İZSU

WASTEWATER AND STORMWATER NETWORK PROJECT IN VARIOUS STREETS AND AVENUES OF KONAK AND KARABAĞLAR DISTRICTS WITHIN IZMIR PROVINCE (LOT 3)

ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

(ESMP)

March 2025

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ABBREVIATIONS

ACM	Asbestos-Containing Material
AMP	Asbestos Management Plan
AoI	Area of Influence
AYBIS	Infrastructure Information System
AYKOME	Infrastructure Coordination Centre
C-ESMP	Contractor's Environmental and Social Management Plan
CIMER	Presidency's Communication Centre
CoC	Code of Conduct
E&S	Environmental and Social
EBRD	European Bank for Reconstruction and Development
EHS	Environment, Health, and Safety
EIA	Environmental Impact Assessment
EPRP	Emergency Preparedness and Response Plan
ESHOT	Izmir Municipality Electricity, Water, Gas, Bus and Trolleybus General Directorate
ESHS	Environmental, Social, Health and Safety
ESMF	Environmental and Social Management Framework
ESMP	Environmental and Social Management Plan
ESMR	Environmental and Social Monitoring Report
ESS	Environmental and Social Standard
GBV	Gender Based Violence
GM	Grievance Mechanism
HAVS	Hand Arm Vibration Syndrome
HDPE	High Density Polyethylene
HSE	Health, Safety, and Environment
IBA	Important Bird Area
IFC	International Finance Corporation
ILBANK	Iller Bankası A.Ş.
ILO	International Labour Organization
IMM	Izmir Metropolitan Municipality
IUCN	International Union for Conservation of Nature
IZSU	Izmir Metropolitan Municipality Water and Wastewater Administration
KBA	Key Biodiversity Area

KPI	Key Performance Indicator
LC	Least Concern
LMP	Labour Management Procedures
MoEUCC	Ministry of Environment, Urbanization and Climate Change
Mw	Moment Magnitude
NCR	Non-Compliance Report
OG	Official Gazette
OHS	Occupational Health and Safety
PAP	Project Affected Person
PID	Project Identification Document
PIU	Project Implementation Unit
PMU	Project Management Unit
PPE	Personal Protective Equipment
RCA	Root Cause Analysis
SDS	Safety Data Sheet
SEA/SH	Sexual Exploitation and Abuse/Sexual
SEP	Stakeholder Engagement Plan
TAP	Portable Battery Manufacturers and Importers Association
TEFWER	Türkiye Earthquake, Floods and Wildfires Emergency Reconstruction
TUBITAK	The Scientific and Technological Research Council of Türkiye Türkiye)
TurkStat	Turkish Statistical Institute
UKOME	Transportation Coordination Centre
VG	Vulnerable Group
WB	World Bank
WBG	World Bank Group
WHO	World Health Organization
WWTP	Wastewater Treatment Plant
YIMER	Foreigners Communication Centre

EXECUTIVE SUMMARY

Türkiye Earthquake, Floods and Wildfires Emergency Reconstruction (TEFWER) Project (hereinafter the “Project”) has been developed by the participation of Iller Bankası A.Ş. (ILBANK) and World Bank (WB) to support municipalities to undertake urgent repairs, structural strengthening, and if needed demolition/reconstruction, rehabilitation, or new construction of damaged municipal owned infrastructure and to put in place measures aimed at increasing disaster preparedness and climate adaptation.

Concordantly, the Izmir Metropolitan Municipality Water and Wastewater Administration (IZSU) started the construction document preparations for the wastewater and stormwater network project in various streets of Izmir province and the project design works were completed within 2021. Then, some of these wastewater and stormwater network projects selected by the IZSU and divided in three (3) Lots. In this direction, the sub-project specific Environmental and Social (E&S) studies have been initiated for Lot 3 of these sub-projects.

The main purpose of this sub-project is the renewal of existing wastewater lines in Konak and Karabağlar districts that have completed their economic life, and the separation of stormwater and wastewater lines in the region.

The location map of the sub-project area is given in Figure 1. The sub-project area is Bahçelievler and Bahar neighbourhoods of Karabağlar district and Akın Simav, Atilla, Çimentepe, Duatepe, Güneşli, Kemal Reis, Kılıç Reis, Murat Reis, Mithatpaşa, Piri Reis, Zafertepe, 1st Kadriye and 2nd Kadriye neighbourhoods of Konak district within Izmir Province (see Figure 2).

In this regard, "Wastewater and Stormwater Network Project in Various Streets and Avenues of Konak and Karabağlar Districts within Izmir Province (Lot 3)" (hereinafter “the sub-project”) will be financed and implemented under TEFWER Project. IZSU is the owner of the proposed wastewater and stormwater collection system project components as a sub-project.

Therewith, the site walkover to the sub-project area was made by ENVESU Environment Energy Construction and Consultancy Inc. and 2U1K Engineering and Consultancy Inc. on September 19, 2023.

Subsequently, environmental and social (E&S) risks of the sub-project have been identified according to the WB Environmental and Social Standard (ESS)s and TEFWER's Environmental and Social Management Framework (ESMF) developed by ILBANK. The E&S risks associated with the sub-project are assessed as "Moderate" according to the E&S Screening Form of the sub-project (see Appendix-A) and hence, this Environmental Social Management Plan (ESMP) has been prepared.

The sub-project's construction works are expected to last 25 months and be completed in the end of September 2028. Its operation will have a service lifetime of 30 years. The sub-project's construction will primarily progress along the existing road route. Therefore, it is an area where excavation work has been previously conducted. However, before starting construction activities, an opinion letter will be received from the Museum Directorate. The opinion letter will be submitted to ILBANK. To manage activities in terms of cultural heritage, a Chance Find Procedure has been prepared (see Appendix-B). Also, most common OHS risk areas and corresponding general mitigation measures throughout the life of the sub-project are provided in Appendix-D.

The sub-project as Infrastructure Project is out of the scope of national Environmental Impact Assessment (EIA) as it is not included in the Annex I and Annex II lists of the Regulation on EIA published in the Official Gazette (OG) dated 29.07.2022 and numbered 31907.

There are no associated facilities such as roads, energy transmission lines, etc. of this sub-project, and no major impact is expected besides dust, noise, and traffic load increment during the construction phase. Although, the existing sewer system does not have Asbestos Containing Materials (ACMs), for each workplace, there is a risk of old water supply network containing asbestos. Thus, an assessment will be carried out at each workplace to identify any ACMs that may be present. As a first attempt, during renewal of the pipelines, existing asbestos pipes will be left under the ground in the existing location. If they need to be removed because of new pipe installation requirements, then removal process will be executed, and specific precautions will be determined in line with the Regulation on Health and Safety Measures in Working with Asbestos dated 25.01.2013 (OG No 28539). Besides, disposal of ACMs as a hazardous waste will be carried out in accordance with the Regulation on Waste Management dated 02.04.2015 (OG No: 29314). In this respect, the generic Asbestos Management Plan, which is largely compliant with the national legislation, is presented in Appendix-C. Hence, it is recommended that this plan for managing ACMs is developed by the Contractor prior to construction. Relevant mitigation measures to be taken for the waste management, occupational, health and safety are given in Table 4.

In addition to this, in the operation phase, if necessary, there will be maintenance, and repair works in wastewater and stormwater system. The sub-project will not require any additional private land. Therefore, no land acquisition will take place.

As a part of the mitigation measures, management plans and procedures on different subjects should be developed by the contractor prior to the construction works. These management plans are based on the risks and mitigation measures specified in the ESMP. These plans will be prepared for construction and operation phases of the sub-project, at least one (1) month before the start of the relevant phase and will be submitted to ILBANK for approval. Employees will be trained on the relevant plans to be developed. A list of required management plans for both phases of the sub-project, including but not limited to, are presented below.

- Asbestos Management Plan,
- Occupational Health and Safety (OHS) Management Plan,
- Emergency Preparedness and Response Plan (EPRP),
- Construction Site Traffic and Transport Management Plan,
- Labour Management Plan (based on the TEFWER's Labour Management Procedures (LMP)),
- Community Health and Safety Management Plan,
- Waste Management Plan,
- Spill Response Plan.

1. INTRODUCTION

Türkiye Earthquake, Floods and Wildfires Emergency Reconstruction (TEFWER) Project (hereinafter the “Project”) has been developed by the participation of Iller Bankası A.Ş. (ILBANK) and World Bank (WB) to support municipalities to undertake urgent repairs, structural strengthening, and if needed demolition/reconstruction, rehabilitation, or new construction of damaged municipal owned infrastructure and to put in place measures aimed at increasing disaster preparedness and climate adaptation.

In this context, "Wastewater and Stormwater Network Project in Various Streets and Avenues of Konak and Karabağlar Districts within Izmir Province (Lot 3)" (hereinafter “the sub-project”) will be financed by the Project and will be implemented under TEFWER Component 1 - Green and Resilient Rehabilitation, Reconstruction and Construction of Municipal Infrastructure and Actions to Strengthen Municipal Resilience and following concerned subcomponents.

- Subcomponent 1.a - Reduced urban flooding through investment in resilient and climate-change sensitive stormwater systems.
- Subcomponent 1.c - Restored and improved resilience of water and wastewater services.

Izmir Metropolitan Municipality Water and Wastewater Administration (IZSU) is the owner of the sub-project.

Konak and Karabağlar districts are located in the centre of Izmir Province. Both districts within the scope of the sub-project are very dense circulation areas. The biggest problem of Konak and Karabağlar districts, which have the oldest and most important settlements, is infrastructure.

For many years, infrastructure systems were designed as combined systems to collect wastewater and stormwater together. The investment cost of combined systems is low, but in areas with heavy rainfall, the pipeline does not carry the water and brings about an extra load on the Wastewater Treatment Plant (WWTP).

Another issue is the problems experienced in WWTPs due to the combined collection system. Sudden flow increases with precipitation cause the capacity of the plant to be exceeded and the excess wastewater over the current capacity is bypassed without treated properly. In addition, the dilution of the collected wastewater by the water coming with precipitation results in the inlet wastewater characteristic different than the plant design criteria. The efficiency of the treatment plant decreases in case of inlet wastewater characteristics not in line with the design criteria.

There is a need for a system that will ensure the separation of wastewater collected from the neighbourhoods in the sub-project area and stormwater collected in the region and design the wastewater main collector lines in accordance with the specified criteria.

The main purpose of this sub-project is the renewal of existing wastewater lines in Konak and Karabağlar districts that have completed their economic life, the separation of stormwater and wastewater lines in the region. The sub-project will not require any additional private land. Therefore, no land acquisition will take place.

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2. SITE/LOCATION DESCRIPTION

Izmir is located next to the Aegean Sea with the Provinces of Manisa to the north and Aydın to the south. The total area of Izmir Province is 1,209,827 ha.

The location map of the sub-project area is given in Figure 1. The sub-project area is located in Bahçelievler and Bahar neighbourhoods of Karabağlar district and Akın Simav, Atilla, Çimentepe, Duatepe, Güneşli, Kemal Reis, Kılıç Reis, Murat Reis, Mithatpaşa, Piri Reis, Zafertepe, 1st Kadriye and 2nd Kadriye neighbourhoods of Konak district within Izmir Province (see Figure 2). These neighbourhoods in the centre of Izmir province, where the sub-project area is located, are as very dense circulation areas and among the oldest and most important settlements.

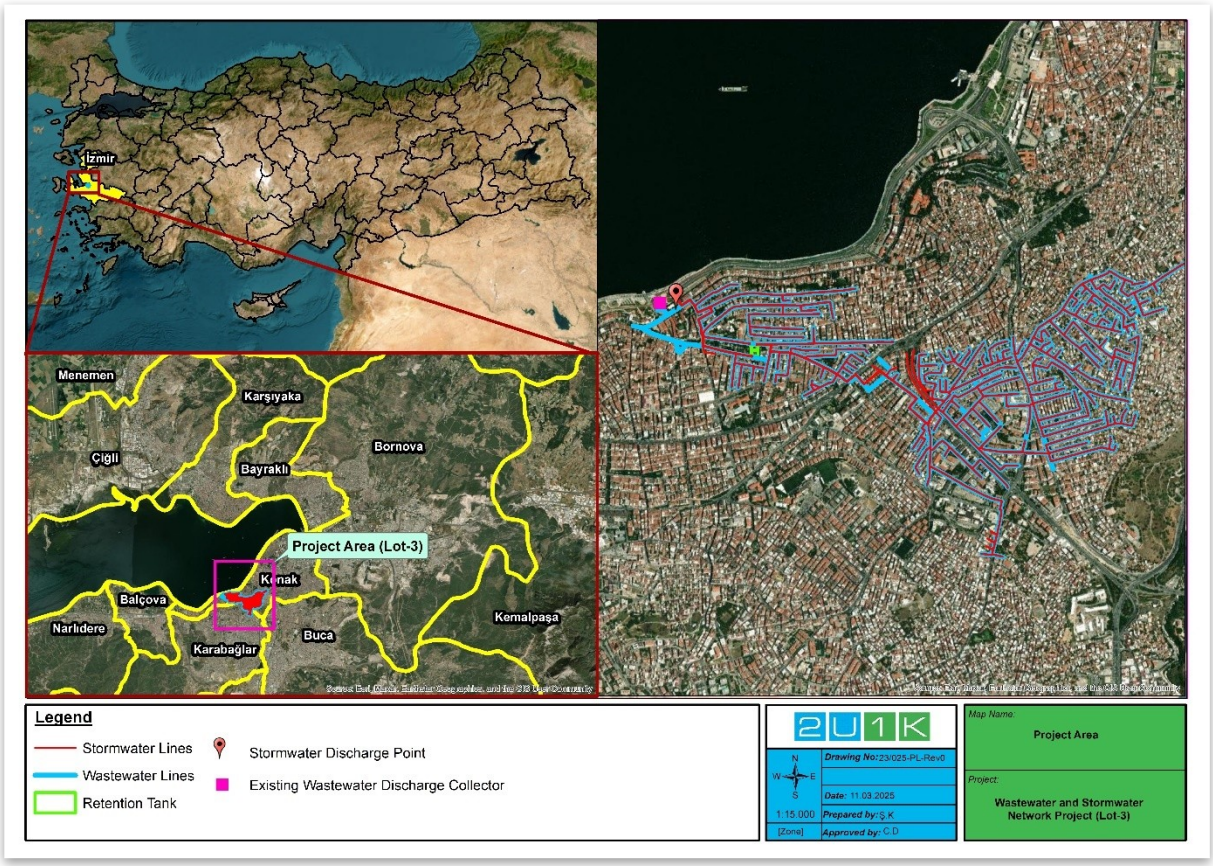

Figure 1. Location Map of the Sub-project Area

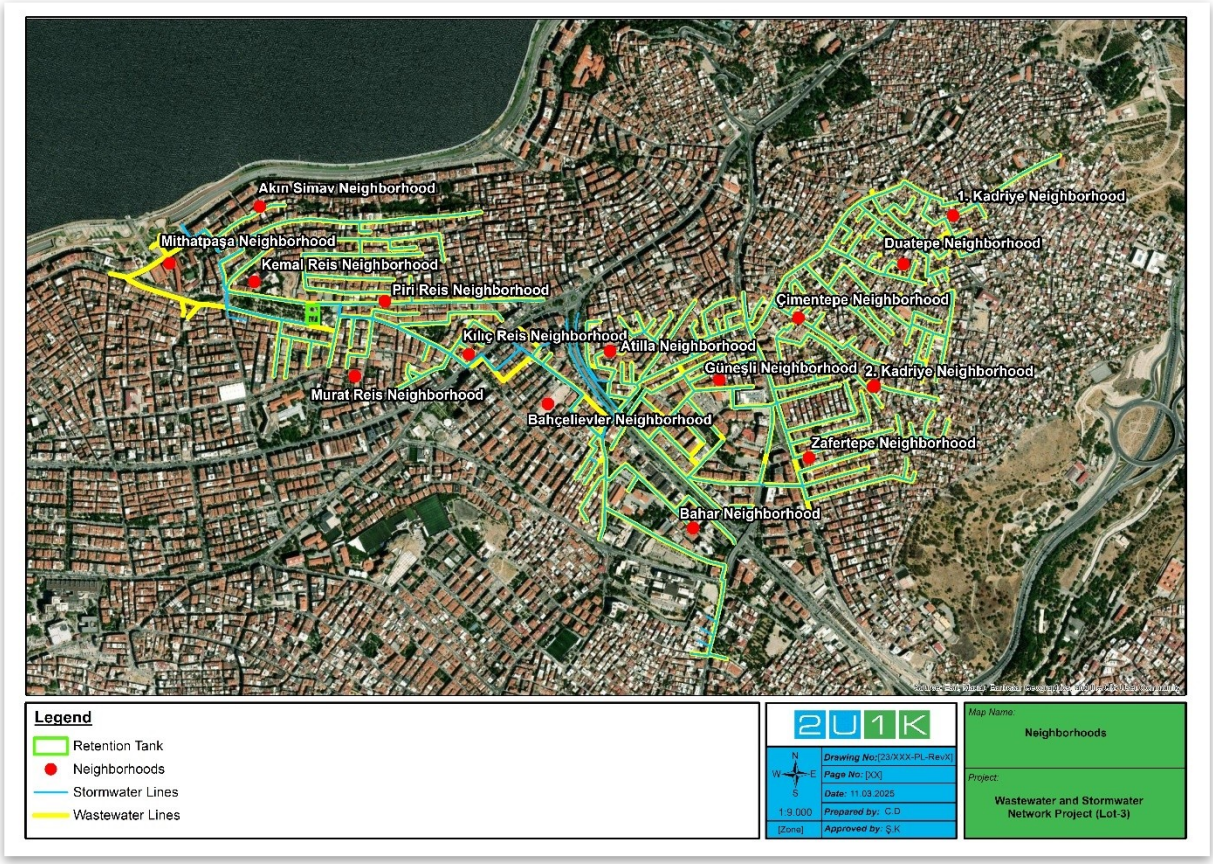

Figure 2. Neighbourhoods in the Sub-project Area

3. SUB-PROJECT DESCRIPTION AND ACTIVITIES

Within the scope of the implementation sub-project, 29.411 km of wastewater and 26.817 km of stormwater have been designed on various streets and avenues of the above-mentioned neighbourhoods in order to serve the basin area with the aim of solving the existing infrastructure problems in the region. With the stormwater retention tank (see Figure) to be constructed with this sub-project, the settlements will be made resistant to floods and will also be utilised in rainwater harvesting works to be used in green area irrigation during the rainy season. More detailed design information for the sub-project can be found in the sub-project specific Project Identification Document (PID).

Sub-project components are as follows:

- Wastewater Collection System:
  - 29,411 m HDPE Sewer Pipes (Ø300, 400, 500, 600, 800, 1000, 1400),
  - 888 Manholes,
  - 11,500 m construction of parcel connection (with Ø150 mm corrugated pipe),
  - 7,616 m^2 cutoff wall with intersecting bored piles in sewer lines.

- Stormwater Collection System:
  - 26,817 m HDPE Stormwater Pipes (Ø400, 500, 600, 800, 1000, 1200, 1400),
  - 2,085 m Stormwater Box Culvert,
  - 781 Manholes,
  - 73 Manholes over Culvert,
  - 1,953 Grating construction,
  - 13,671 m reinforced concrete single stormwater grating connection (with Ø200 mm corrugated pipe),
  - Construction of 6,861 m of perforated sheet metal plate reinforced concrete stormwater channels with a width of B = 60 cm at road transverse crossings,
  - 3,523 m transverse stormwater channel connection (with Ø400 mm corrugated pipe),
  - 2,228 m^2 cutoff wall with intersecting bored piles in stormwater lines,
  - One (1) Stormwater Retention Tank (7,425.60 m^3).

The stormwater collected within the scope of the sub-project is planned to be discharged to Izmir Gulf through one (1) discharge point.

Sub-project's layout plan including existing wastewater discharge point and stormwater discharge point are given in Figure .

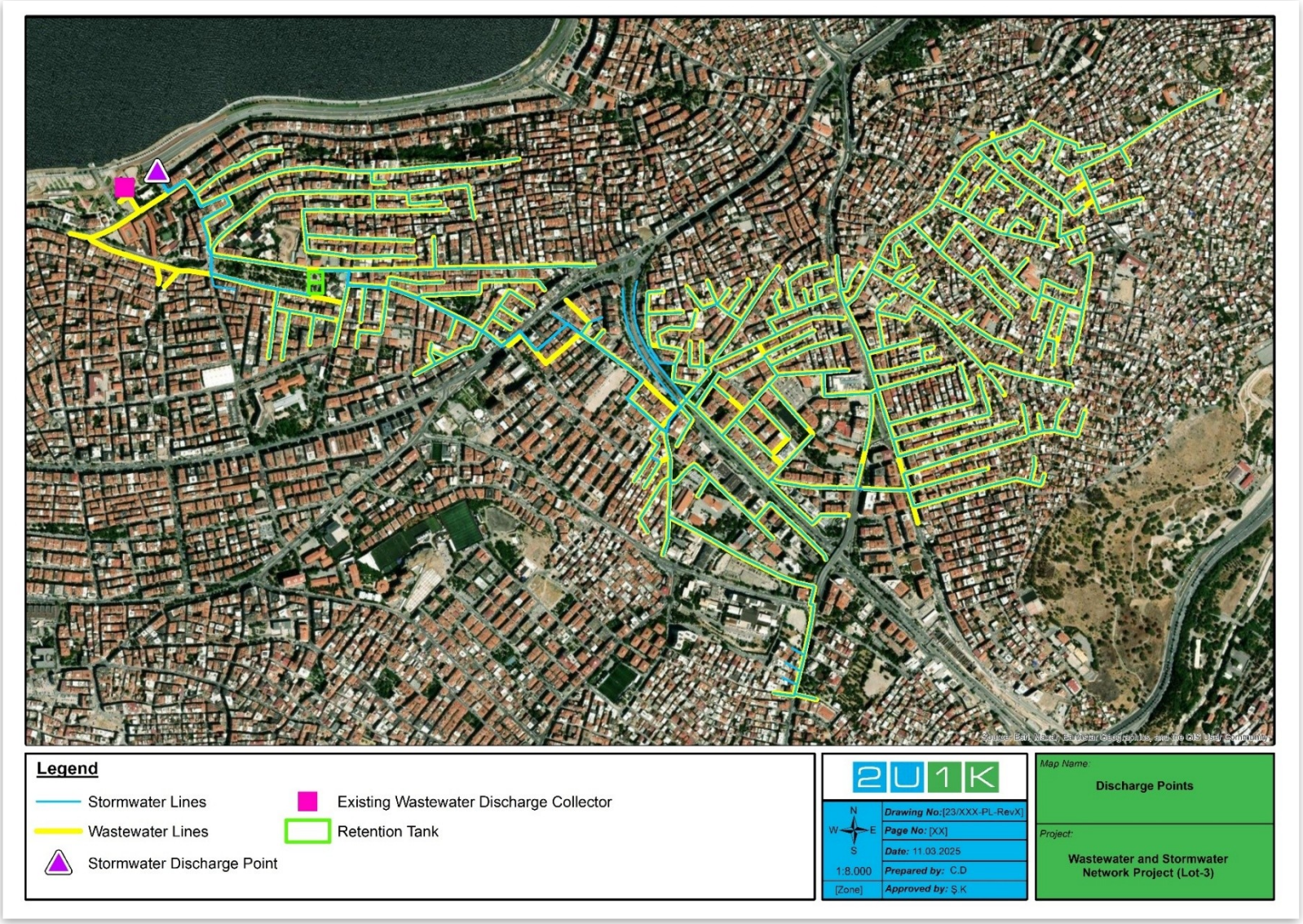
Legend
Stormwater Lines
Wastewater Lines
Stormwater Discharge Point
Existing Wastewater Discharge Collector
Retention Tank
2U1K
N
W
E
S
1:8.000
[Zone]
Drawing No:[23/XXX-PL-RevX]
Page No: [XX]
Date: 11.03.2025
Prepared by: C.D
Approved by: Ş.K
Map Name:
Discharge Points
Project:
Wastewater and Stormwater Network Project (Lot-3)

Figure 3. Sub-project's Layout Plan and Its Discharge Points

3.1 BASELINE DATA

Environmental and social (E&S) baseline data for the sub-project area is assessed under this section, while E&S risks/impact assessment of the sub-project is provided in Section 4.

Based on the environmental, social, and public/OHS risks/impacts that will potentially occur during the construction phase of the sub-project, Area of Influence (AoI) of the sub-project has been determined as 100 m based on expert opinion, and in this context, Konak and Karabağlar Neighbourhoods are the settlements within the AoI, while during the operation phase, the sub-project will serve the entire city. The location of the sub-project area and its AoI are presented in Figure .

1.1.1 Physical Environment

1.1.1.1 Topography

With an area of 24.4 km², Konak district is surrounded by Bornova and Buca in the east, Izmir Gulf and Bayraklı in the north, Karabağlar in the south, and Balçova in the west. It is surrounded by Çatalkaya Mountains on the Aegean Coast in the west of Anatolia and has high hills and a hilly land structure. The altitude is 3 meters in Konak square and 185 meters in Kadifekale. The district has no villages and towns.[1]

On the other hand, Karabağlar district, where a part of the sub-project area is located, is in among the metropolitan districts in the southern part of Izmir. It is surrounded by the districts of Narlıdere, Balçova, Konak to the north; Buca and Gaziemir to the east; Menderes to the south; and Güzelbahçe and Seferihisar to the west. The district centre is located on an area of 3,700 hectares and spreads over a total area of 9,870 hectares together with the mountainous areas where Kavacık and Tırazlı Villages are located, curving towards the west.

The Gediz Delta as a wetland is within the borders of Çiğli, Menemen, Foça and Karşıyaka. The delta is of international importance and was included in the Ramsar Convention in 1998. The size of the Ramsar area is 14,900 hectares. The size of the buffer zone border of the delta is 32,357 hectares.

The Gediz River originates from the Murat Mountain in Central Western Anatolia. Its total length is 400 km. Kemalpaşa Stream, which originates from Yamanlar Mountain within the Izmir border, is one of the most important tributaries of the Gediz. The Gediz reaches the Izmir provincial border in the west of the Manisa Plain, passes through the Menemen Strait between Yamanlar Mountain and Smoky Mountain and flows into the sea south of Foça.

Küçük Menderes originates from Bozdağ. Its length is 124 km. It irrigates a very fertile plain known by its name and flows into the sea west of Selçuk district. Since the Küçük Menderes

[1] Source: www.konak.gov.tr

also brings abundant alluvium, it has continuously advanced the coastline, which is why Ephesus, one of the most important port cities of the early ages, is today 5-6 km inland from the sea.

Bakırçay is 128 km long and consists of tributaries coming from Ömerdağ in the east, Madra in the north and Yunt Mountain in the south. It is the most important river of the Bakırçay Basin, which is part of the Aegean Basin and mostly located within the borders of Izmir province. It flows into the sea at Çandarlı Bay.[2]

There is no lake of significant size in the province. The largest of the water bodies that can be considered as lakes are Gölcük Lake, Belevi Lake, Çakalboğaz Lakes and Karagöl.

The distance of the Gediz Delta to the sub-project area is shown in Figure 4.

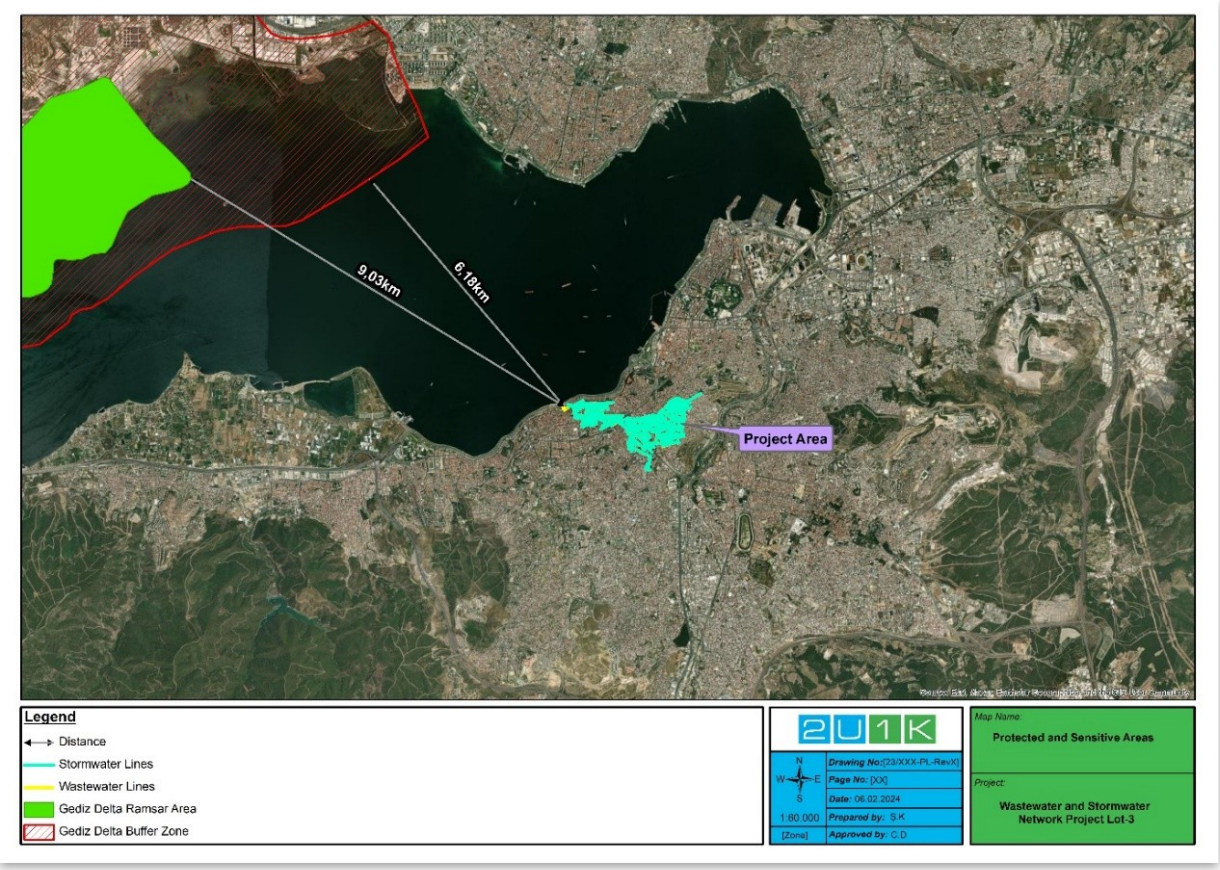

Figure 4. The Distance of the Gediz Delta to the Sub-project Area

1.1.1.2 Geology

Izmir province and its surroundings along the border of Western Anatolia with the Aegean Sea is located in an important region in terms of low-medium-high temperature geothermal source due to its thin crust, high heat flux, active tectonic environment, young

[2] Source: www.izmir.gov.tr

igneous/volcanic activity and lithology-structurally controlled reservoir/shroud rock relationship.

The Upper Cretaceous Bornova Complex is the most common unit in Izmir and its region (Erdoğan 1990; Koca 1995). This unit consists of limestone blocks. This rock group is pushed onto the metamorphics of the Menderes Massif, the oldest rock group in the region. The Bornova Complex rocks are spread over a wide area from Manisa to Seferihisar.

1.1.1.3 Tectonic and Seismicity

The Samos earthquake on 30 October 2020 (Mw=6.6) was recorded as the earthquake that caused severe damage to not only property but also life in Izmir in the instrumental period when measurements can be made. 117 people died due to the collapse of the buildings in this earthquake, and 1 person passed away due to the tsunami in Sığacık Bay after the earthquake. Besides the Samos earthquake, which occurred with the rupture of the submarine Samos Fault delimits the northern margin of Samos Island, the 1928 Torbalı earthquake and the 1949 Dikili earthquake are also known that caused significant death of people and loss of property in the province of the Izmir border during the instrumental period. According to historical earthquake catalogues, albeit it is known that the more severe earthquakes occurred in this region within the historical period, it is poorly known which faults caused historical earthquakes. In order to shed light on this question, the first project funded by The Scientific and Technological Research Council of Türkiye (TUBITAK) was completed in 2021, and followed by the second project was accepted by TUBITAK within the same year. In this first project, trench-based paleo seismological studies were carried out on the Izmir Fault, Tuzla Fault, Gülbahçe Fault, Yağcılar Fault, and Seferihisar Fault and ended up with it is determined that earthquake recurrence interval, which fault produced an earthquake and the elapsed time since the recent earthquake.

Concerned findings show that earthquakes that occurred in 177/178, 688, 1039/1040, 1056, 1389, and 1688 were generated by the aforementioned faults. The results showed that the 1389 earthquake was caused by the Gülbahçe Fault, the 177/178 earthquake was caused by the Tuzla Fault, the 1039/1040 earthquake was caused by the Yağcılar Fault, and the 1688 earthquake by the Izmir Fault. Accordingly, Gülbahçe Fault has not produced destructive earthquakes for 632 years, Yağcılar fault for 982, Izmir fault for 334 and Tuzla fault for 1843 years. Concerned results imply that the investigated faults produce earthquakes in a way that triggers each other and that there is an average of 300 years of destructive earthquakes in the region.[3]

1.1.1.4 Soil and Land Composition

The sub-project area including urban roads where stormwater and wastewater lines will be constructed is mostly asphalt and concrete.

