WIOCC

PROPOSED MARINE TELECOMMUNICATIONS SYSTEM (2AFRICA/GERA (EAST) CABLE SYSTEM) TO BE LANDED AT AMANZIMTOTI, KWAZULU-NATAL ON THE EAST COAST OF SOUTH AFRICA

DRAFT SCOPING REPORT

March 2021

WIOCC

PROPOSED MARINE TELECOMMUNICATIONS SYSTEM (2AFRICA/GERA (EAST) CABLE SYSTEM) TO BE LANDED AT AMANZIMTOTI, KWAZULU-NATAL, ON THE EAST COAST OF SOUTH AFRICA

DRAFT SCOPING REPORT

Compiled for`

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March 2021

DOCUMENT CONTROL

Document revision name	2AFRICA Amanzimtoti DSR	
Prepared and Submitted by ACER (Africa) Environmental Consultants	Checked by ASN	Approved by WIOCC:
Giles Churchill		Verne Steyn
Date: 12 03 2021		16th March 2021

DRAFT SCOPING REPORT DISTRIBUTION

The Draft Scoping Report is available for public review at the following public venues in the project area for a 30 day comment period (19 March to 22 April 2021).

Venue	Street	Contact Person and Number
Amanzimtoti Public Library	1 Riverside Road Amanzimtoti	Ms Busi Nyathikazi Tel: 031 311 5882

YOUR COMMENTS PLEASE

Please submit your comments by no later than 22 April 2021 to:

Carina Boonzaaier or Ashleigh Mckenzie
► P O Box 503, Mtunzini, 3867 ► Tel: 035 340 2715
► E-mail: 2africatoti@acerafrica.co.za

Please note that, in line with the NEMA 2014 EIA Regulations (as amended), all registered interested and affected parties are required to disclose any direct business, financial, personal or other interest which that party may have in the approval or refusal of the application.

The Draft Scoping Report is also available on ACER's web site (www.acerafrica.co.za) under the link: 'Projects/Current Public Review.

EXECUTIVE SUMMARY

Introduction

Submarine telecommunication cables transport almost 100% of transoceanic Internet traffic throughout the world. Given that access to affordable international bandwidth is key to economic development in every country, improvement in Africa's information technology infrastructure via telecommunication cables will reduce one of the current key inhibitors to development in Africa and support economic growth and opportunities on the continent.

2AFRICA is one of the largest subsea telecommunications projects in the world and will serve the African Continent and Middle East region. The venture is partnered by China Mobile International, Facebook, MTN GlobalConnect, Orange, Saudi Telecom Group, Telecom Egypt, Vodafone and West Indian Ocean Cable Company (WIOCC). The parties have appointed Alcatel Submarine Networks (ASN) to build the cable. The 2AFRICA Cable System comprises several sub systems to be delivered via different contracts. The 2AFRICA/GERA (East) Cable System is proposed to have three landing points in South Africa viz. Amanzimtoti, Port Elizabeth and Duynefontein. This report deals with the proposed cable landing at Amanzimtoti, which is proposed to land at Amanzimtoti Pipeline Beach on the east coast of South Africa. This landing will be operated by WIOCC, as the Landing Provider.

This project will support South Africa's national Strategic Infrastructure Projects (SIP 15: Expanding access to communication technology) as outlined in the National Development Plan (2011). 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.

The project requires environmental authorisation from the Department of Environment, Forestry and Fisheries (DEFF) in terms of the 2014 Environmental Impact Assessment (EIA) Regulations (as amended), published under the National Environmental Management Act, 1998 (Act 107 of 1998) (NEMA) (as amended). ACER (Africa) Environmental Consultants (ACER) has been appointed as the Independent Environmental Practitioner (EAP) to assist with the application for environmental authorisation as well as other environmental permitting/licensing requirements.

Development planning context

The proposed project aligns with and supports the objectives and goals of national and municipal planning frameworks which focus on the alleviation of poverty and inequality, and encompass the goal making of high-speed broadband internet universally available at competitive prices. Of relevance are, *inter alia*:

- The National Development Plan (2012)
- National Strategic Infrastructure Project 15 "Expanding Access to Communication Technology" (SIP 15)
- eThekwini Metropolitan Municipality Integrated Development Plan
- eThekwini Metropolitan Municipality Spatial Development Framework

Project location and scope

The project involves the installation and operation of the 2AFRICA/GERA (East) Cable System (Amanzimtoti landing), which comprises marine and terrestrial components. These include the cable from when it enters South Africa's Exclusive Economic Zone (EEZ) (within 200 Nm from the sea shore), passes through South Africa's Territorial Waters (12 Nm from the sea shore), lands on shore, traverses the beach to the Beach Manhole (BMH) at Amanzimtoti Pipeline Beach and traverses inland to reach the Cable Landing Station (CLS) at Umbogintwini. The application for authorisation for this project does not include the main trunkline of the 2AFRICA/GERA (East) Cable System.

The marine components include:

- ❑ Marine fibre-optic cable (Amanzimtoti branch line only, approximately 185 km) from where it branches off the 2AFRICA Trunk Line within the EEZ till reaching the BMH on shore at Amanzimtoti in South Africa).
- ❑ System Earth (on the beach and intertidal zone).

Relevant GPS co-ordinates (approximate) of alternatives, are provided below.

Feature/co-ord (approx.)	**Alternative 1 (north route to Liquid Telecom BMH)**	**Alternative 2 (south route through MPA)**	**Alternative 3 (south route avoids MPA)**
Start of Branch Cable (from trunkline)	29°51.502'S; 33° 43.814'E	31° 00.500'S; 32° 15.788'E	31° 00.500'S; 32° 15.788'E
Mid-point of Branch Cable	29° 43.477'S; 32°16.311'E	30° 42.371'S; 31°17.610'E	30° 42.371'S; 31°17.610'E
End of Branch Cable (at BMH)	30° 02.415'S; 30° 53.931'E	30°02.409'S; 30°53.933'E	30°02.409'S; 30°53.933'E
Approx. Length	285 km	185 km	185 km

The terrestrial components include:

- ❑ BMH
- ❑ CLS
- ❑ Terrestrial fibre optic cable from BMH to CLS, buried underground (approx.5 km).

Relevant GPS co-ordinates (approximate) of alternatives, are provided below.

Feature/co-ord (approx.)	**Alternative 1 (Liquid Telecom)**	**Alternative 2**	**Alternative 3 (preferred)**
Beach Manhole (BMH)	30° 02.415'S; 30° 53.931'E	30° 02.834'S; 30° 53.513'E	30°02.409'S; 30°53.933'E
Cable Landing Station (CLS)	30° 01.573'S; 30° 53.520'E	30° 01.229'S; 30°54.591'E	30° 01.229'S; 30°54.591'E
Terrestrial cable start (at BMH)	30° 02.415'S; 30° 53.931'E	30° 02.834'S; 30° 53.513'E	30°02.419'S; 30°53.926'E
Terrestrial cable mid-point	30° 02.335'S; 30° 53.845'E	30° 02.184'S;30° 54.022'E	30° 02.184'S;30° 54.022'E
Terrestrial cable end (at CLS)	30° 01.573'S; 30° 53.520'E	30° 01.229'S; 30°54.591'E	30° 01.229'S; 30°54.591'E

Project activities include:

- ❑ Pre-installation (marine).
  - o Cable Route Survey.
  - o Route engineering.
  - o Route Clearance.
  - o Pre-Lay Grapnel Run.
- ❑ Installation (marine and/or terrestrial).

- Cable Surface Lay (> 1000 m depths- approximate).
- Cable Burial (<1000 m water depths- approximate).
- Shore End Landing.
- Beach Burial (including sea earth system).
- Post Lay Inspection and Inshore Burial (burial in shallow water off the beach).
- Construction of a BMH.
- Cable trenching from BMH to CLS.

- ❑ Operation of the cable (maintenance only, should breakages occur).
- ❑ Decommissioning of the cable (only after expected life span of > 25 years).

A detailed description of the project is provided in Chapter 6 of this Scoping Report.

Project Alternatives
Various alternatives were considered by the project team, including:

Marine Cable Alignment: Three alignments were investigated. The preferred alignment (from a technical perspective) was not supported by Ezemvelo KZN Wildlife as it traversed the north east corner of the Aliwal Shoal Marine Protected Area (MPA). This alignment was therefore resurveyed and adjusted to avoid the MPA and will be taken forward for assessment in the Impact Assessment.

Terrestrial components (BMH, fronthaul and CLS): Various options were investigated. The preferred option was to make use of Liquid Telecom's existing infrastructure at Amanzimtoti (recently installed and currently housing the METISS cable). However, this option was not successfully procured and, thus WIOCC proposes to construct a new BMH (2 sites are being considered) and run the cable underground to its own CLS, which will be housed in an existing building in Umbogintwini.

The No Development Alternative
The No Development alternative implies that the 2AFRICA/GERA (East) Cable System cable landing at Amanzimtoti would not be implemented. The effects and impacts of the No Development Alternative will be assessed during the Impact Assessment and will form the baseline against which all other options are assessed.

Legal Requirements
There are many legal requirements (National, Provincial and Local Government spheres) to which the project proponent must adhere for the proposed 2AFRICA/GERA (East) Cable System landing at Amanzimtoti. A review of this legislation and guidelines applicable to the proposed project is provided in Chapter 5 of this report.

In terms of the 2014 EIA Regulations (as amended 2017) the proposed 2AFRICA/GERA (East) Cable System landing at Amanzimtoti potentially triggers activities in Listing Notices 1, 2 and 3, as shown in Table 2 of this Scoping Report. The application for environmental authorisation requires a full Scoping and Environmental Impact Assessment (EIA) process.

The following table provides a summary of required permissions and licences:

	License/Permit	Authority
1	Environmental Authorisation	Department of Environment, Forestry and Fisheries (DEFF): Integrated Environmental Authorisations
2	Beach Driving Permit	DEFF: Oceans and Coast
3	Seashore Lease Permit	Department of Economic Development, Tourism and Environmental Affairs
4	Permit to construct infrastructure in the Coastal Public Property*	Department of Public Works
5	Section 53 License[1]*	Department of Mineral Resources and Energy
6	Municipal approval	eThekwini Metropolitan Municipality
7	Heritage Permit (Offshore)	South African Heritage Resources Agency
8	Heritage Permit (Onshore)	Amafa
9	Protected Tree Permits**	DEFF: Forestry
10	Protected Plant Permits**	Ezemvelo KZN Wildlife
11	Water Use License**	Department of Human Settlements, Water and Sanitation
12	Permission to pass through MPA**	Ezemvelo KZN Wildlife

* These are the responsibility of the Operator

** These requirements will be confirmed during the Impact Assessment.

Scoping 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 within which environmental aspects arising from or influencing the proposed project (and its alternatives) are considered is that of 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 (particularly NEMA). Scoping for the 2AFRICA/GERA (East) Cable System landing at Amanzimtoti involved the acquisition, processing and integration of relevant information via interlinked technical and public participation/consultation processes.

Public Participation Process

Public participation can be defined as the identification of issues in the public domain. 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, in the Scoping Phase, to identify issues of concern; provide suggestions for enhanced benefits and environmentally sound alternatives; contribute local knowledge and experience and verify that their issues have been considered.

The public participation process was designed to comply with the requirements of the 2014 EIA Regulations (as amended) and NEMA and is fully described in Chapter 4 of this Scoping Report.

Description of the Receiving Environment

Socio-economic environment

The eThekwini Metropolitan Municipality is a large municipality stretching from Tongaat in the north to Umkomaas in the south and Cato Ridge to the west. It is demarcated into 5 planning regions, with the suburb of Amanzimtoti located in Ward 97 of the South region. With an estimated population size of 3.8 million, eThekwini contributes significantly towards the South African economy, ranking as the second largest economic centre in South Africa. Amanzimtoti is an urban area and is well developed with services and infrastructure. Road access via national, provincial and municipal roads is good. The land

1 License to undertake a different land use on the sea floor other than prospecting or mining.

uses in the study area include public beaches, recreational and tourism facilities, restaurants, beach holiday accommodation, schools, residential, retail/commercial and industrial areas. The eThekwini Municipality administers all municipal services.

Amanzimtoti Pipeline Beach is a popular beach for locals and tourists, with surfing, swimming, fishing and diving being among the many recreational activities on offer. The beachfront is well serviced with public amenities and holiday accommodation and is busy in the summer season (November to March). The area can also get very busy during the sardine run, which usually occurs in the month of July. The nearest boat launch site (for small recreational and commercial craft) is at Chain Rocks, a few km south of Amanzimtoti Pipeline Beach.

Abiotic characteristics
Durban has a warm subtropical climate with warm wet summers and mild, dryer winters. The oceanographic regime is dominated by the warm Agulhas Current. Prevailing winds along the coast are north easterly and south westerly. The KZN coastline is a relatively straight northeast trending coast, divided into gentle bays by short, low headlands. It is a high energy coastline with coarse-grained, sandy beaches. The coastline is dynamic, subject to large swells, particularly in winter. The sandy beach at the Amanzimtoti landing site is 80-100 m wide and sloping up to an altitude of approximately 12 m above sea level (asl) at the beach carpark. The area immediately behind the beach has been levelled for beachfront development and access roads. The coastal sand dunes behind this development rise steeply to an altitude of about 50 m asl.

Terrestrial environment
The study area overlaps with two mapped threatened terrestrial ecosystems, both classified as Critically Endangered, viz: Interior South Coast Grasslands and Southern Coastal Grasslands. The vegetated dunes at the site fall within a Critical Biodiversity Area (Irreplaceable) and form part of eThekwini's Durban Metropolitan Open Space System (D'MOSS). Vegetation Types potentially encountered between the landing point and the CLS are:

- Subtropical Seashore Vegetation (Least Threatened).
- KZN Coastal Belt Grassland (Critically Endangered).
- KZN Dune Forest (Critically Endangered).
- KZN Coastal Forest (Critically Endangered).
- Alluvial Wetland (Endangered).
- Freshwater Wetland (Vulnerable).

The vegetated dunes along Amanzimtoti's shoreline and the areas inland have been transformed to a great extent by urban development, which is not necessarily indicated in the mapping of the abovementioned sensitive areas. It is important to note that the proposed infrastructure will be placed on sites that are already transformed.

Marine and offshore environment
The warm Agulhas Current that flows in the Indian Ocean on the east coast of South Africa has a major influence on rainfall, climate and the distribution of marine fauna and flora species in the KZN region. Most of the east coast region has a narrow continental shelf and a steep continental slope. The bathymetry of the ocean floor includes various other significant topographical features that influence the alignment of the proposed marine fibre optic cable. Sediment types off the coast of KZN include sand, gravel and mud.

There are several Marine Protected Areas occurring in the study area. However, they will be avoided by the preferred marine route alternative. The cable route will cross several benthic habitat types (of varying conservation threat status) and pass through an area with a high prevalence of sandstone reefs.

The KZN coast has a rich diversity of marine fish species, as a result of the oceanography of the region and the large diversity of marine habitats. More than half the known fish fauna off KZN are Indo-Pacific species.

Anthropogenic activities in the marine environment
The three largest Indian Ocean commercial fisheries of South Africa are the demersal (bottom) trawl and long-line fisheries targeting the Cape hakes; the purse-seine fishery targeting small pelagic species including pilchard and anchovy; and the midwater trawl targeting Horse Mackerel. South Africa's crustacean trawl fishery operates exclusively within the province of KZN and comprises two components; a shallow-water fishery on the Thukela Bank and at St Lucia in an area of roughly 500 km^2, and a deep-water fishery (100 to 600 km) between Cape Vidal in the north and Amanzimtoti in the south.

Approximately 98 % of South Africa's EEZ is subject to a right or lease for offshore Oil and Gas (O&G) exploration or production. The proposed project potentially affects two exploration blocks, the rights being held by SASOL/ENI and Exxon Mobil.

The currently active submarine cable systems landing on the east coast of South Africa are the EASSy, SAFE and Seacom subsea cables landing at Mtunzini. The METISS cable was landed at Amanzimtoti beach on 03 November 2020.

South Africa is positioned on a major shipping route. The Port of Durban is situated close to Amanzimtoti and a large number of vessels traverse this part of the KZN coast. There is a single buoy mooring anchored 2.6 km off the Bluff, not far north of Amanzimtoti. This is used by ships offloading crude oil. Various military bases are situated in the broader study area, including the Naval Base at the Durban Harbour and the Air Force Base at the site of the old Durban International Airport.

It is also important to note the presence of outfall pipelines at Amanzimtoti Pipeline beach, which must be taken into consideration by the 2AFRICA/GERA (East) Cable System (Amanzimtoti landing).

Cultural Heritage
The potential for the land based infrastructure to affect terrestrial heritage resources is likely to be low as the infrastructure will be installed in transformed areas. South Africa has a rich and diverse underwater cultural heritage including shipwrecks, shell middens, and paleontological features, which may be encountered by the proposed marine cable. The potential impact on terrestrial and marine cultural heritage resources will be further investigated by a cultural heritage specialist during the Impact Assessment.

Project Purpose, Need and Desirability
The purpose of this project is to provide a submarine telecommunication cable to enhance telecommunication between Africa and other continents. 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 relatively 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. Although it is not a registered SIP project, the project purpose is aligned with SIP15 goals.

From an EIA perspective, the need and desirability of any 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. Need and Desirability aspects are considered in this Scoping Report, in accordance with DEFF Need and Desirability Guidelines, and will be further addressed in the Impact Assessment.

Environmental Issues and Potential Impacts

The issues identified during Scoping have been formulated as nine key questions, which will be further investigated in the Impact Assessment:

- What impacts will the installation, operation/maintenance and decommissioning of the 2AFRICA/GERA (East) Cable System landing at Amanzimtoti have on terrestrial and freshwater aquatic habitat and biodiversity (vegetation, wetlands/rivers and fauna, including on the beach and foredunes) and *vice versa*?
- What impacts will the installation, operation/maintenance and decommissioning of the 2AFRICA/GERA (East) Cable System landing at Amanzimtoti have on coastal processes/dynamics affecting the beach and coastal dunes and *vice versa*?
- What impacts will the installation, operation/maintenance and decommissioning of the 2AFRICA/GERA (East) Cable System landing at Amanzimtoti have on beach infrastructure, sea and beach users and *vice versa*?
- What impacts will the installation, operation/maintenance and decommissioning of the 2AFRICA/GERA (East) Cable System landing at Amanzimtoti have on terrestrial and marine cultural heritage resources, including paleontological features (if identified) and *vice-versa*?
- What impacts will the installation, operation/maintenance and decommissioning of the 2AFRICA/GERA (East) Cable System landing at Amanzimtoti have on commercial and recreational fisheries and *vice-versa*?
- What impacts will the installation, operation/maintenance and decommissioning of the 2AFRICA/GERA (East) Cable System landing at Amanzimtoti have on deep water marine benthic flora and fauna (>30 m depth) and *vice-versa*?
- What impacts will the installation, operation/maintenance and decommissioning of the 2AFRICA/GERA (East) Cable System landing at Amanzimtoti have on reefs and shallow water benthic communities (< 30 m depth to shore) and *vice versa*?
- What cumulative impacts are anticipated from the installation, operation/maintenance and decommissioning of the 2AFRICA/GERA (East) Cable System landing at Amanzimtoti?
- What are the impacts of the No Development Alternative (not installing and operating the 2AFRICA/GERA (East) Cable System at Amanzimtoti)?

Plan of Study for Impact Assessment

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

Chapter 11 of this Scoping Report outlines the Plan of Study for Impact Assessment for the proposed 2AFRICA/GERA (East) Cable System (Amanzimtoti landing)**.** Potential impacts, as related to the key issues of concern, will 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.

Key tasks:

- 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 EIAR, inclusive of mitigation measures to ameliorate the effects of negative impacts and to optimise benefits.

- ❑ Prepare an 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.

Proposed specialist studies:
Based on the key issues identified during Scoping, specialist input/assessment will be obtained in the following fields of expertise:

- ❑ Terrestrial and freshwater aquatic ecology.
- ❑ Beach and coastal dune processes/dynamics.
- ❑ Cultural Heritage.
- ❑ Fisheries.
- ❑ Marine Benthic Ecology (deep water, shallow water and reefs).

Terms of Reference for the specialist studies are provided in Chapter 11 of this report.

Project Schedule

Activity	Anticipated Dates
Project Announcement & Invitation to Register and Comment	02-04 September 2020
Initial Comment Period	02 September to 05 October 2020
Draft Scoping Report Public Review Period	19 March – 22 April 2021
Submit Draft Scoping Report and Application to DEFF	19 March 2021
Submit Final Scoping Report and Plan of Study for Impact Assessment to the Competent Authority	30 April 2021
Specialist Study Investigations	Up to June 2021
Preparation of Draft EIAR	June - August 2021
Draft EIAR and EMPr Public Review Period	3 August - 2 September 2021
Submit Draft EIAR and EMPr to DEFF	3 August 2021
Submit Final EIAR and EMPr to DEFF	29 September 2021

Concluding Remarks
The EAP is of the opinion that due environmental process has been followed during the undertaking of this Scoping process and associated Public Participation Programme. The initial identification and analysis of key issues during Scoping suggests that there are no negative impacts that can be classified as fatal flaws. However, further investigation, including specialist studies, is required as part of the Impact Assessment to assess potential impacts related to terrestrial and aquatic biodiversity, coastal processes/dune dynamics, marine biodiversity, heritage (marine and terrestrial), fisheries and various other uses of the seabed, sea and beach. Measures for mitigation and management of identified impacts will be included in an EMPr.

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ABBREVIATIONS AND ACRONYMS

ACER	ACER (Africa) Environmental Consultants
AECI	African Explosives and Chemical Industries
ASN	Alcatel Submarine Networks
Amafa	Amafa aKwazulu-Natali
BID	Background Information Document
BMH	Beach Manhole
^{o}C	Degrees Centigrade
CA	Competent Authority
CBA	Critical Biodiversity Area
CLS	Cable Landing Station
CPT	Cone Penetrometer Test
CR	Critically Endangered
CRR	Comments and Responses Report
DA cable	Double armoured cable
DEFF	Department of Environment, Forestry and Fisheries
DEDTEA	Department of Economic Development, Tourism and Environmental Affairs
DHSWS	Department of Human Settlements, Water and Sanitation
D'MOSS	Durban Metropolitan Open Space System
DMRE	Department of Mineral Resources and Energy
DSR	Draft Scoping Report
DPW	Department of Public Works
EA	Environmental Authorisation
EAP	Environmental Assessment Practitioner
EAPASA	Environmental Assessment Practitioners Association of South Africa
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
EKZNW	Ezemvelo KwaZulu-Natal Wildlife
EMPr	Environmental Management Programme
EEZ	Exclusive Economic Zone
EMF	Environmental Management Framework
EPCPD	eThekwini Environmental Planning and Climate Protection Department
EN	Endangered
eThekwini	eThekwini Metropolitan Municipality
FSR	Final Scoping Report
DSR	Draft Scoping Report
GDP	Gross Domestic Product
GIS	Geographical Information System
GN	Government Notice
GPS	Global Positioning System
HDD	Horizontal Directional Drilling
I&APs	Interested and Affected Parties
IAIAsa	International Association of Impact Assessment, South Africa
ICMA	Integrated Coastal Management Act (Act No. 24 of 2008)
ICPC	International Cable Protection Committee
IDP	Integrated Development Plan
IUCN	International Union for Conservation of Nature
KZN	KwaZulu-Natal
KZNHA	KwaZulu-Natal Heritage Act, 2008 (Act No. 4 of 2008)
LWM	Low Water Mark
LW cable	Light Weight cable

LWP	Lightweight Protected cable
MARPOL	International Convention for the Prevention of Pollution from Ships
METISS	Melting Pot Indianoceanic Submarine System
MPA	Marine Protected Area
MBES	Multi-beam echo sounder
MoU	Memorandum of Understanding
MPRDA	Minerals and Petroleum Resources Development Act
NDP	National Development Plan
NEMA	National Environmental Management Act
NEPAD	New Partnership for Africa's Development
NHRA	National Heritage Resources Act
Nm	Nautical Miles
NWA	National Water Act, 1998 (Act 36 of 1998)
OC	Oceans and Coasts (Department of Environment, Forestry and Fisheries)
O&G	Oil and Gas
PASA	Petroleum Agency of South Africa
PICC	Presidential Infrastructure Coordinating Commission
PLGR	Pre-Lay Grapnel Run
SA cable	Single armour cable
SAHRA	South African Heritage Resources Agency
SAHRIS	South African Heritage Resources Information System
SAMSA	South African Maritime Safety Authority
SANBI	South African National Biodiversity Institute
SAPREF	South African Petroleum Refineries
SCA	Systematic Conservation Assessment
SDF	Spatial Development Framework
SIP	Strategic Infrastructure Project
Tbps	Terrabytes per second
TNPA	Transnet National Ports Authority
TOPS	Threatened or Protected Species
TW	Territorial Waters
UNCLOS	United Nations Convention on the Laws of the Sea
USBL	Ultra-Short Base Line
VU	Vulnerable
WESSA	Wildlife & Environment Society of South Africa
WIOCC	West Indian Ocean Cable Company South Africa (Pty) Ltd
WUL	Water Use License

AUTHORS

The author of this Draft Scoping Report is Ms A McKenzie of ACER (Africa) Environmental Consultants (ACER). An internal review was conducted by Mr G Churchill (ACER).

AFFIRMATION BY THE ENVIRONMENTAL IMPACT ASSESSMENT PRACTITIONER

I, Ashleigh McKenzie affirm that the information submitted for the purposes of this application is true and correct with respect to:

(i) the information provided (as drawn from information from multiple sources including the Client, specialists, design engineers, national provincial and metropolitan databases, Google Earth images, Interested and Affected Parties, observation form site visits, websites, publications and other referenced documentation which are assumed true and correct at the time of writing this report).

(ii) the inclusion of comments and inputs from stakeholders and I&APs.

(iii) the inclusion of inputs and recommendations from the specialist reports where relevant.

(iv) any information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested and affected parties.

(v) I further affirm that, the issues identified include those submitted by I&APs to date (as relevant to the assessment).

Signature of the Environmental Assessment Practitioner

ACER (AFRICA) ENVIRONMENTAL MANAGEMENT CONSULTANTS
Name of Company

17 March 2021
Date

Signature of the Commissioner of Oaths

17/03/21
Date

SENZO EMMANUEL MABASO
EX OFFICIO COMMISSIONER OF OATHS
PRACTISING ATTORNEY RSA
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ADHERENCE TO REGULATORY REQUIREMENTS

Table (i) Content of a Scoping Report as per the 2014 EIA Regulations (GNR 326) 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;	Section 1.2 and Appendix 5
(b)	The location of the activity, including:		-
	(i)	the 21-digit Surveyor General code of each cadastral land parcel;	This is provided in the Application.
	(ii)	where available, the physical address and farm name;	Not available
	(iii)	where the required information in items (i) and (ii) is not available, the coordinates of the boundary of the property or properties;	Chapter 6 and Figures 2, 3 and 6
(c)	A plan which locates the activities applied for at an appropriate scale, or, if it is:		
	(i)	a linear activity, a description and coordinates of the corridor in which the proposed activity or activities is to be undertaken; or	Chapter 6 and Figures 2, 3 and 6
	(ii)	on land where the property has not been defined, the coordinates within which the activity is to be undertaken;	Chapter 6 and Figures 2, 3 and 6
(d)	A description of the scope of the proposed activity, including:		Section 1.3 and Chapter 6
	(i)	all listed and specified activities triggered;	Section 1.4
	(ii)	a description of the activities to be undertaken, including associated structures and infrastructure;	Chapter 6
(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 5
(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 9
(g)	A full description of the process followed to reach the proposed preferred activity, site and location of the development footprint within the site, including-		
	(i)	details of all the alternatives considered;	Chapter 7
	(ii)	details of the PPP undertaken in terms of regulation 41 of the Regulations, including copies of the supporting documents and inputs;	Chapter 4 and Appendices 2 and 3
	(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 4 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

CONTENT OF SCOPING REPORT AS PER THE 2014 EIA REGULATIONS (APPENDIX 2)			RELEVANT SECTION WITHIN THE SCOPING REPORT
	(v)	the impacts and risks which have informed the identification of each alternative, including the nature, significance, consequence, extent, duration and probability of such identified 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;	Chapters 10 and 11 refer to the issues and further investigation to be undertaken during the Impact Assessment
	(vi)	the methodology used in identifying and ranking the nature, significance, consequences, extent, duration and probability of potential environmental impacts and risks associated with the alternatives;	Chapter 11
	(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;	Chapters 10 and 11
	(viii)	the possible mitigation measures that could be applied and level of residual risk;	Mitigation measures will be discussed in the Impact Assessment Report and carried across to an EMPr
	(ix)	the outcome of the site selection matrix;	Table 5
	(x)	if no alternatives, including alternative locations for the activity were investigated, the motivation for not considering such and	N/a
	(xi)	a concluding statement indicating the preferred alternatives, including preferred location of the activity;	Chapter 7
(h)	A plan of study for undertaking the environmental impact assessment process, including:		Chapter 11
	(i)	A description of the alternatives to be considered and assessed within the preferred site, including the option of not proceeding with the activity;	Chapter 7 and Chapter 11
	(ii)	A description of the aspects to be assessed as part of the EIA process;	Chapter 10 and 11
	(iii)	Aspects to be assessed by specialists;	Chapter 11
	(iv)	A description of the proposed method of assessing the environmental aspects, including aspects to be assessed by specialists;	Chapter 11
	(v)	A description of the proposed method of assessing duration and significance;	Section 11.3
	(vi)	An indication of the stages at which the competent authority will be consulted;	Chapter 4 and Section 11.6
	(vii)	Particulars of the PPP that will be conducted during the EIA process;	Section 11.5

CONTENT OF SCOPING REPORT AS PER THE 2014 EIA REGULATIONS (APPENDIX 2)			RELEVANT SECTION WITHIN THE SCOPING REPORT
	(viii)	A description of the tasks that will be undertaken as part of the EIA process;	Section 11.1
	(ix)	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.	N/a. This will take place during the Impact Assessment
(i)	An undertaking under oath or affirmation by the EAP in relation to:		
	(i)	the correctness of the information provided in the report;	Refer to affirmation above this table.
	(ii)	the inclusion of comments and inputs from stakeholders and I&APs;	Refer to affirmation above this table.
	(iii)	any information provided by the EAP to I&APs and any responses by the EAP to comments or inputs made by I&APs;	Appendices 2 and 3
(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;		Not currently applicable
(k)	Where applicable, any specific information required by the competent authority; and		Not currently applicable
(l)	Any other matter required in terms of section 24(4)(a) and (b) of the Act.		Not currently applicable

Table (ii) Public Participation as per the 2014 EIA Regulations (GNR 326) published in terms of the National Environmental Management Act, 1998 (Act 107 of 1998) (as amended)

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	
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 councilor 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	Due to Covid 19, ACER staff have made themselves available to discuss the project with any I&AP telephonically, by email correspondence and/or remote meetings (e.g. Zoom/TEAMS).
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	Appendices 2 and 3
b	Persons who have requested to be registered as I&APs	Appendix 3

RELEVANT SECTIONS OF THE PUBLIC PARTICIPATION PROCESS AS PER THE 2014 EIA REGULATION (CHAPTER 6)		**RELEVANT SECTIONS WITHIN THE SCOPING REPORT**
c	All organs of state which have jurisdiction	Section 4.1 and Appendix 3
43.1	EAP must give access to the register to any persons who requests this in writing	Appendix 2
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 Project background and overview

2AFRICA is one of the largest subsea telecommunications projects in the world and will serve the African Continent and Middle East region (Figure 1). At 37,000km long, the 2AFRICA subsea fibre optic cable system will interconnect Europe (eastward via Egypt), the Middle East (via Saudi Arabia), and 21 landings in 16 countries in Africa. The venture is partnered by China Mobile International, Facebook, MTN GlobalConnect, Orange, Saudi Telecom Group, Telecom Egypt, Vodafone and West Indian Ocean Cable Company (WIOCC). The parties have appointed Alcatel Submarine Networks (ASN) to build the cable. The 2AFRICA Cable System comprises several sub systems to be delivered via different contracts. **This report deals with the cable landing at Amanzimtoti on the east coast of South Africa, which is part of the 2AFRICA/GERA (East) Cable System.** This landing will be operated by WIOCC, as the Landing Provider.

