

APPENDIX 1 BACKGROUND INFORMATION DOCUMENT

1. INTRODUCTION

Alcatel Submarine Networks (ASN) has been contracted to supply and install the proposed 2AFRICA/GERA (East) Cable System connecting Africa to Europe and parts of the Middle East (Figure 1). One of the South African landings proposed at Port Elizabeth, Eastern Cape on the East Coast of South Africa is to be operated by Vodacom (Pty) Limited (Hereafter referred to as “Vodacom”) as the South African landing partner. Vodacom aims to secure local permits to land the 2AFRICA/GERA (East) cable at Port Elizabeth and ACER (Africa) Environmental Consultants (ACER) has been appointed to obtain the required environmental authorisation and permits for this landing.

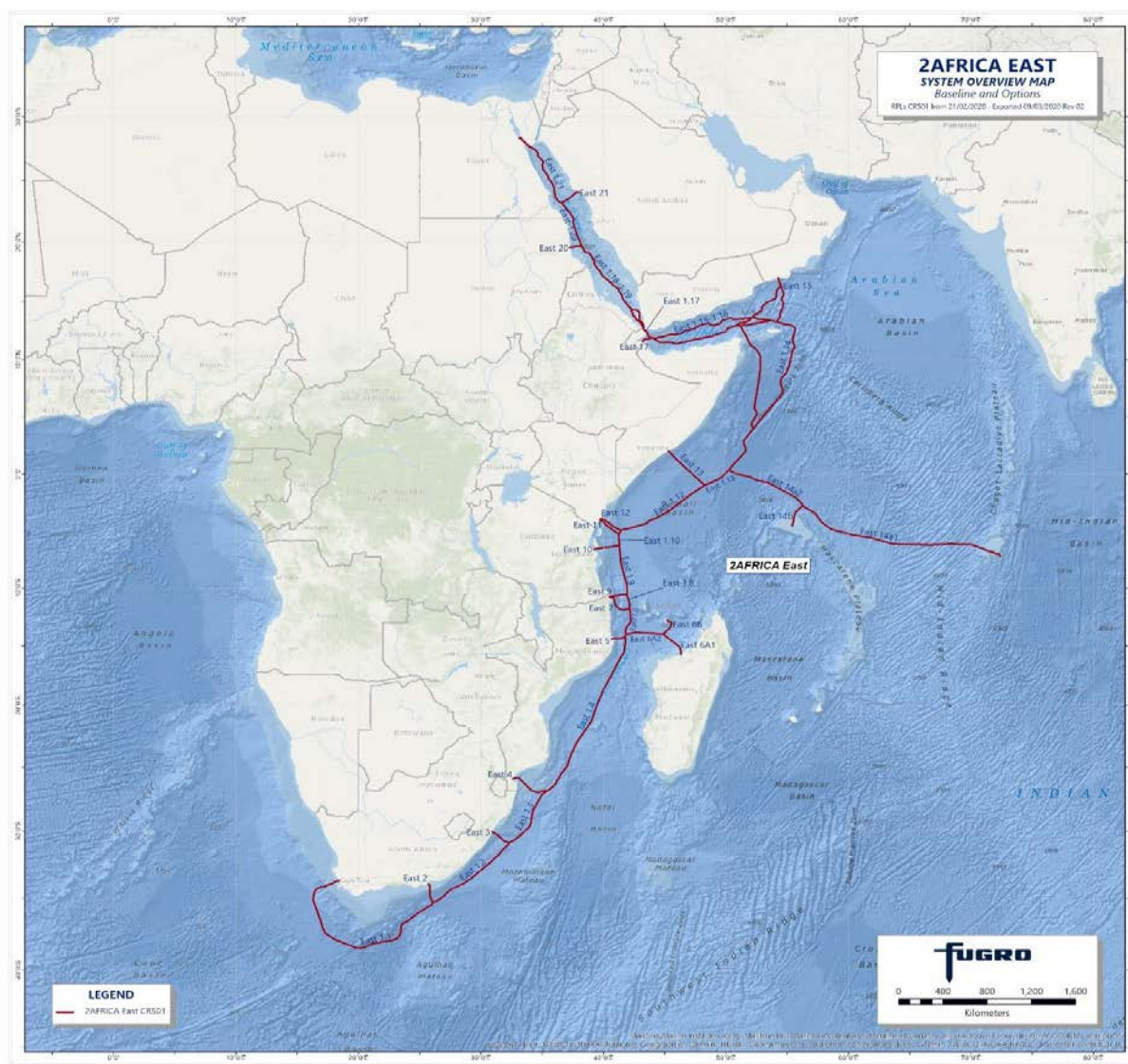


Figure 1 General overview of the proposed 2AFRICA/GERA (East) Cable System

1.1 Purpose of the 2AFRICA/GERA (East) Cable System

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.

Currently, Africa relies primarily on satellites to provide its international communications. 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 is expected to remove one of the current key inhibitors to development in Africa and support economic growth and opportunities on the continent.

With the landing of the 2AFRICA/GERA (East) 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.