[3] Sözbilir, H. *Et Al.* (2022). "Seismic Hazard Sources of Izmir City and Their Earthquake Potentials," *Izmir Earthquake Workshop* October 31, 2022, Izmir, Türkiye, pp.14-15.

During the site visit to the sub-project area, no potential soil contamination sourced from hazardous substances was encountered.

1.1.1.5 Meteorology and Climatic Characteristics

The average annual temperature in Izmir varies between 16ºC (Bergama) and 17ºC (Bayındır). Considering the extreme values measured in Izmir, it is understood that the temperature varies between a maximum of 45.1ºC (Torbalı) and a minimum of -13ºC (Ödemiş).

Precipitation shows the greatest variability among the climate elements in Izmir. Although the average annual precipitation is 700 mm, depending on the changes in the general atmospheric circulation, the total precipitation approaches 1,000 mm in some years and falls to around 300 mm in some years. The amount of precipitation increases starting from the second half of October and continues until May. The months with the highest average monthly precipitation are December, January, and February. According to the average precipitation values, the contribution of precipitation falling only in December to the annual total is around 20%. In the summer months, the share of monthly precipitation in the annual total drops to 2%.[4]

1.1.1.6 Air Quality

There are currently 25 national air quality monitoring stations under the supervision of MoEUCC. The air quality monitoring station within the sub-project area is the Izmir - Güzelyalı Izmir Metropolitan Municipality (IMM) with coordinates Latitude 38,3958 and Longitude 27,0827.

Table 1 represents the mean monthly pollutant concentrations based on the national air quality monitoring system for the last 12 months at the monitoring station within the sub-project area.

Table 1. Monthly Average Air Quality Concentrations in Güzelyalı, Izmir and Corresponding National and International Threshold Values

Month	SO_2		PM_{10}		CO	
	Measured Concentration ($\mu g/m^3$)	National and International limit value ($\mu g/m^3$)	Measured Concentration ($\mu g/m^3$)	National and International limit value ($\mu g/m^3$)	Measured Concentration (mg/m^3)	National limit value (mg/m^3)
September 2022	10.10	20	27.86	50	0.19	30
October 2022	8.47		26.17		0.20	
November 2022	5.87		23.42		0.27	
December 2022	5.46		34.73		0.39	
January 2023	5.87		37.04		0.41	
February 2023	6.06		21.63		0.26	
March 2023	2.99		18.22		0.23	

[4] Source: www.izmir.gov.tr

Month	SO_2		PM_{10}		CO	
	Measured Concentration (µg/m³)	National and International limit value (µg/m³)	Measured Concentration (µg/m³)	National and International limit value (µg/m³)	Measured Concentration (mg/m³)	National limit value (mg/m³)
April 2023	11.85		17.96		0.22	
May 2023	10.43		21.31		0.20	
June 2023	11.44		21.18		0.24	
July 2023	16.76		22.75		0.34	
August 2023	15.13		23.63		0.32	

Month	NO_2		NO_x		NO	
	Measured Concentration (µg/m³)	National and International limit value (µg/m³)	Measured Concentration (µg/m³)	National limit value (µg/m³)	Measured Concentration (µg/m³)	National and International limit value (µg/m³)
September 2022	-	40	-	30	-	-
October 2022	-		-		-	
November 2022	-		-		-	
December 2022	-		-		-	
January 2023	-		-		-	
February 2023	-		-		-	
March 2023	-		-		-	
April 2023	9.78		12.02		2.24	
May 2023	4.37		6.43		2.06	
June 2023	2.43		3.92		1.55	
July 2023	10.26		11.07		0.81	
August 2023	21.35		26.35		4.23	

Source: Website of the MoEUCC: www.havaizleme.gov.tr

In this context, on the website of the MoEUCC, the current air quality index of Izmir Güzelyalı region is described as “medium” in terms of PM_{10} parameter value (54 µg/m³) due to slightly above national and international limit value as 50 µg/m³.

Currently, since the measurement concentration values for the concerned parameters are below the corresponding limit values, the air quality of the sub-project area can be characterized as medium.

1.1.1.7 Noise

The sub-project area is in an area with high background noise levels due to the density of construction and city traffic, especially as it approaches the coast.

1.1.1.8 Water Resources

Izmir province's water resources are analysed under six (6) main headings. Accordingly, Surface Waters, Ground Waters, Natural Lake Surfaces, Dam Reservoir Surfaces, Pond Reservoir Surfaces and River Surfaces.

The drinking water system of 11 districts (Çiğli, Karşıyaka, Bayraklı, Bornova, Konak, Buca, Gaziemir, Karabağlar, Balçova, Narlıdere, and Güzelbahçe), which are considered as the former metropolitan area, are as integrated.

According to 2023 data, 54.24% of the water supply to Izmir city center is from underground water resources.

Water taken from various regions enters the city from different points and merges in the water distribution system. Sources of water from various regions for the metropolitan area are Sarıkız Deep Wells, Göksu Deep Wells, Menemen Deep Wells, Çavuşköy Deep Wells, Halkapınar Deep Wells, Pınarbaşı Deep Wells, Buca and Sarnıç Deep Wells, Tahtalı Dam, Balçova Dam and Gördes Dam.

The water produced from these sources is transmitted to the city through transmission lines and distributed to all regions at 0-50 meters elevation by balancing with Halkapınar 55,000 m³ tank, Poligon tank, Görece Treatment tank, Cumhuriyet tanks. It is transferred to elevations of 50-100 meters, 100-150 meters and above through pumping stations and tanks.[5]

1.1.1.9 Biodiversity

The sub-project area is under the influence of Mediterranean climate. According to the Corine 2018 Land Cover data, the sub-project area is in continuous and discontinuous urban fabric. The surroundings of the sub-project area are consisting of partly modified habitats such as industrial or commercial unit, road and rail network and associated land. Transitional woodland shrub, a natural habitat, is also one of the habitats near the sub-project area. The habitats in the sub-project area and its immediate surroundings are given in Figure 5.

[5] Source: www.izsu.gov.tr

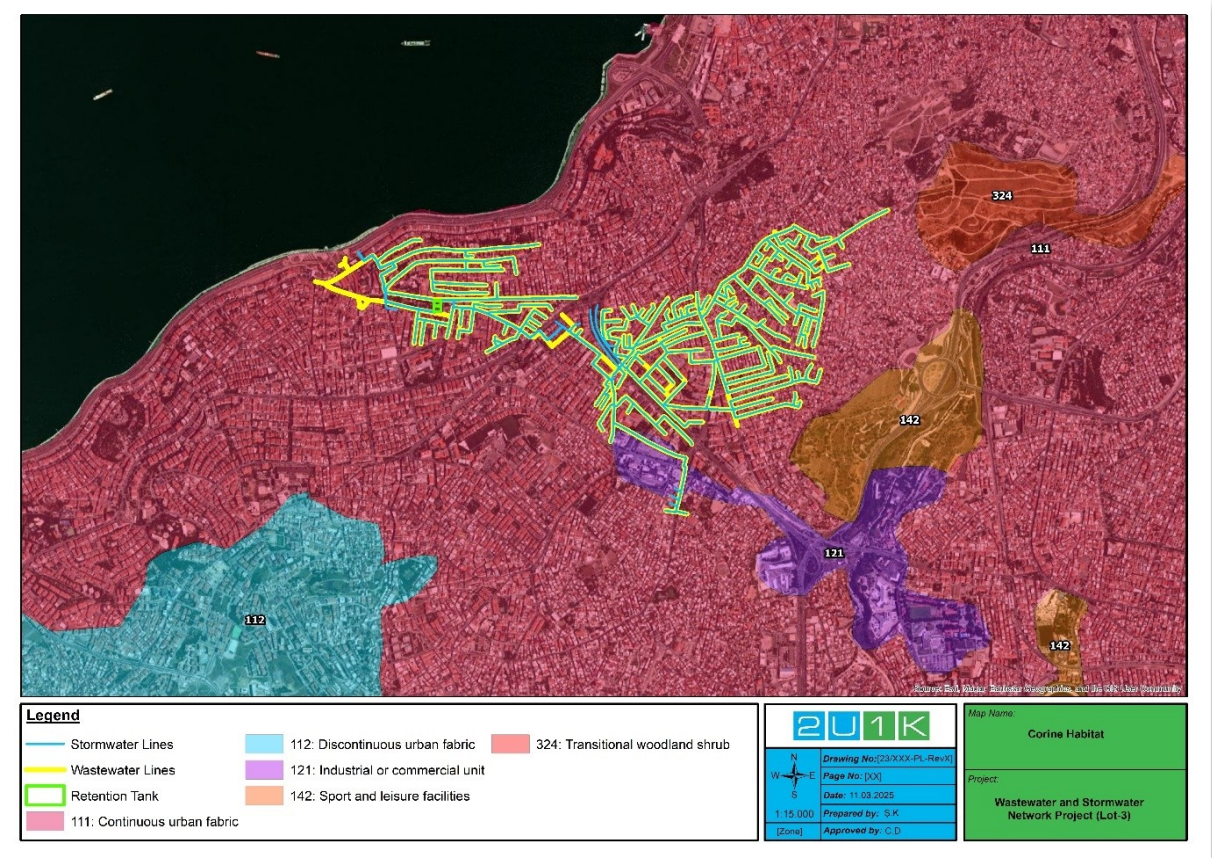

Figure 5. Corine Land Cover Data and the Sub-Project Area

Due to the intense anthropogenic impact observed in the sub-project area, the distribution of flora and fauna is highly suppressed. The flora and fauna species that can be observed in the area comprise cosmopolitan species.

In evaluating the threat/protection status of species, Bern Convention (Convention on the Conservation of European Wildlife and Natural Habitats); and IUCN (International Union for Conservation of Nature) Red List Database were used.

Bern Convention

The Convention was put into force in 1982 for the conservation of European wildlife and natural habitats. Fauna species protected by Bern Convention are listed in four categories:

- Appendix I: Strictly protected flora species
- Appendix II: Strictly protected fauna species
- Appendix III: Protected fauna species
- Appendix IV: Prohibited means and methods of killing, capture, and other forms of exploitation

IUCN Red List of Threatened Species

The International Union for Conservation of Nature (IUCN) Red List is published to draw attention to the species whose population is under risk or threatened. IUCN includes the

species to the Red List after researching the reasons causing decrease in its population. IUCN Red List categories are given below:

- EX: Extinct
- EW: Extinct in the Wild
- CR: Critically Endangered
- EN: Endangered
- VU: Vulnerable
- NT: Near Threatened
- LC: Least Concern
- DD: Data Deficient
- NE: Not Evaluated

Red Book of Flora in Türkiye (Ekim et al., 2000), which is prepared as per the 1994 IUCN Red List Categories and Criteria, is used during the determination of risk status of the flora species in the study area.

In the PID prepared within the scope of the sub-project, the biodiversity title was not included since the sub-project area was under intense anthropogenic influences. The data prepared in this report was obtained through desktop studies.

Flora

The sub-project area is under intense anthropogenic influence. There is no natural habitat for natural plant species to survive in the construction area. The species found in the sub-project area are ruderal species. There are a total of 42 plant species belonging to 16 families, including *Fumaria parviflora, Logfia gallica* and *Urtica urens* species in the sub-project area.

Fauna

Fauna species in the sub-project area have been heavily suppressed due to the urban structure, human presence and the presence of domestic fauna species. Additionally, there is no habitat area for natural species in the sub-project area. The species found and likely to be found in the sub-project area are species adapted to these conditions.

When the sub-project area is evaluated in terms of amphibians, *Pseudepidalea viridis* (LC) is found/possible to be found and is in the category of strictly protected species according to the Bern Convention (App-II). However, there are no reptile species in the sub-project area since there is no suitable habitat.

There are 13 bird species belonging to seven (7) families, including species such as *Passer montanus* and *Fulica atra*, in the sub-project area, and all of them are in the LC category according to IUCN. Within the scope of the Bern Convention five (5) of these species are in the App-II category, and four (4) of them are in the App-III category. In addition, there are 10 mammal species belonging to seven (7) families in the sub-project area, including species such as *Rhinolophus ferrumequinum, Sciurus anomalus* and *Sorex araneus*. Within the scope of the Bern Convention, three (3) species are in the Annex-II category and four (4) species are in the Annex-III category.

Protected Areas and Key Biodiversity Areas

There is no protected area or KBA (Key Biodiversity Area) in the city centre and sub-project area. Closest protected area is given in Figure 4. Gediz Delta Ramsar Area is 8,14 km away from the sub-project area. However, considering the location and scope of the sub-project area, no adverse impact is expected on the Gediz Delta.

1.1.1.10 Other Natural Hazards

Landslides and Rockfall

Due to its geological and topographical structure, Izmir province experiences frequent mass movements. When considered in terms of intensity, especially landslides and rockfall disasters threatens urban areas. On the other side, when the Provincial Disaster Risk Reduction Plan for Izmir province for 2021 is examined, such a risk for the sub-project areas can be characterized as low in general.

Flooding

Three (3) river basins are particularly important in terms of river flooding in Izmir. These are the Küçük Menderes Basin, the Gediz Basin and the North Aegean Basin. According to 2018 academic research, the majority of Izmir's population lives in these basins. It is foreseen approximately 6% of this population may be exposed to/at risk of river flooding in these basins.[6]

On the other hand, within the scope of the Izmir Metropolitan Area Wastewater - Stormwater and Streams Master Plan prepared by the IZSU in March 2020, when the 100-year and 500-year flooding risk maps of the near the sub-project area are examined, it is seen that flooding risk rating for the relevant area near the sub-project area is the medium and high.

[6] Izmir Governorship Provincial Directorate of Disaster and Emergency, Provincial Disaster Risk Reduction Plan 2021, Izmir, Türkiye, pp.81,82

1.1.1.11 Existing Infrastructure System

All information under this heading includes information on the existing infrastructure system within the sub-project area.

Sewerage System

The Gulf of Izmir, which will be the discharge end point of the sub-project stormwater, has been polluted since the 1960s due to discharges of untreated domestic and industrial waste. By the 2000s, the situation in the gulf had become even worse due to inadequate measures taken. The ecological balance in the inner parts of the Gulf had been disrupted and pollution had reached extreme levels.

In addition to untreated domestic and industrial wastes, pollutants carried by surface waters, pollutant loads generated as a result of agriculture in the region, pollution caused by port activities and transportation activities, old pollutant loads settling on the seabed coming to the surface with the bottom current (mucilage), eutrophication and algae bloom events are frequently seen in the gulf due to substances drifting from the open sea.

In order to prevent this situation, the Izmir Grand Canal Project was initiated by Iller Bankası A.Ş. (later ILBANK) in 1983. 4,150 km of main sewerage network and 100 km of collector lines convey wastewater from Narlıdere to Ciğli WWTP through 42 km of interceptor canals and four (4) pump stations.[7] Izmir Metropolitan Area Wastewater Sewerage System is given in Figure 6.

[7] Source: www.izsu.gov.tr

Figure 6. Izmir Metropolitan Area Wastewater Sewerage System

Current Status of Sewerage System

There are existing 300 mm and 400 mm concrete secondary sewer pipes in the region. There is a main collector line that starts as 500 mm concrete pipe and continues as 600 mm concrete pipe at Umurbey Neighbourhood Şehitler Street. The line crosses Meles Stream and continues Şehitler Street and crosses Arap Stream. The line is 600 mm concrete pipe until here. The same line continues as 800 mm concrete pipe over 1561 Street in Çınarlı Neighbourhood. This line combines with the 800 mm concrete pipe coming from 1592 Street and continues as 1,000 mm HDPE on Anadolu Street. The same line passes under the Izmir Suburban System line to Ozan Abay Street by merging with 800 mm concrete pipe coming from the opposite direction of Anadolu Street across 1597/2 Street in Adalet Neighbourhood. At this point, the line merges with a 500 mm concrete pipe, continues as a 1,200 mm concrete pipe and connects to the 2,200 mm main collector line on Manas Boulevard. This line goes to Bayraklı Wastewater Pumping Station.

In Umurbey Neighbourhood northwest region, Alsancak Collector, which is 800 mm concrete type, located at the beginning of Liman Street and the intersection of Atatürk Street, collects other collector lines and proceeds from the coastal section and reaches the Customs Pumping Station by merging with the Southwest Collector coming from Mustafa Kemal Coastal Boulevard in front of Konak Pier.

WWTP

Çiğli WWTP was constructed within the scope of the Grand Canal Project in order to save Izmir Gulf from wastewater pollution. The wastewater collected through the main channel and collectors constructed along the Izmir Gulf is pumped from Gümrük, Bayraklı, Karşıyaka, Çiğli Pumping Stations and delivered to Çiğli WWTP. Çiğli WWTP is located in the area south of Çiğli Military Airport on the former Gediz Delta and is built on an area of 300,000 m². The treatment process is designed according to the "advanced biological treatment" method, which biologically removes phosphorus and nitrogen and provides better quality effluent, with an average capacity of 604,800 m^3/day.

The plant consists of three (3) separate treatment lines that can operate independently of each other. Line 1 was commissioned on January 25, 2000, Line 2 on September 26, 2000, and Line 3 on August 12, 2001. The treatment plant has been operating at full capacity without interruption since its commissioning.

Çiğli WWTP consists of pre-treatment structures consisting of screens, grit traps and parshall weirs; 12 40.9 m. diameter pre-sedimentation tanks; 6 90 m long bio-phosphorus tanks each with a volume of 8.200 m³; 12 154 m long aeration tanks each with a volume of 24.790 m³; 12 60 m diameter final sedimentation tanks; treated water discharge line, sludge treatment system and service buildings. The treated water from the treatment plant is discharged to the sea through an 8 m wide, 2 m deep and 2.5 km long reinforced concrete open channel. In this context, the existing WWTP is capable of accepting wastewater from the new wastewater collection system in this neighbourhood.

Stormwater System

According to the meteorological data containing the average monthly total rainfall amounts of Izmir province between 1938 and 2023, when the precipitation regime in Izmir is analysed, it is seen that heavy precipitation falls especially in November, December, January, February and March. As a result of these precipitation, instantaneous and high flow floods occur. As you go inland from the gulf, there is a rapid increase in ground elevations and precipitation in high areas does not cause problems. However, this is not the case in settlements built around the gulf, where the sub-project area is also located. In settlements located at sea level or at very low elevations, precipitation from high areas creates problems. The instantaneous flow rate increases in the urban streams in these regions and causes floods.

Since the settlement elevations in the region including the sub-project area are close to sea level, stormwater channels and pipes remain below sea level and cause submerged operation. The submerged operation of the channels and pipes carrying stormwater causes the outlets to be in the sea and the water they carry to discharge at a very slow rate. In case of southwester on rainy days, swells of 30-70 cm are observed in the sea. In this case, sea water levels rise above the stormwater discharge levels and allow the sea to enter the channels. The filling of the pipe or canal by sea water results in the stormwater coming from

higher areas not reaching the sea and exiting through manhole covers in settlements close to the coast including the sub-project area. At some points, roads and pavements built as a result of urbanization prevent floodwater from reaching the stream or the sea and cause long-term transportation interruptions or flooding.

Stormwater flooding problem is categorized under three (3) headings;

- Areas with closed stream beds,
- Areas where ground levels are below sea level as a result of subsidence,
- Areas where evacuation cannot be carried out at the desired speed as a result of channels and pipes remaining below sea level,

In order to prevent this situation, open channels with gratings and gutters were constructed in settlements where the elevations are at or near sea level, including the sub-project area. With these lines, it is aimed to transport the instantaneous high flows that occur as a result of precipitation to the nearest receiving environment.

In order to prevent the recurrence of flooding problems previously experienced in districts such as Alsancak, Karşıyaka and Güzelyalı where the slope is low, open stormwater channels and surface stormwater canals have been constructed in the city.

In the Kordon area, flooding problems and ponding are observed during heavy rainfall. In order to prevent this problem, stormwater taken from the gratings placed on the street is released on the embankment with perforated drainage pipes, higher than sea level. In this way, the discharge point is no longer submerged, and stormwater can be discharged to the sea even when the southwester is strong.

In some areas built on alluvial soil, settlements occur over time and the ground collapses. Due to these collapses, the existing stormwater drainage systems do not function, resulting in flooding in the region including the sub-project area.

The inability to discharge at the desired speed due to submerged operation causes swelling problems in the collection lines. If the sea level rises with the wind, overflow from the nearest manhole into the city occurs.

Current Status of Stormwater System

In Umurbey Neighbourhood, there is a 1000x1000 mm concrete box on Şehitler street. Screen connections around the line are made here. This line goes to the stormwater pumping station next to Arap Creek. Apart from this, there are no significant stormwater systems in the region including the sub-project area, and generally stormwater gratings on the streets are connected to the existing stormwater lines and discharged to creeks. Stormwater Discharge System of Izmir Metropolitan Area can be seen in Figure 7.

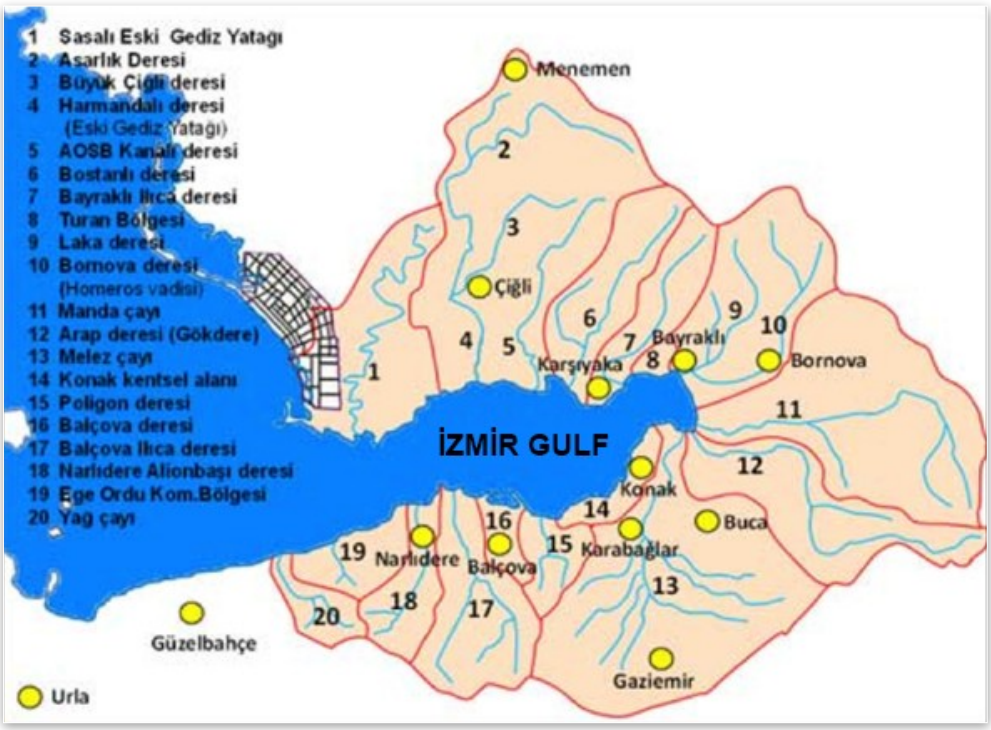

Figure 7. Izmir Metropolitan Area Stormwater Discharge System

In Konak and Karabağlar districts, which constitute the sub-project area, problems were experienced during periods of excessive rainfall in previous years and stormwater lines and open channels with gratings were constructed at the points where the most flooding was observed. Improvement works were also carried out in Poligon stream which divides the sub-project area into two (2) parts. The lines constructed were not considered on a basin basis, but only in order to bring a solution to the problematic area as soon as possible. The existing stormwater collection lines in Konak and Karabağlar sub-project area are given in Figure 8.

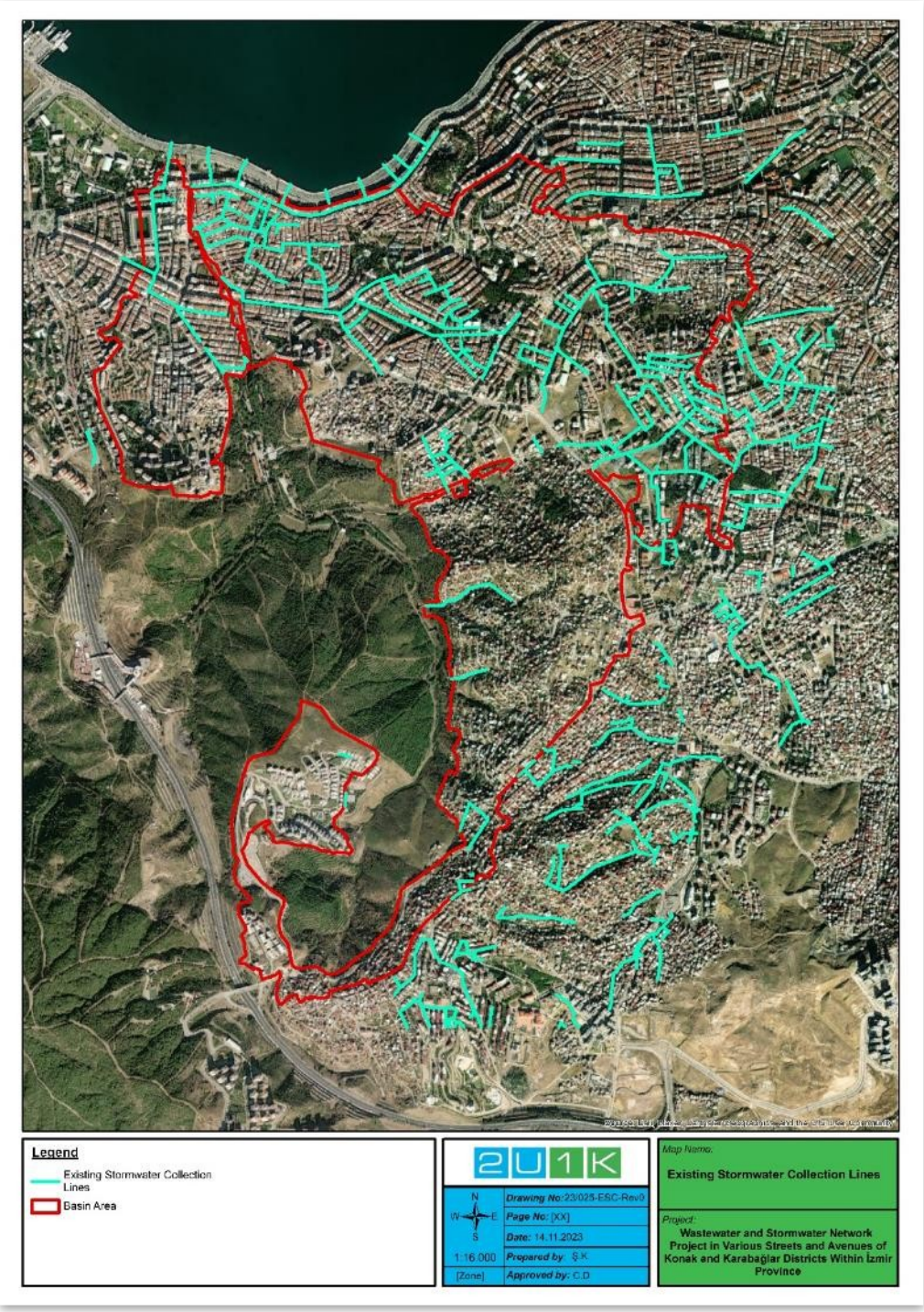

Figure 8. Existing Stormwater Collection Lines in Konak and Karabağlar Sub-project Area

1.1.2 Socio-economic Environment

1.1.2.1 Demography and Population

Izmir is an important port city in the Eastern Mediterranean on the Silk Road connecting Asia and Europe with a history dating back 8,500 years. It is located at the intersection of the Mediterranean and the Aegean. It is the third most populous city in Türkiye. According to

2023 TurkStat data, the total population of Izmir's provincial and district centres is 4,479,525. The annual population growth rate is %0.39. When the population of Izmir is analysed on the basis of gender, 2 million 221 thousand 180 are male and 2 million 258 thousand 345 are female.

Izmir has 30 districts, 11 of which are considered as Central districts. The sub-project (Lot-3) will be realized in Konak and Karabağlar districts.

Within the sub-project area, there are thirteen (13) neighbourhoods in the Konak district, two (2) neighbourhoods in the Karabağlar, making total of fifteen (15).

When the neighbourhoods in the sub-project area are evaluated in terms of population, Zafertepe Neighbourhood in Konak District has the highest population with 12,188 people. In Karabağlar District, Bahçelievler Neighbourhood has the highest population with 14,280 people. Gender-based 2024 population data of nine neighbourhoods in the sub-project area are presented in Table 2.

Table 2. Population of Neighbourhoods

Neighbourhoods		Female	Male	Total Population
Konak District	Akın Simav	2.025	1.718	3.743
	Atilla	5.721	5.279	11.000
	Çimentepe	1.486	1.495	2.981
	Duatepe	1.185	1.226	2.411
	Güneşli	4.105	3.668	7.773
	Kemal Reis	1.764	1.594	3.358
	Kılıç Reis	3.534	3.158	6.692
	Murat Reis	6.081	5.065	11.146
	Mithatpaşa	3.941	3.377	7.318
	Piri Reis	2.461	1.992	4.453
	Zafertepe	6.111	6.063	12.174
	1.Kadriye	3.406	3.540	6.946
	2.Kadriye	3.156	3.198	6.354
Karabağlar District	Bahçelievler	7.708	6.417	14.125
	Bahar	5.645	5.290	10.935

Source: TurkStat 2024

The population of Izmir is moving from the central districts to the surrounding districts (Izmir Chamber of Commerce, 2023). This has an impact on many other socio-economic developments in Izmir, such as transportation, investment opportunities, and living conditions. In addition, Syrians under temporary protection, foreigners coming to Izmir due to the Russian-Ukrainian War, and the effects of internal migration after the February 6, 2023 Kahramanmaraş earthquakes also affect the population growth in the districts (Izmir Chamber of Commerce, 2023). Table 3 presents figures on Izmir's migration data for the last five (5) years.

Table 3. Izmir Province In-Migration, Out-Migration, Net Migration, Rate of Net Migration

Period	Total Population	In-migration	Out-migration	Net migration	Rate of net migration
2021-2022	4,462,056	132,426	107,312	25,114	5.6
2020-2021	4,425,789	131,394	109,470	21,924	5.0

Period	Total Population	In-migration	Out-migration	Net migration	Rate of net migration
2019-2020	4,394,694	107,172	92,400	14,772	3.4
2018-2019	4,367,251	128,370	106,895	21,475	4.9
2017-2018	4,320,519	130,092	117,113	12,979	3.0

Source: TurkStat

1.1.2.2 Land Acquisition

The main objective of this sub-project is to renew the existing wastewater lines in Konak and Karabağlar districts, which have lost their economic life, and to separate stormwater and wastewater lines in the region.

The sub-project will follow existing roads for wastewater lines and rainwater collection systems. Therefore, no land acquisition or expropriation will be carried out within the scope of the sub-project.

1.1.2.3 Vulnerable and Disadvantage Groups

Vulnerable groups (VGs) are people who might be directly and differentially or disproportionately affected by a project because of their disadvantaged or vulnerable status. This disadvantaged or vulnerable status may stem from an individual's or group's race, colour, sex, language, religion, political or other opinion, national or social origin, property, birth, or other status. Vulnerable and disadvantaged groups can be children, people over the age of 65, people with chronic diseases or in need of special care, people with disabilities and refugees/immigrants.

The following disadvantaged or VGs have been specifically identified, along with the potential impacts they may face due to the sub-project:

Children:

- During the construction phase, children may face risks associated with community health and safety, as outlined in the ESMP.

Elderly People (over 65 years of age):

- Construction activities could disrupt their daily routines and limit access to essential services, potentially causing stress or inconvenience.

Individuals with Chronic Illnesses or Special Care Needs:

- Interruptions caused by construction may affect their access to vital services and daily routines, potentially worsening health conditions or creating discomfort.

People with Disabilities:

- Construction work may obstruct accessible routes or facilities, restricting mobility and causing inconvenience.

Refugees and Immigrants:

- Language barriers and limited awareness could increase safety risks and hinder access to crucial information and services.

1.1.2.4 Education

According to 2022/2023 academic year data, there are 2,988 schools/educational institutions in Izmir Province, of which 676 are primary schools, 496 are secondary schools, 325 are high schools and the rest are other educational institutions. There are 858,299 students in total in educational institutions in Izmir Province and the number of students per classroom is 25 in primary and secondary schools.

In Konak district, there are 118 public and 89 private schools, totalling 207 schools and 2,056 public and 924 private classrooms, totalling 2,980 classrooms, with 2,699 public and 873 private classrooms, totalling 3,572. [8]

In Karabağlar district, there are 129 private and public schools, 1,885 classrooms, 4,162 teachers and 74,791 students[9].