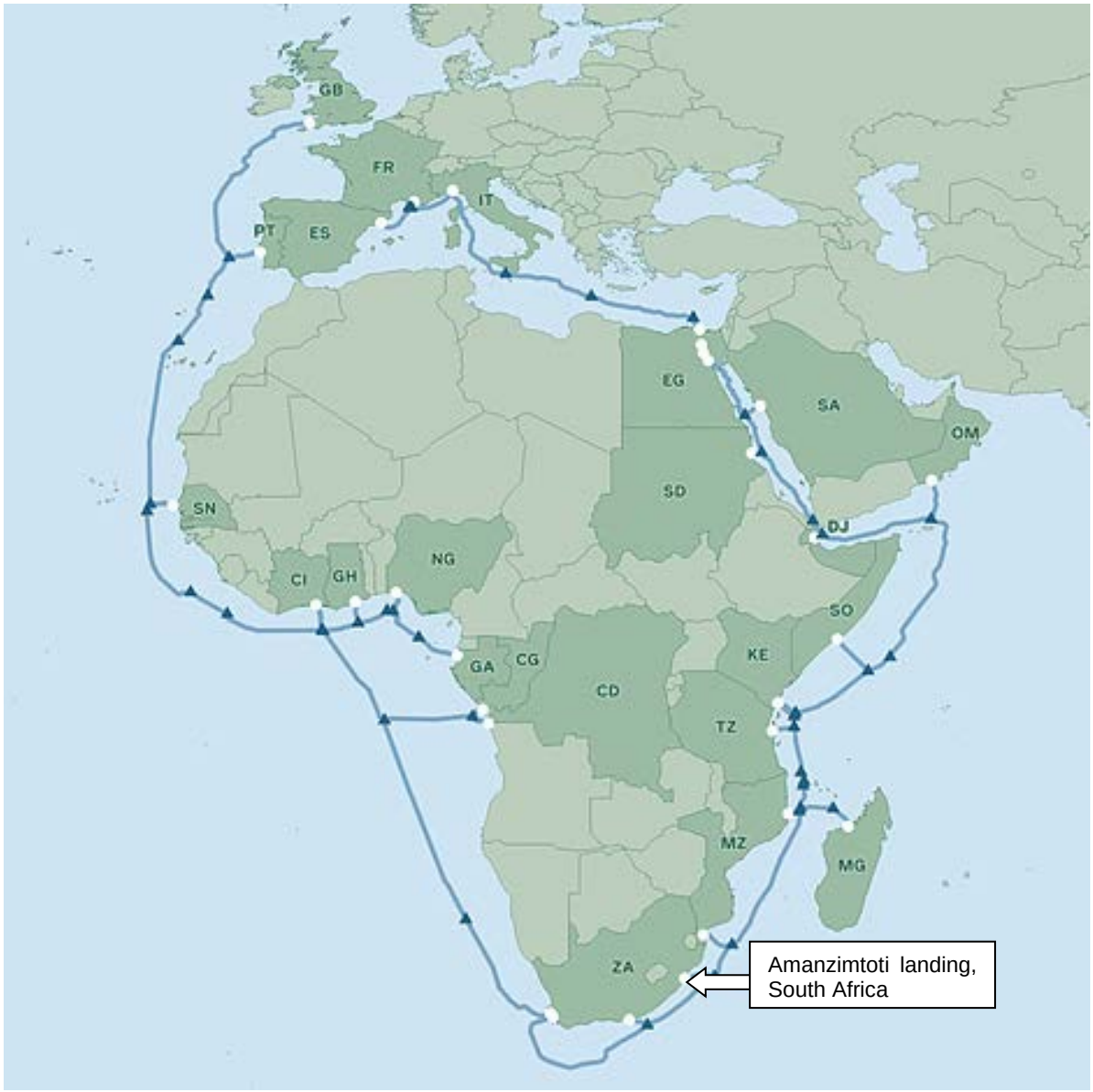


Figure 1 Overview of the 2AFRICA Subsea Cable System (Source: 2africacable.com)

The 2AFRICA Cable System will deliver more than the total combined capacity of all subsea telecommunications cables serving Africa today. The 2AFRICA Cable System has been designed to improve resilience and maximise performance, with a design capacity of up to 180 terabytes per second (Tbps) on key parts of the system. 2AFRICA will deliver much needed internet capacity and reliability across large parts of Africa, and underpin the further growth of 4G, 5G and fixed broadband access for hundreds of millions of people. In countries where the 2AFRICA cable will land, service providers will obtain capacity in carrier-neutral data centres or open-access cable landing stations on a fair and equitable basis. This will support healthy internet ecosystem development by facilitating greatly improved accessibility for businesses and consumers alike. 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.

The 2AFRICA/GERA (East) Cable System is proposed to have three landing points in South Africa viz. Amanzimtoti, Port Elizabeth and Yzerfontein. The marine cable to Amanzimtoti is proposed to land at Amanzimtoti Pipeline Beach (Figure 2).

This project, although not registered as a SIP project, will support South Africa's national Strategic Infrastructure Projects (SIP 15: Expanding access to communication technology) as outlined in the National Development Plan (2011). 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.

The project requires environmental authorisation from the Department of Environment, Forestry and Fisheries (DEFF) in terms of the 2014 Environmental Impact Assessment (EIA) Regulations (as amended), published under the National Environmental Management Act, 1998 (Act 107 of 1998) (NEMA) (as amended). ACER (Africa) Environmental Consultants (ACER) has been appointed as the Independent Environmental Practitioner (EAP) to submit the application for environmental authorisation as well as the submission of other environmental permitting/licensing requirements. Refer to Appendix 1 for a copy of the application for environmental authorisation.

Various other permits are required for this project and these application processes will be run concurrently with the environmental authorisation process. This will include applications for a Seashore Lease Permit from the KwaZulu-Natal Department of Economic Development, Tourism and Environmental Affairs (DEDTEA) in terms of the Seashore Act, 1935 (Act 21 of 1935), and, potentially, a Water Use Licence from the Department of Human Settlements, Water and Sanitation (DHSWS) in terms of the National Water Act, 1998 (Act No 36 of 1998).

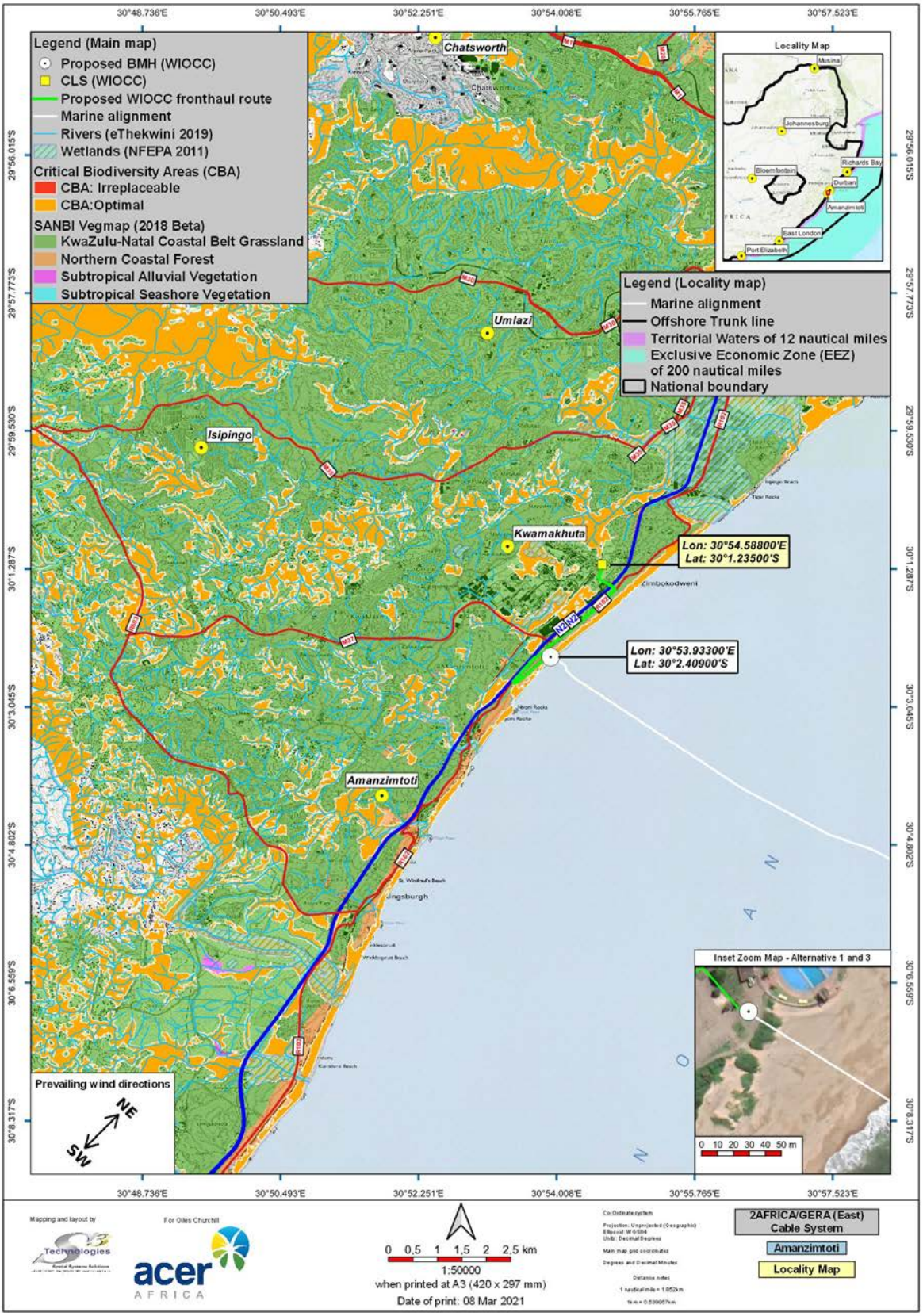


Figure 2 General locality of the proposed 2AFRICA/GERA (East) Cable System (Amanzimtoti Landing) ,Amanzimtoti, KwaZulu-Natal, South Africa

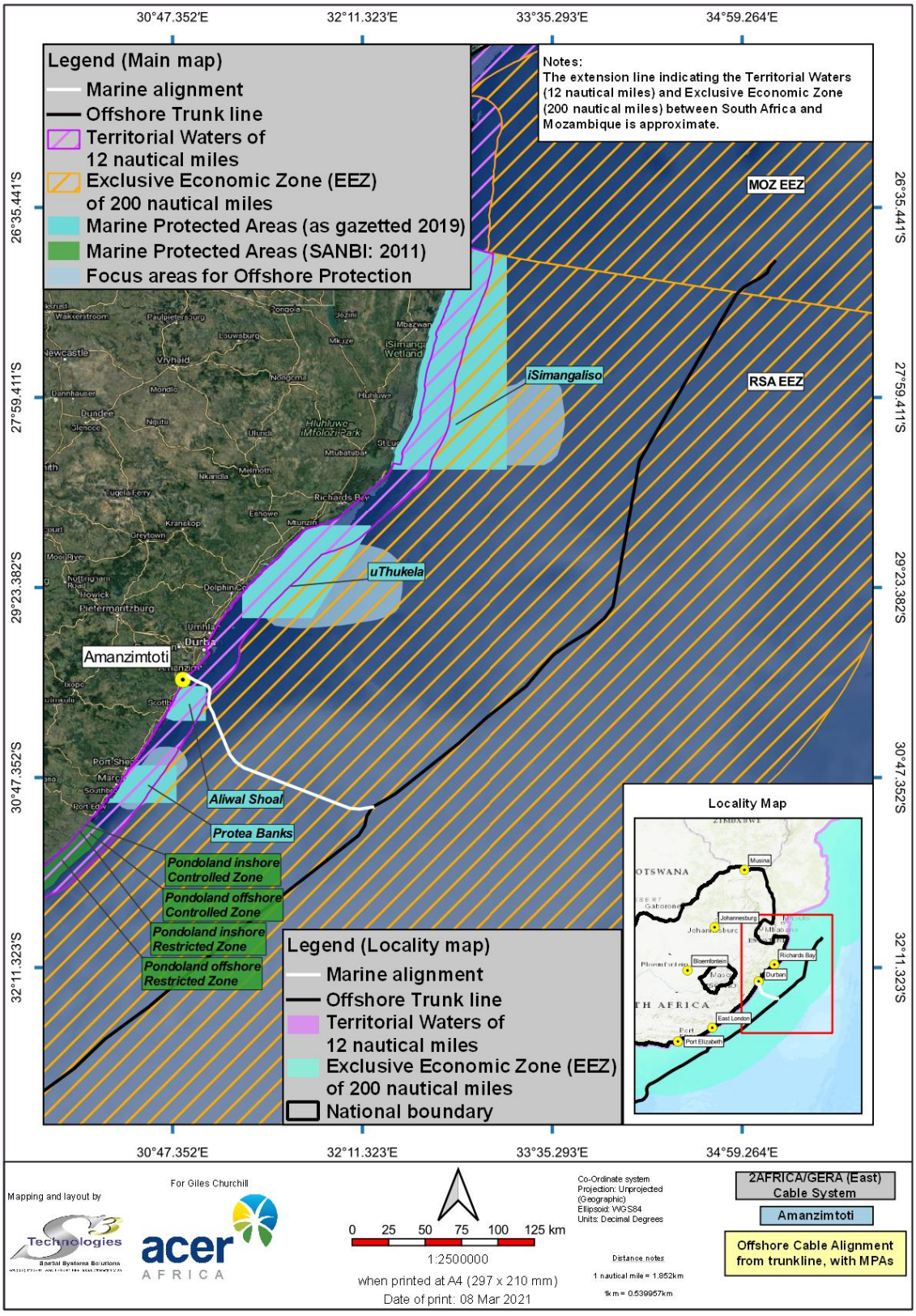


Figure 3 **Locality of marine cable for the proposed 2AFRICA/GERA (East) Cable System (Amanzimtoti Landing) off the east coast of South Africa** (note that only the branch cable to Amanzimtoti forms part of this assessment).

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 International Association of Impact Assessment, South Africa (IAIAsa) National Premium Award for excellence in environmental management and assessment. The qualifications and experience of the ACER team working on this project are listed in Table 1 and *curriculum vitae* are provided in Appendix 5.

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

Name	Academic Qualification	Relevant Work Experience
Ms A McKenzie (EAP and Author)	MSc	More than 20 years' experience in the field of environmental management. She is registered with the Environmental Assessment Practitioners Association of South Africa (EAPASA) and the South African Council for Natural Scientific Professions in the field of environmental science (Registration No 400026/05)
Mr Giles Churchill (Programme Co-ordinator, EAP and Internal Review)	MSc	13 years' experience in environmental management, impact assessments and the monitoring of compliance with specifications contained in Environmental Management Programmes. He is registered with EAPASA and the South African Council for Natural Scientific Professions in the field of environmental science (Registration No 116348)

1.3 General location and scope of the project

The project involves the installation and operation of the 2AFRICA/GERA (East) Cable System (Amanzimtoti landing), which comprises marine and terrestrial components. These include the branch cable from when it enters South Africa's Exclusive Economic Zone (EEZ) (within 200 Nm from the seashore), passes through South Africa's Territorial Waters (12 Nm from the seashore), lands on shore, traverses the beach to the Beach Manhole (BMH) at Amanzimtoti Pipeline Beach and traverses inland to reach the Cable Landing Station (CLS) at Umbogintwini. These are shown generally in Figures 2 and 3[2]. The application for authorisation for this project does not include the main trunkline of the 2AFRICA/GERA (East) Cable System.

The marine components include:

- Marine fibre-optic cable (Amanzimtoti branch line only, approximately 185 km) from where it branches off the 2AFRICA Trunk Line within the EEZ till reaching the BMH on shore at Amanzimtoti in South Africa).
- System Earth (on the beach and intertidal zone).

2 A3 maps are provided in Appendix 7.

Relevant GPS co-ordinates (approximate) of alternatives, are provided below.

Feature/co-ord (approx.)	**Alternative 1 (north route to Liquid Telecom BMH)**	**Alternative 2 (south route through MPA)**	**Alternative 3 (south route avoids MPA)**
Start of Branch Cable (from trunkline)	29°51.502'S; 33° 43.814'E	31° 00.500'S; 32° 15.788'E	31° 00.500'S; 32° 15.788'E
Mid-point of Branch Cable	29° 43.477'S; 32°16.311'E	30° 42.371'S; 31°17.610'E	30° 42.371'S; 31°17.610'E
End of Branch Cable (at BMH)	30° 02.415'S; 30° 53.931'E	30°02.409'S; 30°53.933'E	30°02.409'S; 30°53.933'E
Approx. Length	285 km	185 km	185 km

The terrestrial components include:

- ❑ BMH
- ❑ CLS
- ❑ Terrestrial fibre optic cable from BMH to CLS, buried underground (approx.5 km).

Relevant GPS co-ordinates (approximate) of alternatives, are provided below.

Feature/co-ord (approx.)	**Alternative 1 (Liquid Telecom)**	**Alternative 2**	**Alternative 3 (preferred)**
Beach Manhole (BMH)	30° 02.415'S; 30° 53.931'E	30° 02.834'S; 30° 53.513'E	30°02.409'S; 30°53.933'E
Cable Landing Station (CLS)	30° 01.573'S; 30° 53.520'E	30° 01.229'S; 30°54.591'E	30° 01.229'S; 30°54.591'E
Terrestrial cable start (at BMH)	30° 02.415'S; 30° 53.931'E	30° 02.834'S; 30° 53.513'E	30°02.419'S; 30°53.926'E
Terrestrial cable mid-point	30° 02.335'S; 30° 53.845'E	30° 02.184'S;30° 54.022'E	30° 02.184'S;30° 54.022'E
Terrestrial cable end (at CLS)	30° 01.573'S; 30° 53.520'E	30° 01.229'S; 30°54.591'E	30° 01.229'S; 30°54.591'E

Project activities include:

- ❑ Pre-installation (marine).
  - o Cable Route Survey.
  - o Route engineering.
  - o Route Clearance.
  - o Pre-Lay Grapnel Run.
- ❑ Installation (marine and/or terrestrial).
  - o Cable Surface Lay (> 1000 m depths- approximate).
  - o Cable Burial (<1000 m water depths- approximate).
  - o Shore End Landing.
  - o Beach Burial (including sea earth system).
  - o Post Lay Inspection and Inshore Burial (burial in shallow water off the beach).
  - o Construction of a BMH.

- Cable trenching from BMH to CLS.

- ❑ Operation of the cable (maintenance only, should breakages occur).
- ❑ Decommissioning of the cable (only after expected life span of > 25 years).

The above provides a summary. Refer to Chapters 6 and 7 for detailed descriptions of the project activities and alternatives.

1.4 Listed activities, environmental assessment requirements and process

In terms of the 2014 EIA Regulations (as amended) published under Section 24(5) read with Sections 24, 24D and 44 of NEMA, the proposed 2AFRICA/GERA (East) Cable System landing at Amanzimtoti potentially triggers activities in Listing Notices 1, 2 and 3 (GNR 327, GNR 325 and GNR 324 respectively - 7 April 2017), as shown in Table 2. Therefore, the project may not commence without environmental authorisation from the relevant competent authority, in this case, DEFF[3] (in close consultation with the KwaZulu-Natal Department of Economic Development, Tourism and Environmental Affairs (DEDTEA)).

Given that the proposed project triggers listed activities in Listing Notice 2, the application for environmental authorisation requires a full process of Scoping and EIA, as outlined in GNR 326 (April 2017). The process is currently in the Scoping phase, during which issues for further investigation 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.

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. The main phases of the EIA process and legislated time frames are shown in Figure 4. 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.

[3] DEFF (the national department) 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 landing at Amanzimtoti

Activity	Reason
Listing Notice 1 (No. R. 327 of 2017)	
Activity 15 The development of structures in the coastal public property where the development footprint is bigger than 50 square metres, excluding - (i) […]; (ii) […]; (iii) […]; or (iv) […].	The project will entail the landing of a marine telecommunications cable at Amanzimtoti Beach. This will require digging of a trench across the beach into the intertidal zone and the installation of the telecommunications cable, system earth and associated activities. It will also involve the construction of an underground Beach Manhole on the sea edge of the beach carpark (approximate dimensions: 3m length x 1.8 m height x 2m width) and installation of a terrestrial cable that will traverse inland to reach the Cable Landing Station at Umbogintwini.
Activity 17 Development- 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; in respect of- i. […]; ii. […]; iii. […]; iv. […]; or v. infrastructure with a development footprint of 50 square metres or more - but excluding- (aa) […]; (bb) […]; (cc) […]; or (dd) […].	The project will entail the landing of a marine telecommunications cable at Amanzimtoti Beach. This will require the digging of a trench along the beach into the intertidal zone and the installation of the telecommunications cable, as well as the system earth. The subsea cable will be buried to a depth of approx. 2m, at water depths < 1,000 m, to provide additional protection. It will also involve the construction of an underground Beach Manhole on the sea edge of the beach carpark (approximate dimensions: 3m length x 1.8 m height x 2m width) and installation of a terrestrial cable that will traverse inland to reach the Cable Landing Station at Umbogintwini.
Activity 18 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 - 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 […].	Rehabilitation of dune vegetation at Amanzimtoti Beach will be undertaken if construction activities associated with the laying of the underground telecommunications cable disturb vegetation on the shoreline. Horizontal Directional Drilling is proposed from the Beach Manhole to 15 m seawards, to avoid impacting dune vegetation.

Activity	Reason
Activity 19A The infilling or depositing of any material of more than 5 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 5 cubic metres from - (i) the seashore; (ii) the littoral active zone, an estuary or a distance of 100 metres inland of the high-water mark of the sea or an estuary, whichever distance is the greater; or (iii) the sea; — but excluding where such infilling, depositing, dredging, excavation, removal or moving - (a) […]; (b) […]; (c) […]; (d) […]; or (e) […].	The project will entail the excavation and deposition of more than 5 m^3 of material within 100 m of the high-water mark of the sea. This will result from construction of the Beach Manhole on the sea edge of the beach carpark at Amanzimtoti Pipeline Beach and when trenching for, and backfilling of, the terrestrial portion of the cable occurring within 100 m of the high water mark of the sea, as well as for the marine telecommunications cable and system earth across the beach.
Listing Notice 2 (No. R. 325 of 2017)	
Activity 14 The development and related operation of- (i) […]; (ii) an anchored platform; or (iii) any other structure or infrastructure – on, below or along the seabed; excluding - (a) […]; or (b) […].	The marine cable will be placed on the surface of the seabed in deep water. In shallow waters (less than approx. 1,000 m in depth) the cable will be buried under the seabed to provide extra protection, where the substrate allows.
Activity 26 Development-- 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; in respect of– a) […]; b) […]; c) inter- and sub-tidal structures for entrapment of sand; d) […]; e) […]; f) […]; g) […]; or h) underwater channels; but excluding the development of structures within existing ports or harbours that will not increase the development footprint of the port or harbour.	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.

Activity	Reason
Listing Notice 3 (No. R. 324 of 2017)	
Activity 12 The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan. d. In KwaZulu Natal (iv) Within any critically endangered or endangered ecosystem listed in terms of section 52 of the NEMBA or prior to the publication of such a list, within an area that has been identified as critically endangered in the National Spatial Biodiversity Assessment 2004; (v) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans; (vi) Within the littoral active zone or 100 metres inland from high water mark of the sea or an estuarine functional zone, whichever distance is the greater, excluding where such removal will occur behind the development setback line on erven in urban areas.	The trenching and laying of the cable across the beach and inland of the Beach Manhole will require limited clearance of indigenous primary dune vegetation and, potentially, indigenous vegetation within a Critical Biodiversity Area and/or within 100 m inland of the high-water mark of the sea. This may add up to an area of greater than 300 square meters. As such, this activity is being applied for.
Activity 14 The development of— (ii) structure or structures with a physical footprint of 10 square metres or more; where such development occurs— (a) .. (b) in front of a development setback; or (c) if no development setback has been adopted, within 32 metres of a watercourse, measured from the edge of a watercourse; D In KwaZulu-Natal, in Vii Critical biodiversity areas or ecological support areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans; i. Inside urban areas: (aa) Areas zoned for use as public open space; (bb) Areas designated for conservation use in Spatial Development Frameworks adopted by the competent authority, zoned for a conservation purpose; or (cc) Areas seawards of the development setback line or within 100 metres from the high-water mark of the sea if no such development setback line is determined.	The project will entail development of infrastructure with a physical footprint of more than 10 square meters (Beach Manhole and ducting towards the Cable Landing Station) in public open space and/or within a Critical Biodiversity Area and/or within 100 m inland of the high water mark of the sea.

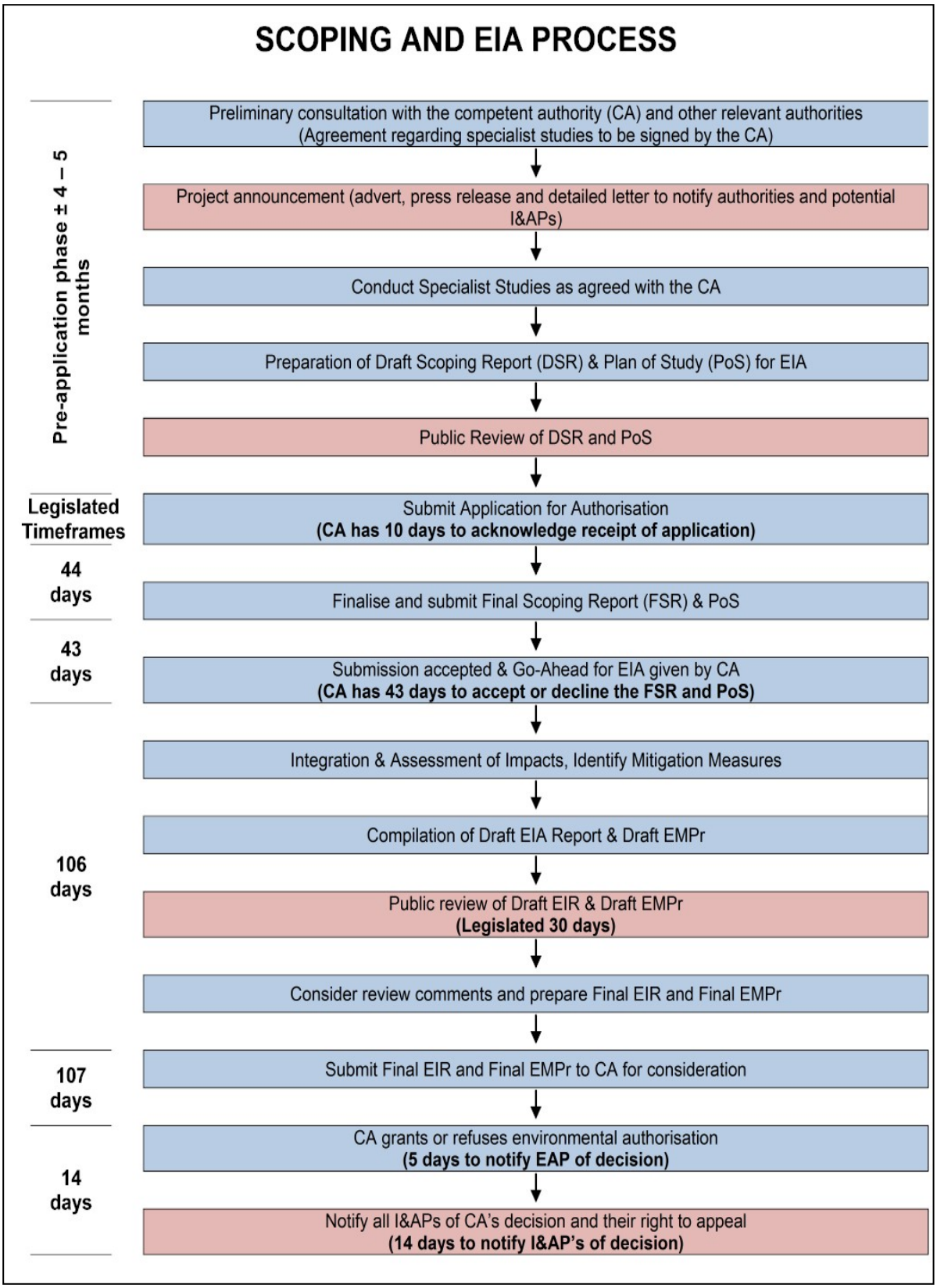


Figure 4 The phases of an Environmental Impact Assessment, including legislated timeframes

1.5 Structure of the Scoping Report

The information provided in this Scoping Report complies with the requirements of the 2014 EIA Regulations (as amended), as referenced in Tables (i) and (ii), and has been structured in the following manner:

- Project overview, including the qualifications of the EAP, triggered listed activities and assumptions.
- An outline of the methodology used for Scoping.
- A summary of Pre-application Screening.
- A detailed description of the Public Participation Process.
- A broad perspective of applicable legislation and guidelines as well as a summary of license and permit requirements.
- A detailed description of the proposed project (components and activities).
- A description of alternatives considered for the proposed project and the environmental assessment.
- A description of the receiving environment and the manner in which it may be affected.
- An elaboration of the need and desirability for the proposed project, in accordance with the DEA Guideline on Need & Desirability (2017).
- The identification of environmental issues and associated potential impacts.
- A Plan of Study for Impact Assessment, including the approach to technical and public participation activities, specialist study terms of reference, Impact Assessment conventions and the assessment programme.

The Scoping Report also contains the following appendices:

- Appendix 1: Application for Environmental Authorisation.
- Appendix 2: Public Participation Documents.
- Appendix 3: Comments and Responses Report.
- Appendix 4: DEFF Screening Tool Report and pre-application correspondence.
- Appendix 5: CVs of the EAP Team Members.
- Appendix 6: Property Details.
- Appendix 7: Supporting Maps (A3).
- Appendix 8: Photographs of the Study Area.
- Appendix 9: Content of an Environmental Impact Assessment Report (EIAR) and an Environmental Management Programme (EMPr) in accordance with the 2014 EIA Regulations (as amended) (GNR 326).

1.6 Assumptions, limitations and gaps in knowledge

This Scoping Report has drawn on primary and secondary information from sources including the client; national, provincial and municipal databases; municipal planning documents; preliminary specialist input and input from Interested and Affected Parties (I&APs). It is assumed that this information was true and correct at the time of compiling this report. Limitations and Gaps in Knowledge, as relevant, will be reported on in the Impact Assessment.

2. SCOPING METHODOLOGY

Scoping is a process designed to define the limits of the assessment, to identify and elicit inputs from 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 5) within which environmental aspects arising from or influencing the proposed project (and its alternatives) are considered is that of the concept of sustainability. Sustainability 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 (particularly NEMA).

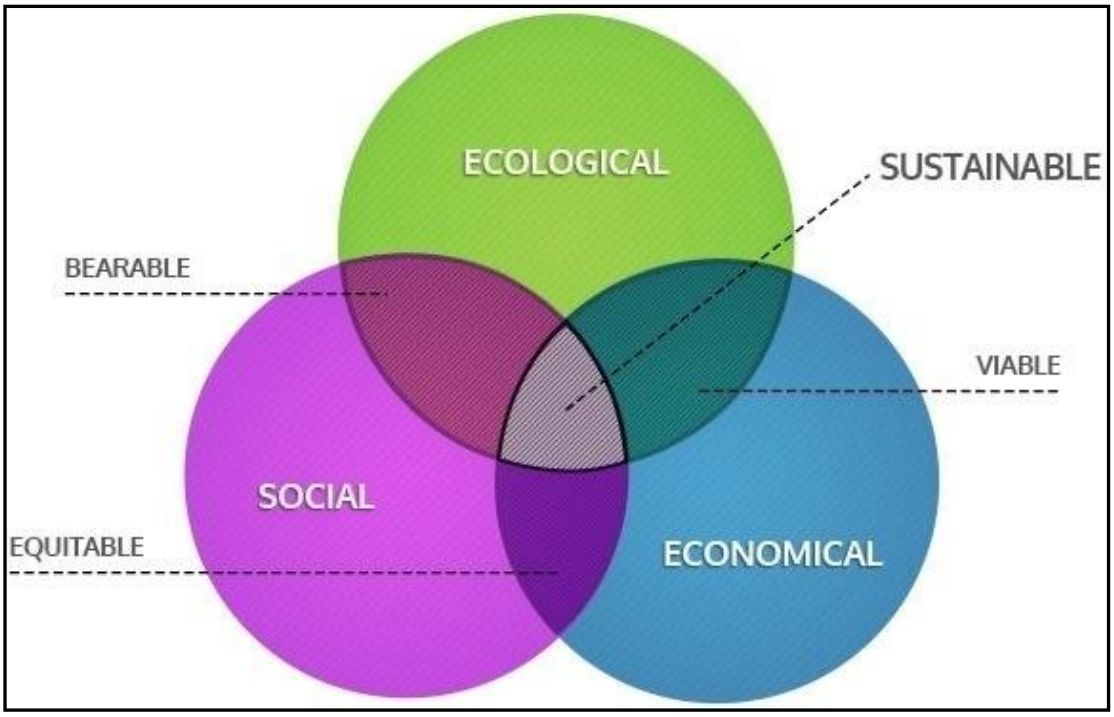


Figure 5 Assessment framework based on the concept of sustainability

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, social, socio-economic).
- 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 planning, 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 specialist[4] 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.

Scoping methods involve the gathering, integration and assessment of multi-disciplinary information via interlinked technical and public participation/consultation processes. Scoping undertaken for this project included the following activities:

- Pre-application consultation with DEFF and key authorities as well as the use of the DEFF Screening Tool (as described in Chapter 3).
- A technical process involving the gathering of primary and secondary information on the project and receiving environment by way of:
  - Site visits
  - Liaison with the project proponent and technical team.
  - Review of existing relevant documentation (for example: other Scoping and EIA reports for submarine cables; technical information provided by the client; government planning documents, legislation and guidelines).
  - Use of national, provincial and municipal GIS databases and mapping to identify environmental sensitivities within the project boundaries.
  - Use of Google Earth to obtain a good overview of land use and other social and environmental characteristics.
  - Consideration of the issues raised during pre-application consultation and from I&APs during the public participation process.
- A review of relevant legislation (including that pertaining to permit requirements).
- A Public Participation Process (as described in Chapter 4).
- Integration of the information in order to identify potentially significant issues and impacts to be further assessed in the Impact Assessment and to focus and tailor the scope of work for the specialist studies and other detailed investigations to be taken forward to the Impact Assessment.

[4] 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. PRE-APPLICATION CONSULTATION AND SCREENING

3.1 Pre-application meeting and consultation with commenting authorities

ACER submitted a request for a Pre-Application meeting to DEFF. However, due to the Covid 19 pandemic and related restrictions on inter-provincial travel, DEFF advised ACER that a meeting would not be required, and that the required pre-application consultation could be undertaken via email. Pre-application correspondence with DEFF dealt with issues such as the requirements for EIAs for marine telecommunications cables and the nature of the public participation to be conducted (as affected by the Covid lockdown). A Plan for Public Participation was submitted and approved by DEFF (via email, 30 July 2020).