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 NEPAD and provide a means of fulfilling the South African Government's requirements in terms of digital television broadcasting.

2. PURPOSE OF THIS DOCUMENT

This Background Information Document (BID) provides information about the proposed 2AFRICA/GERA (East) Cable System and the Environmental Impact Assessment (EIA) required for environmental authorization to land the cable at Port Elizabeth in the Eastern Cape, South Africa. The BID covers:

- The purpose of the proposed 2AFRICA/GERA (East) Cable System.
- Applicable environmental legislation.
- Project activities.
- Route alignment and landing site alternatives.
- Potential issues associated with the proposed cable system.
- The Environmental Impact Assessment process.
- Information on how to register as an Interested and/or Affected Party.

3. APPLICABLE ENVIRONMENTAL LEGISLATION

In terms of the requirements of the Environmental Impact Assessment (EIA) Regulations of 2014 (as amended), published under the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA), the installation of the proposed 2AFRICA/GERA (East) Cable System and associated infrastructure triggers several listed activities in GN R. 324, 325 and 327, as detailed in Table 1. This requires the undertaking of a full Scoping and EIA process.

3.1 Environmental Assessment Practitioner

In accordance with the EIA regulations, ACER (Africa) Environmental Consultants was commissioned as the Environmental Assessment Practitioner (EAP) to undertake the EIA for the 2AFRICA/GERA (East) Cable System landing at Port Elizabeth.

Table 1 Listed Activities potentially triggered by the proposed 2AFRICA/GERA (East) Cable System landing at Port Elizabeth.

Activity	Reason
Listing Notice 1 (No. R. 327 of 2017)	
<p>Activity 15 The development of structures in the coastal public property where the development footprint is bigger than 50 square metres, excluding -</p> <ul style="list-style-type: none"> (i) [...]; (ii) [...]; (iii) [...]; or (iv) [...]. 	<p>The project will entail the landing of a marine telecommunications cable at Pollock Beach in Summerstrand. Landing infrastructure includes the cable trench across the beach and into the inter-tidal zone.</p>
<p>Activity 17 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 Amanzimtoti Beach. This will require the digging of a trench along the beach into the intertidal zone and the installation of the telecommunications cable. Where possible the subsea cable will be buried in the substrate to a depth of 1 m (substrate dependant) up to a water depth of 1,500 m to provide additional protection.</p>
<p>Activity 18 The planting of vegetation or placing of any material on dunes or exposed sand surfaces of more than 10 square metres, within the littoral active zone, for the purpose of preventing the free movement of sand, erosion or accretion, excluding where -</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 <p>[...].</p>	<p>Rehabilitation of dune vegetation at Pollock Beach will be undertaken if construction activities associated with the laying of the underground telecommunications cable disturb vegetation on the shoreline.</p>

Activity	Reason
<p>Activity 19A The infilling or depositing of any material of more than 5 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 5 cubic metres from -</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 100 m of the high-water mark of the sea when trenching for, and backfilling of, the marine telecommunications cable takes place.</p>
Listing Notice 2 (No. R. 325 of 2017)	
<p>Activity 14 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 2AFRICA/GERA (East) Cable System will be placed on the seabed. In shallow waters (less than 1,500 m in depth) the cable will be buried under the seabed to provide extra protection.</p>
<p>Activity 26 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; d) [...]; e) [...]; f) [...]; g) [...]; or h) underwater channels; <p>but excluding the development of structures within existing ports or harbours that will not increase the development footprint of the port or harbour.</p>	<p>Although unlikely to be triggered, this listed activity has been included as the trench for the marine cable may result in the entrapment of sand within the inter- and sub-tidal zones. In addition, the trench in which to bury the cable may be construed as an underwater channel.</p>

Listing Notice 3 (No. R. 324 of 2017)	
<p>Activity 12 The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan.</p> <p>a. In the Eastern Cape</p> <p>(i) Within any critically endangered or endangered ecosystem listed in terms of section 52 of the NEMBA or prior to the publication of such a list, within an area that has been identified as critically endangered in the National Spatial Biodiversity Assessment, 2004;</p> <p>(ii) Within critical biodiversity areas identified in bioregional plans;</p> <p>(iii) Within the littoral active zone or 100m inland from the high water mark of the sea, whichever distance is greater, excluding where such removal will occur behind the development setback line on erven in urban areas;</p> <p>(iv) Outside urban areas, within 100m inland from an estuarine functional zone; or</p> <p>(v) On land, where, at the time of the coming into effect of this Notice or thereafter such land was zoned open space, conservation or had equivalent zoning.</p>	<p>The landing locations may potentially result in clearance of indigenous vegetation within a Critical Biodiversity Area and/or within 100 m inland of the high-water mark of the sea.</p>

4. PROJECT ACTIVITIES

4.1 Submarine Cable Terminology

- BU – Branching Unit** is a piece of equipment used in subsea systems that allows the cable to be split to serve more than one destination.
- BMH – Beach Manhole** is a concrete utility vault where the marine portion of the cable is connected to the terrestrial portion. This is situated at the shoreline above the high-water mark. This is mostly buried with an access port at the ground surface.
- CLS – Cable Landing Station** is a building that functions as a control centre for the cable system and where the submarine system connects to the domestic telecoms network.

