their calendar of racing events which will be passed on to ASN for consideration when planning the schedule for cable installation.

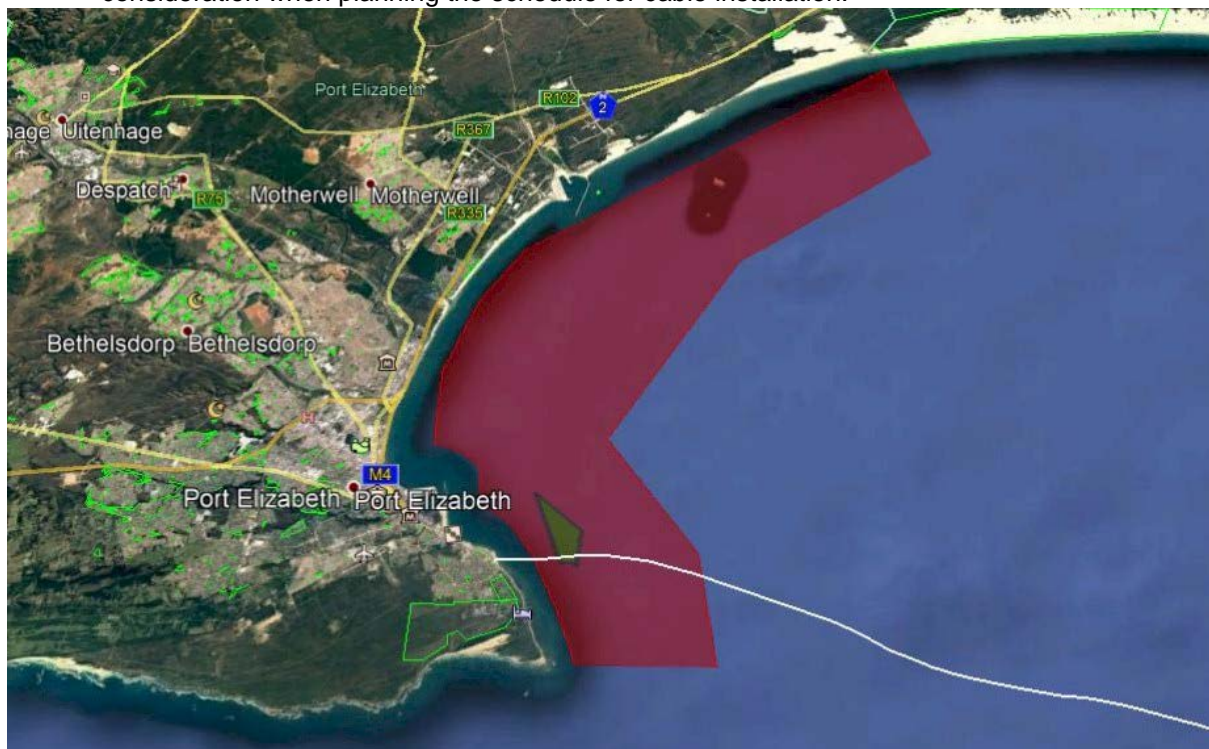


Figure 22 Regular yacht sailing area within Algoa Bay

(Source: <http://abyc.co.za>)

Scuba diving

Recreational scuba diving is a popular activity within Algoa Bay and there are a number of dive shops located within Port Elizabeth that supply equipment and training. There are an estimated 18 popular diving spots off Port Elizabeth with 5 of these within 500 – 1,000 m from the border of Algoa 1. Considering that a portion of the proposed 2AFRICA/GERA (East) submarine telecommunications cable will traverse Algoa 1, diving activities in these areas may be affected.

Popular diving events include the Noordhoek Dive Festival which is held every June at the Noordhoek dive and boating club on Marine drive. Divers from all over South Africa gather for a three-day festival of Scuba diving. The sardine run and squid spawning periods are also popular dive times where divers can get to see these biological phenomena.

The alignment of the 2AFRICA/GERA (East) cable to Port Elizabeth has been selected to avoid reefs and rocky substrates as best possible and impacts on reefs which are frequented by scuba divers is unlikely. Although no impacts on scuba divers is anticipated the diving industry is considered a key stakeholder and dive operators in Port Elizabeth will be consulted for their comment during the environmental authorisation process.

Recreational Ski boat fishing

A recreational ski boat fishing club, (Port Elizabeth Deep Sea Angling Club) operates out of the Port Elizabeth harbour and the Noordhoek skiboat club has a slipway some 6 km west of Cape Recife. Recreational boat fishing takes place throughout Algoa bay. Chalmers (2012) estimated annual recreational ski boat fishing effort in the Algoa Bay at 2,118 boat days. Most vessels carried an average of four crew and a resultant 61,074 angler hours of recreational line fishing effort takes place annually with an estimated retained catch of approximately 21,000 fish from 26 different species (Chalmers 2012).

Most recreational fishing tends to be concentrated around reefs or on substrate with rocky bottoms where fishing is generally better due to the presence of bait fish on which many of the targeted species feed. Given that the 2AFRICA/GERA (East) cable alignment avoids reefs and rocky substrate as best possible it is unlikely that the cable will have any significant impact on the recreational fishery during operation however some short-term impacts can be expected during installation when operational clearances are enforced around the cable landing vessel. This impact is considered negligible as the installation of the cable in the offshore environment at water depths less than 100 m is expected to be completed within a matter of weeks. The recreational fishing sector is however considered a key stakeholder and ski boat clubs will be consulted for their comment during the environmental authorisation process.

8.3 Climate

Port Elizabeth has a mild/temperate climate with pleasant conditions throughout the year (https://en.wikipedia.org/wiki/Port_Elizabeth#Climate). The climate in Port Elizabeth, which has an average elevation of 60 meters above sea level, is to a large extent dependant on the warm ocean conditions which aid in moderating climate extremes. With a sub-tropical climate, temperatures in Port Elizabeth seldom drop below 8°C with the average temperature in the coldest winter month of July being 13.8°C and the warmest month of February being 21.3°C (Figure 23). (<https://en.climate-data.org/africa/south-africa/eastern-cape/port-elizabeth-152/>).

Rainfall (Figure 24) occurs all year round but is slightly heavier and more frequent during the winter months. Port Elizabeth has an average yearly rainfall of 561 mm with the driest month

being January with an average rainfall of 36 mm and the wettest month being October with an average rainfall of 58 mm (<https://en.climate-data.org/africa/south-africa/eastern-cape/port-elizabeth-152/>).

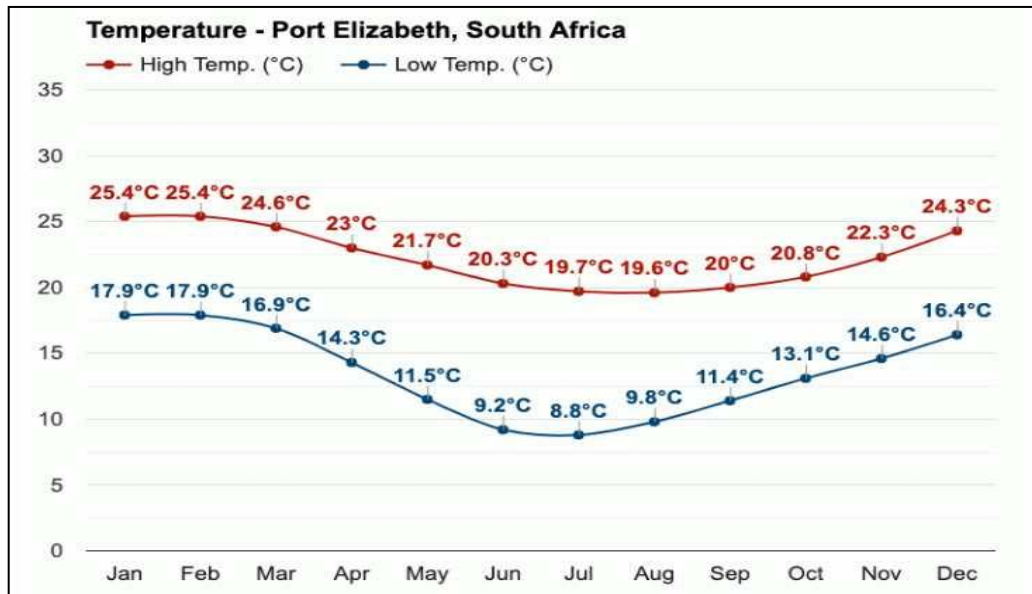


Figure 23 Temperature within Port Elizabeth
 (Source: www.weatheratlas.com)

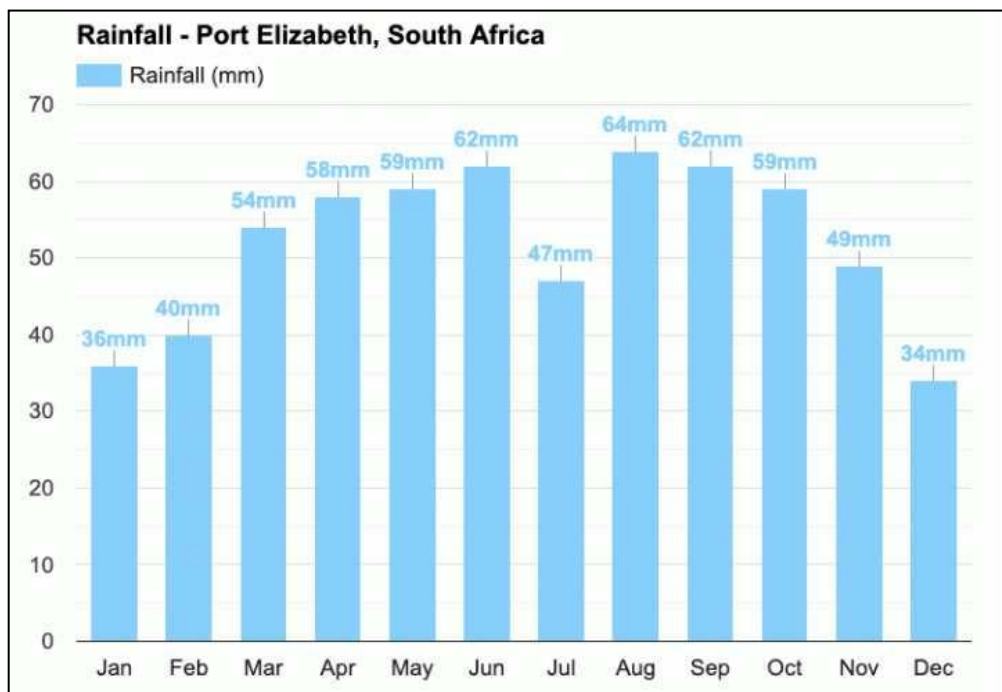


Figure 24 Rainfall within Port Elizabeth
 (Source: www.weatheratlas.com)

8.4 Socio-economic Overview

The proposed project is located in Wards 1 and 2 of the Nelson Mandela Bay Metropolitan Municipality (NMBMM) (Figures 25 and 26)¹⁴. To identify, assess and place in context potential socio-economic impacts that the proposed project may have, the socio-economic dynamics of the receiving environment need to be understood. This section provides an overview of the socio-economic characteristics of the project area.