ACER also initiated early engagement with:

- DEDTEA (Marine Biodiversity) regarding the application for a Sea Shore Lease permit, to be undertaken concurrently with the environmental authorisation process.
- eThekwini Metropolitan Municipality (eThekwini) Parks, Leisure and Cemeteries (Beach Management Section) regarding the proposed landing of the cable at Amanzimtoti Pipeline Beach.
- Petroleum Agency of South Africa, regarding affected Oil and Gas Exploration Rights Holders.

3.2 Summary and results of DEFF's "Screening Tool" assessment

A mandatory Environmental Screening Report was generated using the *pro-forma* provided on DEFF's website (https://screening.environment.gov.za/screeningtool/#/pages/welcome) in terms of Section 24(5)(h) of NEMA and Regulation 16(1)(b)(v) of the 2014 EIA Regulations, (as amended). It is included in Appendix 4. Two footprints for Screening were provided, viz the linear fronthaul alignment (BMH to CLS) with a 50 m buffer and the linear marine alignment of the branch cable to Amanzimtoti Pipeline Beach with a 5 m buffer.

3.2.1 Fronthaul route

The buffered route from the BMH to the CLS does not intersect with EMF areas, wind or solar developments. It does fall within an area identified as a strategic transmission corridor for bulk electricity (Eastern Corridor) but as the fibre optic cable is underground this is not a serious issue. Footprint sensitivities identified in the auto-generated report included the following themes:

- Agriculture (very high sensitivity).
- Animal species (high sensitivity).
- Aquatic Biodiversity (low sensitivity)
- Archaeological and Cultural Heritage (high sensitivity).
- Civil Aviation (high sensitivity).
- Defence (very high sensitivity).
- Paleontology (high sensitivity).
- Plant Species (medium sensitivity).
- Terrestrial Biodiversity (very high sensitivity).

The DEFF screening exercise recommends various Specialist Assessments (listed below) to be undertaken; with a proviso that the EAP confirms the list and motivates the reason for not including any of the identified specialist studies in the EAP's assessment report.

- ❑ Aquatic Biodiversity Impact Assessment.
- ❑ Marine Impact Assessment.
- ❑ Defense Assessment.
- ❑ Geotechnical Assessment.

3.2.2 Marine cable route

The screening report flags the strategic transmission corridor for bulk electricity (Eastern Corridor); however this is not applicable to the marine portion of the cable. It also flags the South Africa Protected Areas Database (SAPAD, November 2020) and Marine Protected Areas in the vicinity. Footprint sensitivities identified in the auto-generated report included the following themes:

- ❑ Agriculture (however this is not applicable to a marine cable).
- ❑ Animal Species (medium sensitivity)
- ❑ Archaeological and Cultural Heritage (low sensitivity).
- ❑ Civil Aviation (high sensitivity)
- ❑ Paleontology (high sensitivity)
- ❑ Plant Species (medium sensitivity).
- ❑ Terrestrial Biodiversity (it is assumed marine biodiversity must be meant here).

The DEFF screening exercise recommends various Specialist Assessments (listed below) to be undertaken; with a proviso that the EAP confirms the list and motivates the reason for not including any of the identified specialist studies in the EAP's assessment report.

- ❑ Aquatic Biodiversity Impact Assessment.
- ❑ Marine Impact Assessment.
- ❑ Defence Assessment.
- ❑ Geotechnical Assessment.

3.2.3 Specialist studies which are recommended by Screening but not required - motivation

The Specialist Studies proposed for the Impact Assessment are discussed in Section 11.2. Based on Scoping, the following specialist studies are **not** anticipated to be required:

- ❑ **Defence Assessment** – A specialist study on Defence is not required. While there is a Naval Base at the Durban Harbour and the Air Force Base at the site of the old Durban International Airport, these facilities are located further than 10 km way and will not be impacted by the operation of the undersea fibre-optic cable. All relevant shipping and navigation entities will be notified when the laying of the cable takes place, so that they are aware of the activities and schedule of the cable laying ship which will be in the area for a limited period. The terrestrial portion of the cable will be buried and will not impact on defence known installations.

- ❑ **Geotechnical Assessment** – A marine survey report which investigates in detail the characteristics of the seabed, will be undertaken by specialists in order to identify geotechnical characteristics, features and obstacles on the seabed. There is no need for an additional geotechnical report for the marine part of the route. The construction of a BMH at the edge of the beach carpark will be in loose unconsolidated dune sands. The burial of the cable on land will be adjacent to existing roads. No deep excavation of foundations are required for the terrestrial portion of the route and therefore, no geotechnical assessment is required.

4. PUBLIC PARTICIPATION PROCESS

Public participation can be defined as the identification of issues in the public domain. 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 Scoping.
  - 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 EIAR, including the measures that have been proposed to enhance positive impacts and reduce or avoid negative ones.

The public participation process was designed to comply with the requirements of the 2014 EIA Regulations (as amended) as referenced in Table (ii) and was approved by the Chief Directorate: Integrated Environmental Authorisations (Directorate: National Infrastructure Development: National Infrastructure Projects) on 30 July 2020.

Public participation documentation is provided in Appendix 2.

4.1 Identification and registration of Interested and Affected Parties

Key stakeholders and other I&APs were identified, and their contact details incorporated into a project database[5]. They included representatives of a variety of sectors, as shown in Table 3. A copy of the stakeholder database is provided in Appendix 2.

Table 3 Sectors of society represented by I&APs on the direct mailing list

Government (National, Provincial and Local)
Parastatals including Ports/Maritime and Defence (Navy)
Utility/service providers
Offshore Oil and Gas Rights Holders
Conservation Authorities, Conservation/Environmental Groups, Marine Research
Business
Tourism
Fisheries
Local Residents Associations
Sea based sports and recreation - e.g. angling, sailing, ski-boating

In particular, the following commenting authorities were requested to comment, in order to determine relevant environmental sensitivities and /or permit requirements.

- DEDTEA.
- eThekwini Environmental Planning and Climate Protection Department (EPCPD).
- DEFF (Biodiversity and Conservation Directorate).
- Ezemvelo KZN Wildlife.

5 Note that ACER's database included the I&APs from the database for the METISS Cable Landing at Amanzimtoti EIA conducted by ERM during 2019.

- ❑ DEFF: Forestry.
- ❑ DEFF: Oceans and Coasts.
- ❑ DEFF: Fisheries.
- ❑ DEFF: International Relation Fisheries
- ❑ Department of Mineral Resources.
- ❑ Department of Public Works.
- ❑ Department of Transport.
- ❑ Department of Human Settlement, Water and Sanitation.
- ❑ South African Heritage Resources Agency (SAHRA).
- ❑ Amafa aKwaZulu-Natali (Amafa).

Other key stakeholders included:

- ❑ National Ports Authority.
- ❑ South African Maritime Safety Authority (SAMSA).
- ❑ South African Navy (Hydrographic Office).
- ❑ Petroleum Agency of South Africa (PASA).
- ❑ Exploration Rights Holders (O&G).
- ❑ Wildlife & Environment Society of South Africa (WESSA).
- ❑ Birdlife South Africa.
- ❑ South Africa Institute for Aquatic Biodiversity.
- ❑ Fresh Tuna Exporters Association.
- ❑ Fish SA.
- ❑ South African Commercial Line Fishing Association.
- ❑ South African Deep-Sea Trawling Industry Association.
- ❑ South African Squid Management Industrial Association.
- ❑ African Explosives and Chemical Industries (AECI).
- ❑ South African Petroleum Refineries (SAPREF).

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.

4.2 Project announcement

The opportunity for I&APs to participate in the Scoping and Impact Assessment process[6] was announced as follows:

- ❑ Advertisements in local and provincial newspapers viz the Natal Mercury (English), South Coast Sun (English) and Isolezwe (Zulu) during the period 2- 4 September 2020).
- ❑ A letter, inclusive of a Background Information Document (BID), was compiled and emailed to I&APs on the database (2 September 2020).
- ❑ Electronic copies of the notification letter and BID were sent to relevant Government departments and commenting authorities.
- ❑ All I&APs who registered following the project announcement, were sent the letter and BID.
- ❑ Telephonic engagement with I&APs was undertaken as and when required.
- ❑ Direct correspondence and/or meetings with the local Ward Councillor, relevant eThekwini officials and government authorities.
- ❑ Community forums were notified of the EIA process.

[6] All relevant project documents were loaded onto ACER's website at the applicable time and were available for public review.

- Onsite notices (English and Zulu) were placed at the proposed landing site, notifying I&APs of the proposed development and EIA process.
- Public documents were made available to the public on ACER's website (https://acerafrica.co.za/)

4.3 Obtaining and dealing with comments from I&APs

During Scoping, the following opportunities were provided to I&APs to contribute comments:

- Completing and returning Registration and Comment Sheets.
- Providing comments telephonically, by email and/or by way of meetings conducted over Zoom (or similar remote technology).

4.4 Comments and Responses Report

Issues and concerns raised by I&APs have been captured in a Comments and Responses Report (CRR), which is appended to this report (Appendix 3). Responses have been provided as applicable and it is noted where issues will be taken forward for further investigation in the Impact Assessment. The CRR will be updated to include additional inputs from I&APs as the EIA process proceeds. To date, comments received from I&APs and relevant authorities relate to the following topics:

- Affected Oil and Gas Exploration Blocks (marine).
- Crossing of Transnet Pipeline Servitudes (on land).
- Potential impact on indigenous forest.
- Coastal Navigation Safety.

4.5 Circulation of the Draft Scoping Report for public review and comment

Notification of the availability of the DSR and request for comment will be undertaken as follows:

- Notification of registered I&APs via letters.
- Uploading of the DSR to ACER's website.
- Lodging of the document at the Kingsburgh Public Library (hard copy and CDs).
- Opportunity provided for telephonic engagement with I&APs who do not have access to the internet, in order to:
  - Disseminate information regarding the proposed project.
  - Provide an opportunity for I&APs to interact with project team members.
  - Discuss the studies to be undertaken during the EIA.
  - 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, thereafter, be informed of progress for the remainder of the project.
- ACER will also make provision for the possibility of virtual meetings / posting of executive summaries, as reasonable alternative methods of public participation, if requested by I&APs.

4.6 Notification of submission of the Final Scoping Report

The DSR will be finalised after consideration and incorporation of I&AP comments (as relevant). The Final Scoping Report will be compiled and submitted to DEFF, with a request that the EIA can proceed to the next phase, viz. the Impact Assessment.

Registered I&APs will be notified of the Final Scoping Report as follows:

- Notification letters will be sent to all registered I&APs and notices will be placed at strategic points within and around Amanzimtoti notifying the public of the submission of the Final Scoping Report to DEFF for approval.
- The Final Scoping Report will be uploaded to ACER's website, where members of the public can download the report for review and comment.
- ACER will also make provision for the possibility of virtual meetings / posting of executive summaries as reasonable alternative methods of public participation, if requested by I&APs

Once DEFF has accepted the Final Scoping Report and Plan of Study for the Impact Assessment, the Impact Assessment will commence. I&APs will be notified accordingly.

5. LEGAL ASPECTS

5.1 Applicable legislation

There are many legal requirements (national, provincial and local government spheres) to which ASN and WIOCC must adhere for the installation of the proposed 2AFRICA/GERA (East) Cable System landing at Amanzimtoti. Fundamentally, ASN and WIOCC are required to include and integrate environmental principles and values into all planning and implementation procedures taken for development purposes. Particularly pertinent legal obligations are to:

- Undertake an EIA for activities that fall within the 2014 EIA Regulations (as amended), Listing Notices 1, 2 and/or 3 (R 327, R 325 and R 324 of 7 April 2017).
- Obtain permits in terms of other relevant environmental legislation (for example, heritage, water and biodiversity).
- Adhere to the principles of sustainability, which is supported by the DEA guidelines.

Key legislation, policies, conventions and guidelines which may be applicable to this project include (but are not necessarily limited to), those provided hereunder.

5.1.1 Disaster Management Act, 2002 (Act 57 of 2002)

Due to the Covid 19 Flu Pandemic, South Africa declared a national state of disaster on 15 March 2020 in terms of the Disaster Management Act, 2002 (Act No. 57 of 2002). Since this date, a host of Regulations have been promulgated in terms of the Disaster Management Act, dealing with a wide range of matters affected by the pandemic. Of possible relevance to the implementation of this project will be the effect on various government department's time frames related to permitting and authorisation processes, as well as the manner in which public consultation processes and submission of documents are implemented.

5.1.2 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.

<u>The Environmental Clause</u>
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.

5.1.3 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.

5.1.4 Environmental Impact Assessment Regulations, 2014 (as amended 2017)

The 2014 EIA Regulations (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 currently in Government Notices GNR 327, GNR 325 and GNR 324. The procedures pertaining to the EIA Regulations are contained in GN R 326.

The Listed Activities applicable to the proposed establishment of the 2AFRICA/GERA (East) Cable System landing at Amanzimtoti 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.

5.1.5 National Water Act, 1998 (Act 36 of 1998)

The National Water Act, 1998 (Act 36 of 1998) (NWA) provides the legal framework for the effective and sustainable management of the country's water resources. The DHSWS is the overall responsible management authority. In line with the international trend of integrated water resource management, the NWA aims to manage rivers, dams, wetlands, surrounding land, groundwater, as well as human activities that influence them, in an integrated way. It provides for the protection, use, development, conservation, management and control of water resources. The NWA identifies 11 consumptive and non-consumptive water uses which must be authorized under a tiered authorization system.

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. As the broader study area contains watercourses and wetlands, a specialist will be tasked with identifying requirements for water use licenses/general authorisations.

5.1.6 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 SAHRA 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.

Note that SAHRA is the relevant heritage authority for all heritage resources located under the low water mark of the sea, up to a distance of 24 Nm seaward from the high-water mark of the sea. Under the terms of the maritime zones established by the Maritime Zones Act, the application of the NHRA applies within South Africa's territorial waters (12 Nm seaward of the baseline) and extends to the outer limit of the maritime cultural zone (contiguous zone) (24 Nm seaward of the baseline). Any offshore activities that have the potential to disturb or damage cultural heritage resources located in or on the seabed within the territorial waters and maritime

cultural zone, require the involvement of SAHRA. SAHRA comments in respect of the NEMA EIA process and as a permitting authority, where impacts to sites or material cannot be avoided and damage or destruction will occur.

5.1.7 KwaZulu-Natal Heritage Act, 2008 (Act 4 of 2008) (KZNHA)

This Act provides for the protection of cultural heritage resources and the management of activities that may have a significant impact on cultural heritage resources, specifically within KZN. The KZNHA is implemented by Amafa.

5.1.8 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 study area at Amanzimtoti contains indigenous coastal dune forest. However, the proposed project is unlikely to directly affect any natural forests or protected tree species. This will be confirmed by a specialist during the Impact Assessment.

5.1.9 Hazardous Substance Act, ,1973 (Act 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, it is unlikely that the conditions of this Act or its regulations will be of relevance to the cable landing at Amanzimtoti.

5.1.10 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.

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

The National Environmental Management: Waste Act, 2008 (Act 59 of 2008) has various sections of relevance to the proposed project. The aims of the Act are to provide laws regulating waste management in order 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.

5.1.12 National Environmental Management: Biodiversity Act, 2004 (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).

5.1.13 National Environmental Management: Integrated Coastal Management Act, 2008 (Act 24 of 2008) (ICMA)

In general, the 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 at Amanzimtoti, 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[7]) that must be considered by the authorities when evaluating the application for environmental authorisation.

5.1.14 National Environmental Management: Protected Areas Act (Act 57 of 2003) as amended

The National Environmental Management: Protected Areas Act, as updated to Government Gazette 39728, dated 25 February 2016, 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.
- The establishment of a national register of all national, provincial, and local protected areas.
- The management of those areas in accordance with national norms and standards.
- Intergovernmental co-operation and public consultation in matters concerning protected areas;
- The continued existence, governance and functions of South African National Parks; and
- Matters in connection therewith.

Of relevance to this project is Section 48A (1) of the Protected Areas Act, which states that no person may in a marine protected area:

a) fish or attempt to fish;
(b) take or destroy any fauna or flora;
(c) undertake any dredging or extraction of sand, rock, gravel or minerals unrelated to any activities referred to in section 48 (1);
(d) discharge or deposit waste or any other polluting matter;
(e) in any manner which results in an adverse effect on the marine environment, disturb, alter or destroy the natural environment or disturb or alter the water quality or abstract sea water;
(f) carry on any activity which may have an adverse effect on the ecosystem of the area;
(g) construct or erect any building or other structure on or over any land or water within such a marine protected area;
(h) carry on marine aquaculture activities;
(i) engage in bioprospecting activities;
(j) sink or scuttle any platform, vessel or other structure; or
(k) undertake mineral exploration, and production of petroleum and other fossil fuels.

Regulations for the management of various MPAs are published under the Protected Areas Act. These include Regulations for the recently expanded Aliwal Shoal MPA (GNR 781 - 23 May 2019). One of the marine alignment alternatives investigated intersects the new expanded north east boundary of the Aliwal Shoal MPA before making landfall at Amanzimtoti. Permission to traverse this MPA would be required from EKZNW, which is responsible for management of this MPA.

5.1.15 The Marine Living Resources Act, 1998 (Act 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. The Act enables the Minister of Environmental Affairs, by way of proclamation in the Government Gazette, to declare any

[7] The ICMA specifies that no person may occupy any part of, or site on, construct or erect any building, road, barrier or structure on or in coastal public property unless under the authority of a coastal lease or concession.

portion of South African waters as an MPA. Once these areas have been proclaimed by the Minister, no person may undertake the following activities in the area without the written permission of the Minister: fish or attempt to fish; take or destroy any fauna and flora other than fish; dredge, extract sand or gravel, discharge or deposit waste or any other polluting matter, or in any way disturb, alter or destroy the natural environment; construct or erect any building or other structure on or over any land or water within a marine protected area; or carry on any activity that may have an adverse impact on the ecosystems of the area (s 43(2), read with s 43(3)). While Marine Protected Areas (MPA) are regulated under this Act, regulations governing certain MPAs have also been published under the National Environmental Management: Protected Areas Act, as mentioned above.

This Marine Living Resources Act is applicable to the proposed 2AFRICA/GERA (East) Cable System landing at Amanzimtoti, as most of the project occurs within the marine environment.

5.1.16 Maritime Zones Act, 1994 (Act 15 of 1994)

South Africa's Maritime Zones Act (Act 15 of 1994) is the national legislative embodiment of the international maritime zones set out in the United Nations Convention on the Law of the Sea (UNCLOS). The Act defines the extent of the territorial waters, contiguous zone, EEZ and continental shelf which together comprises some 4.34 million square kilometres of seabed and sets out South Africa's rights and responsibilities in respect of these various maritime zones. In compliance with UNCLOS, the Act declares the territorial sea of South Africa to be the sea within a distance of 12 Nm 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 all 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 Africa[8].

5.1.17 Telecommunications Act, 1996 (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 at Amanzimtoti, Section 36 of the Act applies, as WIOCC 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.

8 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*".

5.1.18 Marine Traffic Act, 1981 (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 SAMSA, established by Section 2 of the South African Maritime Safety Authority Act (Act No 5 of 1998), under the Department of Transport.

Of particular importance to the proposed 2AFRICA/GERA (East) Cable System is the stipulation in respect of offshore installations, viz:

The master; or any person on board a ship in charge of the navigation of such ship, shall be guilty of an offence if—

i. through his act or omission in connection with the navigation of the ship in question, an offshore installation or any part thereof is damaged;
ii. the ship, except while rendering an emergency service or previously agreed service to the offshore installation in question, enters a safety zone, or drops or drags anchor nearer than 500 m to a pipeline or a telecommunications line; or
iii. while engaged in fishing, the ship bottom trawls nearer than 500 m to such a pipeline or telecommunications line.

No liability arises in terms of the above, where the master or person on board the ship in charge of the navigation thereof acted for the purpose of securing the safety of the ship, any other ship or an offshore installation or of preventing damage to the ship, another ship or the cargo thereof or an offshore installation, or of saving life, and such action was necessary for that purpose or was reasonable in the circumstances.

5.2 International treaties, conventions and protocols

South Africa is signatory to a number of 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. This is the main international convention covering prevention of pollution of the marine environment by ships from operational or accidental causes (http://www.imo.org/en/Publications/Pages/CurrentPublications.aspx). 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 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 UNCLOS. Under this convention, South Africa claims rights within a 12 nautical mile territorial water and a 200 Nm EEZ.

Article 79 of UNCLOS, in particular, concerns the installation of "submarine cables and pipelines on the continental shelf" and specifies the following:

- 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).

  (Source: http://www.un.org/depts/los/conventionagreements/texts/unclos/unclose.pdf)

The International Convention for the Protection of Submarine Cables (1884) continues to be widely used in the cable industry. While its essential terms are included in UNCLOS, the Cable Convention remains the only treaty that provides the detailed procedures necessary to implement them. This includes:

- Article 5 special lights and day shapes displayed by cable ships; minimum distances ships are required to be from cable ships;
- Article 6 minimum distance ships are required to be from cable buoys;
- Article 7 procedures for sacrificed anchor and gear claims;
- Article 8 competency of national courts for infractions;
- Article 10 procedures for boarding vessels suspected of injuring cables and obtaining evidence of infractions.

Article 311(2) of UNCLOS recognizes the continued use of these provisions, which are compatible with and supplement UNCLOS (Carter et al, 2009).

5.3 Provincial legislation

Potentially applicable to the 2AFRICA/GERA (East) Cable System landing at Amanzimtoti are the following provincial laws:

- KwaZulu-Natal Nature Conservation Management Act, 1997 (Act 9 of 1997).
- Natal Nature Conservation Ordinance (Act 15 of 1974).
- KwaZulu-Natal Heritage Act, 2008 (Act 4 of 2008).
- eThekwini Coastal Management By-Law 2017

5.4 National, provincial and local policies and plans

Applicable to the 2AFRICA/GERA (East) Cable System landing at Amanzimtoti are the following policies and plans:

- National Development Plan 2030 (NDP).
- eThekwini Spatial Development Framework, 2019 (SDF).
- eThekwini Integrated Development Plan (IDP).
- Ezemvelo KZN Wildlife Systematic Conservation Assessment/Planning (SCA).
- eThekwini's Systematic Conservation Assessment.
- Durban's Metropolitan Open Space System (D'MOSS).

5.5 Guidelines

National Guidelines relevant to the project are listed below.

- DEA Integrated Environmental Management Guidelines Series (2010).
- DEA Companion Guideline on the Implementation of the Environmental Impact Assessment Regulations (2014).
- DEA Public Participation Guideline (2017).
- DEA Guideline on Need & Desirability (2017).
- DEA South African Water Quality Guidelines for Coastal Marine Waters (2012).

5.6 Authorisations, permits and licenses

The licenses/permits required for the landing of the proposed 2AFRICA/GERA (East) Cable System landing at Amanzimtoti, South Africa are summarised in Table 4[9]. Note that items 8 - 11 would only be required if these resources are directly affected by the chosen alternative (refer to Section 7.2.1).

[9] Excluded from the table are the following which are the responsibility of ASN and/or WIOCC; (a) Telecommunications operators' licenses, cable landing station licences and similar licenses required from the national telecommunications regulators; (b) Operational clearances (c) Agreements to cross other submarine cables, oil and gas concession blocks, pipelines and other seabed assets;

Table 4 Licenses/permits required (or potentially required) for the proposed 2AFRICA/GERA (East) Cable System landing at Amanzimtoti

	License/Permit	Authority
1	Environmental Authorisation	DEFF: Integrated Environmental Authorisations
2	Beach Driving Permit	DEFF: Oceans and Coast
3	Seashore Lease Permit	Department of Economic Development, Tourism and Environmental Affairs
4	Permit to construct infrastructure in the Coastal Public Property*	Department of Public Works
5	Section 53 License[10]*	Department of Mineral Resources and Energy
6	Municipal approval	eThekwini Metropolitan Municipality
7	Heritage Permit (Offshore)	South African Heritage Resources Agency
8	Heritage Permit (Onshore)	Amafa
9	Protected Tree Permits	DEFF: Forestry
10	Protected Plant Permits	Ezemvelo KZN Wildlife
11	Water Use License	Department of Human Settlements, Water and Sanitation

* These are the responsibility of the Operator

5.7 Commenting and relevant authorities

In light of applicable legislation/policies/guidelines, the below-mentioned key authorities have been identified and consulted/requested to comment during Scoping. Their comments will be taken into consideration during the Impact Assessment.

5.7.1 Department of Environmental Affairs – 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.

As a Directorate of DEFF, OC will provide comment and recommendations on all EIA documents submitted which pertain to the proposed 2AFRICA/GERA (East) Cable System landing at Amanzimtoti.

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. Of relevance to the 2AFRICA/GERA (East) Cable System are the newly established Marine Protected Areas which have been implemented as part of the programme in an attempt to ensure the sustainable utilisation of South Africa's marine environments.

10 License to undertake a different land use on the sea floor other than prospecting or mining.

OC is also responsible for processing of beach driving permit applications. (However, for this project, note that permits to drive on the beach can be obtained from the local eThekwini Beach Office at Amanzimtoti Main Beach).

5.7.2 KwaZulu-Natal Department of Economic Development, Tourism and Environmental Affairs (DEDTEA) (Marine Biodiversity subdivision)

The DEDTEA is the lead agent for coastal management in KZN and is tasked with the implementation of the Integrated Coastal Management Act. The Sub directorate: Coastal and Biodiversity Management is thus a key commenting authority for this project. In addition, they will be responsible for administering the application for a Sea Shore lease Permit.

5.7.3 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 12 of 2005). In line with the provisions of the 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 maneuvering of vessels within port limits and along the coast.
- 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 installation of a marine telecommunications cable through the coastal waters close to the Port of Durban, TNPA (Durban Port) has been registered as an interested and affected party and provided with information on the proposed 2AFRICA/GERA (East) Cable System landing at Amanzimtoti.

5.7.4 The South African Maritime Safety Authority (SAMSA)

SAMSA was established on 1 April 1998, in terms of the South African Maritime Safety Authority Act, 1998 (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 for administering several pieces of marine related legislation in relation to the above tasks, including the Marine Traffic Act, 1981 (Act 2 of 1981); and Maritime Zones Act, 1994 (Act 15 of 1994) (http://www.samsa.org.za/sites/samsa.org.za/files/SAMSA%20Act%2C%201998.pdf).

SAMSA has been registered as an I&AP, as SAMSA is ultimately responsible for the safety of vessels at sea and the respondent to incidents which could occur during the installation and operation of the proposed 2AFRICA/GERA (East) Cable System landing at Amanzimtoti.

5.7.5 Department of Environment, Forestry and Fisheries (Fisheries)

The Fisheries division of DEFF, as the custodian of fisheries resources in South Africa, is responsible for the following:

- Fisheries administration (including commercial, recreational and subsistence fisheries).
- Fisheries research.
- Protection of marine resources (through control and enforcement).
- Co-ordinating development.

DEFF (Fisheries) is regarded as a key commenting authority[11], given that they have a responsibility to protect the oceans and seabed, ensuring that all activities that have the potential to affect marine resources are undertaken in an environmentally responsible and sustainable manner.

5.7.6 Department of Environment, Forestry and Fisheries (Forestry)

The DEFF sub-directorate, Forestry Regulations and Support, is the authority mandated to implement the National Forest Act, 1998 (Act No. 84 of 1998) by regulating activities affecting natural forests and protected tree species in terms of the Act.

Since coastal forest vegetation occurs in the study area, DEFF: Forestry Regulations and Support has been notified and invited to comment on the project.

5.7.7 Department of Mineral Resources and Energy

The primary legislation governing the South African mining and petroleum sector is the Mineral and Petroleum Resources Development Act, 2002 (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 and Energy (DMRE), which is the regulatory authority for all offshore mining and exploration activities. The proposed 2AFRICA/GERA (East) Cable System landing at Amanzimtoti crosses offshore O&G exploration areas. DMRE has therefore been notified and requested to comment on the project.[12]

5.7.8 Ezemvelo KZN Wildlife

EKZNW protects marine biodiversity, implements the Marine Living Resources Act and manages MPAs off the coast of KZN, including the Aliwal Shoal MPA. EKZNW also protects terrestrial biodiversity and is a commenting authority for EIA applications.

EKZNW has therefore been notified and requested to comment on the project.

11 DEFF: International Relation Fisheries has also been added to the project database.
12 The Petroleum Agency South Africa (PASA) has also been added to the project database.

5.7.9 eThekwini Metropolitan Municipality

eThekwini provides consolidated comment on environmental applications from the relevant departments within the municipality. This is co-ordinated via the Development Planning, Environment and Management Unit. Of particular importance to this application will be comment from the eThekwini Environmental Planning and Climate Protection Department (EPCPD) with respect to Biodiversity and D'MOSS; and Parks Leisure and Cemeteries with respect to the beaches. Parks, Leisure and Cemeteries (Beach Management Section) has indicated that once all other approvals are in place, that they must be furnished with copies thereof, after which they will issue a final Letter of Permission to go ahead with the cable landing.

5.7.10 South African Heritage Resources Agency

As detailed in Section 5.15, SAHRA will comment on the project with regard to marine and terrestrial cultural heritage resources. Their provincial counterpart, Amafa, has also been notified for comment.

6. PROJECT DESCRIPTION

This chapter describes the infrastructure and operational aspects of the 2AFRICA/GERA (East) Cable System landing at Amanzimtoti. The aim of this chapter is to enable readers to gain an understanding of how the cable system will be installed and maintained and to understand the possible impacts that the development may have on the receiving environment. Additional photographs of the study area are provided in Appendix 8.

6.2 Marine components

6.2.1 Structure and characteristics of marine fibre optic cables

6.2.1.1 Cable structure

In a fibre optic cable, data is transmitted by laser light travelling along glass fibres. The cable (ranging from 2-5 cm in diameter) is a protective housing for these delicate glass fibres. The fibres are housed in a laser-welded 2.3 mm diameter stainless steel tube, which is filled with a thixotropic, water-blocking compound. The tube provides an efficient barrier against hydrogen ingress.

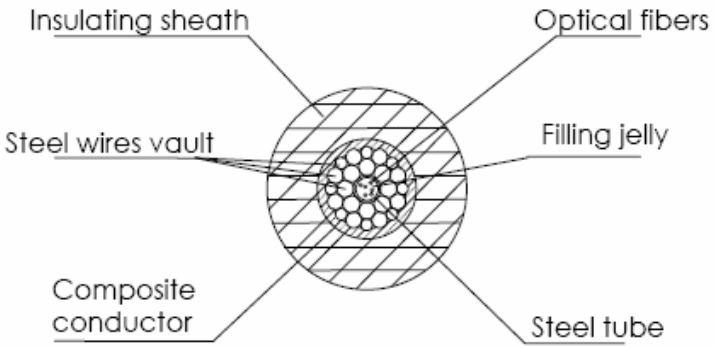
Fibres are placed within the tube with a controlled excess length, which prevents fibre tensioning upon cable tensioning and elongation. The tube is surrounded by a vault of two layers of high tensile steel wires to withstand tension and compression. The vault is enclosed in a hermetically sealed copper tube (which also serves as an electrical conductor) and encased in polyethylene.

The cable configuration described above is lightweight (LW) cable, typically used in deep water where there is no threat of external stresses and impacts (Plate 1). Should deep seabed conditions indicate need for more protection, the LW cable may be covered with a metal tape to form Lightweight Protected (LWP) cable.

Armoured cable is used where seabed conditions or external risks (e.g. fishing) create a more hostile environment. Single armour (SA) cable contains LW cable as its core, around which is wound a single layer of high strength galvanized steel wire. Double armour (DA) is constructed by winding a further layer of steel wire around the SA cable (Plate 1). SA and DA cable is coated with a bituminous compound and covered by polypropylene yarn. SA cable has a diameter of 28 mm and DA a diameter of 37.5 mm. The cable design ensures that fibres experience negligible strain in normal operation. If the cable is broken, stress on the fibres and sea-water ingress are confined to a short length (which can be replaced), while the bulk of the cable remains serviceable. Plate 2 shows cable designs for different sea depths and burial depths.

Because the strength of the light signal degrades with distance travelled along the fibre, signal optical amplifiers called “repeaters” are installed in the line, approximately every 70 km, to boost the signal. Repeaters (Plate 3) are electrically powered and designed to function continuously without maintenance for 25 years in depths of up to 8,000 m. Repeaters, depending on their type, range from approximately 1.8 m to 4.4 m in length and the mid-section can measure up to approximately 0.3 m in diameter (Carter *et al*, 2009).

