TurkStream

TurkStream Gas Pipeline Project – Offshore Section

Environmental and Social Overview of the Project in Turkey

September 2018

SST-EIA-REP-209845

Preface

This document presents a non-technical overview of the key findings of environmental and social studies performed for the TurkStream Gas Pipeline – Offshore Section ('the Project').

Key potential impacts that may be a concern for local stakeholders are presented in relation to Project activities in the offshore section in the Black Sea, in the nearshore section in Selves Bay and the landfall section in Kiyikoy, Vize District, Kırklareli, Turkey.

This document also outlines the approach adopted by South Stream Transport B.V. (the 'Developer') for the management and monitoring of the environmental and social issues identified.

Contacting the Project

Persons interested in the Project are welcome to contact the Developer to ask questions/provide comments. Alternatively, communications can also be addressed to the Project's Community Liaison Officer as shown below.

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Acronyms and Abbreviations

Abbreviation	Description
bcm	Billion Cubic Meters
CIP	Community Investment Programme
CLO	Community Liaison officer
DP	Dynamic Positioning
EIA	Environmental Impact Assessment
ESMP	Environmental and Social Management Plan
EU	European Union
IUCN	International Union for the Conservation of Nature
LNG	Liquefied Natural Gas
MoEU	Ministry of Environment and Urbanisation
NGO	Non-Governmental Organisation
PIG	Pipeline Inspection Gauges
RoW	Right-of-Way
SEP	Stakeholder Engagement Plan

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1 Introduction

1.1 What is the TurkStream Gas Pipeline Project – Offshore Section?

The TurkStream Gas Pipeline – Offshore Section ('the Project') is an infrastructure project that aims to secure reliable gas supplies to Turkey, south and south-east Europe.

It will connect the world's largest natural gas reserves in Russia with consumers in Turkey and Europe by transporting natural gas via two pipelines stretching for over 930km across the Black Sea from the Russian coast, near the town of Anapa, to the Turkish coast, near the town of Kiyikoy.

From Kiyikoy, one underground pipeline will continue onshore connecting the Project to the existing BOTAS network at Luleburgaz, and one will continue to the Turkish-European border to connect the Project to the European gas market. When complete, the two lines will supply up to 31.5 billion cubic meters (bcm) of natural gas per year into the Turkish and European energy markets. (see Figure 1).

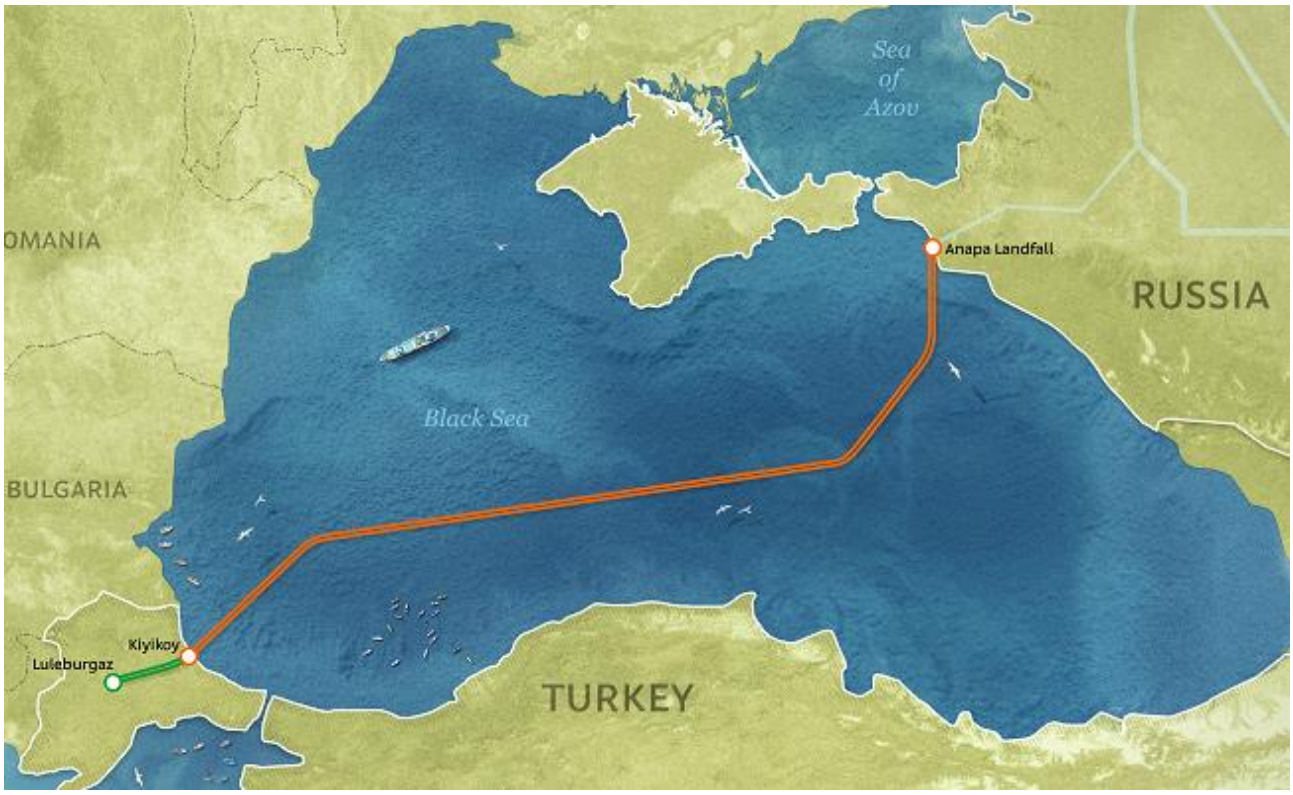


Figure 1 TurkStream Gas Pipeline Project – Offshore Section

1.2 Who is developing the Project?

The design, construction and operation of the Project is being undertaken by South Stream Transport B.V. (the 'Developer'), a company founded in the Netherlands on 14 November 2012.

1.3 Why is the Project needed?

TurkStream is one of the largest energy projects underway in Europe today. Crossing the Black Sea at depths greater than 2 kilometres, the pipelines will supply gas to Turkey, South and Southeast Europe. It is not only a technical feat but also an important contribution to regional energy security.

Operating under very high pressure, the two pipelines will be able to deliver a total of 31.5 billion cubic metres (bcm) of natural gas per year, equivalent to the residential energy consumption of about 15 million households.

The first onshore pipeline will deliver 15.75 bcm of gas per year and will cater to the Turkish market. A second onshore pipeline, to be developed by a joint venture of BOTAŞ and Gazprom, will enable transportation of up to 15.75 bcm of gas per year to the Turkish-European border, so that it can be further transported onwards for consumption in south and southeast Europe.

Catering for a growing Turkish market

Turkey's energy consumption rose by 9.5% in 2017 alone[1]. Natural gas has provided 28.15% of Turkey's total energy needs in 2017, up from 26.45% a year ago[2]. Approximately 14 million households and almost 50 million people rely on gas for cooking, warm water and heating[3]; and natural gas provides 37.2% of all electricity generation[4]. Over the past decade, the growing economy has fuelled the countries' energy needs, making Turkey second only to China in terms of natural gas demand growth. The Turkish market now consumes almost 55 billion cubic metres of pipeline gas per year[5] and its consumption level is expected to grow considerably over the coming decades.

Turkey does not produce much natural gas, but imports from some of the largest gas fields in the world.. The most important suppliers of natural gas for Turkey are Russia (52%), Iran (17%), Azerbaijan (12%), Algeria (8%) and Nigeria (3%)[6]. Russia delivered 29bcm gas to the Turkish market in 2017. Deliveries of such big volumes of gas are carried out via the Blue Stream and Trans-Balkan (Western Line) gas pipelines. Turkey also imports gas via pipelines from Iran and Azerbaijan, while Algeria and Nigeria are the main suppliers of LNG. Due to considerable remoteness of the LNG suppliers, pipeline gas will still have a competitive advantage on the Turkish market in terms of efficiency of supply delivery.

The Project changes the direction of the Russian gas flow into Turkey from one where Turkey is at the receiving end of the Trans-Balkan Pipeline (Western Line), to one where Turkey becomes the first entry point of gas supply which will proceed onwards to Europe. This is a significant change that improves reliability of supply to Turkey and also the role and status of Turkey in the international and regional energy equation, confirming it as an important regional energy crossroads. The benefits to Turkey are illustrated in Figure 2.

Safe gas transports

Offshore pipelines are considered to be one of the best methods for bringing gas to the market as they are safer, cheaper and more efficient than LNG transports, which require liquefaction, shipping and re-gasification of the gas. It would take almost 370 LNG tankers to cross the Black Sea to transport the same amount as the TurkStream system per year. The Project will help limit the fuel tanker traffic through the Turkish Straits. Moreover, due to high industry standards, large offshore pipelines have an excellent safety record, operating

[1] BP, Statistical Review of World Energy 2018, p.8
[2] Ibid. p.9
[3] Turkish Natural Gas Distributors Union (GAZBİR), 2017 Natural Gas Distribution Sector Assessment Report, 2018
[4] Energy Market Regulatory Authority, Electricity Market Sectoral Report, 2018
[5] Energy Market Regulatory Authority, Natural Gas Market Sectoral Report 2017, 2018
[6] Ibid.

safely since as far back as the 1950s. In line with this track record, the Project is built according to high international standards for offshore pipelaying. The Developer brings together over 200 experts from more than 20 countries to ensure the offshore pipeline is built and operated safely, with respect for the environment and people living near it.

Figure 2 Benefits of the Project

2 Project description

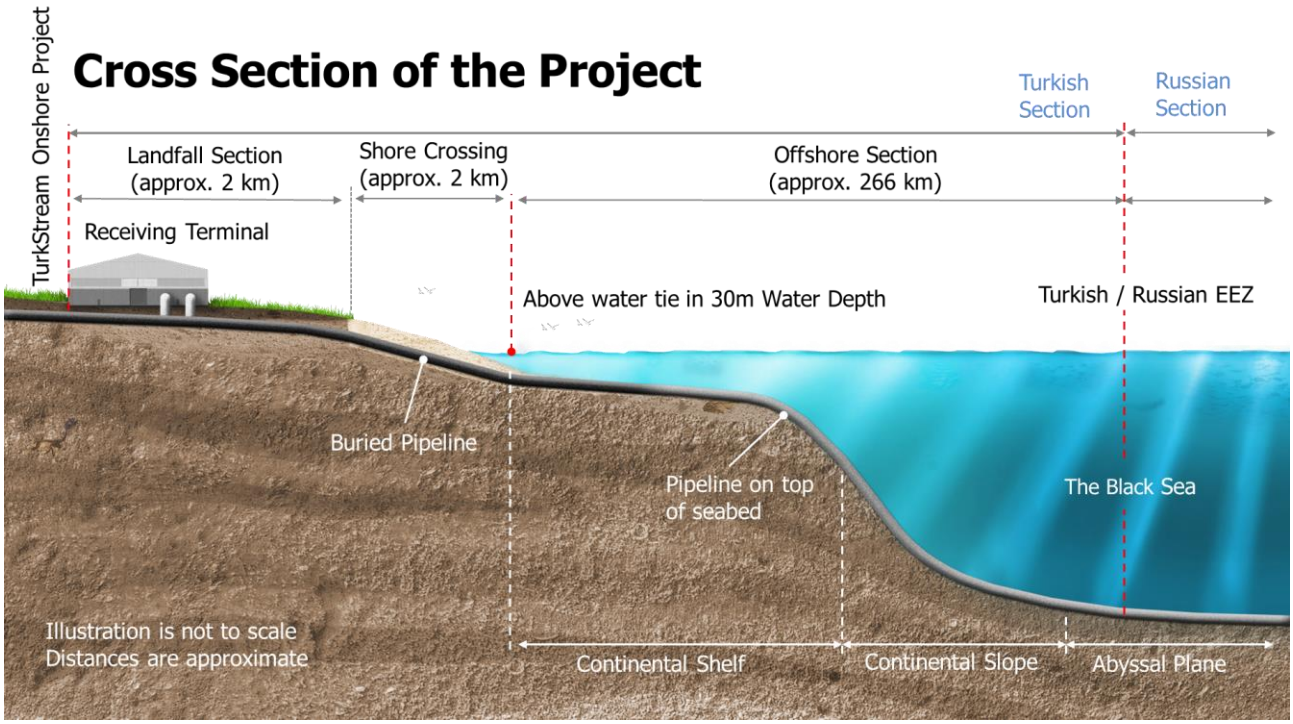


Figure 3 Overview of Turkey Project activities in the offshore, nearshore and landfall sections

The Project activities in Turkey comprise the following sections (see Figure 3):

- The **offshore section** - involves laying two 32-inch diameter (813mm) subsea steel pipelines directly on the seabed for approximately 700km through Turkish EEZ and territorial waters.
- The **nearshore section** - involves the transition from sea to land where the pipelines are buried beneath the seabed and cross the shore north of Selves beach.
- The **landfall section** - involves burying the two pipelines in trenches for approximately 2km from the nearshore toReceiving Terminal.

After the Receiving Terminal, one pipeline will extend inland to a connection point with the existing gas transmission system at Luleburgaz, and the other will continue to the Turkish-European border. The section of the first onshore pipeline from the Receiving Terminal to Turkey's existing gas transmission system is under the responsibility of BOTAS, while the second pipeline to proceed to the European border will be developed by a BOTAS-Gazprom joint venture.

Box 1: Project design

- The Project has been designed in line with national and international standards. Furthermore, the Project is being constructed following international construction and operational quality standards that promote safety norms to reduce risks for employees and local communities.
- The Project will deliver natural gas, a clean and efficient fossil fuel.
- The Project is designed to minimise negative impacts on the environment and communities and to preserve the Black Sea environment, biodiversity and avoid any irreversible impact.

2.1 How will the Project be constructed and operated?

2.1.1 Construction Phase

Landfall section

The **landfall section** is located 2 kilometers north of the coastal town of Kiyikoy, the nearest community to the Project (see Figure 4). The entire construction area is located within State Coppice Forest Land. Before construction, the land has been cleared of trees, rootballs and vegetation (see Figure 5).