Since the project is an infrastructure project, its impact area is quite wide. For this reason, schools are also included in the impact area.

1.1.2.5 Health

In Izmir, there are a total of 48 hospitals with a combined capacity of 11,421 beds, comprising 25 private and 23 public hospitals. Additionally, the city is served by six (6) Dental Health Centres, 28 Comprehensive Research Laboratories, 44 Medical Centres, 781 physician clinics, and 32 Polyclinics. There are a total of 22 hospitals in Konak district. Of these, nine (9) are public and 13 are private hospitals. 14 institutions provide health services in Karabağlar district. There are four (4) Dialysis Centres, three (3) Medical Centres, two (2) Training and Research Hospitals, two (2) Physical Therapy and Rehabilitation Centres, two (2) Polyclinics, one (1) Private Hospital in the district (Ministry of Health, 2022).

There are 968 Family Medicine Centres in the region. These healthcare facilities are affiliated with the Community Health Centres established in 30 districts. Individuals have the flexibility to register with the family physician of their choice, irrespective of their place of residence. According to the Health Statistics Yearbook published by the Ministry of Health of the Republic of Türkiye in 2022, there are more than 3,281 patients per family physician in Izmir province (Ministry of Health, 2022).

[8] http://www.konak.gov.tr/
[9] https://karabaglar.meb.gov.tr/

There are no health institutions within the AoI of the sub-project.

1.1.2.6 Means of Livelihood and Employment

Izmir is an important economic centre located on the west coast of Türkiye and is the third largest city in the count throughout history, the city has played an important role in trade, industry, agriculture, and services. Below is a sectoral description of Izmir's key livelihoods:

1. **Port and Trade:** Izmir has historically operated as a seaport and trade centre. It is still home to Alsancak Port, one of the largest ports in Türkiye. Izmir's geographical location offers a strategic advantage for overseas trade.

2. **Industry:** Izmir is an important industrial centre with factories and industrial zones in various industrial sectors. There are many industrial facilities operating in sectors such as automotive, chemicals, textiles, food, shipbuilding, and electronics.

3. **Agriculture:** The area around Izmir plays an important role in agriculture with its fertile soil. Vineyards, olive groves and vegetable gardens are the agricultural products of the region. Especially grape production and winemaking are among the agricultural activities for which Izmir is well-known.

4. **Tourism:** Izmir is a tourist attraction with its coastline and historical richness. Shopping, gastronomy, beaches and historical sites offer a variety of tourist activities for visitors.

5. **Education and Health Services:** Izmir is an important centre of education and health services with its prestigious universities, research centres and hospitals. Institutions operating in these fields contribute to Izmir's economy.

6. **Ports and Logistics:** Alsancak Port and other ports play a critical role for the logistics sector. Maritime transportation has a major impact on Izmir's economy.

As of 2021, 58.1% of the employed in Izmir work in services, 32.9% in industry and 9% in agriculture. It is noteworthy that the share of employment in agriculture in Izmir increased in 2021 compared to 2020. In terms of employment rate, Izmir is above Türkiye's average in the services and industry sectors, while it is below Türkiye's average in the agriculture sector (İzmir Chamber of Commerce, 2023).

1.1.2.7 Transportation and Traffic

Izmir, a bustling city on the western coast of Türkiye, benefits from a well-developed transportation infrastructure. The city's transportation facilities include:

- **Road Network**: Izmir is well-connected by an extensive road network, featuring highways, expressways, and arterial roads. The O-30 and O-32 motorways serve as primary transportation corridors, facilitating efficient access to and from the city. Additionally, a comprehensive network of local roads and streets criss-crosses the city, allowing for seamless urban transportation.
- **Public Transportation:** The city operates a comprehensive public transportation system that includes buses, trams, metro, and ferry services. Izmir Municipality Electricity, Water, Gas, Bus and Trolleybus General Directorate (ESHOT), the municipal public transportation authority, manages most of these services. The Izmir Metro system spans several lines and effectively links various parts of the city, offering a reliable means of commuting for residents and visitors.
- **Rail Transport:** Izmir is well-connected to the national rail network, with the Alsancak and Basmane railway stations serving as central hubs. The rail system facilitates the movement of goods and passengers, with high-speed train services connecting Izmir to major cities in Türkiye.

According to the State Roads Volume Map of the General Directorate of Highways for the year 2022, 601,121 cars, 5,483 medium-loaded commercial vehicles, 302 buses, 3,371 trucks, 3,503 trucks + trailers, tow trucks + semi-trailers and 72,780 vehicles in total pass through the road within the sub-project area daily. According to the indicators, the road has a traffic volume of 50,000 and above and has been identified as one of the most heavily trafficked roads.

1.1.2.8 Cultural Heritage

Konak district is an area bordering the Gulf of Izmir and forms the centre of the historic city of Izmir. The Clock Tower, which has become the symbol of Izmir, is located in the centre of this district. Konak district is also home to many historical buildings, inns, and bazaars. These include important places such as Kemeraltı Bazaar, Konak Square and Konak Pier.

The old urban fabric elements are concentrated on the alluvial fill area and the alluvial soil behind it in Konak.

There are a total of 29 protected areas within the borders of Konak district of Izmir Province, 22 of which are located within the Management Area Boundary of Izmir Historic Port City. The Management Area includes different types of protected areas such as Urban Protected Area, Historical Protected Area, Archaeological Protected Area, Natural Protected Area, and Urban and 3rd Degree Archaeological Protected Area. There are a total of 22 protected areas, including three (3) Urban Conservation Areas, two (2) Historical Conservation Areas, 14 Archaeological Conservation Areas, two (2) Natural Conservation Areas and one (1) Urban and 3rd Degree Archaeological Conservation Area. The connection points consist of a total of three (3) Archaeological Sites (Izmir Historical Port City Area Directorate, 2022). The protected areas in Konak district is located 2 km from the sub-project area.

3.2 ENVIRONMENTAL AND SOCIAL ASSESSMENT

The sub-project's construction works are expected to last 25 months and be completed in the end of September 2028. Its operation will have a service lifetime of 30 years.

Principally, the sub-project will have a vital positive impact on the region as it will solve the region's wastewater and stormwater problems and, reduce the wastewater load of the Çiğli WWTP by separating the wastewater and stormwater lines.

The sub-project will have impact on its surroundings during construction phase physically due to noise generation, increased dust emission, management of excavated soil, and emissions from the construction machinery.

In the operation phase, environmental impacts are not expected since maintenance and repair works are not constant.

Based on the environmental, social, and public/OHS risks/impacts that will potentially occur during the construction phase of the sub-project, the AoI has been determined as 100 m in all directions from the areas where construction works will be carried out on expert opinion, and in this context, Konak and Karabağlar neighbourhoods are the settlements within the AoI, while during the operation phase, the sub-project will serve the entire city. The location of the sub-project area and its AoI are presented in Figure .

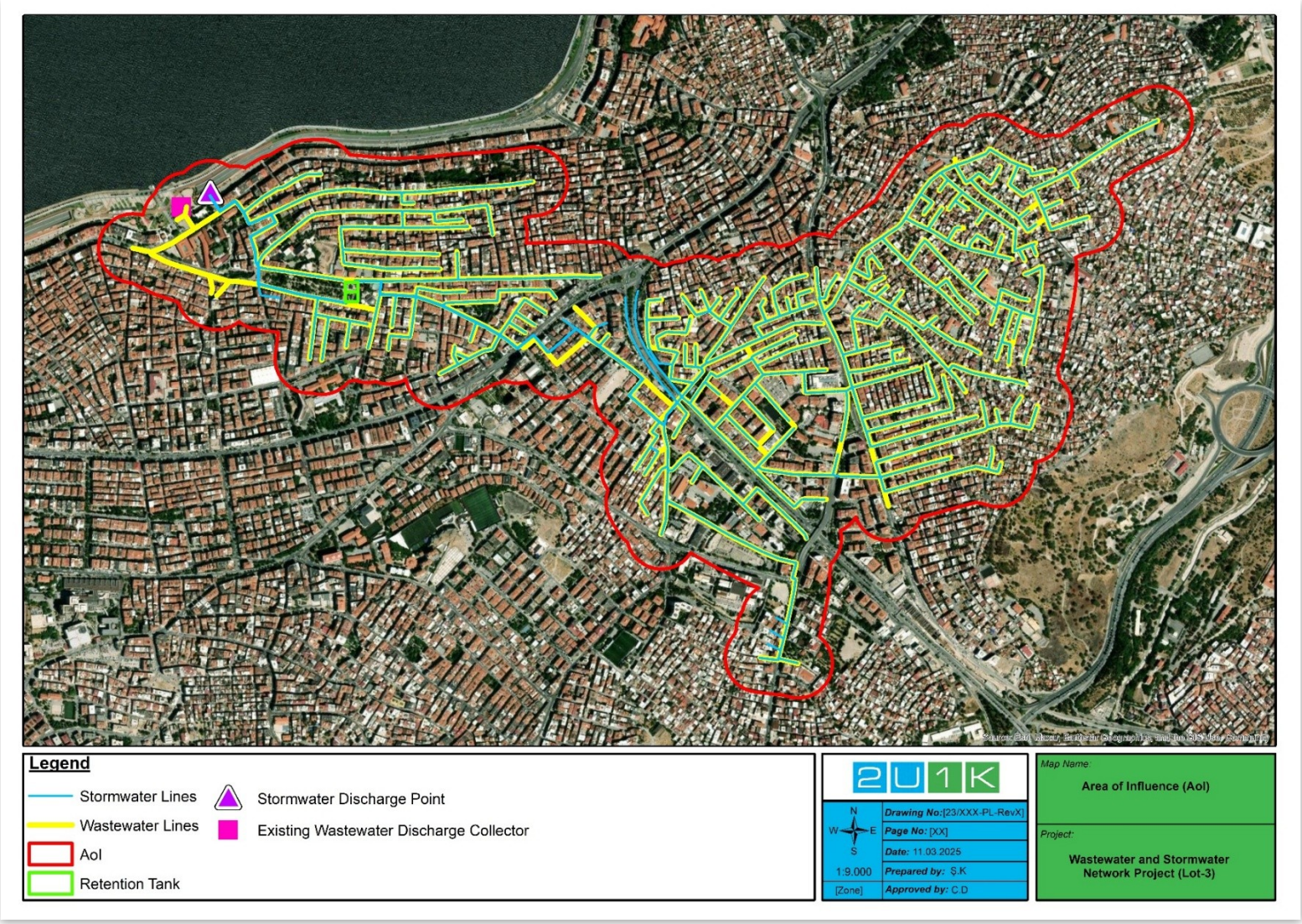

Figure 9. The Location of the Sub-project Area and Its AoI

Wastewater and stormwater networks in Figure will be constructed under the main roads of the Konak and Karabağlar districts. In this context, the E&S impacts of the sub-project construction and operation phases are detailed below.

The following sections include the environmental, social, and public/OHS potential risks/impacts of the sub-project. E&S mitigation measures to be taken for sub-project due to these impacts are given in Table 4 and Table 5.

1.1.3 Air Quality

Construction phase

Sub-project's environmental impacts at AoI are limited to the footprint and these impacts are effective for limited time during construction phase. In case of complaints regarding air quality, air quality measurements will be made for impact area.

There will be temporary greenhouse gas emissions from equipment such as pumps, cylinders, excavators, or vehicles that will be used for construction activities.

Operation phase

During the operation phase, maintenance and repair activities may create dust and other airborne pollutants that can impact air quality.

The methods to reduce and effectively manage the negative environmental impacts for both phases of the sub-project that may occur are provided in Table 4 and Table 5.

1.1.4 Water Use

Construction phase

The contractor has not been contracted within the scope of construction works yet. The contractors to be involved in the construction phase will be selected by tender. During the construction phase, daily potable water demand of personnel will be met by carboys purchased from licensed companies according to the list of licensed companies announced by the Ministry of Health in compliance with the requirements of the Regulation on Water Intended for Human Consumption and Public Health Law.

Although the number of the personnel employed during the construction phase of the facilities is not certain, it is anticipated that approximately 22 people will work. The average daily water consumption per person is regarded as 221 L/day (TurkStat-2020)[10], and the estimated daily amount of water that will be required during the construction phase of the sub-project is calculated below as 4.86 m^3/day.

[10] TurkStat, Daily Amount of Water Usage Per Capita (Liters/Person-Day) Data (Izmir), 2020

Operation phase

During the operation phase of the sub-project, there will be no continuous water use daily.

1.1.5 Wastewater

Construction phase

The wastewater to be generated during the construction phase will be domestic wastewater from the personnel. It is predicted that 22 personnel will be employed during the construction phase of the sub-project.

Daily discharged wastewater per person is regarded as 174 L/(person.day) according to TurkStat data (2020)[11], and the estimated daily amount of wastewater to be discharged during the construction phase of the sub-project is calculated as 3.83 m^3/day. The existing sewerage system will be used to discharge the wastewater generated by the personnel.

Operation phase

During the operation phase of the sub-project, adverse impacts of the sub-project due to wastewater and stormwater management failures may be expected. The methods in line with the WB Environment, Health, and Safety (EHS) Guidelines and local legislation to mitigate and effectively manage the adverse E&S impacts that may occur during operation and maintenance are listed in the corresponding sections of Table 5.

1.1.6 Waste Management

Pollution prevention

Throughout the life of the sub-project, workers will be recruited from the region as much as possible.

Throughout the life of the sub-project, priority will be given to working with local suppliers and procuring services from the local employees in the service industry, as much as possible (fuel supply, vehicle maintenance/food, beverage, and spare parts supply, etc.).

Resource efficiency and management actions will be taken; use of renewable energy and energy efficiency measures, reducing the carbon footprint, financing for green building, responsible supply chain management and green procurement.

Construction phase

Domestic Solid Waste

[11] TurkStat, Daily Amount of Wastewater Discharged Per Capita (Liters/Person-Day) Data (Izmir), 2020

Domestic solid waste will be generated from the personnel who will work during the construction phase of the sub-project. The domestic solid waste generated will mostly consist of organic waste.

The amount of domestic solid waste from the personnel is calculated according to the data established by TurkStat (2020)[12] that an average of daily 1.46 kg of domestic solid waste will be generated per capita in Izmir.

The domestic solid waste generated (calculated as 32.12 kg/day) will be stored in available trash containers and collected by the district municipality via garbage trucks. The waste collected will be delivered to licensed solid waste landfills.

Packaging Waste

The ratio of recyclable packaging waste is in metropolitan cities in Türkiye as follows. 48 kg/P-year paper and board, 14 kg/P-year plastic, 6 kg/P-year nylon, 8 kg/P-year metal, 8 kg/P-year glass, in total 84 kg/P-year[13].

Packaging wastes made of plastic, metal, glass, paper and board, composite and similar materials (calculated as about 5.1 kg/day) should be collected separately from other wastes and given to Packaging Waste Collection, Segregation and Recovery Facilities licensed by the MoEUCC.

Excavation and Construction Waste

In accordance with the Regulation on the Control of Excavation Soil, Construction and Demolition Wastes, excavated soil and construction waste producers are responsible for the transportation of the excavated soil and construction waste generated to the storage areas that have necessary permissions, using transportation vehicles with the necessary transportation permits.

The excavation soil and construction wastes generated during the construction phase of the sub-project will be transferred to the permitted landfill belonging to the Izmir Municipality.

Hazardous Waste

At each workplace, an assessment will be carried out to identify any Asbestos Containing Materials (ACMs) that may be present. As a first attempt, during renewal of the pipelines, existing pipes of water supply network that may contain asbestos will be left under the ground in the existing location. If they need to be removed because of new pipe installation requirements, then removal process will be executed, and specific precautions will be determined in line with the Regulation on Health and Safety Measures in Working with Asbestos dated 25.01.2013 (OG No 28539). Besides, disposal of ACMs as a hazardous

[12] TurkStat, Daily Amount of Municipal Waste Per Capita (Kg/Person-Day) Data (Izmir), 2020

[13] Solid Waste Management and Recovery, Environmental Protection and Packaging Waste Recovery and Recycling Foundation (ÇEVKO) Publications

waste will be carried out in accordance with the Regulation on Waste Management dated 02.04.2015 (OG No: 29314). In this respect, the generic Asbestos Management Plan, which is largely compliant with the national legislation, is presented in Appendix-C. Hence, it is recommended that this plan for managing ACMs is developed by the Contractor prior to construction. Relevant mitigation measures to be taken for waste management are given in Table 4.

During the construction phase of the sub-project, petroleum-based products, such as lubricants, hydraulic fluids, or fuels, may result in the potential for release into the environment during storage, transportation or use in equipment. Additionally, contaminated / oily fabrics, cloths and filters, contaminated packaging materials, toner cartridges, paint residues, fluorescent tubes, cleaning cloths and filters, hazardous insulating materials and pressurized tubes are other hazardous wastes that are likely to be generated.

Hazardous wastes that are likely to be generated during the construction phase will be collected separately in specific vessels / containers at the construction site and stored in a specific area that is established on the concrete floor and connected to the drainage channel to prevent it from reaching the ground or other bodies of water. A roof or overhead cover will be provided for the hazardous waste storage area to protect waste containers from rainwater exposure, thus preventing spills, leaks, and environmental pollution while safeguarding workers' safety. Additionally, prevailing wind directions will be considered when designing the storage area to prevent the dispersal of particulate matter, dust, or contaminants, thereby reducing health risks to workers and the environment. The waste generated should be temporarily stored at their source in line with the criteria set based on their types. The temporarily stored waste will be labelled with the phrase 'hazardous or non-hazardous waste' as well as the waste code, the amount of waste stored and the date of storage.

Waste will be delivered to licensed disposal / recycling facilities with separate waste codes. Hazardous waste will be transported by licensed vehicles within the scope of the "Communiqué on the Waste Transportation by Road".

Waste Batteries and Accumulators

Waste batteries will be collected separately in waste battery bins. The collected waste batteries will be delivered to the Portable Battery Manufacturers and Importers Association (TAP) (authorized waste battery collector) for disposal at the licensed facility.

These wastes will be handled in accordance with the procedures and principles of the Regulation on the Control of Waste Batteries and Accumulators. If not handled properly, these wastes can have an adverse impact on human health and the environment.

Medical Waste

During the construction phase, medical waste will be generated from first aid responses. According to the Regulation on Control of Medical Waste, medical wastes stored in specific

containers and areas will be collected by licensed vehicles and delivered to licensed disposal companies.

It is expected that the medical waste produced during the construction phase will be generated in very small amounts due to first aid actions. While medical waste is expected to be generated in trace amounts, they can lead to significant effects such as contracting infectious diseases if not handled properly.

Operation phase

Maintenance and repair activities may generate waste materials that require proper disposal. Waste generated during maintenance and repair activities should be segregated into different categories based on their type and potential for reuse or recycling. This can include categories such as hazardous waste, recyclables, and non-recyclables. Each category of waste should be disposed of in the appropriate manner, according to national regulations.

1.1.7 Noise

Construction phase

Noise will be generated from vehicles, machinery and equipment that will operate during the construction activities of the sub-project. The equipment and machines used during the construction will be monitored and maintained at regular intervals. In case of complaints regarding noise, noise measurements will be made for impact area.

Operation phase

No activities that could be considered as a noise source is expected during the operation phase of the sub-project except for the repair and maintenance activities that will be local and short termed.

1.1.8 Land Use and Soil Quality

Construction phase

A change in land use is not expected since the sub-project area is located within the boundaries of the existing settlement zone on open public roads that is under the responsibility of Konak and Karabağlar Municipalities and at the Municipalities service area and will be restored after work. Since there will be no fuel or similar hazardous chemical storage within the sub-project area, it is not anticipated to experience spill-like accidents. Measures to be taken to prevent soil pollution are given in Table 4.

Operation phase

No change in land use is foreseen during the operation phase of the sub-project.

No change in soil quality is expected during the operation phase of the sub-project since there will be no storage or soil related activity.

1.1.9 Landscape

Construction phase

The sub-project area is surrounded by residential areas, predominantly residential units, including schools and health facilities. A temporary disturbance due to construction is expected, but it will be of short duration.

Operation phase

Since the sub-project is the infrastructure project, no landscape effect is expected during operation phase.

1.1.10 Biodiversity and Protected Areas

Construction phase

Considering the location of the sub-project, no negative impact on the biological environment is expected during the construction phase of the sub-project.

Operation phase

Since the sub-project is the infrastructure project, no biodiversity effect is expected during operation phase. Additionally, the conveyance of wastewater to the wastewater treatment system through the sewage system during the operational phase is anticipated to yield favourable outcomes for the biological environment.

1.1.11 Population / Demography

Construction and Operation phase

Since the construction works for the sub-project will be carried out in central neighbourhoods, it is foreseen by the IZSU that no accommodation will be built for the employees within the scope of the sub-project. However, containers can be placed on the sub-project area for those who will work on the sub-project to rest, eat and also for sanitary facilities. These containers will meet standards for worker accommodation prepared by International Finance Corporation (IFC) and European Bank for Reconstruction and Development (EBRD) and approved by the WB[14].

On the other hand, in the settlements that are expected to be affected during the construction phase of the sub-project, no negative impact induced by the sub-project is anticipated regarding the population level.

[14] https://documents1.worldbank.org/curated/en/604561468170043490/pdf/602530WP0worke10Box358316B01PUBLIC1.pdf

Recruitments for workers employed as part of the sub-project will be monitored by the IZSU in accordance with Labour Law OG dated 10.06.2003 and numbered 4857, WB ESS2 and the LMP[15] of the TEFWER Project. Legal work permits will be verified to ensure compliance with labour conditions during the construction and operation periods, as detailed in Section 1.1.15 Informal, child labour, or forced labour will not be permitted.

The IZSU has not yet executed a contract with a Contractor for the construction phase, and any Contractors to be involved in the construction phase of the sub-project must act in accordance with the commitments and standards provided within the scope of ESMP and will prepare their site-specific Labour Management Plan based on the parent project Labour Management Procedures prior to commencement of any civil works in the sub-project area.

For the avoidance of any negative impact on the local communities due to presence of workers during the construction phase and their potential interaction with community members, contractors are responsible for providing Code of Conduct (CoC) training to each worker and ensuring that all workers are informed about the this.

1.1.12 Land Acquisition

The sub-project will follow existing roads for wastewater lines and rainwater collection systems. Therefore, no land acquisition or expropriation will be carried out within the scope of the sub-project.

In addition, any unintended damages to adjacent land and structures during construction will be compensated and repaired by IZSU and contractor. There is no need for land acquisition along the line under Lot 3. However, during project implementation, if additional land is required and/or any issues regarding land acquisition emerge, a Resettlement Plan (RP) and/or an Ex-post Social Audit (EPSA) may be required, as described in Section 3 of the TEFWER Resettlement Framework (RF). The works will be suspended until the relevant documentation is prepared and cleared. In addition, any unintended damages to adjacent land and structures during construction will be compensated and repaired by IZSU and contractor.

1.1.13 Vulnerable/Disadvantaged Groups

Construction and Operation phase

The construction works to be carried out for the sub-project works will have a short-term and temporary effect.

The negative impacts that VGs / individuals may be temporarily exposed to during the construction period of the sub-project and measures to mitigate these impacts are given below.

[15] The TEFWER LMP is available at https://www.ilbank.gov.tr/storage/uploads/pagefiles/p176608_tefwer_labor_management_procedures_final_1685346817.pdf

Children:

Negative Impacts: Increased risk of accidents due to construction activities, exposure to hazardous materials or equipment, disrupted routines affecting education and sleep.

Mitigation Measures:

- Erecting safety barriers and warning signs around construction sites.
- Conducting safety awareness programs in schools and communities.

People over 65 years of age:

Negative Impacts: Physical strain due to noise and dust, increased risk of falling or tripping around construction sites, disrupted access to healthcare facilities.

Mitigation Measures:

- Providing alternate routes for pedestrians, especially near healthcare facilities.

People with chronic disorders or special care needs:

Negative Impacts: Disrupted access to medical services, exacerbation of health conditions due to stress or environmental factors, increased vulnerability to infections.

Mitigation Measures:

- Providing advance notice of construction activities to medical service providers.

Disabled people:

Negative Impacts: Limited mobility due to blocked pathways or inaccessible infrastructure, heightened risk of accidents or discrimination.

Mitigation Measures:

- Ensuring compliance with accessibility standards in all construction activities.
- Providing alternative transportation options for disabled individuals.

Refugees/Immigrants:

Negative Impact: Language barriers and lack of awareness may lead to safety risks and hinder access to necessary information and services.

Mitigation Measure: Provide multilingual information and outreach programs to ensure refugees and immigrants are informed about the construction activities and safety measures.

Throughout the sub-project's lifespan, it is crucial for stakeholders to have information about the sub-project's route, duration, and alternative passages. Special efforts should be made to identify disadvantaged and vulnerable stakeholders who might be affected differently or face challenges in participating and engaging in the development process. Translator support will be provided for stakeholder engagement meetings for refugee/immigrant stakeholders who do not speak Turkish. Translator support should be monitored and provided by the PIU in accordance with the TEFWER Stakeholder Engagement Plan (SEP). Stakeholder identification is an ongoing process that will require regular review and updates. To identify project stakeholders and establish methods for their future participation, a SEP has been prepared for this sub-project, guiding the IZSU in consultation methods with stakeholders.

During the construction phase, consultations with stakeholders will take place, allowing for the creation of special passages for vulnerable/disadvantaged individuals or groups, such as the elderly, pregnant women, young children, and disabled individuals, by implementing additional measures. Given that the work will be conducted in publicly accessible areas, public access to these areas will be restricted in any way necessary. If trenches need to be left open overnight, the contractor will ensure that the area is adequately lit, appropriate signage is provided, and barriers are installed.

1.1.14 Economy / Employment

Construction phase

It is anticipated that the sub-project will result in temporary employment. Priority will be given to contributing to the local economy through the use of local materials and local recruitment of labour during the construction and to paying attention to the procurement of various goods and services from local resources. It is estimated that 22 workers will be employed during different stages of the construction.

In addition, the negative impacts that local and regional businesses in the region where construction activities of the sub-project (construction works of the sub-project are expected to last 25 months and be completed in the end of September 2028) will be carried out may face and the measures to be taken for these negative impacts are given below.

Negative Impacts

- Disruption of Access: Construction activities may impede or restrict access to businesses, leading to a decrease in foot traffic and customer visits.
- Noise and Dust: Noise and dust generated by construction can deter customers and affect the ambiance of the business premises, leading to reduced patronage.
- Traffic Congestion: Increased traffic congestion due to construction vehicles and road closures may discourage customers from visiting local businesses.
- Loss of Parking Spaces: Construction activities may result in the loss of parking spaces near businesses, making it inconvenient for customers to park, which can

reduce pedestrian movements, lower sales, and cause financial losses for local businesses. (Mitigation measures will need to be put in place and carefully monitored to address potential economic losses to local businesses where their entry may be blocked by construction activities).

Mitigation Measures:

- Coordinate with local authorities to minimize disruptions and schedule construction activities during off-peak hours whenever possible.
- Maintain clear signage and alternative routes to ensure uninterrupted access to businesses throughout the construction period.
- Schedule noisy activities during non-business hours or weekends to mitigate disturbances to business operations.
- Develop traffic and transport management plan to minimize congestion and ensure smooth flow of vehicles near business areas.
- Designate temporary parking areas for construction vehicles to free up parking spaces for customers.
- Provide financial assistance or grants to affected businesses to help offset temporary revenue losses.
- Implement a robust monitoring system to track the impacts of construction on local businesses and adjust mitigation measures accordingly.
- Solicit feedback from business owners and stakeholders regularly to identify any emerging issues and address concerns promptly.

Operation phase

With the implementation of the sub-project, only personnel will be needed for maintenance and repair works. The number of personnel within the existing structure of the IZSU is sufficient for these maintenance and repair works and there will be no need to recruit personnel for the operation period. Therefore, it implies that there are no expected adverse impacts related to personnel during the operation phase.

1.1.15 Labour Conditions

The IZSU will be responsible for human resources for construction and operation phases. Türkiye is currently in the middle of a harmonization process with the European Union, and labour laws are being reviewed to ensure harmonization. The sub-project will comply with national labour, social security and OHS laws as well as the principles and standards of the International Labour Organization (ILO) convention by meeting WB expectations according to WB Standards and adherence to LMP of the TEFWER Project. Contractor will prepare their project-specific Labour Management Plan on the basis of the LMP of TEFWER prior to commencement of any civil works in the sub-project area. Based on the national principles in the ILO convention, the IZSU will take the following measures:

- Not employing children under the age of 18 nor any forced labour,
- Eliminating forced labour and ensuring a Human Resources Policy compatible with the European Convention on Human Rights and the Turkish Constitution,
- Eliminating discrimination based on language, race, gender, political thought, philosophical belief and religion in business relations,
- Ensuring workers' access to the right of collective bargaining (Law No. 6356 on Trade Unions and Collective Bargaining Agreements, and Labour Law OG dated 10.06.2003 and numbered 4857,
- All employees will be issued written employment contract defining work, work hours, wages, rights and duties, etc. and
- Ensuring access to the sub-project worker's grievance mechanism that is functional and effective, separate from the grievance mechanism required under ESS10.

The Labour Law (4857) applies to all workplaces and employers, employees, employer representatives and worker representatives, regardless of the business activity.

1.1.15.1 Training

According to OHS Site Training Plan, OHS training will be provided to the employees of contractor as part of each contract executed within the scope of the sub-project, which will at least include the subjects provided in the Regulation on the Procedures and Principles of Occupational Health and Safety Training of Employees, and the Contractor's Environmental and Social Management Plan (C-ESMP) and OHS Management Plan, to be developed by the contractor, based on this ESMP, will contain the plans regarding the training to be provided to personnel.

Additionally, the contractor will provide training to its personnel, who will work during the performance of the work, on the E&S impacts that will be considered during the on-site work and are included in this ESMP document. The contractor will train its personnel in the fulfilment of all measures to prevent and/or minimize E&S impacts during the on-site construction, subject to inspection by the IZSU.

The risk assessment report will be prepared to cover all activities at the site then the contractor will ensure that the on-site personnel are primarily trained in the issues that include the risks, and protection measures specific to the worker's job and post before starting work.

In addition, training on risks that may arise from the circumstances, such as changes in post or job, replacement of work equipment or application of new technology and work instructions training, will be provided. OHS awareness of employees will be increased by organising daily toolbox trainings.

Training programs will be repeated periodically considering the changing and emerging risks provided in the Regulation on the Procedures and Principles of OHS Training of Employees.

Information and training will be provided not only for personnel, but also for the measures to be taken for public health and safety.

The contractor is required to separately and measurably demonstrate the knowledge, skills, behaviours, and attitudes that the on-site personnel will have regarding OHS, E&S issues.

The Contractors are obliged to give CoC training, including Gender Based Violence (GBV) and Sexual Exploitation and Abuse/Sexual (SEA/SH), to each worker so that the presence of workers who will work during the construction do not result in any disturbance/conflict within the local communities and their interaction with community members do not result in inappropriate behaviours/misconducts. The IZSU will ensure that the Contractors develop a CoC and that all workers are informed and receive training about it before starting to work. A CoC will be part of the employment contract to be signed by all workers at the job start-up phase. The training given in the CoC will be checked and reported by E&S Experts. Scaling and evaluation will be carried out at the end of the training provided. According to the results of the evaluation, training material will be updated by adding the learnings from near misses or incidents when happen.

1.1.16 Occupational Health and Safety

If the necessary measures are not taken during construction works, this may especially result in accidents that will threaten the health and safety of workers. In this regard, the IZSU and the contractor are liable for providing a safe and healthy working environment for workers. During the construction phase, workers may be exposed to a range of hazards, such as exposure to noise, dust, heat, hazardous chemicals, working at height, working in confined spaces, working with electrical equipment's, working with small cranes, etc. Most common OHS Risk areas and general mitigation measures are provided in Appendix-D.

3Occupational accidents and injuries may take place during these activities if potential risks at various stages of the sub-project are not managed properly. Potential accidents occurring during the operation phases of sub-project may lead to potential health concerns associated with non-routine risks. All occupational accidents, occupational diseases, dangerous occurrences, incidents, and near misses should be reported and investigated with the assistance of a person knowledgeable and competent in occupational safety.

Dust suppression techniques such as the application of water or non-toxic chemicals should be used to minimize dust from vehicle movements. During the operation, the storage, use and disposal of hazardous materials will be strictly controlled in alignment with OHS, near-miss, work permits, driving permits, height work permits, and environmental protection and good industrial practices.

Employees will receive adequate information about job descriptions, responsibilities and risks that may threaten OHS. Employees will be provided with the necessary personal protective equipment that meet national and international standards as well as information on work and occupational safety provided through regular training.

The IZSU will require all employees and contractors to adhere to local and international health and safety legislation and guidelines. This will include using OHS Management Plan and suitable Personal Protective Equipment (PPE) (safety helmets, ear protectors, protective gloves, etc.), implementing a management system for activities associated with health and safety risks, keeping available the permits for working at height, working in hot work permits (welding, cutting, grinding), and driving vehicles, and adhering to these rules.

