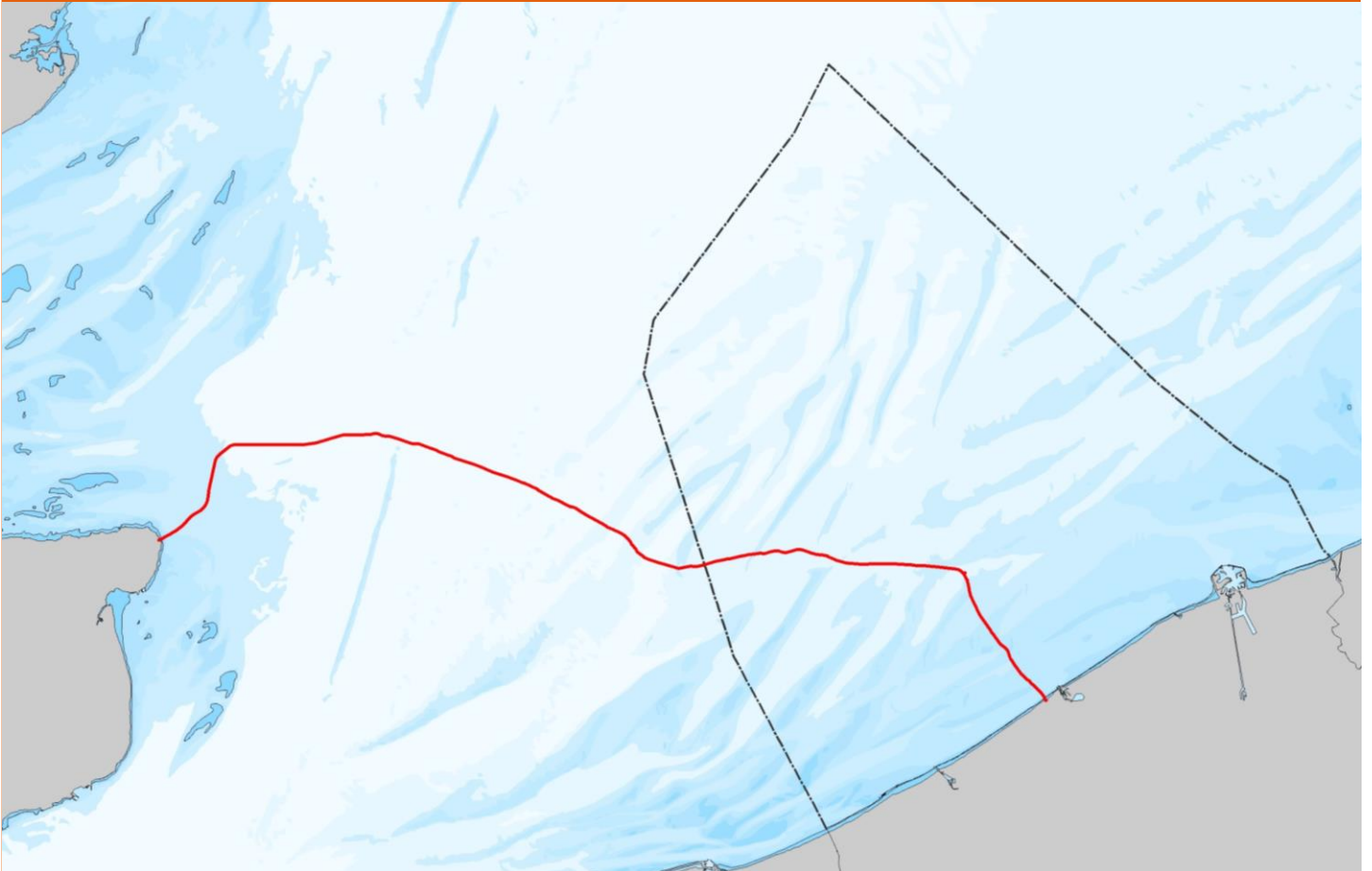


BT NORTH SEA TELECOM PROJECT

Non-Technical Summary Environmental Impact Report

28 MAY 2020



INHOUDSOPGAVE

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1 PROJECT DESCRIPTION

1.1 Presentation of the project

1.1.1 BT North Sea project

BT North Sea is a proposed submarine cable system that will comprise 2 individually distinct branches, North and South. The North branch (**Iceni**) will travel from Eastern England (Winterton-on-Sea) to the Netherlands (Callantsoog). The Southern branch (**Mercator**) will travel from South Eastern England (Broadstairs - Joss Bay) to Belgium (Oostende).