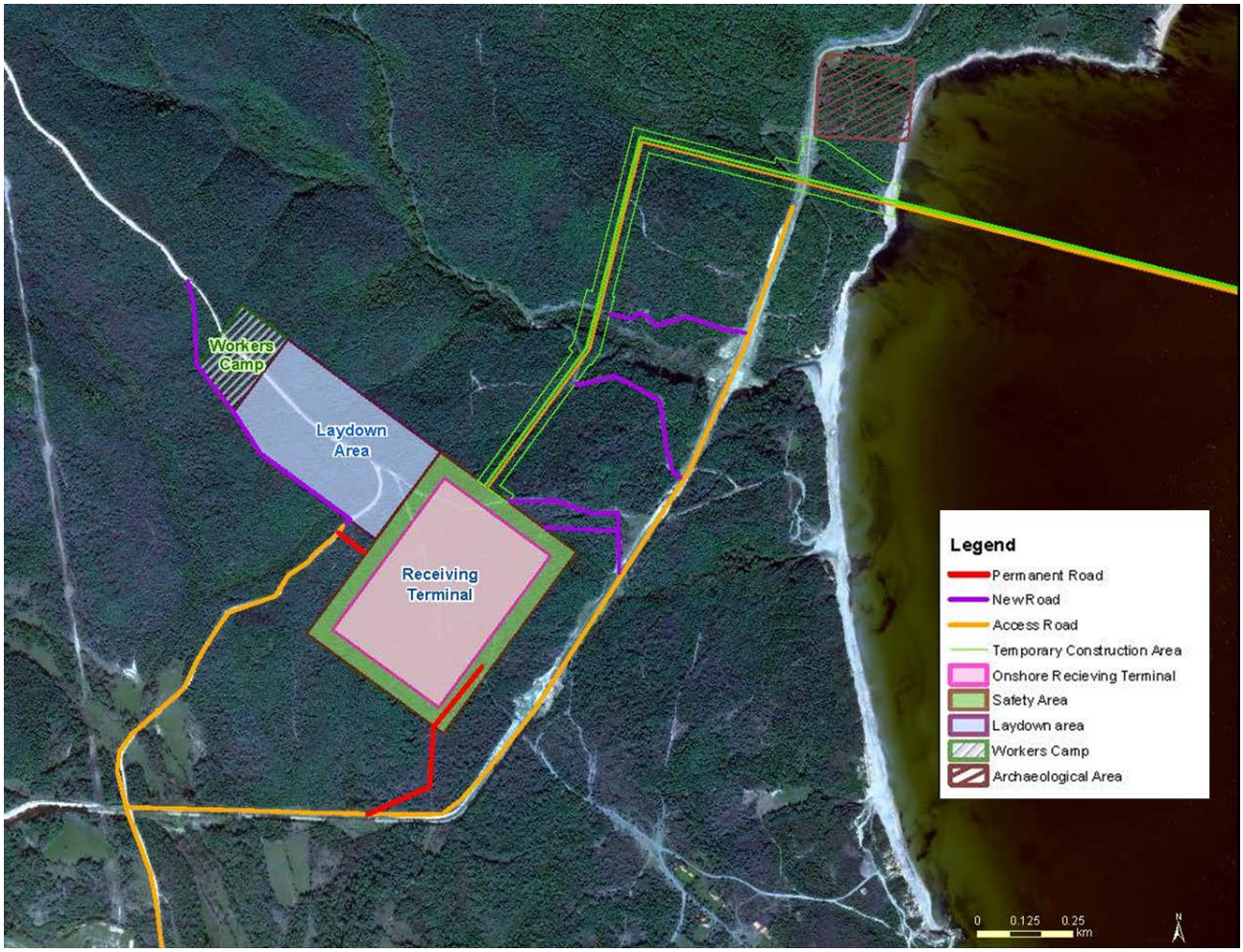


Figure 4 Location of the landfall section of the Project area and footprint

Figure 5 Land clearance and building of the Receiving Terminal

Construction technique

Construction of the Receiving Terminal includes:

- Preparatory works, including surveying, vegetation clearance, topsoil stripping, site levelling and construction of access roads;
- Construction of internal roads;
- Preparation and construction of foundations;
- Installation of equipment;
- Construction of buildings (such as control room and administrative building);
- Piping and mechanical works, including testing of all welds;
- Laying of cables and carrying out the electrical works;
- Construction of operational and instrumentation control systems; and
- Connection to auxiliary services (electricity and communication).

Box 2: What is a Receiving Terminal?

A Receiving Terminal is a facility that receives gas from the pipeline, measures its volume, controls its temperature and pressure, and relays the gas further into the onshore pipeline. It does not store any gas. The Receiving Terminal is designed and built in accordance with Turkish and international health, safety, security and environmental standards.

The basic components of the Receiving Terminal include equipment used for monitoring the operating process (gas temperature and pressure, etc.), gas metering and monitoring, gas purification, gas heating and overpressure protection, electric heating system, ventilation system for depressurizing pipelines; and buildings which house the electrical equipment and control devices used for the monitoring of the pipelines.

A typical Receiving Terminal is shown in Figure 6. The construction of the Receiving Terminal, onshore pipeline installation and upgrade of access roads is being undertaken by the British company Petrofac, and their Turkish subcontractor Tekfen.

Temporary perimeter control measures, such as high fences, have been implemented to prevent unauthorised people and animals from entering the construction areas.

Figure 6 Example of a Receiving Terminal

A temporary laydown area is constructed to store materials, equipment and pipe sections. A temporary construction workers camp is also being constructed to house the majority of workers outside of Kiyikoy town centre. Both the temporary laydown area and the temporary workers camp will be removed after construction is finished and the land will then be reinstated.

Pipeline construction corridor

A temporary pipeline construction corridor is used to weld and bury the pipelines for a length of approximately 2km from Selves beach to the Receiving Terminal. Between January and February 2018, the construction corridor was stripped of vegetation and topsoil to prepare it for trenching and pipe-laying. The topsoil is being stored for re-use in the reinstatement phase.

Trenching and pipe-laying activities started in June 2018. Trenches are dug to a depth of approximately 2.5m and the pipe sections are transported by trucks and placed alongside the trench in preparation for welding. Once welded, the pipelines are laid in trenches and are covered with a minimum of 1.5m soil. After construction, temporary areas will be restored to their original condition as far as practicable, and revegetated.

The pipe-laying process is depicted in Figure 7.

The temporary construction and permanent footprint area is provided in Table 1 below. After the completion of the Environmental Impact Assessment (EIA) Report approved by Turkish authorities in September 2017, an engineering study was performed which managed to reduce the landtake of the Project by around 25%.

Table 1. Temporary construction and permanent footprint

Construction footprint in EIA	**Area (hectares, ha)**
Receiving Terminal Construction Area	27 ha
Temporary Laydown Area and Workers Camp	17.3 ha
Temporary Onshore Pipeline Construction Corridor	26 ha
Construction Footprint Total	**70.3 ha**
Permanent footprint in EIA	
Receiving Terminal	27 ha
Pipeline Right of Way (RoW) (cleared of deep-rooted vegetation)	6 ha
Permanent Footprint Total	**33 ha**

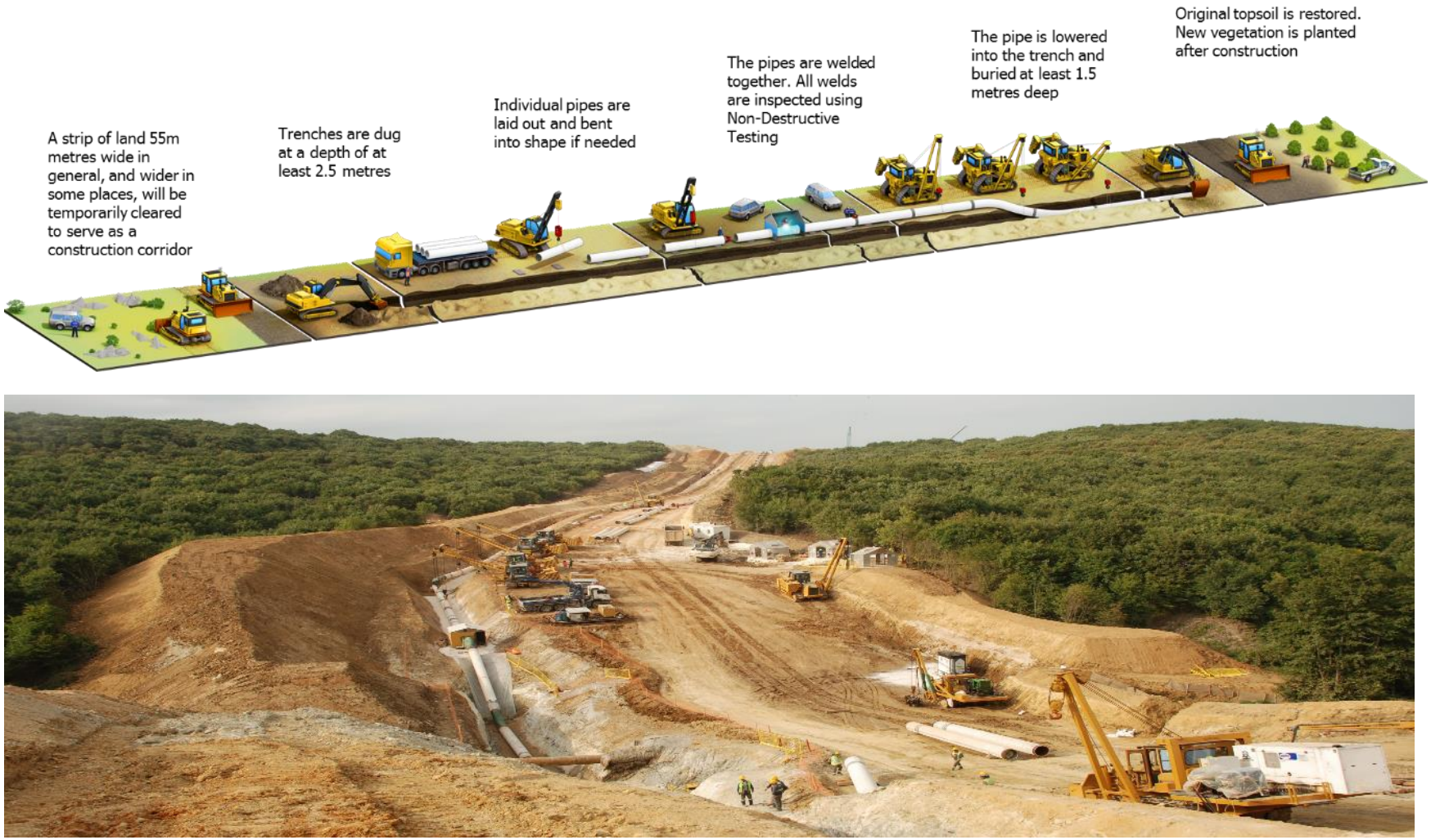


Figure 7 Onshore pipe-laying process in Kiyikoy (Schematic and Actual)

2.1.1.1 Nearshore section

Location

The **nearshore** section is the transition from the sea to land. The location of the shore-crossing, north of Selves Beach, was chosen with community feedback in mind to minimise impacts on Selves Beach (see Figure 8 and Figure 9.

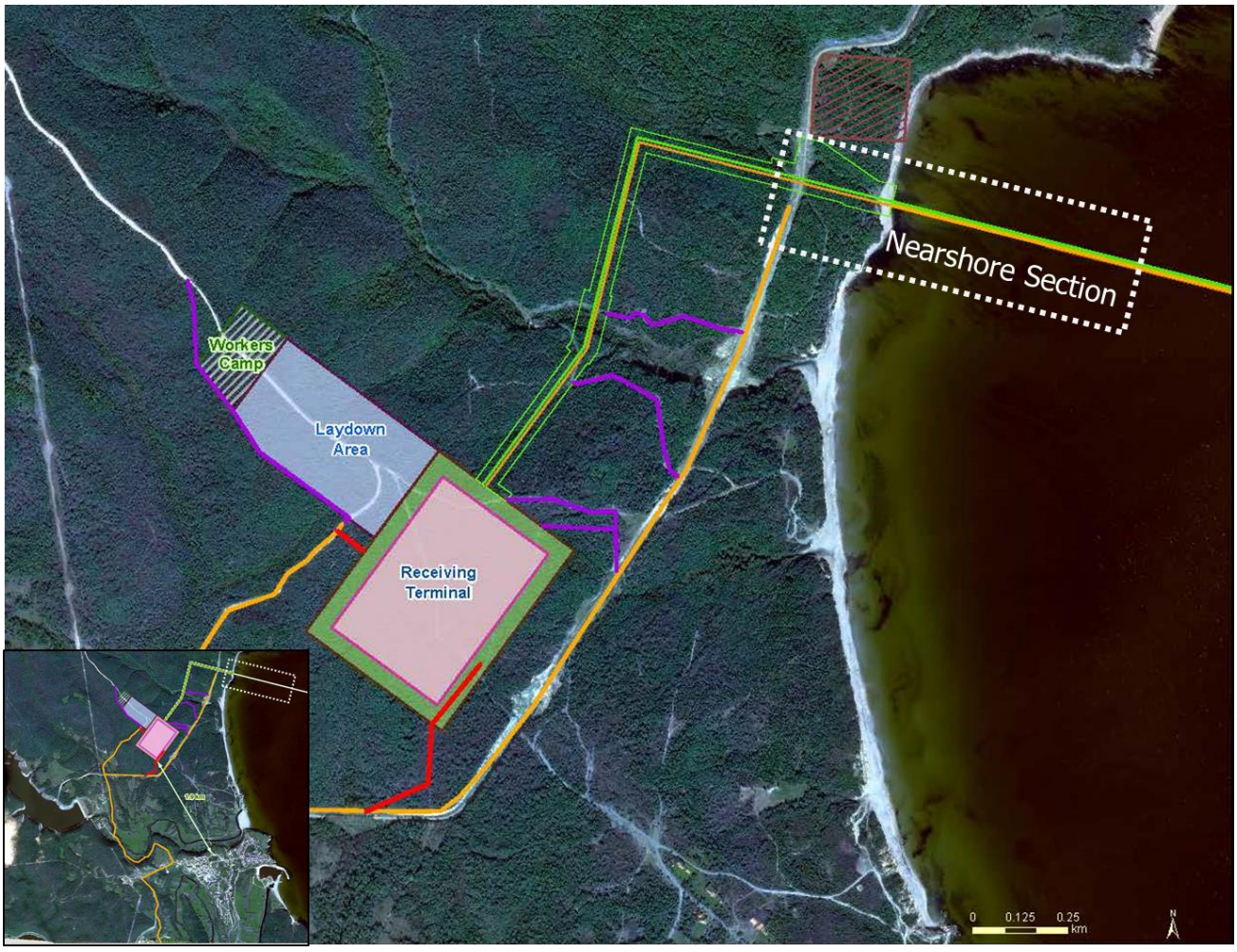


Figure 8 Location of nearshore area

Figure 9 North of Selves Beach crossing

Construction technique

Trenching operations

In order to bury the pipelines in the nearshore section, it is first necessary to dredge a trench in which to lay the pipelines. Trenching activities began in July 2018 and were completed in August 2018. Elevated excavators were used to excavate the trench in the waters less than 2m water depth. The remainder of the trench, from 2m water depth to 28m water depth, was dredged using trenching vessels.

