



**PROPOSED MARINE TELECOMMUNICATIONS SYSTEM (EQUIANO
CABLE SYSTEM) TO BE LANDED AT MELKBOSSTRAND ON THE
WEST COAST OF SOUTH AFRICA**

SCOPING REPORT

Draft

**RE-SUBMISSION OF THE DRAFT SCOPING REPORT SUBMITTED FOR REVIEW ON THE 12
FEBRUARY 2020**



PROPOSED MARINE TELECOMMUNICATIONS SYSTEM (EQUIANO CABLE SYSTEM) TO BE LANDED AT MELKBOSSTRAND ON THE WEST COAST OF SOUTH AFRICA

SCOPING REPORT

Draft

**RE-SUBMISSION OF THE DRAFT SCOPING REPORT SUBMITTED FOR REVIEW ON THE 12
FEBRUARY 2020**

Compiled for`

Telkom SA SOC Limited (Openserve)
2nd Floor Core Building
Telkom Park
61 Oak Avenue, Centurion, 0169
0001
South Africa



Compiled by

ACER (Africa) Environmental Consultants
PO Box 503
Suites 5 & 6, Golden Penny Centre
26 Hely Hutchinson Road
Mtunzini, 3867
South Africa

October 2020

SCOPING REPORT DISTRIBUTION

Electronic copies of the Draft Scoping Report are available for collection for public review at the following venue in the project area for a period of 30 days.

Venue	Street	Contact Person and Number
Melkbosstrand Ratepayers' Association	25 Jacobus Crescent, Duynefontein, 7441	Mrs. Smokie La Grange 073 357 6359

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

The following authorities have been sent electronic copies of the Draft Scoping Report:

1. Department of Environmental, Forestry and Fisheries
Ms Sindiswa Dlomo
Email: Sdlomo@environment.gov.za
2. Department of Environment, Forestry and Fisheries – Biodiversity Oceans and Coast Division
Mr. Xolani Myanga
Email: XMyanga@environment.gov.za
3. Department of Environmental Affairs and Development Planning, Western Cape Government
Mrs Adri La Meyer
Email: Adri.LaMeyer@westerncape.gov.za
4. City of Cape Town (Energy, Environment and Spatial Planning Division)
Ms Pat Titmuss
Email: pat.titmuss@capetown.gov.za
5. CapeNature (Theewaterskloof, Overstrand & Stellenbosch)
Mr Rhett Smart
Email: rsmart@capenature.co.za
6. Department of Human Settlements, Water & Sanitation
Mr Warren Dreyer
Email: dreyerw@dws.gov.za
7. Department of Human Settlements, Water & Sanitation
Mr D Daniels
Email: danielsd@dws.gov.za
8. Department of Public Works
Mr Basson Geldenhuys
Email: basson.geldenhuys@dpw.gov.za

PREFACE

The proposed Equiano Cable System requires Environmental Authorisation from the Department of Environment, Forestry and Fisheries (DEFF) in terms of the 2014 Environmental Impact Assessment Regulations (as amended April 2017) published under the National Environmental Management Act, 1998 (Act 107 of 1998) (NEMA) (as amended). In this context, ACER (Africa) Environmental Consultants (ACER) has been appointed by Alcatel Submarine Networks (ASN) to take responsibility for the application for environmental authorisation for the construction of the Equiano Cable System.

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

EXECUTIVE SUMMARY

Introduction

Submarine telecommunication cables 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.

Telkom SA SOC Limited, acting through its Openserve division (hereafter referred to as "Openserve"), intends to install a submarine telecommunications cable, called the Equiano Cable System, to link South Africa with key international telecommunications hubs in West Africa (Nigeria) and Europe (Portugal). As the designated Landing Partner of the Equiano Cable System in South Africa, Openserve has the required licenses to operate this system in South Africa and aims to secure local permits to land the Equiano Cable System at Melkbosstrand, Western Cape.

Alcatel Submarine Networks (ASN) has been appointed as the supplier and installer of the Equiano Cable System connecting Africa and Europe. The system is to be installed in phases. The first phase ("Baseline System") will entail the installation of cable landings at:

- ☐ South Africa: Melkbosstrand.
- ☐ Portugal: Lisbon (Sesimbra).
- ☐ Nigeria: Lagos.

Through the Equiano Cable System, Openserve will facilitate more affordable and effective transport of voice, data, internet and television services in South Africa. Furthermore, the cable will support the objectives set out by the New Partnership for Africa's Development (NEPAD) and provide a means of fulfilling the South African Government's requirements in terms of digital television broadcasting in the country. The Equiano Cable System is state-of-the-art infrastructure based on Space-Division Multiplexing (SDM) technology, with approximately 20 times more network capacity than the last cable built to serve this region.

Consistent with environmental best practice and environmental legislation, ASN appointed ACER (Africa) Environmental Consultants as Environmental Assessment Practitioner (EAP) to take responsibility for the Environmental Authorisation¹ for the construction of the Equiano Cable System.

Legal Requirements

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

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

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

¹ In addition to other licenses, permits, etc.

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

License/Permit	Authority
Heritage Permit (Offshore)	South African Heritage Resources Agency
Heritage Permit (Onshore)	Heritage Western Cape
Beach Driving Permit	Oceans and Coast (DEFF)
Seashore Lease Permit	Cape Nature
Protected Tree and/or Plant Permits	Department of Environment, Forestry and Fisheries
Water Use License	Department of Human Settlements, Water and Sanitation
Permit to construct infrastructure in the Coastal Public Property	Department of Public Works

Need and Desirability

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

Today, Africa relies primarily on satellites with few marine cables to provide its international communications. Improvement in Africa's information technology infrastructure via telecommunication cables will remove one of the current key inhibitors to development in Africa and support economic growth and opportunities on the continent. Following installation of the proposed Equiano Cable System, Openserve will be the second operator to operate an international fibre-optic bandwidth with full landing in South Africa and along the West Coast of Africa. With the landing of the Equiano Cable System, 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. [The Equiano Cable System is state-of-the-art infrastructure based on SDM technology, with approximately 20 times more network capacity than the last cable built to serve this region].

Broadband traffic is growing exponentially due to new applications like cloud computing and on-demand video. Furthermore, the demand for new connectivity reflects an end-user and business environment in which ultra-broadband access is essential for sustainable growth and development. In an African and local context, the cable will support the objectives set out by the New Partnership for Africa's Development² and provide a means of fulfilling the South African Government's requirements in terms of digital television broadcasting.

² By supplying increased bandwidth, the proposed Equiano Cable System will support the following primary NEPAD objectives: *To eradicate poverty in Africa and to place African countries both individually and collectively on a path of sustainable growth and development to thereby halt the marginalisation of Africa in the globalisation process.*

Site Alternatives

Alternatives are different means of achieving the purpose and need of a proposed development and include alternative sites, layouts or designs, technologies and the “no development” or “no go” alternative. To date, Openserve, ASN and ACER have undertaken environmental screening to identify the best possible landing alternatives and cable alignments to reach the Telkom Cable Landing Station (CLS) site in Melkbosstrand. Following an assessment of the proposed project and given that much of the required infrastructure is already in place servicing the SAT-2 Cable, the assessment of alternatives for this development is limited.

The preferred alternative (environmentally and economically) is to utilise the existing SAT-2 Cable offshore alignment and onshore infrastructure which the proposed Equiano Cable will replace.

Technical Description

The section of the Equiano Cable System which forms part of this Environmental Impact Assessment (EIA) includes the section of cable from where it enters South Africa's Exclusive Economic Zone (EEZ) (200 nautical miles from the sea shore) through South Africa's Territorial Waters (TW) (12 nautical miles from the sea shore) and onto land until it reaches the existing Telkom Cable Landing Station at Melkbosstrand.

The Equiano Cable System comprises the following project components from where it enters South Africa's EEZ until it reaches the Telkom CLS site in Melkbosstrand:

- ☐ Marine Fibre Optic Cable (marine environment to the Beach Man Hole).
- ☐ Terrestrial Fibre Optic Cable (Beach Man Hole to the existing CLS site in Melkbosstrand).

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

Details of the Public Participation Process

The public participation process has been designed to comply with the requirements of the NEMA EIA 2014 Regulations (as amended). The process is described in Chapter 2 of this Draft Scoping Report. Given the low level of interest in the proposed development since the project was advertised on 18 September 2019, no public meeting was held during the 30 day project announcement, however, key stakeholders were consulted independently to ensure that their concerns and issues were captured and addressed in the Draft Scoping Report which will be submitted to the Department of Environmental Affairs. Key stakeholders who have been consulted to date include:

- ☐ City of Cape Town.
- ☐ Western Cape Department of Environmental Affairs and Development Planning.
- ☐ Heritage Western Cape.
- ☐ Department of Environment, Forestry and Fisheries – Oceans and Coasts.
- ☐ South African Deep-Sea Trawling Industry Association.
- ☐ CapeNature.
- ☐ Department of Environment, Forestry and Fisheries.

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

- ☐ Advertisements in local and provincial newspapers:
 - Table View Tygerburger (18 September 2019).
 - Cape Times (18 September 2019).

- ☐ A Background Information Document (BID) was compiled and emailed to all key stakeholders on 18 September 2019. All Interested & Affected Parties who registered following the project announcement adverts were sent the BID for their records. Hard copies of the BID were posted to all government departments and other relevant commenting authorities.
- ☐ Notifications by telephone.
- ☐ Placement of an on-site notice board at the existing Telkom Cable Landing Station on 14th Street, Melkbosstrand.

The availability of the Draft Scoping Report for public comment (Submission made in February 2020) was advertised as follows:

- ☐ Advertisements in local and provincial newspapers:
 - Table View and Tygerburger (12 February 2020).
 - Cape Times (13 February 2020)
- ☐ All registered I&APs were notified in writing on 12 February 2020 of the availability of the Draft Scoping Report for their review and comment.
- ☐ The Draft Scoping Report was made available at the Koeberg Public Library and Melkbosstrand Ratepayers' Association for public review.

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

The resubmission of the Draft Scoping Report was advertised as follows:

- ☐ Advertisements in local and provincial newspapers:
 - Tygerburger (14 October 2020).
 - Cape Times (14 October 2020)
- ☐ All registered I&APs were notified in writing on 14 October 2020 of the availability of the Draft Scoping Report for their review and comment.
- ☐ Electronic copies of the Draft Scoping Report were made available for collection at the Melkbosstrand Ratepayers' Association for public review.

Description of the Environment

The proposed construction and operation of the Equiano Cable System takes place within the marine and terrestrial environment, and, as such, a description of both of these environments is provided in Chapter 7 of this Draft Scoping Report.

Within the marine environment, impacts on the biophysical environment are considered negligible; however, cognisance must be taken of the potential impact the proposed development may have on the fishing industry, particularly the deep-sea trawling fleet and the benthic ecosystems along the proposed offshore alignment. Further investigations into the impacts on the fishing industry and benthic ecosystems will be required during the impact assessment phase of the environmental authorisation process.

The terrestrial component of the Equiano Cable System is not expected to have any impacts on the receiving environment from the Beach Man Hole to the existing Telkom Cable Landing Station as all of the required infrastructure is already in place having been constructed for the SAT-2 Cable System.

The proposed development will have an impact on the coastal dune cordon at Melkbosstrand, however, impacts on these environments are not considered significant given the ongoing disturbance and erosion taking place on the Melkbosstrand in these areas. Vegetation within the study area is

subject to ongoing disturbance, primarily through beach goers (pedestrian traffic) accessing the beach. Fauna expected to be encountered within the project footprint is limited given the transformed nature of much of the terrestrial project footprint and the proximity of the project to urban areas.

The proposed project site is located entirely within Ward 23 of the City of Cape Town. This ward exhibits higher levels of socio-economic development than the City of Cape Town, the Western Cape Province and South Africa as a whole.

Environmental Issues and Potential Impacts

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

- ☐ What impacts will the construction and operation of the Equiano Cable System have on the terrestrial environment (flora and fauna)?
- ☐ What impacts will the construction and operation of the Equiano Cable System have on the fishing industry?
- ☐ What impacts will the construction and operation of the Equiano Cable System have on wetlands within the study area?
- ☐ What impacts will the construction and operation of the Equiano Cable System have on the beach and dune cordon at Melkbosstrand?
- ☐ What are the potential impacts that the proposed Equiano Cable System and related infrastructure will have on the Marine Benthic Environment based on the alignment selected?
- ☐ What impacts will the construction of Equiano Cable System have on cultural and heritage resources, including any paleontological resources (if any are identified during the study)?
- ☐ What cumulative impacts will the construction of the Equiano Cable System have?

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

Plan of Study for Impact Assessment

The Plan of Study for Impact Assessment contained in Chapter 10 outlines how these issues and potential impacts will be taken forward for further investigation.

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

- ☐ Wetland Specialist Study.
- ☐ Fauna and Flora (Ecology) Specialist Study.
- ☐ Benthic Specialist Study.
- ☐ Cultural Heritage Specialist Study.
- ☐ Fisheries Specialist Study
- ☐ Beach and Coastal Dune Specialist Study.

Project Schedule

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

Activity	Anticipated Dates
Project Announcement	18 September 2019
Initial Comment Period	19 September 2019 – 22 October 2019
Draft Scoping Report Public Review Period/Application to DEFF	12 February 2020 – 16 March 2020
Lapsing of the application due to failing to meet the legislated time-period for submission of the Final Scoping Report	
Project Announcement	14 October 2020
Draft Scoping Report Public Review Period/Application to DEFF	14 October 2020 – 14 November 2020
Submit Final Scoping Report and Plan of Study for Impact Assessment to the Competent Authority	20 November 2020
Specialist Study Investigations	Undertaken during the EIA process
Preparation of Draft Environmental Impact Assessment Report	29 January 2021
Draft Environmental Impact Assessment Report and Environmental Management Programme Public Review Period	29 January 2021 – 2 March 2021
Submit Final Environmental Impact Assessment Report and Environmental Management Programme to the Competent Authority	26 March 2020

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. Following the 30-day comment period for the Draft Scoping Report, the issues raised by stakeholders, together with those of technical specialists and the regulatory authorities, will be captured into a Final Scoping Report, which will be submitted to the Department of Environment, Fisheries and Forestry.

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

TABLE OF CONTENTS

SCOPING REPORT DISTRIBUTION	II
PREFACE	III
EXECUTIVE SUMMARY	IV
TABLE OF CONTENTS	X
LIST OF FIGURES.....	XIII
LIST OF TABLES.....	XIV
LIST OF PLATES.....	XIV
ABBREVIATIONS AND ACRONYMS.....	XV
AUTHORS.....	XVII
1. INTRODUCTION.....	1
1.1 Background.....	1
1.2 Qualifications and experience of the Environmental Assessment Practitioner	3
1.3 Environmental assessment requirements and process	3
1.4 Structure of the Scoping Report	4
2. SCOPING AND PUBLIC PARTICIPATION METHODOLOGY	9
2.1 Pre-application meetings and discussions with commenting authorities	10
2.2 Environmental screening	10
2.3 Technical scoping	11
2.4 Public participation	11
2.4.1 Identification and registration of Interested and Affected Parties.....	12
2.4.2 Project announcement.....	13
2.4.3 Obtaining and dealing with comments from I&APs	13
2.4.4 Comments and Responses Report	13
2.4.5 Draft Scoping Report	14
2.4.6 Final Scoping Report	15
3. LEGAL ASPECTS	17
3.1 Applicable legislation	17
3.1.1 Constitution of the Republic of South Africa Act, 1996 (Act 108 of 1996) (as amended).....	17
3.1.2 National Environmental Management Act, 1998 (Act 107 of 1998)	18
3.1.3 The Environmental Impact Assessment Regulations, 2014 (as amended)	18
3.1.4 National Water Act, 1998 (Act 36 of 1998)	18
3.1.5 National Heritage Resources Act, 1999 (Act 25 of 1999).....	19
3.1.6 National Forest Act, 1998 (Act 84 of 1998)	19
3.1.7 Hazardous Substance Act (No 15 of 1973) and Regulations.....	20
3.1.8 Conservation of Agricultural Resources Act, 1983 (Act 43 of 1983)	20
3.1.9 National Environmental Management: Waste Act, 2008 (Act 59 of 2008)	20
3.1.10 National Environmental Management: Biodiversity Act 10 of 2004	20
3.1.11 Integrated Coastal Management Act (Act No. 24 of 2008) (ICMA)	21
3.1.12 The Marine Living Resources Act (Act No. 18 of 1998)	21
3.1.13 Maritime Zones Act No. 15 of 1994	21
3.1.14 Telecommunications Act 103 of 1996	22
3.1.15 Marine Traffic Act 2 of 1981.....	22
3.1.16 Applicable Provincial Environmental Legislation: Western Cape.....	22
3.2 International Treaties, Conventions and Protocols.....	22

3.3	Commenting and relevant authorities	24
3.3.1	<i>Department of Environmental Affairs – Oceans and Coasts</i>	24
3.3.2	<i>National Ports Authority</i>	25
3.3.3	<i>The South African Maritime Safety Authority (SAMSA)</i>	25
3.3.4	<i>Department of Environment Forestry and Fisheries (DEFF)</i>	26
3.3.5	<i>Department of Mineral Resources</i>	26
3.4	Summary	27
3.4.1	<i>Summary of required licenses/permits</i>	27
4.	NEED AND DESIRABILITY	28
5.	PROJECT DESCRIPTION	38
5.1	General description	38
5.2	Marine components and installation methods	38
5.2.1	<i>Marine Fibre Optic Cable</i>	38
5.2.2	<i>Marine Fibre Optic Cable Installation</i>	40
5.3	Terrestrial components and installation methods	47
5.3.1	<i>Beach Man Hole</i>	47
5.3.2	<i>Cable trenching</i>	47
5.3.3	<i>Construction Programme</i>	47
5.3.4	<i>Project implementation</i>	47
5.4	Existing services and project implementation	48
5.4.1	<i>Water</i>	48
5.4.2	<i>Sewage</i>	48
5.4.3	<i>Roads, private property access and road reserves</i>	49
5.4.4	<i>Storm water</i>	49
5.4.5	<i>Waste streams</i>	49
5.4.6	<i>Decommissioning</i>	49
6.	ALTERNATIVES	50
6.1	Site alternatives (landing alternatives)	50
6.2	Terrestrial cable alignment alternatives	52
6.3	Marine cable alignment alternatives	54
6.4	Technology alternatives	55
6.5	No-Go Alternative	57
7.	DESCRIPTION OF THE RECEIVING ENVIRONMENT	58
7.1	Marine and offshore environment	58
7.1.1	<i>Biophysical characteristics</i>	58
7.1.2	<i>Biodiversity threats and Marine Protected Areas</i>	62
7.1.3	<i>Marine fauna</i>	64
7.1.4	<i>Offshore fishing industry</i>	68
7.1.5	<i>Offshore mining concessions</i>	68
7.1.6	<i>Offshore marine telecommunications infrastructure</i>	73
7.2	Beach and terrestrial environment	74
7.2.1	<i>Melkbosstrand beach and coastal morphology</i>	74
7.2.2	<i>Vegetation</i>	77
7.2.3	<i>Wetlands</i>	77
7.2.4	<i>Fauna</i>	79
7.3	Climate	80
7.4	Topography and geology	80
7.5	Socio-economic overview of the receiving environment	82
7.5.1	<i>Population</i>	82
7.5.2	<i>Households</i>	82
7.5.3	<i>Education</i>	83

7.5.4	<i>Employment</i>	84
7.5.5	<i>Economic activity</i>	84
7.5.6	<i>Access to basic services</i>	85
7.5.7	<i>Koeberg Nuclear Power Station</i>	85
7.5.8	<i>Cultural heritage</i>	85
8.	ENVIRONMENTAL ISSUES AND POTENTIAL IMPACTS	89
8.1	What impacts will the construction and operation of the Equiano Cable System have on the natural environment (flora and fauna)?	89
8.2	What impacts will the construction and operation of the Equiano Cable System have on the fishing industry?.....	90
8.3	What impacts will the construction and operation of the Equiano Cable System have on the wetlands within the study area?	90
8.4	What impacts will the construction and operation of the Equiano Cable System have on the beach and shore front at Melkbosstrand?	91
8.5	What are the potential impacts that the proposed Equiano Cable System and related infrastructure will have on the Marine Benthic Environment based on the alignment selected?	91
8.6	What effects will the construction of Equiano Cable System have on cultural and heritage resources, including any paleontological resources (if any are identified during the study)?	92
8.7	What cumulative impacts will the construction of Equiano Cable System have?	92
9.	PLAN OF STUDY FOR IMPACT ASSESSMENT	93
9.1	Key tasks to be undertaken	93
9.2	Proposed specialist studies	94
9.2.1	<i>Ecological (Flora and Fauna) Specialist Study</i>	94
9.2.2	<i>Fisheries Specialist Study</i>	96
9.2.3	<i>Wetland Specialist Study</i>	96
9.2.4	<i>Beach and Coastal Dune Dynamics Specialist Study</i>	97
9.2.5	<i>Marine Benthic Assessment</i>	98
9.2.6	<i>Heritage Specialist Study</i>	99
9.3	Impact assessment conventions	100
9.4	Public Participation	101
9.5	Project schedule	102
10.	CONCLUDING REMARKS	103
11.	LITERATURE REVIEWED	104
	APPENDIX 1: APPLICATION FOR AUTHORISATION.....	107
	APPENDIX 2: PUBLIC PARTICIPATION DOCUMENTS.....	108
	APPENDIX 3: COMMENTS AND RESPONSE REPORT	109
	APPENDIX 4: PRE-APPLICATION MEETING MINUTES/DEFF SCREENING TOOL REPORT.....	110
	APPENDIX 5: EAP CURRICULUM VITAE	111
	APPENDIX 6: PROPERTY DETAILS	112
	APPENDIX 7: SUPPORTING MAPS.....	113

LIST OF FIGURES

Figure 1	Routing of the proposed Equiano Cable System and its alignment to Melkbosstrand	2
Figure 2	The phases of an environmental impact assessment, including legislated timeframes.....	8
Figure 3	Assessment framework based on the concept of sustainability.....	9
Figure 4	Proposed cable alignment from the existing SAT-2 BMH to the Telkom CLS site in Melkbosstrand.....	53
Figure 5	Equiano Cable System Baseline and its entry alignment to Melkbosstrand	54
Figure 6	Alignment of the Equiano Cable System in relation to existing telecommunication cable systems landing along the Western Cape coastline.....	56
Figure 7	Benguela Current along the west coast of South Africa (Source: https://seaview.u-bordeaux.fr/Scenarios-Case-studies/Benguela-upwelling).....	59
Figure 8	Sediment distribution on the continental shelf of the South African West Coast in relation to the proposed Equiano Cable System route (adapted from Rogers, 1977)	60
Figure 9	Wind speed vs. wind direction data for the Cape Columbine area (CSIR, 2006).....	61
Figure 10	Marine Protected Areas within the South African Exclusive Economic Zone (EEZ)	62
Figure 11	The Equiano Cable System Alignment relative to the Robben Island MPA (UKHO, 2019)	63
Figure 12	Spatial distribution of trawling efforts off the West Coast of South Africa in relation to existing submarine cables as well as the proposed Equiano Cable System route. Fishing effort is displayed showing the average number of trawl start positions per annum (2000 – 2016)	69
Figure 13	Offshore concessions crossed by the Equiano Cable System.....	70
Figure 14	Graphic representation of the inshore wave and sediment dynamics at Melkbosstrand	75
Figure 15	Vegetation types within the study area.....	78
Figure 16	500 m radius in which wetlands will be investigated (also showing the stormwater pond).....	79
Figure 17	Average monthly temperature and rainfall for Melkbosstrand (Source: http://www.worldweatheronline.com)	81
Figure 18	Comparative monthly household income data for the City of Cape Town and Ward 23	83
Figure 19	Level of education for the population over the age of 20	84
Figure 20	Koeberg Exclusion Zones.....	86
Figure 21	Known ship wrecks in Table Bay in relation to the proposed Equiano Cable alignment.....	88

LIST OF TABLES

Table 1	Qualifications and experience of the Environmental Assessment Practitioner (EAP) Team.....	3
Table 2	Listed activities potentially triggered by the proposed Equiano Cable System.....	5
Table 3	Sectors of society represented by I&APs on the direct mailing list	12
Table 4	List of public venues in the project area where the Draft Scoping Report will be placed for public review between 12 February 2020 – 16 March 2020.....	15
Table 5	Licenses/permits required for the proposed Equiano Cable System	27
Table 6	Need and desirability aspects considered for securing ecological sustainable development and use of natural resources	29
Table 7	Need and desirability aspects considered for promoting justifiable economic and social development	32
Table 8	Concession block boundaries intersected by the Equiano Cable System	73

LIST OF PLATES

Plate 1	Cross section of a typical marine telecommunications cable	39
Plate 2	Cable armouring for different operational depths	39
Plate 3	Types of grapnels used to clear the cable route of debris (Source: https://coast.noaa.gov)	41
Plate 4	Sea plough to be used to bury the cable along sections of the cable alignment where conditions permit burial	42
Plate 5	Example of a cable crossing using Uraduct or similar product (Source: ASN REH, 2019).....	43
Plate 6	Landing of the cable on shore. Similar works will be undertaken for the landing of the Equiano Cable System	44
Plate 7	Bringing the cable to shore from the cable laying vessel. The cable is buoyed off and pulled to shore with smaller vessels	45
Plate 8	Articulated pipe sections which are installed around the cable in shallow water to offer additional protection.	45
Plate 9	Protocol for repairing cable faults to marine telecommunications cables (Source: http://www.k-kcs.co.jp/english/solutionRepairingMethod.html).....	46
Plate 10	Existing SAT-2 Beach Man Hole at Melkbosstrand Beach	48
Plate 11	Preferred landing site at the existing SAT-2 Beach Man Hole near the corner of Beach Road and 14th Street at Melkbosstrand Beach	50
Plate 12	Existing SAT-2 Beach Man Hole (Top) and view up 14th street towards the Telkom Cable Landing Station (bottom). No construction is required from the BMH to the CLS for the project to be implemented	51
Plate 13	Existing SAT-2 terrestrial alignment up 14th street (top) towards the Telkom Cable Landing Station (bottom). No construction is required from the BMH to the CLS for the project to be implemented	52
Plate 14	Examples of commercially targeted pelagic fish species	64
Plate 15	Examples of commercially targeted pelagic fish species	65
Plate 16	Cetacean species known to occur on the west coast of southern Africa	66
Plate 17	Commonly encountered marine bird species off the West Coast of South Africa	67
Plate 18	Materials including natural excavated rock, rubble and other materials have deposited to stabilise the dune cordon	76

ABBREVIATIONS AND ACRONYMS

ACER	ACER (Africa) Environmental Consultants
ASN	Alcatel Submarine Networks
BMH	Beach Man Hole
CA	Competent Authority
CLS	Cable Landing Station
CPTs	Cone Penetrometer Tests
CRR	Comments and Responses Report
DEFF	Department of Environment, Forestry and Fisheries
DEADP	Western Cape Department of Environmental Affairs and Development Planning
DGPS	Differential Global Positioning System
DHSWS	Department of Human Settlements, Water and Sanitation
DMR	Department of Mineral Resources
DSR	Draft Scoping Report
DPW	Department of Public Works
EAP	Environmental Assessment Practitioner
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
EIS	Ecological Importance and Sensitivity
EMPr	Environmental Management Programme
EEZ	Exclusive Economic Zone
EMF	Environmental Management Framework
FSR	Final Scoping Report
DSR	Draft Scoping Report
DSR	Draft Scoping Report
GDP	Gross Domestic Product
GPS	Global Positioning System
HWC	Heritage Western Cape
I&APs	Interested and Affected Parties
ICMA	Integrated Coastal Management Act (Act No. 24 of 2008)
ICPC	International Cable Protection Committee
IDP	Integrated Development Plan
LWM	Low Water Mark
MPAs	Marine Protected Areas
MBES	Multi-beam echo sounder
MPRDA	Minerals and Petroleum Resources Development Act
NEMA	National Environmental Management Act
NEPAD	New Partnership for Africa's Development
NHRA	National Heritage Resources Act
NNR	National Nuclear Regulator
Nm	Nautical Miles
NWA	National Water Act, 1998 (Act 36 of 1998)
OC	Oceans and Coasts (Department of Environment, Forestry and Fisheries)
PAZ	Precautionary Action Zone
PEB	Public Exclusion Boundary
PES	Present Ecological State
PICC	Presidential Infrastructure Coordinating Commission
PLGR	Pre-Lay Grapple Run
ROV	Remote Operated Vehicle
SAFE	South Africa Far East Cable
SADSTIA	South African Deep Sea Trawling Industry Association
SAHRA	South African Heritage Resources Agency

SAMSA	South African Maritime Safety Authority
SAT-3/WASC	South Atlantic 3/West Africa Submarine Cable
SARCA	Southern African Reptile Conservation Assessment
SDF	Spatial Development Framework
SDM	Space-Division Multiplexing
TCP	Technical Co-Operation Permit
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
WA	National Environmental Management: Waste Act, 2008 (Act 59 of 2008)
WACS	West Africa Cable System
WD	Water Depth

AUTHORS

The author of this Scoping Report is Mr. G Churchill (ACER (Africa) Environmental Consultants). An internal review was conducted by Dr R-D Heinsohn.