Light Weight Cable (LW)



Double Armoured (DA)

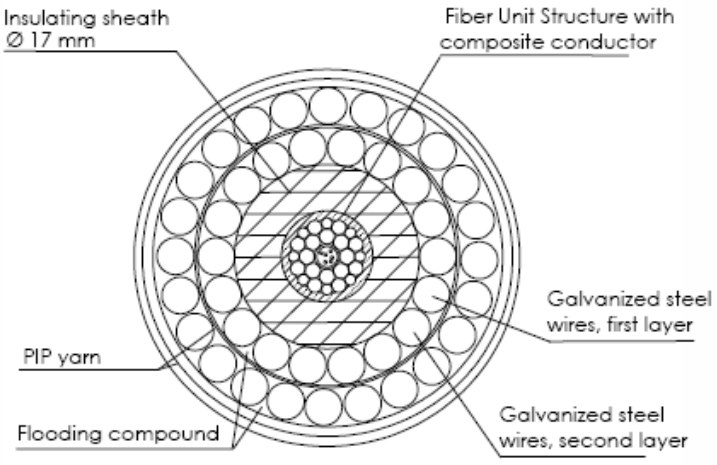


Plate 1 Cross sections of a light weight (LW) and double armoured (DA) fibre optic cable

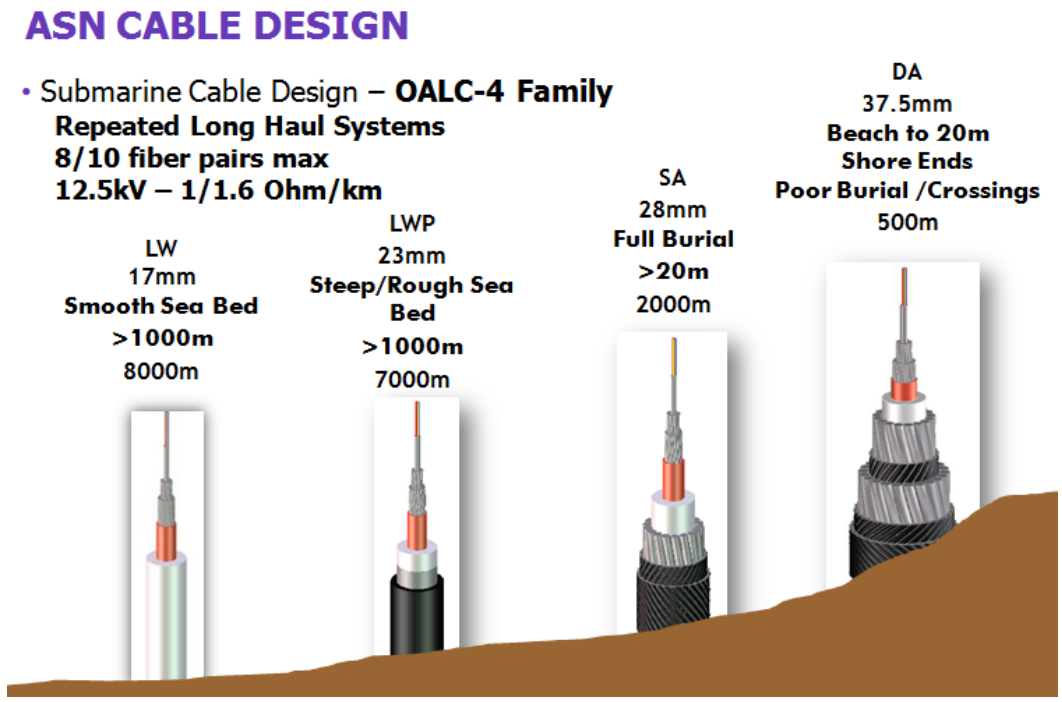


Plate 2 **Examples of fibre-optic cable designs for different sea depths and sea bed conditions**

Plate 3 Example of a Repeater

6.2.1.2 Cables in operation –electric and electromagnetic fields

Fibre optic cables carry a constant direct current of 1.0 - 1.6 amperes to power underwater 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. For a cable carrying 1.6 Amperes, 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.

6.2.1.3 Cables in operation – Sound

Audible sound lies in the range 15 to 40,000 Hertz and optical cables do not emit sounds in this range, or indeed at 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 through the water column. This is a low frequency phenomenon, at approximately 10 Hertz, and ceases when the cable comes to rest on the bottom. During maintenance, injection of a low frequency electrical signal from the land station, known as "toning" is done 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 has been used for many years on telegraph, coaxial, and optical fibre submarine cables throughout the world and is a short term and infrequent occurrence. Adverse effects on marine life associated with toning have not been observed.

6.2.1.4 Cables in operation – Heat dissipation

High and medium voltage seabed power transmission cables can emit heat. By comparison, the voltage associated with telecommunication cables (for powering the repeaters) is very low and heat emissions are considered to be negligible.

6.2.2 Route of the 2AFRICA/GERA (East) cable landing at Amanzimtoti and general positioning on the seabed

As shown in Figure 3, the cable route originates from the 2AFRICA/GERA (East) Trunk Line which runs along the East Coast of Africa in deep water (generally parallel to the coastline) and approaches South African coastal waters from Mozambican waters to the north. The proposed branch of the 2AFRICA/GERA (East) Cable System (Amanzimtoti landing) is roughly 185 km in length, extending in a north-westerly direction towards the coast. It runs through South Africa's EEZ and enters South African territorial waters approximately 22 km (12 Nm) from the seashore. The cable will approach Amanzimtoti beach between the Aliwal Shoal and Thukela Banks Marine Protected Areas (Figure 3).

Offshore, the cable will be laid by a purpose-built cable-laying ship and will rest on the seabed in water depths generally greater than 1000 m, where the risk of inadvertent damage from human activities is negligible (Figure 6). Generally, at depths less than 1000 m, the cable will be buried beneath the sandy seabed. 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 will be fed from the ship to the plough, which will bury the cable to a depth of approximately 2 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 15 km of cable can be installed and buried per day.

Within the shallow water environment, the cable will be buried in sediment to a depth of 2 m wherever possible and the route will be adjusted to avoid obvious visible rock. If rock is encountered at a depth shallower than 2 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. As such, there will be no need to anchor, pin or clamp the cable to rocky substrates. In addition, the cable from the BMH out to approximately 10-20 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.

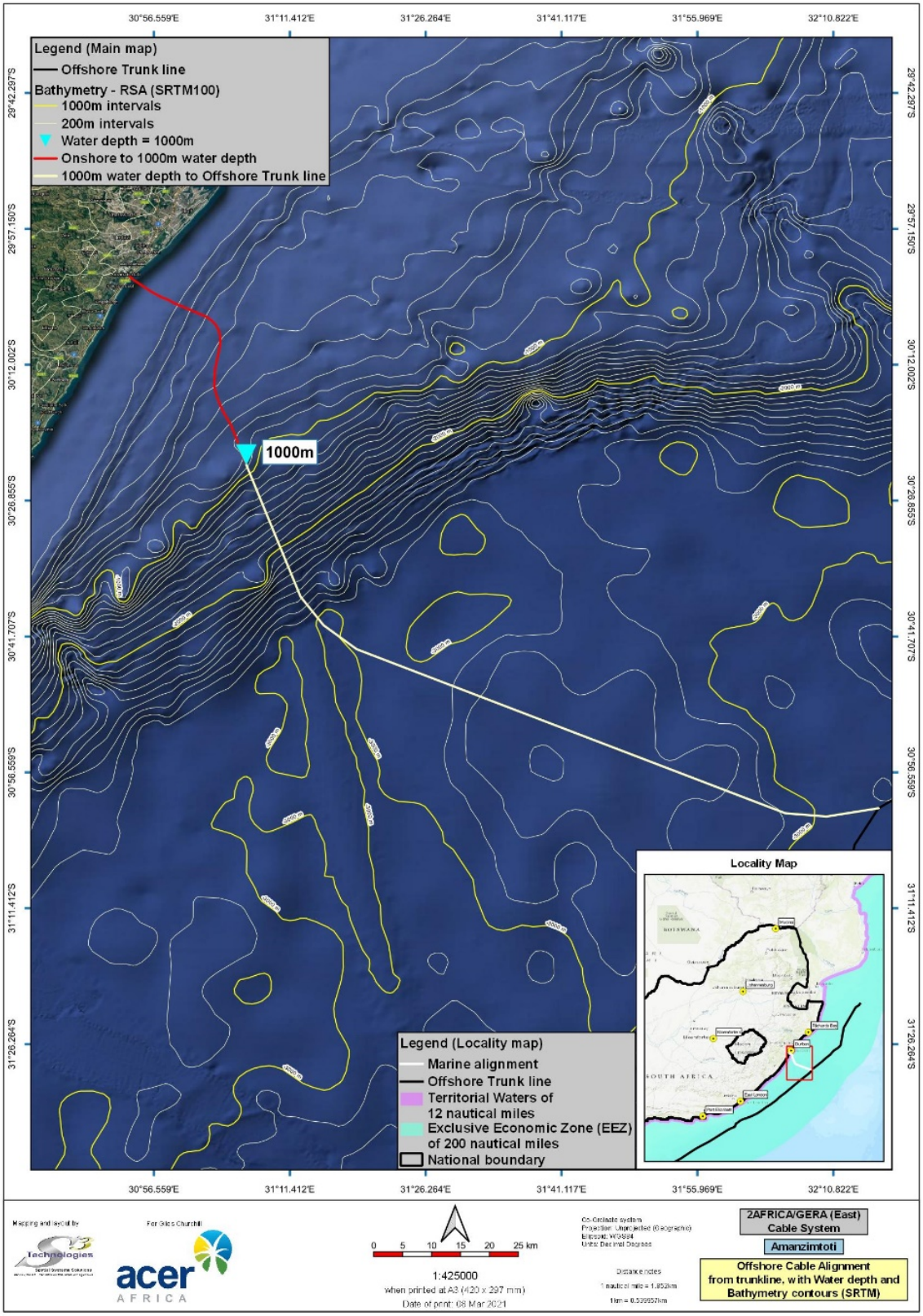


Figure 6 Alignment of the 2AFRICA/GERA (East) Cable System branch line to Amanzimtoti, showing bathymetric contours and water depths relative to 1000m

6.2.3 Installation of the marine fibre optic cable

The procedures involved prior to and during cable installation are described below.

6.2.3.1 Cable Route Survey

The proposed cable route was surveyed by the project team to identify whether or not the substrate and topography of the ocean floor was 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.
- Bottom samples 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 1,000 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.

6.2.3.2 Cable Route Clearance

Prior to the installation of the cable, route clearance operations will be conducted along those sections of the route where burial is to be performed. This is 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. The operation is performed only where plough burial is proposed, to clear away debris on the

seafloor which could obstruct and damage the plough or the new cable. Route Clearance is not undertaken where the presence of ordnance, radio-active, or other hazardous materials is suspected.

PLGR is undertaken by dragging grapnels (Plate 4) behind a vessel along the proposed cable route in order 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 grapnels penetrate the seabed to a depth of 40-80 cm and hook any linear obstacle.

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 systems to the same specification as the main lay vessel. As the vessel moves along the route, the towing tension is monitored and the grapnel(s) is recovered if the tension increases, indicating that an obstruction has been hooked. As a matter of routine, grapnels are recovered and inspected every 15-20km. All retrieved debris are kept on board for further safe disposal at port. Usually, a single tow is made along the route, but in areas where other marine activity or debris amounts are high, additional runs may be made. Any debris recovered during these operations will be discharged ashore on completion of the operations and disposed of in accordance with local regulations.

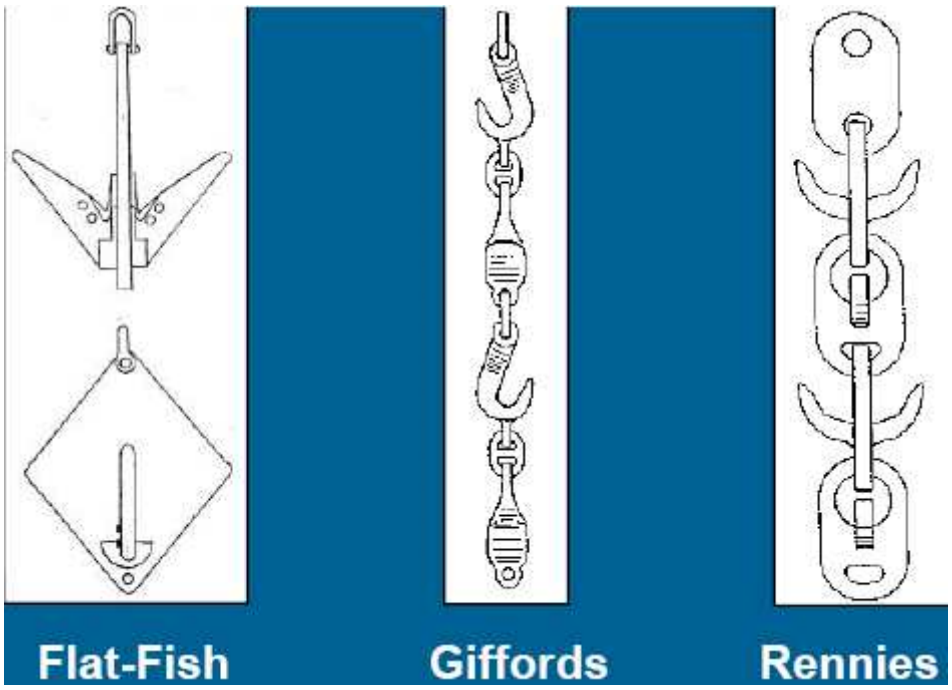


Plate 4 **Types of grapnels used to clear the cable route of debris** (Source: https://coast.noaa.gov)

6.2.3.3 Cable laying and burial

The cable will be installed using a purpose-built cable vessel, 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 vessel's data. In areas where plough burial is planned, the cable will be buried to a target depth of 2m (Plate 5).

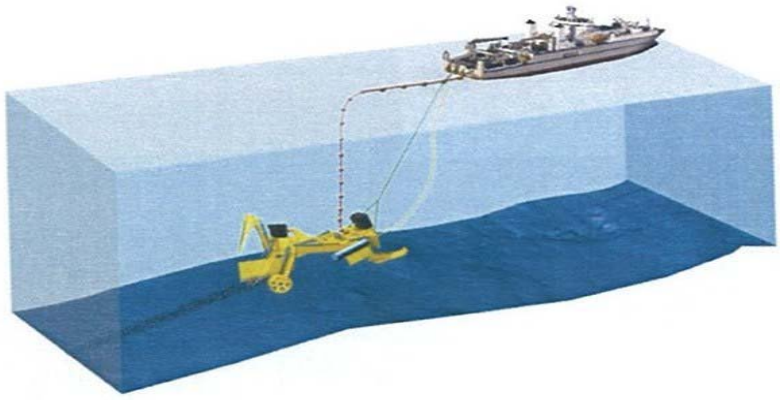


Plate 5 Sea plough to be used to bury the cable along sections of the cable alignment where conditions permit burial

6.2.3.4 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. Where existing cables are crossed, the industry norm is to ensure that the crossing is undertaken using a similar type of 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 can be performed to afford additional protection to the cables at the crossing point. The 2AFRICA/GERA (East) Cable System (Amanzimtoti landing) will cross the METISS cable.

If pipelines are crossed, 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 fiber optic cables, power cables, umbilicals, flexible flowlines, rigid flowlines, hoses and bundled products from abrasion and impact.

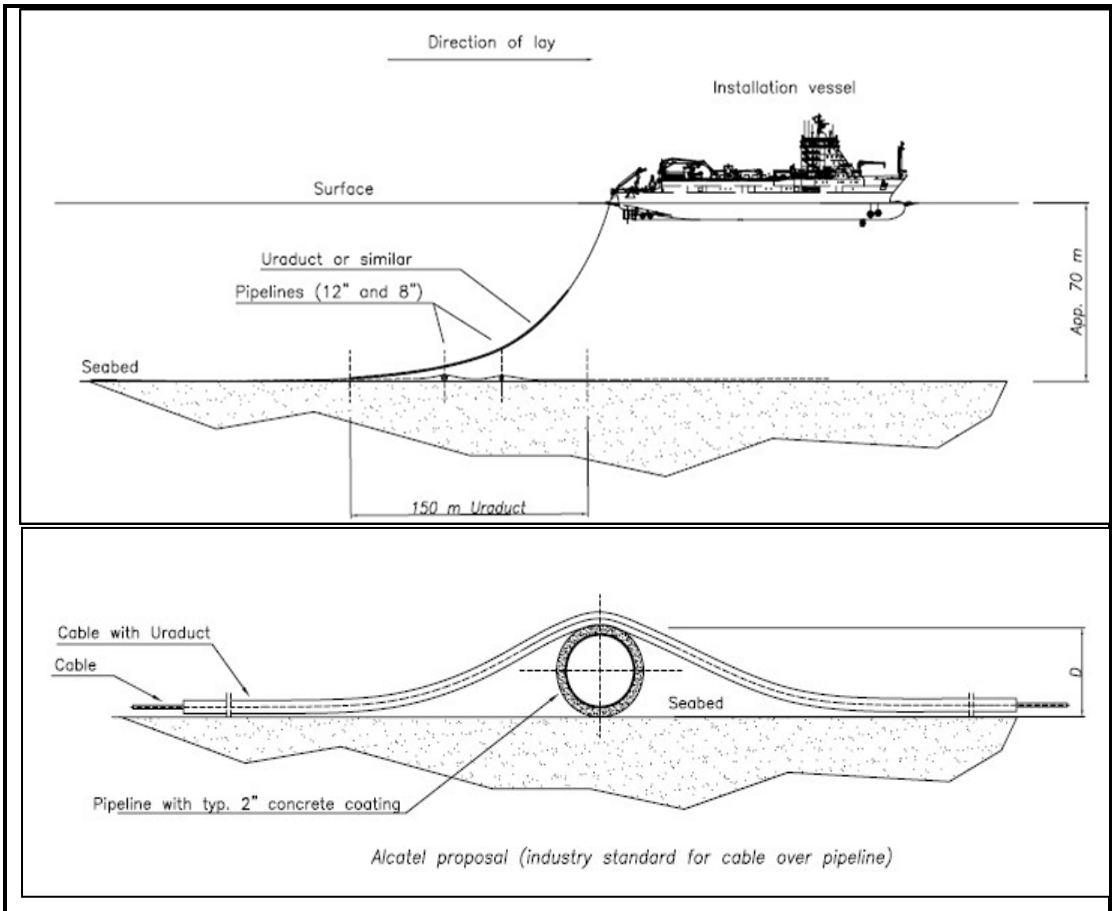


Plate 6 Example of a cable crossing a pipeline, using Uraduct or similar product (Source: ASN REH, 2019)

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. Mattressing[13] can also be used when crossing pipelines; however, this is not considered necessary for standard pipeline crossings but may be installed in special circumstances at the request of the pipeline operator. No pipeline crossings have however been identified for the 2AFRICA/GERA (East) Cable System (Amanzimtoti landing).

6.2.3.5 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 (Plate 7 and Plate 8). Where possible, cables are brought to shore directly from the main-lay cable ship. Such shore-end operations are usually completed within one day. Figure 7 shows the planned cable route across the beach, which will be located on the north side of the existing METISS cable.

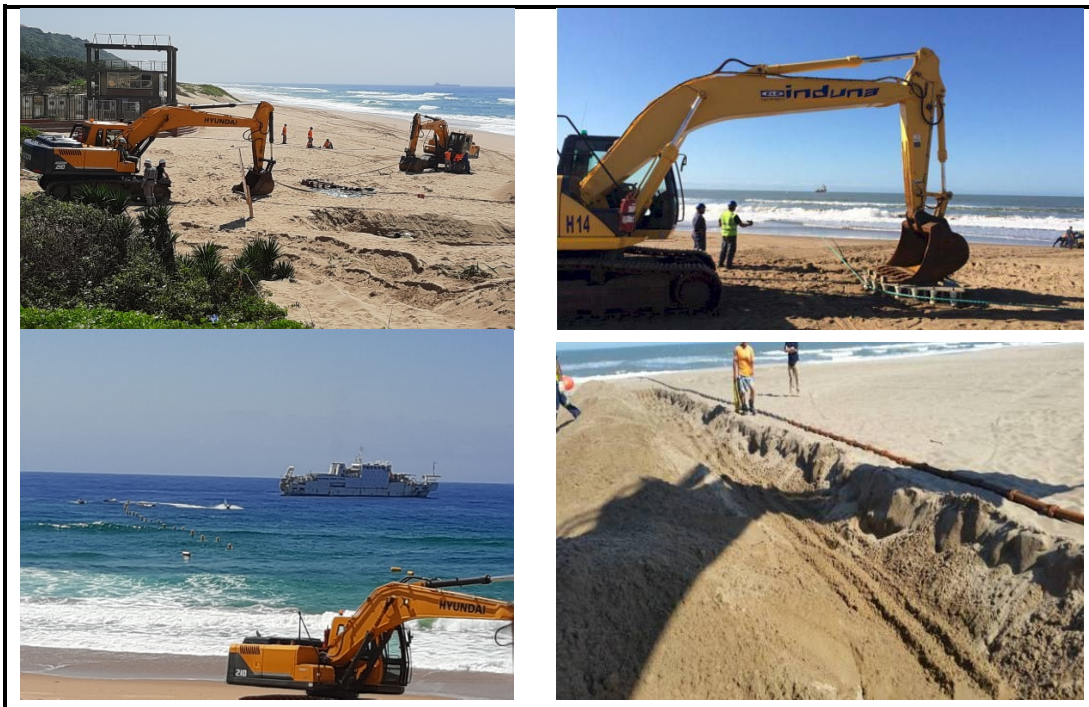


Plate 7 Landing of the cable on shore (the photos on the left hand side show the METISS cable landing at Amanzimtoti - similar works will be undertaken for the landing of the 2AFRICA/GERA (East) Cable System.

[13] 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.

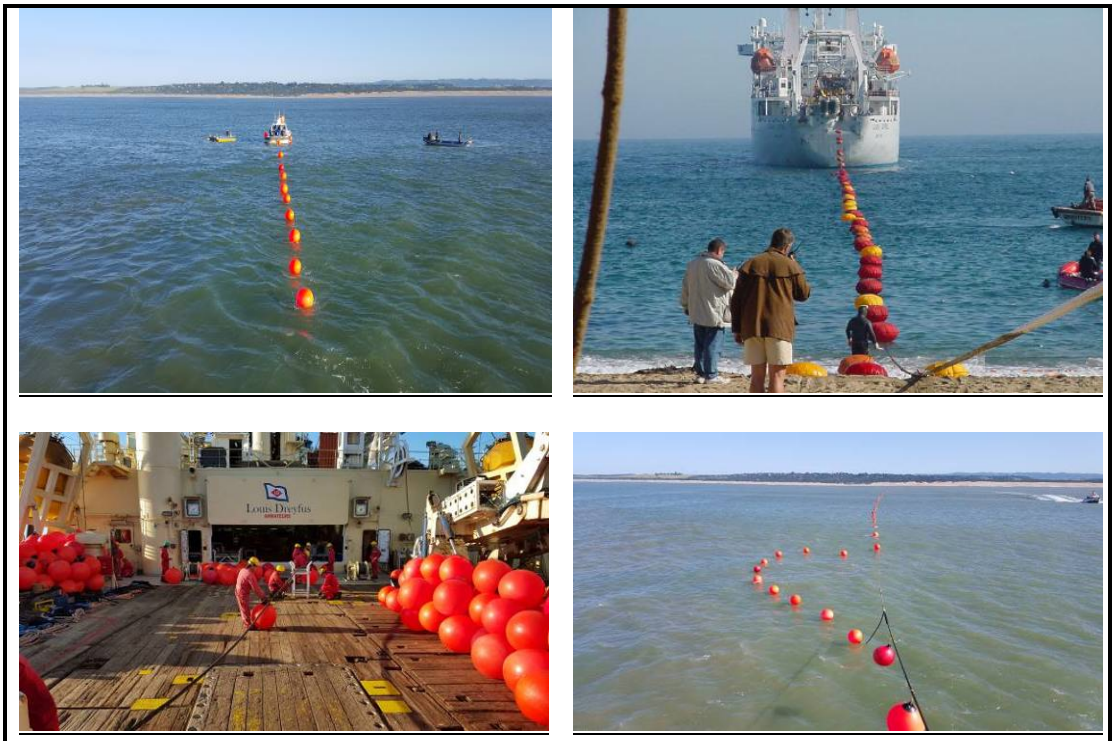


Plate 8 **Bringing the cable to shore from the cable laying vessel. The cable is buoyed off and pulled to shore with smaller vessels**

During cable landing at Amanzimtoti Beach, 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.
- ❑ Installation of cable slack at the beach, as required.
- ❑ Installation of a cable loop in the beach manhole to facilitate re-terminations.
- ❑ Securing the cable in the beach manhole 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). This may also include installation and burial of the sea earth plate and earth cable (System Earth) (Figure 7). Various sea earth systems are available, an example of one type is provided in Plate 9. 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 10), where required across the beach up to the BMH, will be fixed to the beach manhole outside wall by means of a flange adapter.

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 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.

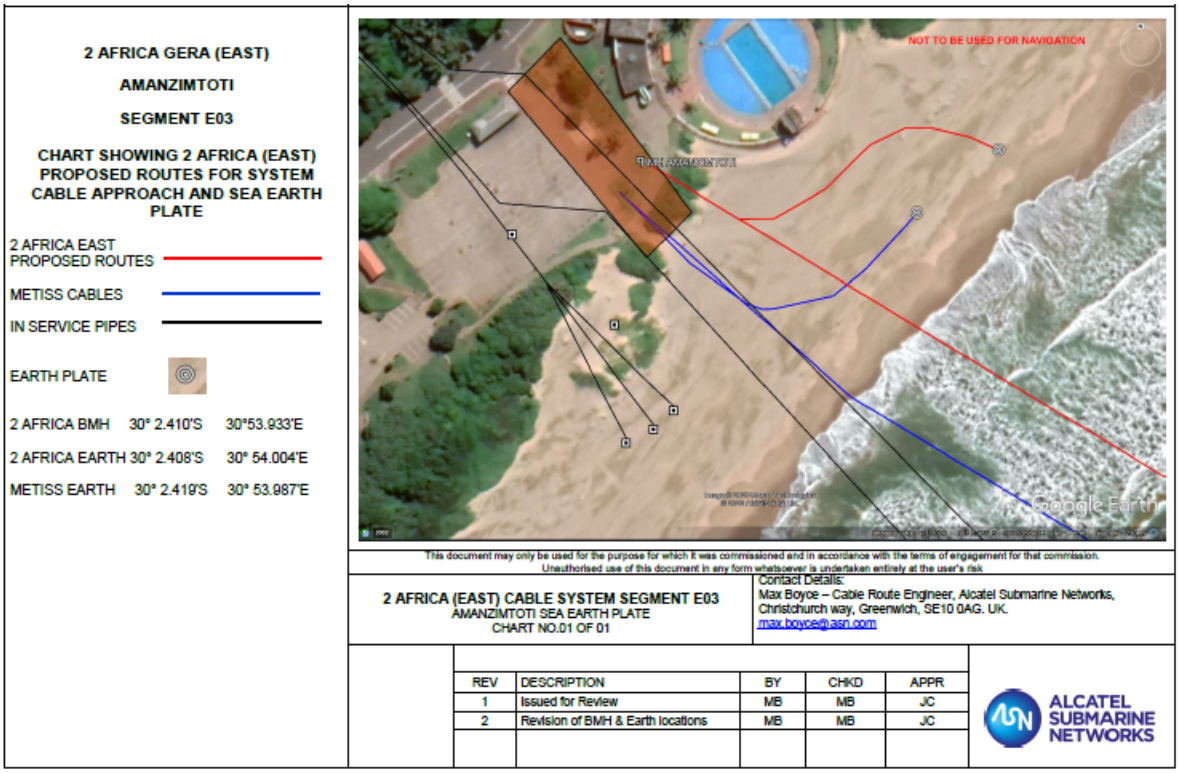


Figure 7 Approximate position of the sea earth cable and sea earth plate (System Earth) for the 2AFRICA/GERA (East) Cable System landing at Amanzimtoti Pipeline Beach

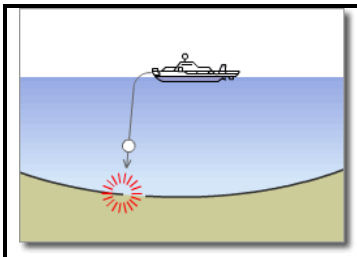
	
Plate 9 **Example of a sea earth plate (System Earth) which must be installed in saturated soil**	**Plate 10** **Articulated pipe sections which will be installed around the cable in shallow water to offer additional protection.**

6.2.4 Operation and maintenance of the marine fibre optic cable

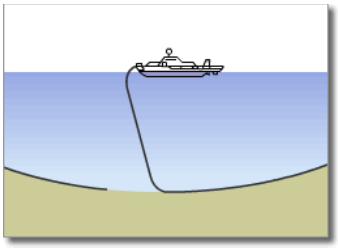
Once installed, operational activities are limited to cable maintenance. Marine fibre optic cables generally require little to no maintenance if the cable is not damaged by natural disasters (underwater landslides, earthquakes, etc.) or through human activities (fishing trawlers, anchors, etc.). If the cable is damaged, a cable repair ship is dispatched to repair the cable fault (Plate 11) 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.

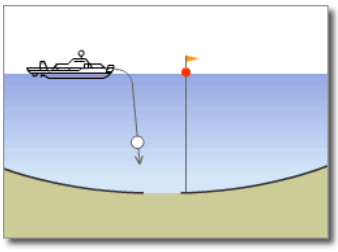
Cables within the EEZ (200 Nm/ 370 km limit) or Territorial Sea (12 nautical mile/ 22 km limit) are afforded legal protection from damage by human activities through the creation of cable protection zones. In South Africa, marine telecommunications cables are afforded a legislated buffer (500 m either 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.

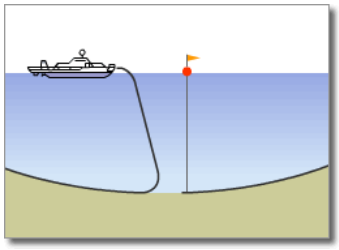


The cable ship is navigated to the location by a Differential GPS. Once the fault is located, a cable cutting tool attached to the rope is paid out to the seabed. This tool and grapnel (Cable Catch) are then used to hook the cable before cutting the cable.

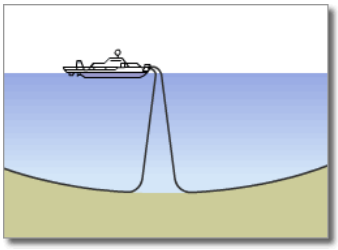


Once cut, the cable is recovered to the ship (Cable Recovery). Once on board the cable is tested to find the fault and that section of cable is removed. The cable is then waterproofed and dropped back to the sea floor attached to a buoy.





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 bought 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 11 Protocol for repairing cable faults to marine telecommunications cables (Source: http://www.k-kcs.co.jp/english/solutionRepairingMethod.html)

6.3 Terrestrial components

6.3.1 Beach Manhole

Once the fibre optic cable has made landfall and been buried through the beach section of the cable alignment (as described under Section 6.2), it will be anchored to a BMH. The BMH will be constructed about 10 m to the north of the position of the existing Liquid Telecom BMH, which is located on the edge of the carpark at Amanzimtoti Pipeline Beach.

The BMH will be an underground chamber made of reinforced concrete (Figure 8), with the approximate dimensions: 3m (length) x 1.8 m (height) x 2m (width). It will house 4 cable ducts (two spare for future use). Once complete, the only visible sign of the structure will be the manhole covers and cement roof slab which will cause minimal interference with vehicle movement or other activities at the beach carpark. Plate 12 (top right and left) shows the Liquid Telecom BMH, which provides an example of a BMH during and after construction.

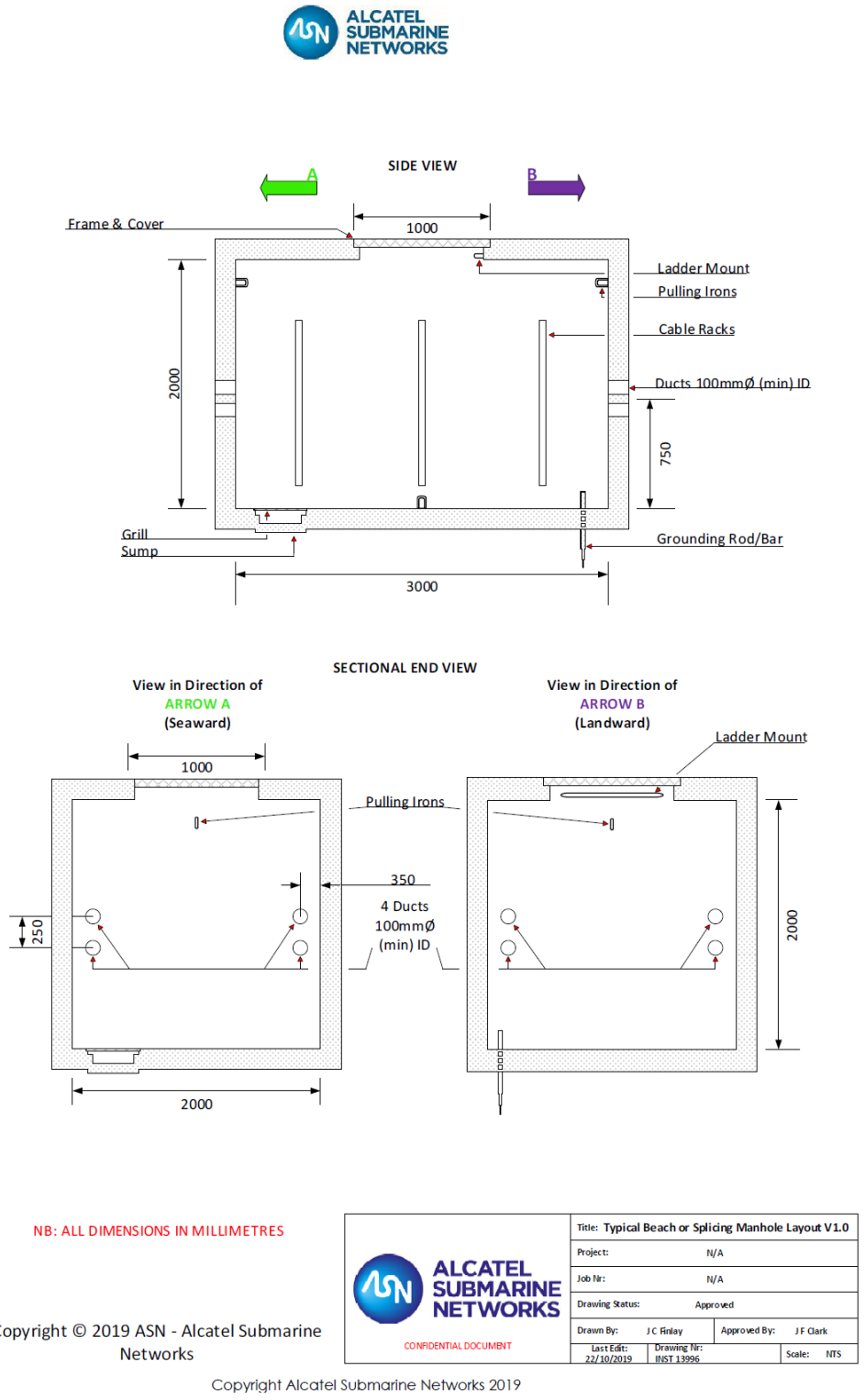


Figure 8 Typical Layout of a Beach Manhole (ASN, 2019)




Plate 12 The Liquid Telecom land infrastructure at Amanzimtoti Beach: BMH during and after construction (top); cable ducting to the CLS (bottom left) and fibre-optic cable being pulled through once landed (bottom right).