The material that is trenched is temporarily placed on the sea floor nearby. Once the pipelines are laid and they are ready to be buried, trenching the material is returned to cover the pipelines using the trenching vessels. This is expected to take place by the end of 2018 at the latest.

Figure 10 below shows examples of the type of vessels that are used during the nearshore pipelay. The trenching and backfilling is being undertaken by Dutch company Boskalis, a world leader in such activities.

A 'cutter suction dredger' (CSD) is a self-propelled or stationary vessel that uses a rotating cutter head to loosen rocks (so-called cutting).

A 'Trailer Suction Hopper Dredger' is mainly used for trenching loose and soft soils such as sand, gravel, silt or clay.

A shallow water pipe-lay vessel Lorelay (Allseas) will lay the pipeline in shallow waters up to 30m in depth.

Figure 10 Construction vessels seen close to the shore

Shore pull operations

In order to bring the pipeline to shore, a 'shore pulling method' is used. Once the trench is made, a pipelay vessel is positioned approximately 1 km away from the shore. Cables are temporarily laid in the trenches and are attached to a winching spool onshore and to the pipelines on the vessel. This winch then pulls the pipeline to shore as pipe sections are welded on from the pipelay vessel. Shore-pull operations started in later September 2018 and will be completed in October 2018. The shore-pull operation is depicted in Figure 11 below.

Figure 11 Shore pull operation in the nearshore

Reinstatement of the beach

After construction, the area will be restored to its previous conditions as far as practically possible and there will be no further temporary or permanent restrictions on the use of the beach.

2.1.1.2 Offshore section

Location

The **offshore section** is located in the Black Sea and pipelines are laid in Turkish EEZ and territorial waters for approximately 700km. The offshore section is considered to end at 30m water depth, which is the location of the tie-in to the nearshore section.

Construction technique

Offshore construction is being undertaken by the Swiss company Allseas, using the vessel Pioneering Spirit for deep waters (see Figure 12) and a smaller vessel (Lorelay) for shallower waters of less than 30m water depth.

Pipelaying for the first offshore pipeline up to 30 m water depth was completed in April 2018.

Pipelaying for the second offshore pipeline started in June 2018 in Russian waters and is expected to be completed by the end of 2018.

Pre-commissioning

Before the pipeline becomes operational, the nearshore section of the pipeline is pressure-tested with filtered seawater. The first section of the used seawater is captured in an onshore pond and disposed. The remainder of the seawater that is clean is returned directly to the sea.

Offshore/nearshore safety zones

As a precautionary measure the following temporary restrictions on activities are in place while construction vessels are operating close to the shore and around the open trenches:

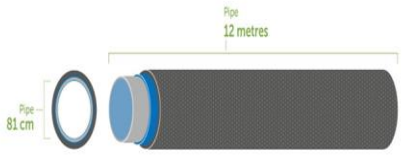
- navigational exclusion zone 2km radius around the pipe-lay vessel;
- navigational exclusion zone 500m radius around trenching vessels and supporting vessels or equipment;
- navigational exclusion zone 500m from the trench during construction; and
- beach exclusion zone 500m to the north and 300m to the south of shore-crossing, including swimming.

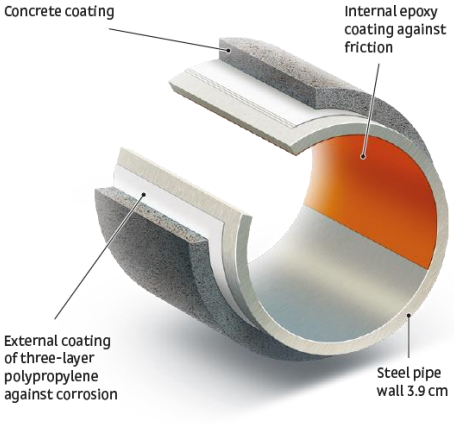
Restricted areas are announced with warning signs. These restrictions are not expected to last long, and will cease once offshore and nearshore construction has ended.

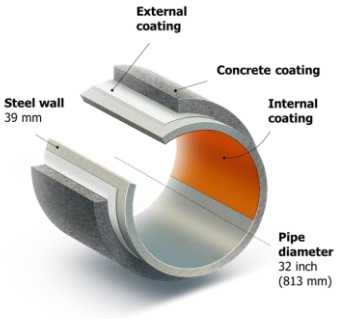
Box 3: Pipeline Design

TurkStream uses state-of-the-art technology, materials and equipment, to safeguard the pipeline's safe operation for many decades to come. The design is in accordance with internationally recognised standards. Cathodic protection structure protects the landfall section pipeline from corrosion; sacrificial anodes protect the underwater pipeline.

Each line pipe is 12m long and 32 inches (813 mm) in diameter.







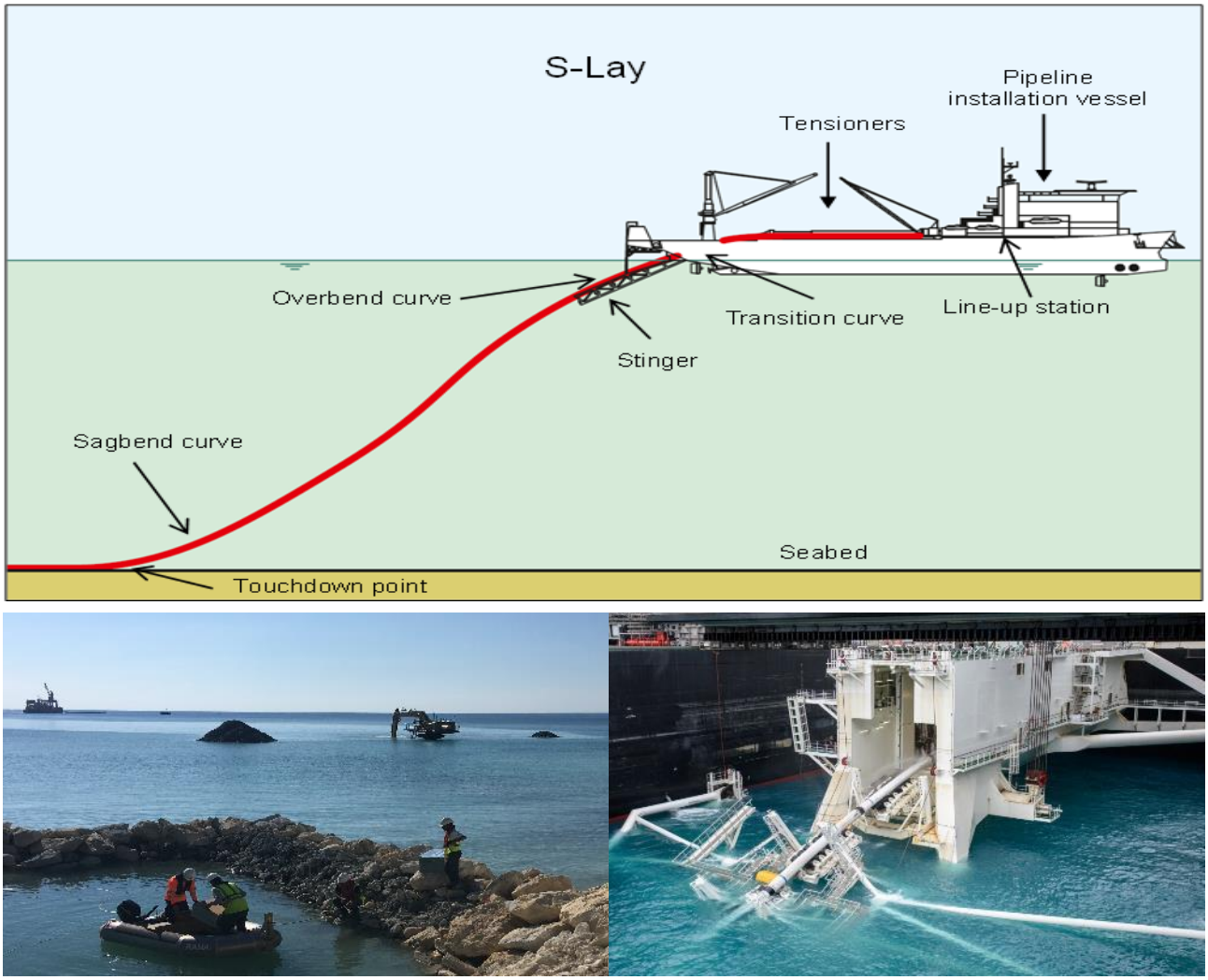


Figure 12 Pipeline lay technique

2.1.2 Operational Phase

2.1.2.1 Landfall section

After construction, all temporary construction areas, such as the temporary laydown area and workers camp, will be reinstated to their previous condition as far as practicable. These areas will be freely accessible to the public and livestock after reinstatement.

A permanent operational Right-of-Way (RoW) width of 31.8m will be established above the buried pipelines for the purposes of inspecting and maintaining the pipelines:

- No trees, deep-rooted plants or structures will be allowed within the 31.8m width of the pipeline RoW as they can damage the pipelines; however, the area will be re-vegetated withlocal flora species.
- There will be no restrictions outside the pipeline RoW.

During the operational phase, the area of the pipeline RoW will not be fenced and can be freely accessed by people and livestock.

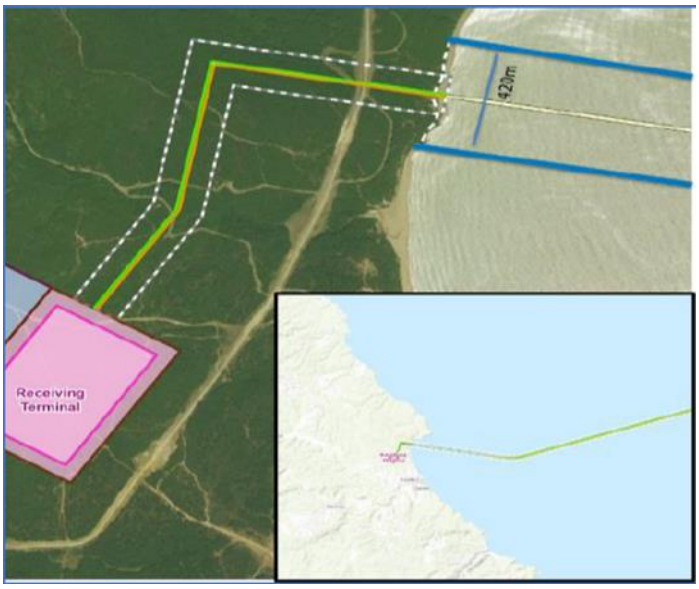
There will also be some restrictions for the types of developments allowed within certain distances of the Receiving Terminal:

- Up to approximately 450m from Receiving Terminal – no dwellings will be allowed.
- Between approximately 450m - 580m from the Receiving Terminal – dwellings greater than 2 storeys high (approximately 6m in height maximum) and sensitive dwellings (e.g. hospitals and schools) will not be not allowed.
- An area of 50m around the Receiving Terminal fence will be kept free of trees for fire safety purposes.

During the operational phase, only the Receiving Terminal will be fenced for safety and security. Periodic maintenance will be undertaken on all equipment at the Receiving Terminal, the majority of which will be undertaken by in-house staff. Monitoring of the onshore pipelines will also be undertaken periodically. It is not foreseen that maintenance of the onshore pipeline will be necessary; however, if during monitoring a need for maintenance is identified, it will be undertaken.

2.1.2.2 Offshore section

After installation of the pipeline, there will be a 420m operational safety zone corridor around the two pipelines extending throughout the Turkish section of the Black Sea. Within this corridor, there will be restrictions on certain third-party activities that could damage the pipeline, but this will not restrict swimming or vessels from crossing over the pipeline. Whilst sea floor fishing activities such as bottom trawling will not damage the pipeline, it may risk damage to fishing gear.



420m operational safety zone will be in place around the pipeline during the operational phase

Maintenance and inspection will be performed regularly throughout the operational life of the pipelines. In addition, routine surveys of the exterior of the pipelines and their support structures will be carried out at regular intervals.

2.1.3 Decommissioning Phase

Decommissioning involves the shutdown and closure of the Project once it has reached the end of its operational life. A decommissioning programme will be developed and will comply with all applicable legal requirements and standards available at the time of decommissioning.

2.2 What is the construction schedule and main activities?

Approximate construction timeframes in the landfall, nearshore and offshore sections are presented in Table 2. The approximate construction schedule is presented in Figure 13. However, as with all large construction projects, the schedule may be subject to change as a result of unforeseen delays. Potential delays may be related to factors such as weather conditions, logistics problems, geological conditions, and/or permitting procedures.

Offshore pipe-laying activities in Turkish waters commenced on 4 November 2017 and pipe-lay for the first pipeline was completed in April 2018. Pipe-laying for the second pipeline began on 26 June 2018 and is expected to be completed by the end of 2018. Onshore construction activities near Kiyikoy commenced in November 2017 and will continue until the end of 2019. Nearshore construction activities north of Selves Beach commenced in July 2018 and are expected to be completed by the end of 2018. Information contained herein is current as of September 2018.