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

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

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

RELEVANT SECTIONS OF THE PUBLIC PARTICIPATION PROCESS AS PER THE 2014 EIA REGULATION (CHAPTER 6)		RELEVANT SECTIONS WITHIN THE SCOPING REPORT
41.1	This regulation only applies in instances where adherence to the provisions of this regulation is specifically required	Acknowledged and adhered to within Scoping Report
41.2	The person conducting a PPP must take into account any guidelines applicable to public participation as contemplated in section 24J of the Act and must give notice to all potential interested and affected parties of the application which is subjected to public participation by:	
a	Fixing a notice board at a place conspicuous to the public at the (i) site and (ii) alternative sites	Appendix 2
b	Giving written notice to (i) the owner or person in control of that land if the applicant is not the owner or person in control of the land; ii) the occupiers of the site where the activity is or is to be undertaken or to any alternative site where the activity is to be undertaken; iii) owners and occupiers of land adjacent to the site or alternative sites; iv) the municipal 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	N/A in this process to date
41.3	A notice, notice board or advertisement referred to above must:	
a	Give details of the application which is subject to PPP	Appendix 2
b	State (i) application has been or is to be submitted to the authority in terms of these Regulations (ii) whether a basic assessment or scoping being applied (iii) nature and location of activity (iv) where further information can be obtained (v) manner in which and person to whom representations can be made	Appendix 2
41.4	A notice board must be (a) 60 cm by 42 cm (b) display the required information in lettering and format determined by authority	Appendix 2
41.7	Person conducting PPP must ensure that (a) information containing all relevant facts in respect of the application is made available to I&APs (b) participation by I&APs is facilitated to provide all with a reasonable opportunity to comment	Appendix 2
42.1	The Applicant or EAP must open and maintain a register with details of:	
a	Persons who have submitted written comment or attended meetings	Appendix 3
b	Persons who have requested to be registered as I&APs	Appendix 3
c	All organs of state which have jurisdiction	Appendix 3
43.1	EAP must give access to the register to any persons who requests	Appendix 2

RELEVANT SECTIONS OF THE PUBLIC PARTICIPATION PROCESS AS PER THE 2014 EIA REGULATION (CHAPTER 6)		RELEVANT SECTIONS WITHIN THE SCOPING REPORT
	this in writing	
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 subregulation (1) due to (i) a lack of skills to read or write; (ii) disability; or (iii) any other disadvantage reasonable alternative methods of recording comments must be provided for	N/A in this process to date

1. INTRODUCTION

1.1 Background

Submarine telecommunications cables are important for international telecommunications networks, transporting almost 100% of transoceanic Internet traffic throughout the world (www.iscpc.org). This is significant because it is widely recognised that access to affordable international bandwidth is key to economic development in every country.

The purpose of this project is to install a fibre optic submarine cable to provide international high-speed connectivity and reliability. 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.

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

Openserve, a division of Telkom SA SOC Limited, intends to install a submarine telecommunications cable, called the Equiano Cable System, to link South Africa with key international telecommunications hubs in West Africa (Nigeria) and Europe (Portugal) (Figure 1). As the designated Landing Partner of the Equiano Cable System in South Africa, Openserve has the required licenses to operate this system in South Africa and aims to secure local permits³ to land the Equiano Cable System at Melkbosstrand, Western Cape.

Alcatel Submarine Networks has been appointed as the supplier and installer of the Equiano Cable System connecting Africa and Europe. The system is to be installed in phases. The first phase ("Baseline System") will entail the installation of cable landings at:

- ☐ South Africa: Melkbosstrand.
- ☐ Portugal: Lisbon (Sesimbra).
- ☐ Nigeria: Lagos.

In addition to the Baseline System, Openserve is investigating possible cable landings at other destinations en-route. These "Optional Systems", to be implemented in a phased manner, will be subject to their own permitting processes (as applicable in each landing country).

Via the Equiano Cable System, Openserve will facilitate more affordable and effective transport of voice, data, Internet and television services in South Africa. Furthermore, the cable will support the objectives set out by the New Partnership for Africa's Development (NEPAD) and contribute to providing a means of fulfilling the South African Government's requirements in terms of digital television broadcasting in the country. The Equiano Cable System is state-of-the-art infrastructure based on SDM technology, with approximately 20 times more network capacity than the last cable built to serve this region.

³ Of which an Environmental Authorisation is one.

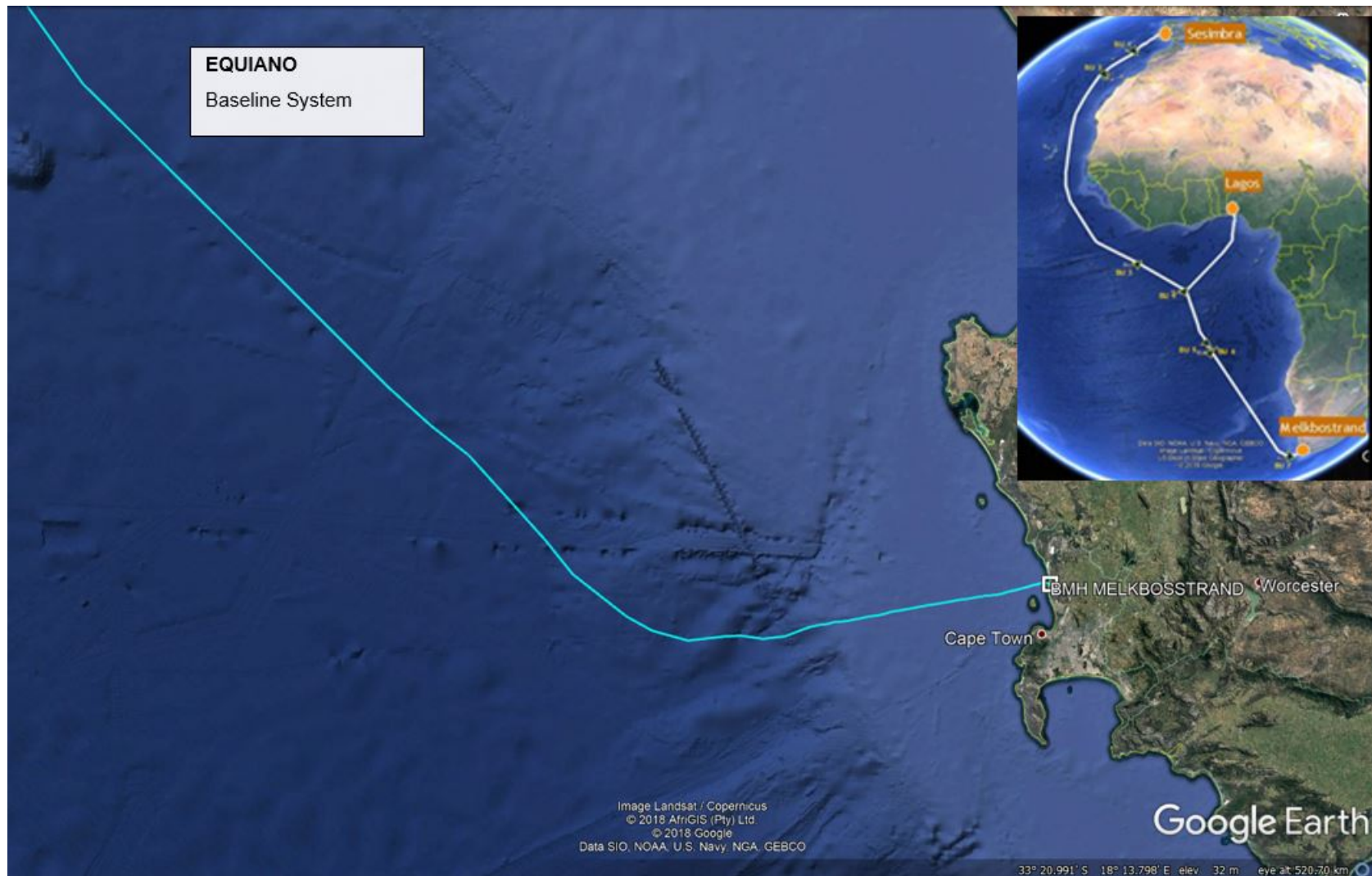


Figure 1 Routing of the proposed Equiano Cable System and its alignment to Melkbosstrand

The proposed Equiano Cable System requires environmental authorisation from the Department of Environment, Forestry and Fisheries in terms of the 2014 Environmental Impact Assessment Regulations (as amended April 2017) published under the National Environmental Management Act, 1998 (Act 107 of 1998) (as amended). ACER (Africa) Environmental Consultants is appointed by ASN to take responsibility for the application for environmental authorisation for the construction of the Equiano Cable System.

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

1.2 Qualifications and experience of the Environmental Assessment Practitioner

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

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

Name	Academic Qualification	Relevant Work Experience
Mr Giles Churchill (EAP and Author)	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 the South African Council for Natural Scientific Professions in the field of environmental science (Registration No 116348) ⁴
Dr Dieter Heinsohn (Internal Reviewer)	PhD	More than 25 years' experience in environmental management and impact assessments. He is registered with the South African Council for Natural Scientific Professions in the field of environmental science (Registration No 400442/04) ⁴

1.3 Environmental assessment requirements and process

In terms of the current Environmental Impact Assessment Regulations, 2014, published in Government Notices R 982, 983, 984 and 985 of 4 December 2014 (as amended April 2017) under Section 24(5) read with Sections 24, 24D and 44 of the National Environmental Management Act, 1998 (Act No. 107 of 1998), the proposed Equiano Cable System includes activities that are listed in the current environmental regulations. Therefore, the project may not commence without environmental authorisation from the relevant competent authority, in

⁴ Both Mr Churchill and Dr Heinsohn have submitted applications for professional registration with the Environmental Assessment Practitioners Association of South Africa (a statutory requirement effective 8 February 2020).

this case, the national Department of Environment, Forestry and Fisheries⁵ (in close consultation with the Western Cape Department of Environmental Affairs and Development Planning (DEADP)). In terms of the current regulations and environmental best practise, the potential impacts of the project on the environment (social, economic and biophysical) must be considered, investigated and assessed prior to implementation.

Given that the proposed project triggers listed activities in Regulation 984 (as amended April 2017) (Table 2), the application for environmental authorisation requires a process of Scoping and Environmental Impact Assessment as outlined in Regulation 982 (as amended April 2017). The EIA process is currently in the Scoping Phase. This is the phase during which issues for further investigations are identified so that they can be considered for inclusion in the Specialist Studies that will be undertaken during the EIA, viz. the Impact Assessment Phase.

Based on the current regulations, the EAP must complete Scoping and the Impact Assessment within 300 days of acceptance of the Application for Authorisation by DEFF. It is also possible that a Water Use Licence will be required from the Department of Human Settlements, Water and Sanitation (DHSWS) in terms of Chapter 4 of the National Water Act, 1998 (Act No 36 of 1998), particularly Section 40(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.

DEFF is the Competent Authority for the issuing of environmental authorisation for the proposed development because the cable extends over international boundaries. ACER will fulfil the role and responsibilities of the EAP to undertake the EIA and the associated public participation process, and to submit the required application and supporting documentation to DEFF for consideration and decision-making. The main phases of the environmental impact assessment process and legislated time frames are shown in Figure 2.

1.4 Structure of the Scoping Report

The information provided in this Scoping Report complies with the legal requirements of Regulation R982 (as amended April 2017) referenced in Pages XIX and XXII and has been structured in the following manner:

- ☐ An outline of the methodology used for Scoping, including the public participation process.
- ☐ A broad perspective of applicable legislation and guidelines.
- ☐ An elaboration of the need and desirability for the proposed project.
- ☐ A detailed description of the proposed activity.

⁵ DEFF is the authorising authority as the project crosses international boundaries and is of national importance.

Table 2 Listed activities potentially triggered by the proposed Equiano Cable System

Activity	Reason
<p>Listing Notice 1 (No. R. 327 of 2017) Activity 15</p> <p>The development of structures in the coastal public property where the development footprint is bigger than 50 square metres, excluding -</p> <ul style="list-style-type: none"> (i) [...]; (ii) [...]; (iii) [...]; or (iv) [...]. 	<p>The project will entail the landing of a marine telecommunications cable at Melkbosstrand Beach. This will require the digging of a trench along the beach (coastal public property) into the intertidal zone and the installation of the telecommunications cable.</p>
<p>Listing Notice 1 (No. R. 327 of 2017) Activity 17</p> <p>Development-</p> <ul style="list-style-type: none"> a. in the sea; b. [...]; c. within the littoral active zone; d. in front of a development setback; or e. if no development setback exists, within a distance of 100 metres inland of the high- water mark of the sea or an estuary, whichever is the greater; <p>in respect of-</p> <ul style="list-style-type: none"> i. [...]; ii. [...]; iii. [...]; iv. [...]; or v. infrastructure with a development footprint of 50 square metres or more - <p>but excluding-</p> <ul style="list-style-type: none"> (aa) [...]; (bb) [...]; (cc) [...]; or (dd) [...]. 	<p>The project will entail the landing of a marine telecommunications cable at Melkbosstrand Beach. This will require the digging of a trench along the beach into the intertidal zone and the installation of the telecommunications cable.</p>
<p>Listing Notice 1 (No. R. 327 of 2017) Activity 18</p> <p>The planting of vegetation or placing of any material on dunes or exposed sand surfaces of more than 10 square metres, within the littoral active zone, for the purpose of preventing the free movement of sand, erosion or accretion, excluding where -</p> <ul style="list-style-type: none"> (i) the planting of vegetation or placement of material relates to restoration and maintenance of indigenous coastal vegetation undertaken in accordance with a maintenance management plan; or (ii) [...]. 	<p>The project will entail the rehabilitation of the shoreline on Melkbosstrand Beach where construction activities associated with the laying of the underground telecommunications cable will disturb vegetation on the shoreline.</p>

Activity	Reason
<p>Listing Notice 1 (No. R. 327 of 2017) Activity 19A</p> <p>The infilling or depositing of any material of more than 5 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 5 cubic metres from -</p> <ul style="list-style-type: none"> (i) the seashore; (ii) the littoral active zone, an estuary or a distance of 100 metres inland of the high-water mark of the sea or an estuary, whichever distance is the greater; or (iii) the sea; — <p>but excluding where such infilling, depositing, dredging, excavation, removal or moving -</p> <ul style="list-style-type: none"> (a) [...]; (b) [...]; (c) [...]; (d) [...]; or (e) [...]. 	<p>The project will entail the excavation and deposition of more than 5 m³ of material within a 100 m of the high-water mark of the sea when trenching for, and backfilling of, the marine telecommunications cable.</p>
<p>Listing Notice 2 (No. R. 325 of 2017) Activity 14</p> <p>The development and related operation of-</p> <ul style="list-style-type: none"> (i) [...]; (ii) an anchored platform; or (iii) any other structure or infrastructure – on, below or along the seabed; <p>excluding -</p> <ul style="list-style-type: none"> (a) [...]; or (b) [...]. 	<p>The proposed Equiano Cable System will be placed on the seabed. In shallow waters (less than 1,500 m in depth) the cable will be buried under the seabed to provide extra protection.</p>
<p>Listing Notice 2 (No. R. 325 of 2017) Activity 26</p> <p>Development--</p> <ul style="list-style-type: none"> i. in the sea; ii. [...]; iii. within the littoral active zone; iv. [...]; or v. if no development setback exists, within a distance of 100 metres inland of the high-water mark of the sea or an estuary, whichever is the greater; <p>in respect of –</p> <ul style="list-style-type: none"> a) [...]; b) [...]; c) inter- and sub-tidal structures for entrapment of sand; 	<p>Although unlikely to be triggered, this listed activity has been included as the trench for the marine cable may result in the entrapment of sand within the inter- and sub-tidal zones. In addition, the trench in which to bury the cable may be construed as an underwater channel.</p>

Activity	Reason
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.	

- ☐ A description of alternatives considered for the proposed project and the environmental assessment.
- ☐ A description of the environment and the manner in which it may be affected.
- ☐ 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 appendices that present the following information:

- ☐ Appendix 1: Application for Environmental Authorisation.
- ☐ Appendix 2: Public Participation Documents.
- ☐ Appendix 3: Comments and Responses Report.
- ☐ Appendix 4: Pre-Application Meeting Minutes and DEFF Screening Tool Report.
- ☐ Appendix 5: CVs of the EAP Team Members.
- ☐ Appendix 6: Property Details.
- ☐ Appendix 7: Supporting Maps.

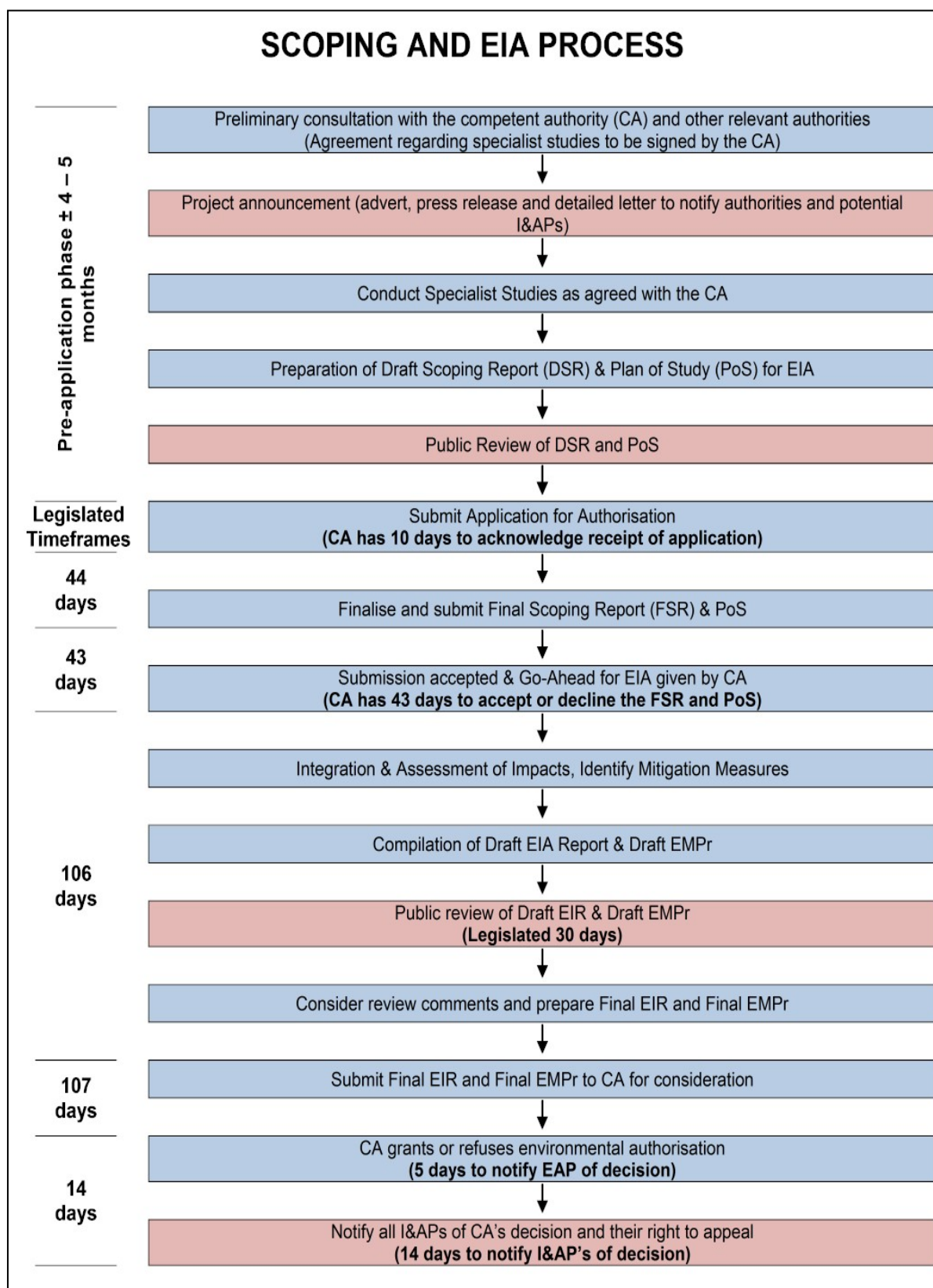


Figure 2 The phases of an environmental impact assessment, including legislated timeframes

2. SCOPING AND PUBLIC PARTICIPATION METHODOLOGY

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

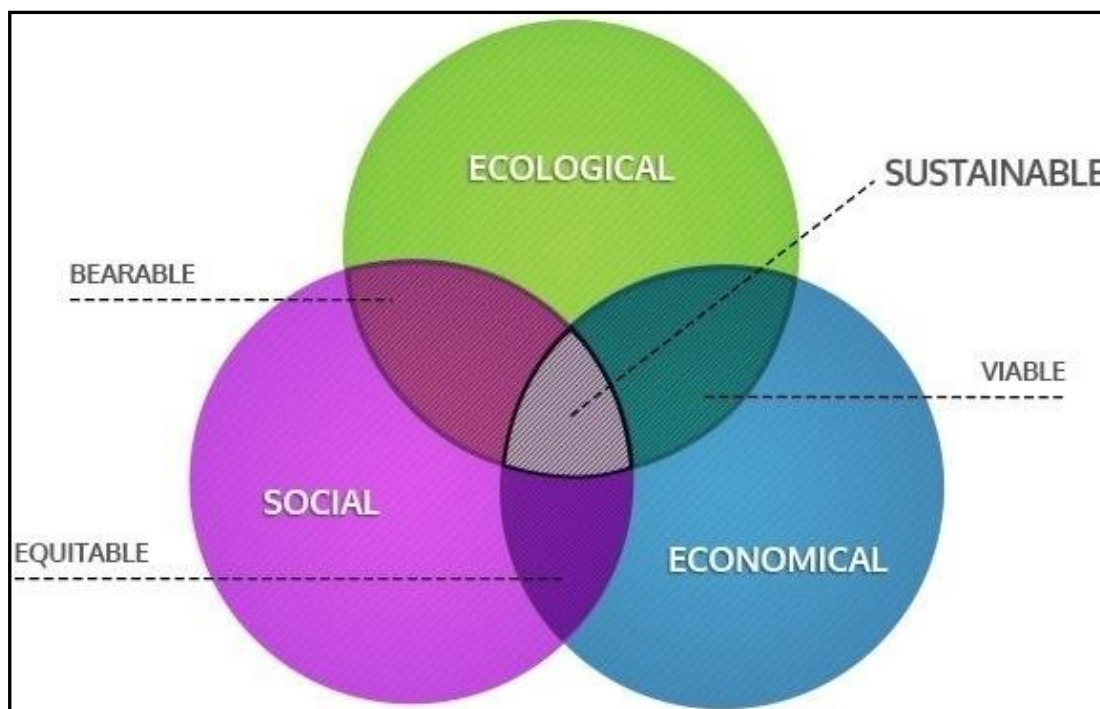


Figure 3 Assessment framework based on the concept of sustainability

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

In addition to the requirement for Scoping and an Environmental Impact Assessment, a review of legislation applicable to the proposed Equiano Cable System was undertaken to establish what other licences and permits will be applicable to the project. Included in this review of legislation were the permit requirements of the Department of Human Settlements, Water and Sanitation (water use licences), the permit requirements of the Department of Environment, Forestry and Fisheries – Oceans and Coasts (OC) (in terms of the proposed cable laying activities and beach access), plant permit requirements from DEFF and

CapeNature, permit requirements from the South African Heritage Resources Agency (SAHRA) and permit requirements of DEFF in terms of the Waste Act. Findings from this review of applicable legislation and the required licence and permits are included in Chapter 3 of this Scoping Report.

2.1 Pre-application meetings and discussions with commenting authorities

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

- ☐ City of Cape Town – Planning and Environmental Department.
- ☐ Western Cape Department of Environmental Affairs and Development Planning.
- ☐ Department of Environmental Affairs – Oceans and Coasts.
- ☐ Department of Environment, Forestry and Fisheries.
- ☐ Department of Mineral Resources.
- ☐ Department of Public Works.

Additional input was obtained from the pre-application meeting held with DEFF on 25 April 2019 to discuss the proposed plan of works for the EIA (see Appendix 4 for meeting minutes). The purpose of the meeting was for ACER and Openserve to introduce the proposed project to DEFF and to obtain guidance and clarification from DEFF as to their requirements for EIAs for marine telecommunications cables, and the interpretation and implementation of the December 2014 EIA Regulations (as amended).

2.2 Environmental screening

At the onset of project planning, ASN and their appointed service providers undertook a number of investigations to identify suitable cable landing sites for the Equiano Cable System which could link to the existing Telkom Cable Landing Station (CLS) located in Melkbosstrand on the West Coast of South Africa. Central to these investigations was the premise that the existing SAT-2 cable which was decommissioned in 2013 and its associated beach and land-based infrastructure could be utilised for the Equiano Cable System. Consequently, the focus of the assessment centered on the existing SAT-2 beach landing point and existing Beach Man Hole at Melkbosstrand. This landing location was selected following consideration of not only environmental issues, but also those associated with marine engineering (for example, security of the route against external risks) and commercial aspects (for example, proximity to national networks and their international access points). During the screening assessment, several factors were considered, including the following:

- ☐ Presence of existing marine telecommunications systems.
- ☐ Profile of the beaches and primary dunes.
- ☐ Reutilisation of existing infrastructure to limit impacts on the receiving environment.
- ☐ Current land use between the proposed landing points and the CLS site.
- ☐ Existing servitudes and future development corridors under consideration by the City of Cape Town.

Findings from initial screening of the Melkbosstrand landing alternative are explained in detail in Chapter 5 of this report supported by environmental findings using DEFF's statutory screening tool (Appendix 4).

2.3 Technical scoping

Scoping has several purposes:

- ☐ To delineate the boundaries of the environmental assessment.
- ☐ To gain an understanding of the proposed development and alternatives (alternatives can take several forms, including site, configuration, layout, technical/technological and the no-development alternatives).
- ☐ To gain an understanding of the receiving environment (biophysical and social).
- ☐ To project the proposed development on the receiving environment to identify possible issues arising, especially key issues.
- ☐ To understand key issues in terms of the legal and governance framework of the country and to identify potential impacts (of the proposed project on the environment and of the environment on the proposed project).
- ☐ To identify what needs to be investigated and to formulate terms of reference for specific specialist⁶ studies to be undertaken during the Impact Assessment. Each discipline-specific specialist study will need to assess potential impacts according to a standard assessment framework and assessment conventions.

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

2.4 Public participation

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

- ☐ The manner in which I&APs were notified of the application for environmental authorisation. This includes an on-site notice board, giving written notice to landowners, a letter, inclusive of Background Information, inviting the public to participate in the application process and advertisements in the media (Section 41).
- ☐ Opening and maintaining a register containing the names and addresses of I&APs. These include all persons who requested to be placed on the project data base, have submitted comments, attended meetings, and organs of State who have jurisdiction in the assessment process (Section 42).
- ☐ Registered I&APs are entitled to comment, in writing, on all written submissions made to the competent authority by the applicant or EAP, and to bring to the attention of the competent authority any issues, which that party believes may be of significance when the application is considered for authorisation (Section 43).
- ☐ The comments of registered I&APs must be recorded and included in the reports submitted to the competent authority⁷ (Section 44).

⁶ 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.

⁷ Comments received from the first submission of the Draft Scoping Report have been included in Appendix 3 of this re-submitted Draft Scoping Report.

Public participation is an integral part of Scoping, which can be defined as the identification of issues in the public domain. However, Scoping also involves the identification of issues and potential associated impacts by the authorities, project proponent, technical specialists and the environmental assessment team.

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

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

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

2.4.1 Identification and registration of Interested and Affected Parties

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

The direct mailing list for this EIA consists of individuals and organisations from both within the project area and beyond. A copy of the stakeholder database is provided in Appendix 2. Table 3 shows that these I&APs represent a broad spectrum of societal sectors.

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

Government (National, Provincial and Local)
Parastatals (Eskom, SAMSA, Transnet National Ports Authority)
Representative Associations:
<input type="checkbox"/> Melkbosstrand Rate Payers Association
<input type="checkbox"/> South African Deep Sea Trawling Industry Association
<input type="checkbox"/> Offshore mining and exploration concession holders
Landowners and Local Residents Associations
Conservation Authorities and Conservation Groups
Business and Industry

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

2.4.2 *Project announcement*

The opportunity to participate in the EIA⁸ was announced as follows:

- ☐ Advertisements in local and provincial newspapers:
 - Table View Tygerburger (English and Afrikaans on 18 September 2019).
 - Cape Times (18 September 2019).
- ☐ A letter, inclusive of Background Information, was compiled and emailed to all key stakeholders on 18 September 2019. All I&APs who registered following the project announcement adverts were also sent the letter and Background Information. Hard copies of letters were posted to all government departments and relevant commenting authorities.
- ☐ Notifications by telephone.
- ☐ Background Information Documents were printed and dropped off at the Koeberg Public Library with comment sheets for residents to take home with them.
- ☐ Meetings were held with the local Ward Councillor.
- ☐ Placement of an on-site notice board at the Telkom Cable Landing Station in Melkbosstrand (photos of the onsite notice are provided in Appendix 2).