The objective of the Project is to install a subsea fibre-optic system providing connectivity across the North Sea between England and Belgium and England and the Netherlands. The new system will increase telecommunication reliability and diversity between the regions and increase data transmission capacity and speeds, helping to satisfy the growing demand for transmission capacity in Europe, The UK and the wider globe.



Figure 1.1.1: Localization of the BT North Sea project, indicating the planned route of the northern branch (Iceni) and the southern branch (Mercator)

1.1.2 Motivation of the route choice

The route of the Mercator cable has been designed to avoid hard structures and other potential risks and characteristics of the seabed as much as possible (e.g. shipwrecks, anchorages, fishing grounds, protected areas, sand extraction zones and other restrictions). The current route was drafted in two phases: on the basis of a first **desktop study and a feasibility study**, after which a refinement was carried out based on a **geotechnical and geophysical survey** (incl. side scan sonar, backscatter, sediment drilling) to map the seabed and any risks along the route. The entire route falls within the corridor for cables and pipelines as defined in the Belgian Marine Spatial Plan 2020-2026.

At an early stage of the project, the route was presented to various government services and stakeholders, after which the route was further refined based on their input.

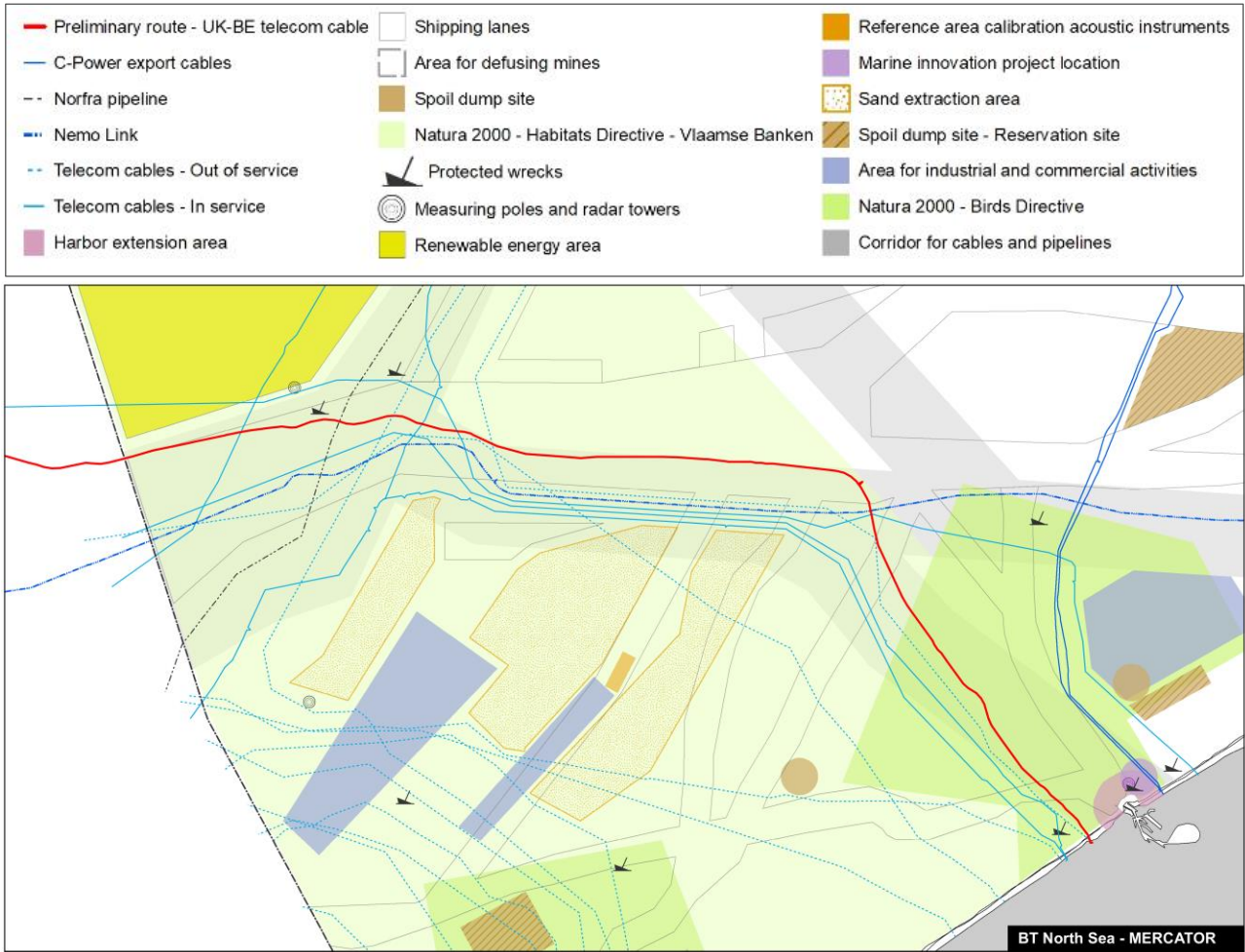


Figure 1.1.2: Localization of Mercator cable in relation to other users and activities within the Belgian part of the North Sea

1.2 Technical characteristics of the data cable

The Mercator telecommunications link between the United Kingdom and Belgium will use the SubCom SL17 marine fiber optic cable. Based on a feasibility study and risk analysis of the necessary burial depth and risks along the route of the Mercator cable, it was decided to use a variant of the SL17 fiber optic cable with several levels of cable armoring for the entire route. The core consists of the actual fibers, surrounded by several layers of insulation and protection, with a diameter that varies between 41 and 49 mm depending on the thickness of the protective armoring. Two variants are eligible: Double Armored High Abrasion (DAHA) or Rock Armor (RA). Such variants offer the greatest possible protection against external damage from, for example, fishing gear and/or ship anchors.