Table 2. Construction activities timeframes

Project area	Time frames	
Landfall section	Construction of access roads for the Turkish landfall	•Approximately 3 months
	Land clearance	•Approximately 1-2 months
	Site preparation	•Approximately 6 months
	Receiving Terminal construction	•Approximately 18 months
Nearshore area	Shore crossing contruction	•Approximately 6 months
	Pipe-laying in the nearshore	•Approximately 2 months
Offshore section	Construction in Turksih waters to Kiyikoy	•Approximately 18 - 24 months

		2018				2019			
	Operations	**Q1**	**Q2**	**Q3**	**Q4**	**Q1**	**Q2**	**Q3**	**Q4**
Offshore Section	Pre-lay Cable Crossings								
	Pipeline Route Pre-lay Survey (14 days in advance of pipe-lay)								
	Pipe-lay – Turkish EEZ to approximately 30m Water Depth (WD)								
	Above Water Pipeline Tie-in at 30m WD								
	Post-Lay Seabed Intervention (including surveys)								
Nearshore Section	Access Roads								
	Shore-Crossing Site Preparation								
	Trenching (to approximately 2km offshore)								
	Shore Pull and Shallow Water Pipe-lay to 30m WD (approximately 5 days per pipeline)								
	Backfill of Trenches and Beach Restoration								
Landfall Section	Landfall Section Pipeline – site preparation and mobilization of equipment								
	Landfall Section Pipeline Construction								
	Receiving Terminal – site preparation, early civil works and equipment mobilisation								
	Receiving Terminal Construction								
	Clean-up and Land Restoration (Temporary Areas)								
	Pre-Commissioning of Onshore Pipeline								
	Pre-Commissioning of Nearshore Pipelines								
	Pre-Commissioning of Receiving Terminal								
	Pre-Commissioning of TurkStream Gas Pipeline (Russia to Turkey)								
	Commissioning of TurkStream Gas Pipeline (Russia to Turkey)								
	TurkStream Gas Pipeline (Russia to Turkey) Operational								

Figure 13 Approximate construction schedule (approximately 2 years)

2.2.1 Which transport routes are used to get to the Project area?

Existing public roads are used to access the Project area near Kiyikoy and the majority of the construction traffic exits the highway and travels through the town of Saray and the villages of Gungormez and Bahcekoy. However, other routes may be used subject to meeting the needs of the construction activities after evaluation regarding their suitability. Construction traffic does not pass through Kiyikoy town centre itself and routes have been selected to avoid construction traffic passing close to the town. Within and around the landfall and nearshore sections, the Project has upgraded existing local forestry roads to provide safe access for construction vehicles.

The Project area is accessed day and night. It was originally estimated that there would be approximately 550 two-way movements by heavy goods vehicles per day during peak construction activities lasting for approximately 10 months (between May 2018 and March 2019). Heavy goods vehicles are mainly 'dump trucks' carrying fill material or excavated spoil. However, the volume of construction traffic is significantly reduced

from this original estimate as a result of design changes, including the ability to store excavated material close to the construction site and the re-use of these materials for onshore construction.

2.3 What will happen to waste generated by the Project?

Any waste generated during construction is stored and disposed of safely, to prevent any environmental pollution. Only licensed companies and facilities are used for transportation, recycling and disposal of wastes. The general approach to managing solid waste is as follows:

- waste minimisation and prevention;
- identification and segregation of waste materials at source;
- recycling and reuse of suitable materials; and
- treatment and disposal of specific waste streams.

2.4 What will happen in the case of an emergency?

Emergency Response Plans are developed which detail the processes and procedures that the Project will follow in the unlikely event of an incident such as a fire, traffic accident, etc. throughout the construction and operational phases of the Project. The Gendarme, fire authorities and municipality are consulted in the preparation of these Emergency Plans.

2.5 How many people will work on the Project?

Construction works within the landfall, nearshore and offshore sections of the Project are expected to last approximately 24 months (2018-2019). During this time a large workforce is required, especially in the landfall section (see Table 3). Local employment and local supplier opportunities are discussed in Section 4.11.

Table 3. Estimated labour during the construction and pre-commissioning phase

Project section	Peak labour numbers
Offshore	950
Nearshore	250
Landfall	1200

3 Stakeholder engagement

The Developer is committed to a transparent and respectful dialogue with stakeholders throughout the life of the Project. The activities of engagement abide by all applicable laws and regulations in the countries where the Project operates.

A Stakeholder Engagement Plan (SEP) has been developed which sets out the approach which the Developer will follow to implement an engagement programme with stakeholders over the life of the Project. The SEP is intended to provide an overview of stakeholder engagement activities that have been undertaken during the development of the Project in Turkey (2015– August 2018) as well as to provide information on the planned engagement activities for the construction and pre-commissioning phase of the Project.

The Developer aims to provide stakeholders with timely information about the Project and potential impacts, and give stakeholders the opportunity, through consultation and other feedback mechanisms, to express their opinions and comments in relation to the Project, and for these to be reflected in decisions related to Project activities where possible.

The Stakeholder Engagement Plan is available to the public and can be viewed on the Project's website: www.turkstream.info.

3.1 Who has been consulted about the Project?

The Project has engaged with local communities prior to the start of construction activities, and will continue to do so throughout the construction process, so that they are informed about Project activities and potential

impacts, and mitigation measures which the Project will apply to avoid, minimise, manage or offset the potential impacts.

Stakeholder engagement began in May 2015 with the publication of the Environmental Impact Assessment (EIA) Application File. Subsequently, a stakeholder engagement process was initiated which has involved regular and ongoing formal and inform engagements with a variety of community members, groups, organisations and institutions at local, regional and governmental levels. Engagement has been undertaken on various issues, including:

- Providing information about the Project and updates about its progress;
- Receiving and responding to questions, comments, issues and/or concerns;
- Collecting environmental, social and cultural heritage information and data about the Project area and surrounding communities in order to assess the potential impacts of Project activities;
- Discussing potential impacts of the Project with affected people and devising measures to mitigate Project impacts, as well as continuing to engage with people throughout the construction process in order to manage and monitor impacts that may have occurred;
- Identifying and implementing social investments as part of the Community Investment Programme (CIP).

Through these extensive stakeholder engagement meetings, key stakeholder concerns were identified such as those related to fishing, tourism, animal husbandry and forestry. Further information on the potential impacts of the Project and the related mitigation measures are provided in Section 4.

An open day event was arranged in November 2017 in Kiyikoy giving members of the local community the opportunity to learn about the Project (see Figure 14). Community members met with experts, asked questions and received answers about the Project and its expected and potential impacts. Visual materials, including maps, posters, videos, PowerPoint presentations and interactive presentations hosted on iPads, and written materials including brochures and leaflets were made available. Engagement activities to date have also included an information exchange visit to the Blue Stream facilities in Samsun for Kiyikoy community representatives in August 2017.

Currently, a Community Liaison Officer (CLO) representing the Project is based in Kiyikoy and is the first point of contact in relation to community questions, complaints or grievances and also assists in the identification and resolution of issues that arise from the Project. The contact details of the CLO can be found in the Preface of this document.

Additionally, stakeholders are notified of the Project activities through announcements made and reported in local and national media outlets and with information materials produced to support these notifications, as necessary. Efforts are made to engage with groups that are not officially organised, such as women and youth young people, to ensure that they receive relevant information concerning construction activities.

Figure 14 Kiyikoy open day event, November 2017

Box 4: Key stakeholder engagement activities that have taken place for the Project in Turkey

- 2015 - Ongoing: Permitting meetings with local, regional and national authorities.
- July 2015: EIA Public Participation Meeting.
- August - October 2015; December 2016 – January 2017: Introductory meetings with members of Kiyikoy Local Community and the initiation of the Community Engagement Programme.
- September 2015 - November 2017: Environmental and social impact assessment studies, including for the EIA Report.
- February - May 2017: Introductory meetings with regional authorities and development of the 2017 Community Investment Programme.
- June 2017 and September 2017: Publication of draft and final EIA.
- July - October 2017: Project Information Meetings with Kiyikoy community groups and introductory meetings with muhtars in Bahcekoy and Gungormez.
- August 2017: Appointment of Community Liaison Officer (CLO) and Blue Stream exchange visit with Kiyikoy stakeholders.
- November 2017: Kiyikoy Open Day Event.
- November – April 2018: Community Needs Assessment and development of 2018 Community Investment Programme.
- January – March 2018: Community disclosure of the feedback process and grievance procedure, and employment and procurement procedures.
- March – July 2018: Development of mitigation measures and livelihood compensation mechanisms for impacted animal husbandry and fishing groups.
- March 2018 – Ongoing: Regular project update and community liaison meetings, community investment progress meetings, and socio-economic management and monitoring meetings with community representatives and groups.

3.1.1 Upcoming and ongoing stakeholder engagement activities

During the construction phase, and the subsequent operational phase, the emphasis of engagement shifts from seeking and incorporating stakeholder input in future plans, to consultation and disclosure about ongoing or forthcoming activities, and receiving feedback from stakeholders regarding current activities. Planned engagement activities are commensurate with the scale of impacts predicted in the EIA as well as additional environmental and social assessments.

Ongoing engagement activities include:

- Ongoing engagement with regulatory authorities on matters of permitting and compliance with national requirements, including environmental reporting;
- Ongoing community and regular local authority liaison through the CLO to ensure that communities are informed about Project activities, can participate in decisions affecting their communities and have a focal point for feedback and grievances;
- Ongoing engagement to develop, implement and monitor community investment projects; and
- Ongoing updates to stakeholders on Project progress, implementation of mitigation measures, and overall Project performance.

An Information Centre will be opened in Kiyikoy in December 2018, where people can visit to find out more information about the Project, ask questions and provide comments or lodge grievances.

In addition to these engagements, Table 4 shows the formal engagement activities are planned between now and the end of 2018.

Table 4. Planned formal Stakeholder engagement activities in Q3 and Q4 2018

Planned Engagement Activity	Anticipated Date
Ongoing engagement for the Environmental and Social Monitoring Programme	Started in Q1 2018 and then on a quarterly basis during construction
Opening of Information Centre in Kiyikoy	Q4 2018
Project information, coordination and regular update meetings with marine authorities, fisheries and marine users on nearshore and offshore construction activities	Started in July 2018 and ongoing throughout nearshore and offshore construction activities
Stakeholder Engagement Plan: Update	Q4 2018
Information sessions in schools	Starting Q4 2018
Public Project information event in Kiyikoy and update meetings with community stakeholders	Q4 2018 / Q1 2019

3.2 What is the Community Investment Programme?

The Project initiated a Community Investment Programme (CIP) in early 2017. The CIP is a platform for promoting local development opportunities and building relationships with community stakeholders.

3.2.1 Completed Community Investment Projects

A set of community investment initiatives were implemented starting in 2017 after consultation with community stakeholders. Completed CIP projects shown in Figure 15 and include:

- Improvement of the Kiyikoy Municipal Beach – refurbishment of changing room and hygiene facilities, contributions to improve safety measures (installation of a lifeguard tower, and donations of lifejackets and lifeboat), and contributions to improve recreational facilities (sun loungers and a volleyball net).
- Improvement of recreational/leisure facilities in Kiyikoy – construction of new football pitch and multipurpose sports court; and donation of new equipment for two playgrounds.
- Support to Education Sector – heating insulation of three schools in Kiyikoy; donations to improve fire safety in schools (fire extinguishers, smoke detectors); donation of 90 books to Kiyikoy high school library; renovation of an old military building in Vize to convert it into to a public education centre.
- Support to Health Sector – donation of electrocardiogram machine, new seating for patients and back-up generator for the Kiyikoy Family Health Clinic.
- Investments in Events, Activities and Culture – sponsorship of Children's Day event in Kiyikoy on 23rd April 2018; sponsorship of a local football tournament in Kiyikoy; and a photography workshop for school children.

- Investments in Economic Sectors and Donations to Cooperative – contribution to shore-pulley system for vessel maintenance to Kiyikoy Fishing Cooperative and donation of computer and printer to Kiyikoy Agricultural Development (Forestry) Cooperative and Fishing Cooperative.

Figure 15 Community Projects undertaken in Kiyikoy

In addition to the above, construction contractors have made contributions including the improvement of an access road to Selves beach, donation of waste containers for Kiyikoy Municipality and improvement works in Kiyikoy port such as the clearing of excess sand in the slipway and improvement to the port access road.

3.2.2 Community Investment Programme 2018 – 2019

A Community Needs Assessment was undertaken at the end of 2017 to identify development needs in the local community, identify opportunities for investment and develop a suite of community projects to be implemented during the Project's construction phase (2018-2019). As part of the Community Needs Assessment, consultation was undertaken with community residents, representatives, groups, local and regional authorities, and other institutional and non-institutional stakeholders. In total, more than 50 meetings were held including a series of interviews and focus groups.

Based on these meetings, potential community projects were assessed in terms of benefits, costs, and feasibility to implement, including any permitting implications and practical challenges. Following this a number of CIP projects were identified focusing on the investment areas below. The specific CIP initiatives and projects were agreed and further developed in conjunction with community stakeholders, relevant agencies and organisations at the beginning of 2018. All projects are within Kiyikoy and the surrounding area. Where appropriate, initiatives are being undertaken with non-government, agency or authority partners.

The CIP investment areas and ongoing and planned projects include the following:

- **Economic Development – supporting fishing, tourism, employment, and skills development:** initiatives include supporting fishing, tourism, employment, skills development. Projects include providing cold storage units for fishing, contributing to the proposed refurbishment of Kiyikoy port, investing in the local beekeeping industry, provided marketing and promotional support to the local tourism industry, and supporting tourism through capacity-building trainings. These projects will also involve women and youth.
- **Improving Recreation, Education and Health services and the Local Environment:** Initiatives include supporting improvements in health and education facilities in Kiyikoy, improving Kiyikoy's beaches, and undertaking an environmental awareness raising initiative.
- **Supporting Community Arts, Events and Activities:** initiatives include establishing a cultural centre in Kiyikoy, sponsoring local events and activities, providing arts and crafts courses to women and children, and supporting the local Roma association with trainings and a community space.

- **Supporting Community Infrastructure Improvements:** initiatives include contributing to improvements in the road network in Kiyikoy and construction of a new pedestrian bridge between Kiyikoy port and the port beach.

3.3 How can I provide feedback on the Project?

The Developer is committed to having an open and respectful dialogue with all stakeholders throughout the lifetime of the Project. Feedback from the community is valuable to ensure that important issues are appropriately considered and addressed, and strengthen the basis of the Project's environmental and social management.

Feedback is anything from a list of questions, comments, requests for information, suggestions, concerns, and or grievances to the Project.

A grievance is a complaint that someone has about the activities of the Project or the Developer. A grievance might be related to an incident, the environment, or the behaviour of employees. The Grievance Procedure ensures that any grievances associated with Project activities are addressed in good faith through a transparent and impartial process throughout the course of the construction and operational phases.

Local residents and other stakeholders are able to send their grievances to the Developer in order for them to be addressed in an appropriate and timely manner, through following a standard procedure of investigation, analysis, and resolution.

Box 5: Contacting the Company

Stakeholders are invited to provide feedback about the Project. Feedback may include questions, comments, requests for information, suggestions, concerns, and complaints.

The Project treats all types of feedback with professional consideration and respect, and we base our responses on open and honest communication.

Stakeholders can contact the Project at any time by letter, phone, fax or email. Contact information is available at the beginning and end of this document, on the website, and is included in all external publications and communications (including reports, leaflets, letters, emails, etc.). Communications with the Project can be conducted in English or Turkish. Meetings with Project representatives can be arranged as needed.