4.2 Description

The main 2AFRICA/GERA (East) cable trunk will be located approximately 200 to 500 km from the shoreline. From the main cable, branches will run through exclusive economic zones and territorial waters to the landing sites in each country. The proposed Port Elizabeth landing site in South Africa is the southern-most landing point of the cable on the east coast of South Africa.

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

- A Marine Cable Route Survey to determine the suitability of the substrate and topography of the ocean floor. This includes a geophysical survey using echosounders and sonar techniques and a geotechnical survey involving cone penetrometer tests and core sampling and analysis.
- Laying of the cable in the offshore environment, preceded by route clearance and including cable burial to a water depth of 1,500 m.
- The laying of the cable within the shallow water environment is likely to involve a direct shore end operation where the shore end of the subsea cable is installed directly from the main subsea cable installation vessel and floated to the beach landing point using buoys and assisted by small

boats and divers. It will then be buried in the seabed using the diver jet burial technique. The cable will be buried in sediment wherever possible and the route will be adjusted to avoid obvious visible rock. The aim is to bury the cable to a depth of 1 m where possible.

- ❑ Excavations within the intertidal zone are to bury the cable before it is anchored into a cable anchor block and BMH which need to be constructed. The BMH is a concrete utility vault where the marine portion of the subsea cable is connected to the terrestrial portion.
- ❑ On the beach, the cable will be buried to a depth of 2 meters, substrate permitting. In the event that cable burial is not possible, Horizontal Directional Drilling may be required to install the cable through the shallow water environment (1-2 m water depth below the low water mark of the sea), underneath the beach and coastal dune cordon, to the BMH.

Once the 2AFRICA/GERA (East) cable has been installed to the BMH, a cable trench will be required for the front haul alignment from the BMH to the CLS site, which will be in Summerstrand. Therefore, there will be construction related disturbances in the terrestrial environment between the BMH and CLS site.

4.3 Project Phases

The project phases are Pre-installation, Installation, Operation and Decommissioning.

4.3.1 Pre-installation

A detailed survey of the sea bottom and geology will be undertaken to inform the proposed cable alignment. Also, a survey will be conducted at the landing site to determine the final alignment of the cable at the shore crossing to access the proposed BMH site at Port Elizabeth.

Route Clearance (RC) and Pre-Lay Grapnel Run (PLGR) operations will be conducted prior to the laying and burial operations 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 or the cable and burial equipment damaged.

A PLGR is required for all areas with planned burial to 1,000 – 1,500 m water depth prior to cable installation. This process will remove all debris on the seabed surface (for example, old fishing nets, ropes/wires and anchor chains) that may obstruct the ploughing process. The PLGR vessel will operate as close to shore as possible and out to sea to the extent of the plough burial depth. Divers will remove debris near shore or avoid debris by doing minor adjustments to the cable alignment in the near shore environment.

RC along the proposed cable route will be performed if necessary. Both the RC and PLGR operations will be performed prior to the main cable lay operation. The PLGR operation will be to industry standards employing towed grapnels; the type of grapnel being determined by the nature of the seabed. Any debris recovered during these operations will be discharged ashore on completion of the operations and disposed at a waste facility licensed to receive the waste.

4.3.2 Installation

The 2AFRICA/GERA (East) Cable System, comprising a marine fibre optic cable, will be installed using a purpose-built cable ship (Figure 2), 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. The burial technique used depends on the seabed conditions and other site-specific factors. At the shore crossing, a narrow trench to the BMH will be dug to bury the cable. Where necessary, the cable will be placed in a conduit or articulated pipes to protect it from external damage that may be caused by abrasion or other physical contact.



Figure 2 Typical Cable Laying Ship

4.3.3 Operation

Once installed and operational, the cable will not require routine maintenance. If the cable is damaged or needs repair, the damaged portion of the cable can be retrieved and repaired or replaced.

4.3.4 Decommissioning

At the end of the cable lifetime (approximately 25 years) it is likely that the cable will remain in place, or in some places it may be removed. The terrestrial components, such as the BMH and CLS, may be reused for a new submarine cable or an alternate purpose.

4.4 Cable Composition and Properties

At each landing country associated with the 2AFRICA/GERA (East) Cable System, the proposed fibre optic cable will transit coastal waters and be brought on shore using industry-standard installation methods. Submarine cables, such as the one proposed for the 2AFRICA/GERA (East) Cable System, have an inner core structure that supports the optic fibres used to transport the communication signals via light (Figures 3). This cable core will be encased with steel-wire armour protection in areas where the risks of physical damage are highest (for example, from anchors and/or trawler nets). The cable will not contain any insulating oil or other hazardous substances. The cable, including armouring, resembles a garden hose with an approximate diameter of 35 mm (unarmoured, the cable diameter is approximately 25 mm).

Since the light signal loses strength en-route along the fibres, undersea repeaters (amplifiers) are installed along the cable to boost the signal. These repeaters are located many kilometres offshore.