6.3.2 Cable trenching from BMH to CLS

From the BMH, a trench line will be dug to house the PVC ducts. The trench depth will be approximately 1.5 m to allow at least 1 m of soil cover over the ducts. Steel ducts can be used where insufficient burial depth cannot be achieved. The width of the trench will be no wider than reasonably necessary for the execution of the work. For the most part, the cable trench will be dug under the pavements and verges alongside existing roads and, where space constraints dictate, the cable may share the servitude in which the existing METISS cable ducting runs. The proposed route of the cable on land is approximately 4.5 km and is shown in Figure 9.

6.3.3 Cable Landing Station

A CLS is a building that functions as a control centre for the subsea cable system and where the system is connected to the domestic telecommunication network. The 2AFRICA/GERA (East) cable landing at Amanzimtoti will connect to the network via a new CLS to be established within an existing building located in Arbour Road, Umbogintwini, just inland of the N2 (Plate 13 and Figure 9).

Plate 13 WIOCC's Cable Landing Station at Umbogintwini

6.3.4 General activities on land during installation

6.3.4.1 Roads and beach access

The landing site and area between the BMH and CLS are all accessible via tarred public roads. Access to the beach will be from the public beach carpark(s). Permission to work on the beach and beachfront area, including any temporary closure or restriction of public access will be prearranged with eThekwini prior to construction. Alternative access will be provided should any (temporary) public or private road closures or pedestrian access to the beach be required.

Vehicle access to the beach is available via the pathway in front of Liquid Telecom's BMH. Permits to drive on the beach will be applied for and obtained at the local beach office as well as from the ORV permitting office of the DEFF.

Trenching for installation of the terrestrial portion of the cable will, to a limited extent, affect roads, road reserves and access to properties during installation. However, access closures will be temporary and of brief duration.

6.3.4.2 Parking of plant/equipment and stockpile area

WIOCC's appointed sub-contractor will negotiate with the eThekwini Municipality regarding parking of machinery and storage of materials at the carpark near the site, for the shore end operations. Security will need to be provided.

6.3.4.3 Water Use

Municipal water supply is available close to the site, on eThekwini's premises. During construction, the Contractor may bring his own water to site in a water tanker, for construction activities.

6.3.4.4 Effluent management

The project is not expected to generate effluent, other than domestic waste. It is likely that ready-mix cement or pre-cast will be used for concrete structures, rather than mixing of cement

on site. Chemical toilets will be provided for construction workers. These chemical toilets will be serviced by an appointed service provider and all waste will be disposed at a licensed waste treatment works within the area.

6.3.4.5 Solid waste management

Little waste is expected to be generated on site and 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. Disposal will be undertaken by an appointed service provider, in separate waste streams where possible and to authorised waste disposal sites.

Note that reclaimed cable from the seabed will be disposed of in accordance with the International Convention for the Prevention of Pollution from Ships (MARPOL). MARPOL is the main international convention covering prevention of pollution of the marine environment by ships from operational or accidental causes.

6.3.4.6 Storm water management

Due to the nature of the cable installation (involving no construction of new infrastructure on land), no management of stormwater will be required.

6.3.4.7 Emissions

The project will result in negligible emissions. Exhaust emissions from construction vehicles will be temporary and restricted to the shore landing period.

6.3.4.8 Noise

The use of excavators and construction vehicles will increase noise levels on site during the shore landing period, however this will be temporary and of short duration. Ambient noise levels on the beach are generally high due to the noise of the waves and wind, and therefore additional noise during construction is not anticipated to cause significant disturbance.

6.4 Job creation and procurement

Specific skills are required for the cable landing activities and the land based work will be of short duration. Therefore, for the landing, the use of unskilled, local labour will be limited. The construction of the BMH, trenching and installation of ducting to the CLS is anticipated to benefit local SMME's with a limited number of temporary jobs or a 30% value of the works. SMMEs will be offered part of the backhaul work provided they are compliant with respect to Health and Safety. A tender process will be set up for work available to SMMEs.

6.5 Anticipated construction dates and programme

WIOCC intends to have the cable installed at Amanzimtoti and operational by the 2nd/third quarter of 2022. However, the landing of the cable is entirely dependent on receiving a positive environmental authorisation from DEFF. Only when the environmental authorisation process is nearing completion, will the project proponent be able to realistically set dates for project implementation.

Construction of the BMH and associated trenching from the BMH to the CLS site is anticipated to take place prior to landing of the cable and will take approximately 8-10 months to complete. It is anticipated that the actual landing of the cable at Amanzimtoti and its installation will take

less than two weeks to complete (the main work of landing the cable from the vessel should be completed in one day; thereafter the shore-end team will fix the articulated pipe on the cable and bury it in the near-shore waters).

Scheduling is critical in that the purpose-built ship needs to run on a strict and coordinated schedule, enabling it to sequentially implement the various landings as it moves from the north to south of the African continent. Once the cable laying ship has commenced, at a significant daily cost, the project cannot afford for the ship to stand idle or to double back on account of administrative or other avoidable delays to the scheduled cable landings.

6.6 Decommissioning

Submarine cables are designed to have a lifespan of 25 years. Currently, most of the installed cables are operating beyond this and, thus, decommissioning of the 2AFRICA/GERA (East) cable and landing infrastructure at Amanzimtoti is unlikely in the near future. If and when decommissioning takes place, all activities would be subject to legislation relevant at the time.

7. PROJECT ALTERNATIVES

Alternatives are different means of achieving the purpose and need of a proposed development. They include alternative sites, routes, layouts or designs, technologies and the "No Development" alternative. This chapter describes the various alternatives considered for the proposed installation and operation of the 2AFRICA/GERA (East) Cable System landing at Amanzimtoti.

7.1 Landing alternatives (East Coast of South Africa)

The landing point is primarily selected by the landing party and is based on developing robust communication networks by improving the country's infrastructure. The location selection is driven by available existing networks to be connected and the ability to safely land a submarine cable. General strategic considerations include:

- Proximity to existing terrestrial telecommunications infrastructure for housing of equipment; and services such as power, sewerage and water.
- Proximity to risk factors such as offshore explosives dumping grounds, busy shipping areas, fishing and trawling areas.
- Proximity to risk factors on land.
- Proximity to sensitive or protected areas such as marine reserves, coastal dunes, or sensitive ecosystems.
- Level of worker health and safety risk during installation and operation.
- Government permitting and approval processes.

On the east coast of South Africa, Mtunzini and Amanzimtoti, due to their favourable characteristics, are currently already used as landing points for other subsea cables. Amanzimtoti was selected as one of the east coast landing points for the 2AFRICA/GERA (East) Cable System, primarily for the following reasons:

- Location and access to Durban which is a central hub for technical and telecom/communication services.
- Landing is suitable for submarine cable, viz. no hard seabed, no major dune crossings, very short beach area to cross, pro-grading beach, low vessel traffic, low risk from external aggression such as anchoring of heavy vessels, fishing, trawling. No military exclusion zones, oil fields, major pipeline or other crossings. The fronthaul is relatively short, with no major risk factors on land.
- Cables landing at or very close to each other (in this case, the METISS cable) are of benefit, as system operators can monitor multiple cable security.

This report deals only with the Amanzimtoti landing point. The other landing point on the East Coast of South Africa is Port Elizabeth, which is undergoing a separate impact assessment process.

7.2 BMH site alternatives at Amanzimtoti

Several sites for a BMH on the beach at Amanzimtoti were initially considered and screened by the project team, taking into consideration geo-physical, bio-physical and socio-economic conditions. BMH Site selection was ultimately narrowed down to three feasible options (see Figure 9 and Plate 14):

- **BMH Site Alternative 1 (30° 02.415'S; 30° 53.931'E)** :This is the existing Liquid Telecom BMH at Amanzimtoti Pipeline Beach, currently housing the METISS cable. This BMH (Plate 14) is sited at the sea edge of the Amanzimtoti Pipeline Beach public beach carpark, adjacent to the south side of the Pipeline Aquatic Centre[14]. This was the original preferred option as it would allow for the use of existing land-based infrastructure (BMH, ducting and CLS) and thus minimise impacts on the terrestrial environment. No new construction or unnecessary disturbance to vegetation and surrounding infrastructure would have occurred during cable installation. It would require only the installation of the sea earth system and trenching across the beach to reach Liquid Telecom's BMH. Impacts on the foredunes would be minimised by following the existing beach pathway to access the BMH. This option was seriously pursued by WIOCC but ultimately, negotiations to share the infrastructure with Liquid Telecom were unsuccessful.

- **BMH Site Alternative 2 (30°02.834'S; 30°53.513'E)**: This site is located at the Amanzimtoti Main Beach in front of the Main Beach carpark, south of the Strandborg Holiday Flats and north of Splash World[15], the beach swimming pool and Nyoni Rocks. It is situated approximately 1 km south of Alternatives 1 and 2. It would require trenching across the beach and the installation of a sea earth plate, as well as the construction of a new BMH at the sea edge of the carpark (Plate 14). From the BMH, Alternative 2 will link up to a new CLS via new ducting (the option of linking into Liquid Telecom's ducting to their existing CLS is no longer an available option). Overall, this site is not preferred compared with Amanzimtoti Pipeline Beach, as it is a busier public beach, there is a possibility of rock outcropping and a greater possibility of damage to the foredunes as well as existing infrastructure (beach pathways, etc.). Refer to Table 5.

- **BMH Site Alternative 3 (Preferred option) (30° 2.409'S 30° 53.933'E):** This site is located at Amanzimtoti Pipeline Beach, approximately 10 m north of Liquid Telecom's BMH (Plate 14). This site has been selected as the current preferred option over BMH Site Alternatives 1 and 2, given that BMH Site Alternative 1 is no longer an available option and given the more favourable conditions at Amanzimtoti Pipeline Beach over Main Beach. BMH Site Alternative 3 will require trenching across the beach and the installation of a sea earth plate, as well as the construction of a new BMH at the sea edge of the carpark. It will be routed on the north side of the METISS cable. Horizontal Directional Drilling (HDD) will be undertaken so as not to disturb the surface of the site (from the BMH approximately 15m seawards). The cable will connect to the new WIOCC CLS via new cable ducting (ducting may share a servitude with Liquid Telecom's cable ducting, where space constraints dictate).

BMH Site Alternatives 2 and 3 will be carried forward for assessment in the Impact Assessment.

14 The Pipeline Aquatic Centre is a public municipal facility which includes a children's swimming pool.
15 Splash World is a recreational water slide park.

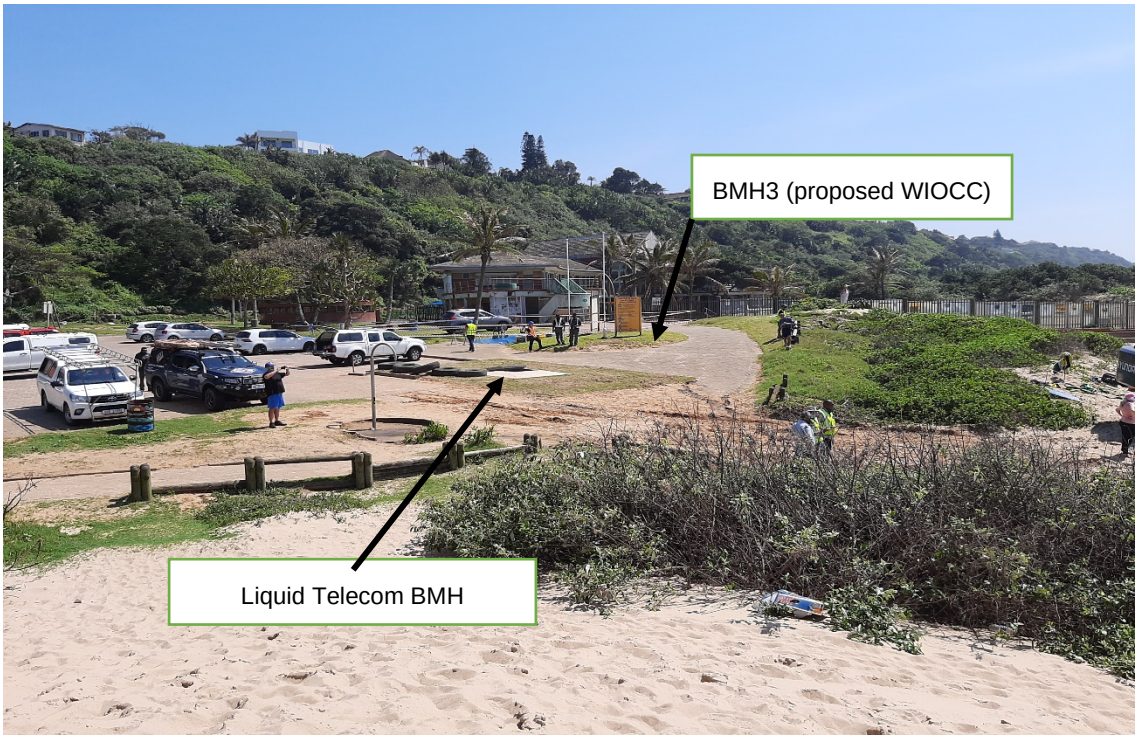


Plate 14 BMH Site Alternatives

Top Left - BMH Alternative 1 (Liquid Telecom's existing BMH) at Amanzimtoti Pipeline Beach carpark; Top Right - BMH Site Alternative 2 at Amanzimtoti Main Beach carpark; Bottom - BMH Site Alternative 3 is located approx. 10 m to the north of the Liquid Telecom BMH.

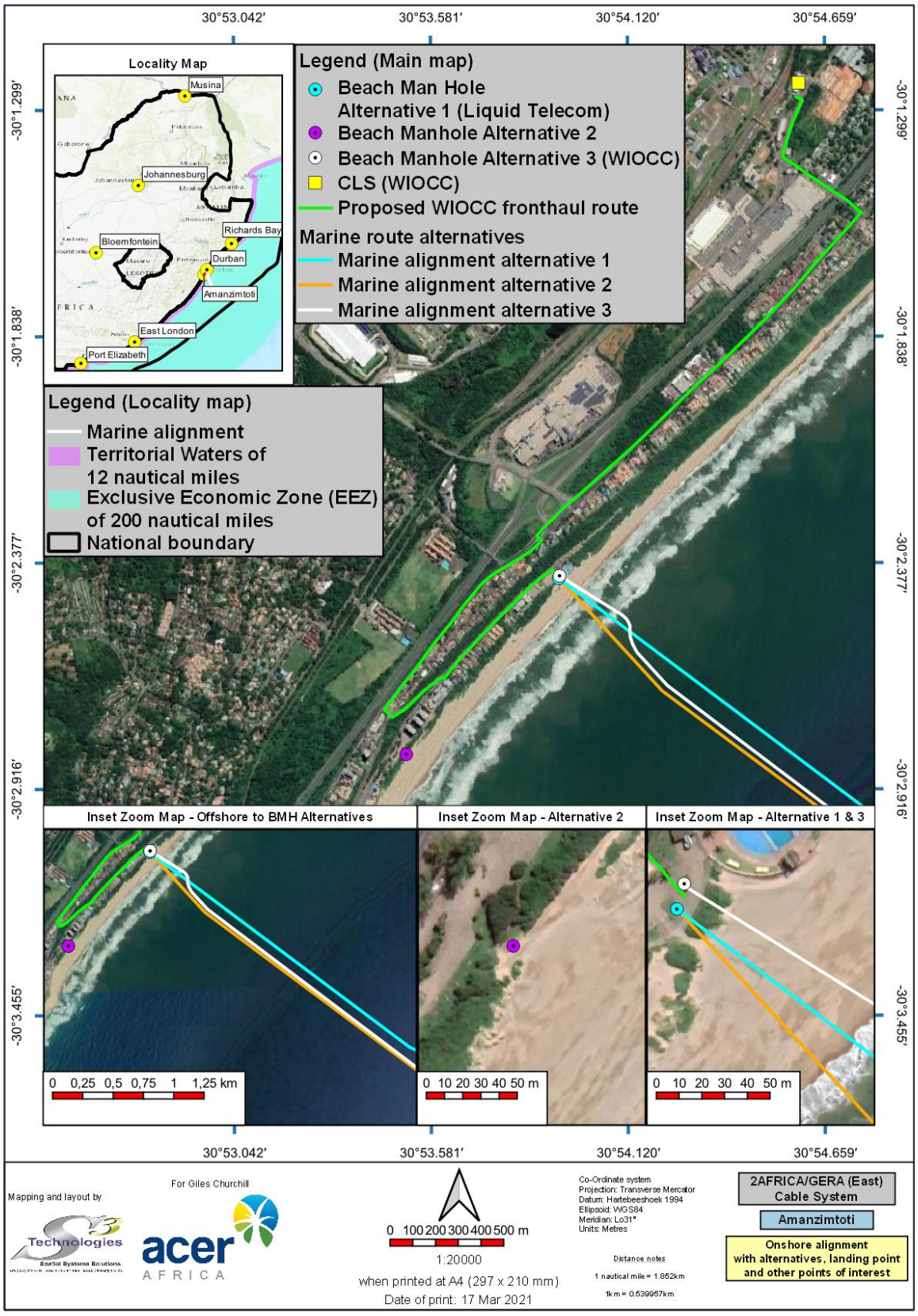


Figure 9 **Project components and alternatives for the 2AFRICA/GERA (East) Cable System (Amanzimtoti Landing)**

Table 5 Preliminary comparison between beaches for potential BMH sites

Characteristics	Amanzimtoti Pipeline Beach	Amanzimtoti Main Beach
Ownership	eThekwini Municipality	eThekwini Municipality
Road and beach access	Good access to BMH from the road and the beach. A pathway onto the beach directly in front of the BMH is used for both pedestrian and vehicle access.	Good access to BMH from the road. However, the pathway access onto the beach is paved and also used for beach access by the residents of Strandborg Holiday Flats. The dunes have built up in this area and there is more vegetation on them. Should vehicles use this access to enter and exit the beach, there is more potential for damage.
Potentially affected infrastructure	An AECI effluent pipeline on the beach (south of the METISS cable) and extending out to sea is present and will need to be avoided.	There is potential for damage to, or requirement to move, existing braai facilities and a paved pedestrian pathway between the carpark and Strandborg flats. Ducting to the Liquid Telecom cable servitude will require trenching through the paved carpark and adjacent to the road, potentially affecting pavements, walls, etc.
Foredunes	There is potential for (limited) disturbance of vegetation on the foredunes, depending on the angle at which the cable crosses the beach.	The potential for disturbance of vegetation on the foredunes is greater than at Pipeline Beach.
Beach conditions	Good burial potential on the sandy beach.	Sandy beach. Potential for rock outcropping, according to design engineers.
Sea conditions near shore	Presence of shark nets. Sardine run period to be avoided.	Presence of shark nets. Sardine run period to be avoided.
Social/Socio-economic	Popular public beach, especially on weekends and during peak season. The car park in particular, gets very full.	Popular public beach, especially on weekends and during peak season. This beach sees relatively higher tourist/beach visitor activity than Amanzimtoti Pipeline Beach, given all the beachfront facilities and the close proximity to Nyoni Rocks fishing area.

7.3 Fronthaul route alternatives

The 2 AFRICA cable between the BMH and CLS will follow a similar route to the METISS cable, however extending further north to reach the WIOCC CLS, as shown in Figure 9. No other routes are proposed.

There is only one fronthaul alignment that will be considered in the Impact Assessment.

7.4 Marine cable route alignment alternatives

The subsea cable route was determined by ASN's Cable Route Engineers, following a Cable Route Study, which included visits to the potential landing sites. A detailed offshore and nearshore marine survey was then undertaken.

When selecting the route alignment for a sub-sea fibre optic cable, several criteria are considered by the engineering team to find a safe and cost-effective alignment, including:

- The possibility of placing of the cable close to and along existing alignments of decommissioned submarine telecommunications cables entering South Africa's waters.
- Identification of a suitable landing beach that minimises onshore environmental and infrastructure constraints.
- Avoidance of high intensity fishing or trawling areas.
- Diversity- To create more 'robust' international networks it is advisable to route cables in a diverse way and where possible maximise separation between cable systems. This creates levels of redundancy and traffic can be diverted should a single cable suffer a fault.
- Long-term cable maintenance in the landing zone.
- Bathymetry – slope angles, avoidance of seabed depressions, ridges, canyons, seamounts, etc.
- Features – avoidance or specific navigation angles across rock outcrops, seabed debris, minefields, boulders and other physical features, including pipeline crossings.
- Conditions for cable burial.
- Currents and angle to the current, to minimise risk of movement and abrasion from currents.

Three alternative marine alignments were considered initially by the route engineers, as shown on Figure 10.

- **Marine Route Alternative 1 :** This alignment is the most northerly option, approaching the coast from the north east, but it is not preferred due to potential risk from shipping/ fishing activities areas, the risk of not achieving burial, as well as the proximity to the METISS cable, which reduces diversity.
- **Marine Route Alternative 2:** This alignment is the most southerly option, approaching the coast from the south east, and best meets the various criteria as mentioned above. However, this route passes through the Aliwal Shoal MPA. Although the route was fine-tuned to minimise the length of cable transiting the MPA[16], this alternative is not supported by EKZNW[17,] the management authority for the MPA. Considering the risk to the project if permission to traverse the MPA is not granted by EKZNW, WIOCC has been obliged to disregard this route as an option.
- **Marine Route Alternative 3 (preferred):** This alignment is similar to Marine Route Alternative 2. However it veers northwards near its eastern end, to avoid intersecting with the Aliwal Shoal MPA.

Marine Route Alternative 3 will be taken forward for assessment in the Impact Assessment.

16 A 9 km section of cable would transit the north east corner of the Aliwal Shoal MPA.
17 Refer to correspondence from EKZNW in the Comments and Responses Report, Appendix 3.

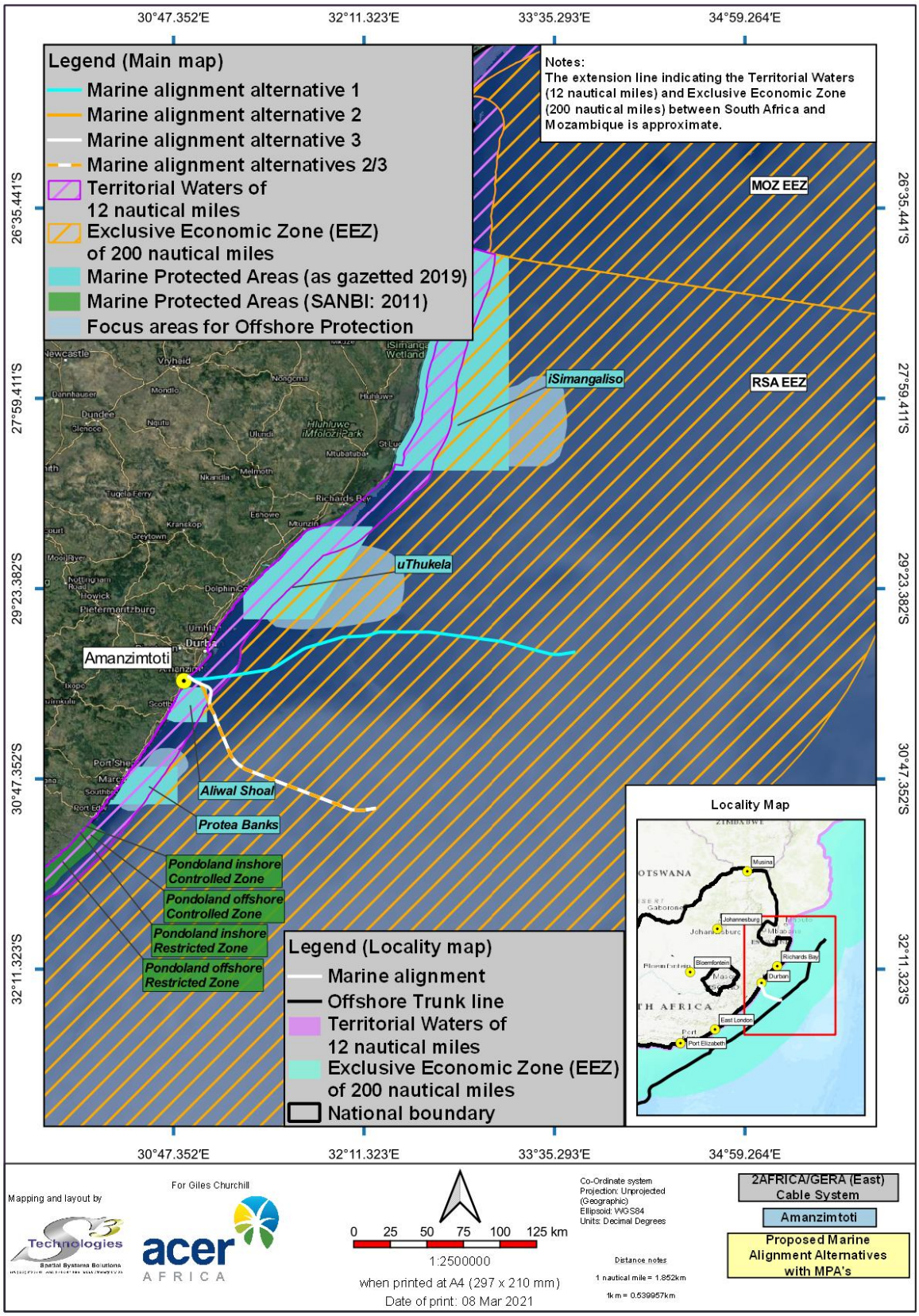


Figure 10 **Alternative marine cable route alignments considered for the 2AFRICA/GERA (East) Cable System (Amanzimtoti landing)**

7.5 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.

7.6 No Development alternative

The No Development alternative implies that the 2AFRICA/GERA (East) Cable System cable landing at Amanzimtoti would not be implemented. This would avoid impacts on the marine and terrestrial environments at Amanzimtoti. It would not, however, imply that the rest of the 2AFRICA/GERA (East) Cable System would not go ahead nor that another cable operator would not apply to land at Amanzimtoti in the future.

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

The effects and impacts of the No Development Alternative will be assessed during the Impact Assessment and will form the baseline against which all other options are assessed.

8. DESCRIPTION OF THE RECEIVING ENVIRONMENT

This section describes characteristics of the receiving environment that may affect or be affected by the proposed 2AFRICA/GERA (East) Cable System landing at Amanzimtoti. It is important to understand these environmental characteristics and what is proposed (Chapter 6) 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 Project Area

The project will have direct and indirect impacts on the biophysical and socio-economic environment. The limits or boundaries of the study area can be divided into the project's Direct Area of Influence and Indirect Area of Influence.

The Direct Area of Influence, which is the area directly affected by project activities, includes:

- ❑ The physical footprint of the marine cable alignment through South Africa's EEZ and Territorial Waters (approximately 185 km long x 5 m wide[18]).
- ❑ The 500 m protective buffer zone either side of the approximately 185 km long marine cable.
- ❑ The general coastline, beach and beach carparks at Amanzimtoti near the landing site.
- ❑ The footprint of the terrestrial cable route to the CLS, which is approximately 5 km long and confined mostly to a width of less than 2 m.

The Indirect Area of Influence includes areas impacted by secondary effects, cumulative effects, and induced effects, which are not confined to areas directly adjacent to the infrastructure. For example, the impact of providing affordable bandwidth could be felt across the entire country.

8.2 Socio-economic characteristics

The eThekwini Metropolitan Municipality is large, stretching from Tongaat in the north to Umkomaas in the south and Cato Ridge to the west. It is demarcated into 5 planning regions, with the suburb of Amanzimtoti located in Ward 97 of the South region. With an estimated population size of 3.8 million (ACER, 2019), eThekwini contributes significantly towards the South African economy, ranking as the second largest economic centre in South Africa. eThekwini has excellent national and international road linkages to support economic activity along the coastline (N2) and inland (N3).

8.2.1 Key institutions and role-players

The eThekwini Municipality administers all municipal services, with Parks, Leisure and Cemeteries (Beach management) being the main contact for management of the beaches. The EPCPD is the primary role player with respect to conservation issues in the Metro. EKZNW manages MPAs on the KZN coast. Other relevant authorities (local, provincial and national) and key role players are detailed in Chapter 4.

eThekwini Municipality will have jurisdiction over most of the land affected by the project (public beaches and servitudes along roads). Property details are provided in Appendix 6.

18 A 5 m footprint of disturbance is the worst case scenario.

8.2.2 Development planning context

The National Development Plan (NDP) (2012) aims to eliminate poverty and reduce inequality by 2030. 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.

The National Strategic Infrastructure Project 15 *"Expanding Access to Communication Technology"* (SIP 15) was launched by the Presidential Infrastructure Coordinating Commission (PICC) on 3 December 2012. The proposed 2AFRICA/GERA (East) Cable System landing at Amanzimtoti, although not a registered SIP project, will support SIP 15 in that it will facilitate people's access to communication technology in South Africa (refer to Chapter 9).

eThekwini's IDP (eThekwini Municipality IDP, 2020/2021 Review) and Spatial Development Framework (SDF) (eThekwini Municipality SDF, 2019) both align with the goal of "improving access to telecommunications technologies to unlock investment and stimulate both the regional and national economy". The proposed 2AFRICA/GERA (East) Cable System landing at Amanzimtoti will support this goal (refer to Chapter 9).

8.2.3 Land use and infrastructure at Amanzimtoti

Amanzimtoti is an urban area and is well developed with services and infrastructure. Road access via national, provincial and municipal roads is good. The land uses in the study area include public beaches, recreational and tourism facilities, restaurants, beach holiday accommodation, schools, residential, retail/commercial and industrial areas.

8.2.4 Population demographics (Amanzimtoti)

Amanzimtoti has an urban population of 13,813 people (4390 households) with an average household size of 2.7 people. The population of Amanzimtoti is predominantly White (67.3%) with 22.1% Black African, 8.2 % Indian/Asian and 1.9 % Coloured. Durban City in contrast has 51.1 % of the population classified as Black African, 24. 0 % Indian/Asian, 15.3 % White and 8.6 % Coloured. In terms of age structure, the majority of the population fall between the ages of 25 and 64 years (http://www.statssa.gov.za/?page_id=4286&id=10469).

Annual household incomes in Amanzimtoti range from no income (10.4 %) to over R2 million (1.2 %) with about 20 % of households earning less than R3200 per month. (http://www.statssa.gov.za/?page_id=4286&id=10469). Generally, unemployment in eThekwini is high, and creation of jobs for previously disadvantaged local people is a key focus of local government.

Residents of Amanzimtoti have good access to education, although only 43.4 % have a matric qualification. Most people (98.4 %) live in formal dwellings. Household access to piped water, sanitation and electricity is good, with 90 % or more households having motor cars, televisions, stoves and refrigerators (http://www.statssa.gov.za/?page_id=4286&id=10469).

8.2.5 Beach and nearshore based tourism and activities at Amanzimtoti

Amanzimtoti is a popular tourist destination, with the beaches (Sapphire Coast) being a major drawcard. The landing site alternatives are situated at public beaches which are well used and busy especially during peak season (November to April). The beaches are used for general recreational activities and for shore fishing. There are various facilities such as public pools, water slides, etc at the beachfront. During the winter sardine run (June/July), the beaches see a huge flurry of fishing and spectating activities. Activities nearshore include swimming, wave-surfing, windsurfing, kitesurfing, fishing (on and offshore), ski-boating, scuba diving and spearfishing. Shark nets are provided, as well as lifeguards at designated swimming areas on weekends and during other peak times.

8.2.6 Beach infrastructure

The municipality provides various public facilities at the beach including paved carparks, signage, braai facilities, showers and toilets. Access paths from the carpark to the beach are provided, some of which can also be used for (authorised) vehicle access. Wooden bollards and sand traps are in place to stabilise the foredunes and promote dune vegetation growth. A lifesaver's hut/platform is stationed on the beach in front of the Aquatic Centre next to Amanzimtoti Pipeline Beach.

An AECI outfall pipeline coming from the AECI factory inland is buried under the ground and extends 2-3 km out to sea. The pipeline is buried under the beach, where it is marked by a pole marker (the pipeline is reported to be situated approximately 30 m to the south of Liquid Telecom's BMH). It is regularly monitored for leaks and apparently attracts marine life.

There are shark nets in place, operated and maintained by the Natal Sharks Board.

Protection of the infrastructure described above, will need to be considered during cable installation.