8.4.1 Location

The NMBMM (Area: 1,959 km²) is a Category A municipality, established on 5 December 2000 (https://www.ecsecc.org/documentrepository/informationcentre/nelson-mandela-bay-metro-municipality_31887.pdf) and is the largest single economy in the Eastern Cape province. The main economic sector in the municipality is manufacturing providing 31% of formal employment with one of the biggest sectors being the automotive industry, which includes two of the six vehicle assemblers in South Africa, viz. General Motors and Volkswagen.¹⁵

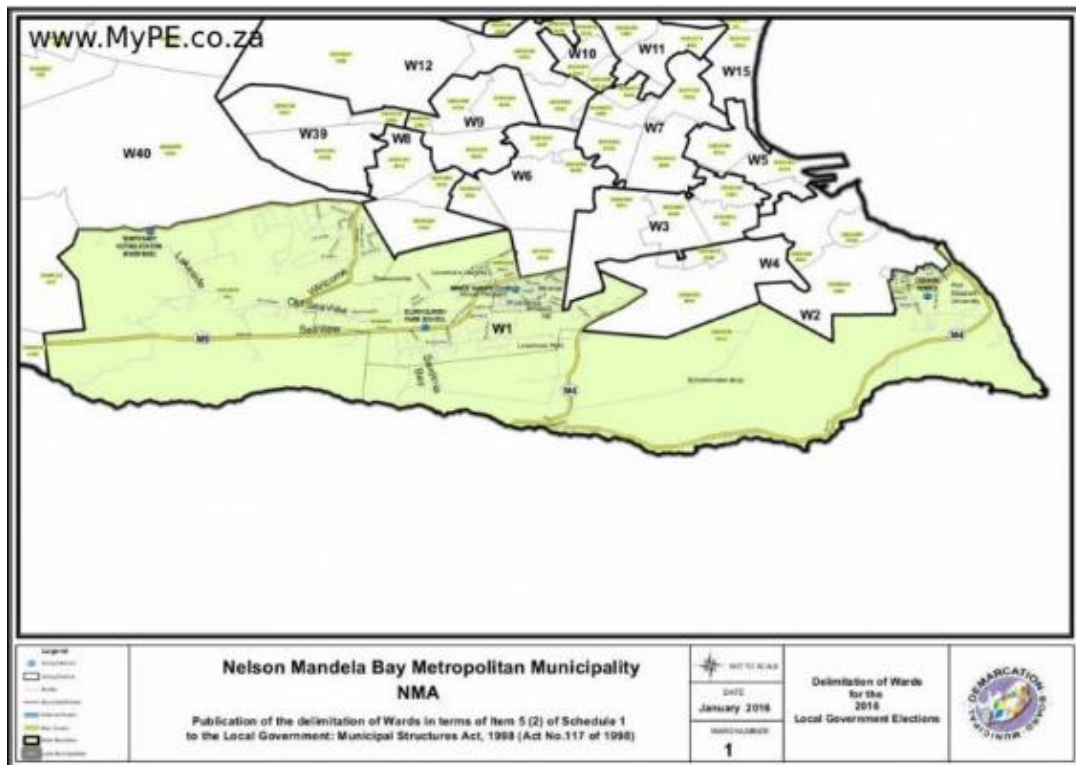


Figure 25 Ward 1 within the NMBMM

14 Source: <https://wazimap.co.za/profiles/ward-29300002-nelson-mandela-bay-ward-2-29300002/>

15 Source: <https://www.nelsonmandelabay.gov.za/DataRepository/Documents/yVeEsNMBM%20SOER%20Feb%202011.pdf>

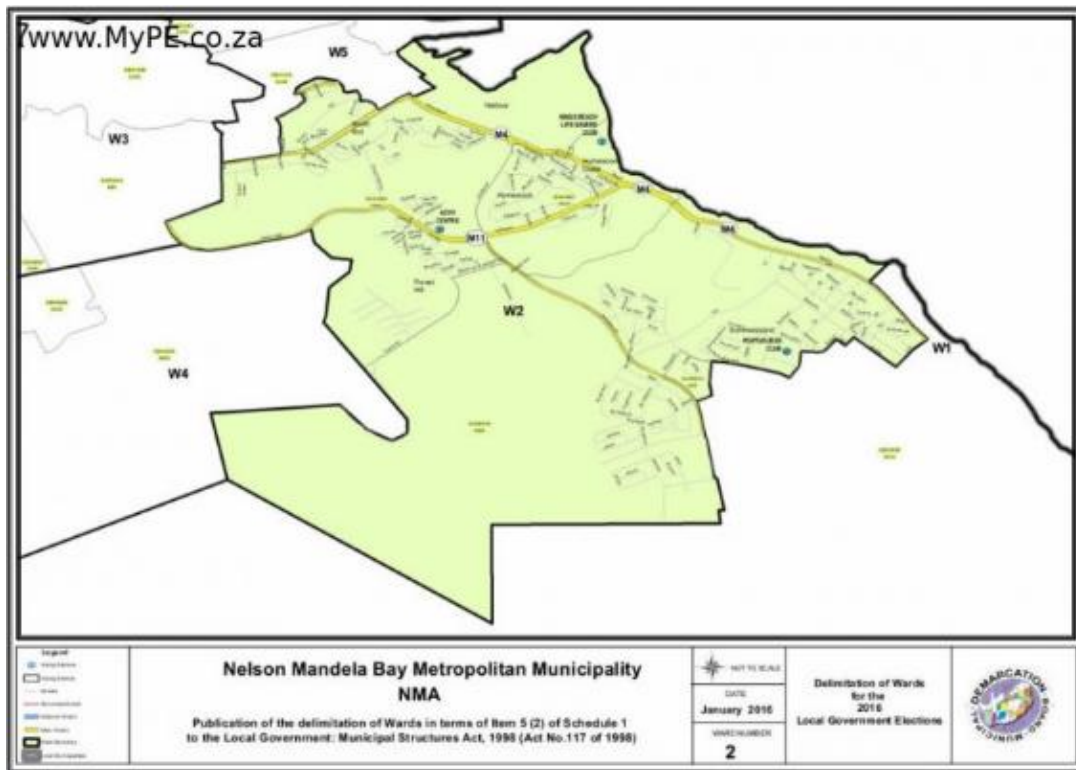


Figure 26 Ward 2 within the NMBMM

8.4.2 Population

The proposed cable landing and onshore infrastructure will be located within Wards 1 and 2 of the NMBMM with the proposed location of the BHM in Ward 1 and the location of the CLS in Ward 2. Wards 1 and 2 have a population of 18,765 and 17,235, respectively (Figure 27 and 28) (<https://wazimap.co.za/profiles/ward-29300002-nelson-mandela-bay-ward-2-29300002/>). Most of the onshore infrastructure required for the 2AFRICA/GERA (East) cable landing is located within Ward 2 whose socio-economic profile can be summarised as follows:

- ❑ Average population age of 33 which is higher than the rest of the Eastern Cape province which has an average age of 22.
- ❑ English (46%), Afrikaans (25%) and IsiXhosa (13%) are the predominant languages spoken accounting for 84% of the population.
- ❑ The average annual household income in Ward 2 is R 115,000.00 which is double that of the rest of the Eastern Cape province and South Africa in general.
- ❑ 96.5% of households have access to running water and 99% of households have access to flush or chemical toilets.

Summerstrand is a central suburb of Port Elizabeth located close to several beaches, shopping malls, golf courses, the airport and the Nelson Mandela Metropolitan University (NMMU). As such, this suburb is popular with tourists as they can access the numerous facilities available at and near the beaches in Port Elizabeth. The proposed landing point is located directly adjacent to beach front apartments and the Raddison Blu Hotel which is one of the premier hotels in Port Elizabeth.

The current population of NMBMM is 1,263,051, with a growth rate of 1.54% (Community survey, 2016). The life expectancy amongst residents is 59.3 years and 52.7 years for females and males respectively (NMBMM IDP; 2018/19).

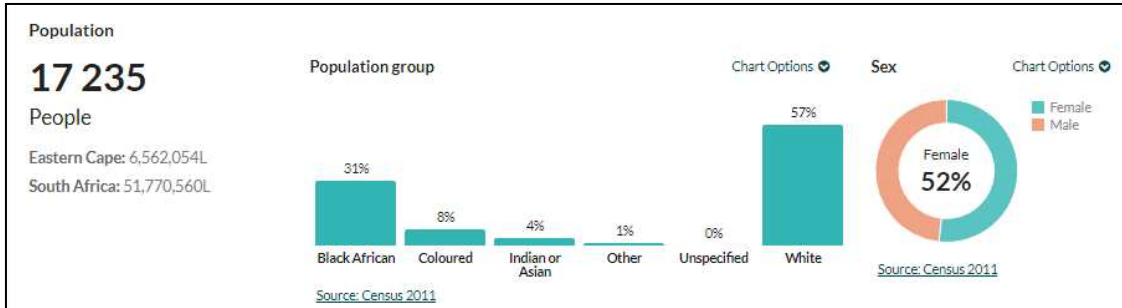


Figure 27 Ward 2 population statistics (population group).

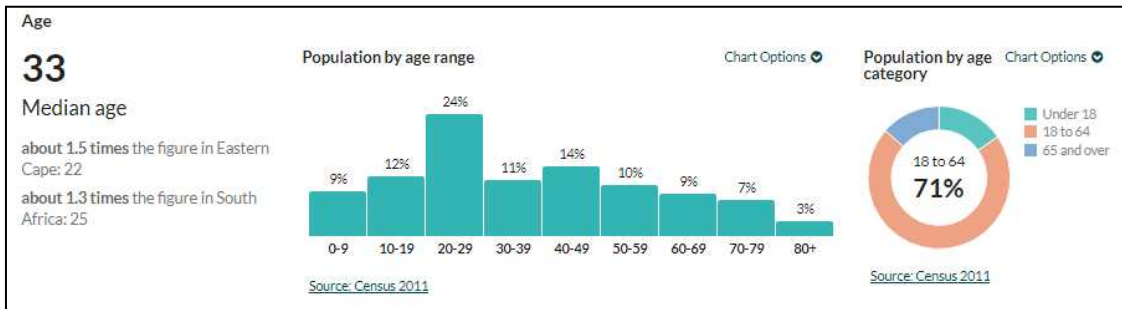


Figure 28 Ward 2 population statistics (age group).

8.4.3 Households

In 2016 approximately 65.1 % of the African population group lived in poverty in the NMBMM as compared to the 67.72 % in 2006, with 40.6 % of the Coloured and 8% Asian population group living in poverty (NMBMM IDP, 2018/19). Household types were categorized in terms of dwelling types. As per Census, 2011 data, 46% of the population within Ward 2 reside in a house (standalone plot), with 25% residing in an apartment. In terms of household ownership, 46% of all the households within the Ward are rented (Figure 29).