The cable is buried to a minimum depth of 1 m and a target depth of 2 m. Achieving the target depth depends on the local soil properties or safety measures to be observed in certain zones.

1.3 Project phases

Overall, the activities of the project can be defined as follows:

- The study phase (2018 → 2020):
 - Route engineering study based on a desktop study and a marine survey;
 - Feasibility study including stakeholder consultations;
 - Engineering of the data connection;
 - Consultation with permit holders of cables and pipelines to be crossed and drafting crossing agreements;
 - Drafting the EIA and the permit applications;
 - Etc.
- The construction phase (2020/2021):
 - The construction of the Mercator cable is preceded by some preparatory works:
 - Route Clearance of Out-of-Service Cables;
 - UXO research;
 - The possible construction of protective measures, bridges and separation infrastructure at the crossings of the Mercator cable with existing cables and pipelines, where necessary and as agreed with the owner/operator of the cable or pipeline;
 - Potential local levelling or 'pre-sweeping' of the route, where the height of sand waves is locally reduced;
 - Seabed clearance to expose and remove undetected obstacles (PLGR, Pre-Lay Grapnel Run).
 - Offshore installation of the Mercator cable, consisting of two actions: unrolling and depositing the cable on the one hand, and burying the cable with a plow on the other. These two actions are performed simultaneously;
 - If necessary at certain sections: further burial by means of an ROV;
 - Landing of the Mercator cable (direct landing or Pre-Lay Shore End (PLSE)).
- The operational phase (2021 → 2046):
 - During the operational phase, data transmission takes place between Belgium and the UK;
 - If necessary, repairs will be carried out;
 - After the operating period, initially set at 25 years, an extension of the permits can be requested. In the other case, the Mercator cable will be taken out of service (decommissioning phase).
- The decommissioning phase:
 - It is currently not yet certain whether the Mercator cable will remain in-situ or will be removed after decommissioning.

1.4 Project schedule

The construction work is planned in 2020/2021, and will take about 35 days to complete, including preparatory work and landings on both sides (24 days if only the offshore installation is considered). The start of these works depends on several factors, including the delivery time of the cable and the availability of the installation vessel. Weather conditions also play an important role. When the weather conditions are suitable, work continues around the clock (24 hours a day).