8.2.7 Crime and security risks

South Africa has a high crime rate due, *inter alia*, to high levels of inequality, poverty and unemployment, and a culture of general lawlessness and corruption. Amanzimtoti is not exempt from this and, as such, individuals need to be alert to the risks and take sensible precautions wherever they go. Crime prevention and law enforcement are the domain of the South African Police Services. Private security firms play a prominent role in protection of people and property, for those that can afford to pay for this service. Should construction plant or materials need to be left on site, 24-hour security will be required.

8.3 Abiotic characteristics

8.3.1 Climate

8.3.1.1 Prevailing climate and weather

Durban has a warm subtropical climate with warm wet summers and mild, dryer winters. Average air temperatures for Amanzimtoti recorded in the past 10 years range between a minimum of 14°C and maximum of 26°C (https://www.weather-atlas.com/en/south-

africa/amanzimtoti-weather-january). Rain falls throughout the year (approximately 975 mm average annual rainfall) with peak rainfall occurring during the summer months (https://en.climate-data.org/africa/south-africa/kwazulu-natal/durban-511/). Afternoon storms in summer are common.

Prevailing winds along the coast are north easterly and south westerly. The windier part of the year is from August to January. Over the year, average wind speeds range between 10 to 15 km per hour. In August, gusts in the Durban area measure a maximum average speed of 25 km per hour (https://www.worldweatheronline.com/durban-weather-averages/kwazulu-natal/za.aspx) . Figure 11 provides a general overview of Durban's climate averages.

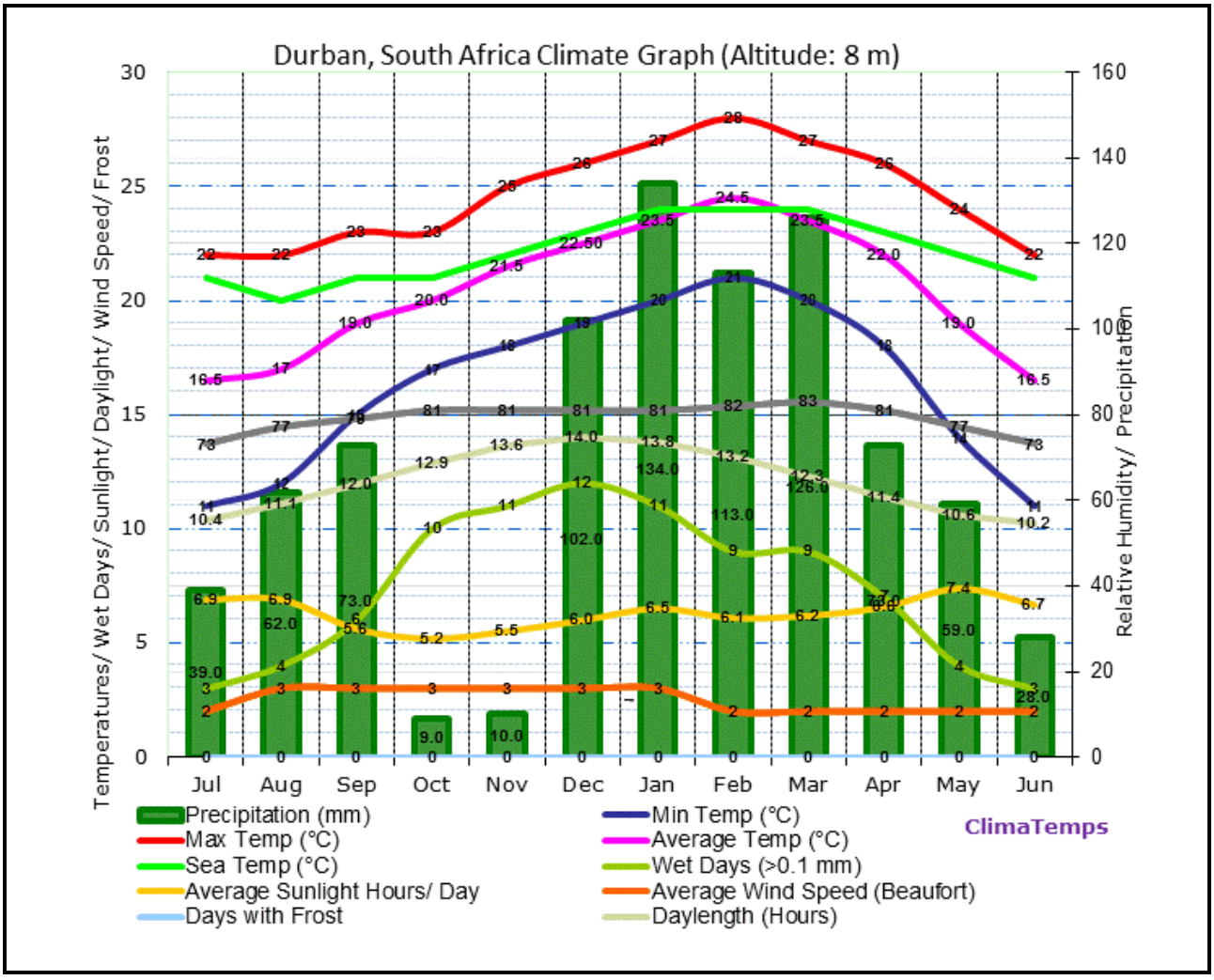


Figure 11 Average monthly climate statistics for Durban, South Africa (Source: www.durban.climatemps.com)

8.3.1.2 Climate change

eThekwini's IDP recognises the need to plan and adapt, in a multi-disciplinary way, to the challenges of climate change, which include extreme weather events. The shoreline is vulnerable to extreme weather events and to sea level rise and indeed parts of eThekwini's

coastline, including Amanzimtoti's beaches and dunes, have experienced damage from big seas (although these are natural events and not necessarily a result of climate change). Predicted rising sea levels and flooding from severe storms attributed to climate change, potentially increase the risk of cable damage (Carter et al, 2009).

8.3.2 Topography

eThekwini is generally very hilly. The sandy beach at the Amanzimtoti landing site is 80-100 m wide (Plate 15), sloping up to an altitude of approximately 12 m above sea level (asl) at the beach carpark. The area immediately behind the beach has been levelled for beachfront development and access roads. The coastal sand dunes behind this development rise steeply to an altitude of about 50 m asl just east of the N2 National Road. The topography undulates inland (https://en-za.topographic-map.com/maps/77od/KwaZulu-Natal/).

8.3.3 Amanzimtoti beach and coastal morphology

The KZN coastline is a relatively straight northeast trending coast, divided into gentle bays by short, low headlands, most of which project a hundred metres or less seaward; many of these bays approach a log-spiral shape, asymmetric to the north. It is a high energy coastline with coarse-grained, sandy beaches. The coastline is dynamic, subject to large swells, particularly in winter. The KZN beach and nearshore zone is predominantly long-shore bar and trough, but it can change to transverse bar and rip in response to changes in swell direction (Guastella and Smith, 2014). Amanzimtoti beaches experience seasonable variability in beach structure with a build-up of sandy sediments during calmer sea conditions and erosion during winter storm events. The beach is backed by vegetated sand dunes (Plate 16). In addition to seasonal erosion, the coastline is subject to occasional high swell erosion and coastal erosion associated with particular lunar cycles' peak years (Guastella and Smith, 2014).

8.4 Terrestrial environment

8.4.1 Threatened Ecosystems

The South African National Biodiversity Institute (SANBI) and the Department of Environmental Affairs and Tourism (DEAT), in accordance with the National Environmental Management: Biodiversity Act, 2004 (Act 10 of 2004), provides a listing of Threatened or Protected ecosystems, categorised by four categories, namely Critically Endangered (CR), Endangered (EN), Vulnerable (VU) or Protected.

The study area overlaps with two threatened terrestrial ecosystems, both classified as CR, viz:

- ❑ Interior South Coast Grasslands.
- ❑ Southern Coastal Grasslands.

The cable landing and installation is not anticipated to have a significant negative impact on terrestrial ecosystems, because the area is built up and infrastructure will be placed in transformed areas. However, this will be investigated by a specialist ecologist during the Impact Assessment.

8.4.2 Vegetation

The dunes along Amanzimtoti's shoreline have been transformed to a great extent by urban development. The original dune vegetation (Northern Coastal Forest) in the study area has been severed by ribbon development (as illustrated in Plate 17), leaving a narrow strip of dune vegetation that remains largely intact along the foredunes, although opened in places by access paths onto the beach. The dune vegetation is dominated by *Brachylaena discolor* and *Chrysanthemoides monilifera.*

The municipality is actively involved in ongoing rehabilitation of vegetation on the foredunes in this area (Plate 18). Another strip of intact dune forest vegetation lies parallel to the coastline between the beach access road and a line of residential housing further upslope.

The vegetated dunes at the site fall within a Critical Biodiversity Area (Irreplaceable) and form part of eThekwini's Durban Metropolitan Open Space System (D'MOSS). Vegetation Types (Figure 12) potentially encountered between the landing point and the CLS[19] are:

- ❑ Subtropical Seashore Vegetation (Least Threatened).
- ❑ KZN Coastal Belt Grassland (Critically Endangered).
- ❑ KZN Dune Forest (Critically Endangered).
- ❑ KZN Coastal Forest (Critically Endangered).
- ❑ Alluvial Wetland (Endangered).
- ❑ Freshwater Wetland (Vulnerable).

The cable landing and installation is not anticipated to have a significant impact on vegetation. HDD will be used to direct the cable underground into the BMH, thereby avoiding damage to vegetation of the foredunes. The inland infrastructure will be placed in transformed areas. However, the impact on vegetation will be investigated and confirmed by a specialist ecologist during the Impact Assessment.

8.4.3 Aquatic habitat (freshwater)

Watercourses and wetlands occur within the study area (Figure 13). The Amanzimtoti River is a short, non-perennial river that discharges in an estuary to the south of the BMH sites. The potential impacts on aquatic habitats, including wetland habitat, will be investigated by a specialist ecologist during the Impact Assessment.

8.4.4 Terrestrial Fauna

The remaining narrow strips of dune forest, as well as rivers and wetlands in the study area, provide habitat for a variety of fauna species. Mammals include Cape Clawless Otters, Blue Duiker, mongeese, genets and Vervet Monkeys. The coastal forest is habitat to a wide variety of birds, snakes, frogs, chameleons, crabs and invertebrates.

No significant impacts on terrestrial fauna are anticipated as the infrastructure will be placed in transformed areas and will be largely underground. However, this will be confirmed by a specialist ecologist during the Impact Assessment.

19 Terrestrial vegetation will only be affected if a new terrestrial cable route is required.

Plate 15 **Beach profile between Amanzimtoti Pipeline and Main Beaches** (photo sourced from Fugro, 2020)

Plate 16 **Sandy beach backed by dunes at the proposed Amanzimtoti Pipeline Beach landing site (photo sourced from Fugro, 2020)**

Plate 17 **Google Earth Image (2020) showing extent of transformation of the vegetated coastal dunes near the proposed Amanzimtoti landing site**

Plate 18 **Foredune rehabilitation by eThekwini Municipality** (photo sourced from Fugro, 2020)

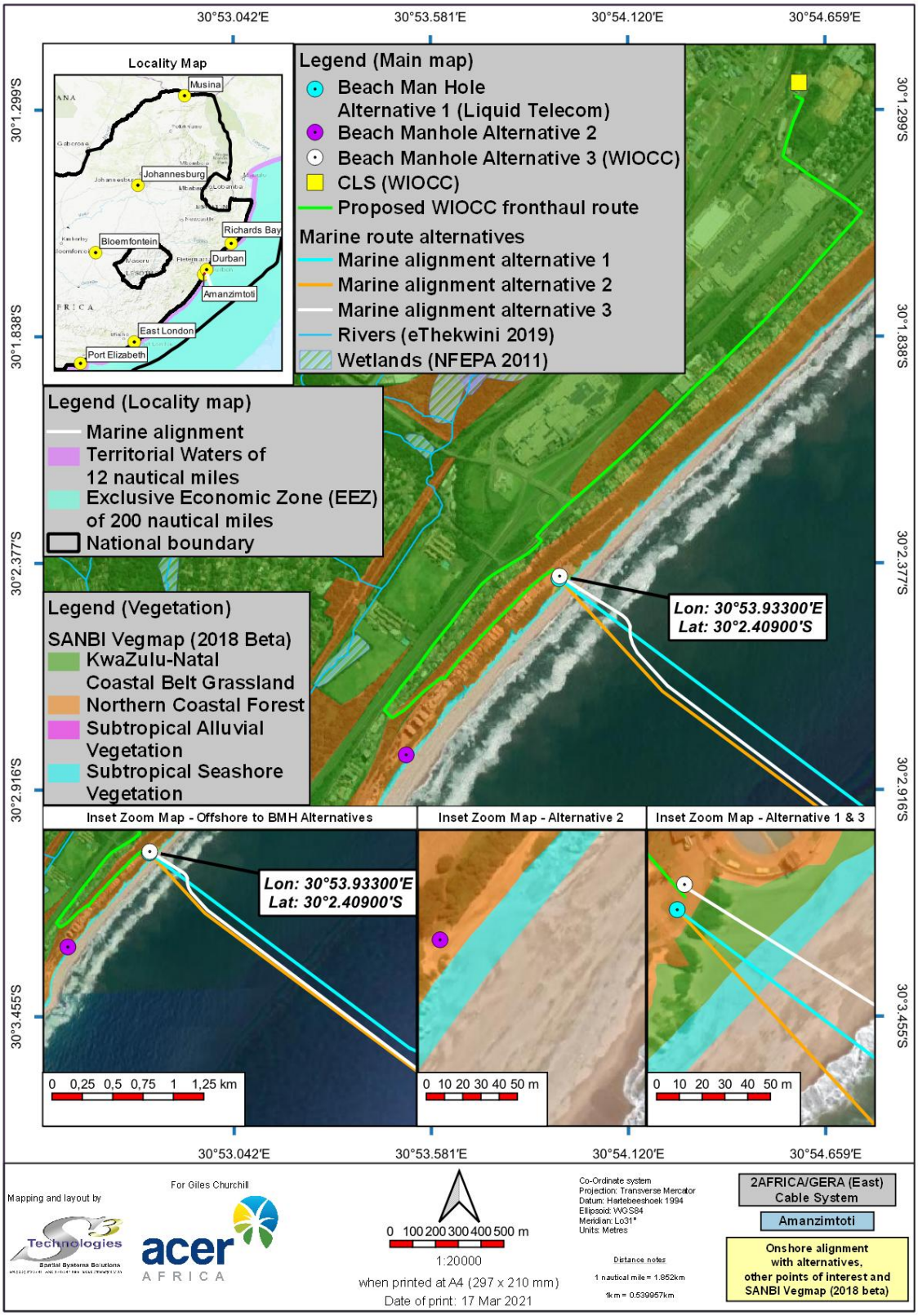


Figure 12 Reference Vegetation Types occurring in the study area

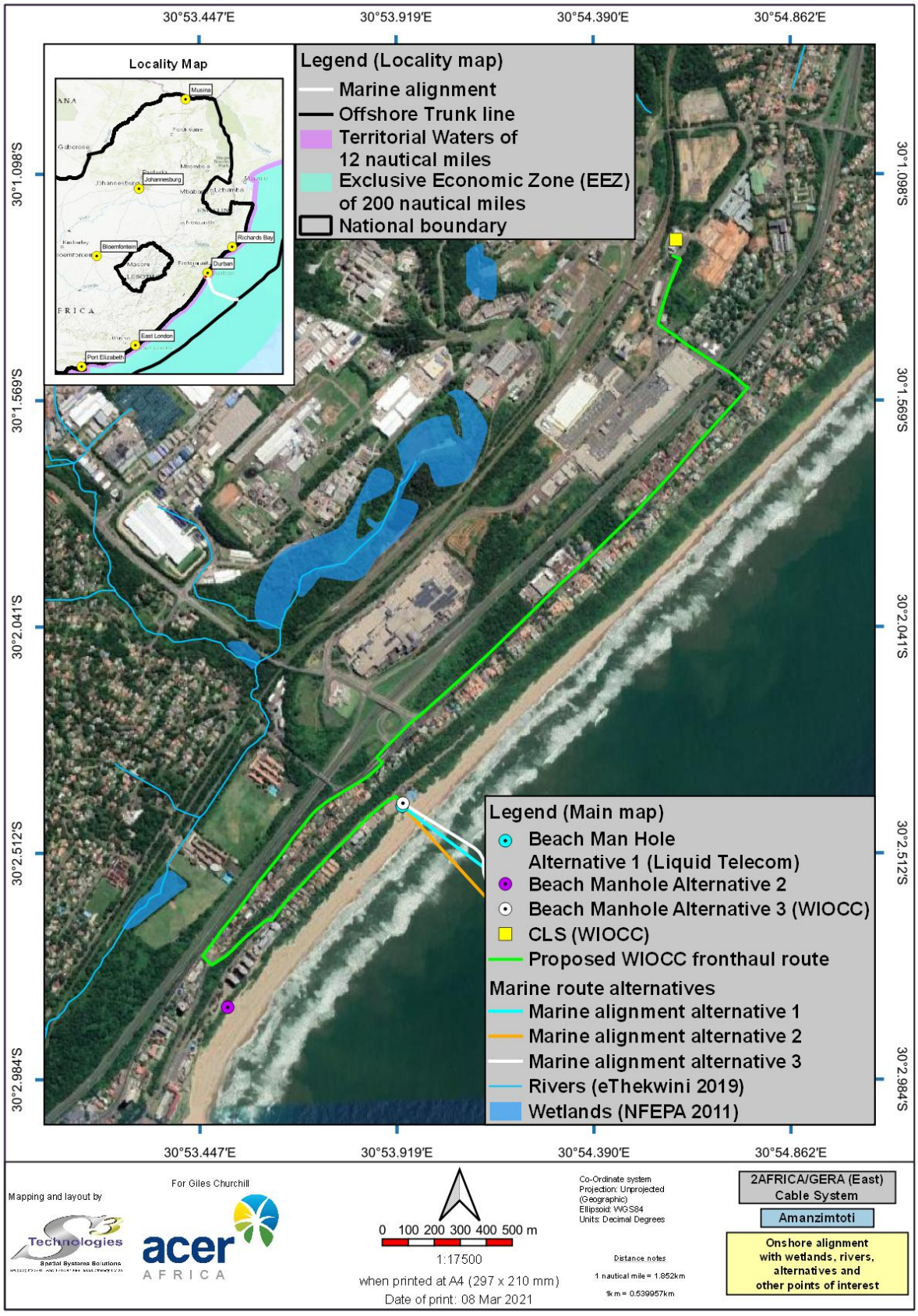


Figure 13 Freshwater aquatic habitat occurring in the study area

8.5 Marine and offshore environment

8.5.1 Ocean currents

The oceanographic regime around South Africa is dominated by two major current systems: the cold Benguela Current along the Atlantic coast to the west and the warm Agulhas Current along the Indian Ocean coast to the east (Figure 14). The Agulhas Current transports warm and salty equatorial Indian Ocean water southwards along the east coast of South Africa and eventually sheds some of this water at the tip of South Africa in the form of gigantic ocean vortexes called eddies. These eddies travel across the South Atlantic and join up with the equatorial current where they add to the source waters of the Gulf Stream. Locally, the Agulhas Current influences rainfall and climate over southern Africa and sets up the background environment for local fisheries (http://www.saeon.ac.za/enewsletter/archives/2017/june2017/doc10), playing an important role in the distribution of species in the KZN region (https:// www.researchgate.net/figure/Ocean-currents-around-South-Africa-68-The-shaded-areas-off-the-west-coast-represent_fig2_30509213). Unlike the cooler nutrient rich waters associated with the Benguela Current, KZN waters are a typical oligotrophic[20] system with low productivity. Average sea temperatures near Amanzimtoti range between a low of 21.2°C in winter and high of 26.3°C in summer (https://www.weather-atlas.com/en/south-africa/amanzimtoti-weather-january).

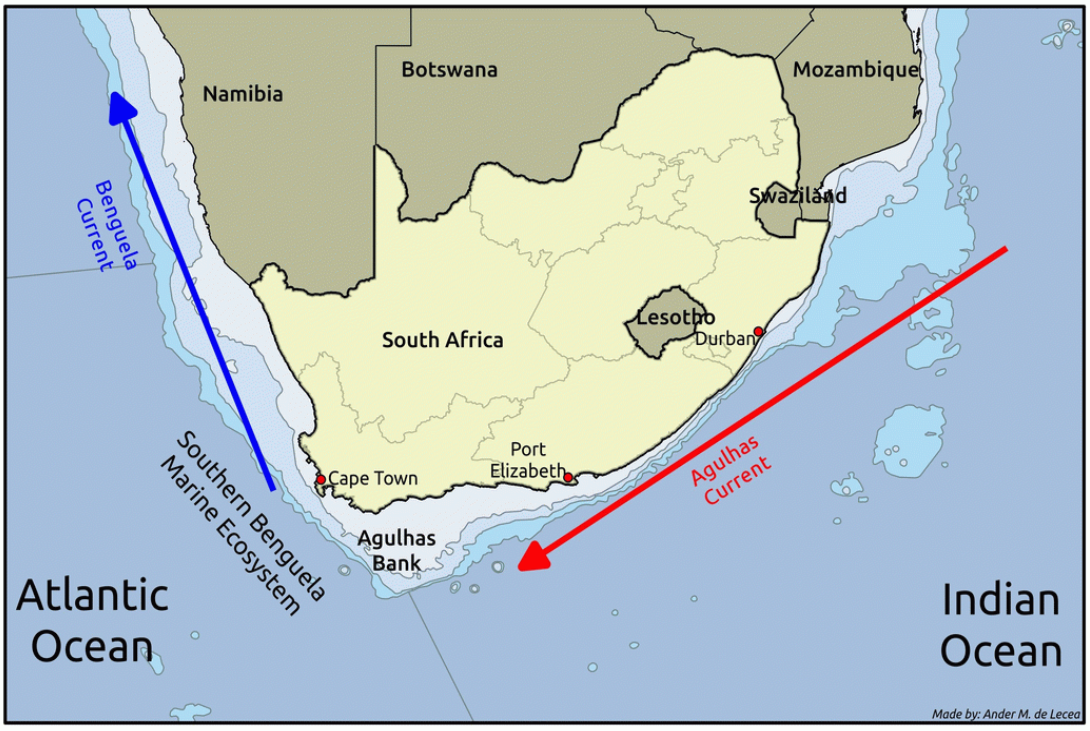


Figure 14 Ocean currents along the coast of South Africa (Source: https://seaview.u-bordeaux.fr/Scenarios-Case-studies/Benguela-upwelling)

20 Rrelatively poor in plant nutrients and containing abundant oxygen in the deeper parts.

8.5.2 Winds and swells

The prevailing winds off the KZN coast are north-north easterly and south-south westerly. The north easterlies are associated with sunny and hot weather and the south easterlies are usually stronger winds associated with cooler, overcast or rainy weather. In the sea areas off Durban, the majority of swells are from the south and south-southwest, with the largest attaining >7 m. The KZN coastline is microtidal with the highest astronomical tide of 2.3 m for Durban. It is subject to a general south-to-north net littoral drift driven by the predominant south to south-easterly swells which are generally higher in winter. The swell pattern changes to a greater easterly component in summer (Guastella and Smith, 2014).

The less regular weather patterns affecting the East Coast (e.g. low-pressure cells present north east of Durban, cut-off low pressure cells and tropical cyclones) strongly influence the wave climate, resulting in swells in excess of 10 m. The large waves (>20 m high) that are at times encountered within the Agulhas Current arise from the meeting of the south-westerly swells and the southerly flowing Agulhas Current, and may be a navigation hazard at times (ERM, 2019b).

8.5.3 Sediments and bathymetry

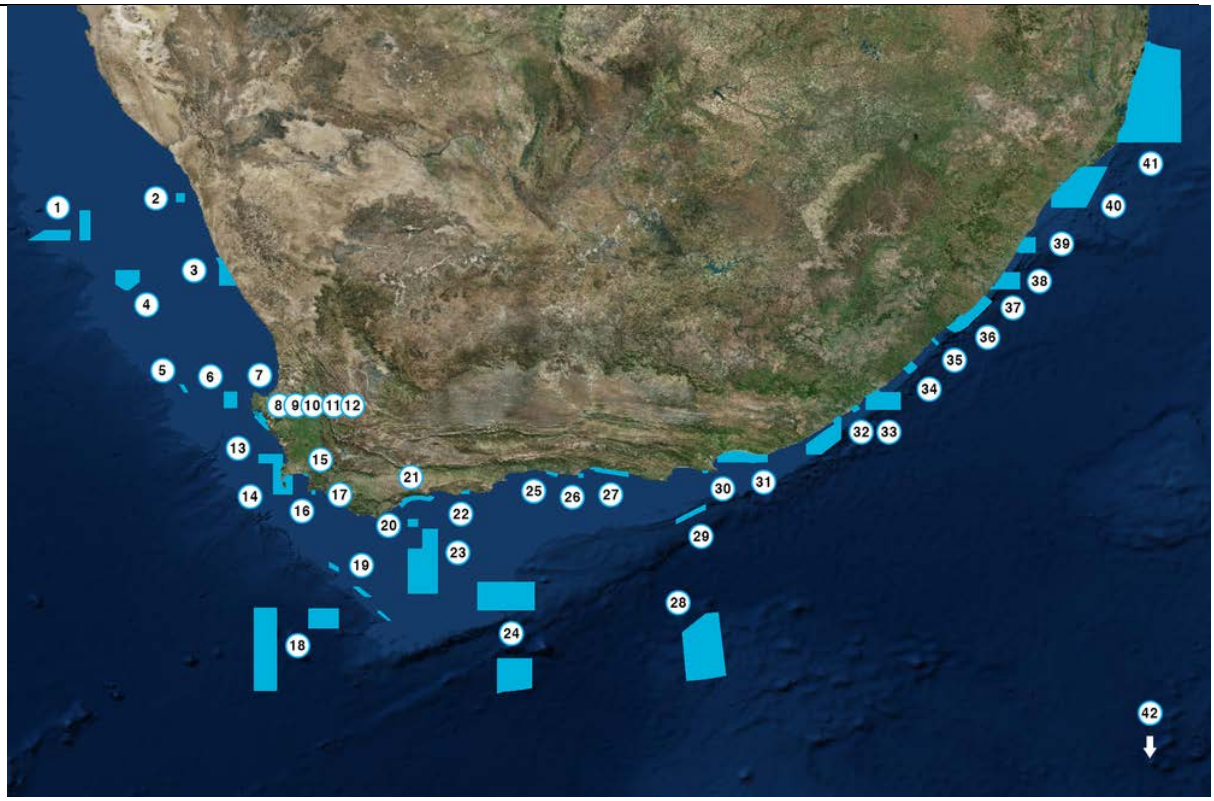
Sediment types off the coast of KZN include sand, gravel and mud (Pisces, 2019). The proposed 2AFRICA/GERA (East) Cable System branch line to Amanzimtoti crosses the continental shelf (Figure 6) but runs south of prominent features further north, such as the Thukela Bank and Thukela Canyon (Pisces, 2019). Further detail will be provided by specialist studies in the Impact Assessment.

8.5.4 Biodiversity threats and Marine Protected Areas

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 commercial activities.

The IUCN Convention on Biological Diversity has set a target of at least 10% of the world's oceans should be protected by 2020, if we are to continue to enjoy the benefits from the ocean. South Africa has made good progress with the establishment of a network of 23 inshore Marine Protected Areas (MPAs) around our coastline, however, pre-2019 only 0.4% of the country's EEZ fell within established MPAs. Spatial assessments of South African marine biodiversity noted fish fauna as the most exploited and threatened component of the marine biota, while high-profile reefs and pinnacles, soft-bottom trawling grounds, and coastal and subtidal areas exposed to mining on the west coast were identified as the most threatened habitats.

In May 2019, 20 new MPAs were signed into effect. The declaration of these new MPAs aims to create approximately 70 000 km^2 of marine protected areas, bringing SA's ocean protection within the South African EEZ, to more than 5% (Figure 15).



1 - ORANGE SHELF EDGE
2 - NAMAQUA FOSSIL FOREST
3 - NAMAQUA NP
4 - CHILDS BANK
5 - BENGUELA MUD
6 - CAPE CANYON
7 - ROCHERPAN
8 - MALGAS ISLAND
9 - MARCUS ISLAND
10 - JUTTEN ISLAND
11 - LANGEBAAN LAGOON
12 - SIXTEEN-MILE BEACH
13 - ROBBEN ISLAND
14 - TABLE MOUNTAIN NP
15 - HELDERBERG
16 - BETTY'S BAY
17 - WALKER BAY
18 - SE ATLANTIC SEAMOUNTS
19 - BROWNS BANK CORALS
20 - AGULHAS MUD
21 - DE HOOP
22 - STILBAAI
23 - AGULHAS BANK COMPLEX
24 - SW INDIAN SEAMOUNTS
25 - GOUKAMMA
26 - ROBBERG
27 - TSITSIKAMMA
28 - AGULHAS FRONT
29 - PORT ELIZABETH CORALS
30 - SARDINIA BAY
31 - ADDO ELEPHANT NP
32 - AMATHOLE
33 - AMATHOLE OFFSHORE
34 - DWESA-CWEBE
35 - HLULEKA
36 - PONDOLAND
37 - TRAFALGAR
38 - PROTEA BANKS
39 - ALIWAL SHOAL
40 - UTHUKELA BANKS
41 - ISIMANGALISO
42 - PRINCE EDWARD ISLANDS

Figure 15 Marine Protected Areas within the South African Exclusive Economic Zone (EEZ)

As mentioned in Section 7.3, one of the proposed alignments of the branch line to Amanzimtoti intersected with the edge of the north eastern corner of the recently expanded Aliwal Shoal MPA (Restricted Zone). This option was discarded as it was not supported by EKZNW.

The cable route will cross a number of benthic habitat types of varying conservation threat status and passes through an area with a high prevalence of reefs. The subtidal shallow reefs of the East Coast range from rich, coral-encrusted sandstone reefs in the north to the more temperate rocky reefs further south. Both reef types (i.e. coral and rock outcrops) are characterised by diverse invertebrate and ichthyofaunal biota of Indo-Pacific origin (ERM, 2019b). The sandstone reefs off the coast of Durban are popular with spearfishermen and divers due to the many types of hard and soft corals and the diversity of tropical and subtropical fish.

Further detail on marine biodiversity threats will be provided in the Impact Assessment.

8.5.5 Marine fauna

The description of marine fauna provided in this Scoping Report is sourced directly from information in "Ugu Lwethu – Our Coast. A profile of coastal KwaZulu-Natal", a publication made available by the KwaZulu-Natal Department of Agriculture and Environmental Affairs and the Oceanographic Research Institute and pertinent information made available on the website http://www.coastkzn.co.za/themes/the-profile-of-the-kzn-coast/coastal-and-marine-species/

Fish

The KZN Coast has a rich diversity of marine fish species as a result of the oceanography of the region and the large diversity of marine habitats. More than half the known fish fauna off KZN are Indo-Pacific species. This is greatly influenced by the warm Agulhas Current, which allows the southward distribution of more tropical species. The dominance of these tropical fish species is most evident in the Maputaland region, where Indo-Pacific species comprise 81% of the fauna. The next most abundant group is the deep-sea fishes living in dark, cold waters at great depths off the continental shelf. A small number of species with an Atlantic origin have also managed to reach the KZN coast, such as karanteen/strepie, sand steenbras and garrick/leervis. Even a few Southern Ocean species are represented, a good example being the two-tone fingerfin. Endemic species comprise about 13% of the fish fauna and this is particularly prevalent in the sea breams, gobies and catsharks. Endemicity increases as one progresses south along the KZN coast, largely as a result of the transition from a tropical Indo-Pacific biota to a more unique biota found in the subtropical Natal Bioregion. The last group of fishes is the wide-ranging cosmopolitan species such as the dorado, prodigal son/cobia and tunas.

In the rocky shore and surf zone reef environment, juvenile catface rockcod and yellowbelly rockcod use shallow surf-zone reefs as nursery areas. Because of their abundance in these habitats, many of these species, along with the shad/elf (which migrate into KZN waters during the winter months), form the most important species caught by shore anglers.

Typical sandy surf-zone species include largespot pompano, southern pompano, Natal stumpnose, lesser sandshark and sharpnose brown stingray. Juvenile dusky sharks, dusky kob and garrick are important predators found in these surf-zone habitats.

Typical fish species associated with estuaries include a variety of mullet species, estuarine round herring, riverbream/perch, spotted grunter, Natal and Cape stumpnose, springer and river snapper.

Restricted to the warm, clean waters of Maputaland, the coral reefs in KZN are dominated by wrasses, surgeons, damselfish, butterfly fish, angelfish, snappers, triggerfish, parrotfish and rockcods. Some of the more noticeable top predators on these reefs include species such as

the potato bass, bohar snapper, green jobfish, swallowtail rockcod and a variety of kingfish species.

While similar in some respects to the fish fauna found in association with coral reefs, KZN's rocky reefs include a rich diversity of Indo-Pacific and endemic species. Species that dominate rocky reefs from 20-100 m include, slinger, soldier/santer, Englishman, blue hottentot and German. Shoals of angelfish and red-fanged trigger fish often dominate the water column above the reef. On the reef itself, dominant species include Natal fingerfin, Natal and Cape knifejaw, dusky rubberlips and tassel fish/baardman.