4 Potential impacts and mitigation

4.1 What studies have taken place?

An Environmental Impact Assessment (EIA) was undertaken to identify potential environmental and social impacts. A draft EIA Report was submitted to the Turkish authorities in June 2017. Following consultations with 21 Turkish authorities, the Final EIA Report was published in September 2017 and approved by the Ministry of Environment and Urbanisation (MoEU) at the end of September 2017.

The EIA Report describes the main characteristics of the Project, assesses the potential environmental, social and cultural heritage impacts, and outlines the Project's commitments and mitigation measures intended to avoid and minimise potential impacts.

The outcomes of stakeholder engagements undertaken by the Developer between 2015 – 2017 were taken into account during the assessment of environmental and social impacts and development of mitigation measures detailed in the EIA Report.

Several additional topic-specific assessments have been undertaken to understand potential impacts on the socio-economic environment. Appropriate avoidance and mitigation measures have been provided which feed into the Project's Environmental and Social Management Plans (ESMP).

Where impacts cannot be entirely mitigated, the Project works with affected stakeholders to offset or compensate for the impacts. The Project has a Compensation Management and Livelihood Restoration Framework that captures the process and requirements for assessing compensation claims or impacts relating to livelihoods, as well as measures for implementing compensation or livelihood restoration. The Framework is closely linked to the Grievance Procedure (see Section 3) and stakeholders have been informed of how compensation / livelihood restoration claims are assessed and the type of information that will be sought to validate any claims.

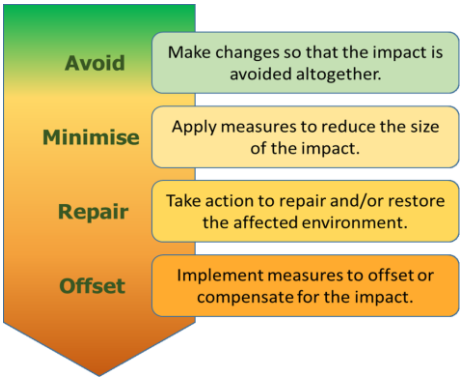
The following sections focus on the main potential impacts resulting from the Project as well as the key concerns raised by stakeholders. The environmental and social studies conducted in and around the Project area are depicted in Figure 16.

Box 6: What is an impact assessment?

The impact assessment process illustrates the Developer's commitment to develop and operate the Project in an environmentally and socially responsible manner. This approach provided affected persons with the opportunity to participate in the EIA process and assisted the relevant authorities to make informed decisions about the Project.

Impact assessment studies to date have shown that, following the implementation of design controls, management and mitigation measures, the majority of the residual environmental and social impacts are assessed to be of low significance and temporary in duration; however, engagement activities continue to be organised around specific topics of interest and known concerns of stakeholders. Mitigation measures have been included in the EIA with the objective to avoid, minimise, offset/compensate or otherwise manage adverse environmental and social impacts associated with the Project.

Mitigation hierarchy



Landfall section

Physical environment

- Geology
- Surface water and ground water quality
- Visual
- Noise
- Air quality

Biological environment

- Ecology (flora and fauna)

Socio-economic environment

- Traffic
- Forestry
- Agricultural activities
- Land use
- Tourism
- Animal husbandry
- Community health and safety

Archaeology and cultural heritage

- Archaeology and cultural heritage objects

Nearshore/ Offshore section

Physical environment

- Hydrographic, oceanographic, bathymetric, seismic and geological (conducted via remote sensing) measurement
- Hydro-chemical analyses, sea water and sediment quality
- Investigating sonar findings and geological abnormalities using Remotely Operated Underwater Vehicles

Biological environment

- Marine ecology

Socio-economic environment

- Fishing

Archaeology and cultural heritage

- Underwater archaeology

Figure 16 Environmental, cultural heritage and social studies undertaken in Turkey

4.2 Will there be negative impacts on air quality?

Pre-construction background air quality levels for pollutants such as nitrogen dioxide, sulphur dioxide, volatile organic compounds and dust were assessed. Monitoring is being conducted to assess whether the Project activities cause the air quality to exceed Turkish limits and whether these increases will affect people.

Potential air quality impacts

Construction Phase

An air quality model (Lakes Environmental AERMOD View), which assesses the potential for significant impacts caused by the Project, indicated that nitrogen dioxide, sulphur dioxide, volatile organic compounds and dust generated by the Project will not exceed Turkish air quality limit thresholds and therefore are not expected to impact the surrounding environment or human health.

Monitoring of air quality

Using air quality modelling results to measure dust and air quality along construction traffic routes and the construction area of the Receiving Terminal, a number of sampling locations were identified. Samples from these locations are taken quarterly during the construction phase and confirm that Turkish air quality limits are not being exceeded.

Operational Phase

During the operational phase, air emissions (nitrogen oxides, carbon oxides, sulphur oxides, volatile organic compounds and dust) may be released from heating systems and diesel generators at the Receiving Terminal.

During routine maintenance of the Receiving Terminal, small volumes of natural gas will be quickly released from vents at the top of the stacks. However, air quality model results indicate that these will have minimal effects on the surrounding air quality for the environment or human health. Throughout day-to-day operations, air emissions generated by the Receiving Terminal (heaters and generators) will not release natural gas.

Box 7: Air Quality Mitigation Measures

- Enforcement of appropriate speed limits to reduce dust.
- Good construction site management practices, including suppressing dust with water if needed, improving impacted road surfaces where needed, and regular maintenance of vehicle fleet and equipment.

Air quality monitoring equipment used for monitoring dust in the Project area

4.3 How much noise will I hear?

The nearest receptors to construction and operational noise are residential areas in the town of Kiyikoy, 2km south of the landfall section.

In summer, additional receptors to noise impacts may be visitors to recreational areas at and near Selves Beach which is approximately 100m from the landfall section.

Background noise measurements were carried out around the landfall section and in Kiyikoy during the day and night as part of the EIA report to understand the impacts of the noise resulting from Project activities during construction.

Box 8: Noise Mitigation Measures

- Where applicable, development of measures in agreement with stakeholders residing in adjacent houses, to minimise noise.
- Measures to control and minimise the noise caused by the construction equipment where necessary (mufflers, barriers, etc.).
- Scheduling of pre-construction road upgrade activities during day-periods to avoid or minimise noise-generating activities which could negatively impact households adjacent to the works.
- Enforcement of appropriate speed limits to reduce noise.

Potential noise impacts

Construction Phase

A noise model was performed for Project activities in the landfall section. The results indicated that no noise impacts (i.e. an exceedance of Turkish noise limit thresholds) are expected in Kiyikoy. However, the households adjacent to the Project access roads may experience some noise disturbance due to the Project's construction traffic.

In the nearshore area, some noise may be heard at Selves Beach during certain stages of construction and pre-commissioning phases, but this will be temporary and campers and other beach users have the ability to find alternative camping/beach areas further away from the Project's activities.

Construction activities also cause vibrations. The results of the EIA report indicated that the Project will not generate vibrations that could be experienced by the nearby town's population. Normal construction techniques are used, and the vibrations during construction would only be noticeable to those people immediately adjacent to construction activities.

Monitoring of noise and vibration

Noise and vibration is being monitored at locations around houses adjacent to the Project's access roads and recreational areas, forested land and agricultural areas close to the construction activities. Noise samples from these locations are taken quarterly and confirm that Turkish noise limits are not being exceeded.

Operational Phase

The noise model performed for the operation of the Receiving Terminal indicated that the Receiving Terminal is not expected to generate any noticeable noise in residential areas or on the beach.

4.4 Will drinking water be affected?

Groundwater and surface water assessments were undertaken prior to construction to find out whether the Project will affect the municipality's water supply. The EIA report found that springs, wells and surface water

supply municipal water in Kiyikoy and that water is primarily used for drinking, domestic, industrial and agricultural purposes.

The EIA report identified that Kiyikoy experiences municipal water shortages during summer time when there is a large influx of tourists to the area.

Potential water quality impacts

Construction Phase

The Project requires water for domestic, process and industrial purposes. To avoid affecting the water supply in the municipality, water for the Project during the construction phase is supplied by from external sources by road tankers.

With regards to wastewater generated by the Project, all wastewater generated during construction activities is disposed according to the provisions of relevant Turkish water pollution control regulations and other legislation.

Monitoring of drinking water quality

Various surface water and groundwater locations are being monitored quarterly throughout the construction phase. This is to determine whether the water quality is degraded during construction. So far there is no indication of impacts to surface and groundwater.

Figure 17 One of the local springs monitored in the area

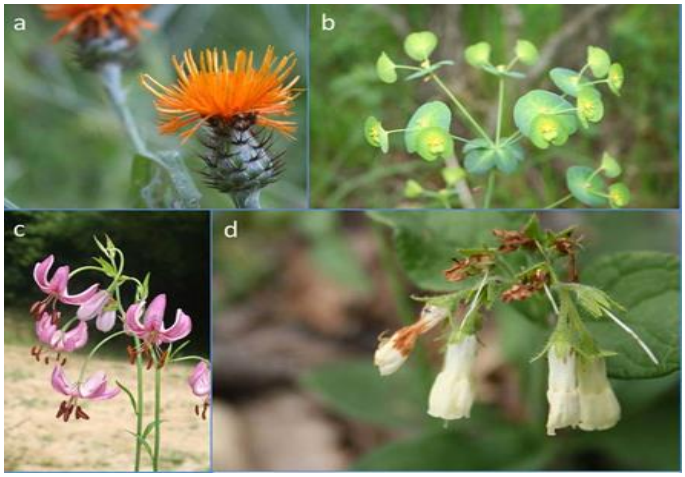
Operational Phase

All wastewater generated during operations will be disposed according to the provisions of relevant Turkish water pollution control regulations and other legislation. Therefore, no significant impact is expected during the operational phase.

4.5 Will plants and animals be affected?

4.5.1 Plants

Flora studies identified a total of 297 species. Three (3) out of these are endemic to the region (i.e. they exist only in the Marmara region) and five (5) are found in other areas but are rare.



Examples of endemic and rare plant species from the Receiving Terminal area: (a) Centaurea hermannii (b) Euphorbia amygdaloides var. robbiae (c) Lilium martagon (d) Symphytum tuberosum subsp. Nodosum.

Potential impacts on plants

Construction Phase

The EIA report found that the Project construction will result in an impact to the oak woodland, resulting in temporary habitat loss due to the clearing of land. However, the EIA report concluded that this loss does not affect the overall habitat of the forested area and will not have a significant impact long term on plant life.

Operational Phase

There is potential for impacts on plants as a result of maintenance to keep the permanent RoW above the pipelines free of trees and deep-rooted vegetation during the operational phase. However, as identified in the construction phase, no significant impacts on plants are anticipated during the operational phase.

Box 9: Plant mitigation measures

- Before construction started, the topsoil was stockpiled to be used for future reinstatement of the site.
- Seeds of endemic species have been collected and submitted to the Turkish Seed Gene Bank in Ankara.
- Over 50 bulbs of the species *Lilium martagon,* have been collected and translocated to suitable habitats not affected by the Project.
- Re-vegetation of the temporary contruction area and directly over the pipeline with grasses and shrubs, as the deep roots of trees could damage the pipes.

4.5.2 Animals

Potential impacts on animals

The fauna studies identified 34 species of mammals, 34 butterflies, 8 dragonflies, 18 reptiles, 7 species of amphibians and 112 bird species in the Project area and the vicinity. None of the species identified have been listed under the Endangered or Critically Endangered categories of the IUCN (International Union for the Conservation of Nature), with the exception of the Egyptian Vulture and the Steppe Eagle categorized as Endangered species by the IUCN, which pass through the region during the migration season. Some of the reptile species identified in the Study area are on the IUCN Red List, classified **VU:** Vulnerable and **NT:** Near Threatened. *Testudo graeca*is classified **VU:** Vulnerable, *Emys orbicularis, Testudo hermanni and Darevskia praticola*are classified **NT:** Near Threatenedand therefore mitigation measures are implemented to minimise impacts to these species, such as relocation (see Figure 18).

Box 10: Animal mitigation measures

- Avoidance of ecologically sensitive and protected areas.
- Site preparation before bird breeding season
- Ecological training for relevant construction staff.
- Presence of qualified ecologists on site to undertake "environmental watching brief"
- Relocation of individual animal species discovered in the Project area to a suitable habitat outside.
- On-going monitoring of species outside the Project area.

Construction Phase

The EIA report concluded that during the construction phase potential impacts related to noise and other disturbances are expected to be temporary and will not cause any significant impacts for birds and other animals.

Monitoring

Ecologists on site under took an "environmental watching briefs" during vegetation clearance / topsoil removal and any fauna discovered in the Project area was relocated to a suitable habitat outside the Project area so that they would not be affected by the construction works.

The relocation process included some vulnerable and threatened species such as spur-thighed tortoise and meadow lizard. More than 800 animals were moved by the experts to locations outside the construction area, away from any possible impacts.

Operational Phase

The pipeline corridor will not be fenced after the pipeline has been laid and animals will be able to migrate back to these areas and roam freely. No significant impacts during the operational phase are anticipated.

European pond turtle - Near Threatened

Hermann's tortoise - Near Threatened

Spur-thighed tortoise - Vulnerable

Meadow lizard - Near Threatened

Figure 18 Relocation of Near Threatened or Vulnerable species away from the Project area

4.6 Will marine life be affected?

EIA studies looked at the physical characteristics of the sea, including the temperature and chemical composition of the water, the nature of the seabed and sediments, and sea currents. The EIA also assessed potential impacts on marine life, including plants, invertebrates, fish, seabirds, and marine mammals.

The Black Sea is the world's largest anoxic basin, meaning its deep waters have low levels of dissolved oxygen, and there is little life below 150 m water depth.

There are a variety of commercial fish species within the Black Sea, including anchovy, mackerel and sprat, which are commonly caught by Turkish fisheries. Seabirds are present on their migration routes through the Black Sea and sometimes swim or feed on the surface, including gulls and terns, as well as the endangered Mediterranean shearwater.

There are also marine mammals, such as the Black Sea common dolphin, Black Sea harbor porpoise and bottlenose dolphin. The Black Sea common dolphin is known to prefer the open sea but is sometimes spotted near the shore when feeding on shoals of fish. Unlike the common dolphin, the Black Sea bottlenose dolphin and harbour porpoise prefer to stay in the continental shelf zone, but are occasionally found in the open sea.