1.5 Alternatives

1.5.1 Route alternatives

During the first phase of the present project, the various alternatives according to the landing location and location of the route were studied in detail. Only Oostende was hereby retained as valid landing location, because of the preferential location within the defined corridor for cables and pipelines, the route length, the numerous already present (power) cables in Zeebrugge and the possibility of re-use of the former Hermes Beach Manhole in Oostende.

The number of possible routes to Oostende is minimized by the imposed preferential location of new cables within the corridor for cables and pipelines, as defined in the Marine Spatial Plan. In addition, taking into account the numerous other users overlapping with this corridor, only one viable route remains.

The possible alternative routes (including an alternative route through the northeast / eastern part of the Belgian waters) were also discussed during the consultation moments with various relevant authorities that were carried out during the first phase of the project (January and February 2019). It was decided there that only the western route with landfall in Oostende could be considered a valid option.

Based on the recommendations made during the consultation moments, the results of the feasibility study and the desktop study, and the results of the seabed survey, the cable route was refined, so that the currently proposed route already takes maximum account of the various other users, interests and restrictions of the area.

Given this already far-reaching optimization, no alternatives by location of the route are studied in the EIR, and the only remaining route is considered the most suitable route and discussed further.

1.5.2 Cable type alternatives

Based on a feasibility study and risk analysis of the necessary burial depth and risks along the route of the Mercator cable, it was decided to use an SL17 fiber optic cable with multiple protection sheaths for the entire route (DAHA or RA). Such cable variant offers the greatest possible protection against external damage from, for example, fishing gear and/ or ship anchors. No alternatives by cable type are considered.

1.5.3 Offshore installation procedure alternatives

The installation of the Mercator cable is performed by a combination of two actions: unrolling and depositing the cable on the one hand and burying the cable on the other. Burying the cable can be done in two ways; whether or not simultaneously with the unrolling and depositing of the cable. The construction of the Mercator cable will most likely involve simultaneous burial using only one vessel. Only at crossings with existing cables and pipelines, limited sections will be buried afterwards with an ROV (non-simultaneous burial).

1.5.4 Burial technique alternatives

There are several methods of cable burial. The choice of burial technique depends on the local characteristics of the seabed where the cable is to be buried and the intended burial depth. For burial of a data cable in sandy sediments, as is the case in Belgian waters, the use of a plow is the usual option. The sections at crossings with existing cables and pipelines to be buried afterwards are brought to the desired depth by means of jets.

2 DESCRIPTION AND ASSESSMENT OF THE ENVIRONMENTAL IMPACTS PER DISCIPLINE

Given the difficulties in describing certain effects well quantitatively, a semi-quantitative approach was chosen. The effects are described in relation to their size, their range and their temporary or permanent character. The described effects are presented in the form of a relative plus-minus assessment.

The following definitions apply:

Symbol	Effect	Description
++	Significant positive effect	Measurable positive effect, of large size (Belgian part of the North Sea), temporary or permanent character
+	Moderate positive effect	Measurable positive effect, of limited size (project area), temporary or permanent character
0/+	Slight positive effect	Measurable small positive effect, of limited size (project area), always temporary
0	(Almost) no effect	Immeasurable effect or irrelevant
0/-	Slight negative effect	Measurable small negative effect, of limited size (project area), always temporary
-	Moderate negative effect	Measurable negative effect, of limited size (project area), temporary or permanent character
--	Significant negative effect	Measurable negative effect, of a large size (Belgian part of the North Sea), temporary or permanent

2.1 Soil

Construction phase – Potential local pre-sweeping activities, soil clearance (PLGR), crossing infrastructure construction and actual cable burial have an impact on the geology, global sediment transport, sedimentology, and seabed morphology. The magnitude of the disturbance is always very limited, so that the effect is assessed as negligible.

No effect on the soil quality is expected during construction.

Operational phase - The Mercator cable is installed in a way that has been designed to achieve the 1 m burial requirement and to avoid potential cable exposure over time. The probability that the Mercator cable will become exposed is thus relatively small. Therefore, the impact on morphodynamics and erosion is estimated to be limited.

Erosion can occur at the locations where protective measures are applied at the crossings with existing cables and pipelines, which is limited by applying scour protection.

No impact on soil quality is expected.

The voltage generated by the Mercator cable is minimal. The related heat development and the effect on the seabed is virtually non-existent.