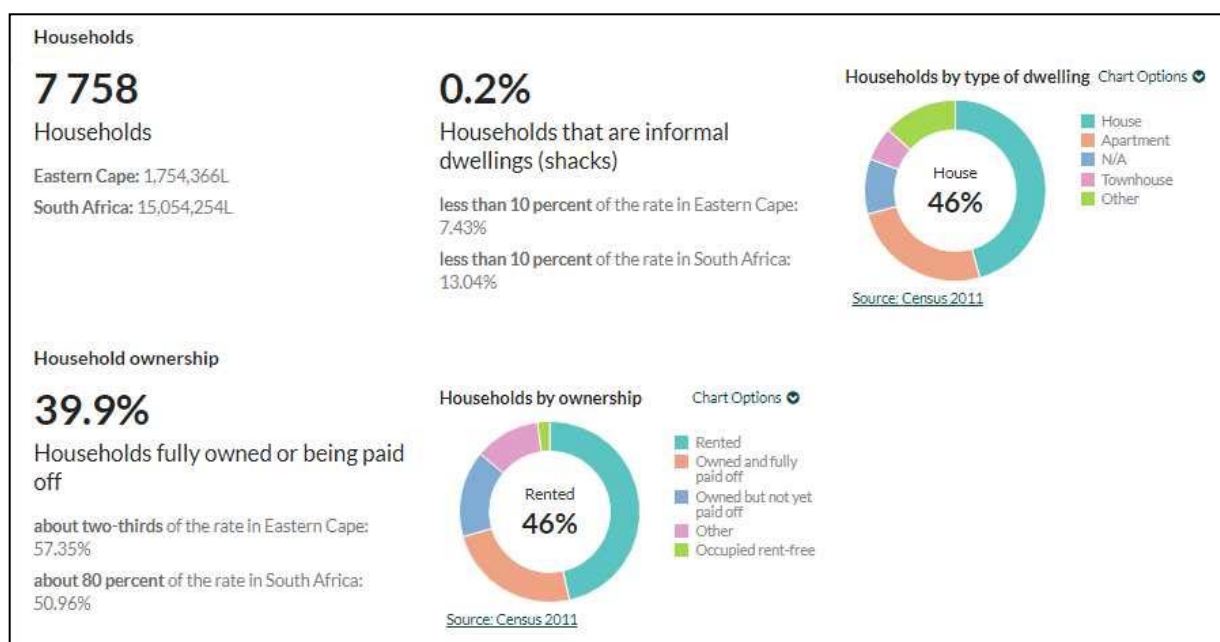


Figure 29 Ward 2 household statistics.

8.4.4 Service delivery and basic services

NMBMM is noted for having achieved a high level of access to basic services as outlined below.

The delivery of water and sanitation services to residents of NMBMM is a key mandate of the NMBMM which they provide by managing the supply of water, distribution of water, wastewater collection and treatment of wastewater within the municipality. The NMBMM manages the following infrastructure with Port Elizabeth to provide basic services:

- ❑ 10 dams within the municipality used for water storage.
- ❑ 8 treatment works for the supply of potable water.
- ❑ Management of 650 km of bulk water supply pipelines to the metro.
- ❑ Water distribution reticulation to all customers via 4800 km of pipeline.
- ❑ Collection of wastewater via 3,600 km of pipework and pump stations.
- ❑ Treatment of sewage at 8 treatment plants for both domestic and industrial use.

Water

Access to safe drinking water is considered a basic human need. Despite significant improvements made by the Government, approximately five million people in South Africa are still obtaining water from rivers and springs (www.policy.org.za). The past decade has emphasised addressing the backlogs in water-supply infrastructure in informal suburbs and rural areas. Water quality as a resource is of great concern in the Eastern Cape. Many of the water sources within areas of the Eastern Cape are contaminated due to a lack of proper land management protection (www.scielo.org.za).

According to the 2021/2022 NMBMM IDP:

- ❑ Approximately 97.68% of formal household settlements have access to a basic level of water supply (including households within a 200 m radius of a standpipe).

- ❑ Communities occupying private land illegally do not have access to a basic level of water supply.
- ❑ The Municipality assesses the extent of water provision backlog on an ongoing basis.

As shown below, households within Ward 02 of the NMBMM have significantly better access to services (water) than the Eastern Cape province as a whole.

Water source	NMBMM Ward 02		Eastern Cape	
	%	Count	%	Count
Service provider	96.5	16,628	56.9	3,730,201
N/A	1.3	216	0.1	6,070
Borehole	0.9	158	4.1	266,019
Other	0.9	155	2.3	150,205

Source: www.wazimap.co.za

Sanitation

All formal households are connected to waterborne sanitation. In informal households, a revised strategy to achieve the total elimination of the bucket system has been implemented. This sees the replacement of the bucket system by communal ablution blocks and relocations of households to serviced sites (NMBM IDP, 2018/19).

According to the 2021/2022 review of the NMBMM IDP:

- ❑ Approximately 97.29 % of households in formal settlements have access to a basic level of sanitation.
- ❑ The Municipality began rolling out basic sanitation to historic informal settlements. The Municipality has also relocated some informal households to formal sites with waterborne sanitation.
- ❑ During the 2018.19 financial year, the Municipality connected 2,604 new sewer connections.
- ❑ Approximately 5,756 bucket systems were circulated within informal settlements as a means of sanitation.
- ❑ *“The Municipality is assessing the extent of sanitation provision backlog in recently established informal settlements. Sanitation challenges in such areas will be addressed as part of the NMBMM Bucket Eradication Programme.” – 2021/22 NMBLM IDP.*

As shown below, households within Ward 02 of the NMBMM have significantly better access to sanitation than the Eastern Cape province as a whole.

Toilet facilities	NMBLM Ward 02		Eastern Cape	
	%	Count	%	Count
Flush toilet	98.9	7,742	43.5	745,022
Unspecified	0.7	52	0.5	8,674
Other	0.1	10	5.1	86,898
Pit latrine with ventilation (VIP)	0.1	9	14.2	242,856

Source: www.wazimap.co.za

Waste removal

Altogether 100% of formal and informal households receive a domestic waste collection service. This excludes informal areas on privately owned erven and erven not earmarked for human settlements development (NMBM IDP, 2018/19).

According to the 2021/2022 NMBMM IDP:

- Approximately 87.8 % of households located within the urban edge receive a weekly domestic waste collection service by the Municipality.
- Illegal dumping is still an issue within the Municipality, particularly in areas without proper access roads.

As shown below, households within Ward 02 of the NMBMM have significantly better access to services (waste removal) than the Eastern Cape province as a whole.

Refuse disposal	NMBLM Ward 02		Eastern Cape	
	%	Count	%	Count
Service provider (regularly)	96.4	16,618	36.3	2,381,008
N/A	1.3	216	0.1	6,070
Unspecified	0.7	122	0.4	23,913
Communal dump	0.5	92	1.6	104,514
Other	1.1	189	61.7	4,046,548

Source: www.wazimap.co.za

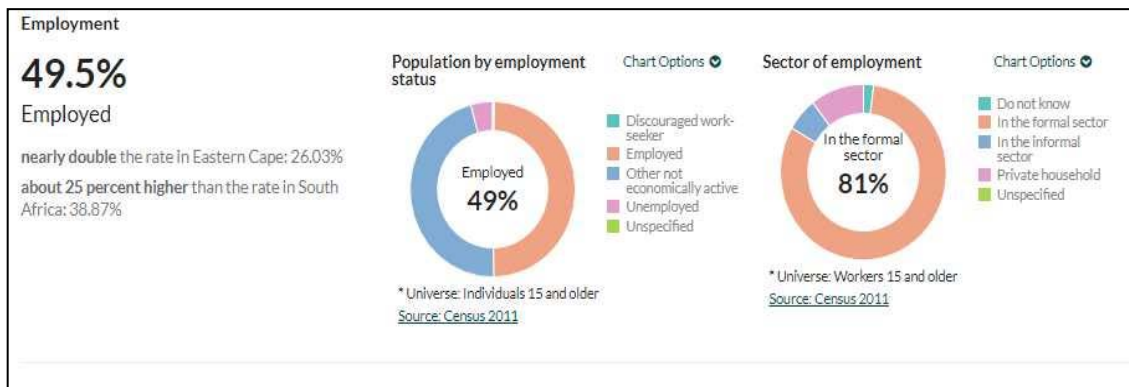
Electricity

100% of households in formally demarcated residential areas have access to electricity. Solar panels or formal electricity connections have been installed in certain informal settlements for electricity generation; however, some informal settlements remain unconnected to an electricity supply (NMBM IDP, 2018/19).

8.4.5 *Employment and economy*

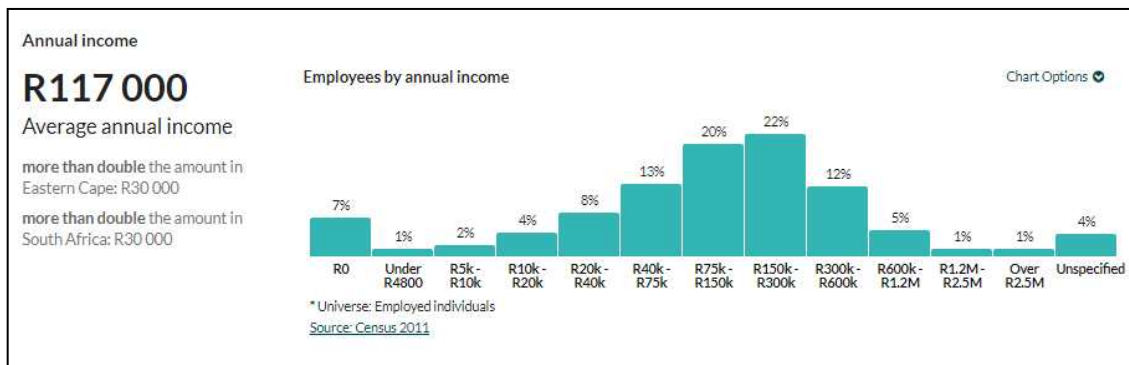
According to the community survey conducted in 2016, the unemployment rate in the NMBMM is at 36.8%, an increase of 4.2 % from 2015 (31.8%). This equates to an increase in unemployed people in NMBMM from 159,000 to 202,000 during this period. Whilst Port Elizabeth is the economic driver of the Province, its impact on unacceptably high unemployment remains negligible. This indicates that the “traditional” economic sectors are not satisfying the employment need (Figure 32).

Approximately 81 % of the population within Ward 2 are in the formal sector, whilst 10 % occupy businesses within the household. The unemployment within the Ward is still relatively low when compared to the other wards and other Municipalities within the province. The average income within the ward is between R150,000 and R300,000 (www.wazimap.co.za) (Figure 33).



Source: www.wazimap.co.za

Figure 30 Ward 2 employment



Source: www.wazimap.co.za

Figure 31 Ward 2 annual income

8.5 Cultural heritage

Terrestrial Heritage Resources

The proposed landing point for the 2AFRICA/GERA (East) cable system is located on Pollock Beach within the suburb of Summerstrand. Once the 2AFRICA/GERA (East) cable has been installed to the BMH, a cable trench will be required for the front haul alignment from the BMH to the CLS site, which will be accommodated within the existing Telkom Exchange Building located on the corner of Skegness and Bognor Streets in Summerstrand. Therefore, there will be construction related disturbances in the terrestrial environment between the BMH and CLS site.

The terrestrial component of the 2AFRICA/GERA (East) cable system is relatively small and incorporates approximately 1,200 m of land cable which will need to be installed through the residential areas of Summerstrand in Port Elizabeth. In general, much of the terrestrial environment near the proposed landing point has been transformed from its natural state through urban development and the management of the coastal dune cordon which has had to be stabilised in recent years. Given the disturbed nature of the receiving environment it is unlikely that any heritage resources will be impacted on during construction however a suitably qualified heritage specialist will be appointed to confirm this assumption.