Lastly, OHS Management Plan and EPRP, which will include the response measures for the risks and impacts associated with the works to be conducted, in case of accident, sabotage, fire and electric shock, infectious diseases, earthquake, dent, flood, storm and chemical spill, will be developed with the regular exercises according to regulation by the IZSU for operation phase and by the Contractor for the construction phase.

1.1.17 Community Health and Safety

Community health and safety issues are associated with risk factors that may arise from construction and operation phases of the sub-project. It is anticipated that the local people will be affected by the resulting dust and noise, especially during the construction phase.

To minimize the impact of the traffic activities that are expected to intensify during the construction phase, the working hours will be adjusted according to the peak hours of transportation. The views of relevant stakeholders will be sought to determine a common working strategy for construction activities to be performed especially in front of and/or around areas, such as schools and hospitals. The construction activities to be performed around or in front of hospitals and/or healthcare providers will be planned not to hinder the public access to these services. Special crossings will be developed by taking additional measures for the elderly, pregnant women, people with small children and the disabled. The IZSU and Contractors will comply with the measures presented in this ESMP to create temporary security measures so that the construction works to be carried out around the mosque hospitals, educational institutions, and the residences located next to the sub-project area will not cause unjust treatment to the citizens.

Security arrangements is required to be designed to match the level of identified risks and the project's environment. For low- to medium-risk contexts, measures like fencing, lighting, signage, basic security training, and a guard may suffice. For high-risk or larger projects, more comprehensive security measures and detailed risk assessments might be necessary, potentially requiring external security expertise.

Security personnel will be employed to secure stored material and prevent unauthorized access to the construction site. The interaction of security personnel with the public may pose a risk to the safety of local people in accordance with ESS4 Community Health and Safety. Risks from security personnel are discussed in Chapter 4.

The grievance mechanism is required to handle security personnel complaints confidentially, ensuring documentation, assessment, action to prevent recurrence, and monitoring of responses.

In addition, due to the sewerage construction work, partial water outages can be expected in neighbourhoods which are in the scope of the sub-project. It can have a negative impact on both residents and public houses. In case of any planned water outrage, hospitals, schools, public houses, and residents will be warned at least two (2) days in advance through communication channels such as mukhtars, sending text messages, publishing an announcement on IZSU's website.

Accidents and failures can be expected in the site of construction. The IZSU is responsible to prevent the adverse impacts of the construction phase over the community. However, since the scope of the sub-project is not land but a network, it will not be possible to encircle the construction site completely. Yet, pits and dangerous materials, which will be present at the construction site will be managed by safety standards. Necessary warning signs and with physical barriers with no gaps in between will be provided by the IZSU to protect the community health and provide safety.

Existing roads will be used within the scope of construction works. Possible damage to road surfaces due to traffic caused by heavy machinery will be rehabilitated by the Contractor. In case of any damage to the infrastructure elements on private lands due to construction activities, it will be compensated by the Contractor. Mitigation measures will be implemented by the Contractor. In order to make a clear assessment, the present condition of the roads and existing infrastructure can be documented (e.g. by photographs) by the contractor before the start of construction works IZSU will monitor and manage the compensation process for these damages.

Communities in the vicinity of the sub-project area may be exposed to physical hazards, such as exposure to noise, exposure to dust emissions, hazard from electricity, traffic accidents, etc., associated with sub-project components during the construction phase. In this context, within the scope of the Regulation on Coordination Centres of Metropolitan Municipalities, Infrastructure Coordination Centre (AYKOME) and Transportation Coordination Centre (UKOME) will continue to use the Infrastructure Information System (AYBIS) to systematically carry out, monitor and control the documentation of all excavation permits (electricity, gas, telephone, etc.) in the sub-project area. Sub-project work areas will not be opened to the public until all checks have been coordinated, approved and completed by the concerned interested parties including especially electricity, gas distribution companies in the sub-project area. A Community Health and Safety Management Plan of the sub-project will be prepared, developed, and implemented to include this coordination throughout the lifetime of the sub-project.

Additionally, confined spaces or falling hazards may occur due to unattended infrastructure. Construction activities will be announced to the affected local people, businesses, and

governmental bodies at least two (2) days in advance through communication channels such as mukhtars, sending text messages, publishing an announcement on IZSU's website.

1.1.18 Traffic and Transportation

Since there is no activity such as transportation of heavy items or construction crew that will create heavy traffic in the sub-project area where the sub-project will be carried out both during the construction and operation periods, no additional impact requiring special mitigation measures (such as new access road arrangements or arrangements at critical locations) are anticipated.

The times when the traffic density is low will be preferred for excavation trucks, and the necessary warning signs will be placed for the special link road. The personnel operating vehicles and heavy equipment will be dedicatedly assigned, and they will be provided with traffic and road safety training. The maintenance of the construction machinery and equipment will be carried out regularly and regulatory speed limitations will be followed for construction vehicles, and this should be included in the construction site traffic and transport management plan to be prepared by the contractor.

Prior to construction activities, the Contractor will install all signs, barriers and control devices needed to ensure the safe use of the road by traffic and pedestrians, as required by the traffic and transport management plan to be prepared.

1.1.19 Cultural Heritage

Construction phase

The sub-project's construction will primarily progress along the existing road route. Therefore, it is an area where excavation work has been previously conducted. However, before starting construction activities, an opinion letter will be received from the Museum Directorate. The opinion letter will be forwarded to ILBANK. To manage activities in terms of cultural heritage, a chance find procedure has been prepared (see Appendix-B). The contract with the contractor participating in the construction work will include clauses related to the application of the chance find procedure. As an appendix to the contract, the chance find procedure will be shared with the contractor, and it will be ensured that the relevant personnel are knowledgeable and trained in this regard. In the event of any archaeological remains or artifacts being discovered during construction, all activities will be halted, recorded as specified in the chance find procedure, and reported to the Museum Directorate in accordance with Article 4 of Law No. 2863.

Operation phase

During the operational phase of this sub-project, it is essential to acknowledge that maintenance and repair activities of the sewage and stormwater system will be limited to

routine tasks, ensuring the continued functionality of the existing infrastructure without posing any adverse effects on cultural heritage.

Nevertheless, it is imperative to remain vigilant and consider the potential for unexpected circumstances or emergency situations that might necessitate excavation activities beyond the current routes or deeper excavation. In such instances, there exists a possibility of encountering cultural heritage finds. The sub-project's operational team will be well-prepared to address these contingencies, adhering to protocols for the chance discovery of cultural heritage artifacts, ensuring their preservation, documentation, and the required reporting to the relevant authorities.

All personnel involved will receive training on the chance find procedure underscoring the sub-project's commitment to minimizing any potential negative impact on cultural heritage during the operational phase. The respect and safeguarding of cultural heritage sites are paramount for the sub-project's sustainability and will remain a fundamental consideration across all sub-project stages.

3.3 STAKEHOLDER ENGAGEMENT

A stakeholder is defined as any person, organisation or group that may be affected by the project or has an interest in the sub-project and its impacts. Stakeholder participation is considered a critical element in the sub-project. It can significantly influence the sub-project's success and sustainability. Engaging stakeholders allows for a more effective sub-project design and implementation by considering the needs and concerns of local communities. Moreover, stakeholder participation helps ensure the sub-project is more readily accepted by the community, enhancing its long-term success. It is essential to exert special effort in identifying disadvantaged and vulnerable stakeholders who may be disproportionately or differently affected by the subproject or may face difficulties in participating in development processes.

The identification of stakeholders is an ongoing process that requires regular review and updates. Different issues are likely to concern different stakeholders. Therefore, stakeholders are grouped according to their connection to the sub-project. Understanding a stakeholder group's connections to the sub-project helps identify key objectives of engagement. A Stakeholder Engagement Plan (SEP) has been prepared for this sub-project in order to identify project stakeholders and create participation methods for the future of the sub-project. Stakeholders (including vulnerable individuals/groups) are defined in the table below to identify which stakeholders will be directly or indirectly - positively or negatively - affected ("affected parties") or have an interest in the sub-project ("other interested parties"). Detailed information on stakeholder identification is provided in the SEP prepared for this sub-project.

The Grievance Mechanism (GM) to be established for the sub-project will guide the IZSU in managing the stakeholder participation process. Grievances may be an indication of increased concern from stakeholders. Stakeholder engagement activities will be recorded through the consultation form included in the SEP, and consultations will be initiated before the sub-project’s construction period.

Specific personnel will be assigned by the IZSU, the Project Owner, to implement and manage the SEP and GM. The expert to be assigned may be personnel who meets the appropriate qualifications within the existing organizational structure of IZSU or may require new employment. The final responsibility for the implementation of the SEP belongs to IZSU.

3.3.1 Grievance Mechanism

The purpose of the GM is foremost to give access to a problem-solving procedure to Project Affected Person (PAP) including affected communities and sub-project workers. Grievances can be an indication of growing stakeholder concerns and can escalate if not identified and

resolved. Identifying and responding to grievances supports the development of positive relationships between sub-project worker's, local communities, and other stakeholders.

In the sub-project level Grievance Mechanism, Public Grievance Mechanism and Worker Grievance Mechanism, grievances will be submitted in Turkish through Turkish forms. In addition, if refugee/immigrants who do not speak Turkish have grievances about the sub-project or the impacts of the sub-project, translation support will be provided.

The structured GM will ensure that grievances associated with the sub-project are addressed through a transparent and impartial process. From the early stages of the sub-project lifecycle, the grievance procedure will be disclosed to the public through individual or group meetings, printed materials, notice boards and website.

The grievances will be acknowledged by the GM official assigned by the IZSU and timeframe for the provision of response or for further consideration will mainly depend on the complexity of the issue raised, however, ideally, it is expected 2 days registration, 10 days evaluation, 15 days response.

The GM official who will manage the GM will be knowledgeable about the guidelines prepared by the World Bank to prevent sexual exploitation, abuse and harassment cases for the projects financed under construction works. Grievances of gender-based violence, exploitation and harassment can result in a culture of silence due to negative reactions from the community. For the avoidance of this, it is highly important that the stakeholders raise the grievances involving these issues about the sub-project anonymously. In addition, the authorities handling the grievances should address such issues within confidence and by an unbiased approach[16]. These grievances will be handled centrally at IZSU, not only at the Contractor level and IZSU will report to ILBANK. IZSU will manage such grievances in line with SEP report ILBANK GM. In case a sensitive complaint is received by the Contractor or IZSU, they will be responsible for conveying the issue directly to the ILBANK GM focal point[17]. However, Contractor and IZSU should still be trained and informed about the principles applicable to SEA/SH and GBV cases.

The methods used to publicize the availability of the GM should be culturally appropriate and in accordance with how stakeholders usually acquire information. Women and men may access information differently and it needs to be ensured that both have equal access to information. Stakeholders will be able to share their opinions and grievances via a range of options such as letters, e-mail, grievance boxes, and face to face meetings throughout the sub-project's lifespan. All stakeholders initiating a grievance will have an opportunity to claim their case in a confidential manner. IZSU will ensure that the name and contact details of the

[16]https://thedocs.worldbank.org/en/doc/741681582580194727029002 2020/original/ESFGoodPracticeNoteonGBVinMajorCivilWorksv2.pdf

[17]https://www.ilbank.gov.tr/storage/uploads/pagefiles/ilbank_uluslararasi_projeler_sikayet_mekanizmasi_proseduru_1646748134.pdf

complainant are not disclosed without their consent. Details of the GM can also be found in SEP.

3.3.1.1 Public Grievance Mechanism

Currently, IZSU handles public grievances and views through its website and complaint hotlines numbered 185 and 153. This municipal unit is established to receive grievances and requests from local citizens and intended to produce possible solutions within the municipality for reported concerns.

As the sub-project is within the municipality, it is anticipated that the existing GM system can be maintained as the primary GM for this sub-project. Specifically, all complaints related to the sub-project will be directed to the sub-project GM official for receiving and monitoring complaints. In addition, a communication channel will be established to allow direct access to the sub-project GM official, and this communication channel will be announced to stakeholders through the website, announcements, brochures, etc. Complaints received by the contractor, CİMER, YİMER, ILBANK, WB etc. will also be redirected to the communication channel. All stakeholders involved in the sub-project will be common beneficiaries of the GM.

During construction and operational activities, the GM described above will continue to be driven by views of stakeholders, making this procedure accessible to all affected stakeholders. The personnel to be appointed by the IZSU will record the grievances and requests coming from different channels in a single established system and will provide solutions.

The GM official will record all grievances that are:

- Communicated to the sub-project officials personally,
- Communicated by phone/e-mail,
- Conveyed by stakeholders who want to communicate based on the sub-project documentation,
- From the personnel during the construction phase,
- From the operating personnel, and
- Communicated to contractors.

For this method to be successful, the GM official to be assigned will constantly be in contact with other municipality experts, contractors, and personnel who will be involved in the operational phase. Additionally, the GM officer to be appointed will be introduced to the stakeholders through the website, brochures, and announcements.

If stakeholders fail to reach a satisfactory solution through the channels provided above or have requests for a higher-level explanation, they will be able to reach ILBANK's

communication channels, the Presidency's Communication Centre (CIMER), the Foreigners Communication Centre (YIMER) and the relevant legal institutions.

The officer appointed by IZSU for the Public GM will receive suggestions and complaints in writing with the Sample Grievance Form. Then, the actions taken and the solution provided regarding the reported grievance will be recorded together with the Grievance Closure Form. The SEP prepared for the sub-project contains more detailed information on the Public GM and its appendices include Sample Grievance Form and Grievance Closure Form. Thus, all activities carried out under the GM will be recorded and care will be taken to establish a transparent relationship between the public and the sub-project owner.

3.3.1.2 Workers' Grievance Mechanism

Workers' GM is defined as complaints from sub-project employees (including both direct and indirect employees). This mechanism is structured with an intention of it being an effective approach for early identification, assessment, and resolution of grievances throughout the sub-project's lifespan. The GM should guarantee that any employee raising a complaint will not be subject to any reprisal.

The scope of the Workers' GM (see the TEFWER LMP for details) can be summarized as but not limited to; any worker with a concern of pertaining to onsite work such as OHS, terms of employment, wages, issues with the local community or among co-workers, hygiene issues in the common areas, insufficient amount of food and / or concerns regarding the security of the workers.

The GM will be informed to all sub-project workers through written and verbal communications. Each worker should be informed about the GM at the time they are hired, and details about how it operates should be easily available, in employee handbooks for example.

Confidentiality is very important to some employees; Therefore, workers can submit their complaints anonymously, there are no restrictions in this regard. If an anonymous complaint is received, the corrective action taken against the complaint or the response to the complaint will be announced by posting it in appropriate areas in the containers that workers will use.

The Contractor will assign a responsible person to record the grievances received at the construction site verbally or through grievance forms that will be placed in the containers. The responsible staff of Contractor will record all grievances that received at the construction site and convey to the sub-project GM officer for further action and resolution.

It is important to note that sub-project employees will retain their right to access the public GM for non-employment-related matters.

Complaints should be investigated as soon as possible to prioritize resolution. Regardless of the general response and resolution timeframes, some complaints may require immediate intervention, for example in cases involving workers' livelihoods.

The officer appointed by IZSU for the Workers' GM will receive suggestions and complaints with the Sample Grievance Form. Following, the actions taken and the solution provided regarding the reported grievance will be recorded together with the Grievance Closure Form. The Labour Management Plan prepared for the sub-project contains more detailed information on the Workers' GM and its appendices include Sample Grievance Form and Grievance Closure Form. Thus, all activities carried out under the GM will be recorded and care will be taken to establish a transparent relationship between the worker and the sub-project owner.

4. ESMP MATRIX: RISK AND IMPACTS, MITIGATION, MONITORING

3.3 RISK AND IMPACTS, MITIGATION

Table 4. ESMP Construction Phase Matrix Table of the Sub-project

Ref.	Impact Description	Sub-Project Phase	Sensitive Receptor(s)	Management/ Mitigation Measure	Responsibility for Implementation of Mitigation Measure	Relevant Management Plan or Procedure
1	**Labour and Working Conditions**					
1.1	Inadequate workers health and safety conditions	Construction	Workers at the Sub-Project Area	▪The Project implementation unit (PIU) to be formed by the IZSU and the contractor's project team will include staff(s) (at least one E&S expert and ''A'' Class OHS expert) who will take part in full-time and effectively control the implementation of the sub-project. Also, The IZSU will make sure that the measures provided below are taken by the contractor and enforce necessary actions/sanctions in case lack of these measures on site. In this regard, most common OHS risk areas and corresponding general mitigation measures throughout the life of the sub-project are provided in Appendix-D. ▪Including project engineers, management team and workers shall be informed about job descriptions, responsibilities, and risks according to be prepared ''Project OHS Management Plan''. The workers will be provided working conditions in accordance with the Labour Law OG dated 10.06.2003 and numbered 4857 and the LMP of TEFWER (such as wages, working hours, payment for overtime hours, period of rest, social security benefits). The workers will be provided with the necessary personal protective equipment and information on works and occupational safety through regular trainings. Before the construction works starts, a Construction Site Risk Assessment Plan shall be prepared for all works to be carried out and necessary measures shall be taken to avoid related risks. EPRPs shall be prepared for possible accidents and emergency situations (i.e., fires, earthquakes, floods, etc.) events and emergency teams shall be established and drills and training shall be carried out in line with the emergency scenarios. ▪OHS Management Plan will be prepared to outline all the actions and procedures for ensuring OHS for all workers by the contractor during the construction period and by the IZSU during the operation period.	▪IZSU ▪Contractor ▪Supervision Consultant	▪OHS Management Plan ▪Emergency Preparedness and Response Plans (EPRP)s ▪Construction Site OHS Risk Assessment Plan ▪Labour Management Plan (based on the TEFWER's Labour Management Procedures (LMP))

Ref.	Impact Description	Sub-Project Phase	Sensitive Receptor(s)	Management/ Mitigation Measure	Responsibility for Implementation of Mitigation Measure	Relevant Management Plan or Procedure
				▪To control the cases (fire, earthquake, etc.), which may occur during the construction activities under the sub-project, and which require urgent action, an EPRP and an OHS Management Plan will be prepared by the contractor and shared with all employees. The contractor will prepare a training program regarding the plans. ▪The IZSU will ensure a safe working environment for the workers and will require all employees and contractors to adhere to local and international health and safety legislation and guidelines. Workers will be provided with all necessary Personal Protective Equipment (PPE) (hard hats, safety harnesses, protective coveralls, glasses, gloves, armour-clad shoes, etc.). ▪Smoking areas will be allocated at the construction site. ▪Appropriate hand and face washing facilities will be provided for the employees, and shower facilities for dusty works. ▪Technical and OHS training, including the CoC indicating the possible risks regarding the work site and the work to be carried will be given to workers by the contractor with a training plan including toolbox talks. These will include regular training to workers on symptoms of any epidemics, how to be protected and what to do when symptoms appear. Training will also be given in risks that may arise due to changes in the workplace or job, change of work equipment, application of new technology. Information and training activities will be carried out not only for the employees, but also about the measures to be taken for public health and safety. ▪ All employees will receive written contracts with job description, wages, working hours, rights and duties, CoC etc. Workers will be required to comply with all national OHS regulations and necessary inspections will be made The contractor will prepare their site-specific Labour Management Plan based on the LMP of TEFWER prior to commencement of any civil works in the sub-project area. All activities will be implemented in line with both the Law on OHS OG dated 30.06.2012 and numbered 6331 and its relevant regulations, and the World Bank Group (WBG) EHS Guidelines. ▪The contractor will assign full-time personnel with relevant certification and experience in charge of OHS and she/he shall monitor the site implementations. ▪Emergency teams will be formed, and drills and training programs will be carried out in line with emergency scenarios. ▪Employees will have a good command of EPRP, and the grievance will be reported to the authorized teams and resolved, if they require urgent action. ▪Appropriate signposting of the sites will be provided and then workers will be informed of key rules and regulations to follow.		

Ref.	Impact Description	Sub-Project Phase	Sensitive Receptor(s)	Management/ Mitigation Measure	Responsibility for Implementation of Mitigation Measure	Relevant Management Plan or Procedure
				▪First aid kit will be kept available at the construction site, taking into account that first aid response may be required before the casualty is referred to the nearest healthcare provider. ▪An adequate number of first aiders will be provided according to national regulations.. ▪Both trainings, incidents (fatalities, lost time incidents, any significant events including spills, fire, outbreak of pandemic or communicable diseases, social unrest, etc.) and near misses will be recorded. ▪The IZSU will report details of any significant environmental or social incidents (e.g. fatalities, lost time incidents of more than 72 hours, environmental spills etc.) within 48 hours and submit an incident report, including Root Cause Analysis (RCA), precautions and compensation measures taken within 30 business days. ILBANK will forward the incident report to the WB immediately upon receipt from the IZSU. ▪The areas to be excavated will not be accessible except by authorized personnel. Loading and unloading activities will be carried out together with the persons who will supervise the personnel who will carry out the activity. ▪Unauthorized access to the construction site will be restricted. The construction areas will be surrounded, and necessary security measures will be taken, no one will be allowed to enter except for the staff. If a trench needed to be left open for night, the sufficient illumination of the area shall be ensured by the Contractor and necessary signs shall be placed, and the area shall be enclosed with physical barriers without any gaps between. ▪Installation of concrete moulds, concreting, installation of water tank etc. may require working at height, working in confined space etc. Therefore, workplace relevant procedures such as Confined Space Entry Procedure, Working at Height Procedure, etc. will be prepared in accordance with applicable national requirements and internationally accepted standards. ▪Adequate and appropriate training in confined space hazard control, atmospheric testing, use of required PPE as well as the serviceability and integrity of PPE shall be verified before workers are required to enter a permitting confined space. In addition, adequate and appropriate rescue and/or rescue plans and equipment shall be in place before the worker enters the confined space. In the event of an accident, coordination will be established with the emergency response teams to ensure that the most accurate first aid is given. The EPRP will be revised in accordance with the operation period and necessary training will be given to workplace physician approved employees can enter to confined space. A work permit system will be established and confined space areas will not be entered without fulfilling the flow of obtaining		

Ref.	Impact Description	Sub-Project Phase	Sensitive Receptor(s)	Management/ Mitigation Measure	Responsibility for Implementation of Mitigation Measure	Relevant Management Plan or Procedure
				permission. ▪Only physician approved employees can work at height holding the height work permit will work at height, and safeguarding measures (guardrails, fall arrest) will be in place. ▪The WBG General EHS Guidelines will apply. ▪All equipment used during the construction phase will be kept in good working condition. Equipment that meets international standards in terms of performance and safety will be used. ▪The contractor will assign an A Class full-time staff responsible for OHS with relevant certification and experience and monitor field practices. Jet grouting involves some risks and hazards that can compromise the safety of the workers and the public. To prevent or mitigate safety issues associated with jet grouting are high-pressure injection that can cause injuries or damage to equipment; electric shock from the power supply or lightning; fire or explosion from the grout or gas; and collapse or instability of the improved soil elements or adjacent structures, it is important to follow the relevant standards and national regulations, use PPE, conduct regular inspections and maintenance, and have EPRPs and relevant procedures.		
1.2	Inadequate workers health and safety conditions related to asbestos	Construction	Workers at the Sub-Project Area	▪At each workplace, an assessment will be carried out to identify any Asbestos Containing Materials (ACMs) that may be present. As a first attempt, during renewal of the pipelines, existing pipes of water supply network will be left under the ground in the existing location. If they need to be removed because of new pipe installation requirements, then removal process will be executed, and specific precautions will be determined in line with the Regulation on Health and Safety Measures in Working with Asbestos dated 25.01.2013 (OG No: 28,539). In this respect, the generic Asbestos Management Plan, which is largely compliant with the national legislation, is presented in Appendix-C. Hence, it is recommended that this plan for managing ACMs is developed by the Contractor prior to construction. ▪If ACMs are identified, the relevant authorities will be notified, and approval obtained before starting any work. The approval will specify the type of work that can be carried out and the requirements for safe removal and disposal. ▪During asbestos removal, measures will be taken to prevent the release of asbestos fibres into the air. This can include wetting down the materials with water to prevent dust, using negative air pressure systems, and using airtight containers to transport the waste. ▪Workers involved in asbestos removal will be provided with appropriate personal protective equipment, including respirators, gloves, and protective	▪IZSU ▪Contractor ▪Supervision Consultant	▪Asbestos Management Plan

Ref.	Impact Description	Sub-Project Phase	Sensitive Receptor(s)	Management/ Mitigation Measure	Responsibility for Implementation of Mitigation Measure	Relevant Management Plan or Procedure
				clothing. ▪Asbestos-containing waste will be disposed of at designated facilities that are authorized to handle hazardous waste. The waste will be securely packaged, labelled, and transported to the facility in accordance with the regulations. ▪The work area will be monitored for asbestos fibres during and after removal to ensure that the work is being carried out safely. Records of the work will be kept, including the type and quantity of ACMs removed, the methods used, and the disposal sites. ▪Provisions of the Regulation on the Regulation on Health and Safety Measures in Working with Asbestos shall be complied with within the scope of the sub-project. ▪During the demolition phase, under the supervision of the employer, asbestos removal workers, other workers in the workplace and employee representatives will be informed by the asbestos removal specialist. ▪Regarding the works including a risk of exposure to asbestos dust, a risk assessment will be made by considering the type and physical properties of asbestos and the degree of exposure of workers. ▪Necessary markings for asbestos will be posted at the work area and warning signs will be placed. ▪Places reserved for food will be chosen outside the places with a risk of contamination with asbestos dust.		
1.3	Inadequate workers health and safety conditions related to pandemic/epidemic/communicable disease	Construction	Workers at the Sub-Project Area	▪Guidance, directives and recommendations of Ministry of Health, Ministry of Family, Labour, and Social Services, World Health Organization (WHO) and the WB shall be followed, and all relevant necessary measures shall be taken, both for OHS of employees and for workplaces, in case of an outbreak of any other pandemic/communicable diseases including HIV/AIDS etc. ▪The contractor will ensure a safe working environment for the workers in line with international best practice and Turkish Legislation including the health and safety measures related to any communicable diseases provided by the Ministry of Health and Ministry of Family, Labour, and Social Services. ▪Before the construction works start, a Risk Assessment study will be implemented for all works to be carried out. EPRP will be prepared and put into practice. Both the Risk assessment and EPRP will take into consideration any communicable diseases' risks and other communicable disease risks, as relevant. ▪Sub-project and site-specific OHS Management Plan based on construction site OHS risk assessment and that will also cover measures to address any communicable diseases' risks, which will be in line with the WBG EHS	▪IZSU ▪Contractor ▪Supervision Consultant	▪OHS Management Plan ▪EPRPs ▪Construction Site OHS Risk Assessment Plan

Ref.	Impact Description	Sub-Project Phase	Sensitive Receptor(s)	Management/ Mitigation Measure	Responsibility for Implementation of Mitigation Measure	Relevant Management Plan or Procedure
				Guidelines (both general and sector specific) will be developed before the commencement of works and implemented on site. ▪OHS trainings and toolbox talks will be provided to the employees including the CoC indicating the possible risks regarding the work site and works to be carried out. These will include regular training to workers on symptoms of any communicable diseases, how to be protected and what to do when symptoms appear.		
1.4	Child labour, forced labour and unregistered employment contribution to economy	Construction	Local Parties, Workers, and Settlements within the AoI	▪Priority will be given to the local labour where possible and practical. ▪Efforts will be exercised to allocate employment opportunities to the local parties and the settlements within the AoI. ▪The work permits of the employees will be controlled within the scope of the sub-project, prohibiting child labour, forced labour, and child labour under the age of 18. ▪A Contractor's Labour Management Plan, based on the TEFWER LMP will be prepared by contractor prior to commencement of any civil works in the sub-project area. This plan will manage the contractor's work process and ensure that written contracts are issued to all workers. ▪Discrimination in the workplace will be eliminated. ▪Necessary measures will be taken by contractor to make sure that workers coming from outside the city will be given a training program on dialogue and communication with local communities, and that there are no social or cultural issues between host communities and external workers. It is the IZSU's responsibility to ensure that the contractor complies with the determined criteria.	▪IZSU ▪Contractor ▪Supervision Consultant	▪Labour Management Plan (based on the TEFWER's LMP) ▪SEP
1.5	Improper working conditions, Child labour forced labour and unregistered employment. (GBV/SEA/SH)	Construction	Workers at the Sub-Project Area	▪Workers will be provided access to the GM and will be informed about this Mechanism. ▪In the Worker GM, grievances will be submitted in Turkish through Turkish forms. In addition, translation support will be provided in case non-Turkish speaking Refugee/Migrant workers have grievances about the sub-project or its impacts. ▪Information on GBV/SEA/SH service providers should be shared during public consultations. The sub-project GM should be designed to receive GBV and SEA/SH grievances anonymously and ensure they are addressed in a confidential and sensitive manner. Relevant sub-project staff should be trained in order to refer GBV survivors to existing identified service providers and ensure that they are provided services promptly. The CoC for workers will include the prohibition of GBV and SEA/SH.	▪IZSU ▪Contractor ▪Supervision Consultant	▪Labour Management Plan (based on the TEFWER's ▪SEP

Ref.	Impact Description	Sub-Project Phase	Sensitive Receptor(s)	Management/ Mitigation Measure	Responsibility for Implementation of Mitigation Measure	Relevant Management Plan or Procedure
				▪All workers will be given training on avoidance of discrimination and CoC. The trainings given to the employees will be explanatory about the concepts of SEA/SH and GBV. At the same time, through the trainings, it will be ensured that workers learn the GM of the sub-project (explained in detail in the sub-project's SEP document) and the steps to be followed in exercising their legal rights. Access to the GM will be easy and effective. The GM officer designated for the sub-project will be announced to all employees during the trainings to be given before starting work. There will be brochures and posters containing the GM and the contact information of the authorized person in places such as the cafeteria, canteen and service areas used by the employees. ▪ Minimum legal labour standards will be met (child/forced labour, anti-discrimination, working hours, minimum wages) in accordance with International Labour Organization (ILO) regulations. ▪ Compliance with the Labour Management Procedures (LMP) of the sub-project and the contractor's Labour Management Plan, prepared by contractor, and which is subject to approval, will be ensured by the IZSU and Supervision Consultant. ▪Additionally, the Operation Policies of the World Bank and the national legislation will be adhered to in terms of working conditions. Workers will be provided hygienic and adequate facilities. ▪Workers will be allowed to have access to primary healthcare on site, enabling the provision of prescriptions. ▪Discrimination based on language, race, gender, political thought, philosophical belief, and religion will be avoided in business relations. ▪Workers will be issued a written contract stipulating working hours, wages, rights, and duties etc., and the CoC.		
2	Resource Efficiency and Pollution Prevention and Management					
2.1	Failure to set sustainable and resource efficiency goals[18]	Construction	Local Parties and Settlements within the AoI	▪Throughout the life of the sub-project, workers will be recruited from the region as much as possible. ▪Throughout the life of the sub-project, priority will be given to working with local suppliers and procuring services from the local employees in the service industry, as much as possible (fuel supply, vehicle maintenance/food, beverage, and spare parts supply, etc.). ▪Resource efficiency and management actions will be taken; use of renewable	▪IZSU ▪Contractor ▪Supervision Consultant	▪C-ESMP ▪ESMR

[18] As mentioned in the United Nations Development Cooperation Strategy Türkiye 2016-2020 Government of The Republic of Türkiye and The United Nations System in Türkiye, Sustainable, Inclusive Growth and Development Goals.