Decommissioning phase - If the Mercator cable is removed, non-significant effects will occur, similar to the effects that may occur during the construction phase. No effects on soil quality are to be expected.

If the cable is not removed, no effects occur.

2.2 Water

Construction phase - There will be a local and very temporary increase in turbidity, mainly as a result of potential local pre-sweeping activities and to a lesser extent as a result of the burial of the cable.

A small (negligible) impact is expected on the water quality as a result of potential local pre-sweeping operations, the clearance of the sea floor, installation of crossing infrastructure and due to the burial of the cable, through the local release of heavy metals from the sediment.

Operational phase - If the Mercator cable becomes released locally over time, or if repairs are to be carried out, a temporary increase in turbidity may occur locally. It is a negligible effect.

Decommissioning phase - The effects on water that can occur during any decommissioning of the Mercator cable will be similar to those during the construction phase.

2.3 Atmosphere

Construction phase - Local air quality is affected to a very limited extent by only a limited number of vessel movements, spread over a period of several weeks.

Operational phase - No noticeable impact on air quality is expected during the operational phase.

Decommissioning phase - The limited number of vessel movements and related emissions from any Mercator cable removal will have no relevant impact on air quality.

2.4 Noise, Vibrations & Electromagnetic Fields (EMF)

Construction phase - There is a temporary and limited increase in noise above and below the water during potential local pre-sweeping activities, sea floor clearance, installation of crossing infrastructure and cable burial, and associated ship movements. No effects due to vibrations will occur.

Operational phase - Possible repairs will cause a temporary increase in noise above and below water. The impact on the sound climate is negligible.

Given the extremely limited strength of the magnetic field generated by the Mercator cable, these effects are also negligible.

Decommissioning phase - The noise production during any dismantling of the cable will be temporary and similar to that of the construction and is considered negligible.

2.5 Fauna, flora & biodiversity

Construction phase - There is a local and temporary disturbance of the biotope (seabed) of the benthos and the fishing communities, both during the preparation works and during the installation of the cable (no permanent biotope loss). The effect is very limited.

During potential local pre-sweeping activities, sea floor clearance, installation of crossing infrastructure and during the laying of the cable, temporary increased turbidity and sedimentation will occur locally. This effect is also limited in size.

There will be temporary disturbance to birds and marine mammals during construction work, in particular due to ship movements and related noise effects. Possible effects on sea birds and marine mammals due to an increase in turbidity are also very limited.

Operational phase - No impact is expected due to electromagnetic fields or heating of the cable.

Possible repair works cause a temporary and moreover very local disturbance of the seabed (increased turbidity, sedimentation) and increase in noise, which are considered negligible on flora and fauna.

Decommissioning phase - Anticipated effects in any decommissioning will be similar to those that occur during the construction phase. It mainly concerns a temporary and local disturbance of the seabed (increased turbidity, sedimentation) and noise production. These effects are too limited to have a significant impact on fauna, flora and biodiversity and are considered negligible.

Draft Appropriate Assessment – The Mercator route crosses the Habitats Directive area 'Vlaamse Banken' and the Birds Directive area 'Oostende'. In addition, the route crosses the RAMSAR area 'Westelijke kustbanken', which overlaps with the aforementioned Natura 2000 areas. No significant negative impact is expected due to the construction, operation and potential dismantling of the Mercator cable on the habitats and species for which the Birds Directive area 'Oostende', the Habitats Directive area 'Vlaamse Banken' and the RAMSAR area 'Westelijke kustbanken' have been designated. Achieving the (conservation) objectives is not jeopardized by the execution of the project.

2.6 Sea scape & Maritime heritage

Construction phase - A very temporary and local visual change of the sea scape and the coastal landscape can be expected due to the construction work (mainly during the landing). Shipwrecks (maritime heritage) are maximally avoided.

Operational phase - No relevant effects on sea scape and cultural heritage are expected during the operational phase.

Decommissioning phase - The effects of any decommissioning will be similar to those during the construction phase, and are considered negligible.

2.7 Impact on other users of the Belgian part of the North Sea

Construction phase - As a result of the construction of the Mercator cable, there is no permanent loss of traditional fishing grounds and there is no change in sailing distance to the fishing grounds. The temporary loss of fishing grounds during installation works is very limited.