Marine heritage resources

South Africa has a rich and diverse underwater cultural heritage due to South Africa's rugged and dangerous coastline resulting in a number of shipwrecks since trade routes began around South Africa. At least 2,400 vessels are known to have sunk, grounded, or been wrecked, abandoned or scuttled in South African waters since the early 1500s. In addition to historical shipwrecks, the record of South Africa's long association with the sea is much broader and extends far back into prehistory. This element of our maritime and underwater cultural heritage is represented around the South African coast by thousands of pre-colonial shell middens and large numbers of tidal fish traps, which reflect prehistoric human exploitation of marine resources since the Middle Stone Age, more than 150,000 years ago.

ACER's investigation of the Port Elizabeth cable landing deals with the laying of the cable in the offshore environment within South Africa's EEZ until it reaches the shore. Between 1552 and 1984, approximately 238 vessels sank within Algoa Bay (<http://thecasualobserver.co.za/port-elizabeth-yore-ships-sunk-off-algoa-bay-1552-1984/>).

This suggests that Port Elizabeth is rich in marine heritage.

To identify and ascertain the potential impact on cultural heritage resources in both the terrestrial and marine environments, an archaeological and heritage impact assessment will be undertaken to quantify and qualify the potential impact on heritage resources both with the terrestrial and marine environments. This study will be supported by the ASN survey data of the proposed cable alignment where scans are undertaken of the seabed to identify structures and seabed conditions which could impact on cable installation.

9 ENVIRONMENTAL ISSUES AND POTENTIAL IMPACTS

The information-gathering phase during scoping included obtaining input from the project proponent, the technical team, I&APs, guidelines, engagement with both DEFF and DEFF-OC during the project screening phase and the EAPs knowledge of the area. Information gathering focused on gaining an understanding of the environmental context and status to:

- Identify the key issues of concern.
- Focus and tailor the scope of work for specialist studies, to address each issue of concern identified during scoping.

It should be noted that ACER undertook desktop screening for the proposed project through the use of the DEFF Screening Tool as well as site visits to ground truth the receiving environment. The DEA Screening Tool identified 4 possible specialist studies required for the proposed landing of the 2AFRICA/GERA (East) cable to be landed in Port Elizabeth. These specialist studies are often based on generalised Geographic Information System (GIS) data which is often outdated and requires on site verification by the appointed EAP to establish the relevance of the listed specialist studies and determine whether they are required.

In the case of the proposed 2AFRICA/GERA (East) cable to be landed in Port Elizabeth most of the proposed project works are limited to the offshore, intertidal and beach environments. As such, the following specialist studies have been commissioned for the impact assessment phase of the EIA while motivations for excluding the remainder identified in the DEA Screening Tool are provided below:

Identified Specialist Studies as per the DEA Screening Tool	Reason why we have or have not commissioned the study
1. Archaeological and Cultural	These specialist assessments will be undertaken to ensure compliance with the National Heritage Resources Act, 1999 (Act 25 of 1999).
2. Palaeontology	
3. Aquatic Biodiversity	Although screening did not identify any wetlands within 500 m of the proposed development an aquatic assessment will be conducted to confirm if any wetlands occur within 500 m of the site to ensure compliance with the National Water Act, 1998 (Act 36 of 1998).
4. Marine Impact Assessment	A marine ecological impact assessment will be undertaken, in addition to a marine fisheries impact assessment.
5. Geotechnical	A dune and beach geomorphologist will be appointed to assess the Eco morphology of the beach and dune environment and provide mitigation measures for inclusion in the EMPr. This study is not a geotechnical assessment but will provide a description of the environmental drivers and processes at play on the beach and foredunes at the proposed landing site.
6. Defence Assessment	This study will not be undertaken as the proposed 2AFRICA/GERA (East) cable system will not impact on any military installations or training areas. The cable alignment also does not pass close to the ports of Port Elizabeth and Ngqura and avoids the offshore anchorages of both ports.
7. Avian	DEFF – O&C have raised concerns with regards to bird mortalities associated with cable laying operations on

	previous marine telecommunication projects. As such, an assessment will be undertaken to assess the possible impact on offshore bird species.
8. Plant species	A Fauna and Flora assessment will be conducted. ACER has also commissioned a separate study to investigate the possible impact of marine telecommunications cables during installation and operation on marine mammals.
9. Animal species	

The issues identified during Scoping have been formulated as seven key questions, within which potential impacts are identified and described:

- ❑ What impacts will the construction and operation of the 2AFRICA/GERA (East) Cable System have on the terrestrial environment (flora and fauna)?
- ❑ What impacts will the construction and operation of the 2AFRICA/GERA (East) Cable System have on the fishing industry, in particular the squid fishery?
- ❑ What impacts will the construction and operation of the 2AFRICA/GERA (East) Cable System have on wetlands within the study area?
- ❑ What impacts will the construction and operation of the 2AFRICA/GERA (East) Cable System have on the beach and dune cordon at Port Elizabeth?
- ❑ What are the potential impacts that the proposed 2AFRICA/GERA (East) Cable System and related infrastructure will have on the Marine Benthic Environment based on the alignment selected?
- ❑ What impacts will the construction of 2AFRICA/GERA (East) Cable System have on cultural and heritage resources, including any paleontological resources (if any are identified during the study)?
- ❑ What cumulative impacts will the construction of the 2AFRICA/GERA (East) Cable System have?

It is important to note that although these aspects have been raised as issues, it is not a given that potential impacts will actually occur. However, these issues do need to be considered and investigated to inform decision-making and to enable the relevant parties to proactively address any impacts, should they occur. The no-development option will be considered and assessed as part of these issues.

These key issues are elaborated hereunder.

9.1 What impacts will the construction and operation of the 2AFRICA/GERA (East) Cable System have on the natural environment (flora and fauna)?

Marine environment

The proposed marine cable is expected to have some direct impact on flora (sea weeds, etc.) within the study area during installation of the cable system through cable burial activities. These impacts are, however, limited mainly to the seabed (benthos) and will be limited to the actual cable alignment (less than 6 m wide corridor). Potential offshore environments include disturbances within Algoa Bay and the offshore aquaculture area Algoa 1.

The long-term impacts of the marine telecommunications cable on the benthic environment (both fauna and flora) are, however, expected to be positive due to the implementation of the legislated buffer zone (1 Nm) as defined in the Marine Traffic Act (Act No. 2 of 1981) read together with the Maritime Zones Act (Act No. 15 of 1994). This buffer zone effectively protects this environment from disturbance caused by bottom trawling activities, mineral exploration and the anchoring of vessels.

To assess the impacts on the offshore benthic ecosystems, a qualified specialist will be appointed to undertake a specialist investigation on the benthic ecosystems.

Terrestrial environment

The study area has been extensively modified by anthropogenic impacts in the form of urban development. Much of the terrestrial environment within the study area falls within the residential settlement of Summerstrand with a small section of the project footprint falling within a natural area between the coastline and the parking areas along Pollock Beach.

Given that most of the study area occurs within the urban environment, impacts on fauna and flora are expected to be low; however, it is the EAP's opinion that impacts on the natural area adjacent to the coastline should be investigated to ensure that the proposed development does not result in significant detrimental impacts to fauna and flora within this section of the project area. Therefore, a qualified specialist will be appointed to assess and investigate potential impacts on flora and fauna.

9.2 What impacts will the construction and operation of the 2AFRICA/GERA (East) Cable System have on the fishing industry, in particular the squid fishery?

South Africa has a coastline that spans two ecosystems over a distance of 3,623 km, extending from the Orange River in the west on the border with Namibia, to Ponta de Ouro in the east on the Mozambique border. The western coastal shelf has highly productive commercial fisheries similar to other upwelling ecosystems around the world, while the east coast is considerably less productive but has high species diversity, including both endemic and Indo-Pacific species (<http://www.fao.org/fishery/facp/ZAF/en>). Marine fisheries in South Africa are diverse, and because of the different ecosystems and irregular coastline, are diversified, both with respect to species caught and gear deployed. In the offshore sector, the industrial fisheries are dominated in terms of volume and value, by the demersal hake trawl fishery and the small pelagic purse seine fishery for anchovy and sardine (<http://www.fao.org/fishery/facp/ZAF/en>). In the Eastern Cape, the most dominant fishery is the lucrative squid jig fishery. The South African chokka squid *Loligo vulgaris reynaudii* is caught by the local jig fishery, which targets primarily spawning aggregations off the South Coast, and as by-catch in the bottom trawl fishery, which targets Cape hake (*Merluccius* spp.) and Agulhas sole (*Austroglossus pectoralis*) (Roel et al., 2000).

The offshore alignment of the proposed 2AFRICA/GERA (East) Cable System passes through the local fisheries along the east coast and may impact on fisheries through the restriction of fishing activities 0.5 Nm either side of the telecommunications cable (the requirement for a "no-fishing" (exclusion) zone on either side of submarine cables is defined in the Marine Traffic Act (Act No. 2 of 1981) read together with the Maritime Zones Act (Act No. 15 of 1994)).

An investigation into the possible impacts the exclusion zone of the 2AFRICA/GERA (East) Cable System may have on the fishing industry will be undertaken in the form of a fisheries assessment. Furthermore, the EAP and project proponent will engage directly with the South African Deep-Sea Trawling Industry Association (SADSTIA) and the South African Squid Management Industrial Association (SASMIA) to discuss the project and to and identify their concerns and issues pertaining to the proposed development.

9.3 What impacts will the construction and operation of the 2AFRICA/GERA (East) Cable System have on the wetlands within the study area?

Although no wetlands were observed or identified during scoping within 500 m of the site alternatives a suitably qualified wetland specialist will be appointed to confirm these findings.

9.4 What impacts will the construction and operation of the 2AFRICA/GERA (East) Cable System have on the beach and shore front at Summerstrand?

The beach profile and dune cordon at Summerstrand has a very flat topography. The dune cordon at Summerstrand consists of a stabilised dune cordon which is covered with grass, routinely cut by the NMBMM.

Dune cordons in general are highly dynamic systems formed as a result of drivers in the near shore and supra tidal environment, which are driven by bio-physical processes. These processes are often interdependent and when changes in any one of the following drivers occurs, the morphology of the coastal dune cordon can change significantly:

- Wind and wave regimen.
- Climate state.
- Beach morphology.
- Vegetation cover.

Due to the dynamic nature of dune systems and the numerous factors at play which influence the morphology and function of these dune systems along the coastline, the construction of the 2AFRICA/GERA (East) Cable System may have an impact on the dune cordon at Summerstrand (Pollock Beach). These impacts are, however, expected to be temporary in nature, limited to construction (anticipated to be less than 10 days to bury the cable through the dune cordon) and highly localised. Nevertheless, adopting a conservative approach, a specialist study will be commissioned to investigate and assess possible impacts on the dune cordon. Cumulative impacts related to climate change will need to be commented on in the assessment and mitigation measures included in the EMP in the EIA Phase.

9.5 What are the potential impacts that the proposed 2AFRICA/GERA (East) Cable System and related infrastructure will have on the Marine Environment based on the alignment selected?

The proposed 2AFRICA/GERA (East) to Port Elizabeth traverses one offshore biogeographic region, viz. the Agulhas bioregion. The marine ecology within this bioregion is primarily shaped by the coastal and wind-induced upwellings characterising the Eastern Cape coastline. The Agulhas System along the East Coast is characterised by the presence of warm surface water, high biological productivity, high species richness and endemism and highly variable physical, chemical, and biological conditions.