Ref.	Impact Description	Sub-Project Phase	Sensitive Receptor(s)	Management/ Mitigation Measure	Responsibility for Implementation of Mitigation Measure	Relevant Management Plan or Procedure
				energy and energy efficiency measures, reducing the carbon footprint, financing for green building, responsible supply chain management and green procurement.		
2.2	Air pollution from construction works (Dust emissions, Exhaust gases from equipment and vehicles)	Construction	Residents within AoI Vegetation Fauna species	▪Dust from outdoor sources will be minimized by employing control measures such as covering the piles and increasing the moisture content. ▪Dust suppression techniques such as the application of water or non-toxic chemicals will be used to minimize dust from vehicle movements. ▪Close or cover trucks for the transport of materials. Spraying water on the ground where dust is generated, disposing of excess material, and cleaning the location upon the finalization of works. Protective covers or curtains for zone where the largest amounts of dust are generated. ▪Truck loading and unloading operations will be carried out with due care, and materials will be prevented from scattering around. ▪Modern equipment and vehicles that can meet the applicable emission standards will be selected for construction works. ▪All vehicles will have exhaust emission permits, and all vehicles will be regularly maintained. ▪Exhaust systems and emission levels of machinery and vehicles will be checked by the contractor. ▪Sub-project GM will be implemented. ▪In case of any complaints, air quality measurement will be carried out at the nearest sensitive receptors by an accredited environmental laboratory, and the results will be recorded. ▪Speed limits will be set for construction equipment, and actions will be taken to ensure that such limits are complied with. ▪During transportation, excavated materials will be covered with nylon canvas or materials with grain size larger than 10 mm. ▪Any damage caused by inadequate dust suppression measures (i.e. pollution of the surrounding area, transport to a residential area by wind, dust deposits by the wind, etc.) will be compensated by the contractor. ▪Compliance with the air emission limit values stipulated in national legislation and WBG General EHS Guidelines will be ensured. ▪Restricting works during daytime (e.g. 7AM to 5 PM).	▪IZSU ▪Contractor ▪Supervision Consultant	▪Construction Site Traffic and Transport Management Plan ▪SEP
2.3	Noise from construction works (Increase in noise	Construction	Residents within AoI	▪Residents living near the sub-project area will be informed during the construction phase. ▪Construction works will be planned in consultation with local communities, and	▪IZSU ▪Contractor	▪Construction Site Traffic and Transport Management Plan

Ref.	Impact Description	Sub-Project Phase	Sensitive Receptor(s)	Management/ Mitigation Measure	Responsibility for Implementation of Mitigation Measure	Relevant Management Plan or Procedure
	and vibration levels)		Fauna species	operations with the highest noise generation potential will be scheduled during the time of the day that will cause minimum disturbance. ▪Noise control devices, such as temporary noise barriers and deflectors, will be used for operations causing impact as well as exhaust silencers for combustion engines. ▪Use of roads close to the settlements in transportation activities for the project will be avoided or minimized. ▪Equipment and vehicles used externally will be regularly maintained. ▪"Low noise" equipment will be used as much as possible during the construction phase. Where construction equipment is provided with impermeable acoustic covers or enclosures, covers will be kept closed while equipment is in operation. ▪When equipment is not working, they will be turned off or reduced to the minimum level. ▪Vibration levels will be monitored in case of complaints, and measures will be taken to reduce vibration if standards are exceeded. ▪Noise measurement will be carried out at the nearest noise sensitive receptors by an authorized environmental laboratory, in case of any complaints. ▪Compliance with the noise limit values stipulated in national legislation and WBG General EHS Guidelines will be ensured. ▪Restricting works during daytime (e.g. 7AM to 5 PM). Establish schedules and/or other forms of specific limitations for works.	▪Supervision Consultant	▪SEP
2.4	Waste management failure, pollution from hazardous waste	Construction	Residents within AoI Fauna and flora species Soil and water resources	▪All non-waste and excavated material generated in the course of construction has to be deposited in the landfill and in a manner that is not harmful to the environment. Stone, soil, and other materials that may be reused shall be utilized in the procedure of sub-project realization. Materials that cannot be used and hazardous waste should be removed in compliance with entity level regulations. ▪At each workplace, an assessment will be carried out to identify any Asbestos Containing Materials (ACMs) that may be present. As a first attempt, during renewal of the pipelines, existing pipes of water supply network will be left under the ground in the existing location. If they need to be removed because of new pipe installation requirements, then removal process will be executed, and specific precautions will be determined in line with the Regulation on Health and Safety Measures in Working with Asbestos dated 25.01.2013 (OG No: 28539). Besides, disposal of ACMs as a hazardous waste will be carried out in accordance with the Regulation on Waste Management dated 02.04.2015 (OG No: 29314). In this respect, the generic Asbestos Management Plan, which is	▪IZSU ▪Contractor ▪Supervision Consultant	▪Asbestos Management Plan ▪Waste Management Plan

Ref.	Impact Description	Sub-Project Phase	Sensitive Receptor(s)	Management/ Mitigation Measure	Responsibility for Implementation of Mitigation Measure	Relevant Management Plan or Procedure
				largely compliant with the national legislation, is presented in Appendix-C. Hence, it is recommended that this plan for managing ACMs is developed by the Contractor prior to construction. ▪If ACMs are identified, the relevant authorities will be notified, and approval obtained before starting any work. The approval will specify the type of work that can be carried out and the requirements for safe removal and disposal. ▪During asbestos removal, measures will be taken to prevent the release of asbestos fibres into the air. This can include wetting down the materials with water to prevent dust, using negative air pressure systems, and using airtight containers to transport the waste. ▪Workers involved in asbestos removal will be provided with appropriate personal protective equipment, including respirators, gloves, and protective clothing. ▪Asbestos-containing waste will be disposed of at designated facilities that are authorized to handle hazardous waste. The waste will be securely packaged, labelled, and transported to the facility in accordance with the regulations. ▪The work area will be monitored for asbestos fibres during and after removal to ensure that the work is being carried out safely. Records of the work will be kept, including the type and quantity of ACMs removed, the methods used, and the disposal sites.		
2.5	Waste management failure, pollution from domestic waste	Construction	Residents within AoI Fauna and flora species Soil and water resources	▪Any domestic waste generated will be sorted at source (plastic, glass, paper, etc.), and reusable waste will be recycled. ▪Unrecyclable waste will be collected in closed sanitary trash bins and will be disposed of by the solid waste collection system of Izmir/Konak/Karabağlar Municipalities.	▪IZSU ▪Contractor ▪Supervision Consultant	▪Waste Management Plan
2.6	Waste management failure, pollution from waste oils	Construction	Residents within AoI Fauna and flora species Soil and water resources	▪If different categories of oils are generated from the works at the construction site, these oils will be stored separately. ▪Containers where waste oils are stored will be kept closed and protected from rainwater. ▪Waste oils will only be transported by licensed transportation companies and will only be delivered to licensed recycling or disposal facilities.	▪IZSU ▪Contractor ▪Supervision Consultant	▪Waste Management Plan ▪Spill Response Plan
2.7	Waste management failure, pollution from waste batteries and	Construction	Residents within AoI Fauna and flora species	▪Waste batteries will be collected separately from other wastes, delivered to authorized organizations and recycled. ▪Waste batteries and accumulators will be delivered to waste battery and accumulator disposal facilities within the Municipal borders through authorized	▪IZSU ▪Contractor ▪Supervision Consultant	▪Waste Management Plan

Ref.	Impact Description	Sub-Project Phase	Sensitive Receptor(s)	Management/ Mitigation Measure	Responsibility for Implementation of Mitigation Measure	Relevant Management Plan or Procedure
	accumulators		Soil and water resources	transportation companies.		
2.8	Waste management failure, pollution from demolition waste, loss of topsoil	Construction	Residents within AoI Fauna and flora species Soil and water resources	▪Consideration will be given to recycling of excavation soil and construction wastes and especially to their reuse as infrastructure material. ▪For a robust recycling and disposal system, waste will be sorted at source. ▪Removal of the excavated material, which will not be used for backfilling, from the site will be performed at regular intervals without waiting. These materials will be transferred to permitted excavation waste storage area by licensed transportation companies.	▪IZSU ▪Contractor ▪Supervision Consultant	▪Waste Management Plan ▪Construction Site Traffic and Transport Management Plan
2.9	Wastes of construction works (Transportation management of waste (both hazardous and non-hazardous) to the appropriate landfills/disposal sites)	Construction	Residents within AoI Fauna and flora species Soil and water resources	▪Waste management plan will be prepared, and the employees will be trained on the plan. ▪During the construction period, any waste will be collected separately at source and stored in the temporary waste storage area. ▪All types of waste shall be transferred to a licensed disposal facility via licensed waste transportation companies following the relevant legislation. ▪Wastes generated should only be temporarily stored on site in the temporary storage area that is maintained/equipped with appropriate precautions according to the type of wastes, when needed, and wastes should be transported to licensed disposal facilities with licensed transport vehicles appropriate to the type of waste. Information related to the operations in this context should be recorded and records should be kept. ▪Impermeability will be provided on the floors of the temporary storage area and a suitable drainage system which is closed and does not reach surface water will be installed. Spill kits will be available at the temporary storage area and necessary precautions will be taken against possible fires such as provision of appropriate firefighting equipment. ▪Topsoil will be separated from general trash and organic, liquid, and chemical wastes on site, and stored in appropriate containers. ▪Construction waste will be regularly collected by licensed collectors at the permitted excavation waste storage site of the Municipality. ▪Waste disposal records will be kept regularly. To keep these records, a waste registry information form will be prepared, which will contain information on the waste code, amount, and transfer and disposal method as presented in the Annex 4 of the Regulation on Waste Management. ▪Where appropriate, waste can be reused or recycled. ▪Temporary storage of medical waste will be performed in accordance with Article 14 of the Regulation on Control of Medical Waste. In addition, medical	▪IZSU ▪Contractor ▪Supervision Consultant	▪Waste Management Plan ▪Construction Site Traffic and Transport Management Plan

Ref.	Impact Description	Sub-Project Phase	Sensitive Receptor(s)	Management/ Mitigation Measure	Responsibility for Implementation of Mitigation Measure	Relevant Management Plan or Procedure
				waste will be transported to processing facilities in accordance with Article 15 of the concerned regulation.		
2.10	Soil contamination from construction works (Spill outs of fuel, lubricant, antifreeze etc. may result in contamination)	Construction	Fauna and flora species Soil and water resources	▪Establish safe delivery/storage/handling procedures in accordance with Safety Data Sheets (SDSs). Immediately contain and clean-up any spilled material. ▪Provisions of the Regulation on the Control of Soil Pollution and Sites Contaminated by Point Sources shall be complied with within the scope of the sub-project. ▪Periodic examination of the condition of vehicles and other machinery and equipment used in the course of the performance of works. Compliant warehousing of fuel and lubricant, and in case of a spill out, isolation and cleaning of the location. ▪Wastes and wastewater to be generated during the construction phase of the sub-project will be stored and disposed of in a controlled manner in accordance with the relevant regulations and in line with the management practices described in this report. ▪Measures such as regular equipment maintenance, providing workers with appropriate training, and ensuring that all equipment and materials are properly stored and handled will be implemented. ▪A spill response plan will be developed before construction begins to ensure that a timely and effective response can be carried out in the event of a spill or accident. The plan should include procedures for containing and cleaning up spills, as well as identifying the responsible parties and the reporting requirements. Employees will be trained on the plan prior to the construction phase. ▪Removing contaminated soil, using bioremediation techniques to break down pollutants, and replacing affected soil with clean soil. ▪After a spill or accident, monitoring of the soil quality will be conducted to ensure that remediation efforts are effective. Additionally, all spills and accidents will be reported to the regulatory agencies.	▪IZSU ▪Contractor ▪Supervision Consultant	▪Spill Response Plan ▪Waste Management Plan
2.11	Topsoil loss, Deposit of excavated soil, erosion, landslides, or sedimentation may occur	Construction	Residents within AoI Fauna and flora species Soil and water resources	▪The provisions of the Regulation on the Control of Excavation Soil, Construction and Demolition Wastes shall be complied during the land preparation and construction phase of the sub-project.	▪IZSU ▪Contractor ▪Supervision Consultant	▪Waste Management Plan
2.12	Pollution from	Construction	Residents	▪Establish safe delivery/storage/handling procedures in accordance with SDSs.	▪IZSU	▪Spill Response Plan

Ref.	Impact Description	Sub-Project Phase	Sensitive Receptor(s)	Management/ Mitigation Measure	Responsibility for Implementation of Mitigation Measure	Relevant Management Plan or Procedure
	hazardous materials		within AoI Fauna and flora species Soil and water resources	Immediately contain and clean-up any spilled material. ▪If hazardous wastes are stored in the sub-project area, those wastes will be stored in containers that are strong, leak-proof, safe and in accordance with internationally recognized standards. The containers will bear "hazardous waste" label, with the amount, content, properties, storage conditions and storage date of the stored material indicated on the containers. ▪Containers containing hazardous materials will be placed in sealed vessels to prevent spills and leaks. ▪Hazardous wastes will be transported by licensed waste transportation companies and will be disposed of at licensed facilities. ▪Toxic paints, solvents or lead-based paints will not be used. ▪Hazardous waste management will be fulfilled in consultation with Izmir/Konak/Karabağlar Municipalities in accordance with the Regulation on Control of Hazardous Waste Control. ▪Hazardous chemicals and wastes likely to be generated at the construction site will be stored not to pose a threat to community health. ▪Construction activities may pose the potential for accidental release/leakages of petroleum-based products, such as lubricants, hydraulic fluids, or fuels during their storage, transfer, or use in equipment. All chemical storage containers, including diesel fuel, and hazardous liquid waste drums/containers will be placed in secondary containment so as to minimize the risk of soil, surface water and groundwater contamination during construction. ▪The disposal of hazardous chemicals and wastes that may be generated at the construction site will be carried out at licensed facilities under the supervision of authorized companies and experts.	▪Contractor ▪Supervision Consultant	▪C-ESMP ▪ESMR
2.13	Wastewater management failure, pollution from wastewater (Water Quality and Domestic wastewater generation)	Construction	Residents within AoI Fauna and flora species Soil and water resources	▪Discharge of wastewater, residues, or other waste into groundwater or into surface water will be avoided. ▪Wastewater generated during the construction works will be integrated into the existing sewerage system, and necessary agreements will be executed with the municipality so that the wastewater sewer system ending with Izmir Çiğli WWTP. ▪The water to be used for dust suppression will be followed in m^3. ▪Surface runoff due to dust suppression activities will be prevented.	▪IZSU ▪Contractor ▪Supervision Consultant	▪C-ESMP ▪ESMR
3	Community Health, Safety and Security					
3.1	Community health	Construction	Sub-Project's	▪Within the scope of the Regulation on Coordination Centres of Metropolitan	▪IZSU	▪Community Health and

Ref.	Impact Description	Sub-Project Phase	Sensitive Receptor(s)	Management/ Mitigation Measure	Responsibility for Implementation of Mitigation Measure	Relevant Management Plan or Procedure
	and safety risks		Stakeholders	Municipalities, Infrastructure Coordination Centre (AYKOME) and Transportation Coordination Centre (UKOME) will continue to use the Infrastructure Information System (AYBIS) to systematically carry out, monitor and control the documentation of all excavation permits (electricity, gas, telephone, etc.) in the sub-project area. Sub-project work areas will not be opened to the public until all checks have been coordinated, approved and completed by the concerned interested parties including especially electricity, gas distribution companies in the sub-project area. A Community Health and Safety Management Plan of the sub-project will be prepared, developed, and implemented to include this coordination. ▪The construction area should be fenced to prevent trespassing. Necessary signage and lighting equipment shall be established. Traffic safety shall be established through appropriate management measures. Community should be informed about transfer of large machinery and equipment. If necessary, emergency drills should be implemented with the participation of the emergency authorities in the area. ▪Design and the construction work of the sub-project should be in line with the WBG guidelines including the life and fire safety provisions. ▪Special crossings will be created by taking additional measures for the elderly, pregnant women, people with small children and the disabled. ▪The sub-project area will be fenced to avoid physical hazards to the communities associated with the sub-project and construction activities will be announced to the affected local people, businesses, and governmental bodies at least two (2) days in advance. ▪Contractors will take necessary health and safety measures, such as using appropriate warning signs and signboards, arranging time schedule of noisy works (mostly after 9:00 AM before 6 PM), making the regular maintenance of the machinery, replacement or repair of part which cause noise and performing watering in dry seasons, under the management of the IZSU during site preparation and construction activities so that the public is informed of the construction plan and locations in a timely manner and the construction sites are determined. ▪Care will be taken to ensure that warning signs are visible at night and in bad weather conditions. ▪According to relevant legislation, the adequate number of…appropriate firefighting equipment will be always kept available at construction sites. ▪An EPRP will be prepared and implemented in order to be able to take and manage measures to protect public health and safety. Sub-project employees, local people and response teams will be informed about this plan.	▪Contractor ▪Supervision Consultant	Safety Management Plan ▪Construction Site Traffic and Transport Management Plan ▪SEP ▪EPRP

Ref.	Impact Description	Sub-Project Phase	Sensitive Receptor(s)	Management/ Mitigation Measure	Responsibility for Implementation of Mitigation Measure	Relevant Management Plan or Procedure
				▪Jet grouting involves some risks and hazards that can compromise the safety of the workers and the public. To prevent or mitigate safety issues associated with jet grouting are high-pressure injection that can cause injuries or damage to equipment; electric shock from the power supply or lightning; fire or explosion from the grout or gas; and collapse or instability of the improved soil elements or adjacent structures, it is important to follow the relevant standards and national regulations, use PPE, conduct regular inspections and maintenance, and have EPRPs and relevant procedures. ▪Local people will be informed about possible dangers and precautions to be taken with brochures that will be placed on signs and notice boards to be hung in various areas in the neighbourhood. ▪During the construction period, warning signs and announcements placed for precautionary purposes for community health and safety risks will be translated into the desired language (mostly Arabic and English) in line with the Refugee / Immigrant stakeholders who do not speak Turkish. ▪Detailed information on the use of the GM and contact information on the GM officer will be made available to the public. (Via the project website, information brochures left at the Mukhtars offices, posters, and hand brochures in places such as schools, health centres, hospitals, mosques, which are the common areas used by the community intensively). ▪In the sub-project level of Grievance Mechanism as Public Grievance Mechanism, grievances will be submitted in Turkish through Turkish forms. In addition, translation support will be provided in case non-Turkish speaking Refugee/Migrant workers have grievances about the sub-project or its impacts. ▪Community Health and Safety Management Plan will be prepared by the contractor during the construction period and will be shared with the relevant audience.		
3.2	Interruptions in Transport and Transport Safety (Direct and indirect threats posed by construction activities against traffic and pedestrians)	Construction	Sub-Project's Stakeholders	▪Construction Site Traffic and Transport Management Plan to be prepared by the Contractor will be implemented and the workers will be trained about the Plan. ▪Actions will be taken to ensure that any vehicles operating during the construction period obey the set speed limit (30 km/hr). ▪Traffic and warning signs will be placed around and near the sub-project area. Positioning clear warning and information signs around the construction zone. Imposing time constraints (e.g. 7AM to 5PM) for works. Considering disabled, women, children and people with special needs while locating and marking alternative roads (roundabouts) ▪The sub-project area will be made visible.	▪IZSU ▪Contractor ▪Supervision Consultant	▪Construction Site Traffic and Transport Management Plan ▪Community Health and Safety Management Plan ▪EPRP ▪SEP

Ref.	Impact Description	Sub-Project Phase	Sensitive Receptor(s)	Management/ Mitigation Measure	Responsibility for Implementation of Mitigation Measure	Relevant Management Plan or Procedure
				▪Local people will be informed about potential hazards and risks through brochures and posters left in common areas frequently used by local people such as headman's offices, hospital, health centre, mosque, coffee house and marketplace. ▪The activities affecting the local traffic will be planned considering the rush hours of the traffic as much as possible. ▪All drivers involved in the sub-project will be informed about road safety, speed limits, and traffic rules to be followed during the construction sub-project, and requirements to be observed. ▪The weight of all vehicles will not exceed the legal limits according to Highway Traffic Regulation. ▪In case of hazardous chemical or waste storage on site, the transfer of these wastes will be performed out by licensed carriers not to pose a threat to community health. ▪The routes developed in agreement with the competent authorities will be used for special cargos. The designated routes will be programmed to prevent traffic congestion on the roads and will be published in advance to prevent possible disturbance. ▪The arrangements in traffic will be discussed with the Municipality and planned jointly. ▪To prevent unauthorized access to the construction site, the construction site will be surrounded by fence/curtain/protection tape, and uncontrolled entrances will be prevented.		
3.3	Damage to road cover	Construction	Sub-Project's Stakeholders	▪Damages that may occur on the road surfaces due to traffic caused by heavy construction machinery during construction works on existing roads will be repaired by the contractor. In case of any damage to infrastructure elements on private lands due to construction activities, mitigation measures will be taken by the contractor. ▪Public roads and streets will be backfilled and recovered.	▪IZSU ▪Contractor ▪Supervision Consultant	▪Community Health and Safety Management Plan ▪ Construction Site Traffic and Transport Management Plan ▪EPRP ▪SEP
3.4	Risks related security personnel	Construction	Sub-Project's Stakeholders	▪The Community Health and Safety Management Plan will identify risks to security personnel, will not jeopardize the safety of the community or IZSU's relationship with the community, and will be consistent with national requirements and international standards. ▪International best practices will be applied for the recruitment, training and	▪IZSU ▪Contractor ▪Supervision Consultant	▪Community Health and Safety Management Plan ▪ SEP

Ref.	Impact Description	Sub-Project Phase	Sensitive Receptor(s)	Management/ Mitigation Measure	Responsibility for Implementation of Mitigation Measure	Relevant Management Plan or Procedure
				mobilization of security personnel. ▪It will be ensured that security personnel have no history of misconduct and are adequately trained. The use of force will be sanctioned only in preventive or defensive situations, proportionate to the threat, and security will operate within the law. ▪A GM will allow communities and workers to raise concerns about security issues and the conduct of security personnel.		
5	Biodiversity Conservation and Sustainable Management of Living Natural Resources					
5.1	Biodiversity conservation	Construction	Fauna	▪Species encountered during the construction phase should not be killed or collected, and eggs and nests should not be deliberately damaged. Workers working in construction should be made aware.	▪IZSU ▪Contractor ▪Supervision Consultant	▪C-ESMP ▪ESMR
5.2	Damage to trees and vegetation may onset in the course of construction	Construction	Flora/ vegetation	▪Minimizing the areas requiring the removal of vegetation, and upon finalization of works, replace/restore removed vegetation. Special measures if needed to avoid damage to protected trees or species.	▪IZSU ▪Contractor ▪Supervision Consultant	▪C-ESMP ▪ESMR
6	Cultural Heritage					
6.1	Loss of cultural heritage	Construction	Artifacts	▪Any artifacts found during the construction works will be indicated and recorded as “chance finds”. A “Chance Find Procedure” has been prepared for the steps to be followed and will be implemented in case of the chance find (see Appendix-B). ▪Workers/employees will be trained in cultural heritage issues. ▪In case of a chance find, all activities will be stopped, the site will be secured, and the Cultural Assets Conservation Board or Museum Directorate will be informed about the chance finds and site will be secured by the Contractor. The approval of the relevant Conservation Board, who is responsible for the area where the construction site is located, will be required to continue any activity on site. No demolition/construction work will be carried out when awaiting the said approval. ▪Any correspondence on this subject will be updated in accordance with all decisions taken, and all documents will be submitted as annexed to ESMP.	▪IZSU ▪Contractor ▪Supervision Consultant	▪Chance Find Procedure
7	Stakeholder Engagement and Information Disclosure					

Ref.	Impact Description	Sub-Project Phase	Sensitive Receptor(s)	Management/ Mitigation Measure	Responsibility for Implementation of Mitigation Measure	Relevant Management Plan or Procedure
7.1	Potential community complaints	Construction	Sub-Project's Stakeholders	▪The Contractor will provide training to the site personnel on E&S issues. It is the IZSU's responsibility to ensure that the contractor complies with the determined criteria. ▪The operations to be carried out during construction works will be performed not to restrict / hinder the social and economic life of local people. ▪To avoid any impact on the safety and daily life of communities, safety and information signs will be placed on site before the work. ▪The public, and nearby institutions and organizations, and hospitals and schools will be informed at least two (2) days before starting repair / maintenance works that may cause disturbance temporarily. ▪The construction activities to be performed around or in front of hospitals and/or healthcare providers will be planned not to hinder the public access to these services and the opinions of the relevant stakeholders will be sought in order to determine the common working strategy in this regard. ▪The IZSU will ensure that contractors establish the CoC and will check that workers will be given training especially on communication with local people of foreign nationality public before starting work, so that local people of foreign nationality will not be adversely affected by external workers.	▪IZSU ▪Contractor ▪Supervision Consultant	▪SEP
7.2	Stakeholders' negative opinions about the sub-project due to insufficient information	Construction	Sub-Project's Stakeholders	▪Before the start of construction works, the local people and all relevant stakeholders will be informed of the works to be performed and the measures to be taken. ▪The information on the start and finish dates of construction and working periods and the permits obtained from the provincial/district municipality will be shown by the operations owner in a signboard that is easily visible to all personnel at the construction site.	▪IZSU ▪Contractor ▪Supervision Consultant	▪SEP ▪C-ESMP ▪ESMR
7.3	Access to common resources or services may be interrupted due to construction works	Construction	Sub-Project's Stakeholders	▪Time schedule for all construction works should be communicated with local communities prior to construction. Alternative and secure means to access resources and services should be introduced. ▪To minimize the impact of the traffic activities that are expected to intensify during the construction phase, the working hours will be adjusted according to the peak hours of transportation.	▪IZSU ▪Contractor ▪Supervision Consultant	▪Construction Site Traffic and Transport Management Plan
7.4	Damages to adjacent lands and structures	Construction	Sub-Project's Stakeholders	▪Any unintended damages caused to adjacent land and structures during construction will be compensated and repaired by the Contractor. ▪If grievances are received regarding unauthorized use of privately-owned lands, damage to neighbouring lands, etc. through the GM to be established, assessments / investigations will be performed on a case-by-case basis, and corrective actions will be planned and implemented, where necessary.	▪IZSU ▪Contractor ▪Supervision Consultant	▪SEP

Ref.	Impact Description	Sub-Project Phase	Sensitive Receptor(s)	Management/ Mitigation Measure	Responsibility for Implementation of Mitigation Measure	Relevant Management Plan or Procedure
				▪Materials will be stored in closed and protected areas. ▪If it is required to provide an additional space for closed and protected areas, the contractor will fulfil temporary rental formalities or obtain relevant permits.		
7.5	Communication problems as a result of lack of open communication with stakeholders	Construction	Sub-Project's Stakeholders	▪An adequate timing will be planned for interaction / communication with communities and for engagement. ▪Consultation on risks and adverse impacts of the sub-project and create opportunities to receive affected communities view on sub-project. ▪Establishment of GM to collect and provide timely resolution of affected communities concerns and grievances regarding of the sub-project's E&S performance. ▪Transparent public disclosure to inform each phase of the sub-project through website, notice boards, telecommunication tools and public meetings. ▪Establishing well designed and structured public questionnaire to receive feedback from affected communities. ▪Regular consultations will be carried out with the authorities and communities regarding the sub-project management. ▪Comprehensive information on the stakeholder engagement is provided in SEP of the sub-project and the SEP will be updated and implemented throughout the sub-project.	▪IZSU ▪Contractor ▪Supervision Consultant	▪SEP
7.6	Grievance issues	Construction	Sub-Project's Stakeholders	▪An efficient GM will be initiated to allow potentially affected individuals to voice their concerns on the sub-project. ▪In the sub-project level of GM as Public GM and Labor GM, grievances will be submitted in Turkish through Turkish forms. In addition, translation support will be provided in case non-Turkish speaking Refugees/Migrants have grievances about the sub-project or its impacts.	▪IZSU ▪Contractor ▪Supervision Consultant	▪SEP
7.7	Missing documentation	Construction	Sub-Project's Stakeholders	▪All activities, information meetings, opinions/suggestions, grievances, etc. provided during the construction period will be documented continuously. ▪The contractor will develop C-ESMP, prepare monthly and quarterly ESMRs and submit them to the IZSU through the Supervision Consultant. The Supervision Consultant will review the quarterly ESMRs and C-ESMP of the contractor/s and will include its own assessments and observations on Environmental, Social, Health and Safety (ESHS) aspects and prepare quarterly ESMRs and submit them to the IZSU. The IZSU's PIU will examine the monthly and quarterly ESMR of the contractor/s and the Supervision Consultants and will be responsible for the timely delivery of the Monthly (if requested by ILBANK) and Quarterly ESMRs to ILBANK. The ILBANK's PMU will review the monthly/quarterly reports delivered by the IZSU during the construction phase.	▪IZSU ▪Contractor ▪Supervision Consultant	▪C-ESMP ▪ESMR ▪SEP

Ref.	Impact Description	Sub-Project Phase	Sensitive Receptor(s)	Management/ Mitigation Measure	Responsibility for Implementation of Mitigation Measure	Relevant Management Plan or Procedure
				ILBANK will inform the WB by providing regular semi-annual monitoring reports on the ESHS performance of the sub-project. The WB will review regular semi-annual monitoring reports on the ESHS performance of the sub-project and instruct ILBANK if any non-conformity or non-compliance identified.		

Table 5. ESMP Operation Phase Matrix Table of the Sub-project

Ref.	Impact Description	Sub-Project Phase	Sensitive Receptor(s)	Management/ Mitigation Measure	Responsibility for Implementation of Mitigation Measure	Relevant Management Plan or Procedure
1	**Labour and Working Conditions**					
1.1	Inadequate workers health and safety conditions	Operation	Workers at the Sub-Project Area	▪The workers shall be informed about job descriptions, responsibilities, and risks about OHS. The workers will be provided working conditions in accordance with the Labour Law (such as wages, working hours, payment for overtime hours, period of rest, social security benefits). The workers will be provided with the necessary personal protective equipment and information on works and occupational safety through regular trainings. Before the operation, a Risk Assessment Report shall be prepared for all works to be carried out and necessary measures shall be taken to avoid related risks EPRPs shall be prepared for a possible accident and emergency, and emergency teams shall be established, and drills and training shall be carried out in line with the emergency scenarios. The workers shall be made aware of accessible GM. ▪Before starting work, employees will be knowledgeable about job descriptions, responsibilities, relationships with the local people, and risks that may threaten OHS. ▪Workers will be provided with appropriate induction, health and safety training and information. ▪All equipment used during the operation phase will be kept in good working condition. ▪EPRP will be prepared for a potential accident and emergency. Emergency teams will be formed, and drills and training programs will be carried out in line with emergency scenarios. ▪Employees will have a good command of EPRP, and the grievance will be reported to the authorized teams and resolved, if they require urgent action. ▪In case of any potential accident involving injury during the operation phase, the equipment for the first aid will be kept available at the rehabilitation centre, taking into account that first aid response may be required before the casualty is referred to the nearest healthcare provider. ▪The IZSU formally agrees that all work will be carried out in a safe and disciplined manner and is designed to minimize risks on neighbouring residents and environment. ▪All activities will be implemented in line with both the Law on OHS and its relevant regulations, and the WBG's EHS Guidelines. ▪The IZSU will ensure a safe working environment for the workers and supply appropriate personal protective equipment (PPE). ▪Guidance, directives, and recommendations of Ministry of Health, Ministry of	▪IZSU	▪OHS Management Plan ▪Emergency Preparedness and Response Plans (EPRP)s

Ref.	Impact Description	Sub-Project Phase	Sensitive Receptor(s)	Management/ Mitigation Measure	Responsibility for Implementation of Mitigation Measure	Relevant Management Plan or Procedure
				Labour and Social Services, World Health Organization (WHO) and the WB shall be followed, and all relevant necessary measures shall be taken, both for OHS of employees and for workplaces, in case of an outbreak of any other pandemic/communicable disease including HIV/AIDS etc. ▪All regulations regarding OHS will be effective for the personnel. ▪OHS trainings and toolbox talks will be provided to the employees including the CoC. These will include regular trainings to workers on symptoms of HIV/AIDS etc, how to be protected and what to do when symptoms appear. ▪Both trainings and incidents (fatalities, lost time incidents, near misses, outbreak of pandemic or communicable diseases, social unrest, etc.) will be recorded. ▪The IZSU will report details of any significant environmental or social incidents (e.g. fatalities, lost time incidents of more than 72 hours, environmental spills etc.) within 48 hours and submit an incident report, including RCA, precautions and compensation measures taken within 30 business days. ILBANK will forward the incident report to the WB immediately upon receipt from the IZSU. In addition, regular site tours will be conducted, safe situations and behaviours related to OHS will be observed and reported, unsafe behaviours and situations will be corrected by ensuring site discipline.		
1.2	Improper working conditions Child Labour, forced labour and unregistered employment	Operation	Workers at the Sub-Project Area	▪Workers will be familiar with the GM officer and will be enabled to have access to and be aware of the GM. ▪Minimum legal labour standards will be met (child/forced labour, anti-discrimination, working hours, minimum wages) as per ILO regulations. ▪At the same time, WB and the national legislation will be complied with in terms of the working conditions. ▪Workers will be issued a written contract stipulating working hours, wages, rights, and duties etc., and the CoC.	▪IZSU	▪Labour Management Plan (based on the TEFWER's ▪SEP
2	Resource Efficiency and Pollution Prevention and Management					
2.1	Waste and chemical risks	Operation	Residents within AoI Fauna and flora species Soil and water resources	▪Wastes generated should only be temporarily stored on site in the temporary storage area that is maintained/equipped with appropriate precautions according to the type of wastes, when needed, and wastes should be transported to licensed disposal facilities with licensed transport vehicles appropriate to the type of waste. Information related to the operations in this context should be recorded and records should be kept. ▪Waste will be characterized based on their composition, source, types, generation rates or local legal requirements in case of maintenance of the sub-project. ▪In addition to the adoption of waste prevention strategies, putting recycling plans	▪IZSU	▪Waste Management Plan ▪Spill Response Plan