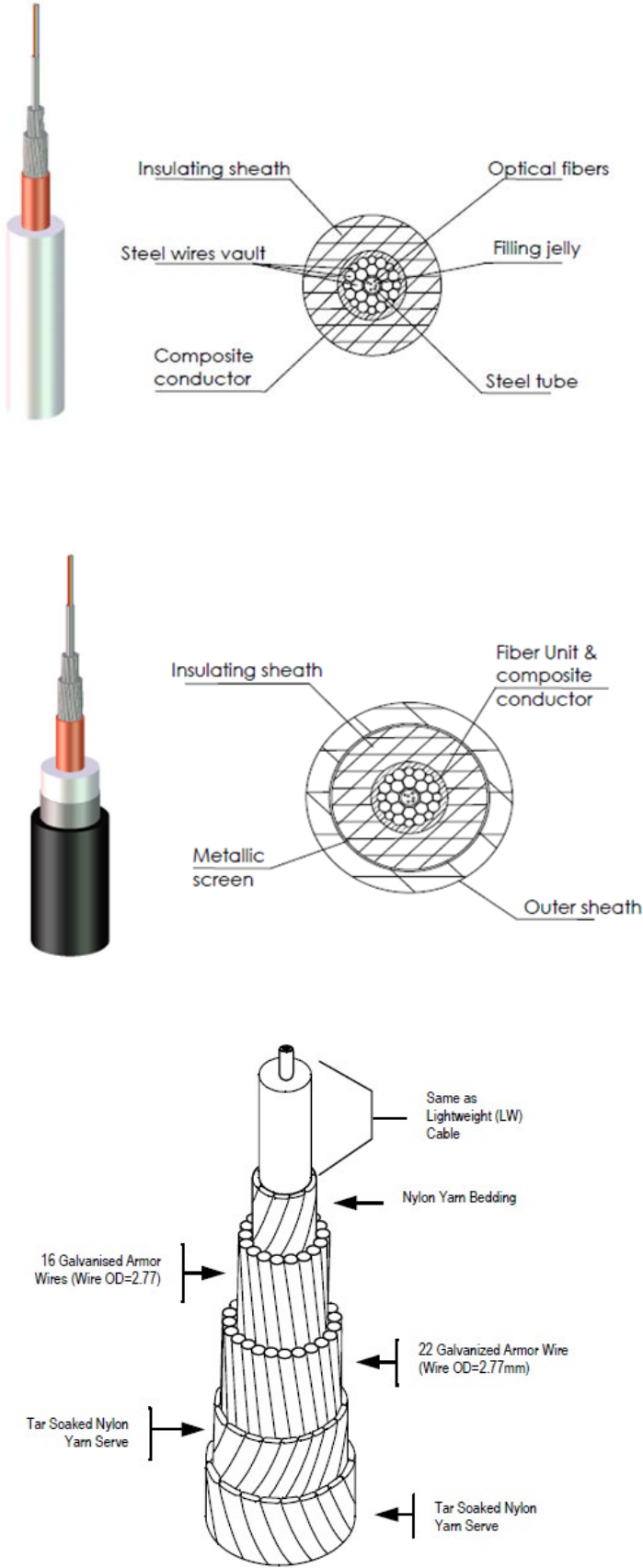


Figure 3 Schematic diagram of a typical lightweight fibre-optic telecommunications cable for deep water showing an unprotected cable (top) and a protected cable (middle) and an armoured cable used in shallow waters (bottom)

5 ROUTE ALIGNMENT AND LANDING SITE ALTERNATIVES

5.1 Alignment of the 2AFRICA/GERA (East) Cable System Offshore

The cable route runs along the East Coast of Africa in deep water (generally parallel to the coastline) and approaches South African coastal waters from the north (i.e. from Mozambican waters). It must be noted that the proposed alignment of the 2AFRICA/GERA (East) cable branch to Port Elizabeth does not pass through any declared MPAs although it does traverse a small section of the coastline which has been proposed for the Humpback Dolphin Marine Sanctuary (not yet declared a MPA) (Figure 4).