Generally, the biota of nearshore marine habitats on the East Coast are relatively robust, being naturally adapted to an extremely dynamic environment where biophysical disturbances are commonplace. In addition, benthic and shallow benthic communities show marked differences between habitat types (hard or soft seabed), water depth and exposure to waves and currents. Habitats known to occur along the proposed 2AFRICA/GERA (East) Cable System alignment include:

- Reefs

- Bay Ecosystems
- Sandy shelf

The biological communities at each of these habitat types consist of many hundreds of species, often displaying considerable temporal and spatial variability (even at small scales). The following benthic communities are generally associated with these substrates:

- Sandy substrate habitats and biota.
- Intertidal sandy beaches.
- Nearshore and offshore unconsolidated habitats.
- Rocky substrate habitats and biota.
- Deep-water coral communities.

Marine benthic and shallow benthic communities could be negatively affected by the laying of the proposed 2AFRICA/GERA (East) cable branch to the Port Elizabeth landing site. Impacts on the benthic ecosystems are however not considered to be significant given the small development footprint and limit construction period. To confirm this assumption potential impacts, need to be understood and, therefore, a specialist study will be commissioned to investigate potential negative effects on benthic and shallow benthic communities during cable installation.

9.6 What effects will the construction of 2AFRICA/GERA (East) Cable System have on cultural and heritage resources, including any paleontological resources (if any are identified during the study)?

In terms of the National Heritage Act, it is necessary to appoint a heritage practitioner to determine if any cultural heritage resources occur along the proposed alignment of the 2AFRICA/GERA (East) Cable System or if there are any known heritage resources within the vicinity which may need to be avoided by the cable alignment. The terrestrial component will include isolated disturbances due to the laying of the cable to the CLS. These impacts will be investigated further by the appointed specialist. The offshore heritage within Algoa bay and the greater coastal environment of Port Elizabeth will be investigated further, due to the possibility of chance finds related to associated shipwrecks since the 1800's.

To confirm this initial understanding, a qualified heritage practitioner will be appointed to identify any risks or potential impacts on heritage resources within the project footprint.

9.7 What cumulative impacts will the construction of the 2AFRICA/GERA (East) Cable System have?

A cumulative impact is an incremental impact upon the environment that results from the impact of a proposed action when added to past, existing and reasonably foreseeable future actions. Cumulative effects can be both positive and negative.

The construction of the 2AFRICA/GERA (East) Cable System will naturally add to any cumulative impacts already likely to occur from a wide range of development interventions, i.e., increased employment, increased investment, etc. The aim of this section is to focus on the key cumulative impacts raised as concerns by stakeholders and identified by the specialists, as well as those associated with the project that may trigger different development pathways.

In this regard, one key cumulative impact has been identified to date which will require further investigation, viz. the combined impact of current and future marine telecommunication cable systems on the offshore fisheries.

10 PLAN OF STUDY FOR IMPACT ASSESSMENT

This section outlines the Plan of Study for the Impact Assessment for the construction and operation of the proposed 2AFRICA/GERA (East) Cable System and associated infrastructure.

Potential impacts and issues of concern, as described in Section 9, need to be investigated. The significance of potential impacts will be determined as informed by specialist studies and further input by other project team members, and as integrated by the EAP.

The specialists will provide scientifically sound information regarding the various issues and associated potential impacts. Specialists will not work in isolation but will be required to interact and discuss aspects during their investigations. An integrated approach will be adopted to consider direct and cumulative impacts. Thereafter, the findings will be integrated by the EAP to provide a comprehensive understanding of the issues and associated potential impacts.

The technical and public participation processes will continue to interact at important stages to ensure that both processes build towards a comprehensive investigation of the issues. The integrated findings will be presented in an Environmental Impact Assessment Report.

10.1 Key tasks to be undertaken

The main activities to be undertaken during the impact assessment phase are consistent with NEMA requirements and the EIA Regulations of 2014 (as amended) (Appendix 9), and are as follows:

- ❑ Address any comments from DEFF with respect to the Final Scoping Report and Plan of Study for the Impact Assessment.
- ❑ Commission and undertake focused studies on the potentially significant issues identified during Scoping.
- ❑ Maintain communication and interaction with I&APs.
- ❑ Integrate the findings of the specialist studies into a comprehensive and objective Environmental Impact Assessment Report (EIAR), inclusive of mitigation measures to ameliorate the effects of negative impacts and to optimise benefits.
- ❑ Prepare an Environmental Management Programme (EMPr).
- ❑ Make available the draft EIAR and EMPr for public review.
- ❑ Process and consider I&AP review comments.
- ❑ Amend and finalise the draft EIAR and EMPr as required, incorporating review comments. Produce a Final EIAR, Final EMPr and Final Comments and Responses Report.
- ❑ Submit the final reports to DEFF for consideration and decision-making.
- ❑ Notify registered I&APs of DEFF's decision on the application for environmental authorisation and of their right to appeal.

10.2 Proposed specialist studies

Terms of reference for the specialist studies are outlined below. They will be undertaken by independent professionals regarded as specialists in their specific disciplines. There will be compliance with the requirements for specialist reports stipulated in the EIA Regulations 2014 (as amended). In addition, in terms of Appendix 6 of the EIA Regulations (2014), all specialist studies must contain:

- Details of the person who prepared the report, and the expertise of that person to carry out the specialist study or specialised process (in the form of a curriculum vitae attached as an appendix to the report).
- A declaration that the person is independent.
- An introduction that presents a brief background to the study and an appreciation of the requirements stated in the specific terms of reference for the study.
- The date and season of the site investigation, and the relevance of the season to the outcome of the assessment.
- Details of the approach to the study where activities performed, and methods used are presented.
- The specific identified sensitivity of the site related to the activity and its associated structures and infrastructure.
- An identification of any areas to be avoided, including buffers.
- A map superimposing the activity, including associated structures and infrastructure on the environmental sensitivities of the site including areas to be avoided and buffers.
- A description of any assumptions made and any uncertainties or gaps in knowledge.
- A description of the affected environment and the study area to provide a context under which the assessment took place.
- Description of proposed actions, and alternatives of development and operation of the project that could affect the prevailing environment, and the risks that these actions and alternatives present.
- A description of the findings and potential implications of such findings on the impact of the proposed activity, including identified alternatives, on the environment as well as the environment on the proposed development.
- A reasoned opinion as to whether the proposed activity or portions thereof should be licensed and, if so; any avoidance, management actions, mitigation measures and monitoring recommendations.
- A description of any consultation process that was undertaken during the course of carrying out the specialist study.
- A summary and copies of any comments that were received during any consultation process.
- A clear analysis as to how each recommended mitigation action would reduce negative impacts or enhance positive ones.

10.2.1 Biodiversity (Flora and Fauna) Specialist Study

The specialist must provide an assessment of the potential impact that the proposed 2AFRICA/GERA (East) cable landing at Port Elizabeth and related infrastructure will have on the ecology (flora and fauna) within the project area. The specialist study should identify and discuss the following key aspects:

- What are the potential impacts on vegetation arising from the proposed 2AFRICA/GERA (East) cable landing at Port Elizabeth and associated construction activities?

Specifically, the Vegetation Assessment must address the following primary elements:

- Description of the vegetation present, the relevant and important characteristics and components thereof, including ecological functioning, which may be affected by the proposed 2AFRICA/GERA (East) cable landing or which may affect the proposed development during site establishment, construction, operation and maintenance and/or decommissioning.
- The assessment must consider the terrestrial environment within the development footprint as well as the terrestrial environment directly adjacent to the proposed cable servitude and construction footprints.
- Identification of species of conservation importance, including Red Data/CITES and TOPS species potentially affected by the proposed project.
- Identify and GPS significant sites that should be conserved, indicate on a suitable map, and motivate why they should be conserved.
- Identify the likely risks and impacts (negative and/or positive, including cumulative impacts if relevant) and their significance, which the proposed activity/infrastructure may have on vegetation assemblages and *vice versa* during site establishment, construction, operation and maintenance and/or decommissioning (using the assessment conventions provided in Section 10.3).
- Recommend mitigation measures for enhancing positive impacts and avoiding or mitigating negative impacts and risks (to be implemented during the design, construction, operation and/or decommissioning phases), for inclusion in an EMPr.
- Identify permit requirements as related to the removal and/or destruction of vegetation and specific plant species. All protected tree species within the proposed project footprint must be counted, marked (with barrier tape) and their position recorded to facilitate the DEFF permit application processes. The completed permit applications must be submitted to ACER for further attention and action.
- Address specific issues and concerns raised by I&APs during the public review phase of the EIA process (a Comments and Responses Report will be provided to specialists).
- Discuss any other sensitivities and important issues from the specialist perspective that are not identified in the terms of reference.

Where an assessment protocol is prescribed for one of the environmental themes included in the Protocol (See supporting document NEMA Reporting Criteria (No 320 of 20 March 2020), the specialist assessment must comply with the Protocol.

- What are the potential impacts on terrestrial fauna and ecology arising from the proposed 2AFRICA/GERA cable landing at Port Elizabeth and associated construction activities?
 - Identify animal species likely to occur in the study area, including an indication of dominant species, rare and endangered species (Red Data species), and exotic and invader species.
 - Describe the animal species and their habitats.
 - Assess habitat condition.
 - Undertake a desktop study to determine the probability of occurrence of any fauna of concern within these identified habitats.
 - Determine the state of health of the ecosystem by taking into consideration all aspects concerning the natural resources.

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- Recommend mitigation measures to ameliorate the negative impacts of the proposed development on the natural environment to be included in the EMPr.
 - Address specific issues and concerns raised by I&APs during the public review phase of the EIA process (a Comments and Responses Report will be provided to specialists).
 - Discuss any other sensitivities and important issues from the specialist perspective that are not identified in the terms of reference.

Where an assessment protocol is prescribed for one of the environmental themes included in the Protocol (See supporting document NEMA Reporting Criteria (No 320 of 20 March 2020), the specialist assessment must comply with the Protocol.

10.2.2 Fisheries Specialist Study

The specialist must provide an assessment of the potential impact that the proposed 2AFRICA/GERA (East) cable landing at Port Elizabeth and related infrastructure will have on the fishing industry based on the selected alignment (particular focus should be placed on the squid fishery). In this context, the specialist study should identify and discuss the following topics:

- Determine the actual number of bottom trawls per annum over the proposed 2AFRICA/GERA (East) cable alignment and depict how and from what source of information this was calculated as well as the accuracy of the data.
- Determine the impact the proposed 2AFRICA/GERA (East) cable alignment will have on the squid fishery based on catch data generated off Port Elizabeth.
- Typically, at what depths are the bottom trawls along the proposed 2AFRICA/GERA (East) Cable alignment?
- Provide a detailed explanation of the key methods on how trawls are recorded and clearly depict the accuracy of these recordings.
- Provide a brief comment on the impact of the proposed 2AFRICA/GERA (East) Cable System alignment and its potential significance to the trawling and squid industry. This comment on significance should cover aspects such as the relative percentage of the trawling/squid grounds impacted and/or if the proposed alignment is likely to have any impact on trawling or the squid fishery in terms of increased operational costs.
- Comment on the proposed Algoa 1 Aquaculture Zone in terms of the 2AFRICA/GERA (East) Cable System alignment.
- Address specific issues and concerns raised by I&APs during the public review phase of the EIA process (a Comments and Responses Report will be provided to specialists).
- Discuss any other sensitivities and important issues from a fisheries perspective that are not identified in these terms of reference.

In addition, the following maps should be generated and included in the specialist report:

- A map of trawl data over the last five years showing trawls across the proposed 2AFRICA/GERA (East) Cable System alignment. The map legend should include trawl numbers for each year assessed.