Ref.	Impact Description	Sub-Project Phase	Sensitive Receptor(s)	Management/ Mitigation Measure	Responsibility for Implementation of Mitigation Measure	Relevant Management Plan or Procedure
				into practice will considerably reduce the total amount of waste. ▪If waste materials are still generated after appropriate waste prevention, reduction, reuse, and recycling measures are put into action, all necessary measures will be taken to avoid potential effects of waste material treatment and disposal on human health and the environment. ▪Establish safe delivery/storage/handling procedures in accordance with Safety Data Sheets (SDSs). Immediately contain and clean-up any spilled material.		
2.2	Wastewater management failure during the operation and maintenance	Operation	Residents within AoI Fauna and flora species Soil and water resources	▪For the solution of functional problems and structural problems encountered in sewerage systems where people can and cannot enter the system, jetting, crane lifting, trenching with buckets and similar methods, cleaning balls, remote controlled equipment, siphoning and manual cleaning can be applied. While cleaning, necessary precautions are taken by considering the effects of the process on the WWTP. ▪Wastes generated during maintenance works are disposed of without causing any additional pollution as determined by the relevant local legislation. ▪Cleaning operations in sewerage systems are carried out according to the Annex-3 of the Regulation on Wastewater Collection and Disposal Systems. ▪Manhole shafts and inspection rooms are provided for the operation and maintenance of sewage systems. ▪Inspection and maintenance activities are carried out regularly for continuous and efficient operation of reverse siphons. ▪Faecal sediments, insects, mice and mosquitoes can breed in poorly ventilated areas. Necessary measures are taken to minimize their health effects and to prevent structural problems in the ducts. Connections other than chimneys and inspection rooms are provided with cast structures. New connections are avoided to the ducts. When necessary, the channel is thoroughly inspected before connection. After the sewerage system is commissioned, the requirements for each component in the system and the importance of the components are taken into account when determining the frequency of inspection and its points. In this context, inspections will be carried out as specified in the Annex-3 of the Regulation on Wastewater Collection and Disposal Systems. ▪The operating procedures prepared for the components of the system are applied as specified in the Annex-3 of the Regulation on Wastewater Collection and Disposal Systems. ▪Emergency plans specified in the Annex-3 of the Regulation on Wastewater Collection and Disposal Systems are prepared for emergency situations that may occur in any part of the system.	▪IZSU	▪ESMR ▪Waste Management Plan ▪SEP ▪EPRP
2.3	Stormwater	Operation	Residents	▪After the stormwater system is put into operation, stormwater inlet structures,	▪IZSU	▪ESMR

Ref.	Impact Description	Sub-Project Phase	Sensitive Receptor(s)	Management/ Mitigation Measure	Responsibility for Implementation of Mitigation Measure	Relevant Management Plan or Procedure
	management failure during the operation and maintenance		within AoI Fauna and flora species Soil and water resources	pipelines, manholes, discharge points will be cleaned and maintained periodically, taking into account the risk of clogging and possible clogging consequences. Cleaning will be also carried out after heavy downpours. ▪Emergency plans are prepared for emergency situations that may occur in any part of the system. These plans cover all emergencies, including flood situations. Emergency plans include following information: - Emergency service numbers and details, - Estimated access times, - Lists of accessible resources (personnel, tools, equipment and materials) ▪In order to solve functional problems such as clogging, sedimentation, solidification and structural problems such as cracking of the channel, soil erosion on the outer walls of the channel, defective connections, pipe deformation, pressurized water, channel opening equipment, cleaning balls, siphoning or manual cleaning are applied and these cleaning operations are carried out according to the principles given in the Annex-3 of the Regulation on Stormwater Collection, Storage and Discharge Systems. ▪Wastes generated during maintenance works will be disposed of without causing additional pollution as determined by the relevant institutions and legislation. ▪Insects, rats and mosquitoes may breed in the canals. Necessary measures will be taken to minimize their health effects and to prevent structural problems in the ducts. ▪Connections, except for manholes and inspection chambers, will be made by cast structures, new connections to constructed channels will be avoided, and if necessary, the channel will be thoroughly inspected prior to connection. ▪Unused stormwater drains will be removed to prevent structural deterioration, unauthorized use, groundwater contamination and pest infestation; where this is not possible, they will be filled with a suitable material. ▪No wastewater connection will be made to stormwater drains for any reason whatsoever.		▪Waste Management Plan ▪SEP ▪EPRP
3	Community Health and Safety					
3.1	Community health and safety risks	Operation	Sub-Project's Stakeholders	Within the scope of the Regulation on Coordination Centres of Metropolitan Municipalities, Infrastructure Coordination Centre (AYKOME) and Transportation Coordination Centre (UKOME) will continue to use the Infrastructure Information System (AYBIS) to systematically carry out, monitor and control the documentation of all excavation permits (electricity, gas, telephone, etc.) in the sub-project area during the maintenance and repair works. Sub-project work areas will not be opened to the public until all checks have been coordinated, approved and	▪IZSU	▪Community Health and Safety Management Plan ▪Traffic and Transport Management Plan

Ref.	Impact Description	Sub-Project Phase	Sensitive Receptor(s)	Management/ Mitigation Measure	Responsibility for Implementation of Mitigation Measure	Relevant Management Plan or Procedure
				completed by the concerned interested parties including especially electricity, gas distribution companies in the sub-project area. The existing Community Health and Safety Management Plan of the sub-project will be adapted for the operational phase to include this coordination. ▪The operations should be engaged without posing risk to the community safety. The facility should be fenced to prevent trespassing. If necessary, emergency drills should be implemented with the participation of the emergency authorities in the area. ▪The public, and nearby institutions and organizations, and hospitals and schools will be informed at least two (2) days before starting repair / maintenance works that may cause disturbance temporarily. ▪The GM officer will be introduced to the local people and updated information about the GM will continue to be provided. In case of an update in the documents, the updated information will be announced to the local people through the relevant headman's office.		▪SEP ▪EPRP
4	Biodiversity Conservation and Sustainable Management of Living Natural Resources					
4.1	Biodiversity conservation	Operation	Sub-Project's AoI	▪No impact expected for the operation phase	-	-
5	Stakeholder Engagement and Information Disclosure					
5.1	Stakeholders' negative opinions about the sub-project due to insufficient information	Operation	Sub-Project's Stakeholders	▪Before the start of maintenance works, the local people and all relevant stakeholders will be informed of the works to be performed and the measures to be taken. ▪The information on the start and finish dates of maintenance works periods and the permits obtained from the provincial/district municipality will be shown by the operations owner in a signboard that is easily visible to all employees at the site.	▪IZSU	▪SEP
5.2	Grievance issues	Operation	Sub-Project's Stakeholders	▪An efficient GM will be initiated to allow potentially affected community members and the employees to voice their concerns on the sub-project and have their grievances adequately addressed in a timely manner. ▪In the sub-project level of GM as Public GM and Labor GM, grievances will be submitted in Turkish through Turkish forms. In addition, translation support will be provided in case non-Turkish speaking Refugees/Migrants have grievances about the sub-project or its impacts.	▪IZSU	▪SEP
5.3	Community complaints	Operation	Sub-Project's Stakeholders	▪Interaction / communication will be established with communities, and adequate timing will be planned for engagement activities. Additionally, regular consultations will be carried out with the authorities and communities regarding the project	▪IZSU	▪SEP

Ref.	Impact Description	Sub-Project Phase	Sensitive Receptor(s)	Management/ Mitigation Measure	Responsibility for Implementation of Mitigation Measure	Relevant Management Plan or Procedure
				management. ▪Consultation on risks and adverse impacts of the sub-project and create opportunities to receive affected communities view on sub-project. ▪Establishment of GM to collect and provide timely resolution of affected communities concerns and grievances regarding of the sub-project's E&S performance. ▪Transparent public disclosure to inform each phase of the sub-project through website, notice boards, telecommunication tools and public meetings. ▪Establishing well designed and structured public questionnaire to receive feedback from affected communities.		

3.4 MONITORING

Key Performance Indicators (KPIs) of this procedure will be monitored, verified, and evaluated within the scope of the sub-project monitoring stage. The KPIs for both construction and operation phases of the sub-project are presented in Table 6.

The monitoring, review and audit program detailed in Table 7 will be implemented during construction and operation to monitor the implementation of the E&S commitments of the sub-project's ESMP requirements. The IZSU will be responsible for ensuring that the contractor comply with applicable national/international regulations and WB's requirements during the construction phase of the sub-project. Key performance indicators (KPIs) of this procedure will be monitored, verified, and evaluated within the scope of the sub-project monitoring phase.

Table 6. Key Performance Indicators for Both Construction and Operation Phases of the Sub-project

Monitoring Focus	KPI
Documentation	
Following ESMP Project specific plans will be developed and be in place.	Full compliance with Sub-project's ESMP
Air Quality	
Air Quality incidents	Minimization and continued improvement in the number of the reported air quality related incidents.
Non-Compliance with air quality standards	Zero grievances per year
Community grievances	Minimization and continued improvement in the number of air quality related community grievances
Violation on speed limit	Minimization and continued improvement in the number of reported violations on speed limit
Noise	
Noise and Vibration incidents	Minimize and continued improvement in number of reported noise and vibration related incidents
Non-Compliance with Project standards	Zero Non-Compliance Reports (NCRs) per year
Number of noise-related community grievances	Zero grievances per year
Community grievances	Minimization and continued improvement in the number of noise related community grievances
Water / Wastewater	
Spill incident	Minimization and continued improvement in the number of the reported water quality related incidents.
Non-Compliance with Sub-project standards	Zero NCRs per year
Wastewater collection system	Zero grievances per year
Groundwater levels of the wells	No significant adverse impact
Water quality analyses	Meeting set national and international water quality standards for surface and groundwater impacted and/or near the sub-project
Flood incidents	No infrastructure damage and damage to loads/humans
Wastewater and Water loss records in network	Sustainable/low wastewater and water loss records
Waste	
Waste Generation	Minimization of total waste generated Decrease in the ratio of hazardous waste generated to total waste (by contamination + by generation)
Waste Disposal	Increase in the ratio of recovered/reused/recycled waste to total waste generated
Soil Quality	
Spill incident	Minimization and continued improvement in the number of the reported soil quality related incidents

Monitoring Focus	KPI
Non-Compliance with Sub-project standards	Zero NCRs per year
Soil quality accidents	Zero accident per year
Number of soil-related community grievances	Zero grievances per year
Traffic	
Number of non-compliances against the mitigation controls identified in Traffic and Transport Management Plan	Decreasing number/ continuous improvement in number of reported non-compliances
Number of drivers found to be exceeding speed limits or driving unsafely	Zero exceedance per year
Number of road traffic accidents involving: Accidental injuries and deaths, Spillages (such as cargo or fuel), Wildlife-vehicle collisions.	Zero accidents per year
Number of traffic-related grievances	Zero grievances per year
Health, Safety and Environment	
% of scheduled Health, Safety, and Environment (HSE) Inspection	>90
% of attendance at HSE meetings	>90
% of closing of NCRs	100
Reporting safe observations	100%
Reporting unsafe observations	100%
Reporting near misses	100%
Reporting number of incidents	100%
Reporting number of accidents	100%
Reporting day-loss	100%
% of Toolbox attending	>90
% of Risk Assessment compliance	>90
% of Legal Requirements compliance	100%
Results of scheduled audits	>85
HSE training carried out to training matrix > 90% of all training to matrix	>90
% of attendance at scheduled trainings	>90
Engagement in HSE program by individual managers and supervisors	>90
Engagement in HSE program by contractor's	>90
Number of Emergency drills/year	>1
Labour and Working Conditions	
Number of worker grievances closed out within the target timeframe	100% compliance with labour laws and regulations Zero unresolved health and safety incidents within the target timeframe 100% availability of required PPE 90% or higher worker satisfaction rate
Community Health and Safety	
Number of communicable and non-communicable diseases and injuries.	Negative Trend/No significant increase in communicable and non-communicable disease and injury rates per 1,000 residents per annum
Number of community health safety & security grievances from local communities as recorded in the grievance management system.	Decreasing number/ continuous improvement in number of grievances
Number of reported community health & safety incidents	Zero incidents per year
Number of reported air quality or noise incidents	Zero incidents per year
Direct and indirect threats posed by construction activities against traffic and pedestrians	Zero number of drivers found to be exceeding speed limits or driving unsafely, Zero accidental injuries and deaths, Zero traffic-related grievances.
Access to the Construction Site - Security Fence/ Protection Tape	Zero Number of unauthorized accesses to the sub-project area
Trainings	
Training records	Trainings on ESMP and SEP documents. Providing all trainings (including GM, GBV, SEA/SH) to all employees. 100% of scheduled training sessions conducted 80% or higher participant satisfaction rate Zero participants without completion certificates if applicable
Disclosure	
Grievance Records, Disclosure meeting participant records,	All grievances closed-out within the target timeframe ESMP, Project specific SEP and GM will be prepared and

Monitoring Focus	KPI
ESMP, SEP, and GM will be disclosed at Project web site in two languages (English and Turkish).	disclosed at the IZSU's web site
Vulnerable Groups	
Incidents, Grievances, Toolbox talks and trainings, Information/ disclosure	All grievances closed-out within the target timeframe Sufficient information provided to the VGs.
Grievance Mechanism	
Grievance Records, GM disclosure	All grievances closed-out within the target timeframe GM disclosure to the PAPs, stakeholders GM disclosure at Sub-project web site
Cultural Heritage	
Existence of a Chance Find	Zero Grievance Records

Table 7. Environmental and Social Monitoring Table of the Sub-project

Ref.	Sub-Project Phase	Subject	Parameter to be Monitored	Monitoring Location	Monitoring Method	Monitoring Frequency	Reference	KPI	Responsibility for Monitoring	Cost (If not included in the Sub-Project Budget)
1.1	Construction	Grievance Mechanism (GM)	▪ Grievance records ▪ Number/ Percentage of closed grievances within the target timeframe	▪ AoI	▪ On-site inspections ▪ Minutes of meetings ▪ GM records	Monthly	▪ Relevant national legislation ▪ WBG General EHS Guidelines ▪ Sub-project's E&S instruments	▪ Number of grievances ▪ Number/Percentage of closed grievances within the targeted timeframe	▪ IZSU ▪ Contractor ▪ Supervision Consultant	▪ Included in Sub-project Budget
1.2	Construction	Labour Conditions	▪ Grievance records ▪ Percentage of closed grievances within the target timeframe ▪ Site Conditions	▪ Sub-project area	▪ Internal and external audits ▪ Grievance records ▪ Accident records ▪ Training records ▪ Sample contracts ▪ Human Resource Policy ▪ Number of the local employees ▪ Legal work permit	Monthly	▪ Labour Law (No. 4857 Date: 10.06.2003) ▪ Law on Trade Unions and Collective Bargaining Agreements ▪ ILO International Regulations	▪ 100% compliance with labour laws and regulations ▪ Zero unresolved health and safety incidents within the target timeframe ▪ 100% availability of required PPE ▪ 90% or higher worker satisfaction rate	▪ IZSU ▪ Contractor ▪ Supervision Consultant	▪ Included in Sub-project Budget
1.3	Construction	Occupational Health and Safety	▪ Safe conditions on the construction site ▪ Risk analysis and procedures ▪ Disease	▪ Sub-project area ▪ Settlements near the sub-project area	▪ On-site inspections ▪ Interviews with employees ▪ Complaint records ▪ Training and toolbox records ▪ Contract examples	Monthly	▪ Occupational Health and Safety Law ▪ Regulation on Health and Safety Measures in Working with Asbestos	▪ Health and Safety KPIs detailed in Table 6.	▪ IZSU ▪ Contractor ▪ Supervision Consultant	▪ Included in Sub-project Budget

Ref.	Sub-Project Phase	Subject	Parameter to be Monitored	Monitoring Location	Monitoring Method	Monitoring Frequency	Reference	KPI	Responsibility for Monitoring	Cost (If not included in the Sub-Project Budget)
			▪ Incident and accident reports ▪ Grievance records ▪ Percentage of closed grievances within the target timeframe ▪ Toolbox talks and trainings ▪ HSE Inspection ▪ Legal Requirements ▪ EPRP ▪ Emergency drill reports (Number of drills per year) ▪ OHS practices in the field (Use of PPE, daily site OHS reports etc.)		▪ Internal and external audits ▪ Incident/Accident and near miss records ▪ Emergency drill records ▪ Availability of an adequate OHS organizational structure ▪ Availability of work permits (Working at height, hot works, confined space entries)		▪ Regulation on Health and Safety Requirements for the Use of Work Equipment			
1.4	Construction	Community Health & Safety	▪ Safety conditions at the site ▪ Fencing of construction site ▪ Warning signs and flashlights ▪ Grievance records ▪ Percentage of closed	▪ Sub-project area ▪ Residential areas around sub-project area	▪ Records of comments/ suggestions/ grievances ▪ Site Audits ▪ Training records ▪ Review of Construction Site Traffic and Transport management plan	Monthly	▪ Public Health Law ▪ Regulation on Health and Safety Signs	▪ Negative Trend/No significant increase in communicable and non-communicable disease and injury rates per 1,000 residents per annum ▪ Decreasing number/ continuous improvement in number of grievances ▪ Zero incidents per year ▪ Zero number of drivers	▪ IZSU ▪ Contractor ▪ Supervision Consultant	▪ Included in Sub-project Budget

Ref.	Sub-Project Phase	Subject	Parameter to be Monitored	Monitoring Location	Monitoring Method	Monitoring Frequency	Reference	KPI	Responsibility for Monitoring	Cost (If not included in the Sub-Project Budget)
			grievances within the target timeframe ▪ Incident and accident reports ▪ Construction Site Traffic and Transport Management Plan					found to be exceeding speed limits or driving unsafely ▪ Zero accidental injuries and deaths ▪ Zero traffic-related grievances ▪ Zero Number of unauthorized accesses to the sub-project area		
1.5	Construction	Documentation	▪ Availability of ESMP Project specific plans and reports	▪ Sub-project area	▪ On-site inspection ▪ Record control	During the construction period, the contractor will develop C-ESMP (based on this ESMP), monthly and quarterly report the ESMRs to the IZSU, the IZSU to ILBANK quarterly together with the Grievance Register. Moreover, ILBANK, will compile these ESMRs and report them to WB biannually together with the sub-project Progress Report.	▪ WB ESS1	▪ Full compliance with Sub-project's ESMP	▪ IZSU ▪ Contractor ▪ Supervision Consultant	▪ Included in Sub-project Budget
1.6	Construction	GM	▪ Grievance	▪ Sub-project	▪ View/suggestion/	Monthly	▪ ILBANK	▪ All grievances closed-	▪ IZSU	▪ Included in Sub-

Ref.	Sub-Project Phase	Subject	Parameter to be Monitored	Monitoring Location	Monitoring Method	Monitoring Frequency	Reference	KPI	Responsibility for Monitoring	Cost (If not included in the Sub-Project Budget)
			Records ▪Percentage of closed grievances within the target timeframe	area ▪Settlements near the sub-project area	grievance records ▪Grievance database ▪On-site inspection ▪Existence / accessibility of grievance boxes		TEFWER ESMF	out within the targeted timeframe ▪GM disclosure to the PAPs, stakeholders ▪GM disclosure at Sub-project web site	▪Contractor ▪Supervision Consultant	project Budget
1.7	Construction	Sustainable Development and Resource Efficiency	▪Wastewater and Water loss records in network	▪Settlements near the sub-project area	▪View/suggestion/ grievance records ▪Wastewater and Water loss records ▪List of employees ▪On-site inspection	Monthly	▪Regulation on Control of Water Pollution ▪WB ESS3	▪Sustainable/minimum water and wastewater loss records	▪IZSU ▪Contractor ▪Supervision Consultant	▪Included in Sub-project Budget
1.8	Construction	Air Quality	▪Number of air quality-related grievance records ▪Percentage of closed grievances within the target timeframe ▪Air Quality incidents ▪Records of non-compliance with air quality standards ▪Visually, on the basis of irritation of the respiratory system	▪Sub-project area ▪Settlements, schools, hospitals, and place of worship near the sub-project area	▪On-site inspections ▪$PM_{2.5}$ and PM_{10} Measurements to be performed by an accredited environmental laboratory in case of grievance	In case of grievance Monthly	▪Regulation on Air Quality Assessment and Management ▪ WB ESS3	▪Minimization and continued improvement in the number of the reported air quality related incidents. ▪Zero NCRs per year ▪Zero complaints per year ▪Minimization and continued improvement in the number of air quality related community grievances.	▪IZSU ▪Contractor ▪Supervision Consultant	▪Included in Sub-project Budget
1.9	Construction	Noise	▪Number of noise-related grievance	▪Sub-project area ▪Settlements,	▪Monitoring conducted at the nearest sensitive	In case of grievance Monthly	▪Regulation on Control of Ambient Noise	▪Minimize and continued improvement in number of reported	▪IZSU ▪Contractor	▪Included in Sub-project Budget

Ref.	Sub-Project Phase	Subject	Parameter to be Monitored	Monitoring Location	Monitoring Method	Monitoring Frequency	Reference	KPI	Responsibility for Monitoring	Cost (If not included in the Sub-Project Budget)
			records ▪Percentage of closed grievances within the target timeframe ▪Noise and vibration incidents ▪Records of non-compliance with noise standards	schools, hospitals, and place of worship near the sub-project area	receptors using noise measuring devices ▪On-site inspections ▪Measurements to be performed by an accredited laboratory in case of grievance		▪ ▪ ▪	noise and vibration related incidents. ▪Zero NCRs per year ▪Zero grievances per year ▪Minimization and continued improvement in the number of noise related community grievances	▪Supervision Consultant	
1.10	Construction	Soil Quality	▪Soil quality incidents ▪Records of non-compliance with soil quality standards ▪Incident and accident Reports	▪Sub-project area	▪On-site inspection	Daily	▪Regulation on Control of Soil Pollution and Point Source Contaminated Lands ▪Regulation on Waste Management	▪Minimization and continued improvement in the number of the reported soil quality related incidents ▪Zero NCRs per year ▪Zero accident per year ▪Zero grievances per year	▪IZSU ▪Contractor ▪Supervision Consultant	▪Included in Sub-project Budget
1.11	Construction	Waste Management	▪Temporary waste storage area conditions ▪Total amount of waste generated ▪Recovery / reuse / recycle ratio	▪Sub-project area	▪Waste records ▪On-site inspection regarding proper collection and temporary storage of wastes	Daily	▪Regulation on Waste Management ▪Regulation on Health and Safety Measures in Working with Asbestos	▪Minimization of total waste generated	▪IZSU ▪Contractor ▪Supervision Consultant	▪Included in Sub-project Budget
1.12	Construction	Domestic Waste	▪Total amount of domestic waste generated ▪Ratio of recovered/reus	▪Sub-project area	▪Waste records ▪On-site inspection	Daily	▪Regulation on Control of Packaging Waste ▪Regulation on Waste	▪Minimization of total waste generated ▪Increase in the ratio of recovered/ reused/ recycled to landfilled	▪IZSU ▪Contractor ▪Supervision Consultant	▪Included in Sub-project Budget

Ref.	Sub-Project Phase	Subject	Parameter to be Monitored	Monitoring Location	Monitoring Method	Monitoring Frequency	Reference	KPI	Responsibility for Monitoring	Cost (If not included in the Sub-Project Budget)
			ed/ recycled domestic waste to total waste generated ▪ Domestic waste storage conditions ▪ On-site inspection				Management ▪ ▪			
1.13	Construction	Waste Oils	▪ Total amount of waste oil generated ▪ Ratio of recovered/reused/ recycled waste oil to total waste generated ▪ Waste oil storage conditions ▪ On-site inspection	▪ Sub-project area	▪ Visual observations ▪ Waste records	Weekly	▪ Regulation on the Management of Waste Oils ▪ ▪	▪ Minimization of total waste generated ▪ Increase in the ratio of recovered/ reused/ recycled waste to total waste generated	▪ IZSU ▪ Contractor ▪ Supervision Consultant	▪ Included in Sub-project Budget
1.14	Construction	Waste Batteries and Accumulators	▪ Total amount of waste batteries/accumulators generated ▪ Recovery /reuse/ recycle ratio	▪ Sub-project area	▪ Waste records	Monthly	▪ Regulation on the Control of Waste Batteries and Accumulators ▪	▪ Minimization of total waste generated ▪ Increase in the ratio of recovered/ reused/ recycled waste to total waste generated	▪ IZSU ▪ Contractor ▪ Supervision Consultant	▪ Included in Sub-project Budget
1.15	Construction	Excavation Soil, Construction and Debris/ Demolition Wastes	▪ Total amount of excavation and demolition waste generated ▪ Excavation	▪ Sub-project area	▪ On-site inspection	Daily	▪ Regulation on the Control of Excavation Soil, Construction and Demolition Wastes	▪ Minimization of total waste generated ▪ Increase in the ratio of recovered/ reused/ recycled waste to total waste generated	▪ IZSU ▪ Contractor ▪ Supervision Consultant	▪ Included in Sub-project Budget

Ref.	Sub-Project Phase	Subject	Parameter to be Monitored	Monitoring Location	Monitoring Method	Monitoring Frequency	Reference	KPI	Responsibility for Monitoring	Cost (If not included in the Sub-Project Budget)
			and demolition waste transfer records ▪Soil stripping, excavation, and backfilling activities ▪Waste storage conditions ▪Transfer records ▪Soil stripping, excavation and backfilling activities				▪			
1.16	Construction	Hazardous Waste Management	▪Total amount of hazardous waste generated ▪Total amount of asbestos waste generated ▪Hazardous waste storage conditions ▪On-site inspection	▪Sub-project area	▪Waste records ▪On-site inspection ▪ Qualification certificates of personnel working with asbestos	Daily	▪Regulation on Waste Management ▪Regulation on Health and Safety Precautions in Working with Asbestos	▪Increase in the ratio of hazardous waste generated to total hazardous waste (by contamination + by generation)	▪IZSU ▪Contractor ▪Supervision Consultant	▪Included in Sub-project Budget
1.17	Construction	Cultural Heritage	▪Existence of a Chance Find	▪Sub-project area ▪Settlements near the sub-project area	▪On-site inspection ▪Existence of a Chance Find Procedure	Monthly	▪Law on the Conservation of Cultural and Natural Properties ▪ WB ESS8 ▪	▪Zero Grievance Records	▪IZSU ▪Contractor ▪Supervision Consultant	▪Included in Sub-project Budget
1.18	Construction	Vulnerable	▪Access to essential	▪Sub-project area	▪Surveys and interviews with	Monthly	▪ILBANK	▪All grievances closed-out within the target	▪IZSU	▪Included in Sub-project Budget

Ref.	Sub-Project Phase	Subject	Parameter to be Monitored	Monitoring Location	Monitoring Method	Monitoring Frequency	Reference	KPI	Responsibility for Monitoring	Cost (If not included in the Sub-Project Budget)
		Groups	services (healthcare, education, social services) ▪ Safety and security conditions ▪ Communication and information dissemination	▪ Settlements near the sub-project area ▪ Designated temporary healthcare facilities	affected populations ▪ Review of healthcare and social service access records ▪ On-site inspections ▪ Coordination with local service providers ▪ Tracking of communication efforts and outreach effectiveness		▪ TEFWER ESMF	timeframe ▪ Sufficient information provided to the VGs	▪ Contractor ▪ Supervision Consultant ▪ Local Health and Social Services Departments	
1.19	Construction	Trainings	▪ Training Records ▪ Number of participants attending the training sessions ▪ Percentage of participants successfully completing the training ▪ Feedback from participants	▪ Sub-project area ▪ Training venues ▪ Settlements near the sub-project area	▪ Review of training attendance sheets ▪ Evaluation forms completed by participants ▪ On-site observation of training sessions ▪ Interviews with trainers and participants	Monthly	▪ ILBANK ▪ TEFWER ESMF	▪ Trainings on ESMP and SEP documents. ▪ Providing all trainings (including GM, GBV, SEA/SH) to all employees. ▪ 100% of scheduled training sessions conducted ▪ 80% or higher participant satisfaction rate ▪ Zero participants without completion certificates if applicable	▪ IZSU ▪ Contractor ▪ Supervision Consultant ▪ Training Providers	▪ Included in Sub-project Budget
1.20	Construction	Direct and indirect threats posed by construction activities against traffic and pedestrians	▪ Grievance records ▪ Information gathered through Public Consultation ▪ Information on available pedestrian	▪ Sub-project area	▪ On-site inspection	Daily	▪ Occupational Health and Safety Law	▪ Zero number of drivers found to be exceeding speed limits or driving unsafely ▪ Zero accidental injuries and deaths, ▪ Zero traffic-related grievances	▪ IZSU ▪ Contractor ▪ Supervision Consultant	▪ Included in Sub-project Budget

Ref.	Sub-Project Phase	Subject	Parameter to be Monitored	Monitoring Location	Monitoring Method	Monitoring Frequency	Reference	KPI	Responsibility for Monitoring	Cost (If not included in the Sub-Project Budget)
			ways ▪Number of non-compliances against the mitigation controls identified in Traffic and Transport Management Plan ▪Existence of EPRP ▪Driver training records ▪Number of road traffic accidents involving ▪Existence and number of warning signs properly installed at designated location ▪Training records for drivers ▪Installation of warning signs							
1.21	Construction	Access to the Construction Site - Security Fence/ Protection Tape	▪Grievance records	▪Settlements near the sub-project area	▪On-site inspection	Daily	▪Occupational Health and Safety Law ▪	▪Zero Number of unauthorized accesses to the sub-project area	▪IZSU ▪Contractor ▪Supervision Consultant	▪Included in Sub-project Budget
2.1	Operation	Disclosure	▪Grievance	▪Settlements	▪On-site inspections	Daily	▪Regulation on	▪All grievances closed	▪IZSU	▪Included in Sub-

Ref.	Sub-Project Phase	Subject	Parameter to be Monitored	Monitoring Location	Monitoring Method	Monitoring Frequency	Reference	KPI	Responsibility for Monitoring	Cost (If not included in the Sub-Project Budget)
			records ▪Percentage of closed grievances within the target timeframe	near the sub-project area	▪Minutes of meetings ▪GM records		Control of Ambient Noise ▪Regulation on Air Quality Assessment and Management ▪ WBG General EHS Guidelines	out within the targeted timeframe		project Budget
2.2	Operation	Labour Conditions	▪Grievance records ▪Percentage of closed grievances within the target timeframe	▪Sub-project route and maintenance areas	▪Internal and external audits ▪Grievance records ▪Accident records ▪Training records ▪Sample contracts ▪Human Resource Policy ▪Number of the local employees ▪Legal work permit	Monthly	▪Labour Law (No. 4857 Date: 10.06.2003) ▪Law on Trade Unions and Collective Bargaining Agreements ▪ILO International Regulations	▪All grievances closed out within the targeted timeframe	▪IZSU	▪Included in Sub-project Budget
2.3	Operation	Occupational Health and Safety	▪Disease ▪Incident and accident reports ▪Grievance records ▪Trainings ▪HSE Inspection ▪Legal Requirements ▪Compliance with EPRP ▪Drill reports (Number of drills per year)	▪Sub-project area ▪Settlements near the sub-project area	▪On-site inspections ▪Interviews with employees ▪Complaint records ▪Training records ▪Contract examples ▪Internal and external audits ▪EPRP Emergency Plans ▪Incident/ Accident records ▪Availability of an adequate OHS organizational structure	Monthly	▪Occupational Health and Safety Law ▪Regulation on Health and Safety Requirements for the Use of Work Equipment	▪Health and Safety KPIs detailed in Table 6.	▪IZSU	▪Included in Sub-project Budget

Ref.	Sub-Project Phase	Subject	Parameter to be Monitored	Monitoring Location	Monitoring Method	Monitoring Frequency	Reference	KPI	Responsibility for Monitoring	Cost (If not included in the Sub-Project Budget)
			▪OHS practices in the field (Use of PPE, daily site OHS reports, etc.)							
2.4	Operation	Community Health & Safety	▪Grievances records ▪Percentage of closed grievances within the target timeframe ▪Incident and accident reports	▪Sub-project area ▪Residential areas around sub-project area	▪Records of comments/ suggestions/ grievances ▪Site Audits ▪Training records	Monthly	▪Public Health Law ▪Regulation on Health and Safety Signs ▪ ▪ ▪	▪No significant increase in communicable and non-communicable disease and injury rates per 1,000 residents per annum. ▪Decreasing number/ continuous improvement in number of complaints ▪Zero incidents per year	▪IZSU	▪Included in Sub-project Budget
2.5	Operation	GM	▪Grievance Records ▪Percentage of closed grievances within the target timeframe ▪GM of the sub-project	▪Sub-project area ▪Settlements near the sub-project area	▪View/ suggestion/ grievance records ▪Grievance database ▪On-site inspection ▪Existence / accessibility of grievance boxes	Monthly	▪TEFWER ESMF ▪TEFWER sub-project SEP ▪Sub-project GM	▪All grievances closed out within the targeted timeframe	▪IZSU	▪Included in Sub-project Budget
2.6	Operation	Waste Management	▪Total amount of waste generated ▪Recovery / reuse / recycle ratio	▪Sub-project area	▪Waste records ▪On-site inspection regarding proper collection and temporary storage of wastes	In case of grievance Daily	▪Regulation on Waste Management ▪Regulation on Control of Packaging Waste ▪Regulation on the Management of Waste Oils ▪Regulation on the Control of Waste Batteries	▪Minimization of total waste generated ▪Decrease in the ratio of hazardous waste generated to total waste (by contamination + by generation)	▪IZSU	▪Included in Sub-project Budget

Ref.	Sub-Project Phase	Subject	Parameter to be Monitored	Monitoring Location	Monitoring Method	Monitoring Frequency	Reference	KPI	Responsibility for Monitoring	Cost (If not included in the Sub-Project Budget)
							and Accumulators ▪Regulation on Control of Medical Waste			
2.7	Operation	Sustainable Development and Resource Efficiency during the operation period	▪ Wastewater and water loss records in network	▪Sub-project area	▪On-site inspection	Daily	▪Regulation on Control of Water Pollution ▪WB ESS3 ▪WB ESS4	▪Sustainable/minimum wastewater and water loss records	▪IZSU	▪Included in Sub-project Budget

5. CAPACITY DEVELOPMENT AND TRAINING

3.5 INSTITUTIONAL ARRANGEMENTS

The main actors in the implementation of this ESMP for the sub-project are the WB, ILBANK's Project Management Unit (PMU) and the IZSU. The roles and responsibilities of these institutions are presented in Table 8. Also, the graphic organigram for the ESMP implementation of the sub-project is in Figure 10.