2.4.3 *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 or by email.
- ☐ Should the need arise, a Public Open Day will be held during the public review period of the Draft Scoping Report (DSR). The primary aim of this open day will be to:
 - Disseminate information regarding the proposed project to I&APs.
 - Provide I&APs with an opportunity to interact with the EAP and relevant ASN/Openserve officials.
 - Discuss the studies to be undertaken during the Environmental Impact Assessment.
 - Supply more information regarding the EIA process.
 - Answer questions regarding the project and the EIA process.
 - Receive input regarding the public participation process and the proposed development.
 - Provide I&APs not previously registered on the project database with an opportunity to be formally registered and, therefore, be informed of progress for the remainder of the project.
- ☐ During the DSR public review period, focus group meetings will be held with key stakeholders should the need arise to discuss the project and to address concerns.

Public participation documentation is provided in Appendix 2.

2.4.4 *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). This report will be updated to include any additional inputs from I&APs that may be received as the EIA process proceeds, and as the findings of the EIA become available. To date, the comments received from I&APs and the relevant authorities mainly relate to the following topics:

⁸ All relevant project documents were loaded onto ACER's website at the applicable time and were available for public review.

- ❑ Requests to be registered as I&APs.
- ❑ Requests from DEFF: Oceans and Coasts to include additional staff on the project database.
- ❑ City of Cape Town stated that Melkbosstrand Beach is a Blue Flag beach and that, if possible, no construction should be scheduled between 1st December – 31st March. If this is not possible, the City of Cape Town must be notified as soon as possible so that the relevant arrangements and approvals can be obtained.
- ❑ Construction during the peak holiday season should not be permitted.
- ❑ The City of Cape Town requested that a Rehabilitation Plan be compiled for those areas requiring trenching.
- ❑ The post construction maintenance requirement of the cable must be included in the Scoping Report.
- ❑ The section of coastline where the proposed cable trenching will take place is severely eroded and a rehabilitation plan must be compiled which must be approved by the City of Cape Town for implementation.
- ❑ The City of Cape Town: Coastal Management Branch requests a site visit to take place with the project proponent and contractor prior to construction commencing to ensure that all issues on site are addressed and that all parties are aware of their responsibilities.
- ❑ The area has a high archaeological sensitivity and a heritage assessment must be conducted and a Notification of Intent to Develop (NID) must be submitted to Heritage Western Cape (HWC).
- ❑ The Department of Mineral Resources has a number of offshore mining applications and rights in the broader Economic Exclusive Zone and along the west coast of South Africa; therefore, to provide constructive inputs, please provide the geographical location (GIS shapefiles) of the proposed development.
- ❑ The Department of Environment, Forestry and Fisheries (DEFF) stated that the proposed development activities could have potential Impacts on the coastal zone. As such, the department will provide comments on the next public participation stage of this application.

2.4.5 Draft Scoping Report

The information gathered during Scoping needed to be integrated to provide an integrated and complete view of the development proposal 'superimposed' on the receiving environment. Issues and impacts were identified by interlinking the technical and public participation processes. Information gathering focused on gaining an understanding of the interactions between the different dimensions of the environment to identify potentially significant issues and impacts.

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

The availability of the Draft Scoping Report for public comment (Submission made in February 2020) was advertised as follows:

- ☐ Advertisements in local and provincial newspapers:
 - Table View and Tygerburger (12 February 2020).
 - Cape Times (13 February 2020)
- ☐ All registered I&APs were notified in writing on 12 February 2020 of the availability of the Draft Scoping Report for their review and comment.
- ☐ The Draft Scoping Report was made available at the Koeberg Public Library and Melkbosstrand Ratepayers' Association for public review.

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

The resubmission of the Draft Scoping Report was advertised as follows:

- ☐ Advertisements in local and provincial newspapers:
 - Tygerburger (14 October 2020).
 - Cape Times (14 October 2020)
- ☐ All registered I&APs were notified in writing on 14 October 2020 of the availability of the Draft Scoping Report for their review and comment.
- ☐ Electronic copies of the Draft Scoping Report were made available for collection at the Melkbosstrand Ratepayers' Association for public review.

The Draft Scoping Report will be made available at the venues indicated in Table 4 for public review (with a 30-day comment period (14 October 2020 – 14 November 2020). Commenting authorities will also be contacted by the EAP during the commenting period requesting that their respective departments provide comment on the Draft Scoping Report for inclusion in the Final Scoping Report.

Comments submitted during this period will be considered when finalising the Scoping Report and will be included in the Final Comments and Responses Report to be submitted to DEFF as part of the Final Scoping Report.

Table 4 List of public venues in the project area where the Draft Scoping Report will be placed for public review between 12 February 2020 – 16 March 2020

Venue	Street	Contact Person and Number
Melkbosstrand Ratepayers Association	25 Jacobus Crescent, Duynefontein, 7441	Mrs. Smokie La Grange 073 357 6359

2.4.6 Final Scoping Report

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

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

3. LEGAL ASPECTS

3.1 Applicable legislation

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

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

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

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

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

The Environmental Clause

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

Everyone has the right –

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

Access to Information

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

Fair Administrative Action

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

Enforcement of Rights and Administrative Review

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

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

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

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

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

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

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

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

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

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

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

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

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

In general, a water use must be licensed unless:

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

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

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

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

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

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

The NHRA requires that a person intending to undertake such an activity must notify the relevant national and provincial heritage authorities at the earliest stages of initiating such a development. The relevant heritage authority will then, in turn, notify the person whether a Heritage Impact Assessment Report should be submitted. It must be noted 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 nautical miles seaward from the high-water mark of the sea. Heritage Western Cape, the provincial heritage authority, is responsible for heritage resources on land.

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

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

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

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

The purpose of the Act is:

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

Based on a review of the proposed materials and construction methods to be employed in the construction and installation of the Equiano Cable System, it is unlikely that the conditions of this Act or its regulations will be of relevance to the proposed development.

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

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

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

The National Environmental Management: Waste Act, 2008 (Act 59 of 2008) (WA) has various sections of relevance to the proposed Equiano Cable System. 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.

Based on a review of the proposed materials and construction methods to be employed in the construction and installation of the Equiano Cable System, it is unlikely that the conditions of this Act or its regulations will be of relevance to the proposed development.

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

This Act provides for the management and conservation of South Africa's biodiversity, protects species and ecosystems, ensures sustainable use of indigenous biological resources, ensures fair and equitable sharing of benefits arising from the commercial use of

these resources, and to establish a South African National Biodiversity Institute. The Act also covers alien and invasive species and genetically modified organisms that pose a threat to biodiversity. As such, it controls and regulates:

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

In accordance with the Biodiversity Act, specialist studies will be commissioned to ensure that sensitive vegetation and benthic ecosystems are not detrimentally affected by the installation and construction activities associated with the terrestrial and marine components of the Equiano Cable System.

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

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

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

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

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

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

In terms of the proposed Equiano Cable System, this Act is applicable as most of the project occurs within the marine environment and a section of the cable alignment passes through the newly promulgated Robben Island Marine Protected Area (MPAs).

3.1.13 Maritime Zones Act No. 15 of 1994

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

Within the EEZ, South Africa shall have the same rights and powers as it has in its territorial waters in respect of 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.

3.1.14 Telecommunications Act 103 of 1996

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

In terms of the proposed Equiano Cable system, Section 36 of the Act applies as Openserve is licensed to provide national long distance and international telecommunication services. In addition, in terms of Section 75, a local authority may install a conduit pipe or other facilities for the installation of underground cables on any premises.

3.1.15 Marine Traffic Act 2 of 1981

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

Of particular importance to the proposed Equiano Cable System is the stipulation that no ship may drop or drag anchor or fishing gear (bottom trawl nets) nearer than 0.5 Nm to a pipeline or a telecommunications line.

3.1.16 Applicable Provincial Environmental Legislation: Western Cape

The following provincial legislation may also be applicable to the proposed landing of the Equiano Cable System particularly the Western Cape Nature Conservation Regulations which are enforced by CapeNature:

- ☐ Constitution of the Western Cape, 1997.
- ☐ Western Cape Nature Conservation Laws Amendment Act 3 of 2000.
- ☐ Western Cape Nature Conservation Regulations promulgated in terms of Section 82 of the 1974 Ordinance.
- ☐ Noise Control Regulations in terms of Section 25 of the Environment Conservation Act of 1989, (Act No. 73 of 1989).

3.2 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 the United Nations Convention on the Laws of the Sea (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>)

3.3 Commenting and relevant authorities

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

3.3.1 *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 is primarily focused on marine protection services and ocean governance, which entails the protection of the ocean environment from all illegal activities and promotion of its multiple socio-economic benefits. Some of the main functions this directorate undertakes include the following:

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

As a Directorate of DEFF, OC will provide comment and recommendations on all EIA documents submitted which are pertaining to the proposed Equiano Cable System. As such, OC has been added as a key stakeholder (commenting authority) and has been consulted during the pre-application phase of the EIA to identify issues they feel should be addressed during the Impact Assessment.

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

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

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

Of particular relevance to the proposed Equiano 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.

The proposed Equiano Cable System passes through the Robben Island Marine Protected Area, through the Robben Island Controlled Zone 1 (RICZ 1) and misses the Robben Island

Restricted Zone (RIRZ). The South African National Parks is formally designated as the management authority for this Marine Protected Area.

3.3.2 *National Ports Authority*

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

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

As the proposed development involves the placement of a marine telecommunications cable through the coastal waters to the north of Cape Town, TNPA (Cape Town Port) will be registered as an interested and affected party as information on the position of the Equiano Cable System is important for commercial fishing and shipping industries operating within the region.

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

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

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

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

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

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

As the proposed development involves the placement of a marine telecommunications cable through the coastal waters to the north of Cape Town, SAMSA has been registered as an interested and affected party as they are ultimately responsible for the safety of vessels at sea and they are the respondents to any incidents which could occur during the installation and operation of the proposed Equiano Cable System.

3.3.4 *Department of Environment Forestry and Fisheries (DEFF)*

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

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

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

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

DEFF is regarded as an interested and affected authority, 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.

3.3.5 *Department of Mineral Resources*

The primary legislation governing the South African mining and petroleum sector is the Mineral and Petroleum Resources Development Act (Act No. 28 of 2002) (MPRDA), which should be read together with the Mineral and Petroleum Resources Development Regulations, 2004 (GNR.527 of 23 April 2004); (MPRDA Regulations). These regulations are

enforced by the Department of Mineral Resources (DMR), which is the regulatory authority for all offshore mining and exploration activities. The proposed Equiano Cable System crosses four of these offshore oil and gas concessions awarded to various companies from where it enters the EEZ of South Africa until it makes landfall at Melkbosstrand as outlined below:

- ☐ Rhino Oil and Gas Exploration South Africa (Pty) Ltd.
- ☐ Anadarko.
- ☐ Sezigyn (Pty) Ltd.
- ☐ IMPACT OIL & GAS LTD (UK).

3.4 Summary

In summary, Openserve has a number of legal obligations in terms of legislation, the pertinent obligations being:

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

3.4.1 Summary of required licenses/permits

The licenses/permits⁹ required for the landing of the proposed Equiano Cable System at Melkbosstrand, South Africa are detailed in Table 5.

Table 5 Licenses/permits required for the proposed Equiano Cable System

License/Permit	Authority
Environmental Authorisation	Department of Environmental Affairs
Heritage Permit (Offshore)	South African Heritage Resources Agency
Heritage Permit (Onshore)	Heritage Western Cape
Beach Driving Permit	Oceans and Coast (DEFF)
Seashore Lease Permit	Cape Nature
Protected Tree and/or Plant Permits	Department of Environment, Forestry and Fisheries
Water Use License	Department of Human Settlements, Water and Sanitation
Permit to construct infrastructure in the Coastal Public Property	Department of Public Works

⁹ Excluded from the above are the following which are the responsibility of Openserve (i) Telecommunications operators' licenses, cable landing station licences and similar licenses required from the national telecommunications regulators (ii) Permits in Principle specifically for system elements landward of the Beach Manholes (iii) Operational clearances (iv) Agreements to cross other submarine cables, oil and gas concession blocks, pipelines and other seabed assets.

4. NEED AND DESIRABILITY

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

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

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

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

Improvement in Africa's information technology infrastructure via telecommunication cables will remove one of the current key inhibitors to overall development in Africa and support economic growth and opportunities on the continent. In South Africa, the Presidential Infrastructure Coordinating Commission (PICC) launched the Strategic Integrated Project (SIP) 15: Expanding Access to Communication Technology. This is led by the Department of Communications and supported by the Department of Public Enterprises and Department of Science and Technology. SIP 15 aims to ensure universal service and access to reliable, affordable and secure broadband services by all South Africans, prioritising rural and under-served 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 Equiano Cable System supports SIP 15 via its international connectivity, capacity and speed.

Openserve, via ASN, intends installing a submarine telecommunications cable, referred to as the Equiano Cable System, to link South Africa, the West Coast of Africa and Europe with key international telecommunication hubs in Europe. Following installation of the proposed Equiano Cable System, Openserve will facilitate more affordable and effective transport of voice, data, Internet and television services. Furthermore, the cable will support the objectives set out by NEPAD and contribute to providing a means of fulfilling the South African Government's requirements in terms of digital television broadcasting for the country.

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. The terrestrial cable component is expected to have a highly localised impact on Melkbosstrand beach and no additional impacts inland from the cable landing site.
1.1	How will the following ecological integrity considerations be taken into account?	
1.1.1	Threatened ecosystems.	N/A
1.1.2	Sensitive, vulnerable, highly dynamic or stressed ecosystems, such as coastal shores, estuaries, wetlands, and similar systems which require specific attention in management and planning procedures, especially where they are subject to significant human resource usage and development pressure.	Potential impacts associated with the development were identified during Screening and Scoping and qualified specialists were appointed to investigate these aspects.
1.1.3	Critical Biodiversity Areas and Ecological Support Areas.	N/A
1.1.4	Conservation targets.	N/A
1.1.5	Ecological drivers of the ecosystem.	Findings from the specialist studies will be used to identify the ecological drivers of the ecosystem.
1.1.6	Environmental Management Frameworks (EMF).	The use of the existing SAT-2 landing site and Beach Man Hole (BMH) supports the city's EMF as it has a lesser impact on the environment than a greenfield site.
1.1.7	Spatial Development Frameworks (SDF).	The proposed development applies to the SDF as it is aimed at improving telecommunications which will stimulate economic growth through data connectivity which supports business development.
1.1.8	Global and international responsibilities relating to the environment (e.g. RAMSAR sites, climate change, etc).	N/A
2	How will this development disturb or enhance ecosystems and/or result in the loss or protection of biological diversity? What measures were explored to firstly avoid these negative impacts, and where these negative impacts could not be avoided altogether, what measures were explored to minimise and remedy (including offsetting) the impacts? What measures were explored to enhance positive impacts?	Installation of the marine cable will initially disturb benthic ecosystems along its alignment; however, once installed, the cable and its legislated buffer zone and the continuation of this buffer zone will have a positive impact on benthic communities as no trawling or anchoring of ships is permitted in the buffer zone.
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. An Environmental Management Programme (EMPr) will be compiled which will contain specifications for the handling of waste and dealing with incidents.
4	What waste will be generated by this development? What measures were explored to firstly avoid waste, and where waste could not be	Waste will be limited to light industrial waste (cable offcuts and reclaimed cable from the seabed) in the marine environment and domestic

Ref #	Description	Comment
	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 in the terrestrial environment. Volumes are anticipated to be very small. Waste management specifications will be provided in the EMPr.
5	How will this development disturb or enhance landscapes and/or sites that constitute the nation's cultural heritage? What measures were explored to firstly avoid these impacts, and where impacts could not be avoided altogether, what measures were explored to minimise and remedy (including offsetting) the impacts? What measures were explored to enhance positive impacts?	The project will have no impacts on cultural heritage resources.
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?	N/A
7	How will this development use and/or impact on renewable natural resources and the ecosystem of which they are part? Will the use of the resources and/or impact on the ecosystem jeopardise the integrity of the resource and/or system taking into account carrying capacity restrictions, limits of acceptable change, and thresholds? What measures were explored to firstly avoid the use of resources, or if avoidance is not possible, to minimise the use of resources? What measures were taken to ensure responsible and equitable use of the resources? What measures were explored to enhance positive impacts?	N/A
7.1	Does the proposed development exacerbate the increased dependency on increased use of resources to maintain economic growth or does it reduce resource dependency (i.e. de-materialised growth)? (Sustainability requires that settlements reduce their ecological footprint by using less material and energy demands and reduce the amount of waste they generate, without compromising their quest to improve their quality of life).	N/A
7.2	Does the proposed use of natural resources constitute the best use thereof? Is the use justifiable when considering intra- and inter-generational equity and are there more important priorities for which the resources should be used (i.e. what are the opportunity costs of using these resources for this proposed development?).	N/A
7.3	Do the proposed location, type and scale of development promote a reduced dependency on resources?	N/A

Ref #	Description	Comment
8	How will a risk-averse and cautious approach be applied in terms of ecological impacts?	Where possible, the alignment of the cable was selected to follow the existing SAT-2 cable which was decommissioned; thus, limiting ecological impacts. Onshore the cable will utilise existing ducting, i.e. no new trenching will be required.
8.1	What are the limits of current knowledge (the gaps, uncertainties and assumptions must be clearly stated)?	Investigations are required to understand the impacts on: <ul style="list-style-type: none"> <input type="checkbox"/> The deep-sea trawling industry. <input type="checkbox"/> Benthic ecosystems. <input type="checkbox"/> Beach and dune dynamics. <input type="checkbox"/> Sensitive environments within the study area.
8.2	What is the level of risk associated with the limits of current knowledge?	Given our current knowledge of the project and study area, the risk is considered low.
8.3	Based on the limits of knowledge and the level of risk, how and to what extent will a risk-averse and cautious approach be applied to the development?	Please see Item 8.
9	How will the ecological impacts arising from this development impact on people's environmental rights in terms following:	
9.1	Negative impacts, e.g. access to resources, opportunity costs, loss of amenity (e.g. open space), air and water quality impacts, nuisance (noise, odour, etc), health impacts, visual impacts, etc. What measures will be taken to firstly avoid negative impacts, but if avoidance is not possible, to minimise, manage and remedy negative impacts?	If managed and implemented soundly, the project will have no significant negative impacts. Some nuisance related impacts are anticipated during cable landing (e.g. restricted access for beach users), but these are highly localised and of short duration (two weeks).
9.2	Positive impacts, e.g. improved access to resources, improved amenity, improved air or water quality, etc. What measures will be taken to enhance positive impacts?	The project is expected to have a significant positive impact on the South African economy through improved telecommunications which, in turn, promotes economic development and job creation.
10	Describe the linkages and dependencies between human wellbeing, livelihoods and ecosystem services applicable to the area in question and how the development's ecological impacts will result in socio-economic impacts (e.g. on livelihoods, loss of heritage sites, opportunity costs, etc).	No ecological impacts associated with this development are anticipated to result in socio-economic impacts.
11	Based on the above, how will this development positively or negatively impact on ecological integrity objectives/targets/considerations of the area?	N/A
12	Considering the need to secure ecological integrity and a healthy biophysical environment, describe how the alternatives identified (in terms of all the different elements of the development and all the different impacts being projected) will result in the selection of the "best practicable environmental option" in terms of ecological considerations.	The landing of the cable along an existing cable alignment and utilising an existing BMH and Cable Landing Station are the best (practical) environmental solution as impacts on the environment are substantially less than for other alternatives, e.g. a greenfield development.
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 is in line with the vision of the City of Cape Town's strategic plans in terms of improving telecommunications technologies to unlock investment and stimulate both the regional and national economy.
1.2	Spatial priorities and desired spatial patterns (e.g. need for the integration of segregated communities, need to upgrade informal settlements, need for densification, etc.).	N/A
1.3	Spatial characteristics (e.g. existing land uses, planned land uses, cultural landscapes, etc.)	The proposed development is making use of existing infrastructure used for the landing of the SAT-2 Cable System and, therefore, mitigates impacts on current and future land uses in the study area.
1.4	Municipal Economic Development Strategy.	The project conforms to the City of Cape Town's development strategy in that it will improve the telecommunications infrastructure in South Africa which is intended to stimulate the local economy.
2	Considering the socio-economic context, what will the socio-economic impacts be of the development (and its separate elements/aspects) and specifically also on the socio-economic objectives of the area?	The socio-economic impacts associated with the proposed development are anticipated to positive as telecommunications infrastructure is a key driver for economic development.
2.1	Will the development complement the local socio-economic initiatives (such as local economic 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.
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 Equiano 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.	N/A
5.3	Result in access to public transport or enable non-motorised and pedestrian transport (e.g. will the development result in densification and the achievement of thresholds in terms of public transport?).	N/A

Ref #	Description	Comment
5.4	Complement other uses in the area.	N/A
5.5	Be in line with the planning for the area.	The proposed development complements the development initiatives of the City of Cape Town and South Africa as a whole.
5.6	For urban related development, make use of underutilised land available within the urban edge.	N/A
5.7	Optimise the use of existing resources and infrastructure.	The proposed development will make use of infrastructure previously installed for the operation of the SAT-2 Cable system, thus, optimising the use of existing infrastructure.
5.8	Opportunity costs in terms of bulk infrastructure expansions in non-priority areas (e.g. not aligned with the bulk infrastructure planning for the settlement that reflects the spatial reconstruction priorities of the settlement).	N/A
5.9	Discourage urban sprawl and contribute to compaction/densification.	N/A
5.10	Contribute to the correction of the historically distorted spatial patterns of settlements and to the optimum use of existing infrastructure in excess of current needs.	N/A
5.11	Encourage environmentally sustainable land development practices and processes.	By utilizing the existing SAT-2 land-based infrastructure, the project mitigates much of the land based environmental impacts which would have occurred if new infrastructure is constructed. The marine alignment of the cable also follows the SAT-2 cable alignment, thus, reducing the need for additional cable alignments offshore and their associated buffer zones.
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).	The offshore alignment of the Equiano Cable System has been selected to follow the SAT-2 Cable System which has been decommissioned. This will ensure that no additional exclusion zones are created which could impact the deep-sea trawling industry.
5.13	The investment in the settlement or area in question will generate the highest socio-economic returns (i.e. an area with high economic potential).	N/A
5.14	Impact on the sense of history, sense of place and heritage of the area and the socio-cultural and cultural-historic characteristics and sensitivities of the area.	N/A
5.15	In terms of the nature, scale and location of the development, promote or act as a catalyst to create a more integrated settlement.	N/A
6	How will a risk-averse and cautious approach be applied in terms of socio-economic impacts?	The use of existing infrastructure was selected to reduce socio-economic impacts on the residents of Melkbosstrand.
6.1	What are the limits of current knowledge? (The gaps, uncertainties and assumptions must be clearly stated).	Impacts on the benthic environment are unknown; therefore, they will be investigated by specialists.
6.2	What is the level of risk? (Related to inequality, social fabric, livelihoods, vulnerable communities, critical resources, economic vulnerability and sustainability) associated with the limits of current knowledge).	Nil.

Ref #	Description	Comment
6.3	Based on the limits of knowledge and the level of risk, how and to what extent will a risk-averse and cautious approach be applied to the development?	See Item 6.
7	How will the socio-economic impacts resulting from this development impact on people's environmental right in terms following?	
7.1	Negative impacts: e.g. health (e.g. HIV/AIDS), safety, social ills, etc. What measures will be taken to firstly avoid negative impacts, but if avoidance is not possible, to minimise, manage and remedy negative impacts?	N/A
7.2	Positive impacts. What measures will be taken to enhance positive impacts?	The use of existing infrastructure was promoted.
8	Considering the linkages and dependencies between human wellbeing, livelihoods and ecosystem services, describe the linkages and dependencies applicable to the area in question and how the development's socio-economic impacts will result in ecological impacts (e.g. over utilisation of natural resources, etc).	N/A
9	What measures will be taken to pursue the selection of the "best practicable environmental option" in terms of socio-economic considerations?	The use of existing infrastructure was promoted as well as the use of the existing SAT-2 Cable System offshore alignment.
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?	N/A
11	What measures will be taken to pursue equitable access to environmental resources, benefits and services to meet basic human needs and ensure human wellbeing, and what special measures will be taken to ensure access thereto by categories of persons disadvantaged by unfair discrimination?	N/A
12	What measures will be taken to ensure that the responsibility for the environmental health and safety consequences of the development have been addressed throughout the development's life cycle?	Project screening was undertaken followed by an assessment of impacts associated with the proposed development. Where gaps in knowledge were encountered, specialists were appointed to address these gaps.
13	What measures will be taken to:	
13.1	Ensure the participation of all interested and affected parties.	The project was advertised in local and provincial newspapers. Background Information Documents (BIDs) were sent to all key stakeholders and identified I&APs. An onsite notice was erected on site and copies of the BID were placed in local libraries within the project area. Meetings were also held with local government and the City of Cape Town to discuss their requirements with regards to the proposed development.

Ref #	Description	Comment
13.2	Provide all people with an opportunity to develop the understanding, skills and capacity necessary for achieving equitable and effective participation.	If the need is indicated, a public open day will be held during the public review period for the DSR. Similarly, one-on-one and focus group meetings will be held if the need is indicated.
13.3	Ensure participation by vulnerable and disadvantaged persons.	Not applicable to this development as the project area is located within Melkbosstrand which is an affluent suburb of Cape Town with high levels of both household income and education.
13.4	Promote community wellbeing and empowerment through environmental education, the raising of environmental awareness, the sharing of knowledge and experience and other appropriate means.	N/A
13.5	Ensure openness and transparency, and access to information in terms of the process.	All I&APs are kept informed of progress through the different stages of the Environmental Authorisation process (all people requesting to be registered as an I&AP are entered onto the project database and automatically receive project information/documentation).
13.6	Ensure that the interests, needs and values of all interested and affected parties will be taken into account, and that adequate recognition is given to all forms of knowledge, including traditional and ordinary knowledge.	This is being undertaken throughout the environmental authorisation process as per the regulations.
13.7	Ensure that the vital role of women and youth in environmental management and development were recognised and their full participation therein is promoted.	This is being undertaken throughout the environmental authorisation process as per the regulations.
14	Considering the interests, needs and values of all the interested and affected parties, describe how the development will allow for opportunities for all the segments of the community (e.g. a mixture of low-, middle-, and high-income housing opportunities) that are consistent with the priority needs of the local area (or that are proportional to the needs of an area).	N/A
15	What measures will be taken to ensure that current and/or future workers will be informed of work that potentially might be harmful to human health or the environment or of dangers associated with the work, and what measures have been taken to ensure that the right of workers to refuse such work will be respected and protected?	None to date; however, an EMPr will be compiled and environmental awareness training will be provided to staff once cable laying commences. Furthermore, ASN is an internationally acclaimed cable laying company with stringent Health, Safety and Environment protocols.
16	Describe how the development will impact on job creation in terms of, amongst other aspects:	
16.1	The number of temporary versus permanent jobs that will be created.	Job creation during the installation of the Equiano Cable System will be limited to temporary jobs during cable landing activities. The project is, however, expected to promote economic development within South Africa which could result in significant job opportunities (albeit not directly related to the project).
16.2	Will the labour available in the area be able to take up the job opportunities (i.e. do the required skills match the skills available in the area?).	Specific skills are required for the cable landing activities and, therefore, the use of local labour will be limited.

Ref #	Description	Comment
16.3	The distance from where labourers will have to travel.	N/A
16.4	The location of job opportunities versus the location of impacts (i.e. equitable distribution of costs and benefits).	N/A. The project will not result in any additional permanent local job opportunities directly related to the project.
16.5	The opportunity costs in terms of job creation (e.g. a mine might create 100 jobs but impact on 1,000 agricultural jobs, etc).	It is anticipated that 10-20 temporary jobs will be created during project implementation but not at the expense of job losses in other sectors either directly or indirectly affected by the proposed development.
17	What measures will be taken to ensure:	
17.1	That there is inter-governmental coordination and harmonisation of policies, legislation and actions relating to the environment.	Local, provincial and national Government departments were consulted with the purpose of aligning requirements.
17.2	That actual or potential conflicts of interest between organs of state are resolved through conflict resolution procedures.	This is ongoing to achieve alignment between the three spheres of Government.
18	What measures will be taken to ensure that the environment will be held in public trust for the 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 ensure the long-term sustainability of the proposed development.
19	Are the mitigation measures proposed realistic and what long-term environmental legacy and managed burden will be left?	It is the EAP's opinion that the proposed mitigation measures will be realistic and achievable. No legacy issues are anticipated.
20	What measures will be taken to ensure that the costs of remedying pollution, environmental degradation and consequent adverse health effects and of preventing, controlling or minimising further pollution, environmental damage or adverse health effects will be paid for by those responsible for harming the environment?	These will be addressed in the EMPr and the conditions of authorisation issued by the competent authority.
21	Considering the need to secure ecological integrity and a healthy biophysical environment, describe how the alternatives identified (in terms of all the different elements of the development and all the different impacts being proposed), will result in the selection of the best practicable environmental option in terms of socio-economic considerations.	The use of existing infrastructure was selected as the preferred alternative as it limits additional risks and impacts to the environment. It is the EAP's opinion that the best practicable environmental option has been selected for the proposed development.
22	Describe the positive and negative cumulative socio-economic impacts bearing in mind the size, scale, scope and nature of the project in relation to its location and other planned developments in the area.	The proposed development is anticipated to have a significant positive cumulative impact given that telecommunications is a key driver for economic growth. This project is anticipated to benefit South Africa and southern Africa as a whole.

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

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

In the local context, the proposed development is consistent line with the Cape Town Spatial Development Framework (Key Strategy 1, Policy 2) which includes supporting the rollout of broadband technology and the use thereof.