Construction Phase

The EIA assessed how the Project might affect the quality of seawater and sediments. With the exception of nearshore construction, which requires trenching approximately 2km in length from the shoreline, the remainder of the pipeline is laid directly on the seafloor which causes little disturbance to the seabed. The trenching and subsequent backfilling of the trench to bury the pipelines in the nearshore section temporarily increases the turbidity (the cloudiness as a result of stirring up sediments) of the water, but this is short-term and localised. The disturbed sediments are uncontaminated, therefore this activity will not result in chemicals being released into the marine environment.

In terms of marine ecology, assessments have considered the cumulative impact of a temporary increase in sedimentation in the nearshore, and noise and light impacts on fish populations, including on the local spawning habitat near Kiyikoy and fish migrations. The sedimentation caused by nearshore construction activities will be localised, low concentration and short term so are unlikely to affect migrating fish or cause any long term changes in fish populations. Similarly, the impact on fish spawning grounds is likely to be minimal given the relatively short timescale of activities, with the spawning habitat expected to recover within one year. The effects of noise and light from construction activities will be localised to the construction area and will not affect the main migratory route of fish. The most likely effect is that some species may slightly adjust their route to avoid the construction area, before returning to their usual migratory route along the coastline.

The EIA Report also assessed the risks that construction could disturb seabirds, porpoises or other marine mammals. The EIA concluded that potential impacts on marine ecology would be short-term and localized. Some fish, birds and marine mammals may temporarily move away from the construction area to avoid the noise and activity, but this will not disrupt migrations or have lasting effects on these species and they will return after construction vessels have left the area.

Monitoring of the marine environment

Water quality will be monitored continuously during trenching activities, as well as approximately 6 months following the backfilling of the trench.

Visual ecological assessments of the marine environment to assess the impacts of construction activities will be performed through diving surveys during the nearshore construction period and again for a period of approximately 6 months following backfilling.

Operational Phase

The pipeline will be buried under the seabed up to 28m water depth and will be on top of the seabed thereafter. The pipeline itself will not have any impacts on water quality and there will be minimal noise impact, therefore it will not affect marine life. Experience from similar offshore pipeline projects indicates that certain fish species congregate around the pipeline for sheltering.

Box 11: Marine ecology and environment mitigation measures

- Given the envisaged impacts, the Project has undertaken the following mitigations:
- Environmental monitoring during trenching and backfilling to check the impacts of activities and mitigated if necessary.
- At sea, the discharge of water and wastes from ships will be compliant with national regulations and international standards such as the MARPOL Convention.
- The speed of the ships will also be reduced in the vicinity of seabirds or mammals, and vessels will avoid approaching animals wherever possible.

4.7 What about community health, safety and security?

Safeguarding community health, safety and security is important to the Project and includes safety and health of the workforce, responsible behaviour within the local communities surrounding the Project area and minimising the impact of Project related construction traffic.

Potential impacts related to construction traffic

An EIA and traffic assessment was conducted to understand the potential impacts related to construction traffic along Project access routes through the town of Saray and the villages of Gungormez and Bahcekoy. The traffic assessment report indicated the following:

- Saray – there are sidewalks, dwellings, community facilities such as schools and playgrounds where children may be present, bus stops, businesses, pedestrian crossings and industrial areas.
- Gungormez village - there are sidewalks, schools, a main square with a mosque and businesses. Parts of this route have limited lighting.
- Bahcekoy village – there are no sidewalks in some areas. There is a main square, a mosque and businesses. Parts of this route have limited lighting.
- Project area (landfall section) – as previously discussed, there are 4 houses situated on part of the Project's access road between Kiyikoy and the Project construction area. A section of the construction access route to the Project area passes through areas used by livestock herds (mainly buffalo with some cattle and sheep).

Box 12: Community health, safety and security mitigation measures

- To ensure the safety of the community, perimeter control measures are in place at the border of worksites (including temporary areas) during construction. Signs have been erected to raise awareness of the hazards.
- Maintaining safe access to existing properties along construction traffic routes.
- Maintaining safe access for forest users to forest areas and tourists to Selves beach.

The socio-economic assessment conducted indicated that potential construction traffic impacts are related to road traffic accidents, air quality, noise impacts and visual impacts. Air quality, noise and visual impacts that may arise are discussed in Section 4.2 and 4.9.

Along the Project's construction traffic route from either Saray, Gungormez and Bahcekoy, there are communities with facilities and other areas used by the public. The traffic study conducted along the construction traffic route indicates that the traffic volumes are substantially higher in summer than in the winter due to tourist traffic. An increase in heavy goods vehicles related to the Project construction activities may cause traffic congestion, especially in summer when the roads are busier due to tourist traffic, resulting in an increase in journey time and fuel use. This impact is considered to be temporary, and expected to impact only a small group of people at a time.

In terms of road improvements, the EIA report found that road improvement activities may cause temporary disruptions to road users.

An increase in road safety risks may occur, especially in summer, particularly due to narrow roads in these areas and limited visibility; additionally, communities have limited opportunities to find alternative routes. Continued use of these main roads could also lead to a deterioration in the condition of these roads, increasing community health and safety risks.

Box 13: Traffic mitigation measures

- Maintaining road access and providing alternative access, if required, during construction.
- Enforcement of appropriate speed limits to improve pedestrian safety.
- Routing of traffic to avoid residential / urban areas, sensitive community receptors and times (such as local celebrations or holidays).
- Implementation of safe driving protocols.
- Applying measures to minimise congestion and disturbance to communities and road users along traffic routes.
- Monitoring of driving performance, including fitting of In-Vehicle Monitoring Systems (IVMS) for all heavy vehicles.
- Traffic safety awareness programme in communities.

In Kiyikoy, the Project's construction traffic will avoid the urban centre and majority of the Vize-Kiyikoy main road to Kiyikoy. The traffic studies identified that the Project's transport route to the construction site has a high visibility and that there are no community facilities such as clinics, schools and playgrounds where children or the elderly may be present. However, this route is used by livestock and herders (see Section 4.10.3). Both the socio-economic and traffic assessments were based on conservative figures for traffic volumes. Following the assessments, further design and construction changes were made to the Project which resulted in a significant decrease in the expected traffic numbers and the resulting potential impacts. These changes included: reuse of the majority of excavated material within the construction site to reduce the number trips to dispose of excavated material off-site and the number of trips to bring fill material onto the site; on-site concrete batching to reduce the number of trips needed to bring concrete to the construction site; and housing of the majority of the workforce in a camp on the construction site to reduce the number of light vehicle trips needed to transport personnel to and from the site.

Boxes 12 and 13 outline various measures being implemented to reduce traffic congestion and road safety risks. Taken together with the substantial reduction in the expected traffic numbers, impacts from construction traffic are expected to be temporary and less significant than originally assessed. Active management and monitoring allow the Project to continuously assess and adjust for traffic impacts.

Monitoring of construction traffic

Monitoring of traffic volumes is undertaken at various locations along the Project's construction traffic routes on a regular basis by the independent monitoring consultant. The results of this monitoring is checked against the Project construction contractors' own traffic figures and used to adjust traffic management measures as required.

Potential impacts related to Project traffic during the operational phase

During the operational phase, activities will be limited to regular maintenance of the pipeline RoW and access to the Receiving Terminal, resulting in very low vehicle movements when compared to the construction phase. Therefore, traffic risks to health and safety of the community are not anticipated.

Other community health, safety and security issues

Community impacts arising from incoming workforce during construction phase

The majority of the onshore construction workforce will be accommodated in a temporary workers camp located on the construction worksite outside of Kiyikoy town and will be provided with all necessary amenities. However, until the completion of the temporary workers camp in Q3 2018, a proportion of the workforce are being temporarily accomodated within Kiyikoy. Additionally, the workforce may enter Kiyikoy for recreational purposes during vacation days. The Project aims to have a harmonious and respectful relationship with the local residents in Kiyikoy, and with any visiting tourists to the area. Interactions with the local community are governed by a strict Code of Conduct which is applicable to all Project personnel, including contractors. Any breaches of this Code are subject to disciplinary procedures.

Stress on local health facilities during construction phase

The EIA report indicated that local health facilties in Kiyikoy are limited to only one family health centre and one ambulance vehicle, and therefore the local facilities will not be sufficient to meet the health needs of the both the local community and the incoming workforce. In order to prevent any stress on local health facilities, the Project has its own medical and emergency personnel and resources and does not depend on the local health facilities. Any medical incidents that cannot be managed with the onsite medical facilities will be transported to the larger regional facilities outside Kiyikoy.

4.8 Who owns the land and how will they be affected?

Construction Phase

Construction activities at the landfall section require a mix of temporary and permanent land acquisition. The landfall and nearshore sections are all located within state land, either Forestry or Treasury.

For the nearshore section, from the border between forest and the beach and up to the edge of Territorial Waters, land rights have been secured via a coastal / beach usage permit.

The landfall section falls entirely under the responsibility of the Directorate General of Forestry; as such, no private lands are affected. The closest agricultural land lies 320m to the south of the landfall section and the closest pasture is 290m to the south-west.

Land acquisition of some private land along the access route in Kiyikoy has been required to widen the road for heavy/large vehicle access. In most cases this involves the land acquisition of a strip of land adjacent to the existing road.

Permanent land acquisition in the landfall section will affect areas used for animal husbandry, and therefore is likely to result in loss of access to land in some areas where local people are engaged in livestock activities. This is discussed further in Section 4.10.

Land acquisition is handled by BOTAŞ with whom a service agreement has been signed in accordance with Turkish regulations. BOTAS directly handle negotiations with, and compensation of, affected landowners for the Project's access road, and obtain the land rights for the landfall and nearshore section behalf of the Developer.

Construction activities at the landfall section will result in some restricted access to land within the Project area in the form of fencing to ensure community health and safety, as well as safety for animals (see Sections 4.8 and 4.9 for more details).

Operational Phase

During the operational phase, the only physical restriction will be access to the Receiving Terminal for security purposes. A safety zone will be placed around the Receiving Terminal which will restrict the development of permanent buildings or residences nearby (see Section 2.1.2 for more details). However, this safety zone can be freely accessed by people and livestock.

The area of the RoW above the pipeline will not be fenced and can be freely accessed by people and animals.

Air quality, noise and visual impacts that may arise are discussed in Section 4.2 and 4.9.

4.9 Will the Project be visible?

Construction Phase

During the construction phase, most visual impacts (resulting from the introduction or removal of features that contribute to landscape character, or alter views) will result from construction activities in the landfall section. From certain elevated viewpoints within Kiyikoy town, construction activities occurring in the landfall section may be seen, such as the clearance of forest areas, or equipment and machinery operating on site. Construction activities may also be visible to people travelling to Kiyikoy on the main road from Vize. However, due to the topography and surrounding treelines, visual impacts are not present in most locations.

The land section of the shore-crossing to the north of Selves Beach is predominantly screened from view from Selves Beach itself and Kiyikoy town. However, construction equipment and vessels in the sea are visible during nearshore construction. A small portion of the nearshore construction can be seen from Kale neighbourhood. These impacts will be temporary and limited to the duration of the construction phase.

Figure 19 Visual of Receiving Terminal from North Kiyikoy

Reinstatement and monitoring

A visual monitoring programme has been established to monitor the reduced visual amenity of residents from various locations around the Project area. Photographs from each of the viewpoints are taken every 3 months throughout the construction phase. Further details on monitoring plans are provided in Section 5.2.

After construction, the previous conditions of the natural habitat and landscape will be restored and revegetated to previous conditions as far as practically possible. The topsoil will be stone picked and cultivated to enhance re-vegetation of the areas, and the construction corridor will be seeded with a grass species mixture native to the region.

Operational Phase

The Receiving Terminal will be located about 2km away from Kiyikoy and is the only part of the facility that will be visible above ground as the pipelines will be buried.

Visual assessments have been undertaken during the EIA study. Importantly, it was concluded that the Receiving Terminal cannot be seen from any of the beaches in Kiyikoy including the Selves Beach, one of the more popular beaches in Kiyikoy (see Section 4.10.1).

Box 14: Receiving Terminal visual impact mitigation measures

- Green (vegetation) screening around Receiving Terminal where appropriate.
- Curtaining of lights in the Receiving Terminal.
- Reinstatement of natural habitat and landscape after construction, where appropriate.

Whilst the topography and surrounding treeline will obscure the Receiving Terminal from most other locations in Kiyikoy, parts of the Receiving Terminal will be visible from certain locations and points within Kiyikoy. Additionally, light from the Receiving Terminal may be seen in the distance during hours of darkness. Methods are being evaluated to further screen the Receiving Terminal.

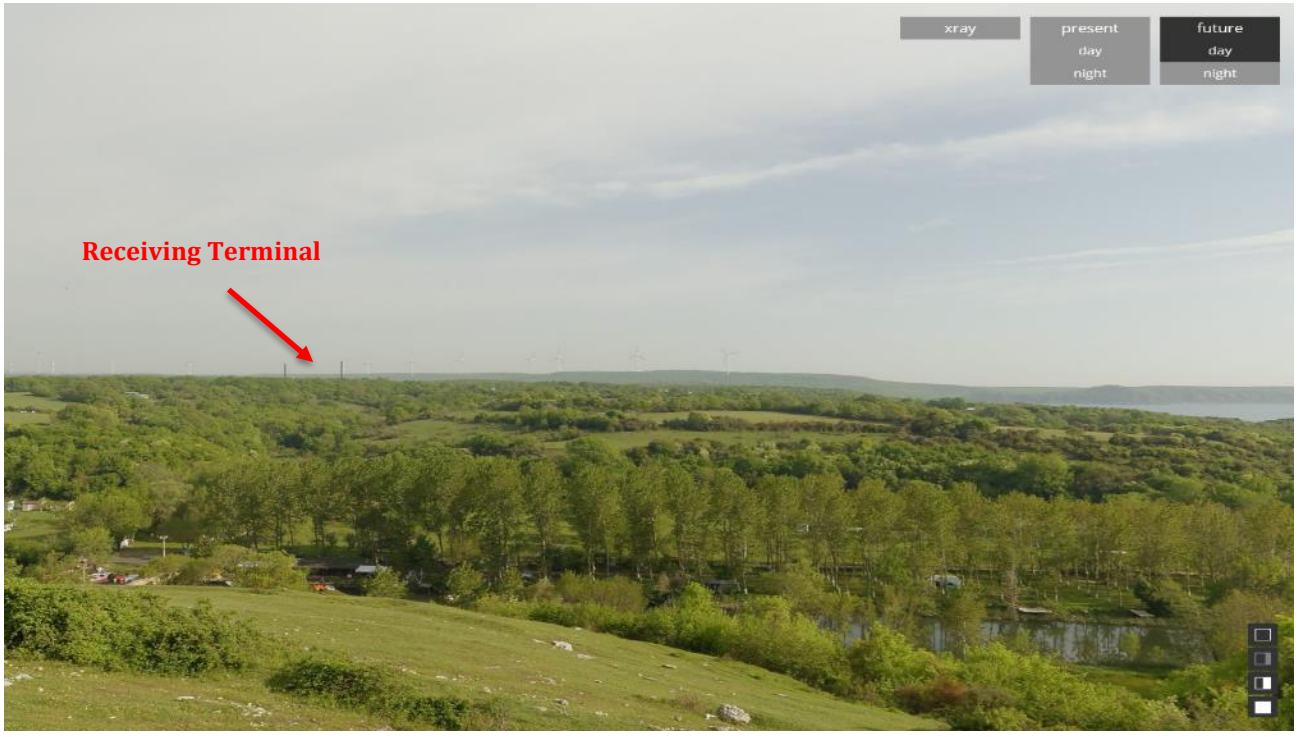


Figure 20 Visual of Receiving Terminal – Kiyikoy Resort Hotel

Figure 21 Visual of Receiving Terminal – Kale Neighbourhood

Figure 22 Visual of Receiving Terminal - Kiyikoy - Vize Road

4.10 How will current land use and livelihoods be affected?

4.10.1 Tourism and beach use

The summer period between June and August is the most popular time for tourists in Kiyikoy; although many people visit Kiyikoy during weekends in spring and autumn and even on temperate winter days.