Table 8. Roles and Responsibilities

Financial Roles	IZSU	ILBANK	Contractor	Supervisor Consultant
	Sub-Borrower	Financial Intermediary		
Number of Staff	▪ Assign one of each expert/focal point listed; Social Expert, Environmental Expert, and Full time ''A'' Class OHS Expert	▪ One environmental specialist, one social specialist and one OHS specialist will be assigned from the present staff of PMU. Individual freelance consultants can also be employed to strength the PMU.	▪ The construction works under the contract packages included in the scope of the ESMP will be carried out by contractors.	The sub-project owner will appoint a Supervisory Consultant having a range of specialties to inspect the contractor's activities on a daily basis. Apart from the guidance to the given to the sub-project Owner about WB ESSs and also the stakeholder consultation and announcement requirements and the sub-project documents in compliance with WB requirements, the Supervisory Consultant will appoint the personnel given below:
Sub-project Roles	▪ Preparation and implementation of ESMP and SEP including management of sub-project level Grievance Mechanisms, ▪ Monitor environmental and social performance of the contractors' works on site, in line with the site-specific environmental and social requirements, ▪ Review E&S performance reports of contractor's (monthly) and supervision consultant's (quarterly), summarize on E&S compliance issues and report to ILBANK on quarterly basis on E&S compliance and monitoring.	▪ Responsible for reviewing and approving site-specific E&S documents for the sub-project; and for monitoring the implementation of ESMF, ESMP and Grievance process. ▪ Reporting to WB on biannual basis on E&S compliance and monitoring.		

Financial Roles	IZSU	ILBANK	Contractor	Supervisor Consultant
	Sub-Borrower	Financial Intermediary		
Sub-project Roles	▪ The IZSU's PIU will examine the C-ESMP of the contractor/s, monthly and quarterly ESMRs and will be responsible for the timely delivery of the Monthly (if requested by ILBANK) and Quarterly ESMRs to ILBANK. ▪ Tendering all the sub-project works and consulting services. ▪ IZSU will report details of any significant environmental or social incidents (e.g. fatalities, lost time incidents of more than 72 hours, environmental spills etc.) within 48 hours and submit an incident report, including RCA, precautions and compensation measures taken within 30 business days.	▪ The ILBANK's PMU will review the monthly/quarterly reports delivered by the IZSU during the construction phase. ILBANK will inform the WB by providing regular semi-annual monitoring reports on the Environmental, Social, Health and Safety (ESHS) performance of the sub-project. ▪ Supervise and monitor the whole process to ensure the proper application of the WB's ESSs and safeguard policies, TEFWER's ESMF, SEP and Labour Management Plan along with this ESMP. ▪ ILBANK will forward the environmental or social incident reports to the WB immediately upon receipt from the IZSU.	▪ The construction contractor will develop C-ESMP, which are based on this ESMP, report monthly and quarterly ESMRs and submit to the IZSU through the Supervision Consultant. The contractor will also prepare Labour Management Plan on the basis of TEFWER LMP, which is part of the C-ESMP. ▪ Contractors must adhere to ESMP guidelines, considering them during bid preparation. The ESMP outlines potential negative project impacts and mitigation measures, along with responsible stakeholders. ▪ Contractors will train project personnel on ESMP measures during construction, focusing on environmental, occupational, and community health and safety, and social issues awareness. ▪ Environmental, Social, and OHS Experts, included in the sub-project Organizational	▪ The Supervision Consultant will review the monthly/quarterly ESMRs and C-ESMP of the contractor/s and will include its own assessments and observations on ESHS aspects and prepare quarterly ESMRs and submit them to the IZSU. ▪ The Supervisory Contract Manager will ensure contractor compliance with ESMP requirements through continuous monitoring, audits, and inspections. They'll identify and address any non-compliance issues. ▪ The Environmental Expert will oversee ESMP implementation, reporting regularly to the sub-project owner. They should have relevant education (ideally a master's degree) and proficiency in English and Turkish. ▪ The Full time A Class OHS Expert will supervise health and safety measures, holding international safety certifications. Relevant education is preferred. ▪ The Social/Human Resources Expert will oversee community health, safety measures, and Social Engagement Plan implementation, reporting

Financial Roles	IZSU	ILBANK	Contractor	Supervisor Consultant
	Sub-Borrower	Financial Intermediary		
			Chart, will coordinate ESMP measures during construction. They'll ensure actions align with ESMP and implement monitoring plans.	regularly. They should have relevant education and language proficiency.

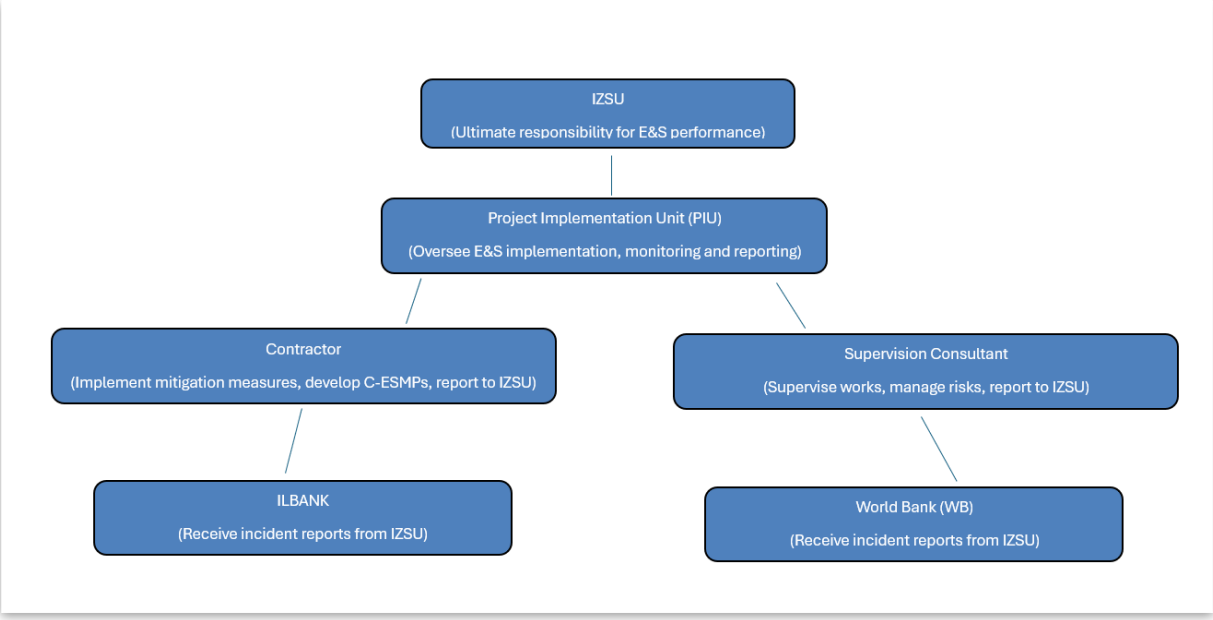

Figure 10. ESMP Implementation

IZSU

The IZSU will hold ultimate responsibility for the E&S performance of the sub-project, including the performance of its contractors. A Project Implementation Unit (PIU) will be established to carry out operational and administrative tasks to oversee the implementation of the E&S instruments and monitoring progress. The IZSU will be responsible for the preparation and implementation of ESMP and SEP including management of sub-project level GMs; for the monitoring E&S performance of the contractors' works on site, in line with the site-specific E&S requirements; for the reporting to ILBANK on quarterly basis on E&S compliance and monitoring as stated in Table 8.

The IZSU will be responsible for the incident and accident reporting and informing the necessary institutions (WB, ILBANK etc.), as per the provisions explained below:

- The WB and ILBANK will be promptly notified of any incident or accident related to the sub-project which has, or is likely to have, a significant adverse effect on the environment, the affected communities, the public or workers including but not limited to; incidents and accidents encountered during construction works, environmental spills, etc.
- Sufficient detail will be provided regarding the incident or accident, findings of the RCA, indicating immediate measures or corrective actions taken or that are planned to be taken to address it, compensation paid, and any information provided by any contractor and supervision consultant, as appropriate. It will be ensured that the incident report is in line with the WB's Environment and Social Incidence Response Toolkit. Subsequently, as per the Bank's request, a report on the incident or accident and propose any measures to prevent its recurrence will be prepared.
- The IZSU will report details of any significant environmental or social incidents (e.g. fatalities, lost time incidents of more than 72 hours, environmental spills etc.) within 48 hours and submit an incident report, including RCA, precautions and compensation measures taken within 30 business days. ILBANK will forward the incident report to the WB immediately upon receipt from the IZSU.

Contractor

The contractor will carry out the construction activities of the sub-project in line with the approved design documents and will be the responsible body to implement and apply the mitigation measures given in ESMP during construction phase. The construction contractor will develop Contractor's Environmental and Social Management Plan (C-ESMP), which is based on this ESMP, and report monthly and quarterly ESMRs, detailed in Table 9. The contractor should adhere to assigned duties and responsibilities as specified in the ESMP to ensure compliance with related national regulations, TEFWER ESMF and WB's ESSs. The contractor will employ an A class full time OHS specialist and a full time E&S expert who will instruct and consult the workers on GM and implementation of ESMP (including GM and the applicable stakeholder engagement activities detailed in sub-project SEP). Furthermore, a competent E&S expert of contractor will monitor implementation of measures given in the mitigation plan and report to IZSU on a monthly basis. The prompt notification of accident and incidents within the scope of construction works in line with the above-described provisions is the responsibility of the contractor. The contractor will keep an incident register at construction site throughout the construction and defects liability period.

During the construction phase, the contractor firm will train its workers on E&S aspects (including OHS) as per WB's ESSs and national regulations in order to raise E&S awareness. During the defects liability period, the contractor will be responsible for any repairs of the newly constructed facilities, in accordance with legal regulations as of provisional acceptance. Within the liability period, the contractor will implement measures given in the E&S Mitigation Plan for operation.

Supervision Consultant

Supervision consultant contracted by the IZSU will include at least one Environmental Expert, one Social Expert and one A Class OHS Expert. The number of experts will be increased if necessary. Supervision Consultant will provide supervision of construction and/or rehabilitation works and installation of equipment. The experts will identify and manage environmental, social and OHS related risks and initiate corrective actions where necessary. The experts will also monitor and evaluate the performance of services provided by the contractor. In addition, a regular quarterly report regarding to environmental, social and OHS issues of the sub-project during construction phase will be provided by Supervision Consultant to the IZSU.

3.6 REPORTING

Reporting processes that should be put into action during the implementation phase of the sub-project and the requirements of such processes are presented in Table 9.

Table 9. Reporting Requirements of Relevant Entities

Responsible Party	Reporting Process Requirements
Construction Contractor	▪ The construction contractor will develop C-ESMPs, which are based on this ESMP, and report monthly and quarterly ESMRs and submit to the IZSU through the Supervision Consultant.
IZSU's PIU	▪ The PIU will examine the monthly and quarterly ESMRs and C-ESMPs of the contractor/s and the Supervision Consultants and will be responsible for the timely delivery of the Monthly (if requested by ILBANK) and Quarterly ESMRs to ILBANK.
Supervision Consultant	▪ The Supervision Consultant will review monthly and the quarterly ESMRs and C-ESMPs of the contractor/s and will include its own assessments and observations on ESHS aspects and prepare quarterly ESMRs and submit to the IZSU. The Supervision Consultant has the responsibility to prepare non-conformity forms in the event of any non-conformity observed during the site inspections and within the reports.
ILBANK's PMU	▪ The PMU will review the monthly/quarterly reports delivered by the IZSU during the construction phase. ILBANK will inform the WB by providing regular semi-annual monitoring reports on the ESHS performance of the sub-project.
WB	▪ The WB will review regular semi-annual monitoring reports on the ESHS performance of the sub-project and instruct ILBANK if any non-conformity or non-compliance identified.

For reporting on OHS, E&S incidents, the IZSU will report details of any significant incidents (e.g. fatalities, lost time incidents of more than 72 hours, environmental spills etc.) within 48 hours and submit an incident report, including RCA, precautions and compensation measures taken within 30 business days. ILBANK will forward the incident report to the WB immediately upon receipt from the IZSU.

3.7 TRAINING PROGRAMME

The capacity strengthening of the participating sub-project will be carried out by ILBANK PMU in close collaboration with the WB. In this regard, ILBANK will organize training

workshops to familiarize municipalities and their potential consultants with the WB's ESSs and E&S policies. The concerned training programme is presented in Table 10.

Table 10. Training Programme Including the Sub-project

Item No	Heading of the Training	Target Group	Timin and Duration
1	**Environmental and Social Framework:** ▪ Implementation of ESMP, Labour Management Plan, SEP, and GM	PIUs of the municipalities	▪ Initial training no later than 60 days after formation of the PMU/PIU and before start of sub-project activities. ▪ Refresher trainings at least once a year or as needed, during sub-project implementation.
2	**Environmental and Occupational Health Safety:** ▪ Workplace risk management Prevention of accidents at work sites ▪ Mandatory legal training, Work instructions Trainings (i.e. Working at Height, Confined Space Entry, Material Handling) for the target groups ▪ Use of Personal Protection Equipment's (PPEs) ▪ Health and safety standards ▪ Hazardous waste and leakage/spillage management ▪ Solid and liquid waste management ▪ Preparedness and response to emergency situation ▪ RCA for the accidents ▪ Awareness on communicable diseases (i.e. HIV/AIDS etc.)	PIUs of the municipalities	▪ Initial training no later than 60 days after formation of the PMU/PIU and before start of sub-project activities. ▪ Refresher trainings at least once a year or as needed, during sub-project implementation.
3	**Labour and Working Conditions:** ▪ Implementation of the Labour Management Plan ▪ Terms and conditions of employment according to national working laws and regulations ▪ Contractor and sub-contractor codes of conduct ▪ Worker's organizations ▪ Child labour and forced labour issues ▪ Workers' Grievance Mechanism ▪ GBV and SEA/SH	PIUs of the municipalities	▪ Initial training no later than 60 days after formation of the PMU/PIU and before start of sub-project activities. ▪ Refresher trainings at least once a year or as needed, during sub-project implementation.
4	**Grievance Mechanism:** ▪ Implementation of GM ▪ Registration and processing procedure ▪ Grievance procedure ▪ Documenting and processing grievances	PIUs of the municipalities	▪ Initial training no later than 60 days after formation of the PMU/PIU and before start of sub-project activities. ▪ Refresher trainings at least once a year or as needed, during sub-project implementation.

6. IMPLEMENTATION SCHEDULE AND COST ESTIMATES

The sub-project's construction works are expected to last 25 months and be completed in the end of September 2028. Its operation will have a service lifetime of 30 years.

In this context, the cost estimates for the implementation of the ESMP including the trainings and meeting of the sub-project is provided in Table 11.

Table 11. The Cost Estimates for the Implementation of the Sub-project's ESMP

Item No	Heading of the Training / Meeting / Implementation	Target Group	Timin and Duration	Cost**
1	**Employment of E&S & OHS Experts Under PIU**	IZSU	▪ After signature of sub-loan agreement	144,000 Euro*
	Employment of E&S, OHS Experts Under Contractor(s), and Supervisor Consultant	PIU of the IZSU	▪ Prior to construction	108,000 Euro*
2	**Preparation and Implementation of E&S Sub-Management Plans**	Contractor	▪ Prior to construction	8,000 Euro*
		PIU of the IZSU	▪ Prior to operation	80,000 Euro*
3	**Waste Management, Spill Response and Pollution Prevention Activities**	Contractor	▪ Throughout the construction	8,000 Euro*
		PIU of the IZSU	▪ Throughout the operation	80,000 Euro*
4	**Environmental and Social Framework Training:** ▪ Implementation of ESMP, Labour Management Plan, SEP and GM.	PIU of the IZSU	▪ Initial training no later than 60 days after formation of the PMU/PIU and before start of sub-project activities. ▪ Refresher trainings at least once a year or as needed, during sub-project implementation.	3,500 Euro*
5	**Environmental and Occupational Health &Safety Training:** ▪ Workplace risk management Prevention of accidents at work sites ▪ Mandatory legal training, Work instructions Trainings (i.e. Working at Height, Confined Space Entry, Material Handling) for the target groups ▪ Use of Personal Protection Equipment's (PPEs) ▪ Health and safety standards ▪ Hazardous waste management ▪ Solid and liquid waste management ▪ Preparedness and response to emergency situation ▪ Awareness on communicable diseases (i.e. HIV/AIDS etc.)	PIU of the IZSU	▪ Initial training no later than 60 days after formation of the PMU/PIU and before start of sub-project activities. ▪ Refresher trainings at least once a year or as needed, during sub-project implementation.	1,800 Euro*

Item No	Heading of the Training / Meeting / Implementation	Target Group	Timin and Duration	Cost**
6	**Labour and Working Conditions Training:** ▪ Implementation of the Labour Management Plan ▪ Terms and conditions of employment according to national working laws and regulations ▪ Contractor and sub-contractor codes of conduct ▪ Worker's organizations ▪ Child labour and forced labour issues. ▪ Workers' Grievance Mechanism	PIU of the IZSU	▪ Initial training no later than 60 days after formation of the PMU/PIU and before start of sub-project activities. ▪ Refresher trainings at least once a year or as needed, during sub-project implementation.	800 Euro*
7	**Grievance Mechanism Training:** ▪ Implementation of GM ▪ Registration and processing procedure ▪ Grievance procedure ▪ Documenting and processing grievances	PIU of the IZSU	▪ Initial training no later than 60 days after formation of the PMU/PIU and before start of sub-project activities. ▪ Refresher trainings at least once a year or as needed, during sub-project implementation.	600 Euro*
8	**Stakeholder Consultation Meeting:** ▪ Presentation by the counsellors about the sub-project, ▪ Stakeholders' questions about the sub-project and sub-project impacts are answered, ▪ Stakeholders' opinions on the sub-project and its impacts are recorded, ▪ Stakeholders are informed about the addresses to which they can send their inquiries, suggestions, and complaints about the sub-project.	Affected groups and other relevant/affected stakeholders	After the draft ESMP report is completed. (Stakeholder meetings or any information sharing activities to be notified ten (10) days in advance by IZSU through brochures, website announcements and newspaper advertisements (at least one national and one local newspaper))	2,000 Euro*
		Total:		**436,700 Euro**

**Including transportation and accommodation costs.*

***Costs are indicative and for orientation purposes only - at time of preparation of this ESMP.*

7. APPENDICES

Appendix A - E&S Screening Form of the Sub-project
Appendix B - Chance Find Procedure of the Sub-project
Appendix C - Generic Asbestos Management Plan
Appendix D - Common OHS Risks and General Mitigation Measures

APPENDIX-A
E&S Screening Form of the Sub-project

Annex 1-A: Environmental and Social Impacts and Risks Screening Template

Environmental Screening Form

Sub-project Information

Sub-project name	Wastewater and Stormwater Network Project in Various Streets and Avenues of Konak and Karabağlar Districts within Izmir Province (Lot 3)
Procurement Plan Item No	
Type of sub-project	Environmental Infrastructure: Wastewater and Stormwater Network Project
Implementing authority(ies)	Izmir Metropolitan Municipality Water and Wastewater Administration (IZSU)
Location of sub-project (Neighborhood(s), District, Province)	Bahçelievler and Bahar neighbourhoods of Karabağlar District and Akın Simav, Atilla, Çimentepe, Duatepe, Güneşli, Kemal Reis, Kılıç Reis, Murat Reis, Mithatpaşa, Piri Reis, Zafertepe, 1st Kadriye and 2nd Kadriye neighbourhoods of Konak District within Izmir Province
Brief Description of Sub-project activities: (construction and operation/implementation activities)	Within the scope of the implementation sub-project, 26.817 km of stormwater and 29.411 km of wastewater have been designed on various streets and avenues of the above-mentioned neighbourhoods in order to serve the basin area with the aim of solving all these existing infrastructure problems in the region. The stormwater collected within the scope of the Sub-project is planned to be discharged to Izmir Bay through two discharge points. Sub-project components are as follows: • Wastewater Collection System: - 29,411 m HDPE Sewer Pipes (Ø300, 400, 500, 600, 800, 1000, 1400), - 888 Manholes, - 11,500 m construction of parcel connection (with Ø150 mm corrugated pipe), - 7,616 m^2 cutoff wall with intersecting bored piles in sewer lines. • Stormwater Collection System: - 26,817 m HDPE Stormwater Pipes (Ø400, 500, 600, 800, 1000, 1200, 1400), - 2,085 m Stormwater Box Culvert, - 781 Manholes, - 73 Manholes over Culvert, - 1,953 Grating construction, - 13,671 m reinforced concrete single stormwater grating connection (with Ø200 mm corrugated pipe), - Construction of 6,861 m of perforated sheet metal plate reinforced concrete stormwater channels with a width of

	B = 60 cm at road transverse crossings, - 3,523 m transverse stormwater channel connection (with Ø400 mm corrugated pipe), - 2,228 m^2 cutoff wall with intersecting bored piles in stormwater lines, - One (1) Stormwater Retention Tank (7,425.60 m^3).
Geographical coordinates of the Site:	In the large area covering the existing roads of Bahçelievler and Bahar neighbourhoods of Karabağlar district and Akın Simav, Atilla, Çimentepe, Duatepe, Güneşli, Kemal Reis, Kılıç Reis, Murat Reis, Mithatpaşa, Piri Reis, Zafertepe, 1st Kadriye and 2nd Kadriye neighbourhoods of Konak district within Izmir Province.
Area of land that will be used for the sub-project:	In the large area covering the existing roads of Bahçelievler and Bahar neighbourhoods of Karabağlar district and Akın Simav, Atilla, Çimentepe, Duatepe, Güneşli, Kemal Reis, Kılıç Reis, Murat Reis, Mithatpaşa, Piri Reis, Zafertepe, 1st Kadriye and 2nd Kadriye neighbourhoods of Konak district within Izmir Province.
Current Land use	Existing roads of Bahçelievler and Bahar neighbourhoods of Karabağlar district and Akın Simav, Atilla, Çimentepe, Duatepe, Güneşli, Kemal Reis, Kılıç Reis, Murat Reis, Mithatpaşa, Piri Reis, Zafertepe, 1st Kadriye and 2nd Kadriye neighbourhoods of Konak district within Izmir Province.
Land ownership	Izmir Metropolitan Municipality Water and Wastewater Administration (IZSU) All of the works planned to be carried out within the scope of the Sub-project will pass through the planned zoning roads.
Access routes to the Site	In the city centre

Baseline Environmental Conditions

Is the sub-project site located on or adjacent to any of the following (Provide information for all sites and alignment of the project components/sub-components, associated activities; give details, mention distance to these features in km)

<table>
<tr><th>No</th><th>Environmental Aspects</th><th>Yes</th><th>No</th><th>Details</th></tr>
<tr><td>1.</td><td>Sensitive ecosystems</td><td></td><td>√</td><td>The sub-project area is not located within any protected area boundary. The nearest Key Biodiversity Area (KBA) is approximately 800 m from Kızıldağ İzmir. Other areas and their distances are given in the table below. Approximate distances to other areas are given in the table below.

<table><tr><th>Area Name</th><th>Status</th><th>Distance</th></tr><tr><td>Gediz Deltası</td><td>Ramsar</td><td>7.7km</td></tr><tr><td>Gediz Deltası</td><td>IBA,KBA</td><td>5.2 km</td></tr><tr><td>Kızıldağ İzmir</td><td>IBA</td><td>800m</td></tr></table>
Sub-project-specific ESMP is required to identify the closest sensitive ecosystems, address potential risks (if any) and related mitigations in line with ESS6.</td></tr>
<tr><td>2.</td><td>Natural habitats</td><td></td><td>√</td><td>There are no areas of forest ecosystems, wetlands, swamps, and aquatic ecosystems on or adjacent to the sub-project area.</td></tr>
<tr><td>3.</td><td>Areas with protection status (cultural /archaeological /natural)</td><td></td><td>√</td><td>The sub-project area is not located within any protected area boundary. The nearest Key Biodiversity Area (KBA) is approximately 800 m from Kızıldağ İzmir. Other areas and their distances are given in the table below.

Approximate distances to other areas are given in the table below.</td></tr>
</table>

<table>
<tr><th>No</th><th>Environmental Aspects</th><th>Yes</th><th>No</th><th>Details</th></tr>
<tr><td></td><td></td><td></td><td></td><td>
<table>
<tr><th>Area Name</th><th>Status</th><th>Distance</th></tr>
<tr><td>Gediz Deltası</td><td>Ramsar</td><td>7.7km</td></tr>
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<tr><td>Kızıldağ İzmir</td><td>IBA</td><td>800m</td></tr>
</table>

Sub-project-specific ESMP is required to identify and as required address potential risks in line with ESS8.</td></tr>
<tr><td>4.</td><td>Critical habitats</td><td></td><td>√</td><td>Considering the location of the Sub-project area and the surrounding anthropogenic intensity, the Sub-project area is not expected to affect endangered animal and plant species.

Sub-project-specific ESMP is required to identify and as required address potential risks in line with ESS6.</td></tr>
<tr><td>5.</td><td>Describe the soil and vegetation on site</td><td></td><td>√</td><td>Sub-project activities will be conducted on the existing roads of the neighbourhoods. There are no forests and woodlands on or around the Sub-project area. The Sub-project is not expected to negatively impact soil and vegetation.</td></tr>
</table>

Sensitive Receptors

Are there sensitive receptors in the area of influence of the sub-project, such as:

No	Sensitive receptors	Yes	No	Details
1.	Housing units, schools, hospitals or other sensitive receptors	√		There are hospitals, schools, and the places of worship in the neighbourhoods. Sub-project-specific ESMP and SEP are required to identify and as required address potential risks and mitigations in line with ESS4.
2.	Culturally and/or socially important paths, areas/religious occupancies, burial grounds, tourist or pilgrim congregation areas, etc.	√		The Sub-project area is a location that has been home to many civilizations and therefore contains many cultural and historical treasures. In case any archaeological remains or artifacts are found during construction, all activities will be stopped, the chance find procedure (see Appendix-B) will be followed and the Museum Directorate will be informed in accordance with Article 4 of Law No. 2863. Sub-project-specific ESMP and SEP are required to identify and as required address potential risks in line with ESS4 and ESS8.
3.	Water sources (groundwater wells, springs, surface water resources)		√	Sub-project activities do not pose a threat to water resources.
4.	Areas prone to flooding / landslides	√		Within the scope of the Izmir Metropolitan Area Wastewater - Stormwater and Streams Master Plan prepared by the IZSU in March 2020, when the 100-year and 500-year flooding risk maps of the Sub-project area are examined, it is seen that flooding risk rating for the concerned area is the medium and high. There is not landslide risk on the Sub-

No	Sensitive receptors	Yes	No	Details
				project region, but there may be a flood risk in areas close to the water resources. Sub-project-specific ESMP is required to identify and as required address potential risks and mitigations in line with ESS1 and ESS3.
5.	Downstream communities	√		Since the Sub-project is a wastewater and storm water line construction project, it will be implemented primarily to prevent flooding and the problem of mixing existing wastewater and storm water. Any risks related with the downstream communities are not anticipated at this stage. Sub-project-specific ESMP and SEP are required to identify and as required address potential risks and mitigations in line with ESS4.
6.	Areas affected by landslides	√		Due to its geological and topographical structure, Izmir province experiences frequent mass movements. Geotechnical analysis has been conducted and the relevant information provided in the PID, please refer to "5.2.4 Geotechnical Study" section.
7.	Other sensitive receptors		√	Presence of sensitive receptors on or adjacent to the Sub-project site have not been observed through the information provided in its PID and any related risk cannot be assessed at this stage. Sub-project-specific ESMP and SEP are required to identify and as required address potential risks and mitigations in line with ESS1, ESS3, ESS4, ESS6, ESS8, ESS10.

Current Environmental Status

1.	Is the site in critical / over exploited condition?		√	Since the Sub-project area consists of main roads, there is no site in critical / over exploited condition.
2.	Is the site covered with vegetation?		√	Since the Sub-project area consists of main roads, there is no site covered with vegetation.
3.	Is the site disaster-prone? If yes; list all disaster zone categories applicable.	√		The Sub-project area is located in a disaster-prone area, especially in terms of earthquake and flooding. Sub-project-specific ESMP is required to identify and as required address potential risks and mitigations in line with ESS1.
4.	Is the site suitable for proposed development?	√		Yes, it is vital that a separate stormwater line is constructed for the Sub-project area due to flooding and inundation risk.
5.	Describe existing pollution or degradation in the site(s)		√	The stormwater collected within the scope of the Sub-project is planned to be discharged to Izmir Bay through two discharge points. No pollution/contamination/degradation that may impact air, soil and water was encountered during the site visit to the Sub-project area.
6.	Any other remarks on baseline condition?		√	There are not any other remarks on baseline condition at this stage.
7.	Is there a possibility for Asbestos Containing Materials at the site(s)?	√		Before starting construction or demolition work, an assessment will be carried out to identify any Asbestos Containing Materials (ACMs) that may be present. Especially during renewal of the pipelines, existing asbestos pipes will be left under the ground in the existing location. If they need to be removed because of new pipe installation requirements, then removal process will be executed, and specific precautions will be determined in accordance with

				the Regulation on Health and Safety Measures in Working with Asbestos dated 25.01.2013 (OG No 28,539) for managing ACMs in the Asbestos Management Plan to be developed in line with the generic Asbestos Management Plan (see Appendix-C).

Anticipated Environmental Impacts: Impacts on Land, Geology and Soils

Will the proposed sub-project cause the following on land / soil?

Item	Impacts	Yes / Maybe	No	Details
1.	substantial removal of top soil (indicate in sqm)		√	Infrastructure works are planned to cross existing routes or roads. Soil excavated during construction activities will be backfilled.
2.	degradation of land		√	With the implementation of effective environmental mitigation measures, land degradation is not expected.
3.	loss or impacts on cultural/heritage properties	√		The Sub-project area includes areas that have already been degraded previously. On the other hand, the related area is a location that has been home to many civilizations and therefore contains many cultural and historical treasures. Hence, there is a risk of loss or adverse impacts on cultural/heritage assets. In case any archaeological remains or artifacts are found during construction, all activities will be stopped, the chance find procedure will be followed and the Museum Directorate will be informed in accordance with Article 4 of Law No. 2863. Sub-project-specific ESMP and SEP are required to identify and as required address potential risks in line with ESS8. It will be ensured that the relevant regulations and relevant sub-management plan (to be addressed at the Sub-project specific ESMP to be prepared) are followed in case of encountering any cultural/heritage properties.

Item	Impacts	Yes / Maybe	No	Details
4.	physical changes in the project area (i.e. changes to the topography) due to cutting and filling, excavation, earthwork or any other activity	√		Infrastructure works are planned to cross existing routes or roads of the Sub-project area. In this context, the related area will be restored.
5.	contamination or pollution of the Land? (indicate possible risks)		√	No permanent contamination or pollution is expected as a result of efficiently managed construction activities for the Sub-project area. Sub-project may involve or lead to pollution/release of pollutants to air, water, land/ soil due to routine, non-routine and accidental circumstances during construction and operation phases. Sub-project-specific ESMP is required to identify and as required address potential risks in line with ESS3.

Impacts on Water Environment

Will the sub-project or its components cause any of the following impacts on quantity or quality of water sources?

Item	Impacts	Yes / Maybe	No	Details
1.	Will the sub-project involve dredging in the river environment?		√	Since the Sub-project is a wastewater and storm water line construction project, it will be implemented primarily to prevent flooding and the problem of mixing existing wastewater and storm water. Hence, no dredging in the river environment is expected.
2.	Impacts on availability and access to water resources		√	There are no expected impacts on availability and access to water resources.

Item	Impacts	Yes / Maybe	No	Details
3.	Pollution of water bodies/ground water nearby or downstream		√	As pollution of water bodies/ground water nearby or downstream is not expected, the Sub-project construction activities do not pose a threat to the related water resources. In order to prevent contamination of water resources near the project area, the ends of uninstalled pipes will be closed. Surface flow resulting from rain/stormwater or wastewater generation due to dust suppression activities will be managed properly. Sub-project-specific ESMP is required to identify and as required address potential risks and mitigations in line with ESS1 and ESS3.
4.	Impacts on river flow patterns		√	There are no expected adverse impacts on river flow patterns due to Sub-project.
5.	Will the project result in stagnation of water flow or pondage?		√	The sub-project is not expected to cause stagnation of water flows or pondage.