Particularly in the shallow coastal zone, tourism and recreation will be disrupted very temporarily. No significant effects are expected on other users of the Belgian part of the North Sea (military activities, cables, and pipelines) provided that the applicable guidelines and safety regulations are respected and that there is good communication with the parties involved.

Operational phase - There is a very small chance that the cable will be exposed and become entangled in fishing gear. No effects are expected on other users of the Belgian part of the North Sea if they respect the applicable guidelines and safety regulations and if good communication with the involved parties is maintained.

Decommissioning phase - The effects of any decommissioning are similar to those during the construction phase and are also very temporary and therefore considered to be negligible.

2.8 Safety aspects

Construction phase - Measures are taken to minimize nuisance to shipping and the risk of collision with the cable-laying vessel and accompanying vessels. The chance of oil pollution occurring is very limited.

Operational phase - During the operational phase, only a negligible effect on shipping safety is expected.

Decommissioning phase - The effects and risks of any cable dismantling are similar to those during the construction phase, and therefore negligible.

2.9 Impact on the Good Environmental Status and Environmental Targets

The construction, operation and decommissioning of the Mercator cable is expected to have no significant impact on the Good Environmental Status and the Environmental Targets defined under the Marine Strategy Framework Directive 2008/56/EC.

2.10 Summary description and assessment of the environmental impact per discipline

EFFECTS	Construction	Operation	Decommissioning
ABIOTIC ENVIRONMENT			
Effects on soil	0 or 0/-	0 or 0/-	0 or 0/-
Effects on water	0 or 0/-	0 or 0/-	0 or 0/-
Effects on atmosphere	0/-	0	0 or 0/-
Effects on noise, vibrations & EMF	0 or 0/-	0 or 0/-	0 or 0/-
Effects on sea scape	0/-	0	0 or 0/-
Effects on maritime heritage	0	0	0
BIOTIC ENVIRONMENT			
Effects on macrobenthos	0/-	0 or 0/-	0 or 0/-
Effects on epibenthos and (demersal) fish	0 or 0/-	0 or 0/-	0 or 0/-
Effects on avifauna	0 or 0/-	0	0 or 0/-
Effects on marine mammals	0 or 0/-	0 or 0/-	0 or 0/-
HUMAN ACTIVITIES			
Impact on nature protection	0/-	0/-	0/-
Impact on pipelines and cables	0	0	0
Impact on wind farms / renewable energy	0	0	0
Impact on coastal protection	0	0	0
Impact on scientific research	0	0	0
Impact on commercial fisheries	0/-	0	0/-
Impact on marine aquaculture	0	0	0
Impact on dredging works	0	0	0
Impact on sand extraction	0	0	0
Impact on military activities	0/-	0	0/-
Impact on tourism and recreation	0/-	0	0/-
Impact on other commercial and industrial activities	0	0	0
SAFETY			
Risks to shipping	0/-	0	0 or 0/-
Oil pollution risks	0/-	0	0 or 0/-
Other risks	0	0	0

These assessments apply to all alternatives according to cable type, offshore installation procedure and burial technique.

3 CUMULATIVE IMPACTS

Cumulative impacts can occur through the combination of various activities that cause (partly) similar effects. Activities that have the potential to cause cumulative effects in conjunction with the installation, operation and potential dismantling of the Mercator cable are as follows:

- Fisheries, in particular bottom-trawling fisheries;
- Dredging and spoil dumping;
- Sand extraction, in particular inside control area 2 (Flemish Banks);
- Construction and operation of wind farms within the new zone for renewable energy and power cables.

The other activities in the Belgian Part of the North Sea are not expected to have cumulative effects in combination with the installation, operation and possible dismantling of the Mercator cable.