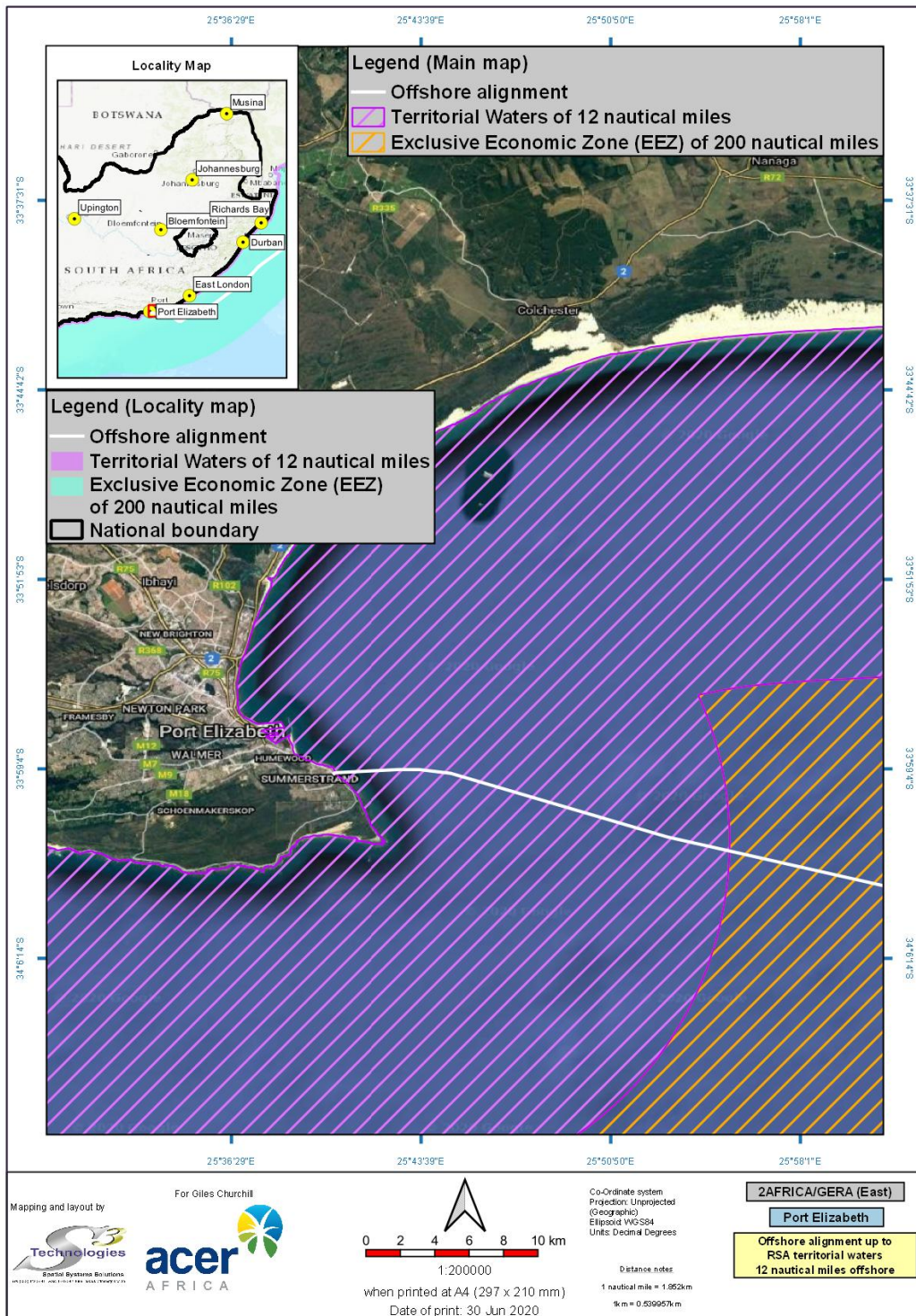


Figure 4 Proposed alignment of the 2AFRICA/GERA (East) Cable System to be landed at Port Elizabeth, in the Eastern Cape, along the East Coast of South Africa.

As the cable route changes direction to approach the coastline of Port Elizabeth, the cable will be buried beneath the sandy seabed of the 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. This burial is intended to provide protection to the cable from the hazards posed by ships' anchors, fishing activities and the like (Figure 5).

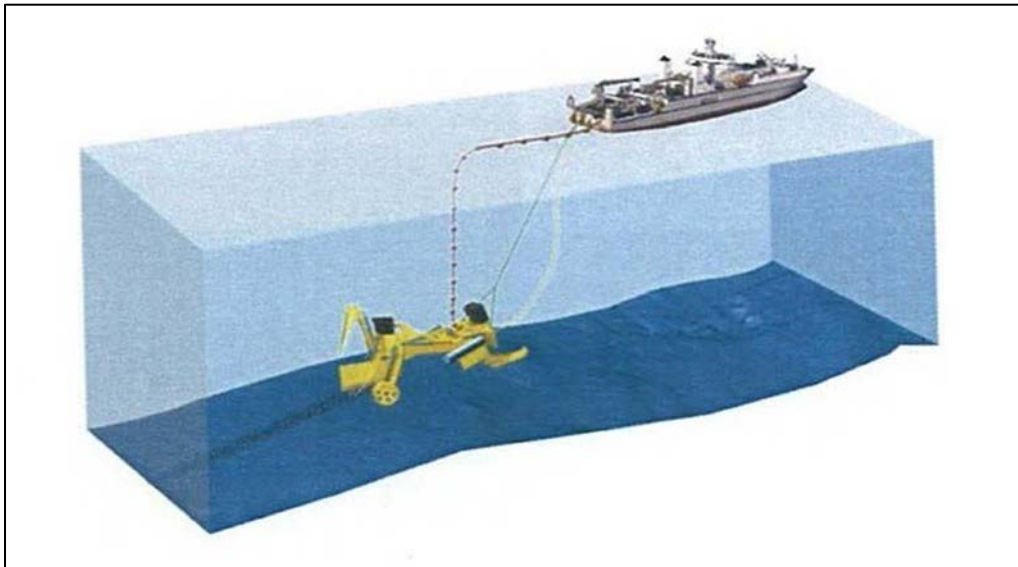


Figure 5 Cable-laying ship feeding the cable to the plough on the seabed

The footprint of the submarine cable plough is limited to where the four plough skids are in contact with seabed surface and the plough share, which is approximately 0.2 m wide. The seabed will be left nearly undisturbed after ploughing. Only temporary track marks from skids and plough share will remain visible just after installation but will over time disappear due to seabed currents and wave action.