Where an assessment protocol is prescribed for one of the environmental themes included in the Protocol (See supporting document NEMA Reporting Criteria (No 320 of 20 March 2020), the specialist assessment must comply with the Protocol.

10.2.3 Wetlands

The Desk-top review of the SANBI BGIS Map Viewer for wetlands did not indicate any wetlands within 500m of the project Alternatives. In order to confirm this finding, the appointed specialist must at the outset confirm whether any wetlands or riparian aquatic habitat will be affected by the proposed project and in addition, whether there will be any requirement to apply to the Department of Human Settlements, Water and Sanitation for water use licenses or general authorisations. If no aquatic habitat will be affected, this should be briefly stated and motivated; with no further assessment required. If aquatic habitat will be affected, then an **Aquatic Habitat Assessment** must be undertaken which addresses the following primary elements:

- Description of the wetland/riparian ecosystems and relevant and important characteristics, and components thereof, which may be affected by the proposed project or which may affect the proposed project during site establishment, construction, operation and maintenance and/or decommissioning.
- Identify the likely risks and impacts (negative and/or positive, including cumulative impacts if relevant) and their significance, which the proposed activity/infrastructure may have on aquatic habitat and vice versa during site establishment, construction, operation and maintenance and/or decommissioning. Please use the assessment conventions provided.
- Recommend mitigation measures for enhancing positive impacts and avoiding or mitigating negative impacts and risks (to be implemented during the design, construction, operation and/or decommissioning phases), for inclusion in an EMPr.
- Recommend simple ways to monitor impacts, based on key indicators, for inclusion in an EMPr.
- State all legal requirements pertaining to the identified impacts, such as permits, licenses or other authorisations that may be required.
- If a Water Use License (WUL)/ General Authorisation (GA) is not required, written confirmation must be obtained from the Department of Water and Sanitation confirming such.
- The early identification of any red flag and fatal flaw issues or impacts.
- Address specific issues and concerns raised by stakeholders during the public review phase of the EIA process (an Issues and Responses Report will be provided to specialists).
- Discuss any other sensitivities and important issues from your specialist perspective that are not identified in these terms of reference.

Where an assessment protocol is prescribed for one of the environmental themes included in the Protocol (See supporting document NEMA Reporting Criteria (No 320 of 20 March 2020), the specialist assessment must comply with the Protocol.

10.2.4 Beach and Coastal Dune Dynamics Specialist Study

The specialist must provide an assessment of the potential impact that the proposed 2AFRICA/GERA (East) cable landing at Port Elizabeth will have on the Beach and Coastal Dune Dynamics within the project area. The specialist study should identify and discuss the following key aspects:

- What are the potential impacts of the proposed 2AFRICA/GERA (East) Cable System on the primary dune, beach and beach dynamics, particularly areas of sensitive vegetation, such as the primary dunes, beach access points and the beach/dune/wetland interface?

- ❑ How the effects of climate change on sea-level rise and increase in storm surges on the coastal zone could affect the coastal dune cordon and the 2AFRICA/GERA (East) cable and associated infrastructure?
- ❑ What measures can be applied to rehabilitate, mitigate, and manage these impacts to optimise environmental integrity at the proposed cable landing point?
- ❑ How should the dunes in question be rehabilitated and what measures are required to ensure dune stability and functionality (i.e., outline a specific action plan)?

The objectives of the dune and coastal dynamics specialist study are to:

- ❑ Provide a description of the primary dunes and dune belt present at Summerstrand, Port Elizabeth and the relevant and important characteristics and components thereof, including dune dynamics.
- ❑ Identify and describe the components, characteristics and natural processes of the coastal environment (including impacts associated with climate change) that may be affected by the proposed development (during pre-construction, construction, operation, maintenance and/or decommissioning), from the perspective of coastal dynamics and dune stability.
- ❑ Identify and describe the components of the development that may be affected by the environment (during pre-construction, construction, operation, maintenance and/or decommissioning), from the perspective of coastal dynamics and dune stability.
- ❑ The assessment must consider the proposed 2AFRICA/GERA (East) Cable System development footprint from the shallow water subtidal zone (< 10 m water depth) up to the BMH located approximately 10m inland from the primary dunes. Particular attention should be paid to proposed development activities on the primary dunes and near the beach/dune interface.
- ❑ Identify the likely risks and impacts (negative and/or positive, including cumulative impacts if relevant) and their significance, which the proposed activity/infrastructure may have on relevant environmental components and processes, and vice versa during site establishment, construction, operation and maintenance and/or decommissioning (using the assessment conventions provided in Section 10.3).
- ❑ Make recommendations on alternatives where additional alternatives could be implemented to avoid negative impacts.
- ❑ Recommend mitigation measures for enhancing positive impacts and avoiding or mitigating negative impacts and risks (to be implemented during the design, construction, operation and/or decommissioning phases), for inclusion in an EMP.
- ❑ Identify key impacts that should be monitored as part of ongoing management of the site, and simple methods of monitoring these impacts.
- ❑ Identify and delineate by GPS co-ordinates, significant areas that should be conserved or rehabilitated, indicate on a suitable map, and motivate why they should be conserved or rehabilitated.
- ❑ Discuss any other sensitivities and important issues from the specialist perspective that are not identified in the terms of reference.
- ❑ Address specific issues and concerns raised by I&APs during the public comment and review phases of the EIA process (a Comments and Responses Report will be provided to specialists).

Where an assessment protocol is prescribed for one of the environmental themes included in the Protocol (See supporting document NEMA Reporting Criteria (No 320 of 20 March 2020), the specialist assessment must comply with the Protocol.

10.2.5 Marine Ecology Assessment

This specialist study is intended to be undertaken in a phased manner:

- A desktop assessment of the potential impact that the proposed 2AFRICA/GERA (East) Cable System and related infrastructure will have on the Marine Benthic/ Shallow Benthic Environment based on the alignment selected. In this context, the specialist study should identify and discuss the following topics.
 - An introduction with a brief project overview, study approach, methodology, and assumptions and limitations.
 - A description of the marine environment of the project area, focusing on the benthic invertebrate communities based on available literature and experience.
 - A description of the potential impacts of the project on the benthic invertebrate fauna, followed by an assessment of the significance of these impacts using the assessment criteria provided (it must be noted that marine telecommunications cables once installed have a legislated 0.5 Nm buffer either side of the cable where no fishing/trawling or anchoring of vessels may take place).

At this point in the assessment, the specialist must advise whether existing literature and experience need to be supplemented by site investigations:

- If yes, these investigations must be undertaken.
- If no or after the site investigations have been completed, the assessment can continue addressing the following:
 - A detailed motivation why site investigations were deemed unnecessary (if applicable).
 - The assessment of impacts must take into account the spatial scale, intensity, duration, etc. of the impacts and include recommendations for mitigation of impacts.
 - Address specific issues and concerns raised by I&APs during the public review phase of the EIA process (a Comments and Responses Report will be provided to specialists).
 - Discuss any other sensitivities and important issues from a Marine Benthic/ Shallow Benthic perspective that are not identified in these terms of reference.

Where an assessment protocol is prescribed for one of the environmental themes included in the Protocol (See supporting document NEMA Reporting Criteria (No 320 of 20 March 2020), the specialist assessment must comply with the Protocol.

In support of the marine benthic assessment a shallow water marine benthic assessment will be undertaken to establish what impacts the installation, operation/maintenance and decommissioning of the 2AFRICA/GERA (East) Cable System landing at Port Elizabeth may have on marine habitat and benthic communities along the cable alignment located in shallower waters (< 30 m depth to shore). Specifically, the Shallow Water Marine Benthic Assessment must address the following primary elements:

- Description of the marine benthic environment along the length of the cable alignment from the shore up to a depth of 30 m. Describe the relevant and important characteristics and components thereof, including ecological functioning and goods and services provided, which may be affected by the proposed project or which may affect the project in terms of the proposed alignment of the cable or other activities related to the installation, operation/ maintenance and/or decommissioning of the cable.

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- ❑ The assessment must consider the benthic environment up to 5 m either side of the proposed cable alignment. A photographic survey is required where the ASN survey data has indicated changes to seabed composition to validate the ASN survey results.
 - ❑ Identify the types of marine habitat and species of conservation importance, including Red Data/CITES species potentially affected by the proposed project.
 - ❑ Identify and GPS significant sites that should be conserved, indicate on a suitable map, and motivate why they should be conserved. (Provide kml files that can be superimposed on a Google Earth image for purposes of a site sensitivity map as required by the EIA Regulations).
 - ❑ Identify the likely risks and impacts (negative and/or positive, direct and indirect, including cumulative impacts if relevant) and their significance, which the proposed project may have on marine habitats and benthic communities and vice versa during site establishment, construction, operation and maintenance and/or decommissioning. Please use the assessment conventions provided. (It must be noted that marine telecommunications cables once installed have a legislated 500 m buffer either side of the cable where no fishing/trawling or anchoring of vessels may take place).
 - ❑ Recommend mitigation measures for enhancing positive impacts and avoiding or mitigating negative impacts and risks (to be implemented during the design, installation, operation and/or decommissioning phases), for inclusion in an Environmental Management Programme (EMPr).
 - ❑ Identify permit requirements as related to the removal and/or destruction of specific marine species.
 - ❑ Address specific issues and concerns raised by stakeholders during the public review phase of the EIA process (an Issues and Responses Report will be provided to specialists).
 - ❑ Discuss any other sensitivities and important issues from your specialist perspective that are not identified in these terms of reference.

10.2.6 *Archaeology and Heritage Specialist Study*

The specialist will provide an assessment of the potential impact that the proposed 2AFRICA/GERA (East) Cable System and related infrastructure will have on heritage resources (marine and terrestrial) within the project area. The specialist study should identify and discuss the following key aspects.

- ❑ What are the potential impacts on heritage resources (marine and terrestrial) arising from the proposed landing of the 2AFRICA/GERA (East) Cable System, and associated construction and operational activities?

Specifically, the Heritage Impact Assessment must address the following primary elements:

- The identification and assessment of potential impacts on cultural heritage resources, including historical sites arising from the construction and operation of the proposed 2AFRICA/GERA (East) Cable System (both onshore and offshore).
- The early identification of any red flag and fatal flaw issues or impacts.
- Information must be provided on the following:
 - Results of an overview survey of the project area, and the identification of cultural heritage resources that may be affected by the proposed project or which may affect the proposed project during construction and operation.

- Recommended mitigation measures for enhancing positive impacts and avoiding or minimizing negative impacts and risks (to be implemented during design, construction and operation).
- Address specific issues and concerns raised by I&APs during the public review phase of the EIA process (a Comments and Responses Report will be provided to specialists).
- Formulation of a protocol to be followed by Vodacom for the identification, protection or recovery of cultural heritage resources during construction and operation, including the completion of all necessary permit applications, which may be required.
- The identification and assessment of any paleontological aspects or findings arising from the construction and operation of proposed 2AFRICA/GERA (East) Cable System.

In compliance with Section 38 of the National Heritage Resources Act 25 of 1999 (NHRA), a Phase 1 Heritage Impact Assessment (HIA) must address the following key aspects:

- The identification and mapping of all heritage resources in the area affected.
- An assessment of the significance of such resources in terms of heritage assessment criteria set out in the regulations.
- An assessment of the impact of the development on heritage resources.
- An evaluation of the impact of the development on heritage resources relative to the sustainable social and economic benefits to be derived from the development.
- The results of consultation with communities affected by the proposed development and other interested parties regarding the impact of the development on heritage resources.
- If heritage resources will be adversely affected by the proposed development, the consideration of alternatives.
- Plans for mitigation of any adverse effects during and after completion of the proposed development.