The subtidal soft substrata (mud and sand) of the Thukela Banks, down to 50 m, function as important nursery habitats and small silver fish species are dominant, including soapies, slimies bonies and pinkies. Mini-kobs, blackmouth croaker, snapper kob, juvenile squaretail kob, spotted grunter and javelin grunter are also common in this habitat. A large number of different elasmobranch species are also found on the shallow Thukela Banks, including species such as juvenile scalloped hammerhead sharks, sand sharks and a variety of stingrays. The deeper trawl grounds (300-600 m deep) produce a different assemblage of fishes. This area is dominated by species seldom seen, including rat-tails, greeneyes, fatheads, coffin fish and splitfins. The deep-water elasmobranchs are mainly represented by the spiny dog shark and a variety of small skates. Away from the muddy shallow and deep crustacean trawl grounds, there are large areas of sandy seabed, where a different fish community is found that includes huge shoals of pinkies and sand soldier, as well as the cutlass fish, gurnards, lizardfish, goatfishes and numerous species of soles.

The pelagic habitat is divided into the neritic zone (over the continental shelf) and the oceanic zone beyond the continental shelf. This is the domain of the nomadic and migratory fishes that roam the oceans in search of food, ranging from tiny anchovies, sardines and flying fishes which feed on plankton in the water column, to the great ocean predators such as tunas, billfishes (*Istiophoridae*) and sharks. The pelagic habitat off the KZN coast has the full spectrum of both tropical and warm temperate species. KZN is well known for its abundance of sharks. Other large pelagic fish sometimes encountered off the KZN coast include species such as the manta rays and ocean sunfish. Relatively little is known about the fish assemblages found at continental shelf edges, slopes and canyons (100-2000 m).

After the pelagic zone, the Bathyal and Abyssal zones (>2000m) are the next biggest habitat on earth and comprise the great depths of all oceans (>2000- 3000 m in KZN), away from the landmasses and their continental shelves. Very little is known about the fish fauna found in these depths.

Sea Turtles

Seven species of sea turtle are known, five of which can be found in the waters off KZN: the green, hawksbill, loggerhead, leatherback and, least common, the olive ridley turtle. Two of these, the loggerhead and less commonly the leatherback, nest seasonally (October to February) on the beaches of northern KZN in the iSimangaliso Wetland Park.

Marine mammals

While occasional vagrant species of seals may be found off the KZN coast, it is the 36 species of cetaceans (whales and dolphins) that comprise the true marine mammal fauna of the region. These cetaceans are best categorised into two groups: the baleen whales (of which nine species are found in KZN waters) and the toothed whales and dolphins (27 species found in KZN waters). The baleen whales are highly migratory, swimming to or through KZN waters during the winter months (June to October). The toothed whales and dolphins may be migratory or resident, with water depths and temperatures playing an important role in defining residency

patterns. The inshore resident dolphin fauna is dominated by two warm water species, the Indo-Pacific humpback dolphin and the Indo-Pacific bottlenose dolphin, both of which occur in coastal waters, often within the surf zone.

Birds

Birds are common and important components of coastal ecosystems, being top predators both in near shore and intertidal environments where near shore is defined as "the region extending from the low-water mark out to sea, approximately as far as the edge of the continental shelf" and the intertidal environment is defined as "that extending above the low-water spring mark to the limit of direct marine influence" (Hockey *et al.,* 1983). The distribution patterns of birds are highly dependent on food availability and suitable nesting sites. Seabirds feed at sea and breed on land and are, therefore, important redistributors of nutrients within these environments.

Seven seabird families breed along or visit the KZN coast annually, typically referred to as albatrosses, petrels and allies, storm-petrels, gannets, boobies, oystercatchers, skuas, gulls and terns. The lack of suitable breeding habitat (principally offshore islands) means that the breeding seabird assemblage is a considerably reduced subset in KZN, consisting only of those species that have more flexibility in their breeding requirements; i.e. terns, gulls and, more recently, African black oystercatchers.

8.5.6 Offshore fishing industry

Approximately 14 different commercial fishery sectors currently operate within South African waters. In addition to commercial sectors, recreational fishing occurs along the coastline comprising shore angling and small, open boats (generally less than 10 m in length). The commercial and 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.

Fisheries overlap in both the Indian and Atlantic Oceans. On the West Coast (Atlantic Ocean), the northward-flowing Benguela Current system drives a typical cold water, upwelling, high productivity region with large industrial fisheries and low species diversity. On the East Coast the opposite is true, with the warm Mozambique and narrow continental shelf with a mixture of tropical and temperate water species. There is a transition zone on the southern coastline between these two systems that includes the temperate Agulhas Current which sweeps across a broad bank (the Agulhas Bank) on the continental shelf and mixes with the Benguela Current. Significant commercial fisheries in South Africa off the Indian Ocean coastline are few and it is only the extension of the West Coast fisheries across the divide between the two Oceans that gives substance to the Indian Ocean fisheries complex. Of the South African Indian Ocean fisheries, only the small KwaZulu Natal prawn-trawl fishery operating out of the port of Durban, is truly Indian Ocean in character. Numerous subsistence fisheries exist off the Natal coastline bordering the Indian Ocean, but these are relatively minor. A more substantial commercial line fishery operates off the East Coast, but is also minor in comparison to the commercial line and recreational line-fish fisheries on the Eastern and Southern Cape Coasts. The main target fisheries in these areas include a squid-jig fishery, a commercial and recreational linefish fishery, and also extensions of the West Coast hake and sole bottom-trawl and purse seine fisheries for small pelagics. The three largest Indian Ocean fisheries of South Africa are the demersal (bottom) trawl[21] and long-line fisheries targeting the Cape hakes (*Merluccius paradoxus* and *M. capensis*); the purse-seine fishery targeting small pelagic species including

21 The SA Deep-Sea Trawling Industry Association has confirmed that the 2AFRICA/GERA (East) Cable System landing at Amanzimtoti will not affect the Hake Deep-Sea trawling sector since they do not operate in the project area.

pilchard (*Sardinops ocellatus)* and anchovy (*Engraulis encrasicolus*); and the midwater trawl targeting Horse Mackerel (*Trachurus capensis)* (Japp, 2004).

South Africa's crustacean trawl fishery operates exclusively within the province of KZN and comprises two components; a shallow-water (5 to 40 m) fishery on the Thukela Bank and at St Lucia in an area of roughly 500 km^2, and a deep-water fishery (100 to 600 km) between Cape Vidal in the north and Amanzimtoti in the south (Figure 16) (ERM, 2019b).

A high level of "apparent fishing activity" is shown[22] on the global fishing activity map (https://globalfishingwatch.org/map/) off the coast of Durban, (Figure 17). Cable routes need to avoid such areas, as fishing and anchoring activities present a threat to telecommunications cables. Further information on fisheries potentially affecting and/or affected by the project will be obtained from the specialist study/ies commissioned for the Impact Assessment.

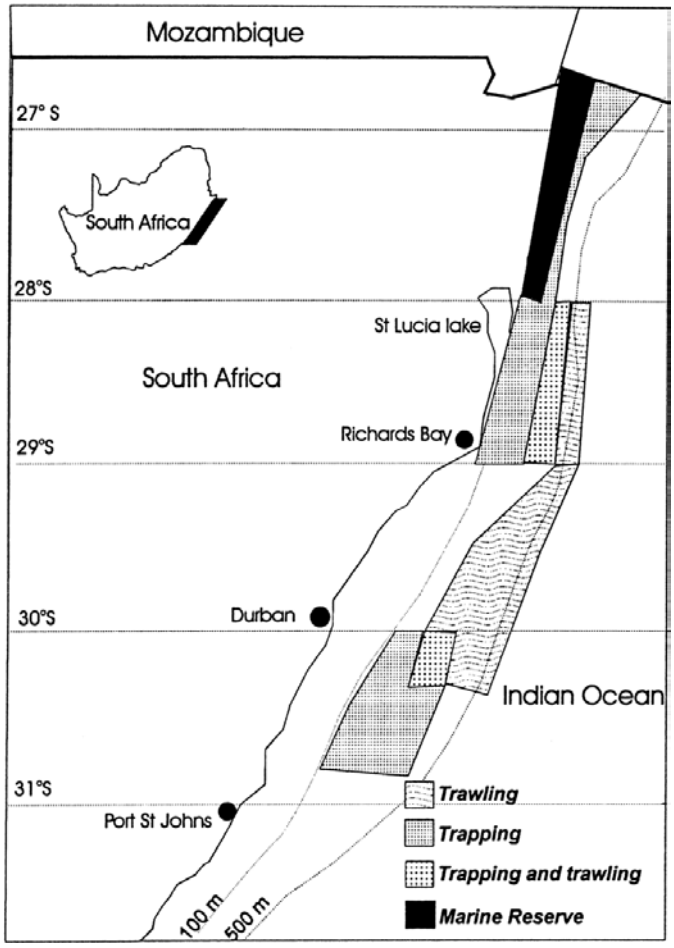


Figure 16 **Spatial distribution of areas exploited by trap and trawl fisheries off the coast of KwaZulu-Natal [Fisheries Research 48 (2000): 141-155]**

22 This is based on changes in vessel speed and direction.

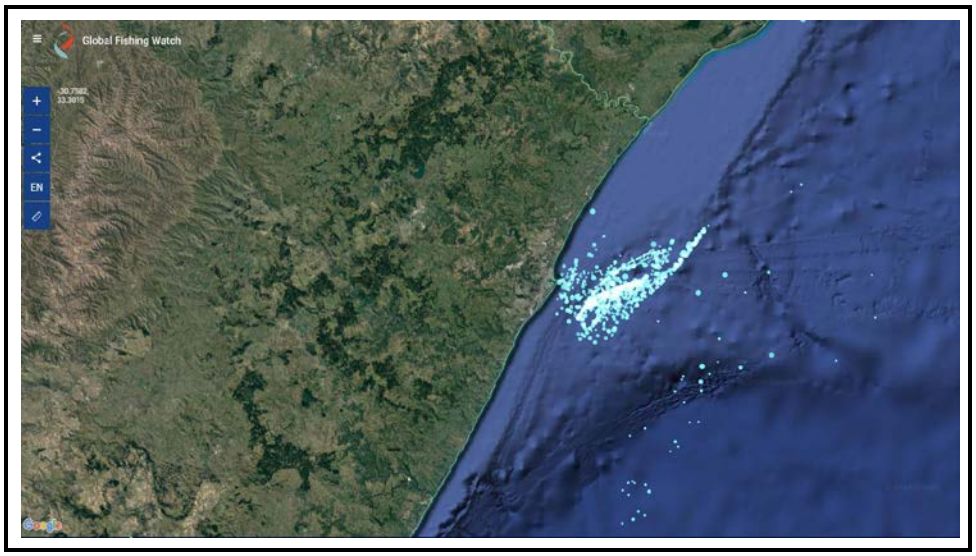


Figure 17 **A high level of apparent fishing activity (depicted by the densely packed white dots) is shown off the coast of Durban on the global fishing watch map (https://globalfishingwatch.org/map).**

8.5.7 Offshore Oil and Gas concessions

Approximately 98 % of South Africa's EEZ is subject to a right or lease for offshore O&G 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 O&G exploration through Operation Phakisa, which seeks to support the rapid development of the offshore O&G sector by "*creating an environment that promotes exploration*" (https://cer.org.za/safeguard-our-seabed/mineral-and-petroleum-extraction).

The proposed 2AFRICA/GERA (East) marine cable crosses various offshore O&G concessions from where it enters the EEZ of South Africa. The Amanzimtoti branch line will affect exploration rights of SASOL/ENI and Exxon Mobil as shown in Figure 18.

While ACER will notify concession holders at the onset of the environmental authorisation process, it is recommended that the South African landing provider engages 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.

8.5.7 Offshore marine telecommunications infrastructure

The currently active submarine cable systems landing on the east coast of South Africa are the EASSy, SAFE and Seacom subsea cables landing at Mtunzini. The METISS cable was landed at Amanzimtoti on 3 November 2020 (Figure 19).

The International Cable Protection Committee (ICPC) provides several guidelines and standards to ensure that new cable systems do not negatively impact existing marine

telecommunications systems. Therefore, the cable owner and operator must abide by the conditions stipulated by ICPC to ensure that the 2AFRICA/GERA (East) Cable System landing at Amanzimtoti does not negatively impact other cable operators. WIOCC will enter into agreements with other relevant cable operators with regard to the installation and operation of the 2AFRICA/GERA (East) Cable System landing at Amanzimtoti.

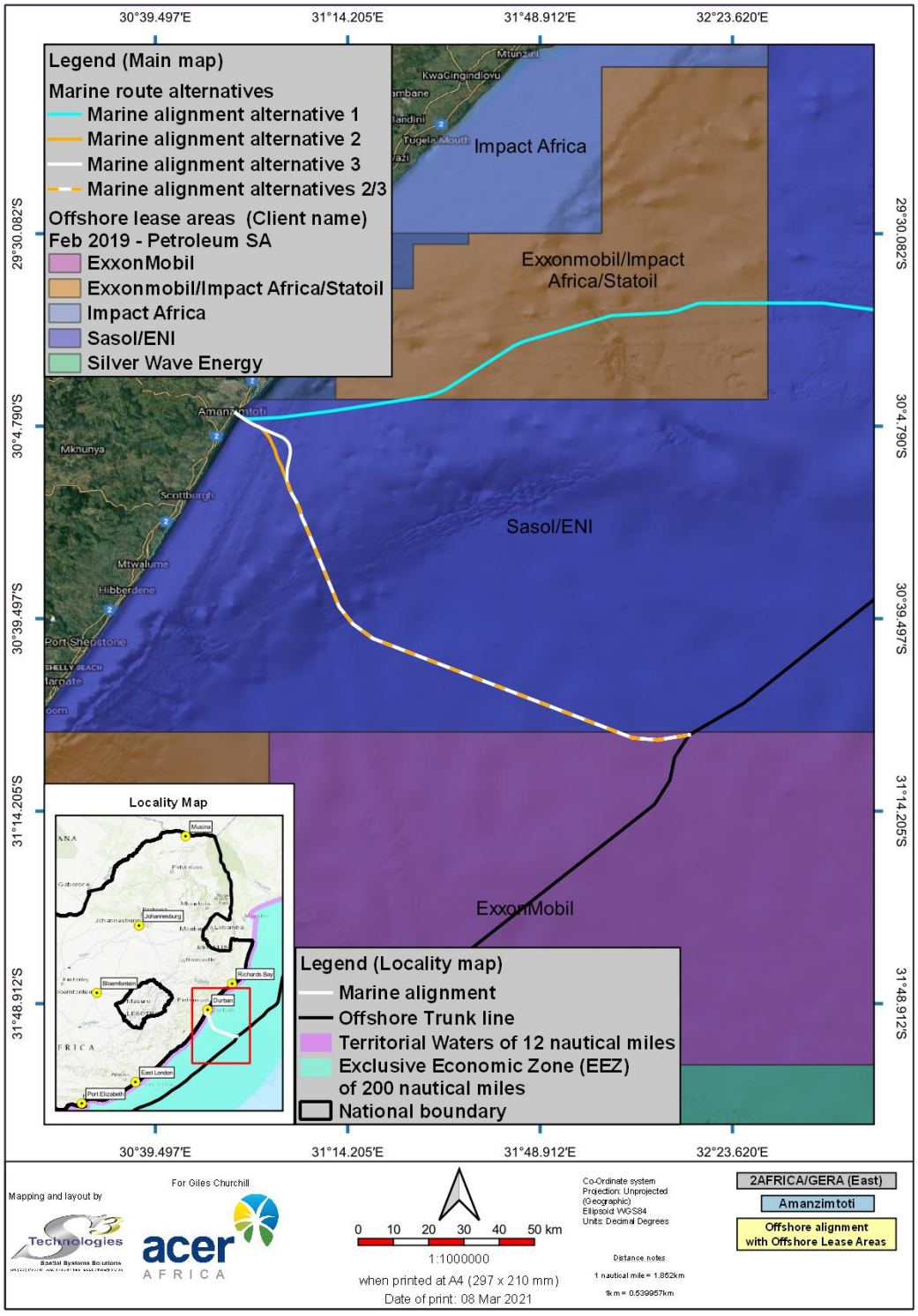


Figure :

System landing at Amanzimtoti (Image provided by Petroleum Agency SA, May 2020)

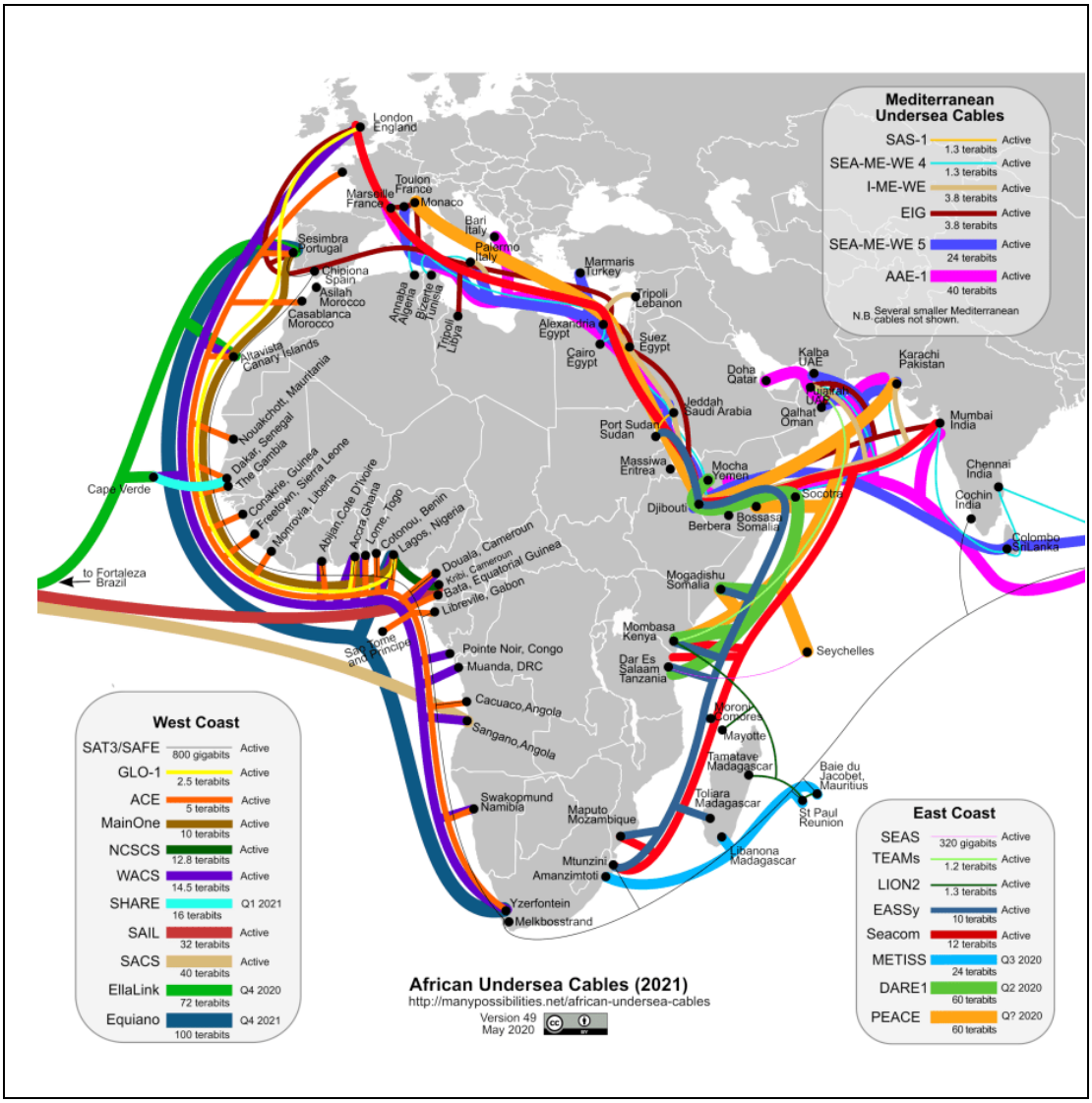


Figure 19 Existing and planned undersea cables around Africa

(source https://manypossibilities.net/african-undersea-cables/2020)

8.5.8 Shipping

South Africa is positioned on a major shipping route and has 8 commercial ports and 44 non-commercial harbours (CSIR, 2016). The Port of Richards Bay and the Port of Durban both lie on the east coast of South Africa. A large number of vessels in transit navigate along the East Coast on their way around the southern African subcontinent. The majority of this boat traffic, including commercial and fishing vessels, remains relatively close inshore on the East Coast. North- and south-bound cargo vessels usually remain over the mid-shelf (100 m isobath). In contrast, tankers and bulk carriers remain further offshore, unless needing to move inshore to avoid extremely rough conditions that develop in the Agulhas Current (ERM, 2019b).

8.5.9 Military Bases

Various military bases are situated in Durban, including the Naval Base at the Durban Harbour and the Air Force Base at the site of the old Durban International Airport. The South African National Defence Force has been notified about the proposed 2AFRICA/GERA (East) Cable System landing at Amanzimtoti.

8.5.10 Offshore single buoy mooring for offloading of crude oil

Eighty percent of all crude oil imports to South Africa, come through Durban's single buoy mooring which is anchored 2.6 km off Reunion (on the Bluff), with a 1.6 km exclusion zone around it. Two pipelines connect the single buoy mooring south of Durban to the SAPREF refinery at Isipingo (about 9 km north of the proposed landing at Amanzimtoti). TNPA has been notified about the proposed 2AFRICA/GERA (East) Cable System landing at Amanzimtoti.

8.5.11 Boat launching sites

The nearest boat launch sites to Amanzimtoti are at Chain Rocks and Warner Beach (≤ 6 km away). They are administered by eThekwini Municipality.

8.6 Cultural heritage

8.6.1 Terrestrial heritage resources

The potential for the land based infrastructure to affect terrestrial heritage resources is likely to be low as the infrastructure will be installed in transformed areas. This will, however, be confirmed by the heritage specialist during the Impact Assessment.

8.6.2 Underwater cultural heritage resources

South Africa has a rich and diverse underwater cultural heritage due to the country's rugged and dangerous coastline, resulting in numerous 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 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.

According to the specialist study conducted for the METISS Cable System (ACO Associates, 2019), although there are currently no known submerged prehistoric sites in the Amanzimtoti area, there are studies of the wider KZN continental shelf which describe Pleistocene and Holocene palaeolandscape features and sediments which have archaeological potential. These features are infilled and/or covered by modern seabed sediments.

A heritage impact assessment will be undertaken to identify and assess impacts on marine heritage resources. This study will be supported by 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. PURPOSE, NEED AND DESIRABILITY

9.1 Purpose of the project

The purpose of this project is to provide a submarine telecommunication cable to enhance telecommunication between Africa and other continents. Submarine telecommunication cables are 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 relatively 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 Cable System supports SIP 15 via is international connectivity, capacity and speed. In an African and local context, 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.

The proposed 2AFRICA/GERA (East) Cable System landing at Amanzimtoti will be operated by WIOCC, linking South Africa via the 2AFRICA cable to other African countries, Europe and parts of the Middle East. The proposed cable will facilitate more affordable and effective transport of voice, data, Internet and television services. Businesses and consumers will benefit from enhanced capacity and reliability for services such as telecommuting, HD TV broadcasting, Internet services, video conferencing, advanced multimedia and mobile video applications. Internet traffic is growing exponentially as the demand for new applications like cloud computing and on-demand video grows. Furthermore, 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.

9.2 Need and Desirability from an EIA perspective

The need and desirability of a proposed development is a key consideration of an application for environmental authorisation and differs from the Developer's aims and purpose of the development. The Guideline on Need and Desirability in terms of the EIA Regulations (DEA, 2017) states that *"consistent with national priorities, environmental authorities must support "increased economic growth and promote social inclusion" while ensuring that such growth is "ecologically sustainable"*. 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.

Table 6 and Table 7 are derived directly from the Guideline and contain the *"questions to be engaged with when considering need and desirability"* as highlighted in the guideline. 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, more detailed responses will be provided in the EIAR.

Table 6 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 environment, most of them temporary. The terrestrial cable component is expected to have a short-term localised impact on Amanzimtoti Pipeline beach and no significant impacts inland from the BMH to the CLS. However, impacts will be assessed in the Impact Assessment.
1.1	How will the following ecological integrity considerations be taken into account?	
1.1.1	Threatened ecosystems.	The terrestrial infrastructure will be installed in transformed areas and thus not significantly impact terrestrial threatened ecosystems. Potential impacts on marine ecosystems will be investigated by specialists during the Impact Assessment. The preferred marine cable alignment alternative avoids intersecting with the Aliwal Shoal MPA.
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.	Sensitive areas (marine and terrestrial) have been identified during Screening and Scoping. Where there is potential for the project to impact these areas, qualified specialists will be appointed to investigate these aspects during the Impact Assessment. The preferred marine cable alignment alternative avoids intersecting with the Aliwal Shoal MPA.
1.1.3	Critical Biodiversity Areas and Ecological Support Areas.	The terrestrial infrastructure will be installed in transformed areas and thus not significantly impact Critical Biodiversity Areas and Ecological Support Areas on land. Qualified specialists have been appointed to investigate marine related aspects during the Impact Assessment. The preferred marine cable alignment alternative avoids intersecting with the Aliwal Shoal MPA.
1.1.4	Conservation targets.	The terrestrial infrastructure will be installed in transformed areas and will not affect conservation targets. The marine cable will avoid MPAs. The exclusion zone either side of the marine cable may contribute positively to protection of the seabed either side of the cable.

Ref #	Description	Comment
1.1.5	Ecological drivers of the ecosystem.	On land, the cable will be buried underground and will not impact on ecological drivers. Once installed, the cable rests on the seabed or is buried. ON the beach, it is also buried. The cable is essentially inert outside of the cable housing and insulation. The cable is not expected to affect ecological drivers in any significant way, although these drivers might affect the cable (climate, wind and wave action, etc). This aspect will be further investigated in specialist studies during the Impact Assessment.
1.1.6	Environmental Management Frameworks (EMF).	eThekwini does not have an EMF as it relies on D'MOSS and its Systematic Conservation Assessment (Mclean et al., 2016) to perform the same role. The terrestrial infrastructure will be installed in transformed areas and is not anticipated to negatively impact Critical Biodiversity Areas or D'MOSS areas. This aspect will be further investigated in specialist studies during the Impact Assessment.
1.1.7	Spatial Development Frameworks (SDF).	The proposed development occurs in an urban area in the coastal zone and will not impact negatively on current land use or coastal management at Amanzimtoti.
1.1.8	Global and international responsibilities relating to the environment (e.g. RAMSAR sites, climate change, etc).	There are no RAMSAR sites and the project activities will not significantly influence climate change.
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?	Threatened Terrestrial Ecosystems occur in the study area (refer to Section 8.4). However, the terrestrial infrastructure will be installed in transformed areas and thus avoid negative impacts on terrestrial ecosystems. Installation of the marine cable may temporarily disturb benthic organisms 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.
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?	Potential pollution is limited to hydrocarbon spills and light industrial and domestic waste during construction. An EMPr will be compiled, that will contain specifications for the handling of waste and dealing with incidents. The marine cable has the potential to abrade rocks if moved by wave and current action. Careful route selection, laying and burial will minimise this risk.
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. Where possible, waste will be recycled. Reclaimed cable will be disposed of in accordance with MARPOL. 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	A specialist cultural heritage impact assessment will be undertaken to investigate potential impacts on cultural heritage on land and on the sea bed.

Ref #	Description	Comment
	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?	
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 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?	The project improves global telecommunications, which will facilitate and potentially speed up economic development. The cable landing is not, in itself, anticipated to significantly impact on non-renewable natural resources. However, the downstream development it indirectly facilitates may impact on non-renewable resources (positively or negatively), depending on the type of development and how it is managed. This is unknown and outside the scope of this project.
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?	The project improves global telecommunications, which will facilitate and potentially speed up economic development. The cable landing is not, in itself, anticipated to have significant impact on renewable natural resources. However, the future development it indirectly facilitates has the potential to impact on the integrity of ecosystems, depending on the type of development and how it is managed. This is unknown and outside the scope of this project.
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).	The project improves global telecommunications which will facilitate and potentially speed up economic development. The cable landing will not in itself increase dependency on increased use of resources. However, the future development it indirectly facilitates may impact on resource dependency (positively or negatively). This is unknown and outside the scope of this project.
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

Ref #	Description	Comment
7.3	Do the proposed location, type and scale of development promote a reduced dependency on resources?	The location for the cable landing reduces dependency on resources in that it makes used of transformed areas and not greenfields sites.
8	How will a risk-averse and cautious approach be applied in terms of ecological impacts?	Infrastructure on land will be installed in transformed areas. The marine cable alignment has been designed to avoid MPAs. Specialist studies will further investigate marine ecological impacts and mitigation measures.
8.1	What are the limits of current knowledge (the gaps, uncertainties and assumptions must be clearly stated)?	Specialist studies will be undertaken to further understand the impacts of the cable installation and operation on benthic ecosystems, beach and dune dynamics and other sensitive environments within the study area. The impacts caused by future development (and economic growth) which this project will indirectly enable through improved telecommunications, is unknown. Notwithstanding global and country policies advocating sustainable development, outcomes will depend on the integrity and capacity of the developers and governments at the time.
8.2	What is the level of risk associated with the limits of current knowledge?	The first submarine cable – a copper-based telegraph cable – was laid across the Channel between the United Kingdom and France in 1850. Today, more than a million kilometres of state-of-the-art submarine fibre-optic cables span the oceans, connecting continents, islands and countries around the world A lot is thus known about the general impacts of subsea cables. Given our current knowledge of the project and study area, the risk is considered low, with respect to the cable installation and operation itself. However, specialist studies will be undertaken during the Impact Assessment to gain more information on site-specific issues and potential impacts associated with the installation and operation of the 2AFRICA/GERA (East) Cable System landing at Amanzimtoti. Risks of future downstream development enabled by improved telecommunications, are outside the scope of this assessment.
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?	Refer to 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?	During installation, if managed and implemented soundly, the project will have no significant negative impacts on these aspects. Some nuisance related impacts are anticipated during the cable landing (e.g. restricted access for beach users), but these are highly localised and of very short duration. Beach user activity will not be curtailed during operation in any significant manner. During operation, the marine cable requires protection by excluding anchoring and trawling activities close to the cable. Maintenance activities and related impacts are anticipated to be minimal.
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 cable installation itself is not expected to result in ecological improvements, other than providing a protected corridor on the seabed, in proximity to the cable. Indirectly, improved telecommunications which, in turn is expected to help combat poverty, may assist in protection of ecological

Ref #	Description	Comment
		resources, air and water quality. This is however outside the scope of this assessment.
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).	This is a built-up area and the cable installation, apart from temporary and short-term nuisance impacts during construction, is not expected to result in negative ecological impacts that in turn have negative 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?	No significant negative impacts are anticipated.
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 original preferred option was to share existing (Liquid Telecom) infrastructure on land, which however after negotiations between the relevant parties, has not been given the go-ahead. The current preferred alternative will however limit impacts to transformed areas on land, as the best practical environmental option. The marine route alignment which was originally selected, intersected with the Aliwal Shoal MPA. After consultation with EKZNW, it was decided to resurvey an alignment to try and avoid this MPA.
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 small positive ecological impact through the provision of a buffer zone along the marine component of the cable alignment.

Table 7 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 aligns with the National Strategic Infrastructure Project 15 (SIP 15). *"Expanding Access to Communication Technology ("SIP 15") was launched by the Presidential Infrastructure Coordinating Commission (PICC) on 3 December 2012 and effectively represents the actual policy of the Government of South Africa as regards to how it will expand access to communication technology to a far greater percentage of residents".* eThekwini's IDP (2020/2021 Review) accordingly plans to improve access to telecommunications technologies to unlock investment and stimulate both the regional and national economy. eThekwini's Spatial Development Framework (SDF) reflects a similar vision.
1.2	Spatial priorities and desired spatial patterns (e.g. need for the integration of segregated communities, need to	The technology enabled by the cable will be widely accessible. This project will improve all people's access to communication technology through mobile networks.

Ref #	Description	Comment
	upgrade informal settlements, need for densification, etc.).	
1.3	Spatial characteristics (e.g. existing land uses, planned land uses, cultural landscapes, etc.)	The land infrastructure will be installed in a transformed (built up) urban area and is compatible with the existing land uses.
1.4	Municipal Economic Development Strategy.	The project conforms to eThekwini's aim to improve access to telecommunications technology, which is in line with provincial and national strategies.
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 project is anticipated to have indirect positive socio-economic impacts by improving access telecommunications infrastructure and facilitating socio-economic development, aimed at poverty alleviation and job creation.
2.1	Will the development complement the local socio-economic initiatives (such as local economic development initiatives), or skills development programs?	Improved telecommunications capacity in South Africa is anticipated to positively impact on skills 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, by facilitating poverty alleviation and job creation.
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.	N/A
5.2	Reduce the need for transport of people and goods.	Improved wi-fi networks and digital streaming (which the cable will facilitate) reduces the need for people to travel (be it locally, nationally or internationally) .
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 eThekwini and South Africa as a whole (refer to Section 8.2.2 and Chapter 9).
5.6	For urban related development, make use of under-utilised land available within the urban edge.	N/A
5.7	Optimise the use of existing resources and infrastructure.	The selection of the cable landing point is driven by available existing networks to be connected.
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	N/A

Ref #	Description	Comment
	that reflects the spatial reconstruction priorities of the settlement).	
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.	N/A
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, access to rail, etc.).	In identifying a position for the cable landing, the project considered several locational factors. (Refer to Section 7).
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.	A heritage specialist will assess whether there are any marine or terrestrial resources that require conservation.
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?	Route selection on land and under the sea take into account safety of both the cable and the surrounding environment
6.1	What are the limits of current knowledge? (The gaps, uncertainties and assumptions must be clearly stated).	A lot is known about the general impacts of subsea cables. Specialist studies will be undertaken during the Impact Assessment to gain more information on site-specific issues and potential impacts associated with the installation and operation of the 2AFRICA/GERA (East) Cable System landing at Amanzimtoti. As previously mentioned, this project contributes to an enabling environment for future development and economic growth, which can be considered as indirect, or downstream, impacts. These cannot be anticipated with any certainty within the scope of this assessment. Notwithstanding global and country policies advocating sustainable development, outcomes will depend on the integrity and capacity of the developers and governments at the time.
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).	The project itself is low risk to the social environment.
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	Refer to Item 6.