Ploughing is a well proven industry standard cable burial process which will keep the environmental impact to an absolute minimum compared to other burial techniques available for cable protection, like water jetting, airlifting, sediment dredging, rock cutting and rock placement.

Once waters are too shallow for vessel access, the remainder of the cable is manually guided to shore with the use of buoys, small boats, and divers (Figure 6). The cable will then be pulled via a winch into the BMH and secured. The divers then re-enter the shallow waters with handheld water jetting machines, which facilitate burial of the cable within the surf zone.



Figure 6 Example of a cable being guided to shore by divers and small boats

The final alignment will be selected taking into consideration any existing cables and their buffers, potential trawling grounds, reefs, and offshore exploration and mineral concessions to mitigate potential effects on other users of the seabed.

5.2 Alignment of the 2AFRICA/GERA (East) Cable System Onshore and Landing Alternatives at Port Elizabeth.

From the surf zone, the cable will be buried along a route up to the beach (by manual labour or excavating machinery) (Figure 7) until it links into the BMH (Figure 8). Installation of the terrestrial component of the cable will be required from the BMH to the CLS site located within Summerstrand. This will involve trenching within existing road reserves and HDD to install the cable underneath existing roads within Summerstrand where road crossings are required. The preferred location for the CLS in Summerstrand has yet to be confirmed.



Figure 7 Example of excavations across the beach to bury the submarine cable



Figure 8 Example of a BMH for the landing of the 2AFRICA (East) cable landing.

Font haul alignments will be considered during the EIA to identify the best possible cable route from the preferred landing alternative to the identified CLS site in Summerstrand.

The shore landing points being considered for the 2AFRICA/GERA (East) Cable System at Port Elizabeth are illustrated in Figure 9 and described below:

- ❑ **Alternative 1.** Pollock Beach Landing Point (1) ($33^{\circ}59'13.68''\text{S}$ and $25^{\circ}40'22.70''\text{E}$) and BMH ($33^{\circ}59'14.63''\text{S}$ and $25^{\circ}40'20.99''\text{E}$). The preferred landing point (Alternative 1) is located along the southern section of Pollock Beach. The proposed BMH is located directly adjacent to the Summerseas Beachfront Apartments within an existing service corridor which extends from Beach Road down to the beach and separates the residential complex to the north from a public parking area to the south.
- ❑ **Alternative 2.** Pollock Beach Landing Point (2) a landing point on Pollock Beach approximately 300 m northwest of the proposed Alternative 1 landing point ($33^{\circ}59'5.97''\text{S}$ and $25^{\circ}40'18.99''\text{E}$) and an alternative site for the BMH ($33^{\circ}59'6.23''\text{S}$ and $25^{\circ}40'17.50''\text{E}$). The second landing site alternative considered (Alternative 2) is located along the Northern section of Pollock Beach. The proposed BMH is located to the southeast of the Something Good Roadhouse and within the public beach parking area directly inland from the beach.