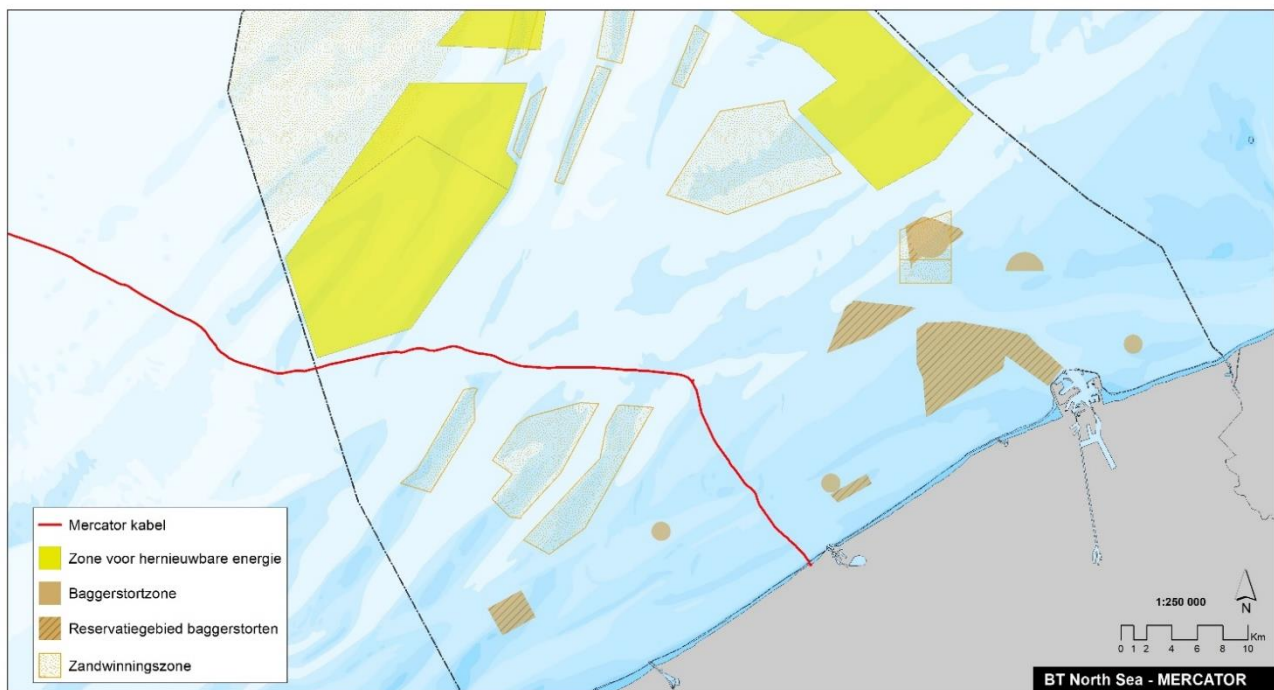


Figure 3: Localization of the Mercator cable and other activities with possible cumulative impact (yellow: renewable energy areas; brown: spoil dump areas; hatched brown: reserved areas for spoil dumping; dotted: sand extraction areas)

3.1 Soil

The effects on the seabed as a result of dredging and spoil dumping, sand extraction, construction of wind farms and power cables are all local. There is no spatial overlap of the effects of the construction, operation or dismantling of the Mercator cable. It is therefore assumed that the cumulative effect is equal to the sum of the individual effects.

There is, however, a spatial overlap in the effects of fishing and the construction / operation / dismantling of the Mercator cable. However, the disturbance by the Mercator cable is temporary and very local, so that no amplification of the individual effects will occur, and the cumulative effect is equal to the sum of the individual effects.

3.2 Water

Given the great distance from the construction of the Mercator cable to the dredging, spoil dumping and sand extraction activities, and given the relatively small chance of temporal overlap of these activities with the installation works, the cumulative effect is at most equal to the sum of the individual effects, and often smaller than the sum.

Since the effects of fishing activities will not simultaneously overlap spatially and temporally with the effects of the installation of the Mercator cable, the cumulative effect is also smaller than the sum of the individual effects.

No overlap is expected of the construction work of the new wind farms and export cables with the installation of the Mercator cable. The cumulative effect is therefore smaller than the sum of the effects of the individual activities.

3.3 Atmosphere

The cumulative effect on air quality as a result of the various activities is equal to the sum of the individual effects.

3.4 Noise, Vibrations & Electromagnetic Fields (EMF)

In combination with the other activities, there is no amplifying cumulative effect on the ambient noise.

Given the minimum field strength of the generated electromagnetic field of the Mercator cable, no cumulative effect is expected with existing and future power cables in the Belgian Part of the North Sea.