Where an assessment protocol is prescribed for one of the environmental themes included in the Protocol (See supporting document NEMA Reporting Criteria (No 320 of 20 March 2020), the specialist assessment must comply with the Protocol.

10.3 Impact assessment conventions

The following methodology will be applied to predict and assess the potential impacts associated with the proposed development:

- ❑ **Direct impacts** are impacts that are caused directly by the activity and generally occur at the same time and at the place of the activity. These impacts are usually associated with the construction, operation or maintenance of an activity and are generally obvious and quantifiable.
- ❑ **Indirect impacts** of an activity are indirect or induced changes that may occur as a result of the activity. These types of impacts include all the potential impacts that do not manifest immediately when the activity is undertaken, or which occur at a different place as a result of the activity.
- ❑ **Cumulative impacts** are those that result from the incremental impact of the proposed activity on a common resource when added to the impacts of other past, present or reasonably foreseeable future activities. Cumulative impacts can occur from the collective impacts of individual minor actions over a period of time and can include both direct and indirect impacts.
- ❑ **Nature** – the evaluation of the nature of the impact. Most negative impacts will remain negative, however, after mitigation, significance should reduce:
 - **Positive.**
 - **Negative.**
- ❑ **Spatial extent** – the size of the area that will be affected by the impact:
 - **Site specific.**
 - **Local** (limited to the immediate areas around the site; <2 km from site).
 - **Regional** (would include a major portion of an area; within 30 km of site).
 - **National or International.**
- ❑ **Duration** – the timeframe during which the impact will be experienced:
 - **Short-term** (0-3 years or confined to the period of construction).
 - **Medium-term** (>3-10 years).
 - **Long-term** (the impact will only cease after the operational life of the activity).
 - **Permanent** (beyond the anticipated lifetime of the project).
- ❑ **Intensity** – this provides an order of magnitude of whether or not the intensity (magnitude/size/frequency) of the impact would be negligible, low, medium or high:
 - **Negligible** (inconsequential or no impact).
 - **Low** (small alteration of systems, patterns or processes).
 - **Medium** (noticeable alteration of systems, patterns or processes).
 - **High** (severe alteration of systems, patterns or processes).
- ❑ **Frequency** – this provides a description of any repetitive, continuous or time-linked characteristics of the impact:
 - **Once off** (occurring any time during construction).
 - **Intermittent** (occurring from time to time, without specific periodicity).
 - **Periodic** (occurring at more or less regular intervals).
 - **Continuous** (without interruption).
- ❑ **Probability** – the likelihood of the impact occurring:
 - **Improbable** (very low likelihood that the impact will occur).
 - **Probable** (distinct possibility that the impact will occur).
 - **Highly probable** (most likely that the impact will occur).
 - **Definite** (the impact will occur).
- ❑ **Irreplaceability** – of resource loss caused by impacts:
 - **High** irreplaceability of resources (the project will destroy unique resources that cannot be replaced).

- **Moderate** irreplaceability of resources (the project will destroy resources, which can be replaced with effort).
- **Low** irreplaceability of resources (the project will destroy resources, which are easily replaceable).
- ☐ **Reversibility** – the degree to which the impact can be reversed/the ability of the impacted environment to return/be returned to its pre-impacted state (in the same or different location):
 - Impacts are **non-reversible** (impact is permanent).
 - **Low** reversibility.
 - **Moderate** reversibility of impacts.
 - **High** reversibility of impacts (impact is highly reversible at end of project life).
- ☐ **Significance**¹⁶ – the significance of the impact on components of the affected environment (and, where relevant, with respect to potential legal infringement) is described:
 - **Low** - the impact will not have a significant influence on the environment and, thus, will not be required to be significantly accommodated in the project design.
 - **Medium** - the impact will have an adverse effect or influence on the environment, which will require modification of the project design, the implementation of mitigation measures or both.
 - **High** - the impact will have a serious effect on the environment to the extent that, regardless of mitigation measures, it could block the project from proceeding.
- ☐ **Confidence** – the degree of confidence in predictions based on available information and specialist knowledge:
 - **Low.**
 - **Medium.**
 - **High.**

¹⁶ This excludes positive impacts on the environment. In these cases, the level of significance should be denoted as Low**, Moderate** or High**.

10.4 Public Participation

The EAP will continue to interact with I&APs during the course of the Impact Assessment. The database will be updated on an ongoing basis. All queries and comments will be responded to and recorded in the Comments and Responses Report.

The Comments and Responses Report, listing all issues raised, together with an indication of how they were considered and/or addressed, will be appended to the Draft EIAR. This will enable I&APs to verify that the issues raised during Scoping have been considered and see how they have been addressed.

In addition to ongoing contact with I&APs, the EAP will hold meetings with key authorities of local, provincial and national government as necessary throughout the process to facilitate discussion and understanding.

Registered I&APs will be timeously notified by means of advertisements, mail or electronic mail of the availability of the draft EIAR for public review.

The draft EIR will be made available for review by lodging copies at appropriate and accessible local venues and placing documentation on ACER's website. CD copies will be provided to I&APs on request.

There will be a 30-day public review period and a public open day held (if required), after which the Draft EIAR will be amended as necessary according to comments received and finalised along with the Final Comments and Responses Report. The final EIAR will be submitted to DEFF for consideration and decision-making.

Once the competent authority has issued/refused environmental authorisation on the proposed project, registered I&APs will be notified via post or email of the decision, including details on the appeal procedure.

10.5 Project schedule

Key activities and anticipated timeframes for the Impact Assessment are shown below. This programme takes into account the technical and public participation processes, and interaction between them.

Refer to Table 8 for the proposed project schedule.

Table 8 Project Schedule

Activity	Dates
Project Announcement	5 November 2020
Initial Comment Period (30 days)	5 November – 7 December 2020
Submit DSR and Application to DEFF	12 March 2021
DSR Public Review Period/	12 March – 14 April 2021
Submit Final Scoping Report and Plan of Study for Impact Assessment to DEFF	23 April 2021
DEFF acknowledgement of receipt	23 April 2021
Acceptance of Final Scoping Report and Plan of Study for Impact Assessment by DEFF (43 days from submission)	15 June 2021
Specialist studies and preparation of DEIAR & EMPr	7 April – 26 May 2021
DEIAR & EMPr Public Review Period (30 days)	19 July – 21 August 2021
Revision of EIAR and EMPr according to public comment	21 August – 22 Sept 2021
Submit FINAL EIAR and EMPr to DEFF	22 September 2021
DEFF Decision making (107 days) and issue of EA	27 January 2022

11 CONCLUDING REMARKS

The EAP is of the opinion that due environmental process has been followed during the undertaking of this Scoping process and initiation of the associated Public Participation Programme. The analysis of key issues during Scoping suggests that there are no negative impacts that can be classified as fatal flaws. However, further investigation and comment from IAPs is required to assess potentially significant issues, viz. biodiversity impacts, impacts on the coastal dune cordon, marine ecology impacts, and impacts on the trawling and aquaculture industry. An archaeological heritage assessment will also be undertaken to support the EIA. Measures for mitigation and management will be identified for inclusion in an EMPr.

Following the comment period for the Draft Scoping Report, the issues raised by I&APs, together with those of technical specialists and the regulatory authorities, were captured in this Final Scoping Report (FSR), which will be submitted to DEFF, for consideration and acceptance. Thereafter, if DEFF accepts the FSR, the Impact Assessment will be undertaken.

12 LITERATURE REVIEWED

Websites

- <http://thecasualobserver.co.za/port-elizabeths-driftsands-dune-fields-natures-equilibrium-disturbed/> Date accessed 6 April 2020
- <http://nmbm.co.za/datarepository/documents/summerstrand-lsdf-web.pdf> Date accessed 12 April 2020
- https://en.wikipedia.org/wiki/Port_Elizabeth#Climate Date accessed 6 April 2020
- <https://www.marineprotectedareas.org.za/addo-elephant-national-park-mpa> Date accessed 13 September 2020
- <https://www.marineprotectedareas.org.za/port-elizabeth-corals-mpa> Date accessed 13 September 2020
- <https://www.marineprotectedareas.org.za/explore> Date accessed 13 September 2020
- <https://www.marineprotectedareas.org.za/sardinia-bay-mpa> Date accessed 13 September 2020
- <https://grysbok.mandela.ac.za/Vegetation> Date accessed 8 April 2020
- https://www.nmbt.co.za/port_elizabeth_5_biome_city.html Date accessed 14 April 2020
- https://www.nelsonmandelabay.gov.za/DataRepository/Documents/5BOhh_016_Overall%20BASZ%20Map_A0_HobieBeach_300dpi.pdf Date accessed 4 April 2020
- <http://sarca.adu.org.za/about.php> Date accessed 21 April 2020
- <https://en.climate-data.org/africa/south-africa/eastern-cape/port-elizabeth-152/> Date accessed 23 April 2020
- <https://www.birdlife-ec.co.za/cape-recife-nature-reserve-bir> Date accessed 4 May 2020
- <https://wazimap.co.za/profiles/ward-29300002-nelson-mandela-bay-ward-2-29300002/> Date accessed 4 May 2020
- <http://www.stfrancistourism.co.za/industries/fishing-industry> Date accessed 4 May 2020
- <http://www.fao.org/fi/oldsite/FCP/en/ZAF/body.htm> Date accessed 4 May 2020
- <http://www.fao.org/fishery/facp/ZAF/en> Date accessed 4 May 2020
- https://www.ecsecc.org/documentrepository/informationcentre/nelson-mandela-bay-metro-municipality_31887.pdf Date accessed 6 May 2020
- https://www.nelsonmandelabay.gov.za/DataRepository/Documents/yVeEs_NMBM%20SOER%20Feb%202011.pdf Date accessed 6 May 2020

<https://wazimap.co.za/profiles/ward-29300002-nelson-mandela-bay-ward-2-29300002/> Date accessed 6 May 2020

<http://bgis.sanbi.org/MapView> Date accessed 11 September 2020.