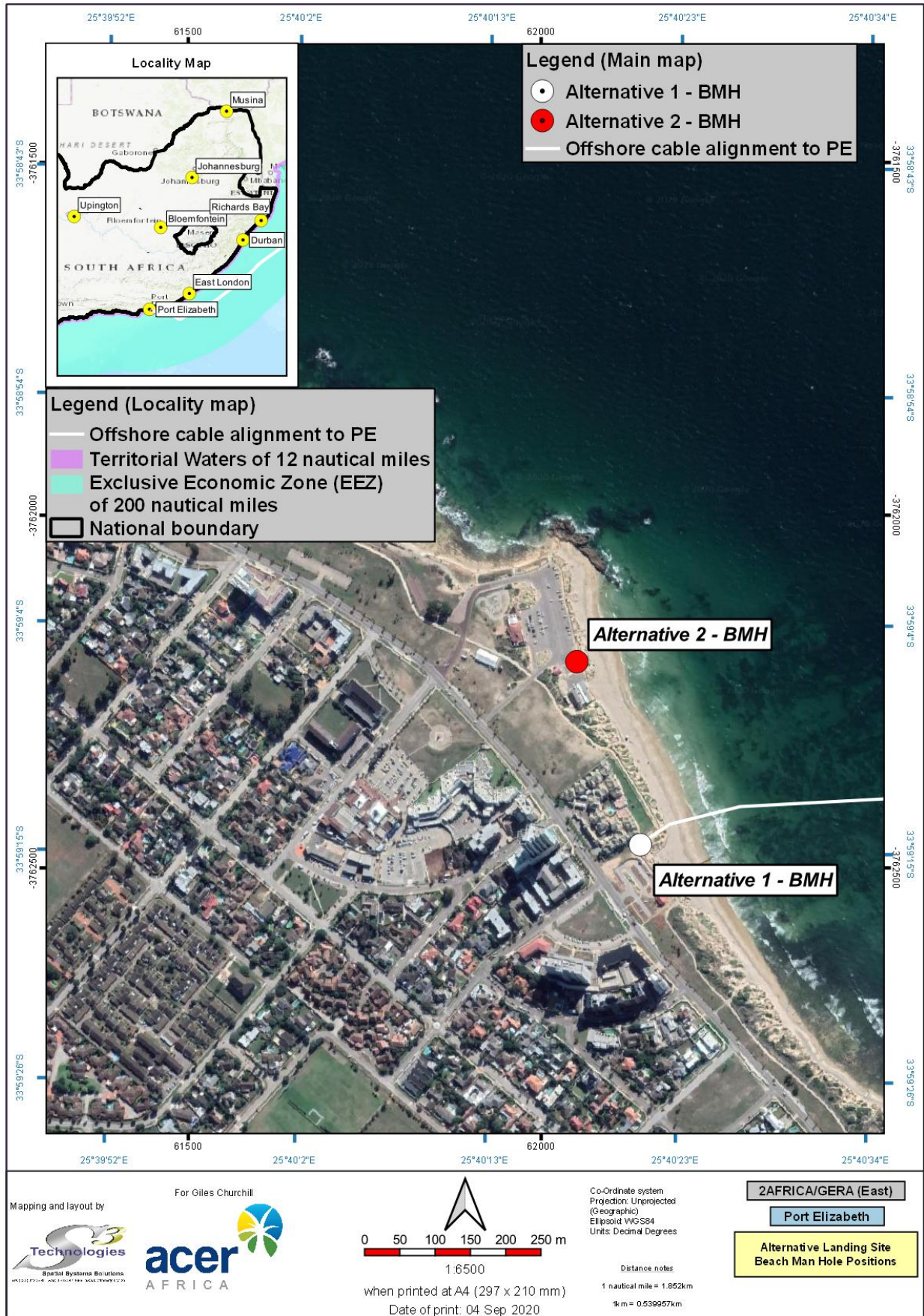


Figure 9 Proposed 2AFRICA/GERA (East) Cable System landing alternatives at Port Elizabeth.

6 POTENTIAL ISSUES ASSOCIATED WITH THE PROPOSED CABLE LANDING AT PORT ELIZABETH.

Outlined below is a preliminary list of the potential environmental issues associated with a cable landing at Port Elizabeth on the Eastern Cape Coast:

- Effect on marine seabed environments.* Laying of the cable in deep marine waters, including the ploughing and burial of the cable in shallower waters, could disturb and/or degrade sensitive marine environments off the Eastern Cape Coast.
- Effect on marine ecology and fisheries.* The cable has the potential to cause disruption to marine ecology, and commercial and recreational fisheries during its installation and operation.
- Effect on intertidal and beach ecology.* During construction, trenching of the cable may disturb or threaten the local fauna and flora within the beach and dune environment.
- Effect on Cultural Heritage Resources.* The proposed activity may impact on offshore and onshore cultural heritage resources along the proposed cable alignment between the BMH and the CLS site.
- Disturbance to the beach and dunes.* The beach will be disturbed, and coastal dunes could be disturbed during construction/installation activities.
- Disturbance to coastal vegetation.* Indigenous coastal vegetation between the beach and BMH can potentially be negatively affected. .
- Disturbance to residents and beach visitors during construction.* The beaches at Port Elizabeth (Summerstrand) are public beaches used for bathing, surfing, shore-angling, etc. and are also lined with recreational and residential facilities. The installation of the cable in the nearshore environment is estimated to take two weeks to complete (landing and anchoring of the submarine cable) which will affect residents and visitors to the beach at the landing site.
- Offshore fishing industry.* The offshore fishing industry (trawling, long-line, aquaculture and squid) are considered as key stakeholders and will be consulted during the EIA to record and incorporate concerns or comments they have with regards to the proposed landing of the 2AFRICA/GERA (East) cable in Port Elizabeth.
- Offshore mining and exploration.* Approximately 98% of South Africa's EEZ is subject to a right or lease for offshore Oil and Gas (O&G) exploration or production. To mitigate impacts on the offshore O&G industry, Vodacom will engage with concession holders and draw up Memoranda of Understanding (MoU) which clearly outline the roles and responsibilities of both parties in terms of financial obligations, protection of subsea infrastructure, insurance, rights and obligations and principles of co-operation.

As required in terms of NEMA, the cumulative impacts of the project will also be assessed. Further to the above, additional issues may be identified during Scoping.

7 THE EIA PROCESS

The Environmental Impact Assessment Regulations, 2014 (as amended), apply to this project. Scoping and an Impact Assessment are required, which must be completed within 300 days of acceptance of the Application for Authorisation by the Department of Environment, Forestry and Fisheries (Figure 10).