Kiyikoy is home to three beaches: Selves Beach, Municipal Beach and Liman Beach. The nearshore section of the Project is located in the north of the Selves Beach.

Selves Beach is one of the more popular beaches in Kiyikoy, with areas used for camping and sunbathing. The forested areas behind Selves Beach are used for trekking and hunting.

Construction Phase

The EIA identified the following potential impacts to tourism:

- dust and noise during construction activities may disturb people in the vicinity of construction activities;
- construction activities may reduce the general enjoyment of Selves; and
- the presence of the Receiving Terminal in proximity to Kiyikoy may affect Kiyikoy's tourism image and impact the town's tourism economy and potential to grow.

The Project aims to avoid any interaction with proposed tourism developments and to ensure this, the Developer has consulted with the Kiyikoy Municipality.

There will not be any restrictions on swimming in the sea once the pipeline comes into operation. However, during construction some temporary restrictions are in place in the nearshore section for safety reasons (see Section 2.1). The area immediately around the nearshore section on the beach will be closed for a period of

approximately 8 months until the pipelines are buried and the area is restored to previous conditions (see Section 2.2 for the Project schedule).

These restrictions only apply to the immediate area of construction and when vessels are operating close by; no restrictions are applied to other parts of the beach. After construction, temporary areas are restored and revegetated to previous conditions as far as possible. The other beaches in Kiyikoy – the Municipal beach and Port beach– will not be affected by the Project.

Monitoring studies to date have indicated that there has not been a significant impact on the number of visitors to Kiyikoy during the 2018 summer season, compared to pre-construction numbers in 2017. The potential for temporary impacts on the local tourism industry during construction activities have also been offset as accommodation suppliers, restaurants and shops in Kiyikoy have benefited from the demands for goods and services related to the non-local workforce of the Project.

As discussed in Section 4.9, parts of the Receiving Terminal will be visible from certain locations and points in Kiyikoy town. The EIA study identified that majority of incoming tourists go to the beaches in Kiyikoy, from where the Receiving Terminal will not be seen. As such visual impacts from the Receiving Terminal are not expected to affect tourism activities.

As part of the Community Investment Programme, the Developer is contributing to measures to support the tourism industry in Kiyikoy (see Section 3.2 for more information about the Community Investment Programme), for example by working with relevant local authorities to enhance the recreational value of the beaches in Kiyikoy and providing marketing and promotional support for the tourism industry.

Beach water quality

The EIA Report identified the following potential impact to beach water quality:

- Nearshore construction will likely cause increased turbidity (reduction in water transparency), which may reduce the general enjoyment of swimming areas.

The trenching and backfilling are short term activities, scheduled to be 4 months in duration. The EIA report concluded that trenching activities will not result in significant impacts on beach water quality and that any impacts due to turbidity are likely to be localised and temporary.

After construction, the area will be restored to its original condition and there will be no further temporary or permanent restrictions on the use of the beach.

Figure 23 Vessel performing trenching activities

Monitoring of beach water quality

Water quality will be monitored continuously during trenching activities, as well as for a period of approximately 6 months following the backfilling of the trench.

Operational Phase

During the operational phase, there will be no restrictions on swimming or boating in the area around the pipelines.

Box 15: Mitigation measures for nearshore section construction activities

- After trenching activities, all marine work sites (including temporary storage areas) will be restored as much as possible.
- Warning notifications about the restrictions to certain areas of the beach have been placed on the beach.
- Coordination with the relevant authorities and the stakeholders (e.g. Kiyikoy Municipality, Kiyikoy Culture and Tourism Association) regarding the provision of safe access to available trekking routes, hunting regions and Selves Beach.

4.10.2 Fisheries

Fishing is a very important component of Kiyikoy's local economy involving both large commercial and smaller artisanal fishing. In addition to the EIA process, a separate "Fisheries Study" was conducted in response to concerns raised by fishermen. As part of this study, two categories of vessels used in Kiyikoy were assessed, namely:

- Offshore larger trawl vessels (vessels over 12m); and
- Smaller inshore vessels (less than 12m and operate close to the shore).

A significant proportion of fishing by the inshore fleet is conducted around Selves Beach, although fishing also occurs further to the north and to the south of Kiyikoy. The inshore fleet vessels use a variety of different

gears but most commonly gill nets, drift nets and trammel nets. The offshore fleet vessels are rigged to use bottom trawls, although some mid-water trawling is performed closer to shore (see Figure 24).

Smaller 'inshore' gillnetter that operates out of Kiyikoy

Larger 'offshore' trawler that operates out of Kiyikoy

Figure 24 Example of typical inshore and offshore vessel types

Potential impacts on fisheries

Construction Phase

The results of the Fisheries Study indicated that the timing of nearshore construction coincides with the most productive time for the inshore fishers, from July through to January. During the construction phase the most significant impact will be on the inshore fishers as follows:

- The temporary navigational safety zones around construction vessels in the nearshore area will restrict access to a proportion of the fishing grounds, which has been identified as one of the most important fishing areas. This will mean that fishermen will likely have to relocate to other areas which are further away and/or may be less productive.
- Lighting from the nearshore and onshore construction activities will have an effect on night fishing activities around Selves beach, reducing the ability of fishers to detect shoals of fish. Night fishing has been identified by fishers as being more productive than day fishing.
- Noise generated during construction may trigger an avoidance reaction in some fish species causing them to move further offshore and away from the normal grounds of the inshore fishers; fishers may need to relocate to catch the same species in other areas.
- Trenching activities in the nearshore area may cause some disturbance to the fish habitats. The area off Selves Beach has been identified as a spawning ground for some of the key commercial species, including whiting and turbot. However, the sedimentation modelling performed for the trenching activities indicates that any sedimentation plume will be localised, remaining predominantly within the nearshore construction area and with a low sediment concentration, maximum 12mg/l. The trenching operation itself is short-term and the fishing assessment has indicated that any impact on fish is likely to be minimal and temporary.

Operational Phase

During the operational phase, the main impact will be due to the 420m operational safety zone places around the pipeline, which will prevent anchoring and bottom trawl fishing activities. There will be no restrictions on vessels sailing over the pipelines or fishing activities involving nets or mid-water trawls.

Box 16: Fisheries mitigation measures

Given the envisaged impacts, the Project has undertaken the following mitigations:

- Minimise the duration of nearshore construction activities as far as practicable, including completion of the first phase of trenching activities prior to the start of the main fishing season in September 2018.
- Minimisation of lighting from nearshore and onshore construction activities as far as practicable to reduce impacts on night-fishing.
- As the Project will impact inshore fishing activities during nearshore construction activities, the Project has engaged with the Fishing community in Kiyikoy to agree on a methodology and mechanism for providing compensation for economic loss for fishermen that will be affected by Project activities. To date, 175 eligible licensed and amateur vessel owners and divers in Kiyikoy have received compensation to ensure that fishing activities can continue throughout the nearshore construction period without impacting on people's livelihoods. In addition, crew members operating on eligible vessels will also receive compensation after nearshore construction activities have been completed.

4.10.3 Animal husbandry

Animal husbandry is an important source of income in Kiyikoy. The Project undertook additional assessments after the EIA report was finalised and submitted in order to understand the extent of potential impacts on animal husbandry. On the basis of these assessments, extra mitigation measures, beyond those identified in the EIA, were identified.

Animal husbandry takes place in Selves and along the ISKI road (the main access route between grazing areas); as well as, south of Kiyikoy. There are no specific pastures allocated for grazing, animals freely graze in the forest for most of the year and some will graze in the forest during the night. Livestock, including cows, water buffalo and sheep, are mostly reared for meat.

Animal husbandry enterprises based in Selves have indicated that the Receiving Terminal is within their grazing areas and this is shown in Figure 25

Box 17: Animal Husbandry mitigation measures:

- Measures have been implemented for the first year of construction to prevent health and safety incidents involving animal crossings, including the installation of temporary animal barriers along the ISKI road in Selves and traffic management controls to prevent incidents with livestock.
- As access to grazing areas and water sources in Selves will be restricted by construction activities, the Project has agreed arrangements for the provision of fodder and drinking water with impacted animal husbandry enterprises based in Selves, and created alternative wallowing holes for water buffalo in areas located away from Project construction activities.
- For animal husbandry enterprises located elsewhere, measures have been taken to minimize disruption to animal husbandry routes and grazing areas and to the reduce the risk of any traffic incidents during construction, as far as practicable, through appropriate traffic management. Measures include training for drivers, speed controls, providing right of way of animals at crossings, and dust suppression on transport routes where applicable.

Potential impacts on animal husbandry

Construction Phase

The potential impacts on animal husbandry include:

- loss of grazing areas and impacts on grazing areas from construction activities in the Selves location;
- access routes to grazing areas located in Selves reduced and/or severed due to construction activities, including traffic movements;
- access to water sources in the Selves area, both drinking water and natural wallows used by water buffalo, reduced and/or severed due to construction activities, including traffic movements; and
- health and safety impacts on livestock resulting from construction activities and construction traffic, which may impact animal husbandry enterprises.

Due to the temporary use of land for the Project activities during the construction phase, there will be loss of grazing areas for livestock, resulting in potential increases in costs and/or loss of income for people engaged in animal husbandry located in the Selves area. An increase in Project construction traffic around the Selves area, specifically across the ISKI road, reduces the access to grazing areas and increase the risk of vehicle collisions with livestock. There may be some health and safety risks to livestock both in Kiyikoy and along access routes because of construction traffic.

The majority of drinking water sources in the Selves area as well as wallow holes used by water buffalo are located close to or along the ISKI road. Therefore, access to these water sources will be reduced as a result of construction activities.

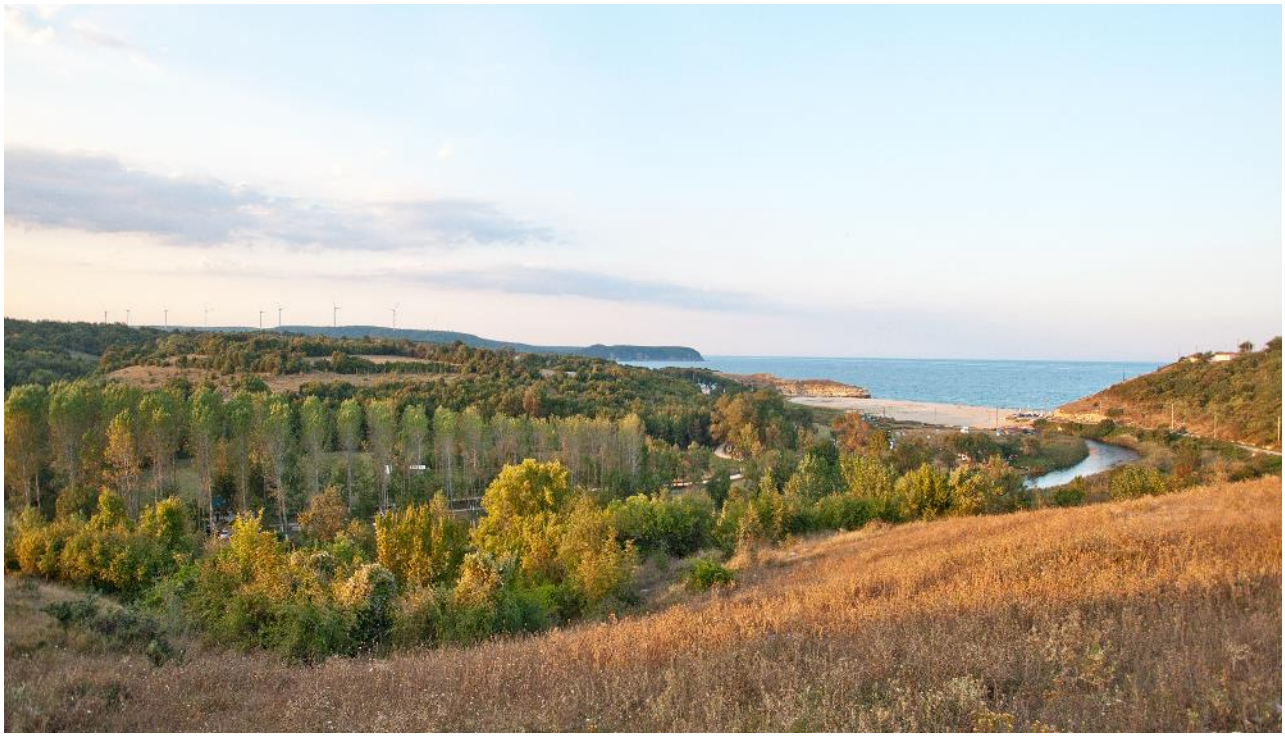
For people engaged in animal husbandry in locations in Kiyikoy other than Selves and along the access route, their grazing lands and water sources will not be impacted by Project activities. However, they may experience additional inconvenience in terms of livestock crossings to grazing lands and water sources and some health and safety risks to livestock because of construction traffic. However, particularly as the volume of construction traffic is significantly less than originally assessed in the EIA, these impacts are temporary and are not expected to have a significant long-term affect on animal husbandry livelihoods.