Ref #	Description	Comment
	applied to the development?	
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?	Relevant management of health and safety aspects will be specified in the EMPr. The cable installation and operation itself will have no negative impacts in terms of health and social ills; however, the cable will enable technology/applications that could potentially have harmful impacts (5G, surveillance, social media, etc.). This will be in the hands of the downstream user and is beyond the scope of this report.
7.2	Positive impacts. What measures will be taken to enhance positive impacts?	Careful route and site selection for the long-term safety of the cable infrastructure and affected environment.
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?	Careful route and site selection for the long-term safety of the cable infrastructure and affected environment.
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 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?	The technology enabled by the cable will be widely accessible.
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?	The technology enabled by the cable will be widely accessible.
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?	Environmental considerations are actioned by the Developer through all phases of the project (design, construction, operation and maintenance) by various measures, including: • Technical research and development. • Risk analyses. • Compliance with environmental and safety legislation.

Ref #	Description	Comment
		• Environmental Screening, Scoping and Impact Assessment. • Environmental Management Program(s) • Ongoing maintenance and monitoring.
13	What measures will be taken to:	
13.1	Ensure the participation of all interested and affected parties.	Refer to Chapter 4 and Section 11.5.
13.2	Provide all people with an opportunity to develop the understanding, skills and capacity necessary for achieving equitable and effective participation.	The regulated public participation process is designed to share information and facilitate public comment. ACER staff make themselves available to discuss the project telephonically and respond to queries throughout the duration of the project. Given the current Covid risk, public meetings are not recommended but ACER will be available to hold virtual focus group meetings.
13.3	Ensure participation by vulnerable and disadvantaged persons.	ACER staff make themselves available to discuss the project telephonically and respond to queries throughout the duration of the project.
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.	The regulated public participation process is designed to share information and raise awareness (Chapter 4 and Section 11.5).
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). The information is also publicly available on ACER's website.
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. It is the EAP's responsibility to consider all issues raised by all IA&Ps and respond to their concerns in an objective and unbiased manner.
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.	The regulated public participation process is designed to share information and raise awareness amongst all interested and affected parties. No additional efforts were made to engage with women and youth, specifically.
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).	The cable will bring accessible high-speed bandwidth to South Africa, potentially benefiting all sectors of society.
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	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.

Ref #	Description	Comment
	workers to refuse such work will be respected and protected?	
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.	Temporary employment will be created during the construction of the BMH and installation of cable ducting to the CLS. Job creation during the landing of the marine cable will be limited and be restricted generally to skilled personnel. The project is, however, expected to promote economic development within South Africa which could result in significant job opportunities in the future (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?).	Local labour can be used during construction of the BMH and ducting. The use of local labour will be limited for the marine cable landing activities, as specific skills are required.
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).	Local temporary jobs will be available on site in the construction period. The project will not directly result in permanent local job opportunities.
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.).	Temporary job creation during project implementation will not be at the expense of job losses in other sectors.
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 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?	The environmental authorisation process will be undertaken as per the prescribed environmental legislation and associated regulations. Impacts will be mitigated to promote 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?	Realistic and achievable mitigation measures will be identified in the Impact Assessment and incorporated in an EMPr. 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	Avoidance of sensitive areas (such as MPAs) is taken into account in the routing of the marine section of the cable. The

Ref #	Description	Comment
	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.	land infrastructure is to be installed in transformed areas.
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 direct socio-economic impacts of this project are not anticipated to contribute significantly towards cumulative impacts. Indirectly, proposed development is anticipated to have a significant positive cumulative impact given that telecommunications is a key driver for economic growth, which is expected to benefit South Africa and southern Africa as a whole. However, there may be indirect negative impacts resulting from the use of the technology to drive economic growth. This is in the hands of the developers/users and not within the scope of this EIA.

10. ENVIRONMENTAL ISSUES AND POTENTIAL IMPACTS

Information gathering during Scoping focused on gaining an understanding of the interaction of project activities with the receiving environment in order 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.

The issues identified during Scoping have been formulated as nine key questions:

- ❒ What impacts will the installation, operation/maintenance and decommissioning of the 2AFRICA/GERA (East) Cable System landing at Amanzimtoti have on terrestrial and freshwater aquatic habitat and biodiversity (vegetation, wetlands/rivers and fauna, including on the beach and foredunes) and *vice versa*?
- ❒ What impacts will the installation, operation/maintenance and decommissioning of the 2AFRICA/GERA (East) Cable System landing at Amanzimtoti have on coastal processes/dynamics affecting the beach and coastal dunes and *vice versa*?
- ❒ What impacts will the installation, operation/maintenance and decommissioning of the 2AFRICA/GERA (East) Cable System landing at Amanzimtoti have on beach infrastructure, sea and beach users and *vice versa*?
- ❒ What impacts will the installation, operation/maintenance and decommissioning of the 2AFRICA/GERA (East) Cable System landing at Amanzimtoti have on terrestrial and marine cultural heritage resources, including paleontological features (if identified) and *vice-versa*?
- ❒ What impacts will the installation, operation/maintenance and decommissioning of the 2AFRICA/GERA (East) Cable System landing at Amanzimtoti have on commercial and recreational fisheries and *vice-versa*?
- ❒ What impacts will the installation, operation/maintenance and decommissioning of the 2AFRICA/GERA (East) Cable System landing at Amanzimtoti have on deep water marine benthic flora and fauna (>30 m depth) and *vice-versa*?
- ❒ What impacts will the installation, operation/maintenance and decommissioning of the 2AFRICA/GERA (East) Cable System landing at Amanzimtoti have on reefs and shallow water benthic communities (< 30 m depth to shore) and *vice versa*?
- ❒ What cumulative impacts are anticipated from the installation, operation/maintenance and decommissioning of the 2AFRICA/GERA (East) Cable System landing at Amanzimtoti?
- ❒ What are the impacts of the No Development Alternative (not installing and operating the 2AFRICA/GERA (East) Cable System at Amanzimtoti)?

These key issues are elaborated hereunder.

10.1 What impacts will the installation, operation/maintenance and decommissioning of the 2AFRICA/GERA (East) Cable System landing at Amanzimtoti have on terrestrial and freshwater aquatic habitat and biodiversity (vegetation, wetlands/rivers and fauna, including on the beach and foredunes) and *vice-versa*?

Although Amanzimtoti is a densely populated urban environment, natural habitat (classified as CBA), does occur in the project area, including Critically Endangered coastal forest vegetation and vegetated foredunes. The Amanzimtoti River meanders through the study area and there are wetlands within 500 m of the project.

However, during installation, direct impacts on natural habitat (terrestrial and freshwater) and related flora and fauna will be limited, because the project will make use of transformed areas for installation of infrastructure. Additionally, the use of HDD methods for cable installation under the foredunes will avoid disruption of surface vegetation. Impacts are anticipated to be limited, due to the short timeframe for installation activities, the relatively small area of disturbance, as well as the nature of disturbed terrain and the rapid reinstatement of the trench after cable burial. During operation/maintenance and decommissioning, no significant impacts on terrestrial and aquatic habitats and biodiversity are envisaged.

However, an ecological specialist will be commissioned to further investigate and confirm the significance of potential impacts on vegetation, watercourses and fauna, during the Impact Assessment.

10.2 What impacts will the installation, operation/maintenance and decommissioning of the 2AFRICA/GERA (East) Cable System landing at Amanzimtoti have on coastal processes/dynamics affecting the beach and coastal dunes and *vice versa*?

Dune cordons in general are highly dynamic systems, formed as a result of several 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.

With regard to the processes and drivers mentioned above, the last two might be affected by the installation of the cable at Amanzimtoti. These impacts are, however, expected to be temporary and highly localised (trenching across the beach, burial and anchoring of the cable to the BMH will take about 2 days). The geomorphological features of the beach may influence the alignment of the cable across the beach and the potential for exposure after burial (during operation).

Operation, maintenance and decommissioning of the cable is not expected to have any significant impact on coastal processes.

A specialist study will be commissioned to investigate and assess impacts related to these coastal processes.

10.3 What impacts will the installation, operation/maintenance and decommissioning of the 2AFRICA/GERA (East) Cable System landing at Amanzimtoti have on beach infrastructure, sea and beach users and *vice versa*?

During installation, there will be temporary disruptions at the beach for a limited period (about 2 days).

The position of the AECI outfall pipeline which is buried at Amanzimtoti Pipeline Beach and extends out to sea, will need to be considered during installation of the cable so that it can be accommodated with respect to all cable landing activities in the sea, on the beach and further inland.

During installation, the movement of heavy machinery at the beach carpark and onto the beach, as well as excavation and other installation activities, could pose a safety risk. Therefore, the landing area, including parts of the carpark, will need to be closed off to the public for a limited period. There are, however, alternative access points onto the beach, as well as other public beaches in close proximity, which can be used during this period.

Sea going vessels, including recreational fishing vessels, ski boats etc., will have to maintain a distance of 500 m from the cable laying ship while it is laying the cable. The area will also be closed off to swimmers, surfers etc. This will be for a limited period (approximately 2-3 weeks).

General beach infrastructure, including the wooden bollards behind the vegetated foredunes, could be at risk from personnel and vehicles/heavy machinery entering and exiting the beach and carpark during installation.

During installation, the shark nets will need to be temporarily taken down and this will need to be arranged with the Sharks Board.

During operation/maintenance of the cable, the impacts on beach infrastructure and beach and sea users will be negligible, as maintenance activities will be very infrequent and more likely to be undertaken offshore.

Should decommissioning of the cable involve removal of the cable, similar (but less intense) impacts to cable installation, are anticipated.

Further impacts and ways to mitigate these impacts, will be investigated during the Impact Assessment.

10.4 What impacts will the installation, operation/maintenance and decommissioning of the 2AFRICA/GERA (East) Cable System landing at Amanzimtoti have on terrestrial and marine cultural heritage resources, including paleontological features (if identified) and *vice-versa*?

The terrestrial environment along the cable servitude between the BMH and CLS is largely modified by existing development (paved roads and buildings). While trenching across the beach has the potential to uncover heritage resources, this is unlikely, as the unconsolidated beach sand is in constant flux. A heritage resources specialist will, however, be commissioned during the Impact Assessment, to determine potential impacts on land based heritage resources.

Due to the PLGR and cable burial, there is potential for marine cultural heritage resources, including maritime cultural heritage resources (e.g. shipwrecks) and possibly paleontological features, to be impacted by the marine cable, or *vice-versa*.

No impacts on cultural heritage resources (terrestrial or marine) are envisaged during operation/maintenance or decommissioning of the cable.

A heritage specialist will be appointed to assess and investigate potential impacts on cultural heritage resources both on land and under the sea.

10.5 What impacts will the installation, operation/maintenance and decommissioning of the 2AFRICA/GERA (East) Cable System landing at Amanzimtoti have on commercial and recreational fisheries and *vice-versa*?

The project could potentially impact on the fishing industry in the following ways (Capmarine, 2019):

- Fishing vessels would be required to maintain a safe operational distance of 500 m from the Project vessels during the PLGR and installation of the marine fibre-optic cable.
- Restriction of access to fishing grounds for the traditional linefish sector, large pelagic longline sector and KZN crustacean trawl sector during installation.
- During operation, the entire subsea cable route would be protected with an exclusion zone[23] that would prohibit anchoring and trawling within 500 m on either side of the subsea cable.

Equally shipping, trawling and fishing activities can negatively impact on submarine telecommunications cables. The majority of cable faults are caused by fishing and anchoring activities. Fishing activity from trawlers can cause damage from dragging their anchors through mud and through towing nets that can snag cables. Large anchors of fishing vessels and merchant vessels can cause cable damage by anchoring outside designated areas and dragging anchors in error during passage. While legislated exclusion zones around subsea cables can afford protection, this requires compliance from vessels operating in the vicinity of the cable.

Decommissioning of the cable would likely have temporary impacts similar to installation, on fishing activities, if it were to be removed; and no additional impacts if left *in situ.*

The potential impacts of the cable on commercial and recreational fisheries and *vice-versa* will be investigated further by a marine fisheries specialist during the Impact Assessment.

10.6 What impacts will the installation, operation/maintenance and decommissioning of the 2AFRICA/GERA (East) Cable System landing at Amanzimtoti have on deep water marine benthic flora and fauna (>30 m depth) and *vice-versa*?

During installation, marine benthic habitat and associated communities will be temporarily disturbed by the cable laying and burial activities associated with the proposed landing of the 2AFRICA/GERA (East) Cable System at Amanzimtoti. Effects are likely to be localised to the immediate area of disturbance around the cable.

During operation, the presence of the cable itself and any accompanying protective structures can provide artificial hard substrate habitats that attract flora and fauna that may not be typical of the area. The effects of electromagnetic fields, thermal radiation and noise on marine benthic flora and fauna during operation, is not considered to be significant, as described in Section 6.2.1.

Given that the cable system will be buffered 500 m either side, operation of the cable system will afford an additional layer of protection to benthic communities within this buffer zone.

23 Marine telecommunications cables are afforded a legislated buffer (500 m 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.

Decommissioning of the cable would likely have temporary impacts similar to installation, on marine benthic flora and fauna, if it were to be removed; and no additional impacts if left *in situ.*

A specialist study will be commissioned during the Impact Assessment, to further investigate potential effects of cable installation and operation on benthic habitat and communities.

10.7 What impacts will the installation, operation/maintenance and decommissioning of the 2AFRICA/GERA (East) Cable System landing at Amanzimtoti have on reefs and shallow water benthic communities (< 30 m depth to shore) and *vice versa*?

The rocky and coral reefs in the project area could potentially suffer damage from activities undertaken during cable installation, operation and or decommissioning. Similarly, the cable may suffer abrasion from rocks if it is moved by unusually strong current action. The DEFF (Oceans and Coasts) has indicated that due to the prevalence of reefs in the area, a benthic ecosystem assessment will be required. This will require an assessment of the shallow water environment (< 30 m depth) (by divers) to identify and assess the potential impacts on reefs and benthic communities along the proposed cable alignment, and to recommend fine-tuning of the cable route if required.

While marine telecommunications cables may have direct negative impacts associated with their installation and operation, they do also offer protection to the marine benthic environment along their alignment, via the implementation of the 500 m buffer zone. This buffer zone effectively protects the benthos from bottom trawling, anchoring by vessels and may act as a refuge for benthic fish species.

The potential impacts on reefs and shallow water benthic communities in the affected area need to be understood and, therefore, a qualified specialist will be commissioned to undertake a detailed assessment.

10.8 What cumulative impacts are anticipated from the installation, operation/maintenance and decommissioning of the 2AFRICA/GERA (East) Cable System landing at Amanzimtoti?

A cumulative impact is an incremental impact on the environment that results from the impact of a proposed action when added to existing and reasonably foreseeable future actions. Cumulative effects can be both positive and negative. Also, the nature of cumulative impacts can be both temporary (i.e. impacts that are restricted to the installation phase) and permanent (i.e. impacts that occur in both the construction and operation phases). Cumulative impacts, as they relate to key issues identified above, will be further investigated and assessed during the Impact Assessment.

10.9 What are the impacts of the No Development Alternative (not installing and operating the 2AFRICA/GERA (East) Cable System at Amanzimtoti).

The No Development Alternative would imply that the proposed 2AFRICA/GERA (East) Cable System landing at Amanzimtoti would not be implemented. While this may avoid negative impacts associated with installation and operation at Amanzimtoti, it will preclude positive impacts anticipated from the improved telecommunications provided by the cable. The No Development Alternative is not consistent with the strategic infrastructure planning of Government and will fail to assist in achieving SIP 15 goals.

Impacts of the No Development Alternative, as they relate to key issues identified above, will be further investigated and assessed during the Impact Assessment.

11. PLAN OF STUDY FOR IMPACT ASSESSMENT

This section outlines the Plan of Study for the Impact Assessment for the proposed 2AFRICA/GERA (East) Cable System (Amanzimtoti landing).

The Alternatives to be taken forward for investigation (as described in Chapter 7) are:

- BMH site Alternatives 2 and 3.
- WIOCC fronthaul alignment from the BMH to the CLS, as proposed.
- Marine cable alignment Alternative 3.
- The No Development option will form the baseline against which the proposed project alternatives are assessed.

Potential impacts, as related to the issues of concern described in Chapter 10, will be investigated. The specialists will provide scientifically sound information regarding the various issues and associated potential impacts. An integrated approach will be adopted to consider direct and cumulative impacts and the significance of potential impacts will be determined according to the assessment conventions described further below, after processing and integration of information from specialist studies and other sources, including I&AP input.

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 EIAR.

11.1 Key tasks to be undertaken

The main activities to be undertaken during the Impact Assessment are consistent with NEMA requirements and the 2014 EIA Regulations (as amended), 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, technical and public participation processes into a comprehensive and objective EIAR, inclusive of mitigation measures to ameliorate the effects of negative impacts and to optimise benefits.
- Prepare an 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.

11.2 Proposed specialist studies

Terms of reference for the specialist studies are outlined below[24]. 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 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.

Specialists must also adhere to various protocols published under NEMA, including:

- ❒ The protocols for specialist assessment and minimum report content requirements as stipulated in GNR No 320, of 20 March 2020. These protocols apply to specialist studies undertaken under the themes of Agriculture, Avifauna, Biodiversity, Noise, Defence and Civil Aviation.

24 Note that specialist reports pertaining to the impacts of marine telecommunications cables on South African marine mammals and avifauna have already been made available to ACER and, therefore, the TOR included in this chapter may not necessarily refer to marine mammals and birds.

- ❒ Protocols for terrestrial animal species and terrestrial plant species as stipulated in GNR No 320, of 20 March 2020, applying to the themes Terrestrial Animal Species and Terrestrial Plant Species.
- ❒ Requirements of Government Gazette No. 648 of 10 May 2019.

When the requirements of a protocol apply, the requirements of Appendix 6 of the EIA Regulations are replaced by the protocol requirements.

The onus will be on the specialists, when undertaking the specialist study, to ensure they identify and correctly apply the relevant protocols pertaining their field of expertise.

11.2.1 Beach and Coastal Dune Dynamics Specialist Assessment

The specialist must provide an assessment of the potential impacts that the 2AFRICA/GERA (East) Cable System landing at Amanzimtoti will have on the beach and coastal dunes in terms of coastal processes/dynamics.

The specialist study should identify and discuss the following key aspects.

1. What are the potential impacts of the proposed 2AFRICA/GERA (East) Cable System landing at Amanzimtoti 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 interface?
2. What measures can be applied to rehabilitate, mitigate and manage these impacts to optimise environmental integrity at the proposed cable landing point?
3. Outline a specific action plan for reinstatement and rehabilitation to ensure dune stability and functionality.
4. The installation of the cable across the beach using trenching or horizontal directional drilling. The benefits and drawbacks of each installation method must be discussed and assessed.

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

- ❒ Provide a description of the primary dunes and dune belt present at Amanzimtoti and the relevant and important characteristics and components thereof, including dune vegetation and dune dynamics. The description should include the relevant ecosystem drivers, conservation status and conservation targets, as applicable.
- ❒ Identify and describe the components, characteristics and natural processes of the coastal environment 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 development footprint of the 2AFRICA/GERA (East) Cable System landing at Amanzimtoti from the shallow water subtidal zone (< 10 m water depth) up to the BMH. 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[25], and vice versa during site

25 Include ecosystem drivers and impacts on conservation targets, in this assessment, as applicable.

establishment, installation, construction, operation and maintenance and/or decommissioning. Please use the assessment conventions provided for the assessment of impact significance.

- ❒ 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 EMPr.
- ❒ 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. (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).
- ❒ Discuss any other sensitivities and important issues from your specialist perspective that are not identified in these terms of reference.
- ❒ Address specific issues and concerns raised by stakeholders during the public comment and review phases of the EIA process (a CRR will be provided to specialists).

11.2.2 Heritage Specialist Assessment (onshore and offshore)

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

- ❒ What impacts will the installation, operation/maintenance and decommissioning of the 2AFRICA/GERA (East) Cable System landing at Amanzimtoti have on terrestrial and marine cultural heritage resources, including paleontological features (if identified) and *vice-versa*?

  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 installation and operation of the proposed 2AFRICA/GERA (East) Cable System landing at Amanzimtoti (both onshore and offshore).
- ❑ The early identification of any red flag and fatal flaw issues or impacts.
- ❑ Information must be provided on the following:
  - (i) 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.
  - (ii) 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 stakeholders during the public review phase of the EIA process (a CRR will be provided to specialists).
- ❑ Formulation of a protocol to be followed by the Applicant 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 landing at Amanzimtoti.
- ❑ The heritage specialist is also required to obtain comment from SAHRA and/or Amafa on the Scoping and EIA reports, upload required documentation onto the Agency's online system, and arrange for payment of fees.

11.2.3 Fisheries Assessment

The appointed specialist must provide an assessment of the potential impacts that the installation, operation/maintenance and decommissioning of the 2AFRICA/GERA (East) Cable System landing at Amanzimtoti will have on commercial and recreational fisheries and *vice versa*.

Specifically, the **Fisheries Assessment** must address the following primary elements:

a) Identify and describe the commercial and recreational fishing operations and activities that occur in the vicinity of the cable alignment as shown for the landing of the 2AFRICA/GERA (East) Cable System at Amanzimtoti.
b) Identify the industries/companies/organisations and groups involved and provide relevant contact details.
c) Identify and describe the likely risks and impacts (negative and/or positive, including cumulative impacts if relevant) and their significance, which the proposed project may have on commercial and recreational fishing operations and activities, and vice versa, during installation, operation and maintenance and/or decommissioning. Please use the assessment conventions provided.
d) Impacts must be quantified in economic terms (if relevant).
e) Significant impacts must be mapped in relation to the cable alignment (provide sensitivity map).
f) Should trawling or fishing grounds be affected, provide a brief comment on the impact of the proposed 2AFRICA/GERA (East) Cable System alignment and its potential significance to the trawling and fishing industry. This comment on significance should cover aspects such as the relative percentage of the trawling/fishing grounds impacted and/or if the proposed alignment is likely to have any impact on trawling/fishing in terms of increased operational costs.
g) Recommend mitigation measures for enhancing positive impacts and avoiding or mitigating negative impacts and risks (to be implemented during the design, installation, operation/maintenance and/or decommissioning phases), for inclusion in an Environmental Management Programme (EMPr).
h) 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).
i) Discuss any other sensitivities and important issues from your specialist perspective that are not identified in these terms of reference.

11.2.4 Marine benthic assessment (focusing on deep water marine benthic flora and fauna)

This specialist assessment must address the question:

- ❒ What impacts will the installation, operation/maintenance and decommissioning of the 2AFRICA/GERA (East) Cable System landing at Amanzimtoti have on deep water marine benthic flora and fauna (>30 m depth) and *vice-versa*?

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

1. A desktop assessment of the potential impact that the 2AFRICA/GERA (East) Cable System landing at Amanzimtoti and related infrastructure will have on the Marine Benthic Environment, based on the alignment selected. In this context, the specialist study should identify and discuss the following topics.

    a) An introduction with a brief project overview, study approach, methodology, and assumptions and limitations.
    b) A description of the marine environment of the project area, focusing on the benthic invertebrate communities based on available literature and previous experience. The description should include the relevant ecosystem drivers, conservation status and conservation targets, as applicable.
    c) A description of the potential impacts of the project on the benthic invertebrate fauna, followed by an assessment[26] of the significance of these impacts using the assessment criteria 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).

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

2. If yes, the cost and time required for these investigations must be approved by ACER.
3. If no or after the site investigations have been completed, the assessment can continue addressing the following as supplementary to 1(a)(b)(c) above:
    a) A detailed motivation why site investigations were deemed unnecessary.
    b) The assessment of impacts must take into account the spatial scale, intensity, duration, etc. of the impacts and include recommendations for mitigation of impacts.
    c) 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).
    d) Discuss any other sensitivities and important issues from a Marine perspective that are not identified in these terms of reference.

26 Include ecosystem drivers and impacts on conservation targets, in this assessment, as applicable.

11.2.5 Shallow water (< 30 m depth to shore) reef and benthic communities assessment including diver survey

The specialist study should address the following question:

What impacts will the installation, operation/maintenance and decommissioning of the 2AFRICA/GERA (East) Cable System landing at Amanzimtoti have on reefs and shallow water benthic communities (< 30 m depth to shore) and vice versa?

Specifically, the Shallow Water Marine Benthic Assessment must address the following primary elements:

a) 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. The description should include the relevant ecosystem drivers, conservation status and conservation targets, as applicable.
b) The assessment must consider the benthic environment up to 5 m either side of the proposed cable alignment. Diver surveys are required.
c) Identify the types of marine habitat and species of conservation importance, including Red Data/CITES species potentially affected by the proposed project.
d) 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).
e) Identify the likely risks and impacts (negative and/or positive, direct and indirect, including cumulative impacts if relevant) and their significance[27], 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).
f) 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 EMPr.
g) Identify permit requirements as related to the removal and/or destruction of specific marine species.
h) 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).
i) Discuss any other sensitivities and important issues from your specialist perspective that are not identified in these terms of reference.

27 Includes ecosystem drivers and impacts on conservation targets, in this assessment, as applicable.

11.3 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**[28] – 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**.

11.4 Draft Environmental Impact Assessment Report and Draft Environmental Management Programme

The information arising from the specialist reports, further investigations by project team members and input from key stakeholders and I&APs will be integrated and assessed. A draft EIAR and EMPr will be compiled in accordance with the report content required by the 2014 EIA Regulations (as amended) (refer to Appendix 9).

11.5 Public Participation during the Impact Assessment

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 CRR.

The CRR, 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 meet with key authorities of local, provincial and national government as necessary throughout the process to facilitate discussion and understanding.

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

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

The draft EIAR and EMPr 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 and if allowed, under Covid-19 restrictions), after which the draft EIAR and EMPr will be amended as necessary, according to comments received, and finalised along with the Final CRR. The final EIAR and EMPr will be submitted to DEFF for consideration and decision-making.

Once DEFF has issued an 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.

11.6 Schedule

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

Activity	Anticipated Dates
Project Announcement & Invitation to Register and Comment	02-04 September 2020
Initial Comment Period	02 September to 05 October 2020
Draft Scoping Report Public Review Period	19 March – 22 April 2021
Submit Draft Scoping Report and Application to DEFF	19 March 2021
Submit Final Scoping Report and Plan of Study for Impact Assessment to the Competent Authority	30 April 2021
Specialist Study Investigations	Up to June 2021
Preparation of Draft EIAR	June - August 2021
Draft EIAR and EMPr Public Review Period	3 August - 2 September 2021
Submit Draft EIAR and EMPr to DEFF	3 August 2021
Submit Final EIAR and EMPr to DEFF	29 September 2021

12. CONCLUDING REMARKS

The EAP is of the opinion that due environmental process has been followed during the undertaking of this Scoping process and associated Public Participation Programme. The initial identification and analysis of key issues during Scoping suggests that there are no negative impacts that can be classified as fatal flaws. However, further investigation, including specialist studies, is required as part of the Impact Assessment to assess potential impacts related to terrestrial and aquatic biodiversity, coastal processes/dune dynamics, marine biodiversity, heritage (marine and terrestrial), fisheries and various other uses of the seabed, sea and beach. Measures for mitigation and management of identified impacts will be included in an EMPr.

Following the comment period for the DSR, the issues raised by I&APs, together with those of technical specialists and the regulatory authorities, will be considered and captured in a Final Scoping Report, which will be submitted to DEFF. Thereafter, if DEFF accepts the report, the Impact Assessment will be undertaken and I&APs will be kept informed accordingly.

13. REFERENCES

Websites

https://www.iscpc.org/ International Cable Protection Committee. Date accessed 22 July 2016.

http://www.transnetnationalportsauthority.net/AboutUS/Pages/Corporate-Profile.aspx Date accessed 22 July 2016.

http://www.imo.org/en/Publications/Pages/CurrentPublications.aspx Date accessed 22 July 2016.

http://www.un.org/depts/los/convention_agreements/texts/unclos/unclos_e.pdf United States Convention on the Law of the Sea. Date accessed 23 August 2016.

http://www.samsa.org.za/sites/samsa.org.za/files/SAMSA%20Act%2C%201998.pdf SAMSA Act. Date accessed 3 August 2016.

http://www.dirco.gov.za/au.nepad/nepad_overview.htm Date accessed 15 August 2016.

http://www.eversheds.com/global/en/what/articles/index.page?ArticleID=en/tmt/Focused_on_South_Africa_090312 Telecommunications Infrastructure in South Africa. Date accessed 23 August 2016.

http://www.submarinecablesystems.com/default.asp.pg-marineservices Date accessed 8 September 2016.

http://cer.org.za/safeguard-our-seabed/mineral-and-petroleum-extraction Date accessed 21 September 2016.

http://www.operationphakisa.gov.za/operations/oel/pages/default.aspx Date accessed 17 September 2016.

https://manypossibilities.net/african-undersea-cables/ Date accessed 14 October 2019.

https://www.saambr.org.za/marine-protected-areas-mpas/ Date accessed 16 September 2019.

http://dx.doi.org/10.1016/j.ecss.2013.12.009- Date accessed 14 April 2020.

https://www.gov.za/about-sa/fisheries Date accessed June 2020.

https://www.petroleumagencysa.com/index.php/maps Date accessed June 2020.

Publications

ACO Associates cc, 2019. Maritime Heritage Impact Assessment: ASN Africa METISS Subsea Fibre Optic Cable System. Prepared for ERM Southern Africa (Pty) Ltd.

ASN (2019). Submarine Fibre Optic Cable Systems Generic Duct Route and Manhole Construction Guidelines. Alcatel Submarine Networks (ASN). Landfall Department Document.

ASN (2020). Alcatel Submarine Networks (ASN) 2AFRICA Submarine Fibre Optic Cable System South Africa - Site Visit Report Issue 01 Prepared for ASN by A Hall.

DEA (2017), Guideline on Need and Desirability, Department of Environmental Affairs (DEA), Pretoria, South Africa ISBN: 978-0-9802694-4-4

ERM (2019a). Environmental Impact Assessment process for the Installation and Operation of the METISS Subsea Cable System to be Landed in Amanzimtoti, South Africa. Final Scoping Report. Version 1.0. Prepared by ERM for ASN and Liquid Telekom.

ERM (2019b). Installation and Operation of the METISS Subsea Cable System to be Landed in Amanzimtoti, South Africa. Final Environmental Impact Assessment Report. Version 1.0. Prepared by ERM for ASN and Liquid Telekom.

Carter L., Burnett D., Drew S., Marle G., Hagadorn L., Bartlett-McNeil D., and Irvine N. (2009). Submarine Cables and the Oceans – Connecting the World. UNEP-WCMC Biodiversity Series No. 31. ICPC/UNEP/UNEP-WCMC.

Capmarine, 2019. Environmental Impact Assessment (EIA) for the proposed Metiss Subsea Cable System off the East Coast of South Africa. Fisheries Study Prepared for Environmental Resources Management South Africa (Pty) Ltd.

eThekwini Municipality Integrated Development Plan 2017/16 to 2021/22 (2020/2021 Review).

eThekwini Municipality Spatial Development Framework (2019) Final Draft Report May 2019

Fisheries Research 48 (2000):141-155 . Stock assessment, ecology and economics as criteria for choosing between trap and trawl fisheries for spiny lobster Palinurus delagoae. Groeneveld, Johan.

Fugro (2020). Alcatel Submarine Networks 2AFRICA East Site Visit Report for Landing Site Amanzimtoti. Site Visit Report Revision 0. Prepared for ASN by A Juzaili and E Koch.

Guastella, L.A., Smith, A.M., Coastal dynamics on a soft coastline from serendipitous webcams: KwaZulu-Natal, South Africa, Estuarine, Coastal and Shelf Science (2014).

Goble, BJ., van der Elst, R.P. and Oellermann, L.K (eds) Ugu Lwethu – Our Coast. A profile of coastal KwaZulu-Natal. KwaZulu-Natal Department of Agriculture and Environmental Affairs and the Oceanographic Research Institute, Cedara, 76-79.

Japp, D. Capricorn Fisheries Monitoring c.c.(November 2004). Review of the state of world marine capture fisheries management Indian Ocean. Country Review: South Africa (Indian Ocean).

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

Pisces Environmental Services (Pty) Ltd, 2019. Environmental Impact Assessment (EIA) for the proposed Metiss Subsea Cable System off the East Coast of South Africa. Marine Ecology Assessment Prepared for Environmental Resources Management (ERM) Southern Africa (Pty) Ltd.

APPENDIX 1: APPLICATION FOR AUTHORISATION

APPENDIX 2: PUBLIC PARTICIPATION DOCUMENTS

APPENDIX 3: COMMENTS AND RESPONSE REPORT

APPENDIX 4: DEFF SCREENING TOOL REPORT

APPENDIX 5: EAP *CURRICULUM VITAE*

APPENDIX 6: PROPERTY DETAILS

APPENDIX 7: SUPPORTING MAPS

APPENDIX 8: PHOTOGRAPHS OF THE STUDY AREA

APPENDIX 9: CONTENT OF AN ENVIRONMENTAL IMPACT ASSESSMENT REPORT AND AN ENVIRONMENTAL MANAGEMENT PROGRAMME AS PER THE 2014 EIA REGULATIONS (AS AMENDED)