3.5 Fauna, flora & biodiversity

Given the relatively greater effects of other activities (dredging, sand extraction, fishing) and the very limited duration and magnitude of the effects to be expected from the Mercator project separately, no amplifying cumulative effect is to be expected due to additional impact of construction, exploitation and possible dismantling of the Mercator cable on fauna, flora and biodiversity.

3.6 Sea scape & Maritime heritage

No relevant cumulative effects on the sea scape and the maritime heritage are anticipated.

3.7 Impact on other users of the Belgian part of the North Sea

The cumulative effect on fishing during the construction phase is negligible.

In case several cables land simultaneously, a cumulative effect is possible on tourism and recreation in the coastal zone; however, the construction of the export cables of the future wind farms is not expected to be overlapping or subsequent to the construction period of the Mercator cable and consequently there are no cumulative effects.

3.8 Safety aspects

In the event of overlapping construction work of several cables, the risk of collision will increase. However, since there is no overlap in the installation activities for the various cables, no increased risk should be expected.

3.9 Summary of cumulative impacts

Discipline	Cumulative effect in combination with construction, operation and possible dismantling of the MERCATOR cable			
	Fishing	Dredging & spoil dumping	Sand extraction	Wind farms & power cables
Soil	S	S	S	S or <S
Water	<S	S or <S	S or <S	<S
Atmosphere	S	S	S	S
Noise, Vibrations & EMF	S	S	S	S
Fauna, flora & biodiversity				
Benthos	S	S	S	S
Fish fauna	S	S	S	S
Avifauna & Sea Mammals	S	S	S	S
Sea view & Maritime heritage	S	S	S	S
Interaction with other users				
Cables & Pipelines	-	-	-	S
Commercial fishing	-	S	S	S
Military activities	S	S	S	S
Tourism & Recreation	S	S	S	S
Security aspects	S	S	S	S

S cumulative effect = sum of effects

>S cumulative effect is greater than sum of effects

<S cumulative effect is less than sum of effects

4 SYNTHESIS & CONCLUSIONS

First of all, it should be noted that the route of the Mercator cable between the UK and Belgium has already been largely mitigated in the design, since the route engineering study already took maximum account of various physical, biological or humane aspects to determine the most suitable offshore cable route between Broadstairs and Oostende. After all, where necessary, the route was modified to mitigate possible effects or risks, with the aim of minimizing both cable and installation costs and disturbance to the marine ecosystem and its users.

The following conclusions are drawn in the EIA:

- **Construction phase** - Since all construction works take place locally and progressively, and are always of short duration, all potential effects are limited in size. The potential effects during the construction phase are therefore all assessed as slightly negative (0/-) to non-existent (0).
- **Operational phase** - Only a (very) low probability and frequency of occurrence is expected for various potential effects during the operational phase. Moreover, these effects are all temporary and limited in size. Other, rather permanent effects (electromagnetic fields, heating...) are always too limited in size to be significant. All possible effects during the exploitation phase are therefore assessed as slightly negative (0/-) to non-existent (0).
- **Decommissioning Phase** - In the event of removal of the Mercator cable, the effects will be similar to those during the construction phase. Given the temporary and limited nature of the activities, all possible effects are assessed as slightly negative (0/-) to non-existent (0). If the cable should remain in situ, limited or no effects are expected.
- **Cumulative impacts** - The construction, operation and possible dismantling of the Mercator cable in combination with other activities produces cumulative effects that are equal to the sum of the effects of the individual activities. Moreover, because of the very short duration of the various works of the Mercator cable and because the works cause very local effects, the cumulative effect is often smaller than the sum of the individual effects. No amplifying cumulative effects are expected which could have a significant negative impact on the marine ecosystem and its users.
- **Impact on the Good Environmental Status and Environmental Targets** – The construction, operation and decommissioning of the Mercator cable is expected to have no significant impact on the Good Environmental Status and the Environmental Targets defined under the Marine Strategy Framework Directive 2008/56/EC.
- **Draft Appropriate Assessment** - No significant negative impact is expected due to the construction, operation and potential dismantling of the Mercator cable on the habitats and species for which the Birds Directive area 'Oostende', the Habitats Directive area 'Vlaamse Banken' and the RAMSAR area 'Westelijke kustbanken' have been designated. Achieving the (conservation) objectives is not jeopardized by the execution of the project.