5. PROJECT DESCRIPTION

This chapter describes the infrastructure and operational aspects of the Equiano Cable System. The aim of this chapter is to enable readers to gain a better understanding of how the cable system will be installed and maintained to understand the possible impacts the development may have on the receiving environment.

5.1 General description

The section of the Equiano Cable System which forms part of this environmental impact assessment includes the section of cable from when it enters South Africa's EEZ (200 nautical miles from the sea shore) through South Africa's territorial waters (12 nautical miles from the sea shore) and onto land until it reaches the Telkom Cable Landing Station (CLS) at Melkbosstrand. In this context, the project description incorporates the materials comprising the Equiano Cable System and the methods to be used to install the cable system in the marine and terrestrial environments.

The Equiano Cable System is comprised of the following project components from when it enters South Africa's EEZ until it reaches the Telkom CLS site in Melkbosstrand:

- ☐ Marine Fibre Optic Cable (marine environment to the Beach Man Hole).
- ☐ Terrestrial Fibre Optic Cable (Beach Man Hole to the Telkom CLS site in Melkbosstrand).

5.2 Marine components and installation methods

5.2.1 *Marine Fibre Optic Cable*

The proposed cable route will run down the West Coast of Africa (generally parallel to the coastline) and approach South African coastal waters from the north (i.e. from Namibian waters). Offshore, the cable is laid by a purpose-built cable-laying ship. Consistent with industry practice, the unarmoured cable (Plates 1 and 2) will rest on the seabed in water depths greater than 1,500 m, where the risk of inadvertent damage from human activities is negligible.

As the cable route changes direction to approach the coastline of Melkbosstrand, the cable will be buried beneath the sandy seabed of these shallower marine waters. This is typically achieved with the use of a specially designed plough, which is submerged onto the seabed by the cable laying ship. The cable is then fed from the ship to the plough which effectively buries the cable to a depth of approximately 1 metre - 1.5 metres. This burial is intended to provide protection to the cable from the hazards posed by ships' anchors, fishing trawls/lines and the like. In good sea conditions, up to 20 km of cable can be installed and buried per day.

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

Within the shallow water environment, the cable will be buried in sediment wherever possible and the route will be adjusted to avoid obvious visible rock. The aim is to bury the cable to a depth of 2 m where possible. 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 or to pin or clamp the cable to rocky substrates. In addition to the above the

approximately 1,300 meters of cable from the beach manhole out to approximately 8 m water depth will be protected by encasement in articulated iron pipe shells which will make it very heavy thus aiding burial and stability of the cable on the ocean floor

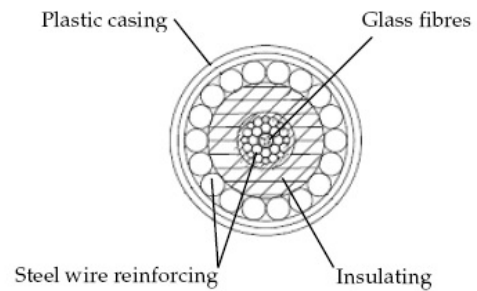
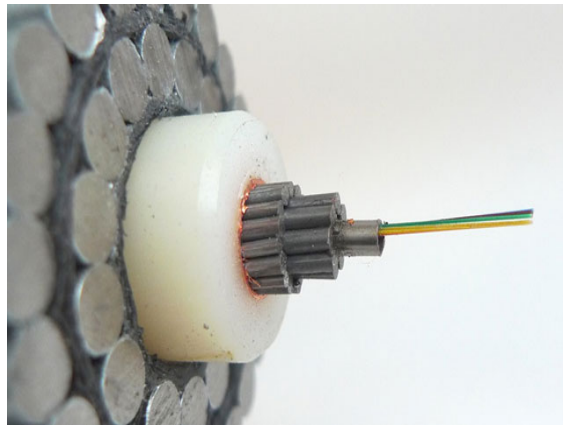


Plate 1 Cross section of a typical marine telecommunications cable



Plate 2 Cable armoring for different operational depths

5.2.2 Marine Fibre Optic Cable Installation

Prior to the installation of the Equiano Cable System taking place, the following offshore marine investigations will be performed by ASN to install the cable system.

Cable Route Survey

The proposed cable routes will be surveyed by the project team to identify whether the substrate and topography of the ocean floor are suitable for the installation of the Equiano Cable System. The survey will include the following activities:

- ❑ A geophysical survey of the deep water, shallow water, and inshore sections of each proposed cable route. This will include the establishment of bathymetric corridor widths of 500 m (inshore and up to a depth of 500 m). In deeper water this corridor will extend 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.
- ❑ The cable route will be surveyed using Multi-Beam Echo Sounder (MBES) Swath Bathymetry systems. The MBES equipment is integrated with the surface navigation equipment (GPS).
- ❑ Bathymetric data will be processed using an onboard workstation with specialised software to verify the coverage and accuracy of the collected bathymetry data and to provide colour contour charts. These charts will be 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 will be used. These will be housed in a device which will be towed behind a boat to get to an optimum position close to the seabed. The position of this towed device will be tracked acoustically using an Ultra-Short Base Line (USBL) tracking system.
- ❑ A burial assessment survey will be undertaken from the shore line up to a depth of 1,000 m to test the suitability of the substrate for cable burial. The survey will include Cone Penetrometer Tests (CPTs) with an average of one CPT taken at 4 km intervals in planned burial areas.
- ❑ The landing sites for all cable segments will be positioned utilising a GPS and topographic surveying practices. (The in-shore survey vessels will use a GPS navigation system).
- ❑ At the landing site, the survey of the shore approach will be 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 will be located and fully documented.

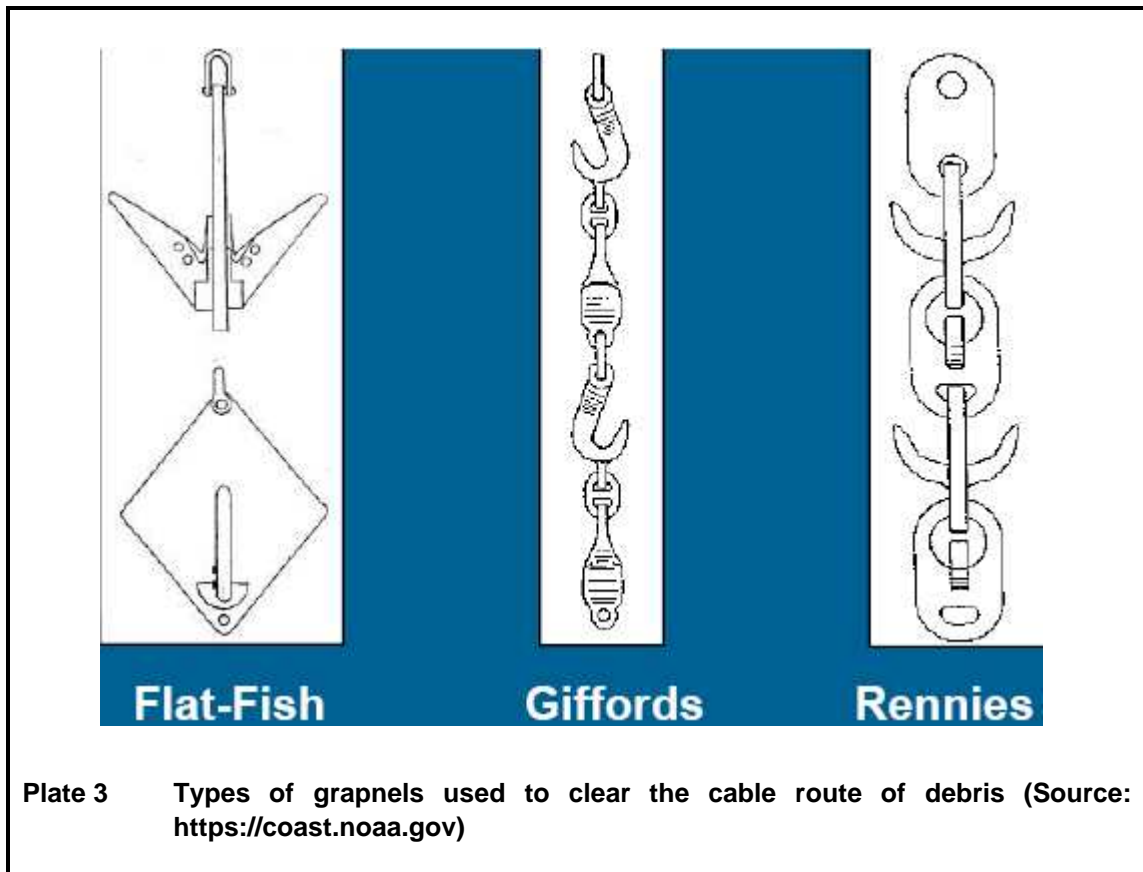
Cable Route Clearance Operations

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

PLGR is undertaken by dragging grapnels (Plate 3) 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 (Gillford in rockier areas and Rennies and Flat Fish in softer sandy sediments).

The PLGR operations are normally carried out by a vessel specifically fitted out with winches and grapnels, and capable of sustaining good slow speed positional control. The vessel will be equipped with navigation and positioning systems to the same specification as the main lay vessel.

Any debris recovered during these operations will be discharged ashore on completion of the operations and disposed in accordance with local regulations.



Installation of the marine telecommunications cable

The Equiano Cable System 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 between 1 – 1.5 m (Plate 4).

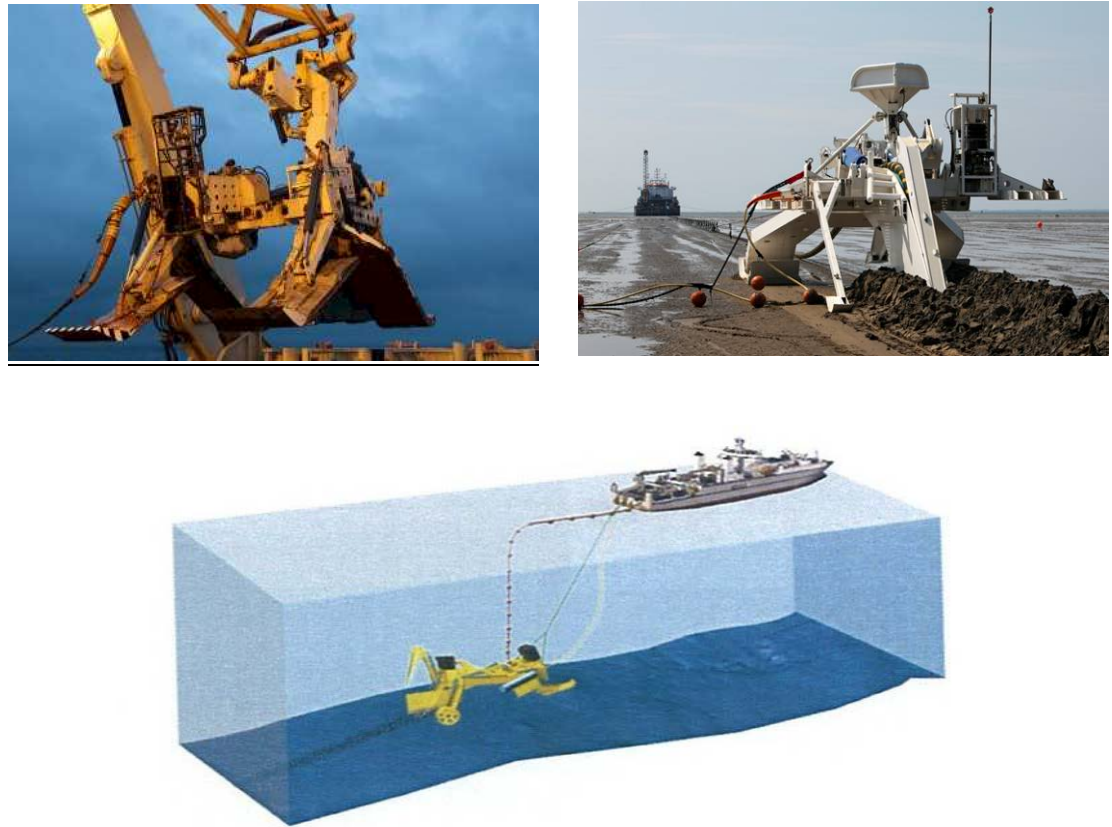


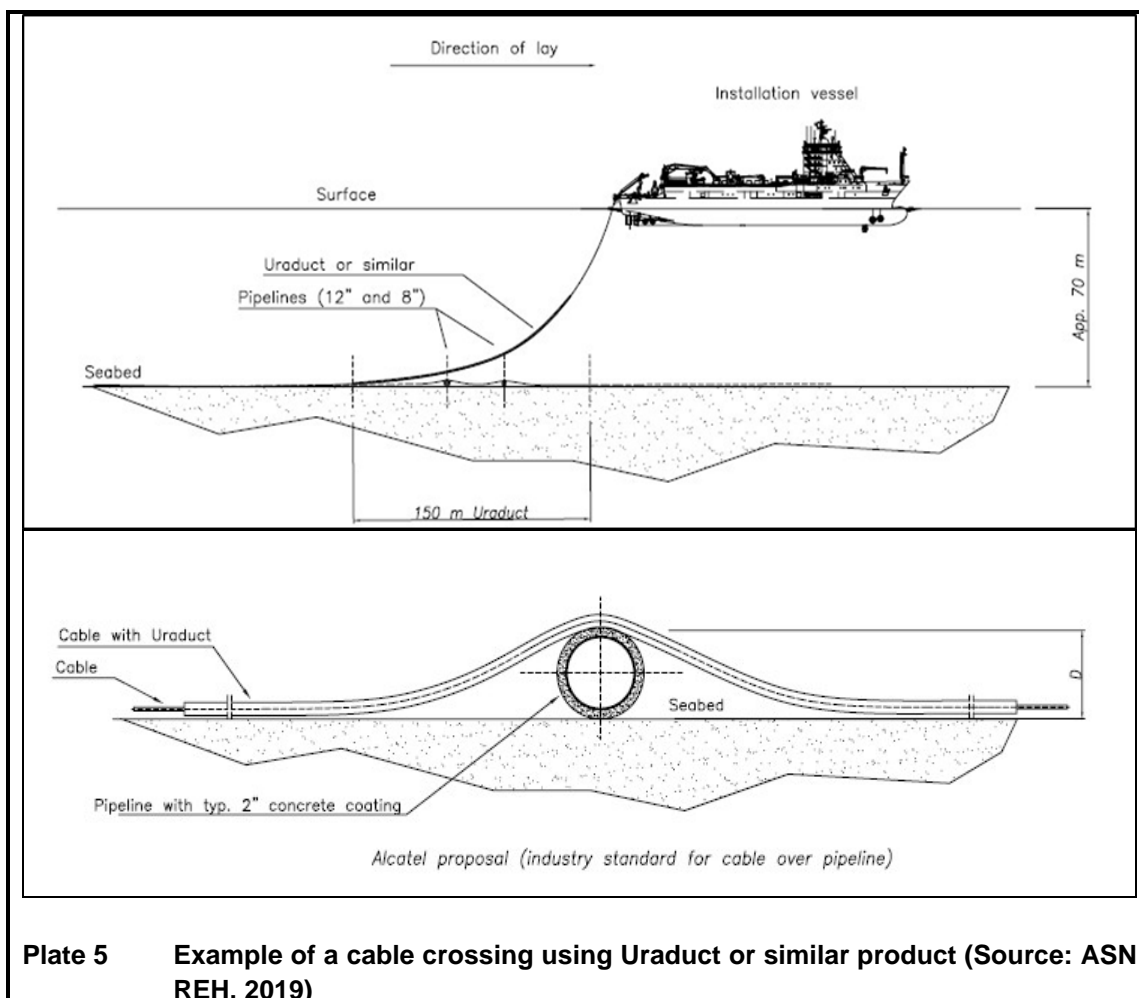
Plate 4 Sea plough to be used to bury the cable along sections of the cable alignment where conditions permit burial

Crossing of existing submarine cables and pipelines

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

If the Equiano Cable System requires a pipeline crossing, ASN recommends the application of Uraduct (or similar product) (Plate 5) 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. 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. Mattressing¹⁰ 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. (There will be no such pipeline crossing in South African waters, but there are pipeline crossings in other parts of the system).



Shore End Operations

Shore end operations refer to the installation of the cable through the shallow water near shore, through the intertidal zone and up onto the beach (Plates 6 and 7). The Melkbosstrand Beach shore-end landing will be performed directly from the main cable installation vessel.

During cable landing at Melkbosstrand 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).

¹⁰ 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.

- ☐ 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 Beach Man Hole to the Low Water Mark (LWM) to a depth of 2 m (or to bedrock, if reached sooner).
- ☐ Reinstatement of the beach to the required standards.
- ☐ All testing, reporting, and accurate as-built records.
- ☐ Articulated pipe (Plate 8), where required across the beach up to the Beach Man Hole, will be fixed to the beach manhole outside wall by means of a flange adapter.



Plate 6 Landing of the cable on shore. Similar works will be undertaken for the landing of the Equiano Cable System

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 Equiano 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.

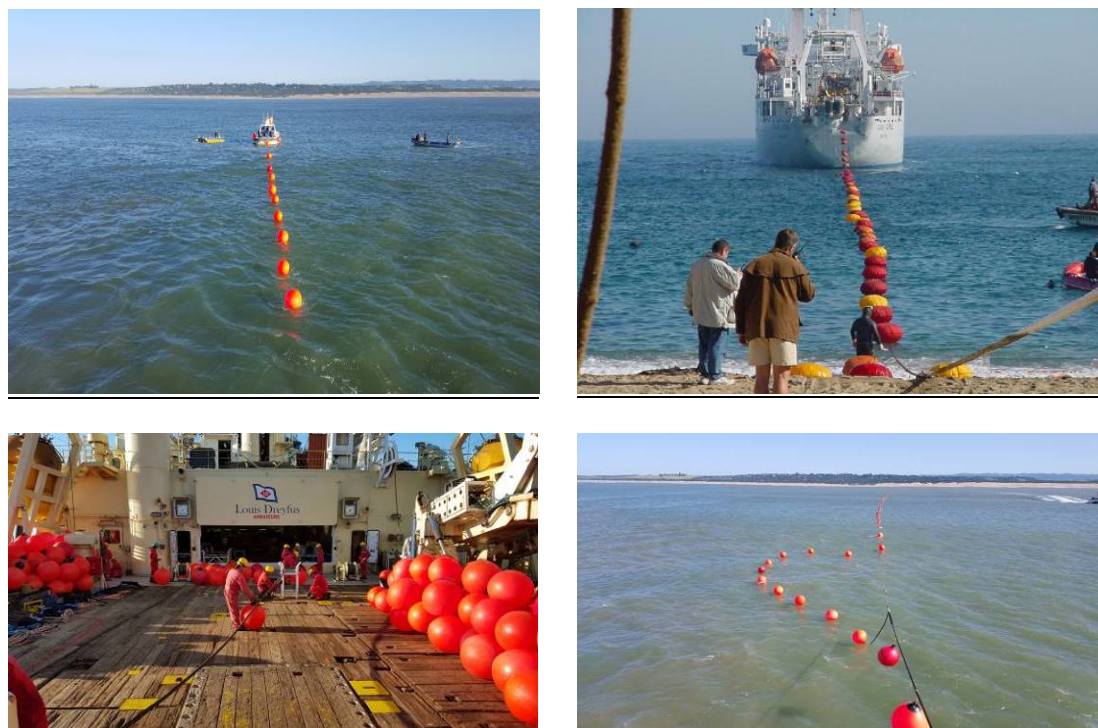


Plate 7 Bringing the cable to shore from the cable laying vessel. The cable is buoyed off and pulled to shore with smaller vessels

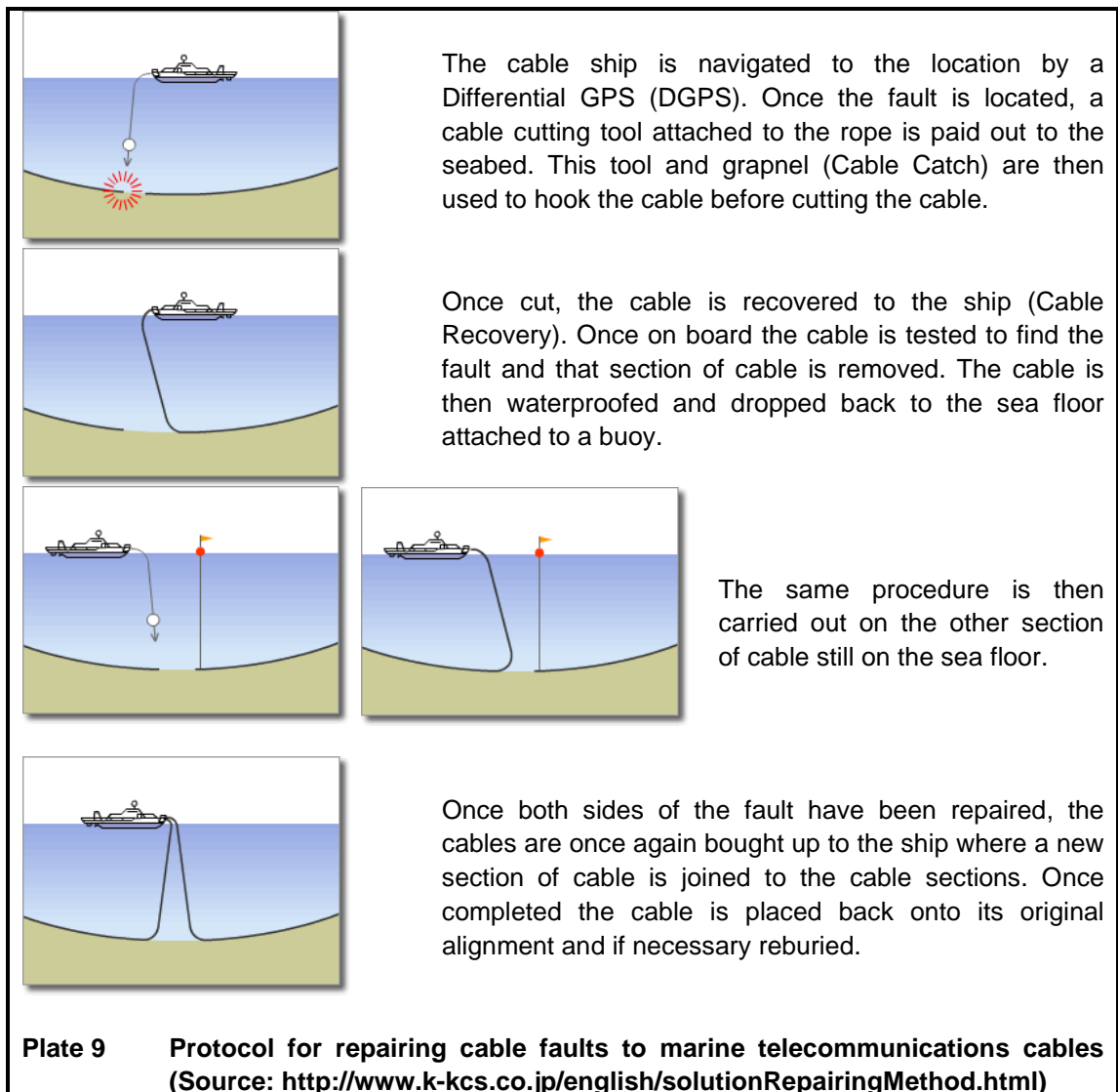


Plate 8 Articulated pipe sections which are installed around the cable in shallow water to offer additional protection.

Post construction maintenance of the cable

Once installed, marine telecommunications cables generally require little to no maintenance if the cable is not damaged by natural disasters (underwater landslides, earthquakes, etc.) or through human activities (fishing trawlers, anchors, etc.). If the cable is damaged, a cable repair ship is dispatched to repair the cable fault (Plate 9) 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.



5.3 Terrestrial components and installation methods

5.3.1 *Beach Man Hole*

Once the fibre optic cable has made landfall and been buried through the beach section of the cable alignment, the cable will be anchored at the Beach Man Hole. No new BMH will need to be constructed as part of this development as the existing SAT-2 BMH will be used to anchor the Equiano Cable (Plate 10).

5.3.2 *Cable trenching*

From the BMH, the land cable will be installed to the Telkom Cable Landing Station located along 14th Street in Melkbosstrand. As the existing cable sleeves from the BMH to the Telkom CLS will be used for the Equiano Cable, no cable trenching will be required for the project to be implemented.

5.3.3 *Construction Programme*

As there is no construction required for a Beach Man Hole and associated trenching from the BMH to the CLS site, all the infrastructure required for the landing of the Equiano Cable System is in place and landing of the cable can be scheduled as soon as the required environmental authorisation has been issued and the required beach driving permits have been granted. It is anticipated that the actual landing of the cable at Melkbosstrand 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. This is a gradual process which is expected to take up to two weeks).

5.3.4 *Project implementation*

The landing of the cable is entirely dependent on receiving a positive environmental authorisation from DEFF. Only once the environmental authorisation process is nearing its completion will the project proponent be able to realistically set dates for project implementation. Openserve is hoping to have the Equiano Cable System installed and operational in the beginning of 2021.



Plate 10 Existing SAT-2 Beach Man Hole at Melkbosstrand Beach

5.4 Existing services and project implementation

During construction and installation of the Equiano Cable System on land, the following services will be utilised by the appointed service providers.

5.4.1 Water

No water will be required for construction.

5.4.2 Sewage

During installation of the Equiano Cable System on land, chemical toilets will be provided for construction workers. These chemical toilets will be routinely serviced by the appointed service provider and all waste will be disposed at a licensed waste treatment works within the area. Given the short installation period associated with this project (less than two weeks), the impact associated with sewage is not expected to pose any significant risk.

5.4.3 Roads, private property access and road reserves

During the installation of the terrestrial section of the Equiano Cable System, no roads, private property access or road reserves will be impacted as the land cable will be installed in the existing cable sleeves which were installed when the SAT-2 cable was installed. The land cable will be fed from the BMH through the underground sleeves to the Telkom CLS.

5.4.4 Storm water

The proposed development will not have any impact on storm water nor will it be impacted by storm water.

5.4.5 Waste streams

During the installation of the terrestrial section of the Equiano Cable System, little waste is expected to be generated on site and waste will be limited to litter and material off cuts. It is envisaged that a skip will be hired for the duration of the installation period where all waste will be stored and then disposed by an appointed service provider in separate waste streams where possible.

5.4.6 Decommissioning

Submarine cables are designed to have a life-span of 25 years. Currently, most of the installed cables are operating beyond this, so, decommissioning of the Equiano Cable System in the near future is unlikely given the current growth in the telecommunications sector within South Africa. If and when decommissioning of the Equiano Cable System takes place, all activities would be subject to legislation relevant at the time.

6. ALTERNATIVES

Alternatives are different means of achieving the purpose and need of a proposed development and include alternative sites, layouts or designs, technologies and the “no development” or “no go” alternative. This chapter describes the various alternatives assessed for the proposed installation and operation of the Equiano Cable System.

6.1 Site alternatives (landing alternatives)

The proposed Equiano Cable System will replace the SAT-2 submarine fibre optic cable which was operated by Telkom in South Africa between March 1993 and January 2013 when it was decommissioned. The SAT-2 Cable System had a peak capacity of 560 Mbps (compared to the new Equiano Cable System, which is state-of-the-art infrastructure based on SDM technology, with approximately 20 times more network capacity than the last cable built to serve this region).

Given that the Equiano Cable will replace the SAT-2 Cable, project alternatives are limited due to the following reasons:

- ❑ The Equiano Cable System will feed into the existing BMH constructed at Melkbosstrand to accommodate the SAT-2 Cable (Plates 11 and 12). Therefore, the existing BMH will be utilised to link the marine cable and land cable and no construction of a BMH will be required for this development.
- ❑ From the BMH to the existing Telkom Cable Landing Station the Equiano Cable System will use the existing sleeves constructed for the SAT-2 system. As such, no trenching or associated construction works will be required to install the Equiano Cable System on land between the BMH and CLS.



Plate 11 Preferred landing site at the existing SAT-2 Beach Man Hole near the corner of Beach Road and 14th Street at Melkbosstrand Beach



By inference, the preferred landing alternative for this development involves landing the Equiano Cable System on the Melkbosstrand Beach at the same place the SAT-2 cable made landfall so that it can tie into the existing Beach Man hole on Melkbosstrand Beach.

No alternative landing alternatives were considered for this development as they would require the construction of a new Beach Man Hole on the beach at Melkbosstrand which would have additional impacts on both the biophysical environment and on user groups as construction activities would cause both nuisance related impacts and visual impacts to surrounding land owners.

6.2 Terrestrial cable alignment alternatives

From the preferred landing site, only one terrestrial alignment for the cable was considered for this development, viz. the existing SAT-2 cable alignment from the BMH to the Telkom CLS (Plate 13 and Figure 4). This alignment was selected as the preferred alternative as all the infrastructure required for the Equiano Cable is already in place and no new construction would be required. In addition, the selected alignment will ensure that:

- ❑ The Equiano Cable System makes use of existing service corridors.
- ❑ The preferred alignment will result in no impacts on surrounding properties and residents of Melkbosstrand.