7.1 Technical Activities

In support of the Environmental Impact Assessment, it is anticipated that the following specialist input will be required:

- Ecology (Vegetation) Assessment.
- Cultural Heritage Assessment (Onshore and Offshore).
- Fisheries and Marine Assessment.
- Beach and Dune Dynamics Assessment.
- Benthic Assessment (deep water).
- Shallow Water Benthic Assessment/Survey (including diver surveys).
- Wetland Assessment.

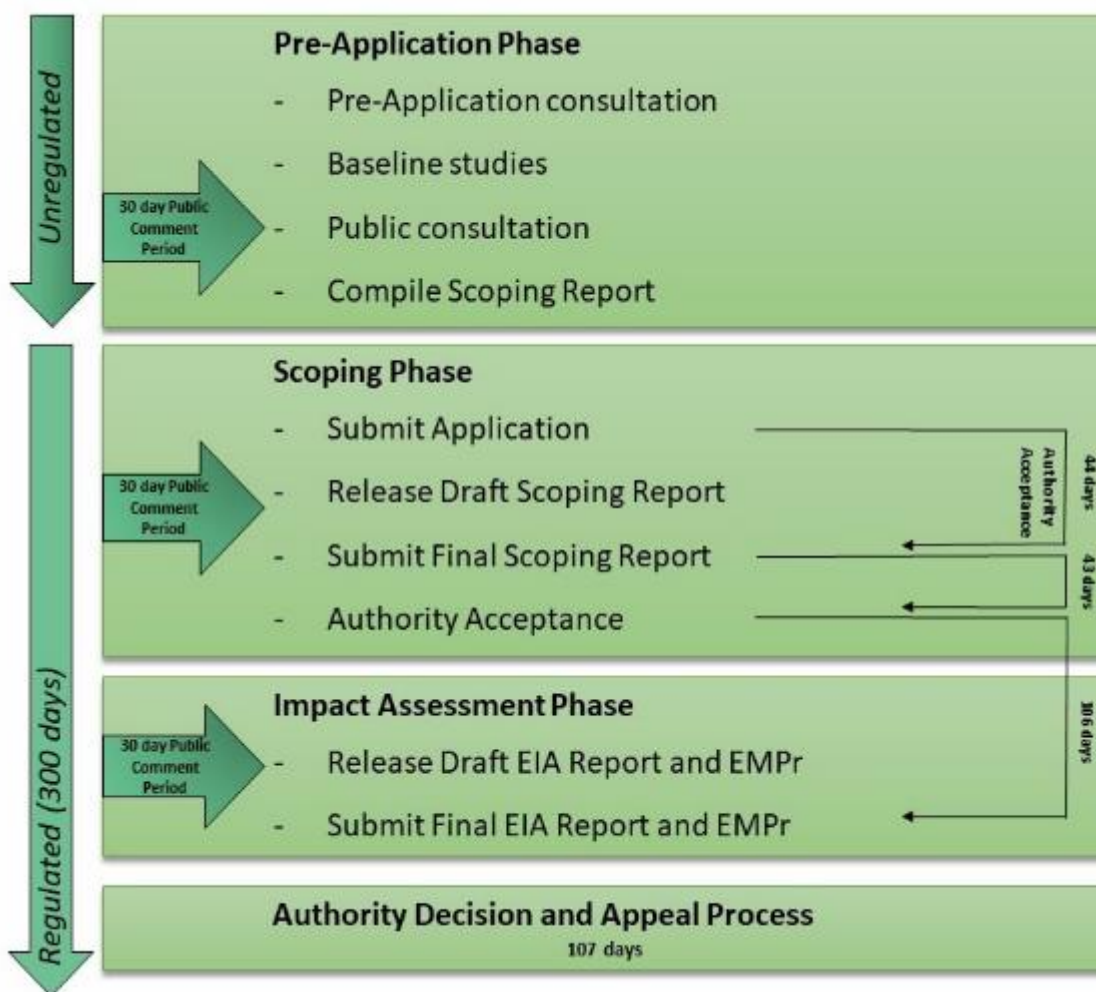


Figure 10 Outline of the Environmental Impact Assessment process and legislated timeframes

Findings will be used in the assessment of impacts and the identification of mitigation and management measures.

7.2 Public Participation

Public participation is an important component of the EIA process and aims to identify and proactively involve all parties that may have an interest in the project or be affected by it. This ensures that throughout the EIA process, the assessment is transparent, and it enables I&APs to comment on the project and/or raise concerns. This information is included in the Scoping and Environmental Impact Assessment Reports and is taken into consideration during the competent authority's review and evaluation of the application for environmental authorization.

8 REGISTRATION AS AN INTERESTED AND AFFECTED PARTY

Should you wish to learn more about the proposed 2AFRICA/GERA (East) Cable System and wish to register as an I&AP, please contact ACER as per the details provided below or complete and return the comment sheet provided herewith.

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Please note that consistent with GNR 326, 42(a), 44(1) and 19(1)(a) (7 April 2017), all comments received will be captured in a Comments and Responses Report which will be made available to the competent authority and which will be placed in the public domain as part of the public review process of the EIA reports.