<https://www.gov.za/speeches/environment-forestry-and-fisheries-approval-south-africa%E2%80%99s-national-climate-change>
Date accessed 6 May 2020

<https://www.weather-atlas.com/en/south-africa/port-elizabeth> Date accessed 11 September 2020.

http://en.wikipedia.org/wiki/African_oystercatcher).Date accessed 11 September 2020

https://en.wikipedia.org/wiki/Caspian_tern Date accessed 11 September 2020

https://en.wikipedia.org/wiki/African_oystercatcher Date accessed 11 September 2020

<https://abyc.co.za/> Date accessed 11 September 2020

http://www.scielo.org.za/scielo.php?script=sci_arttext&pid=S1816-79502012000300010 Date accessed 26 January 2021

<https://www.polity.org.za/article/rural-areas-in-the-eastern-cape-province-south-africa-the-right-to-access-safe-drinking-water-and-sanitation-denied-2013-01-24> Date accessed 26 January 2021

<https://www.iscpc.org/> Date accessed – 21 January 2021

<http://www.samsa.org.za/sites/samsa.org.za/files/SAMSA%20Act%2C%201998.pdf> Date accessed – 22 January 2021

<https://www.gov.uk/guidance/inspire-portal-and-medin-bathymetry-data-archive-centre> Date accessed – 8 January 2021

<https://globalmarine.co.uk/services/geocable-gis/>
Date accessed – 8 January 2021

<http://www.k-kcs.co.jp/english/solutionRepairingMethod.html> Date accessed – 8 January 2021

<http://www.wrc.org.za/wp-content/uploads/mdocs/515-1-97.pdf> Date accessed – 27 January 2021

Publications

ACER (2017). Proposed Marine Telecommunications System (ACE Cable System) to be landed at Van Riebeeckstrand on The West Coast of South Africa. Final Scoping Report. Prepared by ACER (Africa) Environmental Consultants for MTN (Pty) Ltd

- ACER (2018). Final EIAR. Proposed Marine Telecommunications System (ACE Cable System) to be landed at Van Riebeeckstrand on The West Coast of South Africa. Final Environmental Impact Assessment Report. Prepared by ACER (Africa) Environmental Consultants for MTN (Pty) Ltd
- ANCHOR Environmental. (2011). Strategic Environmental Assessment: Identification of potential marine aquaculture development zones for finfish cage culture, Draft for Public Comment, Report prepared for Department of Agriculture, Forestry and Fisheries, Cape Town.
- ANCHOR Environmental. (2013). Marine specialist report: Marine aquaculture development zones for fin fish cage culture in the Eastern Cape, Report prepared for Department of Agriculture, Forestry and Fisheries, Cape Town.
- ASN (Alcatel Submarine Networks), Marine Operations Department (2020): Site Visit Report Revision 0 – Landing Site Port Elizabeth. FGMG Job Number 202-20-675
- ASN REH. (2019). Asn Route Engineering Guidelines.
- BARNES, K.N. (1998). Important bird areas of the Eastern Cape. In: The important bird areas of southern Africa. Barnes, K.N. (ed.). pp. 197-218.
- BECKLEY, L.E. (1983). Sea-surface temperature variability around Cape Recife, South Africa. South African Journal of Science 79: 436-438.
- BECKLEY, L.E. (1988). Spatial and temporal variability in sea temperatures in Algoa Bay, South Africa. South African Journal of Science 84: 67-69.
- BIRCH G.F., Rogers J., Bremner J.M. and Moir G.J. (1976). Sedimentation controls on the continental margin of Southern Africa. First Interdisciplinary Conf. Mar. Freshwater Res. S. Afr., Fiche 20A: C1-D12.
- BIRDLIFE International. (2012). Important Bird Areas factsheet: Algoa Bay Island Nature Reserve. Downloaded from <http://www.birdlife.org> on 14/02/2012
- CHALMERS, R. (2012). Systematic marine spatial planning and monitoring in a data poor environment: A case study of Algoa Bay, South Africa. PhD thesis, Rhodes University, South Africa.
- CLARE, C. (Dr). (2020). A Publication from the International Cable Protection Committee (ICPC). Submarine Cable Protection and the Environment. A Bi-Annual Update from ICPC's Marine Environmental Advisor, Dr Mike Clare.
- CLARK, J. R., and Buxton, C. D. (1989). A survey of the recreational rock-angling fishery at Port Elizabeth, on the south-east coast of South Africa. South African Journal of Marine Science, 8(1), 183-194.
- CRAWFORD, R.J.M. (1997a). Roseate tern *Sterna dougallii*. In: The atlas of southern African birds. Vol. 1: Non-passerines. Harrison, J.A., Allan, D.G., Underhill, L.G., Herremans, M., Tree, A.J., Parker, V. and Brown, C.J. (eds.). pp. 479. BirdLife South Africa, Johannesburg.

CRAWFORD, R.J.M. (1997b). Cape Gannet *Morus capensis*. In: The atlas of southern African birds. Vol. 1: Non-passerines. Harrison, J.A., Allan, D.G., Underhill, L.G., Herremans, M., Tree, A.J., Parker, V. and Brown, C.J. (eds.). pp. 28-29. BirdLife South Africa, Johannesburg.

CRAWFORD, R.J.M., Williams, A.J., Randall, R.M. and Randall, B.M., Berruti, A. and Ross, G.J. (1990). Recent population trends of Jackass Penguins *Spheniscus demersus* off southern Africa. *Biological Conservation* 52: 229-243.

CSIR. (2006). Environmental Management Programme Report for Exploration/Appraisal Drilling in the Kudu Gas Production Licence No 001 on the Continental Shelf of Namibia. Prepared for: Energy Africa Kudu Limited, CSIR Report: CSIR/NRE/ECO/2006/0085/C.

DEPARTMENT OF AGRICULTURE, FORESTRY AND FISHERIES. (2014). Status of stocks Report, available from http://www.nda.agric.za/doaDev/sideMenu/fisheries/03_areasofwork/pdf (Source: <https://www.sanbi.org/animal-of-the-week/cape-hope-squid/> accessed 18 December 2020)

DEPARTMENT: THE PRESIDENCY; National Planning Commission, Undated. National Development Plan. (2030). Our Future – make it work. Executive Summary.

DINGLE, R.V., Birch, G.F., Bremner, J.M., De Decker, R.H., Du Plessis, A., Engelbrecht, J.C., Fincham, M.J., Fitton, T., Flemming, B.W., Gentle, R.I., Goodlad, S.W., Martin, A.K., Mills, E.G., Moir, G.J., Parker, R.J., Robson, S.H., Rogers, J. Salmon, D.A., Siessar, W.G., Simpson, E.S.W., Summerhayes, C.P., Westall, F., Winter, A. and Woodborne, M.W. (1987). Deep-sea sedimentary environments around Southern Africa (South-east Atlantic and South-west Indian Oceans). *Annals of the South African Museum* 98(1).

EMEANA, C.J., Hughes, T.J., Dix, J.K. Gernon, T.M., Henstock, T.J., Thompson, C.E.L. and Pilgram, J.A. (2016). The Thermal regime around buried submarine high-voltage cables. *Geophys J Int* 2016; 206:1051-64. Doi:10.1093/gji/ggw195

FUGRO Germany Marine GMBH. (2020). 2AFRICA Subsea Cable Network. Volume – Segment E2 BMH PORT ELIZABETH – BU PEZ. Book 01 Survey Report. Revisions 1.

GROBLER, B. A., Potts, A. J., & Cowling, R. M. (2019). Dune fynbos thicket vegetation of the Cape coast proposing an updated and unified treatment.

GOSCHEN, W.S. & Schumann, E.H. (1995). Upwelling and the occurrence of cold water around Cape Recife, Algoa Bay, South Africa. *South African Journal of Marine Science* 16: 57-67.

GUERRA, A., Gonzalez, A.F., Roeleveld, M. and Jereb, P. (2020). Cephalopods. (Source: <https://www.sanbi.org/animal-of-the-week/cape-hope-squid/>)

HOCKEY, P.A.R., Cooper, J and Duffy D.C. (1983). The Roles of Coastal Birds in the Functioning of Marine Ecosystems in Southern Africa. *South African Journal of Science*. Vol. 79 April.

KLINOWSKA, M. (1991). Dolphins, porpoises and whales of the world: the IUCN Red Data Book.

LOW, A. B., and Rebelo, A. G. (1998). Vegetation of South Africa, Lesotho and Swaziland: a companion to the vegetation map of South Africa, Lesotho and Swaziland.

- MARTIN, A.P. (1997). African black oystercatcher *Haematopus moquini*. In: The atlas of southern African birds. Vol. 1: Non-passerines. Harrison, J.A., Allan, D.G., Underhill, L.G., Herremans, M., Tree, A.J., Parker, V. and Brown, C.J. (eds.). pp. 374-375. BirdLife South Africa, Johannesburg
- MASSIE, V, Clark B, Hutchings K, Dawson J, Brown E, Wright A and Laird, M. (2019). Proposed Sea-based Aquaculture Development Zone in Algoa Bay, Eastern Cape – Final Basic Assessment Report in Terms of the National Environmental Management Act (107 of 1998). Report prepared for the Department of Agriculture, Forestry and Fisheries by Anchor Research and Monitoring (Pty) Ltd. October 2019
- McGREGOR, G. (2017). Ecological Review: Fynbos ecology and its implications for Cyclopia species. Department of Environmental Affairs and Development Planning, Cape Town. pg, 1(1), 3.
- MEIßNER, K., Schabelon, H., Bellebaum, J., & Sordyl, H. (2006). Impacts of submarine cables on the marine environment: A literature review. Report by Institute of Applied Ecology (IfAO), 96.
- MILLS, G., and Hes, L. (1997). The complete book of southern African mammals. Struik Publishers, Cape Town.
- MUCINA, L., and Rutherford, M. C. (2006). The vegetation of South Africa, Lesotho and Swaziland. South African National Biodiversity Institute.
- NATIONAL PLANNING COMMISSION. (2011). National Development Plan – Vision for 2030.
- NELSON MANDELA BAY MUNICIPALITY. (2015). Sustainability Development Framework.
- NELSON MANDELA BAY MUNICIPALITY (2017/18 – 2021/22). Integrated Development Plan
- OSPAR Commission. (2012). Guidelines on Best Environmental Practice (BEP) in Cable Laying and Operation.
- RANDALLI, R.M., Randall, B.M., and Ralfe, M. (1991). Roseate terns in South Africa: population size, revision of previous estimate and conservation. Bontebok 7: 1-6.
- ROBERTS, C.M. (2007). The Unnatural History of the Sea. Island Press, Washington, DC.
- ROBERTS, M.J. and Sauer, W.H.H. (1994). Environment: the key to understanding the South African chokka squid (*Loligo vulgaris reynaudii*) life cycle and fishery. Antarctic Science, 6(02), pp.249-258.
- ROEL, B. A., and Butterworth, D. S. (2000). Assessment of the South African chokka squid *Loligo vulgaris reynaudii*: Is disturbance of aggregations by the recent jig fishery having a negative impact on recruitment. Fisheries Research, 48(3), 213-228.
- ROSS, G. J. B. (1984). The smaller cetaceans of the south east coast of southern Africa. Annals of the Cape Provincial Museums (National History), 15, 173–410
- RUST, I.C. (1991). Environmental geology of the coastal zone: A South African perspective, South African Journal of Marine Science, 10:1, 397-405, DOI: 10.2989/02577619109504647
-

- RUST, I. C. (1991). Environmental geology of the coastal zone: A South African perspective. *South African Journal of Marine Science*, 10(1), 397-405.
- SANBI. (2018). Using CBA Maps to support land-use planning and decision-making. SANBI Factsheet Series. South African National Biodiversity Institute, Pretoria.
- SURVEY REPORT – Version 3. (25/11/2020). Prepared for Vodacom SA (Pty) Ltd – Eastern Cape by Yonke Installations cc.
- TAORMINA, B., Bald. J., Want. A., Thouzeau, G., Lejart, M., Desroy, N., and Carlier, A. (2018). A review of potential impacts of submarine power cables on the marine environment: knowledge gaps, recommendations and future directions. Article in *Renewable and Sustainable Energy Reviews*.
- UMCEMBI Business Advisers (Pty) Ltd. (2013). Socio-economic Impact Assessment for the proposed Algoa Bay sea-based Aquaculture Development Zones, Port Elizabeth. Report prepared for Cape EAPrac (Pty) Ltd, Cape Town.

APPENDIX 1: APPLICATION FOR AUTHORISATION

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