Plate 13 Existing SAT-2 terrestrial alignment up 14th street (top) towards the Telkom Cable Landing Station (bottom). No construction is required from the BMH to the CLS for the project to be implemented

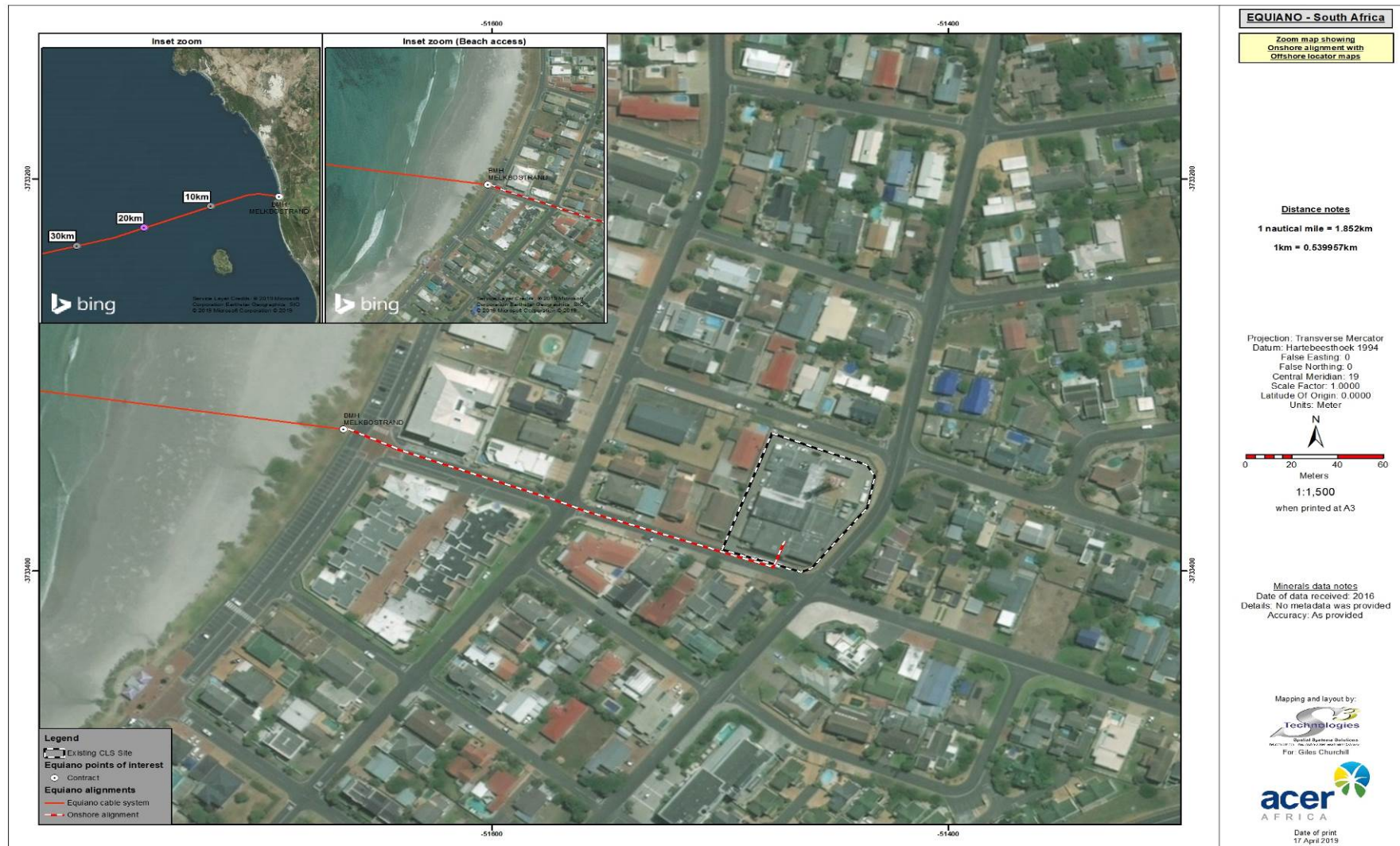


Figure 4 Proposed cable alignment from the existing SAT-2 BMH to the Telkom CLS site in Melbosstrand

6.3 Marine cable alignment alternatives

The main cable trunk will be located approximately 200 to 500 km from the shoreline in International Waters. From the main cable, branches will run from the main trunk line through territorial waters to the landing site in each country. South Africa is the southern-most point of the cable (end station). The final route of the marine portion of the cable entering South African waters will follow the existing SAT-2 cable alignment, which was selected based on a combination of engineering, environmental and economic factors (Figure 5).

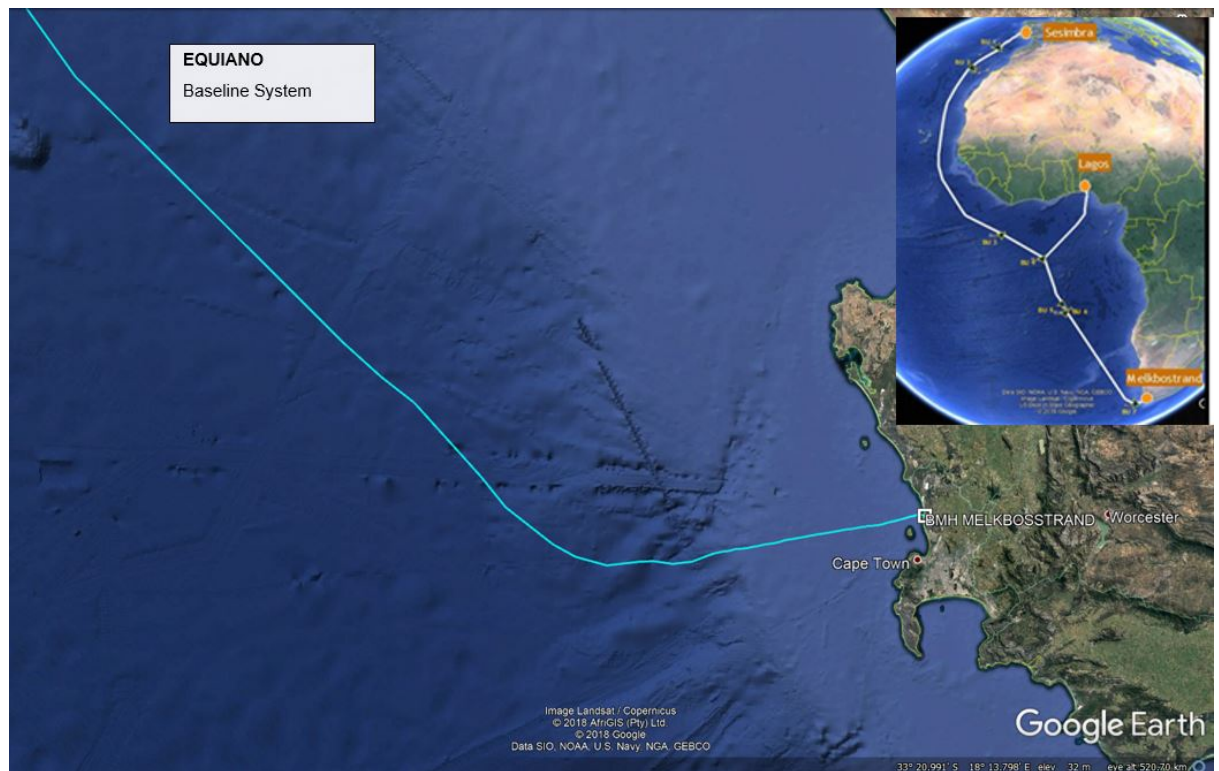


Figure 5 Equiano Cable System Baseline and its entry alignment to Melkbosstrand

It is important to note that the Equiano Cable System Baseline links South Africa, Nigeria and Portugal, with potential optional branches to service other countries along the west coast of Africa.

The proposed Equiano Cable System follows the alignment of existing submarine cables entering South Africa's territorial waters (Figure 6). The proposed alignment of the Equiano Cable System will be along the same alignment as the SAT-2 Cable (currently out of service) and closely follows the South Atlantic 3/West Africa Submarine Cable (SAT3/WASC), which both land at Melkbosstrand on the West Coast of South Africa. This alignment was followed to minimise the impact of the Equiano Cable System on other seabed users, particularly the trawling industry.

When selecting the preferred offshore alignment for the Equiano Cable System, the following factors were taken into consideration:

- ❑ Marine telecommunications cables are afforded a legislated buffer (0.5 Nm either side of the cable) as defined in the Marine Traffic Act (Act No. 2 of 1981) read together with the Maritime Zones Act (Act No. 15 of 1994). This buffer zone effectively protects the cable from damage due to bottom trawling activities, mineral exploration and the anchoring of vessels.
- ❑ The SAT-2 offshore cable alignment is already registered, and the proposed Equiano Cable System will follow the same offshore alignment as that of the SAT-2 cable. The placement of the Equiano Cable on the same alignment as the SAT-2 Cable will reduce impacts on the deep-sea trawling industry as they are already aware of its location and know that no trawling is permitted over the cable.
- ❑ The offshore oil and gas exploration concession holders are aware of the SAT-2 Cable alignment and by placing the Equiano Cable along the same alignment, it reduces impacts on the concession holders in terms of access for exploration.
- ❑ Within the shallow water environment, the cable will be buried in sediment wherever possible and the route will be adjusted to avoid obvious visible rock and sub-surface rock detected by the cable route survey. The aim is to bury the cable to a depth of 1 - 1.5 meter where possible. If rock is encountered at a depth shallower than this, no effort will be made to trench through or excavate any rock but rather lay the cable upon the rock substrate. The cable, in such situations, will be securely held in place by its own weight and the weight of the rest of the cable more deeply buried in sand. As such, there will be no need to anchor or to pin or clamp the cable to rocky substrates. In addition to the above the approximately 1,300 meters of cable from the beach manhole out to approximately 8 m water depth will be protected by encasement in articulated iron pipe shells which will make it very heavy thus aiding burial and stability of the cable on the ocean floor.

6.4 Technology alternatives

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

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



Figure 6 Alignment of the Equiano Cable System in relation to existing telecommunication cable systems landing along the Western Cape coastline

6.5 No-Go Alternative

In the context of the proposed development, the No-Go alternative would involve Openserve not installing the proposed Equiano Cable System. Although impacts on the marine and terrestrial environments would be avoided entirely¹¹, submarine telecommunication cables are important for international telecommunications. Also, it is widely recognised that access to affordable international bandwidth is key to economic development in every country.

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

¹¹ Importantly, recognising that, in any event, environmental impacts are expected to be minimal due to the substantial re-use of existing infrastructure.

7. DESCRIPTION OF THE RECEIVING ENVIRONMENT

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

7.1 Marine and offshore environment

At each landing country associated with the Equiano Cable System, the proposed fibre-optic cable will transit coastal waters and be brought on shore using industry-standard installation methodologies. When selecting the route alignment for the Equiano Cable System, the following criteria were considered by the engineering team to find the most practical and cost-effective alignment:

- ☐ The placing of the cable close to and along existing alignments of submarine telecommunications cables entering South Africa's waters.
- ☐ Identification of a suitable landing beach that minimises onshore environmental and infrastructure constraints and enables the cable to be linked to the proposed cable station.
- ☐ Long-term cable maintenance in the landing zone.

In terms of the Equiano Cable System, a key decision was to use the existing servitude of the decommissioned SAT-2 Cable System and the existing Beach Man Hole at Melkbosstrand Beach.

7.1.1 Biophysical characteristics

Prevailing 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 7). On the west coast, the Benguela Current has two main components, viz. the eastern limb of the South Atlantic Subtropical Gyre which has a broad, sluggish, equator-ward flow of only $0.1\text{--}0.3\text{ m s}^{-1}$ and inshore of this, a coastal component which exhibits dynamic wind-driven upwelling. The inshore coastal component is mainly driven by local weather systems, resulting in short-term upwelling cycles with a periodicity of 5–10 days. Offshore, mean monthly sea surface temperatures range from 15.4°C to 20.1°C , but in the near shore upwelling region, variability is greater, and temperatures range from 10°C to 18°C . These upwelling events along the west coast bring nutrient rich waters which result in high biological productivity, which, in turn, support large fish stocks, including pilchard, anchovy, hake, and rock lobster, each forming the basis for commercial fisheries (Shannon *et al.*, 1988).

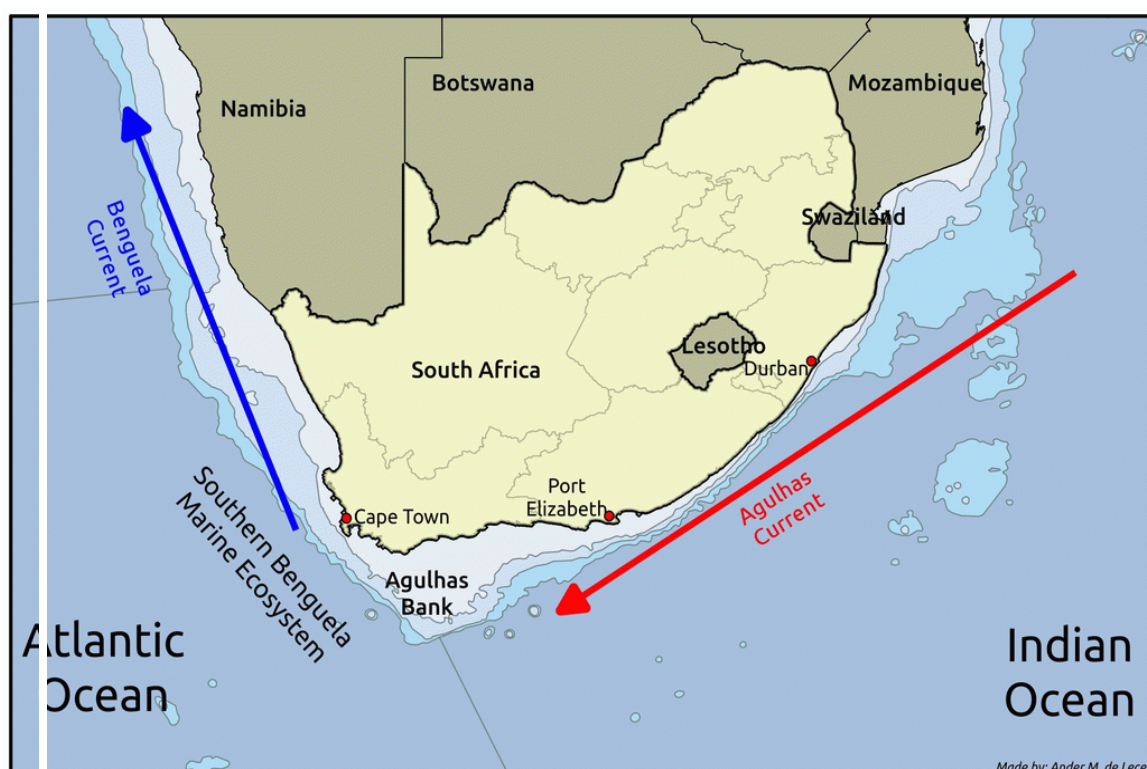


Figure 7 Benguela Current along the west coast of South Africa (Source: <https://seaview.u-bordeaux.fr/Scenarios-Case-studies/Benguela-upwelling>)

Bathymetry and sediments

The continental shelf off Cape Town is relatively narrow (about 35 km) but widens northward to about 230 km off Alexander Bay. Based on results of the screening studies, the following description of the bathymetry along the proposed Equiano Cable System has been compiled from where the cable enters the EEZ of South Africa until it makes land fall at Melkbosstrand.

The proposed Equiano Cable System enters South Africa's EEZ at 32° 11.449' S, 13° 59.4060' E and proceeds in a south-southeast direction over a gentle sloping seabed. Underwater features in the general project area include the Cape Canyon and Cape Valley. The cable route crosses the base of the Cape Canyon but lies some 100 km north of the Cape Valley.

Sediment types offshore along the proposed cable alignment are provided in Figure 8. Generally, the inner shelf (from the shoreline to the continental shelf) is underlain by Precambrian bedrock (Pre-Mesozoic basement), whilst the middle and outer shelf areas are composed of Cretaceous and Tertiary sediments (Dingle *et al.*, 1987). Local modifications in the prevailing substrates do, however, occur due to biological deposition (large areas of shelf sediments contain high levels of calcium carbonate) and localised river input such as the Orange River which has resulted in an approximately 500 km long mud belt on the inner shelf between the Orange River mouth and St Helena Bay. This mud belt is in places up to 40 km wide and has an average thickness of approximately 15 m (Birch *et al.*, 1976 and Pulfrich, 2019). Further offshore in deeper waters the sediment is dominated by muds and sandy muds while seaward of the shelf break the sea floor is underlain by a calcareous ooze.

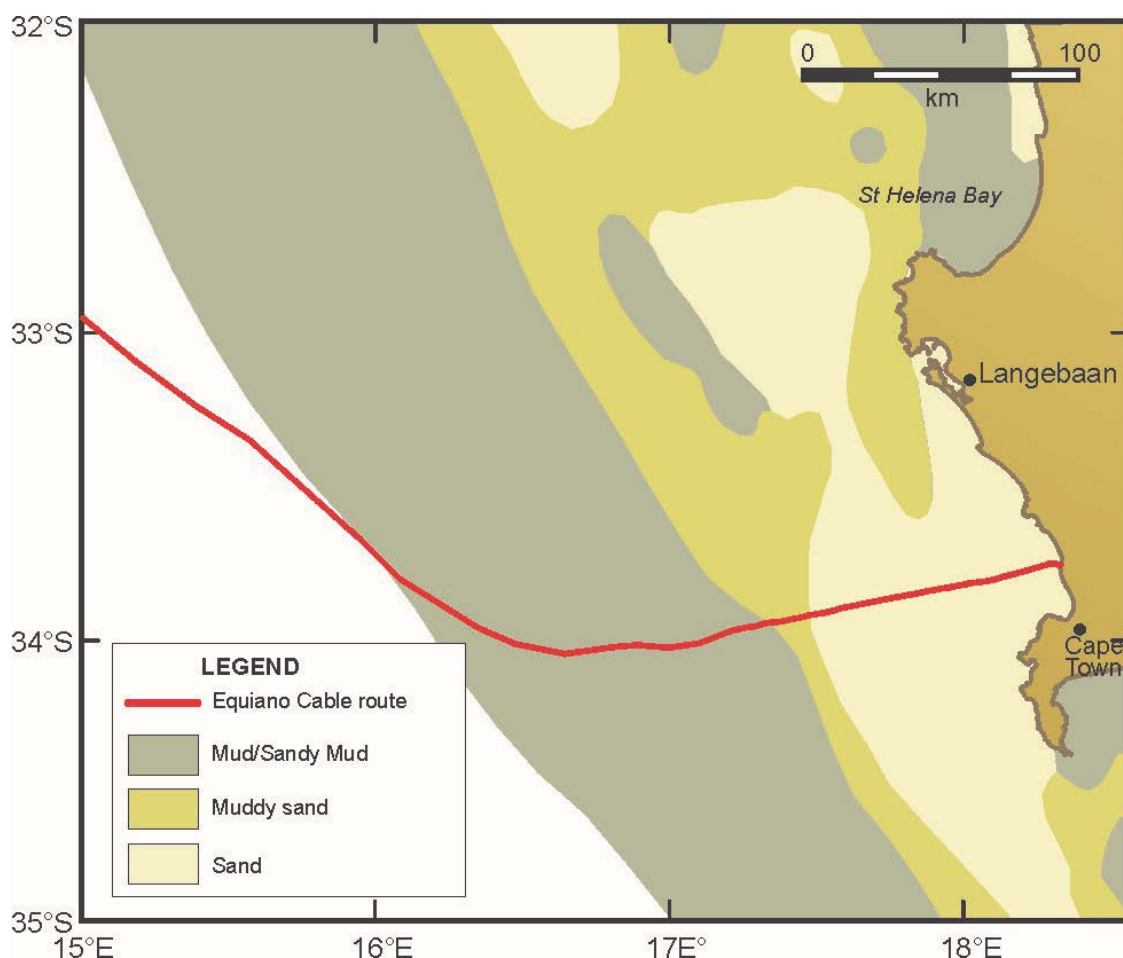


Figure 8 Sediment distribution on the continental shelf of the South African West Coast in relation to the proposed Equiano Cable System route (adapted from Rogers, 1977)

Wind patterns

Winds are one of the main physical drivers of the nearshore Benguela region by influencing ocean swells and currents on the inner shelf. Consequently, physical processes are characterised by the average seasonal wind patterns, and substantial episodic changes in these wind patterns have strong effects on the entire Benguela region.

Wind patterns differ markedly between the winter and summer seasons (Figure 9) with the southern hemisphere anti-cyclonic high-pressure system and the associated series of cold fronts, moving northwards in winter, and southwards in summer. Characteristics of the wind patterns are as follows:

- ❑ The strongest winds occur in summer (October to March), during which winds blow 98% of the time with gales (winds exceeding 18 m/s or 35 kts) being frequent.
- ❑ Almost all winds in summer come from the south to south-southeast averaging 20 - 30 kts and reaching speeds in excess of 100 km/h (60 kts) at times.
- ❑ In summer, the prevailing winds are responsible for the offshore movements of surface water and resultant strong upwelling of nutrient-rich bottom waters which characterise this region in summer.

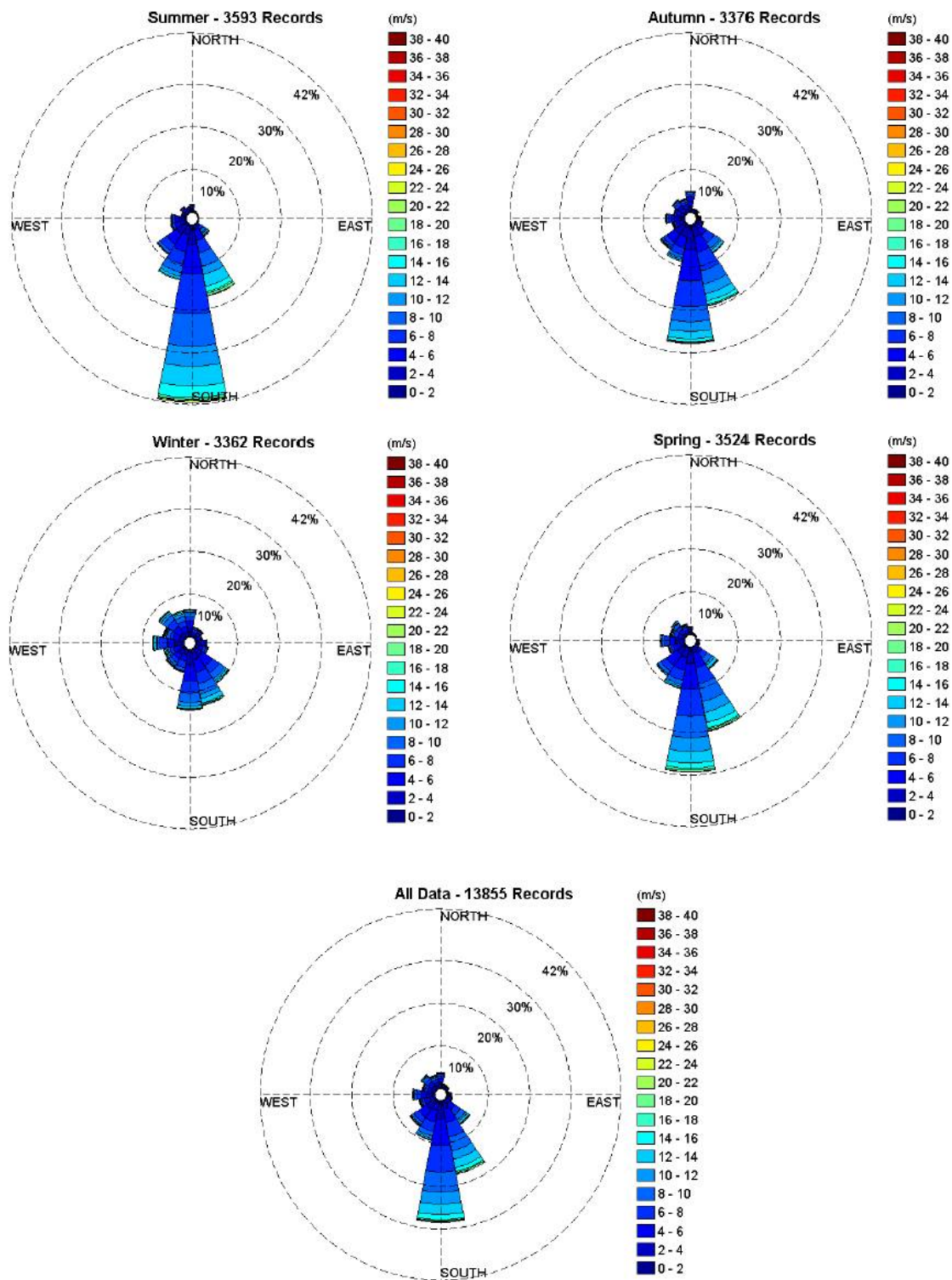


Figure 9 Wind speed vs. wind direction data for the Cape Columbine area (CSIR, 2006)

7.1.2 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 km² of marine protected areas, bringing SA's ocean protection within the South African Exclusive Economic Zone (EEZ) to more than 5% (Figure 10).

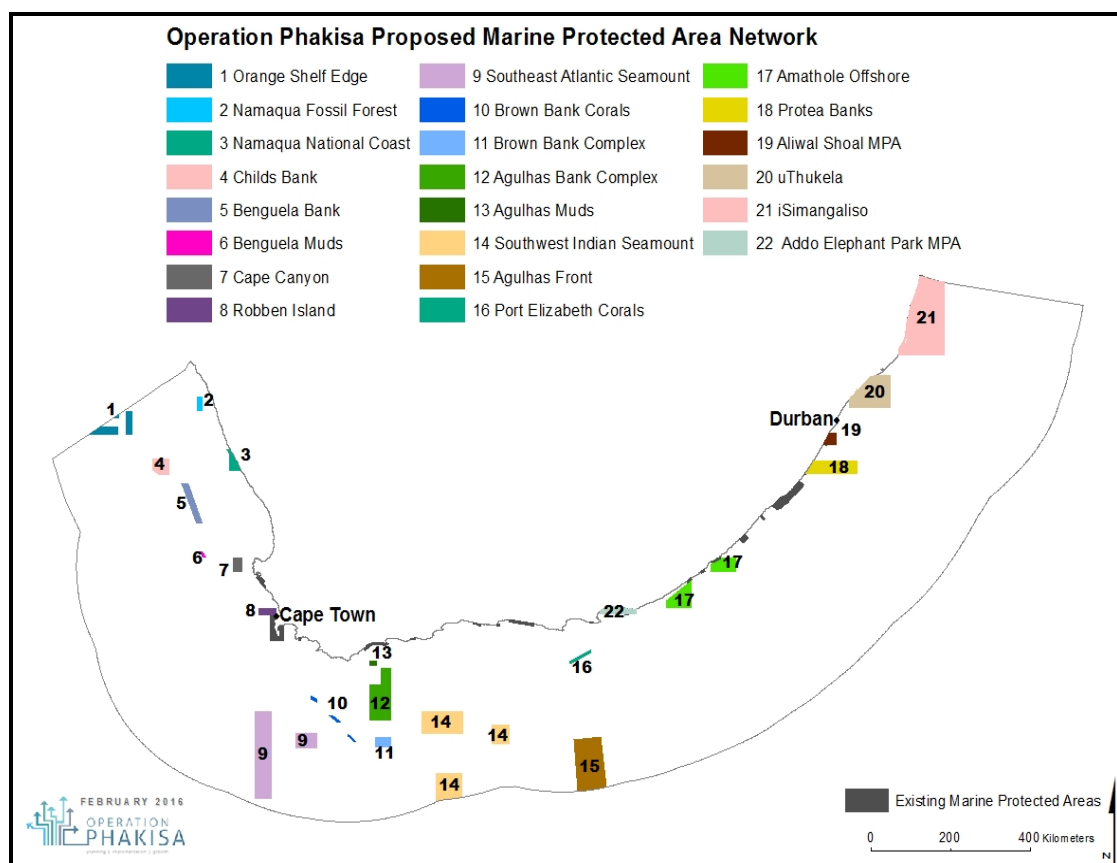


Figure 10 Marine Protected Areas within the South African Exclusive Economic Zone (EEZ)

Robben Island offshore of Cape Town has been a proposed Marine Protected Area since 2016 as part of South Africa's target of 10% of South African Waters to be protected by 2020. The Robben Island MPA was signed into effect on the 23 May 2019 and is one of the few areas to continue to support viable stocks of abalone and the island itself is a nesting site for several seabirds including the endangered African Penguin and terns. The MPA has an area of approximately 580 km² and ranges in depths, up to a depth of 500 m (Figure 11). The purpose for declaring this Marine Protected Area was as follows:

- ❑ To contribute to a national and global representative system of marine protected areas by providing protection to coastal, island and offshore benthic and pelagic ecosystems in this region.
- ❑ To conserve and protect threatened ecosystems.
- ❑ To conserve and protect the biodiversity and ecological processes associated with these ecosystems.
- ❑ To contribute to the conservation and protection of African penguin, Bank and Cape cormorants and other threatened seabird and shorebird species.
- ❑ To protect an area of significant cultural heritage, a scenic area with tourism value, a South African National Heritage site and a World Heritage Site.
- ❑ To facilitate species management by supporting fisheries recovery and enhanced species abundance in adjacent areas for west coast rock lobster, abalone and other overexploited species.