Operational Phase

During the operational phase, the area of the RoW above the pipeline will not be fenced and can be freely accessed by herders and livestock. However, the Receiving Terminal will be fenced for safety and security purposes.

Figure 25 Animal husbandry activities in the Project area

4.10.4 Forestry



Forestry areas are abundant in Kiyikoy and crucial for locals involved in forestry activities such as tree-cutting, animal husbandry, beekeeping, mushroom foraging and collection of firewood.

The EIA Report that was approved by Turkish authorities in 2017 anticipated a total tree loss of as 57,700. However, after the completion of the EIA, an engineering study was performed which managed to reduce the land take of the Project by around 25%. Hence, official reports by governmental authorities demonstrate that the tree loss within the scope of both permanent and temporary areas has been 23,562.

Potential impacts on forestry

Construction Phase

The Project has assessed how temporary and permanent forest land use may potentially affect forestry (lumbering) activities.

Forestry activities contribute to the livelihoods of a small proportion of Kiyikoy residents who are actively involved in lumbering and relying on it as an income source. Parcels of land within the Selves forests have been allocated for commercial tree-cutting. However, commercial tree-cutting activities have decreased significantly over the past 10 years due to the change from clear cutting to selective cutting in 2006 brought about by regulatory changes.

In line with relevant Turkish regulations, tree-cutting for the Project was directly managed by the local forestry directorate in coordination with local agricultural (forestry) development cooperative.

The potential long-term impact on forest land is limited, as the area affected by the Project makes up only a very small part of the existing forest lands near Kiyikoy. The entire area used by the Project affects less than 0.01% of the total forest land in Kiyikoy.

In addition, in terms of lumbering activities, there are sufficient alternative forest lands to be designated by the relevant official bodies for commercial forestry activities. As such, it is expected that there will be no significant impact on the long-term functioning of the forestry industry in Kiyikoy due to replanting of trees and allocation of additional areas for commercial activities.

Operational Phase

During the operational phase, the area of the RoW above the pipeline will not be fenced and can be freely accessed by people.

Box 18: Forestry mitigation measures

- Relevant competent authorities and Kiyikoy Forestry Cooperative will be consulted regarding the provision of safe access for community members to the available lumbering sites, where applicable.
- Checking any opportunities in cooperation with the Forestry Operation Directorate of Vize and other relevant stakeholders to increase the capacity or to support the operation of forest management and forestry activities.
- Reinstatement of temporarily affected areas, following completion of construction.
- The Developer has signed a protocol with the Turkish General Directorate of Forestry and BOTAŞ for a tree planting scheme to compensate for the approximate 23,562 trees that have been removed in total corresponding to an area of 57.7 ha. Of this, 17.6 ha are temporary construction areas which will be restored for reforestation by the Forestry Directorate after construction. The remaining 39.9 ha corresponds to permanent tree loss to accommodate the Receiving Terminal and onshore pipeline in Turkey. Under the scheme, it is expected over 100,000 trees will be planted in three separate plots in Tekirdağ, Silivri and Aksaray regions of Turkey. In total an area of 119 ha will be reforested, which is approximately 3 times the area of forest taken by the Project area. This required area of reforestation is based on independent report by Forestry Faculty of Istanbul State University commissioned by the Developer. The replantation process is expected to be implemented in October-November 2018 and then again in March-April 2019.

4.10.5 Hunting

The EIA study found that hunting activities in Kiyikoy are primarily undertaken by hunters from Istanbul, Çorlu, and occasionally hunters from Greece and Bulgaria, although hunters from the local area are also involved. Foreign hunters generally hunt wild boar, while others hunt birds, e.g. ducks and snipe. The hunting season varies by species and by area. For example, hunting season for birds is between 15th of October until the end of February; while the season for wild boar is between 15th of August until the end of February.

Potential impacts on hunting

Construction Phase

Construction activities may restrict hunting activities. Based on feedback received from local hunters, it appears that the more commonly used hunting areas are outside of the Project area, about a few hundred meters west of the proposed laydown area and Receiving Terminal location. As such, no impacts on hunting activities are expected.

Box 19: Hunting mitigation measures

- Coordination with regard to health and safety precautions to prevent incidents with third-party hunting close to construction areas.

Operational Phase

During the operational phase, the area of the RoW above the pipeline will not be fenced and can be freely accessed by hunters.

4.10.6 Beekeeping

Beekeeping is a widespread activity in the Vize region, especially in Kışlacık Village. Beekeeping is also performed on a small-scale in Kiyikoy, and has been observed in Selves; adjacent to the ISKI road and close to the Receiving Terminal.

Potential impacts on beekeeping

Construction Phase

The EIA identified the following potential impacts to bees and beekeeping:

- sounds or vibration sources over certain limits may affect the communication between the bees;
- night time lighting during construction may cause disturbance to beehives; and
- beehives situated close to the construction areas, or traffic routes, could be affected by the construction activities.

The EIA study concluded that the probability of the bees being affected by dust and vibration around the landfall section is very low. The majority of beekeepers do not practice beekeeping as a full-time job but to earn extra income, and only a small number of beekeepers are affected by the Project activities. Nevertheless, beehives have been relocated to areas of beekeepers' choosing to avoid proximity to construction activities, and the costs of moving have been covered by the Project.

Operational Phase

No potential impacts on bees are anticipated during the operational phase.

Box 20: Beekeeping mitigation measures

- Ensuring coordination with the relevant parties to provide safe access to the beehives, where applicable.
- The Developer has identified beekeepers close to Project areas and consulted them on the most appropriate measures to ensure that their beehives and livelihoods are not impacted. In each case, the Project has supported the transfer of beehives that may be affected by the Project activities to alternative places in coordination with the beekeepers before the commencement of construction works.
- Monitoring will be undertaken with beekeepers in Kiyikoy, including those who have been relocated, to confirm the effectiveness of mitigation measures and that no further livelihood impacts are experienced.

4.11 Is the Project creating opportunities for local employment?

The EIA study indicated that unemployment and underemployment is a problem in Kiyikoy, especially among young people. Some employment opportunities will result from the Project; however, a large portion of the construction workforce is required to be highly skilled in specific technical areas. Such skills are not readily available in Kiyikoy and consequently the majority of the workforce will be sourced from outside the local area.

4.11.1 Offshore / nearshore area workforce opportunities

Due to the specialised and technical nature of offshore pipeline construction, it is expected that the contracting companies working on the offshore pipe-laying will provide the entire workforce for all nearshore and offshore construction and that few, if any, local people will be employed for this work.

4.11.2 Landfall section workforce opportunities

Construction Phase

The Project requires a combination of unskilled, skilled and managerial / professional labour; however, the majority of the labour force required will need to be skilled and will be hired from outside of Kiyikoy. Some temporary positions are made available and filled by local labour or workers from Vize District or Kirklareli Province. Such positions include cleaning, catering, security and driving services, whilst some semi-skilled and skilled construction positions may also be hired locally. Suitable available employment positions are advertised within local communities and construction contractors are encouraged to employ local residents for suitable positions. The process for advertising available jobs was agreed with the local community representatives to ensure that advertisements were placed and communicated effectively for local residents.

At the national level, for the onshore construction of the Project, the majority of the labour force are Turkish citizens.

For the landfall section, the majority of jobs are short-term and temporary, with only a small portion of the jobs lasting for the full duration of the construction period. A temporary workers' camp is constructed near the

Project construction site to accommodate workers outside of Kiyikoy town centre to reduce the impacts of the Project on the town's resources. During peak times, it is estimated that the number of workers at the landfall Project site will reach 1200. Most of the personnel who work during the onshore construction phase are hired by contractors and not directly by the Developer.

Operational Phase

During the operational phase, the Project will not create any significant employment opportunities. Approximately 50 people will be hired as full-time employees for the Receiving Terminal. The majority of these jobs will be for skilled and specialised technical positions, with some possible general maintenance and service positions, such as security guards, cleaners and caterers.

4.12 What opportunities are there for local suppliers?

Construction Phase

The Project requires procurement of some materials and equipment from Turkey and larger contracts for goods and services are provided from national companies operating in Turkey.

The types of businesses that are likely to see an increase in demand for goods and services nationally, regionally or locally as a result of the Project are:

- Construction contractors (e.g. road construction, land clearance, etc.), construction material and equipment suppliers;
- Local accommodation suppliers (for the proportion of workers not being accommodated in the worker's camp), restaurants, shops; and
- Support services suppliers such as local transport, catering, cleaning and security.

Box 21: Local employment and procurement of goods and services mitigation measures

- Use of local labour and procurement of local goods and services for the Project are encouraged, where practicable.
- Contractors advertise suitable available positions in local and regional media and use local recruitment agencies.
- Contractors provide regular updates regarding local employment and local supply content and any measures undertaken to provide maximum local employment and procurement.

Some local procurement opportunities for goods and services such as cleaning, catering, security and accommodation are provided from local companies operating in Kiyikoy, and the wider Kirklareli or Tekirdag region. These contracts are managed by the construction contractors and not directly by the Developer.

The presence of a significant number of Project staff has had a positive direct and indirect economic benefit in Kiyikoy; accommodation suppliers, restaurants and shops in Kiyikoy have benefitted from the demands for goods and services related to the non-local workforce of the Project.

Operational Phase

During the operational phase, major goods and services demand will be limited to goods (office supplies, small hardware, some materials, etc.) and services (cleaning, catering, security, transportation, accommodation); however, any business opportunities will be limited.

4.13 How is cultural heritage being protected?

Archaeological studies including desktop research and field inspections were carried out in advance of construction with the objective of avoiding any known protected cultural heritage and looking for indications of unrecorded sites. The pre-construction studies were carried out by the competent authorities in compliance with Turkish laws. Participants included the Kirklareli Museum Directorate, the Edirne Regional Conservation Board, the General Directorate of Cultural Heritage and Museums, and experts in marine archaeology from the Institute of Marine Sciences and Technology from 9 Eylul University.

The pre-construction collaboration has ensured that the Project is designed and sited to avoid all known cultural heritage sites. All of this work has been performed in line with national legislation and the standards set by the Developer for the Project. Cultural heritage protection activities continue during Project implementation as outlined in the Developer's Cultural Heritage Objects Management Plan.

Box 22: Cultural Heritage mitigation measures

- Providing cultural heritage awareness training to the workforce so they know what to do in the case of archaeological discoveries during construction (Chance Finds).
- The Chance Finds procedure includes a strict instruction to stop any and all work to ensure that any possible damage related to construction is minimized.
- The Developer team includes specialists in cultural heritage for support in assessing Chance Finds, and authority and construction coordination.

Figure 26 St. Nicholas' Monastery from the Byzantine period at approximately 6th century.

4.14 What other projects are in the area?

A total of three developments were included in the cumulative impact assessment section of the EIA report, which considers the in-combination effects of other projects together with those of the Project:

- TurkStream Gas Pipeline – Onshore Section, which will be developed by BOTAŞ, planned to be constructed at the exit of the Receiving Terminal;
- ISKI water pipeline - Planned close to the Project area and towards the İğneada Dam of ISKI; and
- Borusan Wind power plants - The Receiving Terminal is located adjacent to the license area of Kiyikoy Wind Power Plant expansion project.

The construction of these developments may overlap with the construction phase of the Project. The Developer will, as far as possible, liaise with the developers of these other projects to identify and address cumulative impacts.

5 Environmental and social management

5.1 How will environmental and social impacts be managed?

The Developer is committed to constructing and operating the Project in an environmentally and socially responsible manner. To support this objective, an Environmental and Social Management System (ESMS) has been prepared to ensure that all the commitments from the EIA report and related studies, including specific mitigation and management measures, have been tracked in a Commitments Register and implemented.

An overarching Health, Safety, Security and Environmental Integrated Management System (HSSE-IMS) provides a framework for the implementation of the ESMS, and has been developed to align with the international standards for management systems.

The elements of the HSSE-IMS include:

- **Environmental and Social Management Plan (ESMP)** – The ESMP is the principal means by which the Developer ensures that the Project's EIA commitments manage environmental and social impacts. Examples of plans developed for the Project include:
    - Stakeholder Engagement Plan (SEP) which provides a plan for future consultation and disclosure activities and a record of past activities. It is regularly updated and the latest version is available on www.turkstream.info.
    - Compensation Management and Livelihood Restoration Framework. This plan captures the process and requirements for assessing compensation claims and implementing compensation measures, where it has not been possible to adequately mitigate a significant adverse impact by avoiding or minimising the impact. Compensation measures may include financial compensation or 'in-kind' contributions.
    - Construction Traffic Management Plan ensures the safety and health of the local community.
    - Cultural Heritage Object Management Plan sets out the approach to the protection of cultural heritage objects during Project implementation.
    - Trenching Environmental Management Plan minimises the risk of impacts to water quality and activities associated with fisheries as a result of trenching activities in the nearshore section.
- **Environmental and Social Monitoring Programme** - A number of environmental, social and health indicators are monitored to make sure that protective measures are effective. The monitoring plans detail the monitoring requirements based on the findings of the EIA report and other related assessments.

5.2 Is there environmental and social monitoring?

Monitoring is an important part of the ESMS. The Developer is undertaking monitoring of various environmental and socio-economic indicators to verify the impacts and conclusions of the EIA report and other assessments. An independent local company Cinar has been brought in to provide this monitoring service. The results of the monitoring programme are also used to assess whether further mitigation measures are needed.

The following environmental and social indicators are being monitored:

- air quality ;
- soil, surface water and groundwater;
- terrestrial ecology;
- visual and landscape;
- noise and vibration;
- traffic and transport;
- socio-economic; and
- marine ecology/environment.

The Developer will continue to monitor environmental and social risks throughout the construction phase of the Project to allow for early identification of any unanticipated social, environmental or economic changes within the local communities. Corrective measures are being and will be implemented where needed, in a timely manner. Some of these monitoring activities have an engagement component, and further details on the monitoring methods can be found in the publicly available SEP.

Furthermore, the Project undertakes a perception survey on a periodic basis to baseline and monitor attitudes towards various aspects of the Project's health, safety, social and environmental performance. This perception survey involves various stakeholders in the local community, including local residents, local businesses, community service providers, community representatives and local authorities, as well as stakeholders who have not been directly engaged to date but may have particular views or interests in the Project.

Concurrently, the Project will liaise with relevant stakeholders, on an "as-needed" basis, to inform them about specific monitoring results, such as air quality, noise and water quality. An Environmental and Social Monitoring Report is prepared on an annual basis by the independent monitoring consultant during the construction phase.

TurkStream

Contact

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