The Robben Island MPA consists of three zonation types:

- ❑ The Robben Island Restricted Zone (RIRZ).
- ❑ The Robben Island Controlled Zone 1 (RICZ 1).
- ❑ The Robben Island Controlled Zone 2 (RICZ 2).

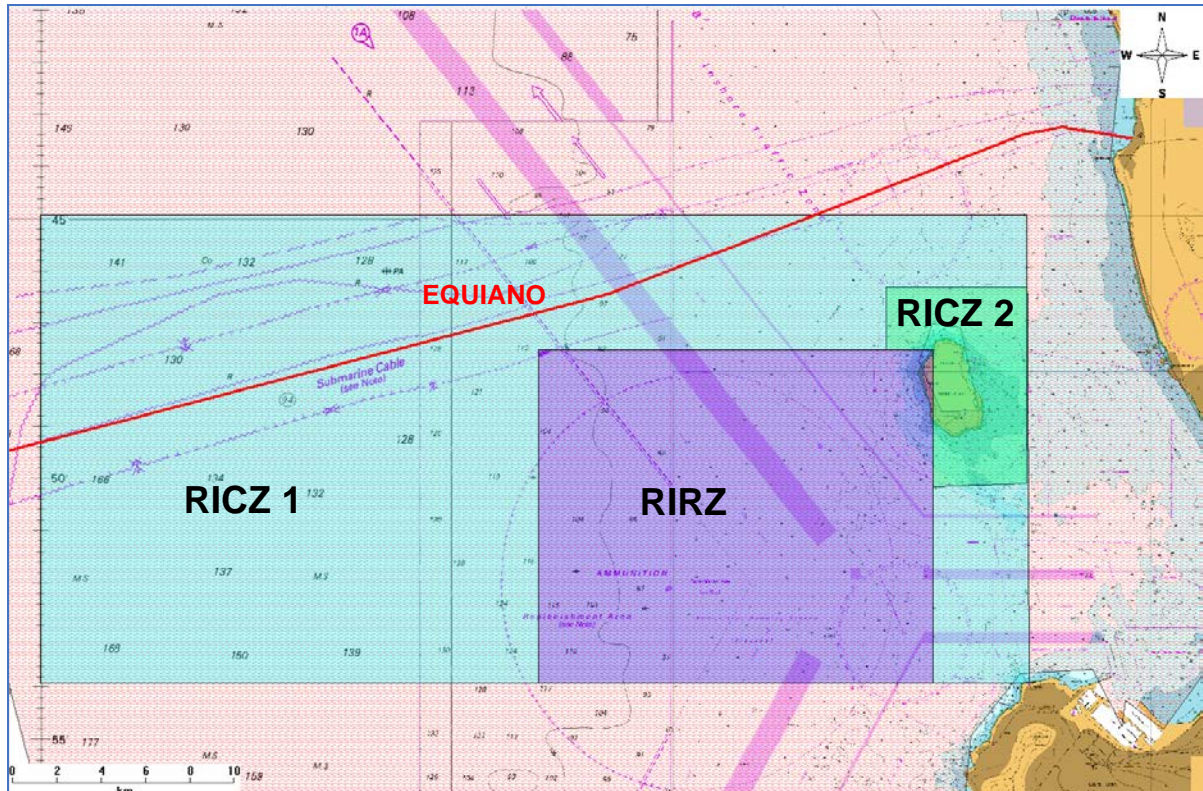


Figure 11 The Equiano Cable System Alignment relative to the Robben Island MPA (UKHO, 2019)

The proposed Equiano Cable System route passes through the MPA through the RICZ 1 and misses the RIRZ. The South African National Parks is formally designated as the management authority for this Marine Protected Area.

Although marine telecommunications cables have direct negative impacts associated with their installation and operation, they do offer protection to the marine benthic environment along their alignment via the implementation of a legislated buffer zone 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 benthos from bottom trawling, anchoring by vessels and acts as a refuge for benthic fish species.

7.1.3 Marine fauna

Fish

The marine environment off the south-western coast of Africa, with its nutrient rich waters, supports large populations of pelagic, mid-water and demersal fish species as well as a high number of bird and mammalian predators (Hutchings *et al.*, 2009). Of relevance to the proposed Equiano Cable System are the fish stocks occurring within oceans surrounding the proposed cable route and the fishing industry which targets these fish species. These fish species include the following commercially targeted species:

Pelagic species (Plate 14)

- ☐ Pilchard (*Sardinops ocellata*).
- ☐ Anchovy (Family Engraulidae).
- ☐ Snoek (*Thyrsites atun*).
- ☐ Chub mackerel (*Scomber japonicus*).
- ☐ Yellowtail (*Seriola lalandi/rivoli*).
- ☐ Tuna (numerous species).



Pilchards



Anchovy



Snoek



Yellowtail

Plate 14 **Examples of commercially targeted pelagic fish species**

Demersal species (Plate 15)

- ☐ Hake (*Merluccius paradoxus/capensis*).
- ☐ Kingklip (*Genypterus capensis*).
- ☐ Monkfish (*Lophius americanus*).



Hake



Kingklip



Monk Fish

Plate 15 **Examples of commercially targeted pelagic fish species**

Marine mammals

There are several marine mammals which are known to occur on the West Coast of South Africa and within the project area (Plate 16). Included in these are the following species:

- ☐ Cape Fur Seal (*Arctocephalus pusillus*). The Cape Fur Seal is the only seal species that breeds in South Africa; however, other seal species, such as Elephant Seals, Sub-Antarctic Fur Seals and Leopard Seals are occasionally encountered along South Africa's coast. Cape Fur Seals have been protected in South Africa since 1893 but were commercially harvested until the 1990s before a ban on the commercial harvesting of seals was enforced.
- ☐ Dolphins. There are three dolphin species generally found off the West Coast of South Africa, viz. the common (*Delphinus delphis*), bottlenose (*Tursiops truncatus*) and Heaviside's (*Cephalorhynchus heavisidii*) dolphins. Although sightings of the Heaviside's dolphins are common off the Skeleton Coast of Namibia, they have been recorded as far south as the southern tip of South Africa. Sightings are often recorded from Cape Town.
- ☐ Whales. There are several whale species which are known to occur on the West Coast of South Africa, the most common of which is the southern right whale (*Eubalaena australis*) and humpback whale (*Megaptera novaeangliae*).

Whales are generally observed in the waters off Melkbosstrand between June and December when groups of between 8-10 whales can be observed. During this period, the cows calve in the calm coastal waters along the coastline.



Humpback whale



Killer Whale



Heaviside's Dolphin

Plate 16 Cetacean species known to occur on the west coast of southern Africa

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.

The near shore environment of Southern Africa supports large numbers of both breeding and non-breeding seabirds. Breeding seabirds are spatially restricted by the availability of safe nesting sites such as islands and mainland cliffs, but non-breeding species can occur throughout the region. The distribution of sea birds is also highly dependent on food availability and, as a consequence, the upwelling of nutrient-rich water in the Benguela Current often results in large numbers of seabirds congregating around large shoals of fish such as pilchards and smaller pelagic shoal fish.

The three most abundant seabird species encountered within the project area are the Jackass Penguin (*Spheniscus demersus*), Cape Cormorant (*Phalacrocorax capensis*) and Cape Gannet (*Morus capensis*) (Plate 17). Seabird diversity varies seasonally within the project area, with the area supporting a reduced diversity of species during the summer months.



Cape Cormorant



Jackass Penguin



Cape Gannet

Plate 17 Commonly encountered marine bird species off the West Coast of South Africa

7.1.4 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.

The primary fisheries in terms of highest economic value are the demersal (bottom) trawl and long-line fisheries targeting the Cape hakes (*Merluccius paradoxus* and *M. capensis*) and the purse-seine fishery targeting small pelagic species including pilchard (*Sardinops ocellatus*), anchovy (*Engraulis encrasicolus*) and red-eye round herring (*Etrumeus whitheadii*). Highly migratory tuna and tuna-like species are caught on the high seas and seasonally within the South African EEZ by the pelagic long-line and pole fisheries. Targeted species include albacore (*Thunnus alalunga*), bigeye tuna (*T. obesus*), yellowfin tuna (*T. albacares*) and swordfish (*Xiphias gladius*).

Offshore trawling is usually conducted along specific trawling lanes on “trawl friendly” substrates (flat, soft ground). The total trawl footprint within the South African EEZ is approximately 70,403 km² of which offshore grounds account for 57,420 km² and inshore grounds 12,983 km². On the West/South-West Coast, these grounds extend in a continuous band along the shelf edge between the 300 and 1,000 m bathymetric contours¹².

The primary offshore fishing ground on the west coast is a sandy and muddy offshore ground that was first fished in the 1920s and which continues to be an important area for the offshore trawl fleet (Figure 12). Trawl nets are generally towed along depth contours (thereby maintaining a relatively constant depth), running parallel to the depth contours in a north-westerly or south-easterly direction. Trawlers also target fish aggregations around bathymetric features, particularly seamounts and canyons (i.e. Cape Columbine and Cape Canyon), where there is an increase in seafloor slope. In these cases, the direction of trawls also follows the depth contours. Trawlers are prohibited from operating within five nautical miles of the coastline and within restricted zones of MPAs.

7.1.5 Offshore mining concessions

Approximately 98% of South Africa’s EEZ is subject to a right or lease for offshore oil and gas exploration or production. The Petroleum Agency of South Africa is responsible for the ‘promotion and regulation of offshore exploration and production’ and maintains a national database of petroleum exploration and production. Since 2006 this database has shown a rapid increase in the application and grant of offshore rights and leases. The South African Government has actively promoted offshore oil and gas exploration through Operation Phakisa which seeks to support the rapid development of the offshore oil and gas sector by “creating an environment that promotes exploration”.

¹² Trawling to these depths started in the mid-1990s for deep-water species such as the Orange roughy (*Hoplostethus atlanticus*).

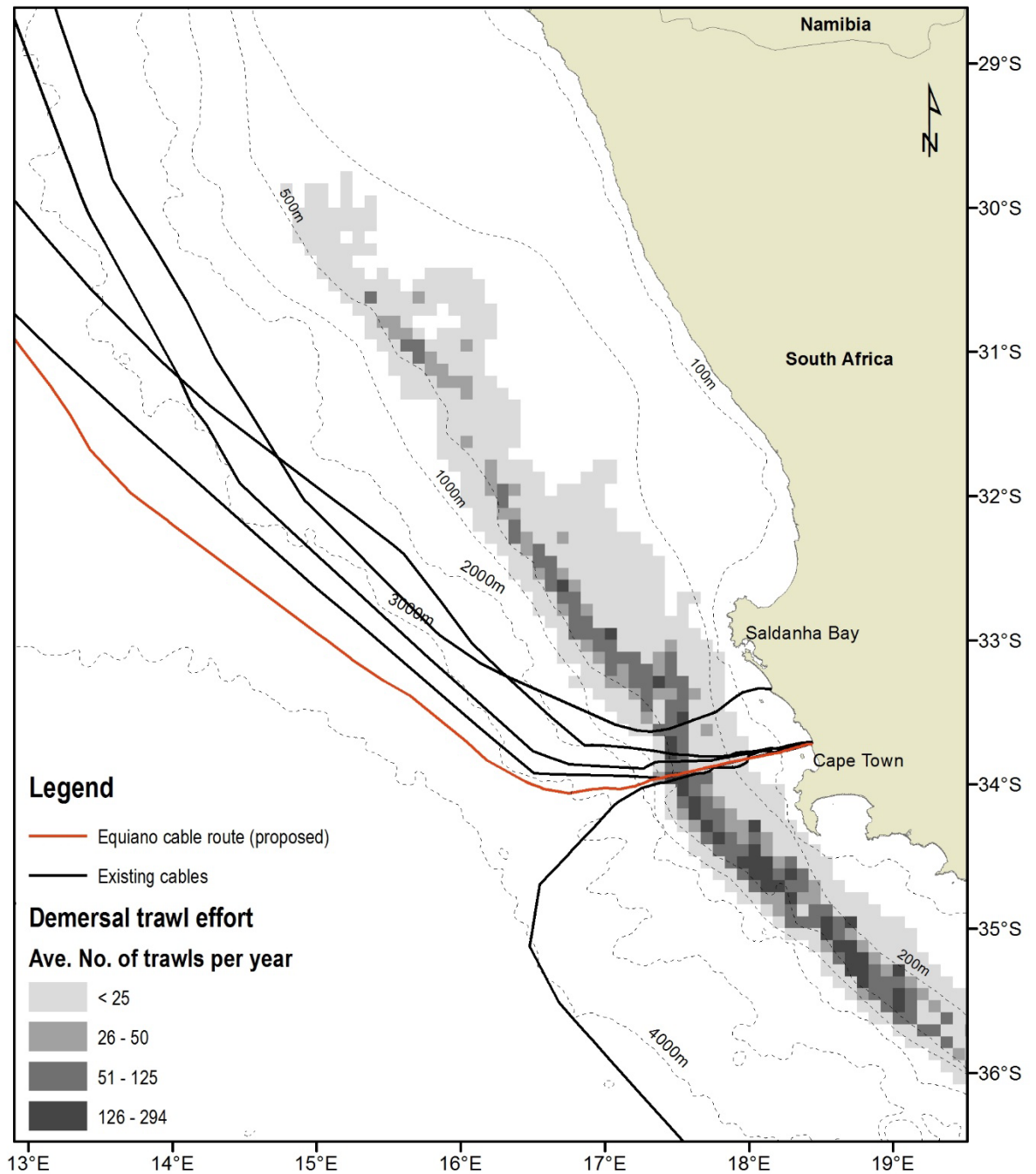


Figure 12 Spatial distribution of trawling efforts off the West Coast of South Africa in relation to existing submarine cables as well as the proposed Equiano Cable System route. Fishing effort is displayed showing the average number of trawl start positions per annum (2000 – 2016)

Recently there has been an increasing number of applications for “unconventional” offshore oil and gas activities (hydraulic fracturing). Although impacts associated with hydraulic fracturing in the marine environment are relatively unknown, the Department of Environmental Affairs recently granted PetroSA permission to include hydraulic fracturing in three of its gas field development wells near Mossel Bay. The granting of this permission is in contrast to the most recent iteration of the Petroleum Exploration and Production Regulations (technical regulations for hydraulic fracturing) which exclude offshore exploration and production from its scope (<http://cer.org.za/safeguard-our-seabed/mineral-and-petroleum-extraction>). Therefore, it appears that offshore exploration and production are currently unregulated and aggravated by little available knowledge of potential impacts on the marine ecosystem and existing marine uses, including fishing.

The proposed Equiano Cable System crosses four offshore oil and gas concessions from where it enters the EEZ of South Africa until it makes landfall at Melkbosstrand (Figure 13).

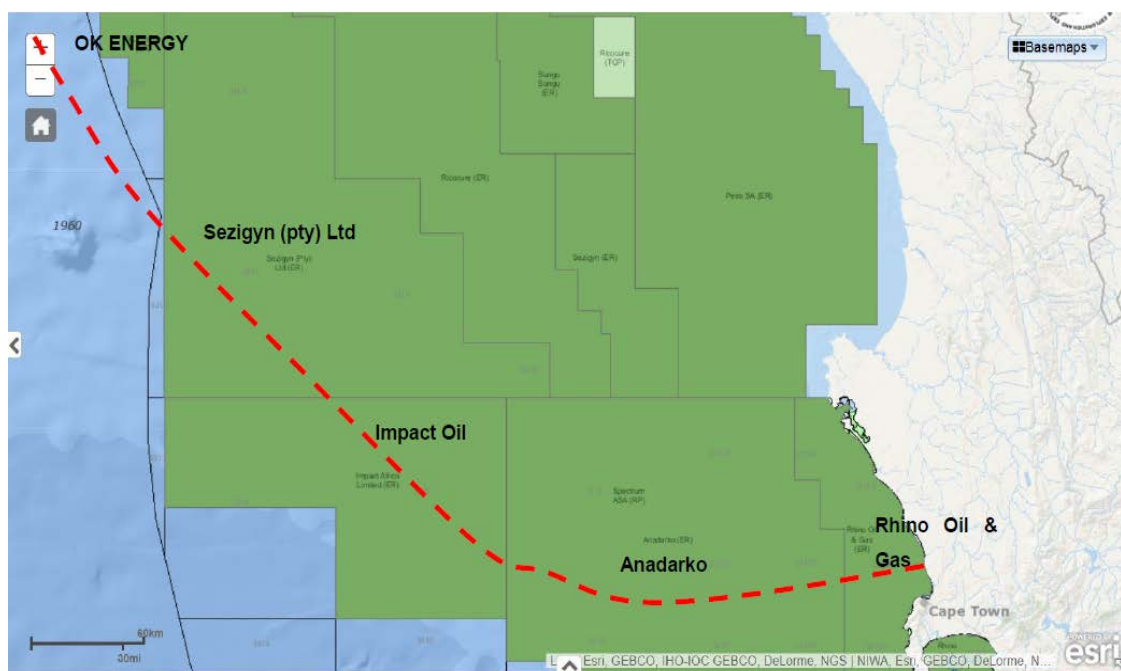
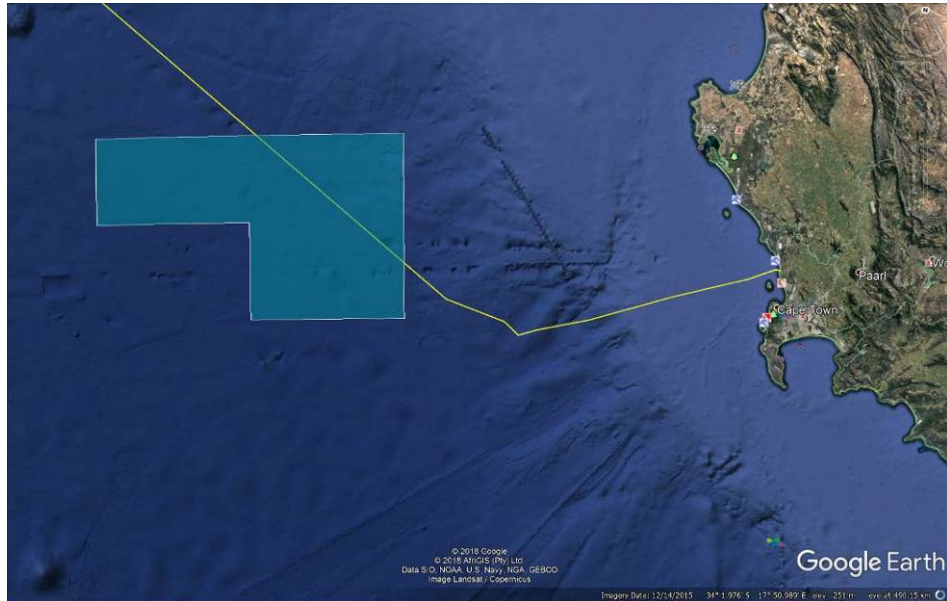


Figure 13 Offshore concessions crossed by the Equiano Cable System

Following investigations by the project team, it appears that the status of activities in these concessions is as follows:

- ❑ Impact was awarded the Orange Basin Deep Technical Co-Operation Permit (TCP) in December 2016 with Total joining as operating partner in September 2017. The license lies 220 km west of Cape Town in water depths between 2,800 to 4,200 meters. A TCP allows for a desktop study and the acquisition of seismic data over the area. It should be noted that a TCP gives the holder the exclusive right to apply for an Exploration Right.



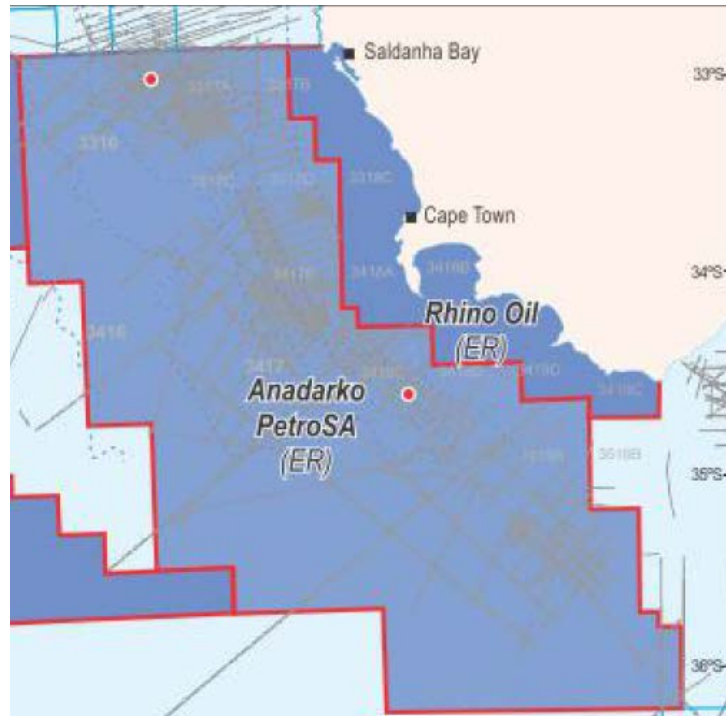
Impact Oil - Orange Basin Deep concession area (Blocks 3314 & 3315)

- ☐ Anadarko is in the very early stages of exploration activities in South Africa. The company operates offshore Block 5/6. A 2D seismic program and a high-resolution seafloor survey have been completed. These data have been interpreted and mapped to better understand the basin geology and to plan a 3D seismic program.



Anadarko Block 5/6 concession (Blocks 3316, 3317, 3416, 3417, 3418, 3517, 3518, 3618 & 3619)

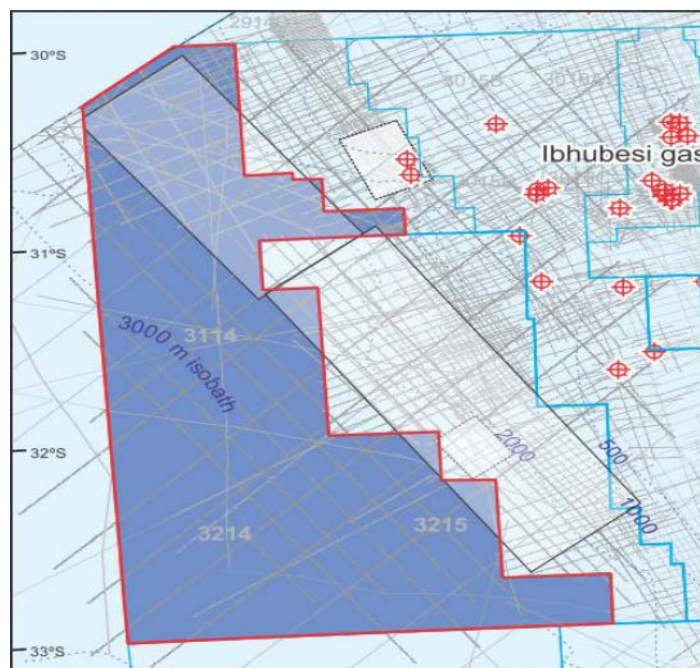
- ☐ As far as can be established, Rhino Oil and Gas have received approval for inshore oil and gas exploration and have been added to the project database as an I&AP.



Rhino Oil and GAS shallow water concession areas off the West Coast

Source: <https://pdfs.semanticscholar.org/97a2/361e65bfa1e513601948fa682bdf25b321a4.pdf>

- ❑ As far as can be established the Sezign – TCP concession (Deepwater Orange Basin) which is 37,290 km² in size has had exploration conducted on it with 2D and 3D Seismic Data surveys undertaken to date and have been added to the project database as an I&AP



Sezign – TCP concession (Deepwater Orange Basin)

Source: <https://pdfs.semanticscholar.org/97a2/361e65bfa1e513601948fa682bdf25b321a4.pdf>

- ❑ Additional blocks are allocated according to the South African Petroleum Agency using online research (<https://geoportal.petroleumagencyssa.com>), however, little additional information was found. These blocks have been allocated for seismic exploration surveys but not yet approved for production.

A summary of where the Equiano Cable System enters and exists the various exploration blocks offshore are given in Table 8.

Table 8 Concession block boundaries intersected by the Equiano Cable System

Country	Boundary	KP	Latitude	Longitude	Source
South Africa	EXIT OCB 3318C/ENTER OCB 3317D	43.117	33° 49.2926' S	17° 59.7542' E	RPL
South Africa	EXIT OCB 3317D/ENTER OCB 3317C	90.693	33° 56.0151' S	17° 30.0000' E	RPL
South Africa	EXIT OCB 3317C/ENTER OCB 3417	115.398	34° 0.0000' S	17° 14.8086' E	RPL
South Africa	EXIT OCB 3417/ENTER OCB 3416	138.785	34° 1.6031' S	17° 0.0000' E	RPL
South Africa	ENTER OCB 3316/EXIT OCB 3416	187.154	34° 0.0000' S	16° 29.5234' E	RPL
South Africa	ENTER OCB 3315/EXIT OCB 3316	245.825	33° 40.3513' S	16° 0.0377' E	RPL
South Africa	ENTER OCB 3215/EXIT OCB 3315	360.604	33° 0.0093' S	15° 4.0101' E	RPL
South Africa	ENTER OCB 3214/EXIT OCB 3215	368.367	32° 57.2208' S	15° 0.2846' E	RPL
South Africa	EXIT OCB 3214	494.791	32° 11.8026' S	13° 59.8796' E	RPL

7.1.6 Offshore marine telecommunications infrastructure

Telkom SA, as one of the operators of other marine telecommunication cable systems running on the same west coast route (SAT-3/WASC/SAFE and WACS), has an interest in the proposed Equiano Cable System from an operational and risk perspective. Similarly, MTN operates the ACE Cable System, which was installed in 2017 and like Telkom SA, is a member of the International Cable Protection Committee (ICPC). ICPC provides several guidelines and standards to ensure that new cable systems do not negatively impact existing marine telecommunications systems. Therefore, Openserve must abide by the conditions stipulated by ICPC to ensure no negative impacts are experienced by existing marine cable operators such as MTN. As per the recommendations of the ICPC, Openserve will engage directly with MTN to reach a formal agreement with regards to the installation and operation of the Equiano Cable System.

7.2 Beach and terrestrial environment

The final section of the Equiano Cable System which makes landfall in South Africa involves the installation of the cable through the intertidal zone, across the beach and then approximately 0.5 km of land cable until reaching the Telkom CLS in Melkbosstrand. It must be noted that no construction related activities for the onshore section of the cable are required once the Equiano Cable has been anchored in the existing SAT-2 BMH on the beach at Melkbosstrand. The following section of this report briefly describes the biophysical, social and economic environments of the land-fall components of the Equiano Cable System.

7.2.1 *Melkbosstrand beach and coastal morphology*

The Melkbosstrand Beach Man Hole is located on the grassy landward side of the beach bordering the parking area near the corner of 14th Street and Beach Road in Melkbosstrand. From the BMH, the cable alignment runs almost perpendicular to the coastline out to sea across the flat coastal dune cordon and Melkbosstrand Beach. Melkbosstrand Beach is a popular beach for swimming and surfing and is one of 10 beaches awarded Blue Flag Status within the City of Cape Town.

The coastal dune cordon at the proposed landing point, and along most of Melkbosstrand Beach, is generally very flat, however, some signs of coastal erosion are evident. A rocky outcrop called Slabbert se Klippe (a popular fishing spot) demarcates Main Beach from Kapteinsbaai to the north. The inter-tidal zone, beach and dune cordon associated with the proposed landing point of the Equiano Cable System is constrained by a rocky promontory to the south which establishes a crenulate bay, and a promontory and sand tombolo in the north (just to the south of Kapteinsbaai). This has resulted in a small embayment of approximately 900 m in extent constrained by coastal landforms. As such, the proposed Equiano Cable landing point at Melkbosstrand forms a discreet coastal cell with evident erosional and depositional points (Figure 14).

To the south of the proposed landing point erosion is clearly evident, and this is manifest in the form of a narrow beach, where tidal inundation extends as far as the stabilised dune toe and effectively removes any back beach (Plate 18). The dune cordon in this area can, however, be considered modified as evidence of deposited materials including natural excavated rock, rubble and other materials have been used to stabilise the dune cordon and prevent erosion.

Within the shallow water environment, the cable will be buried in sediment wherever possible and the route will be adjusted to avoid obvious visible rock. The aim is to bury the cable to a depth of 2 m where possible. If rock is encountered at a depth shallower than 2 m, no effort will be made to trench through or excavate rock but rather to 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. Therefore, there will be no need to anchor or to pin or clamp the cable to rocky substrates. In addition, the approximately 1,300 meters of cable from the beach manhole out to approximately 8 m water depth will be protected by encasement in articulated iron pipe shells which will make it heavy, thus, aiding burial and stability of the cable on the ocean floor.



Figure 14 Graphic representation of the inshore wave and sediment dynamics at Melkbosstrand



Plate 18 Materials including natural excavated rock, rubble and other materials have deposited to stabilise the dune cordon

7.2.2 Vegetation

Vegetation on the primary dunes at Melkbosstrand can be classed as the Cape Seashore Vegetation type and include species such as *Sporobolus virginicus* and *Ehrharta villosa*, with *Tertragonia decumbens* and *Didelta carnososa* being common. Behind the primary dune cordon no further indigenous vegetation is encountered along the land alignment of the cable system as it passes through existing cable conduit piping installed along 14th Street to the Telkom CLS.

Vegetation within the study area is subject to ongoing disturbance, primarily through pedestrian traffic and beach goers moving over the frontal dune cordon to access the beach. The transformed nature of the dune cordon along the Melkbosstrand shoreline in the vicinity of the cable landing point accounts for a generally uniform habitat. Botanical assemblages found along the shoreline comprise primarily of graminoid species, particularly *Cynodon dactylon* and the exotic *Mimosa pudica* (Touch-me-not). Pioneer salt tolerant vegetation is limited across the dune frontage comprising primarily of *Carpobrotus edulis* (Hottentot-fig) and *Tertragonia decumbens* (sea spinach or kinkelbos in Afrikaans) with *Ehrharta villosa* (Pyp Grass) and *Didelta carnososa* being evident in places.

It is important to note that these species are not cover-dependent, i.e. they are not ecologically adapted to engulfment by sediments, as is common in many dune plants. This identifies this area as being in a state of sediment deficit and an erosion or sediment transport point with significant supra tidal, sediment stability. From an ecological perspective, the cable landing point is considered to be ecologically transformed and dissimilar to the natural seashore environments inherent along this portion of coastline.

According to the City of Cape Town 2017 Bionet (Figure 15), this area is classified as CBA 1e. These are areas identified as important areas for connectivity and are not considered generally suitable for development according to the Bionet Land-use Guidelines. In terms of this, and based on observations on site, it must be noted that the vegetation near the proposed landing site is isolated from any other intact vegetation remnants, is heavily impacted and does not represent the original vegetation that would have occurred here.

7.2.3 Wetlands

The study area falls within the Southern Western Coastal Belt Aquatic Ecoregion. This ecoregion is characterised by plains and a moderate to low relief, with gentle slopes (<5% gradient) occurring over more than 80% of the region. The coefficient of variation associated with annual precipitation is moderate to high throughout most of the South Western Coastal Belt Ecoregion, which means that there is a relatively high degree of year-to-year variability in the amount of precipitation. The study area falls into Köppen climate zone "Bsk", indicative of cold semi-arid climates according the Köppen-Geiger system.

Unlike the coast near Van Riebeeckstrand, no dune slack wetland is present along the Melkbosstrand Beach or at the proposed cable landing point. Initial mapping exercises have identified one potential wetland within 500 m of the proposed project site; however, this water resource is classed as a stormwater pond (Figure 16).

Given the biological importance of wetlands, a qualified wetland specialist will be appointed to confirm the EAPs understanding that no impacts on wetlands are anticipated from the proposed Equiano Cable System.



Figure 15 Vegetation types within the study area

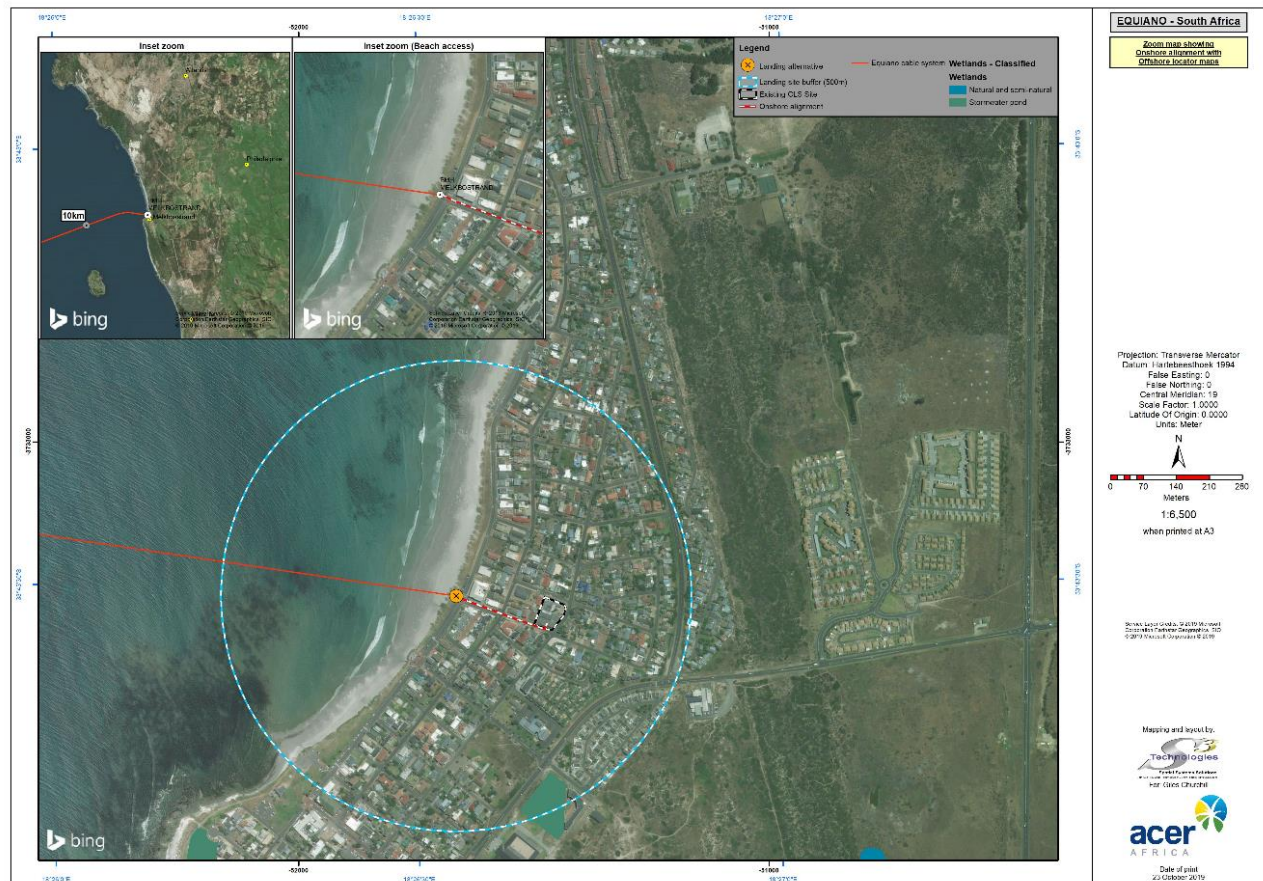


Figure 16 500 m radius in which wetlands will be investigated (also showing the stormwater pond)

7.2.4 Fauna

Mammals

The study area is likely to have relatively low mammalian species richness. Although the study area falls within or near the edge of the distribution range of 42 terrestrial mammals and nine bats, the high degree of transformation means that only species tolerant of human development are likely to be present. Species which are known to be located within the study area include the Cape Gerbil (*Tatera afra*) and the Cape Molerat (*Georychus capensis*). Two listed terrestrial mammal species are described as potentially occurring within the study area, viz. the Honey Badger (*Mellivora capensis*) and the White-tailed Mouse (*Mystromys albicaudatus*) (Endangered) but their presence is highly unlikely given the extensive transformation of most habitats within the urban setting of Melkbosstrand.

Reptiles

According to the Southern African Reptile Conservation Assessment (SARCA) database, 31 reptiles have been recorded within the study area. This includes three listed species, the Bloubergstrand Dwarf Burrowing Skink (*Scelotes montispectus*), Cape Dwarf Chameleon (*Bradypodion pumilum*) and Cape Sand Snake (*Psammophis leightoni*). Although the Cape Dwarf Chameleon might occur in residential gardens, it is unlikely that these three species occur within the affected areas of the cable route as the habitat is not suitable either through the transformed nature of the urban context or through degradation of remnant vegetation along the route.

In terms of the likely impacts of the development on reptiles, habitat loss is not likely to be highly significant as the cable alignment route is not likely to create a large loss of habitat. Although construction and installation of the Equiano Cable from the beach to the BMH will generate some disturbance which may negatively impact reptiles, this will be temporary in nature and in the long-term, impacts on reptiles are likely to be low.

Amphibians

The diversity of amphibians within the study area is likely to be relatively low given the low diversity of frogs. Impacts on amphibians are likely to be low and, if any, will occur during construction and installation of the Equiano Cable from the beach to the BMH.

7.3 Climate

The Western Cape has a semi-arid Mediterranean climate, which is strongly influenced by the cold Benguela Current and coastal winds. The Cape Town area is characterised by dry summer months (December to February) of hot, sunny weather, with an average temperature of 26° C.

During the winter months, the climate is characterised by cooler, rainy weather with June-August being the coldest months having an average temperature of 19° C. Rainfall within the study area predominantly occurs during the winter months with the highest monthly rainfall occurring in July when it rains for approximately 18 days on average each year (<http://www.worldweatheronline.com>). Graphs showing the average monthly temperatures and rainfall for Melkbosstrand are provided in Figure 17.

7.4 Topography and geology

The town of Melkbosstrand is situated in close proximity to the R27 regional road and is surrounded by conservation areas such as the Koeberg Nature Reserve, Cape West Coast Biosphere Reserve and the Blouberg Provincial Nature Reserve located to the south. The study area falls within the Southern Western Coastal Belt Aquatic Ecoregion. This ecoregion is characterised by plains with a moderate to low relief, with gentle slopes (<5% gradient) occurring over more than 80% of the region.

The surface geology along the coast at Melkbosstrand is dominated by Quaternary sediments, overlying meta-sediments of the Tygerberg Group. The Quaternary sediments grade from those associated with the Langebaan Formation (consisting of limestone and calcrete, partially cross-bedded with calcified parabolic dune sand) immediately inland of the coastline to those associated with the Witzand Formation (consisting of unconsolidated calcareous sand of marine origin), with the more acidic light-grey to pale-red sandy soils of the Springfontyn Formation occurring further inland, to the east.

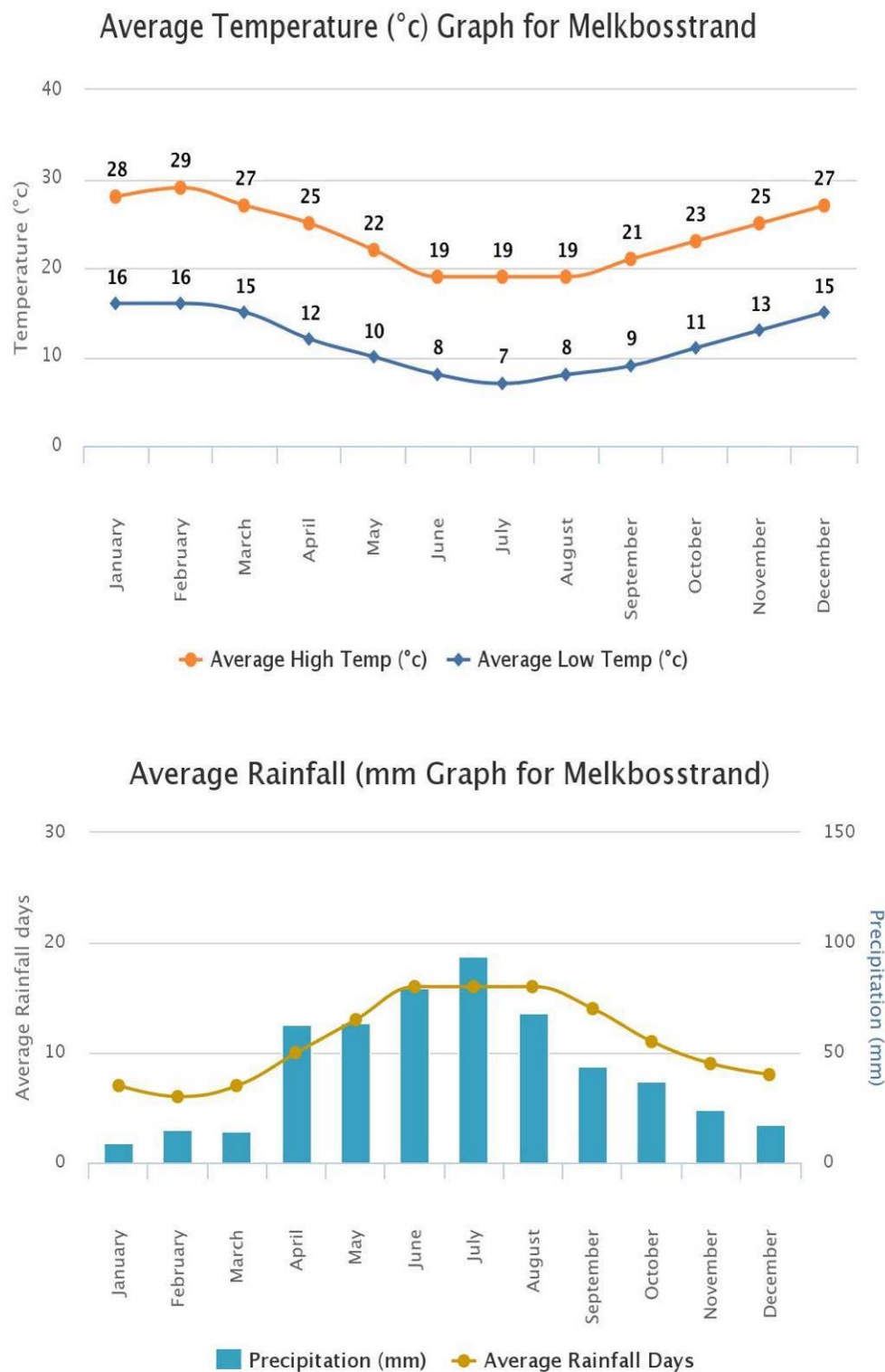


Figure 17 Average monthly temperature and rainfall for Melkbosstrand (Source: <http://www.worldweatheronline.com>)

7.5 Socio-economic overview of the receiving environment

This section provides an overview of the socio-economic characteristics of the project area. Through developing a socio-economic profile of the receiving environment one is better able to identify, assess and place in context the potential social impacts that the proposed project may have.

The proposed project is located in Ward 23 of the City of Cape Town Metropolitan Municipality. Ward 23 covers an area of approximately 95.5 square kilometres and has a population of 33,448 people, which equates to approximately 350 people per square kilometre (StatsSA, 2012). The ward includes the following areas:

- ❑ Big Bay.
- ❑ Blaaubergstrand.
- ❑ Blouberg.
- ❑ Melkbosstrand.
- ❑ Table View.

These suburbs are situated along the coastline where the majority of the population within these areas reside. The Koeberg Nuclear Power Station is situated to the north of Melkbosstrand which, due to the required safety exclusion zones, limits development, thus, providing a housing challenge due to population growth.

7.5.1 Population

The population within the City of Cape Town grew at a rate of 2.57% per annum between 2001 and 2011. This rate is higher than the national population growth rate of 1.5%. During the same period, Ward 23 experienced an annual growth rate of 7%, significantly higher than both the municipal and national averages (City of Cape Town, 2013 and StatsSA, 2012). The growth rate has been attributed predominantly to migration with individuals moving to the City of Cape Town municipality in search of job opportunities and better living standards (City of Cape Town, 2016). It is anticipated that the City of Cape Town population will continue to grow at an annual rate of 0.9% between 2019 and 2023 (City of Cape Town, 2017).

Findings from the 2011 Census show Ward 23 having a population of 33,448 (City of Cape Town, 2013). The population within the ward is predominately white (76%). This is in contrast to the municipal averages where 42% of the population is classified as coloured and 39% black (City of Cape Town, 2013). In terms of age structure, the majority of the population (72.5%) fall between the ages of 15 and 65 years of age, which is higher than the municipal figure of 69.7% for the same age category (City of Cape Town, 2013). This figure shows the high proportion of the population within the working age category, suggesting a lower level of dependence as there are fewer people below the age of 15. It also suggests a high level of migration to the area (aligning with the population growth figures), as this sector of the population is the most mobile.

7.5.2 Households

There are approximately 13,217 households in Ward 23 with an average household size of 2.5 people, which is below the municipal average of 3.5 people (City of Cape Town, 2013 and StatsSA, 2012). Only 1% of households in the ward are reported to reside in informal dwellings compared to 20.5% in the City of Cape Town (City of Cape Town, 2013 and StatsSA, 2012). In terms of household income, 17% of households have a monthly income of R 3,200 or less within Ward 23 which is significantly lower than the 47% of households in the

City of Cape Town reporting a monthly income of R 3,200 or less (City of Cape Town, 2013 and StatsSA, 2012). Figure 18 illustrates the higher level of income experienced by households within Ward 23 in comparison to the City of Cape Town as a whole. These figures, smaller household size, less households residing in informal dwellings and the higher level of income illustrate that Ward 23 has above average levels of development in relation to the rest of the municipality. A similar pattern exists when comparing development indicators in Ward 23 to provincial and national averages, with the figures clearly showing a better standard of living in this area.

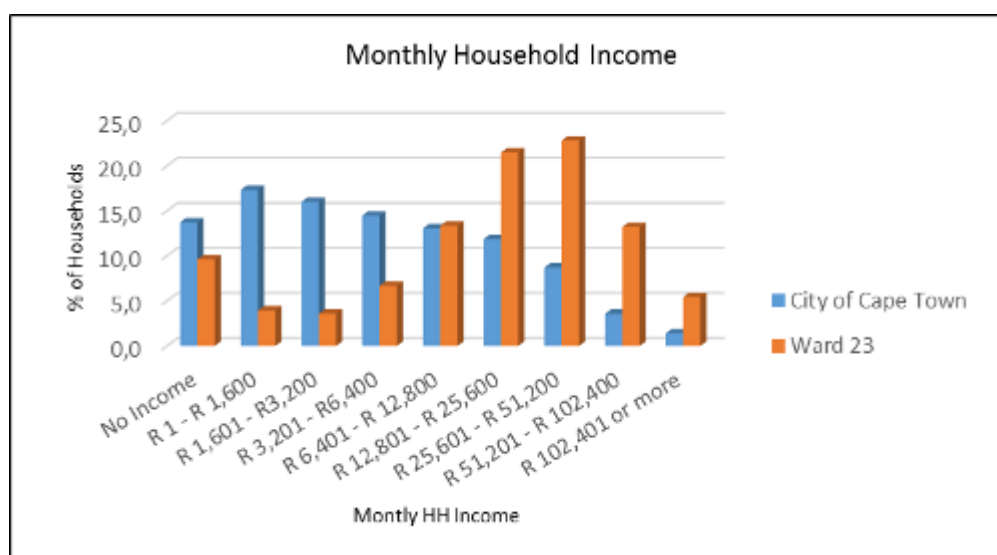


Figure 18 Comparative monthly household income data for the City of Cape Town and Ward 23

7.5.3 Education

Access to education is significantly better in Ward 23 than for the City of Cape Town as a whole. 82% of the population over the age of 20 in Ward 23 has completed Grade 12 or some form of tertiary education. In comparison, only 46% of the population over the age of 20 in the municipality have attained the same level of education and only 40% of the South African population over the age of 20 have attained this level of education.

Only 0.6% of the population over the age of 20 in Ward 23 report never having received any formal education in comparison to 2.6% in the municipality and 8.4% nationally (City of Cape Town, 2013 and StatsSA, 2012). These figures again suggest that the standard of living and level of development within Ward 23 are higher than that experienced by the municipality, the province, and the country as a whole. Figure 19 illustrates the different levels of education reported by the population over the age of 20 in Ward 23 (Series 2) and the City of Cape Town (Series 1).

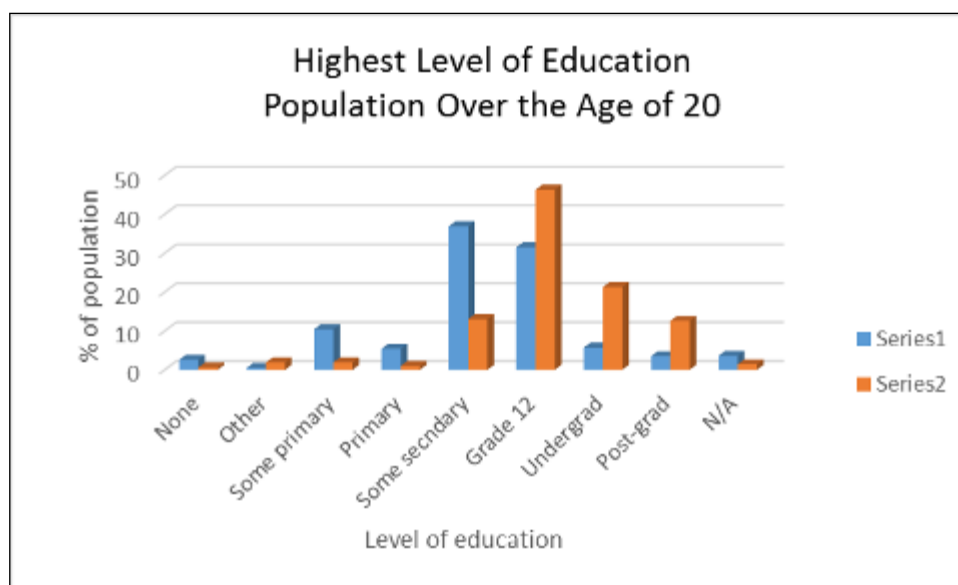


Figure 19 Level of education for the population over the age of 20

7.5.4 Employment

Unemployment levels are far lower in Ward 23 (5.5%) than within the municipality as a whole (23.1%) and the national average (29.8%) (City of Cape Town, 2013 and StatsSA, 2012). These figures align with the household income data discussed previously where it is evident that the population in Ward 23 has an above average level of income in comparison to the municipal averages. The majority of the working population in Ward 23 is employed in the formal sector (82.3%), with the area having less reliance on the informal sector than the City of Cape Town where 74% of the employed population is employed in the formal economy (City of Cape Town, 2013 and StatsSA, 2012).

7.5.5 Economic activity

The City of Cape Town has primarily a service driven economy with tertiary sector industries contributing almost 80% of the gross value added. Of particular importance are the finance and insurance industries which contributed over 30% to the municipal economic growth (City of Cape Town, 2016). By comparison, the economy in Ward 23 is based largely around the tourism industry with local businesses such as restaurants, accommodation establishments, etc. reliant on the tourism industry to survive (Grose, 2017, Per. Comm.). Importantly, it is likely that a large proportion of the employed population within Ward 23 commutes outside of the ward on a daily basis as employment opportunities within the ward are limited.

Directly offshore of the study area are fishing grounds utilised by the offshore demersal trawl fleet and the demersal longline fisheries. The fisheries generally operate between depths of 300 meters to 1,000 meters offshore (Wilkinson and Japp, 2016). The demersal trawl sector for hake, of which the majority takes place off the west coast, is the most valuable South African fishery. This sector is responsible for a significant number of jobs with an estimated 7,050 people employed directly by the deep-sea trawling industry (<http://www.sadstia.co.za/publication/sadstia-employment-factsheet>).

7.5.6 Access to basic services

Household access to piped water, sanitation and electricity is on average better in Ward 23 than it is for the City of Cape Town, the province and South Africa as a whole. In Ward 23, 98% of households have access to water piped water within their dwelling, which is marginally higher than for the City of Cape Town (87.3%), and higher than the national average (73.4%) (City of Cape Town, 2013 and StatsSA, 2012). The population in Ward 23 that has electricity for lighting is 99% which is again above the municipal average (94%) and the national average (84.7%) (City of Cape Town, 2013 and StatsSA, 2012). Access to formal sanitation in Ward 23 is high with 98.4% of households reported to have access to waterborne sanitation compared to 92% in the City of Cape Town and 63% nationally (City of Cape Town, 2013 and StatsSA, 2012).

7.5.7 Koeberg Nuclear Power Station

Koeberg is the only nuclear power station in Africa and ranks amongst the safest of the world's top ranking pressurised water reactors of its age and is the most reliable Eskom power station (<http://www.eskom.co.za>). Koeberg has operated safely for more than 20 years and has recently undergone a successful peer review by the World Association of Nuclear Operations. The power station is intended to have a further active life of 30 to 40 years, after which time it will be decommissioned in line with the requirements set out by the National Nuclear Regulator.

Koeberg is surrounded by a 3,000 ha private game reserve owned by Eskom, containing more than 150 species of birds and half a dozen small mammal species. The power station was originally located outside the metropolitan area. However, due to population growth and urban sprawl, the power station is now close to suburban housing. However, development is prohibited within the Public Exclusion Boundary (PEB), which is an area within a 2 km radius from the nuclear facility (both on and offshore), and which is not accessible to the public. It should be noted that both the offshore and onshore alignment of the proposed Equiano Cable System fall outside of the PEB and 5 km from the Precautionary Action Zone (PAZ) of Koeberg (Figure 20).

7.5.8 Cultural heritage

Terrestrial heritage resources

The proposed cable landing site is located in a paleontologically-sensitive region of potentially fossiliferous sediments. However, the proposed Equiano Cable System is planned to land on the beach following the SAT-2 cable alignment, which was trenched through the intertidal zone, up the beach, to the Beach Man Hole which was constructed for the SAT-2 cable. Given previous disturbances to the area it is unlikely that any heritage resources will be impacted during the landing of the Equiano Cable System, however, this will be confirmed through a heritage assessment of the site. From the BMH to the CLS no impact on heritage resources is expected as the cable will be routed through existing cable ducting which was installed for the SAT-2 cable.

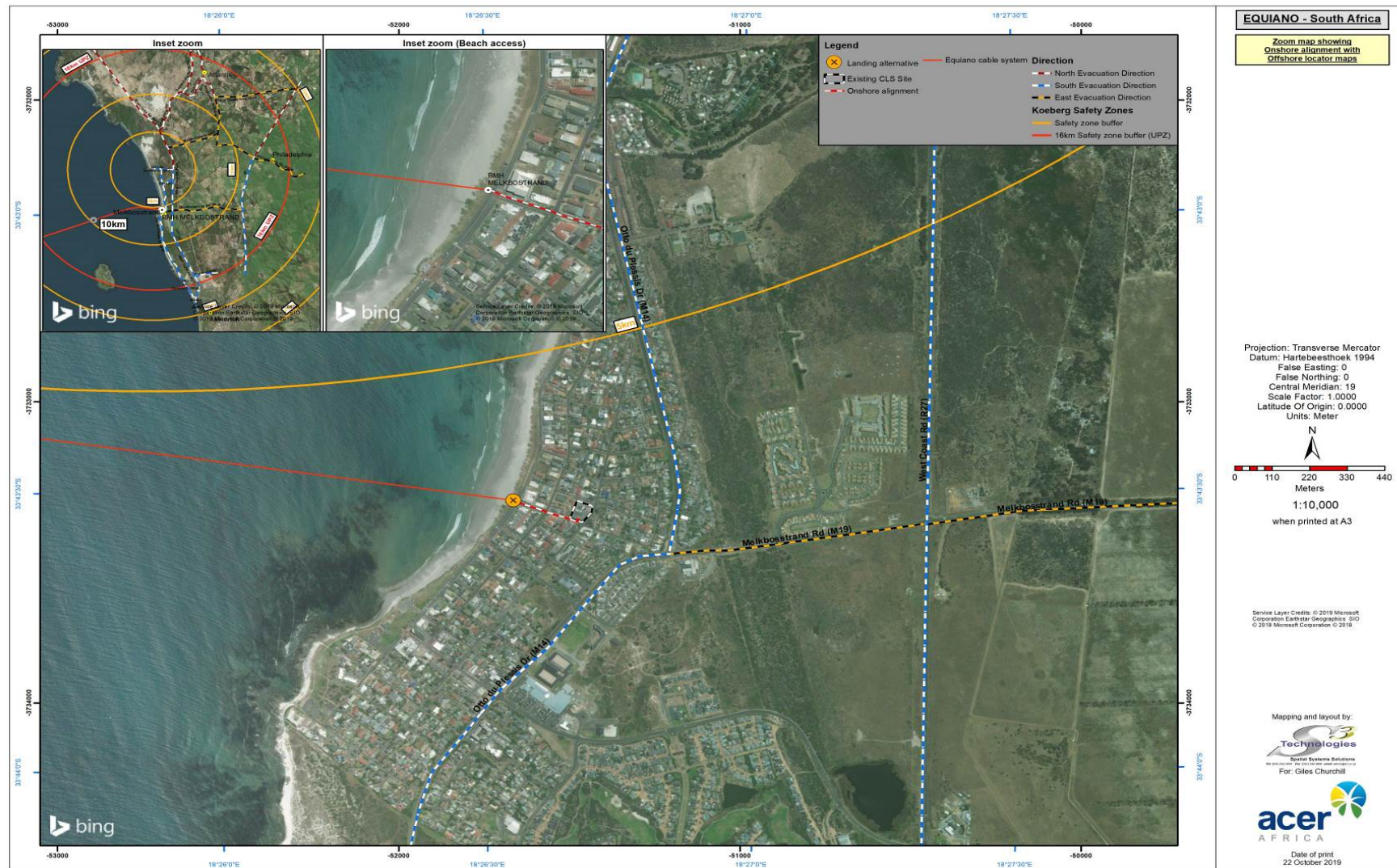


Figure 20 Koeberg Exclusion Zones

Marine heritage resources

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

The Equiano Cable System will be installed north of the historical anchorage in Table Bay located in the southern end of the bay, in an area roughly defined by the southern tip of Robben Island, Mouille Point and the southern shore of the bay. As an anchorage, this section of Table Bay has the greatest concentration of historical wrecks in South African waters (more than 400), however, very few were sunk as far north as Melkbosstrand (Figure 21). The only known wreck which is located within 1 km of the proposed Equiano landing site is the *L'Lucie*, a French sailing vessel wrecked in Losperds Bay in October 1808.

To identify and ascertain the potential impact on cultural heritage resources in both the terrestrial and marine environments, a heritage impact assessment will be undertaken to quantify and qualify the potential impact on 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.

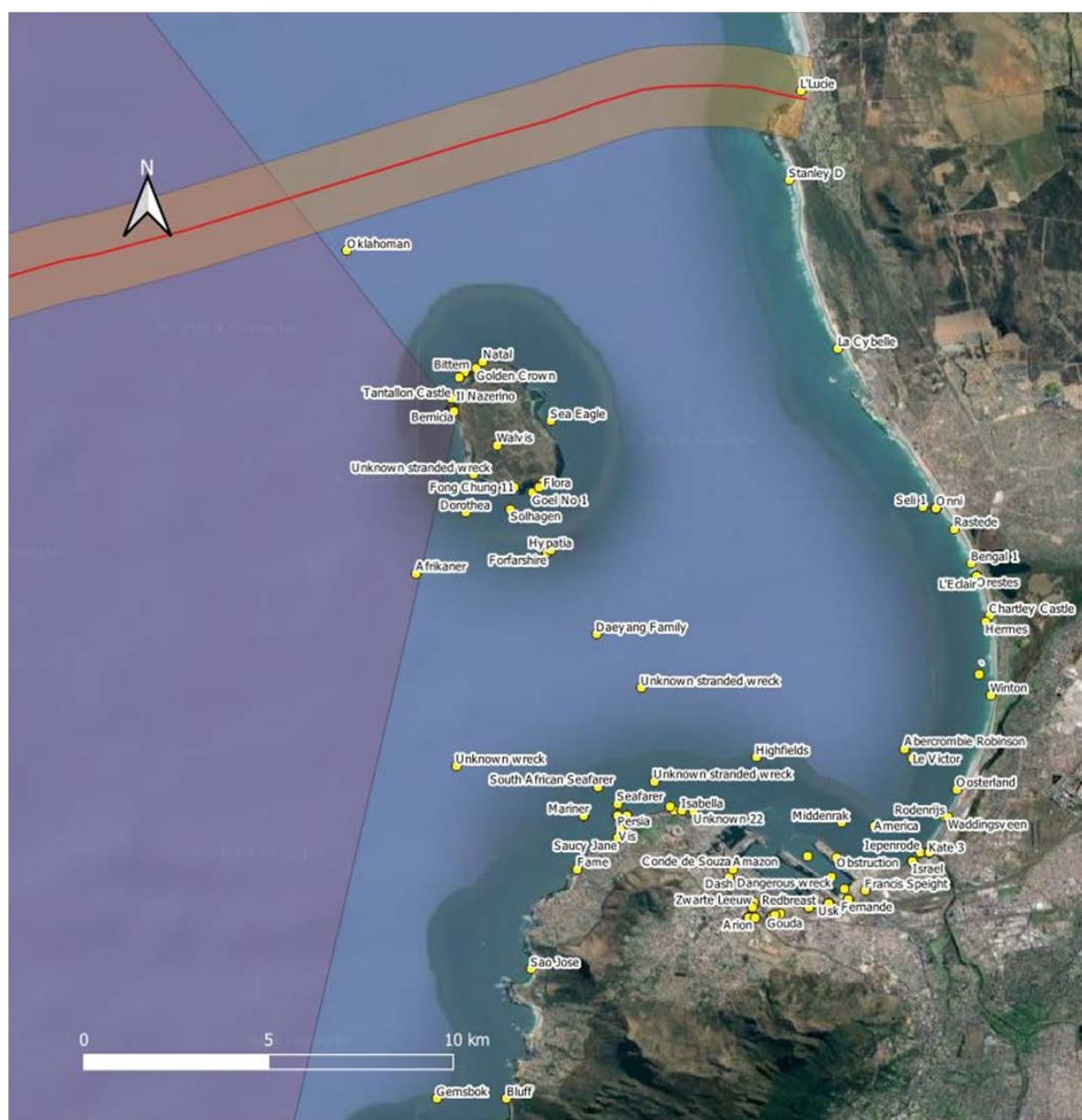


Figure 21 Known ship wrecks in Table Bay in relation to the proposed Equiano Cable alignment

8. ENVIRONMENTAL ISSUES AND POTENTIAL IMPACTS

The information-gathering phase during scoping included obtaining input from the project proponent, the technical team, I&APs and guidelines and clarification obtained from DEFF during the pre-application meeting. Information gathering focused on gaining an understanding of the environmental context and status 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 seven key questions, within which potential impacts are identified and described:

- ☐ What impacts will the construction and operation of the Equiano Cable System have on the terrestrial environment (flora and fauna)?
- ☐ What impacts will the construction and operation of the Equiano Cable System have on the fishing industry?
- ☐ What impacts will the construction and operation of the Equiano Cable System have on wetlands within the study area?
- ☐ What impacts will the construction and operation of the Equiano Cable System have on the beach and dune cordon at Melkbosstrand?
- ☐ What are the potential impacts that the proposed Equiano Cable System and related infrastructure will have on the Marine Benthic Environment based on the alignment selected?
- ☐ What impacts will the construction of Equiano Cable System have on cultural and heritage resources, including any paleontological resources (if any are identified during the study)?
- ☐ What cumulative impacts will the construction of the Equiano Cable System have?

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

These key issues are elaborated hereunder.

8.1 What impacts will the construction and operation of the Equiano Cable System have on the natural environment (flora and fauna)?

Marine environment

The proposed marine cable is expected to have some direct impact on flora (sea weeds, etc.) within the study area during installation of the cable system through cable burial activities. These impacts are, however, limited mainly to the seabed (benthos) and will be limited to the actual cable alignment (less than 5 m wide corridor). The long-term impacts of the marine telecommunications cable on the benthic environment (both fauna and flora) is, however, expected to be positive due to the implementation of the legislated buffer zone (1 Nm) as defined in the Marine Traffic Act (Act No. 2 of 1981) read together with the Maritime Zones Act (Act No. 15 of 1994). This buffer zone effectively protects this environment from disturbance caused by bottom trawling activities, mineral exploration and the anchoring of vessels.

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

Terrestrial environment

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

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

8.2 What impacts will the construction and operation of the Equiano Cable System have on the fishing industry?

Demersal trawling in South Africa started in the 1890s and has developed into the country's most important and mature fishing industry, which is highly capital intensive and is further characterised by the high rate of employment per ton of fish landed. The fishing industry also has a high degree of value adding, established globally competitive brand names and well-organised local and international marketing and distribution networks (<https://www.ru.ac.za/media/rhodesuniversity/content/envirofishafrica>).

The offshore alignment of the proposed Equiano Cable System passes through the trawling grounds of the demersal trawling industry and may impact on fisheries through the restriction of fishing activities 0.5 Nm either side of the telecommunications cable (the requirement for a "no-fishing" (exclusion) zone on either side of submarine cables is defined in the Marine Traffic Act (Act No. 2 of 1981) read together with the Maritime Zones Act (Act No. 15 of 1994)). It must be noted that the Equiano Cable System will use the existing alignment of the now decommissioned SAT-2 Cable which already has an exclusion zone in place and will not cause any additional impacts to the fishing industry.

An investigation into the possible impacts the exclusion zone of the Equiano Cable System may have on the demersal trawling industry will be undertaken in the form of a fisheries assessment. Furthermore, the EAP and project proponent have engaged directly with the South African Deep Sea Trawling Industry Association (SADSTIA) to discuss the project in detail and to identify SADSTIA concerns and issues pertaining to the proposed development.

8.3 What impacts will the construction and operation of the Equiano Cable System have on the wetlands within the study area?

It is unlikely that the proposed Equiano Cable System will have any impacts on wetland systems based on an initial review of aerial imagery and site visits. To confirm this, a wetland specialist will be commissioned to assess and investigate the possible impacts the Equiano Cable System may have on wetlands within 500 m of the terrestrial cable route.

8.4 What impacts will the construction and operation of the Equiano Cable System have on the beach and shore front at Melkbosstrand?

The beach profile and dune cordon at Melkbosstrand have a very flat topography. The dune cordon at Melkbosstrand consists of a stabilised dune cordon which is covered with grass, routinely cut by the City of Cape Town.

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.

Due to the dynamic nature of dune systems and the numerous factors at play which influence the morphology and function of these dune systems, the construction of the Equiano Cable System may have an impact on the dune cordon at Melkbosstrand. These impacts are, however, expected to be temporary in nature, limited to construction (less than 10 days to bury the cable through the dune cordon) and highly localised. Nevertheless, adopting a conservative approach, a specialist study will be commissioned to investigate and assess possible impacts on the dune cordon.

8.5 What are the potential impacts that the proposed Equiano Cable System and related infrastructure will have on the Marine Benthic Environment based on the alignment selected?

The proposed Equiano Cable System traverses two offshore biogeographic regions, viz. the Southwestern and Atlantic Offshore Cape Bioregions. The marine ecology within these bioregions is primarily shaped by the coastal and wind-induced upwellings characterising the Western Cape coastline. Although the Benguela System is characterised by the presence of cold surface water, high biological productivity, and highly variable physical, chemical and biological conditions, the West Coast is also characterized by low marine species richness and low endemism.

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

- ☐ Sandy intertidal and subtidal substrates.
- ☐ Intertidal rocky shores and subtidal reefs.
- ☐ The water column.

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

- ☐ Sandy substrate habitats and biota.
- ☐ Intertidal sandy beaches.

- ☐ Nearshore and offshore unconsolidated habitats.
- ☐ Rocky substrate habitats and biota.
- ☐ Deep-water coral communities.

Marine benthic communities are potentially negatively affected by the laying of the proposed Equiano Cable System toward the Melkbosstrand landing site. Potential impacts need to be understood and, therefore, a specialist study will be commissioned to investigate potential negative effects on benthic communities during cable installation (given that the cable system will be buffered 0.5 Nm either side, no impacts are likely to be associated with the operation of the cable system; on the contrary, the buffer zone will afford an additional layer of protection to benthic communities).

8.6 What effects will the construction of Equiano Cable System have on cultural and heritage resources, including any paleontological resources (if any are identified during the study)?

In terms of the National Heritage Act, it is necessary to appoint a heritage practitioner to determine if any cultural heritage resources occur along the proposed alignment of the Equiano Cable System or if there are any in the vicinity which may need to be avoided by the cable alignment. As the terrestrial component of the project does not require any construction related activities inland of the beach it is unlikely that any heritage resources will be impacted on by the proposed development. Similarly, it is unlikely that any heritage resources in the marine environment (shipwrecks, etc.) will be impacted as the Equiano Cable System follows the existing alignment of the SAT-2 Cable System.

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

8.7 What cumulative impacts will the construction of Equiano Cable System have?

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

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

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

9. PLAN OF STUDY FOR IMPACT ASSESSMENT

This section outlines the Plan of Study for the Impact Assessment for the construction and operation of the proposed Equiano Cable System and associated infrastructure.

Potential impacts and issues of concern, as described in Section 8, need to be investigated. The significance of potential impacts will be determined as informed by specialist studies and further input by other project team members, and as integrated by the EAP.

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

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

9.1 Key tasks to be undertaken

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

- ☐ Address any comments from DEFF with respect to the Final Scoping Report and Plan of Study for the Impact Assessment.
- ☐ Commission and undertake focused studies on the potentially significant issues identified during Scoping.
- ☐ Maintain communication and interaction with I&APs.
- ☐ Integrate the findings of the specialist studies into a comprehensive and objective EIAR, inclusive of mitigation measures to ameliorate the effects of negative impacts and to optimise benefits.
- ☐ Prepare an Environmental Management Programme.
- ☐ Make available the draft EIAR and EMP_r for public review.
- ☐ Process and consider I&AP review comments.
- ☐ Amend and finalise the draft EIAR and EMP_r as required, incorporating review comments. Produce a Final EIAR, Final EMP_r 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.

9.2 Proposed specialist studies

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

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

9.2.1 Ecological (Flora and Fauna) Specialist Study

The specialist must provide an assessment of the potential impact that the proposed Equiano Cable System and related infrastructure will have on the ecology (flora and fauna) within the project area. The specialist study should identify and discuss the following key aspects.

- ❑ What are the potential impacts on vegetation arising from the proposed Equiano Cable System and associated construction activities?

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

- Description of the vegetation present, the relevant and important characteristics and components thereof, including ecological functioning, which may be affected by the proposed Equiano Cable System or which may affect the proposed development during site establishment, construction, operation and maintenance and/or decommissioning.
 - The assessment must consider the terrestrial environment within the development footprint as well as the terrestrial environment directly adjacent to the proposed cable servitude and construction footprints.
 - Identification of species of conservation importance, including Red Data/CITES and TOPS species potentially affected by the proposed project.
 - Identify and GPS significant sites that should be conserved, indicate on a suitable map, and motivate why they should be conserved.
 - Identify the likely risks and impacts (negative and/or positive, including cumulative impacts if relevant) and their significance, which the proposed activity/infrastructure may have on vegetation assemblages and *vice versa* during site establishment, construction, operation and maintenance and/or decommissioning (using the assessment conventions provided in Section 9.3).
 - Recommend mitigation measures for enhancing positive impacts and avoiding or mitigating negative impacts and risks (to be implemented during the design, construction, operation and/or decommissioning phases), for inclusion in an EMP.
 - Identify permit requirements as related to the removal and/or destruction of vegetation and specific plant species. All protected tree species within the proposed project footprint must be counted, marked (with barrier tape) and their position recorded to facilitate the DEFF and Cape Nature permit application processes. The completed permit applications must be submitted to ACER for further attention and action.
 - Address specific issues and concerns raised by I&APs during the public review phase of the EIA process (a Comments and Responses Report will be provided to specialists).
 - Discuss any other sensitivities and important issues from the specialist perspective that are not identified in the terms of reference.
- ☐ What are the potential impacts on terrestrial fauna and ecology arising from the proposed Equiano Cable System and associated construction activities?
- Identify animal species likely to occur in the study area, including an indication of dominant species, rare and endangered species (Red Data species), and exotic and invasive species.
 - Describe the animal species and their habitats.
 - Assess habitat condition.
 - Undertake a desktop study to determine the probability of occurrence of any fauna of concern within these identified habitats.
 - Determine the state of health of the ecosystem by taking into consideration all aspects concerning the natural resources.
 - Recommend mitigation measures to ameliorate the negative impacts of the proposed development on the natural environment to be included in the EMP.
 - Address specific issues and concerns raised by I&APs during the public review phase of the EIA process (a Comments and Responses Report will be provided to specialists).

- Discuss any other sensitivities and important issues from the specialist perspective that are not identified in the terms of reference.

9.2.2 Fisheries Specialist Study

The specialist must provide an assessment of the potential impact that the proposed Equiano Cable System and related infrastructure will have on the trawling industry based on the selected alignment. In this context, the specialist study should identify and discuss the following topics.

- ☐ Determine the actual number of bottom trawls per annum over the proposed Equiano Cable System alignment and depict how and from what source of information this was calculated as well as the accuracy of the data.
- ☐ Typically, at what depths are the bottom trawls along the proposed Equiano Cable alignment?
- ☐ Provide a detailed explanation of the key methods on how trawls are recorded and clearly depict the accuracy of these recordings.
- ☐ Assess the current trawling logs and investigate whether the existing cable alignments and their exclusion zones are avoided by trawling vessels (specifically the SAT3/WASC and SAT-2 cable alignments).
- ☐ Provide a brief comment on the impact of the proposed Equiano Cable System alignment and its potential significance to the trawling industry. This comment on significance should cover aspects such as the relative percentage of the trawling grounds impacted and/or if the proposed alignment is likely to have any impact on trawling in terms of increased operational costs.
- ☐ Address specific issues and concerns raised by I&APs during the public review phase of the EIA process (a Comments and Responses Report will be provided to specialists).
- ☐ Discuss any other sensitivities and important issues from a fisheries perspective that are not identified in these terms of reference.

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

- ☐ A map of trawl data over the last five years showing trawls across the proposed Equiano Cable System alignment and the existing ACE, SAT3/WASC and SAT-2 cables. The map legend should include trawl numbers for each year assessed.

9.2.3 Wetland Specialist Study

The specialist must provide an assessment of the potential impact that the proposed Equiano Cable System and related infrastructure will have on wetlands within the project area. The specialist study should identify and discuss the following key aspects.

- ☐ What are the potential impacts on wetlands arising from the proposed Equiano Cable System, associated infrastructure and construction activities?

The Wetland Delineation and Functional Assessment must identify and evaluate all wetlands within the proposed development footprint and within 500 m of the proposed development footprint. Specifically, the assignment must address the following primary elements:

- The delineation of the outer edge of the temporary zone of wetlands in accordance with: *A practical field procedure for identification and delineation of wetlands and riparian areas* (DWAF, 2006).

- Determination of all wetland boundaries (viz. the edge of the temporary wetness zone in each case).
- Determination of ecological buffers as stipulated by both National (Department Human Settlements, of Water and Sanitation) and provincial legislation.
- Mapping of the wetlands and their respective buffer zones at an appropriate scale.
- Functional assessment using methods outlined in Wet-Ecoservices (Kotze *et al.*, 2005). This will comprise a desktop and infield assessment scoring the ecosystem services that the wetlands supply, which will allow for informed planning and decision making.
- Description of the current state of the wetlands and riparian zones (specifically focusing on Present Ecological State (PES) and Ecological Importance and Sensitivity (EIS) using the Wet-Health tool (Macfarlane *et al.*, 2007)). In addition to the PES and EIS, the overall impact of all activities that affect hydrological, geomorphological or vegetation health must be calculated as this is a requirement for the water use licensing process.
- Address specific issues and concerns raised by I&APs during the public review phase of the EIA process (a Comments and Responses Report will be provided to specialists).
- Discuss any other sensitivities and important issues from a wetland perspective that are not identified in these terms of reference.

For wetlands that are not within the development footprint but are within 500 m of the proposed development, it is only necessary to assess the wetland if the proposed development will impact on one of the four main wetland drivers, viz. habitat, biota, flow and water quality.

9.2.4 Beach and Coastal Dune Dynamics Specialist Study

The specialist must provide an assessment of the potential impact that the proposed Equiano Cable System and related infrastructure will have on the Beach and Coastal Dune Dynamics within the project area. The specialist study should identify and discuss the following key aspects.

- ☐ What are the potential impacts of the proposed Equiano Cable System on the primary dune, beach and beach dynamics, particularly areas of sensitive vegetation, such as the primary dunes, beach access points and the beach/dune/wetland interface?
- ☐ What measures can be applied to rehabilitate, mitigate and manage these impacts to optimise environmental integrity at the proposed cable landing point?
- ☐ How should the dunes in question be rehabilitated and what measures are required to ensure dune stability and functionality (i.e. outline a specific action plan)?

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

- ☐ Provide a description of the primary dunes and dune belt present at Melkbosstrand and the relevant and important characteristics and components thereof, including dune dynamics.

- ❑ Identify and describe the components, characteristics and natural processes of the coastal environment that may be affected by the proposed development (during pre-construction, construction, operation, maintenance and/or decommissioning), from the perspective of coastal dynamics and dune stability.
- ❑ Identify and describe the components of the development that may be affected by the environment (during pre-construction, construction, operation, maintenance and/or decommissioning), from the perspective of coastal dynamics and dune stability.
- ❑ The assessment must consider the proposed Equiano Cable System development footprint from the shallow water subtidal zone (< 10 m water depth) up to the BMH located approximately 10 m inland from the primary dunes. Particular attention should be paid to proposed development activities on the primary dunes and near the beach/dune interface.
- ❑ Identify the likely risks and impacts (negative and/or positive, including cumulative impacts if relevant) and their significance, which the proposed activity/infrastructure may have on relevant environmental components and processes, and *vice versa* during site establishment, construction, operation and maintenance and/or decommissioning (using the assessment conventions provided in Section 9.3).
- ❑ Make recommendations on alternatives where additional alternatives could be implemented to avoid negative impacts.
- ❑ Recommend mitigation measures for enhancing positive impacts and avoiding or mitigating negative impacts and risks (to be implemented during the design, construction, operation and/or decommissioning phases), for inclusion in an 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.
- ❑ Discuss any other sensitivities and important issues from the specialist perspective that are not identified in the terms of reference.
- ❑ Address specific issues and concerns raised by I&APs during the public comment and review phases of the EIA process (a Comments and Responses Report will be provided to specialists).

9.2.5 Marine Benthic Assessment

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

- ❑ A desktop assessment of the potential impact that the proposed Equiano Cable System 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.
 - An introduction with a brief project overview, study approach, methodology, and assumptions and limitations.
 - A description of the marine environment of the project area, focusing on the benthic invertebrate communities based on available literature and experience.
 - A description of the potential impacts of the project on the benthic invertebrate fauna, followed by an assessment of the significance of these impacts using the assessment criteria provided (it must be noted that marine telecommunications cables once installed have a legislated 0.5 Nm buffer either side of the cable where no fishing/trawling or anchoring of vessels may take place).

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

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

9.2.6 *Heritage Specialist Study*

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

- ☐ What are the potential impacts on heritage resources (marine and terrestrial) arising from the proposed landing of the Equiano Cable System, and associated construction and operational activities?

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

- The identification and assessment of potential impacts on cultural heritage resources, including historical sites arising from the construction and operation of the proposed Equiano Cable System (both onshore and offshore).
- The early identification of any red flag and fatal flaw issues or impacts.
- Information must be provided on the following:
 - Results of an overview survey of the project area, and the identification of cultural heritage resources that may be affected by the proposed project or which may affect the proposed project during construction and operation.
 - Recommended mitigation measures for enhancing positive impacts and avoiding or minimizing negative impacts and risks (to be implemented during design, construction and operation).
- Address specific issues and concerns raised by I&APs during the public review phase of the EIA process (a Comments and Responses Report will be provided to specialists).
- Formulation of a protocol to be followed by Openserve 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 Equiano Cable System.

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

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

9.3 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**¹³ – 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.**

9.4 Public Participation

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

¹³ This excludes positive impacts on the environment. In these cases, the level of significance should be denoted as Low**, Moderate** or High**.

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

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

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

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

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

Once the competent authority has issued 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.

9.5 Project schedule

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

Activity	Anticipated Dates
Project Announcement	18 September 2019
Initial Comment Period	19 September 2019 – 22 October 2019
Draft Scoping Report Public Review Period/Application to DEA	12 February 2020 – 16 March 2020
Submit Final Scoping Report and Plan of Study for Impact Assessment to the Competent Authority	11 June 2020
Specialist Study Investigations	10 September 2019 – 5 November 2019
Preparation of Draft Environmental Impact Assessment Report	11 June 2020 – 17 July 2020
Draft Environmental Impact Assessment Report and Environmental Management Programme Public Review Period	17 July 2020 – 24 August 2020
Submit Final Environmental Impact Assessment Report and Environmental Management Programme to the Competent Authority	9 October 2020

10. 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 analysis of key issues during Scoping suggests that there are no negative impacts that can be classified as fatal flaws. However, further investigation is required as part of the Impact Assessment to assess potentially significant issues, viz. impacts on wetlands, ecological impacts, impacts on the coastal dune cordon, possible marine benthic impacts and possible impacts on the trawling industry. A cultural heritage assessment will also be undertaken to support the EIA. Measures for mitigation and management will be identified for inclusion in an EMP.

Following the comment period for the Draft Scoping Report, the issues raised by I&APs, together with those of technical specialists and the regulatory authorities, 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.

11. LITERATURE REVIEWED

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.worldweatheronline.com/van-riebeekstrand-weather-averages/western-cape/za.aspx> Date accessed 6 September 2016.

https://www.capetown.gov.za/en/stats/2011CensusSuburbs/2011_Census_CT_Suburb_Melkbosstrand_Profile.pdf Date accessed 6 September 2016.

https://www.capetown.gov.za/en/EnvironmentalResourceManagement/publications/Documents/CCT_Beaches_-_a_diversity_of_coastal_treasures_2009.pdf Date accessed 28 September 2016.

<https://coast.noaa.gov/czm/media/Oregon-PPR-Appendix-Part2.pdf> Date accessed 8 September 2016.

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

<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2914023/pdf/pone.0012008.pdf> Date accessed 20 September 2016.

https://www.environment.gov.za/mediarelease/molewa_22newproposed_mpas Date accessed 20 September 2016.

<http://sanpcc.org.za/pssa/articles/includes/NSBA%20Summary%20Report%20Draft%20Oct%2004.pdf> Marine component of the National Spatial Biodiversity Assessment for the development of South Africa's National Biodiversity Strategic and Action Plan. 2004. Date accessed 20 September 2016.

http://www.statssa.gov.za/?page_id=4286&id=297 Date accessed 21 September 2016.

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

<https://www.ru.ac.za/media/rhodesuniversity/content/envirofishafrica/documents/Vol1An%20Economic%20and%20Sectoral%20Study%20of%20the%20South%20African%20Fishing%20Industry-Results.pdf> Date accessed 20 September 2016.

<https://www.ru.ac.za/media/rhodesuniversity/content/envirofishafrica/documents/Vol2An%20Economic%20and%20Sectoral%20Study%20of%20the%20South%20African%20Fishing%20Industry-Fishery%20profiles.pdf> Date accessed 20 September 2016.

<http://repository.up.ac.za/bitstream/handle/2263/5908/021.pdf;jsessionid=59B3CD6603074D1BF909C4A866B87414?sequence=1> Date accessed 20 September 2016.

https://en.wikipedia.org/wiki/Koeberg_Nuclear_Power_Station Date accessed 20 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://cer.org.za/news/safeguarding-our-seabed-offshore-mining-and-drilling-threaten-environmental-rights-and-local-livelihoods> Date accessed 14 October 2019.

<https://seaview.u-bordeaux.fr/Scenarios-Case-studies/Benguela-upwelling> Date accessed 17 October 2019.

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

<https://pdfs.semanticscholar.org/97a2/361e65bfa1e513601948fa682bdf25b321a4.pdf> Date accessed 25 October 2019.

<http://www.k-kcs.co.jp/english/solutionRepairingMethod.html> Date accessed 25 October 2019.

Publications

ASN REH. (2019). *ASN ROUTE ENGINEERING GUIDELINES*.

BIRCH G.F., ROGERS J., BREMNER J.M. and G.J. MOIR, 1976. Sedimentation controls on the continental margin of Southern Africa. *First Interdisciplinary Conf. Mar. Freshwater Res. S. Afr.*, Fiche 20A: C1-D12.

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

DINGLE, R.V., BIRCH, G.F., BREMNER, J.M., DE DECKER, R.H., DU PLESSIS, A., ENGELBRECHT, J.C., FINCHAM, M.J., FITTON, T., FLEMMING, B.W. GENTLE, R.I., GOODLAD, S.W., MARTIN, A.K., MILLS, E.G., MOIR, G.J., PARKER, R.J., ROBSON, S.H., ROGERS, J. SALMON, D.A., SIESSER, W.G., SIMPSON, E.S.W., SUMMERHAYES, C.P., WESTALL, F., WINTER, A. and M.W. WOODBORNE, 1987. Deep-sea sedimentary environments around Southern Africa (South-east Atlantic and South-west Indian Oceans). *Annals of the South African Museum* 98(1).

Hockey PAR, Cooper J, Duffy DC. The Roles of Coastal Birds in the Functioning of Marine Ecosystems in Southern Africa. *South African Journal of Science*. 1983; Vol. 79 April.

Hutchings L, van der Lingen CG, Shannon LJ, Crawford RJM, Verheye HMS, Bartholomae CH, van der Plas AK, Louw D, Kreiner A, Ostrowski M, Fidel Q, Barlow RG, Lamont T, Coetzee J, Shillington, F, Veitch J, Currie JC and Monteiro PMS. The Benguela Current: An ecosystem of four components. 2009. *Progress in Oceanography* 83; Pg. 15-32.

ICPC. (2019). *International Cable Protection Committee*. Retrieved from <https://www.iscpc.org/>

Pulfrich A., 2019. Impacts on Marine Ecology – Installation of Equiano Cable System, Melkbosstrand, South Africa. Unpublished

ROGERS, J., 1977. *Sedimentation on the continental margin off the Orange River and the Namib Desert*. Unpubl. Ph.D. Thesis, Geol. Dept., Univ. Cape Town. 212 pp.

Sink KJ, Attwood CG, Lombard AT, Grantham H, Leslie R, Samaai T, Kerwath S, Majiedt P, Fairweather T, Hutchings L, van der Lingen C, Atkinson LJ, Wilkinson S, Holness S, Wolf T. 2011. Spatial planning to identify focus areas for offshore biodiversity protection in South Africa. Final Report for the Offshore Marine Protected Area Project. Cape Town: South African National Biodiversity Institute.

Statistics South Africa, 2012. Census 2011 Municipal report – Western Cape/ Statistics South Africa. Pretoria: Statistics South Africa, 2012.

Taunton-Clark J, Shannon LV. Annual and inter-annual variability in the South-East Atlantic during the 20th century. *South African Journal of Marine Science*. 1988; Vol:6 Pg. 97–106.

UKHO. (2019). UKHO - ADMIRALTY CHARTS.

APPENDIX 1: APPLICATION FOR AUTHORISATION

APPENDIX 2: PUBLIC PARTICIPATION DOCUMENTS

APPENDIX 3: COMMENTS AND RESPONSE REPORT

APPENDIX 4: PRE-APPLICATION MEETING MINUTES/DEFF SCREENING TOOL REPORT

APPENDIX 5: EAP CURRICULUM VITAE

APPENDIX 6: PROPERTY DETAILS

APPENDIX 7: SUPPORTING MAPS