Impacts on Biodiversity

Will the sub-project or its components cause any of the following impacts on biodiversity?

Item	Environmental Impacts	Yes / Maybe	No	Details
1.	cutting of trees or clearing of vegetation?		√	There is no expected risk including cutting of trees or clearing of vegetation on the existing main roads of the Sub-project area.

Item	Environmental Impacts	Yes / Maybe	No	Details
2.	habitat fragmentation due to the clearing activities? (i.e. hindrance to the local biodiversity like disturbing the migratory path of fish, birds, mammals, etc.)		√	No risk including habitat fragmentation due to the clearing activities is expected on the Sub-project area.
3.	potential nuisance of noise and light pollution or any disturbance on surrounding habitats		√	There is no expected risk including potential nuisance of noise and light pollution or any disturbance on surrounding habitats on the Sub-project area. Sub-project-specific ESMP is required to identify and as required address potential risks and mitigations in line with ESS1 and ESS3.

Impacts on Communities

Will the sub-project or its components cause any of the following impacts on nearby communities?

Item	Environmental Impacts	Yes / Maybe	No	Details
1.	Health & Safety risks in nearby communities (major accident risks such as explosions, fires, toxic releases, etc.)	√		No major health and safety risk due to the project activities are anticipated for nearby communities. In addition to construction related OHS impacts, especially during the renewal of the pipelines, existing asbestos pipes will be left under the ground in the existing location. If they need to be removed because of new pipe installation requirements, then removal process will be executed, and specific precautions will be determined in accordance with the Regulation on Health and Safety Measures in Working with Asbestos dated 25.01.2013 (OG No 28,539) for managing ACMs in the Asbestos Management Plan to be developed in line with the generic Asbestos Management Plan (see Appendix-C). Sub-project-specific ESMP and SEP are required to identify and as required address potential risks and mitigations in line with ESS4.
2.	Potential noise/vibration to nearby communities	√		The Sub-project area is in an area with high background noise levels due to the density of construction and city traffic, especially as it approaches the coast. Hence, limited, and short-term impact of the construction phase is expected. Sub-project-specific ESMP is required to identify and as required address potential risks and mitigations in line with ESS1 and ESS3.

Item	Environmental Impacts	Yes / Maybe	No	Details
3.	Potential damages to common property, roads, etc.	√		Yes, possible damages to common properties, roads near the Sub-project area may occur. There is the possibility of damage to adjacent land or structures during construction. Sub-project-specific ESMP and SEP are required to identify and as required address potential risks and mitigations in line with ESS4.
4.	Potential risks of traffic accidents		√	Infrastructure works are planned to cross existing routes or roads therefore there may be partial closure of existing roads. This may cause an increase in traffic load in certain locations, but due to the nature of the Sub-project, these works will be short term. Sub-project-specific ESMP and SEP are required to identify and as required address potential risks and mitigations in line with ESS4 including Traffic and Transport Management Plan to be applied during the sub-project implementation.

Impacts due to Storage and Wastes: Pollution and Hazards

Will the sub-project or its components cause any impact due to storage of materials, wastes or pollution due to releases during various project activities?

Item	Type	Yes	No	Details
1.	Does the project include use or storage of dangerous substances (e.g., large quantities of hazardous chemicals/ materials like Chlorine, Diesel, Petroleum products; any other?		√	All hazardous substances/chemicals such as petroleum products are not expected to be used or stored within the scope of the Sub-project.

Item	Type	Yes	No	Details
				However, construction activities are likely to generate hazardous wastes such as glove, cotton waste, cloth or work equipment and spiral stones and welding rods from welding machines that are likely to be contaminated with hazardous chemicals such as machine oil or diesel oil. Sub-project-specific ESMP is required to identify and as required address potential risks and mitigations in line with ESS1 and ESS3.
2.	Will the project produce solid or liquid wastes; including construction/demolition wastes (including dredging, de-weeding wastes, muck/silt, dust); polluted liquids?	√		Solid and liquid wastes will be generated from Sub-project construction activities. Municipal waste production by construction workforce is foreseen. Sub-project-specific ESMP is required to identify and as required address potential risks and mitigations in line with ESS1 and ESS3.

Environmental Pollution

Will the process cause or increase the following?

Item	Type	Yes	No	Details
1.	Air pollution	√		Stakeholders are likely to be affected by dust/emission causing air pollution but only for a short time and regional during the excavation operations of the Sub-project. Access to the construction site will be blocked, modern equipment and vehicles will be selected that can meet the relevant emission standards

Item	Type	Yes	No	Details
				in construction activities, etc. Sub-project-specific ESMP is required to identify and as required address potential risks and mitigations in line with ESS1 and ESS3.
2.	Odor nuisance		√	No odour nuisance is expected due to the Sub-project activities.
3.	Environmental noise	√		Stakeholders are likely to be affected by noise factors but only for a short time and regional during the excavation operations of the Sub-project. Sub-project specific ESMP is required to identify and as required address potential risks and mitigations in line with ESS1 and ESS3.
4.	Visual blight or light pollution		√	There will be no visual blight or light pollution because of the nature of the Sub-project.
5.	Water pollution (surface waters, groundwater)		√	For the construction phase domestic wastewater will be produced by construction workforce which will be discharged to the existing sewerage system operated by the IZSU. In order to prevent contamination of water resources near the Sub-project area, the ends of uninstalled pipes will be closed. Surface flow resulting from rain/stormwater or wastewater generation due to dust suppression activities will be managed properly. Sub-project-specific ESMP is required to identify and as required address potential risks and mitigations in line with ESS1 and ESS3.

Item	Type	Yes	No	Details
6.	Soil contamination		√	There is a risk of soil contamination caused by spills and scattering that may occur during the construction phase of the Sub-project. Sub-project-specific ESMP is required to identify and as required address potential risks and mitigations in line with ESS1 and ESS3.
7.	Other types of impacts on the ambient environment		√	No other impact on the ambient environment is expected.
8.	Exposure to the hazardous materials (such as asbestos)	√		In addition to construction related OHS impacts, especially during the renewal of the pipelines, existing asbestos pipes will be left under the ground in the existing location. If they need to be removed because of new pipe installation requirements, then removal process will be executed, and specific precautions will be determined in accordance with the Regulation on Health and Safety Measures in Working with Asbestos dated 25.01.2013 (OG No 28,539) for managing ACMs in the Asbestos Management Plan to be developed in line with the generic Asbestos Management Plan (see Appendix-C). Also, a Waste Management Plan will be implemented for disposal of them in line with Annex 4 of the Regulation on Waste Management.

Suggested Environmental Enhancement Measures

Has the sub-project design considered the following enhancement measures?

Item	Enhancement Measures	Yes	No	Details
1.	Energy conservation measures/ energy recovery options incorporated in sub-project design	√		The energy conservation benefit is savings in operation and maintenance costs as less rainwater reaches the Çiğli WWTP. Since the amount of rainwater reaching the Çiğli WWTP is reduced and less wastewater is treated, the Sub-project saves on basic operating costs such as electricity and chemical costs. During the construction periodic maintenance of the equipment and machinery will be conducted.
2.	Waste minimization or waste reuse/recycle options	√		Waste generation will be observed during the construction phase due to the nature of the activities. The wastes to be generated will be managed in accordance with the waste management regulation and related sub-management plan (which will be prepared by its contractor). Sub-project-specific ESMP is required to identify and as required address potential risks and mitigations in line with ESS1 and ESS3
3.	Rainwater harvesting, water recycling and other water resource enhancement measures		√	No rainwater harvesting, water recycling and other water resource
4.	Mitigations against extreme events, drought, flood, other natural disasters	√		The extreme events are assessed at the design stage of the Sub-project and explained in its PID. The main purpose of the Sub-project is to minimize flood risk by separating stormwater and wastewater lines.
5.	License for water withdrawal from surface water source	NA	NA	Within the scope of the Sub-project, water will not be drawn from surface water sources.
6.	Dredging permits	NA	NA	Dredging will not be performed within the scope of the Sub-project.

7.	License for transportation and storage of diesel, oil and lubricants, etc.	√		Diesel, oil and lubricants will not be stored within the scope of the project. In case it is required to transport diesel for refuelling of construction equipment, such services will be obtained from licensed companies.
8.	License for transportation of hazardous wastes	√		Hazardous wastes will be hauled with licensed and authorized vehicles in accordance with the regulations.

SUMMARY OF ENVIRONMENTAL SCREENING

Project Categorization and Need for ESF Instruments, Oversight

Project Category	☐ Low ☒ Moderate ☐ Substantial ☐ High

Key Reasons	The main E&S risks due to the activities planned within the scope of the Sub-project are related with the construction of water supply line on the existing public roads and a water tank listed as in below. • Sub-project may involve or lead to general and sector specific OHS risks that need to be managed in accordance with national legislation and good international industry practices (e.g. WB Group Environmental, Health and Safety Guidelines) throughout the construction phase mainly. Sub-project-specific E&S assessment and management documentation is required to address the risks adequately. Contractors are required to prepare and implement Sub-project specific OHS management plans and procedures addressing the identified OHS risks. • Sub-project may involve or lead to pollution/release of pollutants to air, water, land/soil due to routine, non-routine and accidental circumstances during construction and operation phases. Sub-project-specific E&S assessment and management documentation is required to address the risks adequately. • Sub-project will lead to increased risk of traffic related accidents and road safety issues on the provincial roads/motorways and village roads during the construction phase. Sub-project-specific E&S assessment and management documentation is required to address the risks adequately. • Sub-project may involve risk of managing stakeholder expectations, reactions, grievances, feedback, etc. A SEP, including grievance mechanism for public, is required to be prepared in line with ESS10. SEP must cover any vulnerable/ disadvantaged groups etc. if any. The identified risks and their impacts will have medium magnitude, will be limited in scale (site-specific) and will be temporary, can be avoided, managed and/or mitigated with relatively uncomplicated accepted measures which will be defined in ES assessment documents (ESMP, SEP, OHS Management Plan, etc.). So, the risk rating has been defined as “Moderate”.

Safeguards Instruments Required	☐ ESIA and ESMP ☒ ESMP ☒ SEP ☐ RP ☐ Ex-Post Social Audit Report

Status		Name, Signature with Date
Prepared by		
Checked and categorized as (low, moderate, substantial, high) by		
Reviewed and approved by		

Annex 1-B: Social Screening Form

Land Acquisition and Livelihoods

Land Acquisition	Yes	No	Details
Does the sub-project require private land acquisition?	√		The Project will be implemented by renewing the existing wastewater and stormwater collection lines located in municipality allocated areas in Konak district and Karabağlar district of Izmir Province. The pipelined to be renewed are located in municipality allocated areas. However, the existence of incomplete expropriation processes along the excavation line has been identified. Some of the lands appear to be private land. Detailed information on these lands will be provided in the E&S documents (such as ESMP, RP etc.). These reports will include plans for the finalisation of expropriations. These reports will be prepared before the start of construction.
Was the land required for sub-project already acquired?		√	The existence of incomplete expropriation processes along the excavation line has been identified. IZSU has initiated official correspondence with the responsible municipalities regarding whether the payments were made during the expropriation process when the road constructions of private parcels were carried out. At the end of the process, questions related to expropriation will be revised.
Has the acquired lands been duly transferred and are there any litigation/legacy (pending for title transfer, compensation payment, ownership disputes etc) issues?			IZSU has initiated official correspondence with the responsible municipalities regarding whether the payments were made during the expropriation process when the road constructions of private parcels were carried out. At the end of the process, questions related to expropriation will be revised.

Are there any complaints/unresolved cases of already acquired lands?		√	There are no complaints about land acquisition.
Is it possible to purchase privately owned through a Willing Buyer–Willing Seller agreement?			NA
Does the sub-project cause any access restriction to the commuters/pedestrians/ business and trades?	√		Although AYBİS is in use, the Sub-project is expected to have a temporary negative impact on access to facilities, services, or natural resources. Sub-project-specific ESMP and SEP are required to identify and as required address potential risks and mitigations in line with ESS4.
Is land for material mobilization or transport for the civil work available within the existing plot/Right of Way?	√		Enough material will be transported to the relevant work areas when the work starts. Thus, the amount of material that needs to be stored in the work area will be low.
Are there any formal / informal users or non-titled people who are utilizing (inhabiting/doing business or using for other purposes etc.) the proposed site/project locations that will be used for civil works? If yes, please provide how many and for what purposes.		√	This is a linear environmental infrastructure Project to be conducted at the city centre of İzmir passing through the existing public roads as provided in its PID and this Screening Form. There are no formal/informal users or non-titled people in the land.
Is any temporary impact likely on livelihoods of persons living on the land to be acquired?		√	There will be no negative impact on the livelihoods of the people living on it since works within the scope of the Sub-project will be conducted on existing roads.
Is there any possibility to move out, close of business/commercial/livelihood activities of persons during construction?	√		Although AYBİS is in use, the Sub-project is expected to have a temporary negative impact on access to facilities, services, or natural resources. Sub-project-specific ESMP and SEP are required to identify and as required address potential risks and mitigations.

Is there any case of temporary or permanent physical displacement of persons due to sub-project works?		√	Existing main roads of the Sub-project have not possibility of this situation. There will not be any temporary or permanent physical displacement within the scope of the Sub-project.
Does this project involve resettlement (physical displacement) of any persons? If yes, give details.		√	Existing main roads of the Sub-project have not possibility of this situation.
Will there be loss of/damage to productive trees, fruit plants or crops that generate livelihood income for the households?		√	Existing main roads of the Sub-project have not possibility of this situation.
Will there be loss of incomes and livelihoods for anyone due to project intervention?	√		The impact of the Sub-project on business/commercial/livelihood activities in the work areas will be local and temporary. Temporary access routes will be provided for affected workplaces during the work. Therefore, there will be no loss of incomes and livelihoods. Sub-project-specific ESMP and SEP are required to identify and as required address potential risks and mitigations.
Will people permanently or temporarily lose access to facilities, services, or natural resources?	√		Although AYBİS is in use, the Sub-project is expected to have a temporary negative impact on access to facilities, services, or natural resources. Sub-project-specific ESMP and SEP are required to identify and as required address potential risks and mitigations.

Labor

Labor issues	Yes	No	Details
Will project cause loss of employments/jobs?		√	No loss of employments/jobs are anticipated due to the works within the scope of the Sub-project.
Will project generate excessive labor influx as a result of new constructions?	√		The number of personnel to work on site during the construction phase is approximately 22 people. However, this impact will be limited due to the relatively small number of employees planned for the Sub-project construction works.
Does construction activities require additional/skilled labor from outside the locality?		√	Due to the nature of the Sub-project, a limited number of additional skilled labour might be required from outside the locality.
Will sub-project/construction activities cause destruction/disturbance to host community living?	√		Short term and limited noise/air quality disturbances are expected due to the Sub-project construction activities. Sub-project-specific ESMP and SEP are required to identify and as required address potential risks and mitigations.
Will construction of new buildings, drainage lines, powerlines create any degradation/disturbances for public buildings/resources/ adjacent houses, wells, lands, burial places, children parks, schools etc.?	√		Short term and limited social disturbances are expected due to the Sub-project construction activities. Any unintended damages to adjacent land and structures during construction will be compensated, repaired and mitigated in accordance with the Sub-project-specific ESMP and SEP which are required to be prepared by IZSU and contractor.

Will this intervention generate downsize in current labor force (retrenchments) of the agency?		√	No generation of downsize in current labour force (retrenchments) of the agency is anticipated.
Are there are GBV/SEA/SH risks for workers?	√		GBV/SEA/SH risks are present in this sub-project as in every project. In order to prevent negative impacts, all employees will be trained on discrimination and codes of conduct. The trainings will be explanatory about the concepts of SEA/SH and GBV. At the same time, through the trainings, workers will be familiarised with the Sub-project's Grievance Mechanism (detailed in the Sub-project SEP document) and the steps to be followed when exercising their legal rights. Any complaint about these issues will be handled strictly confidential.
Is there a grievance mechanism for the workers? Is it functioning?		 √	They can state their complaints via "Alo 185 IZSU Çağrı Merkezi". In addition, a complaint mechanism is also working through CIMER. Apart from these complaint channels, a Sub-project specific grievance mechanism has not yet been developed. However, a Sub-project-specific worker grievance mechanism will be established.

Vulnerable Groups

Vulnerability issues	Yes	No	Details
Are there any vulnerable groups who may be affected adversely due to the sub-project?		√	Sub-project-specific ESMP and SEP are required to identify and as required address potential risks and mitigations.

SUMMARY OF SOCIAL SCREENING

Project Categorization and Need for Safeguards Instruments, Oversight

Project Category	☐ **Low** ☒ **Moderate** ☐ **Substantial** ☐ **High**
Key Reasons	The main E&S risks due to the activities planned within the scope of the Sub-project are related with the construction of water supply line on the existing public roads and a water tank listed as in below. • Sub-project may involve or lead to general and sector-specific OHS risks that need to be managed in accordance with national legislation and good international industry practices (e.g. WB Group Environmental, Health and Safety Guidelines) throughout the construction phase mainly. Sub-project-specific E&S assessment and management documentation is required to address the risks adequately. Contractors are required to prepare and implement Sub-project specific OHS management plans and procedures addressing the identified OHS risks. • Sub-project may involve or lead to pollution/release of pollutants to air, water, land/soil due to routine, non-routine and accidental circumstances during construction and operation phases. Sub-project-specific E&S assessment and management documentation is required to address the risks adequately. • Sub-project will lead to increased risk of traffic related accidents and road safety issues on the provincial roads/motorways and village roads during the construction phase. Sub-project-specific E&S assessment and management documentation is required to address the risks adequately. • Sub-project may involve risk of managing stakeholder expectations, reactions, grievances, feedback, etc. A SEP, including grievance mechanism for public, is required to be prepared in line with ESS10. SEP must cover any vulnerable/ disadvantaged groups etc. if any. The identified risks and their impacts will have medium magnitude, will be limited in scale (site-specific) and will be temporary, can be avoided, managed and/or mitigated with relatively uncomplicated accepted measures which will be defined in ES assessment documents (ESMP, SEP, OHS Management Plan, etc.). So, the risk rating has been defined as “Moderate”.

Safeguards Instruments Required	☐ ESIA and ESMP ☒ ESMP ☒ SEP ☐ RP ☐ Ex-Post Social Audit Report

Prepared by		
Checked and Categorized as (low, moderate, substantial, high) by		
Reviewed and accepted by		

APPENDIX-B
Chance Find Procedure of the Sub-project

INTRODUCTION

This document presents the Chance Find Procedure for Wastewater and Stormwater Network Project (hereinafter referred to as 'sub-project(Lot-3)) and is prepared by 2U1K Engineering and Consultancy Inc. for " Izmir Metropolitan Municipality Water and Wastewater Administration (IZSU) " (hereinafter referred to as 'Borrower / Project Owner').

This document is intended to avoid potential impacts of the sub-project on any cultural heritage during land preparation works, including excavation. This Procedure is a part of the general package as an annex to the Environmental and Social Management Plan (ESMP) developed for the sub-project.

SCOPE

Types of Cultural Heritage Covered by This Procedure

Tangible Cultural Heritage

Tangible (physical) cultural heritage refers to movable or immovable objects, sites, structures, groups of structures, and natural features and landscapes that have archaeological, paleontological, historical, architectural, religious, aesthetic, or other cultural significance.

ROLES AND RESPONSIBILITIES

Roles	Responsibilities
Contractors	• Compliance with the Chance Find Procedure provided in contractor agreements, • Provide appropriate training and information to the worksite personnel who work in the sub-projects and who may disturb the cultural heritage so that they understand their responsibilities for cultural heritage.
Project Owner	• Ensure compliance of the sub-project with the Project Standards and other requirements given in this procedure, • General responsibility for the scope and implementation of the procedure, • Development, monitoring and revision of this procedure, • Fulfillment of cultural heritage evaluation processes, • Ensure that the operations do not disturb cultural properties and sites without the approval of the relevant authority, • Investigation, reporting and monitoring of unauthorized damages to the worksite as well as of procedure violations, • Management of amendments to laws or policies, • Coordination with the organizations involved in the implementation and other stakeholders.
All Workers	• Learn about the Chance Find Procedure through induction training and any other training provided.

PROJECT STANDARDS

- Law on the Conservation of Cultural and Natural Properties (LCCNP) (No: 2863),
- World Bank Protection Policy on Physical Cultural Resources (OP/BP 4.11),
- Convention Concerning the Protection of the World Cultural and Natural Heritage (World Heritage Convention).

CHANCE FIND PROCEDURE

Initial Approach Adopted by the Contractor

- Action 1: Immediately stop all construction works in the vicinity of the chance find, in case of discovery of archaeological finds;
- Action 2: Immediately notify the project manager and/or environmental department;
- Action 3: Take photographs or make technical drawings;
- Action 4: Record the location of the location by keeping all remains in their position (without moving them);
- Action 5: Prevent damage to or loss of movable objects by encircling the area;
- Action 6: Contact an archaeologist from a local university for guidance;
- Action 7: Prepare the Chance Find Form (Annex 1).

Approach Adopted by the Archaeologist

Based on the description of the find, the archaeologist will make recommendations on actions to be taken by phone/e-mail or visit. The Project team will take into account the following possible strategies, if the archaeologist(s) confirm(s) the presence of archaeological finds/remains/sites:

Strategy 1: Avoidance by partial or full sub-project redesign or relocation

In case of any archaeological find or discovery, the Project Owner will provide the relevant information to authorities. This responsibility will apply even if the sub-project is redesigned or relocated. In any case, the relevant governmental body will be informed of the archaeological find or discovery.

Strategy 2: Implementation of worksite protection measures

This option includes the implementation of site protection measures such as fencing or blockage. As per LCCNP No. 2863, any archaeological find is the property of the Republic of Türkiye, and governmental bodies will decide on the geographical scope and implementation of site protection measures.

Strategy 3: Rescue or emergency excavation

If the Project Owner fails to relocate or redesign the sub-project, this may require rescue or emergency excavation works. If notification is stipulated by LCCNP, an application will be lodged to governmental bodies. If an official application is lodged, the relevant Regional Board will be allowed to make a decision.

After the permit is obtained, archaeological excavations will be performed with the attendance of scientific consultants from the archaeological departments of universities. Following the completion of archaeological excavations, the results will be submitted to relevant governmental bodies for the final decision to be taken for the progress of the sub-project.

Procedure for the Discovery of Potential Human Remains

Identification of human remains is very clear in terms of graves or burial sites. If a grave or burial site is found, the procedures to be followed are not different from the procedure applicable to archaeological finds as per Article 6 of LCCNP. Modern burials or forensic human remains will not be addressed within the scope of LCCNP.

KEY PERFORMANCE INDICATORS

The key performance indicators to be used during the implementation of this Procedure are set out below.

Table 1.1. Key Performance Indicators (KPIs)

No	KPIs	Target	Monitoring Measure
1	Non-conformities reported during the year with respect to key management controls identified in this procedure	Minimization of reported non-conformities, aiming at zero	Database Reporting Inspection Reports
2	Number of complaints lodged by local communities during the year regarding cultural heritages	Investigation of complaints about cultural heritage (disrespect, destruction, removal, sale of artefacts) and fulfilment of relevant actions. Provision of prompt response to complaints from local communities regarding the misbehaviour of personnel regarding cultural properties.	Database Grievance Mechanism Records Reporting

REPORTING

Contractor will comply with reporting requirements including chance finds defined in site-specific ESMP (contractor will develop monthly and quarterly monitoring reports and submit

to IZSU through supervision consultant; IZSU will examine submit the reports to ILBANK quarterly (and monthly if requested by ILBANK); ILBANK will inform the WB by providing regular semi-annual monitoring reports.

ANNEX – 1 Sample Chance Find Form

Place:	Chance Find No:	Date:
Location Data: **Coordination:** **Elevation:** **Brief Area Description:**		
Chance Type:	⎡ ⎤Archaeological Items ⎡ ⎤Metal Finds ⎡ ⎤Terracotta Finds ⎡ ⎤Pottery Shards ⎡ ⎤Glass Finds	⎡ ⎤Sculpture etc. ⎡ ⎤Human / Animal Bone ⎡ ⎤Unidentified
Temporary Measures		
Photograph		
Discoverer's Name-Last Name:		
Signature:		

APPENDIX-C
Generic Asbestos Management Plan

WASTEWATER AND STORMWATER NETWORK PROJECT IN VARIOUS STREETS AND AVENUES OF KONAK AND KARABAĞLAR DISTRICTS WITHIN IZMIR PROVINCE (LOT 3)

GENERIC ASBESTOS MANAGEMENT PLAN

March 2024

ABBREVIATIONS

AMP	Asbestos Management Plan
Employee	Licensed employee within licensed and authorized companies that carry out all asbestos-related works
Employer	Asbestos-related works' Subcontractor
IZSU	The Izmir Metropolitan Municipality Water and Wastewater Administration
PPE	Personal protective equipment required for asbestos-related work
Specialist	Licensed specialist within licensed and authorized companies that carry out all asbestos-related works
Sub-project	Wastewater and Stormwater Network Project in Various Streets and Avenues of Konak and Karabağlar Districts within Izmir Province (Lot 3)
Worker	Licensed worker within licensed and authorized companies that carry out all asbestos-related works

1. Introduction

The Izmir Metropolitan Municipality Water and Wastewater Administration (hereinafter “IZSU”) is responsible for avoiding, mitigating, or compensating any potential impacts of the " Wastewater and Stormwater Network Project in Various Streets and Avenues of Konak and Karabağlar districts within Izmir Province (Lot 3)" (hereinafter “the sub-project”) activities on the workers/employees and other stakeholders. There is no planned work for asbestos pipes to be carried out within the scope of the sub-project. However, during the implementation of the sub-project, in case of the IZSU decides to carry out any repair, dismantling, demolition, maintenance, and removal activities for asbestos pipes or in case of accidental breaking of encountered asbestos pipes, this Asbestos Management Plan (AMP) will be applied that has been developed in accordance with the Regulation on Health and Safety Measures in Working with Asbestos (dated 25.01.2013 and numbered 28539) to guide the IZSU.

2. Roles and Responsibilities

According to the Regulation on Health and Safety Precautions in Working with Asbestos, all asbestos-related works must be carried out only by licensed and authorized companies and licensed specialists/workers/employees. Therefore, any asbestos-related work shall be contracted by the IZSU with a subcontractor (asbestos-related works’ subcontractor is the Employer of this AMP) with the specified qualifications. In this regard, the Employer (asbestos-related works’ subcontractor is the Employer of this AMP) would train all workers/employees involved in supervision and construction works regarding the procedure in case of any planned or unplanned work (including accidental asbestos pipe breakings) on asbestos pipes, and necessary personal protective equipment (PPE) will be available for use when needed. The IZSU and all the contractors are to comply with the procedure during the sub-project construction activities. No financial burden can be imposed on the workers/employees for the trainings carried out and the mitigation/remediation measures applied to the PPEs provided.

3. Asbestos Management Process and Procedure

The step-by-step process and procedure to be followed are provided below:

- Risk Assessment: The Employer is obliged to carry out a risk assessment, taking into account the type and physical properties of asbestos and the degree of exposure of the workers/employees where there is a risk of exposure to asbestos dust. Where there is a risk of exposure to asbestos dust, the employer is obliged to carry out a risk assessment before work commences, taking into account the type and physical characteristics of asbestos and the degree of exposure of workers/employees. The views of workers/employees or their representatives shall be taken during the risk assessment.

- Notification with Work Plan: The Employer is obliged to prepare a work plan before starting these works and notify the related Provincial Directorate of Labour and Employment Institution of the work plan. The notification includes the following:
    - Commercial name and address of the workplace,
    - The type and amount of asbestos to be removed,
    - Works to be done and procedures/processes to be applied during works,
    - Number of workers/employees,
    - Starting date and the estimated duration of work,
    - Asbestos removal specialist certificate,
    - Asbestos removal worker/employee certificate.

The work plan specifies the measures to be taken in the working area within the scope of the risk assessment of the health and safety of the workers/employees. The working plan includes the following:

- Type of work and estimated duration and place of the work,
- The method to be used for the removal of asbestos-containing materials,
- Features of equipment used in asbestos dismantle, repair, maintenance, and removal work,
- Protection of workers/employees from asbestos materials,
- Protection measures of other persons in or near the working environment during the work,
- Removal of asbestos and/or asbestos-containing materials from buildings and facilities prior to demolition, except where the retention of asbestos and/or asbestos-containing materials does not pose a greater risk.

- Dismantling, Repair, Maintenance, and Removal Works: Before starting the mentioned works, the Employer inspects the sub-project area, existing structures, and infrastructure plans to identify asbestos-containing material locations.
    - Asbestos-related works are carried out by the asbestos removal workers/employees, under the supervision of an asbestos removal specialist. An asbestos removal worker/employee defines as a worker/employee having vocational training certificate for asbestos dismantling, repair, maintenance, and removal works or who has completed the training program established by the commission established by the Ministry of Labour and Social Security and has received a course completion certificate. An asbestos removal specialist defines as the person given responsibility by the Employer during the implementation of the procedures specified in the Regulation on Health and Safety Measures in Working with Asbestos (dated 25/01/2013 and numbered 28539), who has completed the training program established by the commission established by the Ministry of Labour and Social Security, and who has received a course completion certificate after being successful in the exam.
    - Asbestos measurement and sampling are carried out by accredited and authorized laboratories. While determining the sampling places, the opinions of the workers/employees or their representatives are also taken. The sampling time is regulated to determine the worker's/employee's exposure over eight (8) hours of work (one (1) shift) by measurement or time-weighted calculation. The Employer ensures that the asbestos concentration in the air the workers/employees are exposed to during the work does not exceed 0.1 fibre/cm^3 of the eight-hour time-weighted average value.
- End of Work Notification: When the asbestos dismantling, repair, maintenance, and removal works are completed, the Employer or its representatives shall provide a document containing the measurement results indicating that there is no risk of exposure to asbestos dust in the workplace.
- The report containing the documents and measurement results prepared by accredited and authorized laboratories will be submitted to the Provincial Directorate of Labour and Employment Agency by the Employer or its representatives.

4. Asbestos Exposure Mitigation Measures and Over-exposure Action Plan
    a) Asbestos Exposure Mitigation Measures: The following measures should be taken to minimize the exposure of workers/employees to dust from asbestos materials:
        - Necessary markings should be made in the working areas and warning signs should be placed.
        - Unauthorized workers/employees should be prevented from entering the work area.
        - Smoking-prohibited areas should be determined.
        - The places reserved for eating and drinking should be chosen outside the places where there is a risk of contamination with asbestos dust.
        - Workers/employees should be provided with appropriate personal protective equipment (PPE) such as protective clothing, disposable clothing, gloves, safety glasses, respirators and their appropriate use must be strictly supervised.
        - PPE should not be taken out of the workplace. Protective clothing should be cleaned in the workplace or where cleaning work is carried out and removed from the workplace only in closed containers.
        - Protective clothing and workers'/employees' own clothing should be kept in separate places.
        - Hand and face washing, and shower places should be provided for workers/employees in dusty work.
        - PPE used should be stored in specially designated places, checked, and cleaned after each use, repaired, and maintained.
        - Work should be carried out with as few workers/employees as possible.
        - The working area should be isolated so as not to produce asbestos dust. If this is not possible, it should be designed in such a way as to prevent the spread of dust to the environment. In order to prevent formation of asbestos dust or mixing of dust into air, the working area should be sprayed with water at regular intervals.
        - Cleaning and maintenance of the equipment used in places having a risk of asbestos exposure should be to be carried out regularly and effectively.
        - Asbestos materials should be transported in suitable sealed packages and stored separately from other materials.
        - Wastes containing asbestos should be collected immediately, labelled using appropriately and removed from the workplace as soon as possible in sealed packages and disposed of in accordance with the relevant legislation.

- During dismantling, demolition and removal works, people living in the vicinity should be warned against asbestos risk, removed from the work area and/or protective equipment should be provided.
- Storage areas for asbestos disposal should be determined by modelling that takes into account the prevailing winds in the city and excludes residential areas from the impact area of possible dusting and fibre transport.
- Contaminated clothing and protective equipment should be disposed of in the same way as other asbestos-containing materials. Worksites should be provided for washing of workers/employees.
- Ensure that they are aware of the need to wash before eating, drinking, or smoking and before returning home to minimise the risk of spreading asbestos fibres outside the worksite.
- Access to areas with piles of construction rubble, demolition sites and waste sites should be restricted. Children in particular should be kept away from these areas.

b) Over-exposure Action Plan: The following measures are taken in case of a limit value breach:
   - The reasons for exceeding the limit value are determined and the necessary measures are taken immediately to reduce the asbestos concentration below 0.1 fibre/cm^3. Work cannot be carried out in the affected area until appropriate measures are taken to protect workers/employees.
   - Whether the measures taken are sufficient or not is determined by ambient air asbestos concentration measurements.
   - In cases where it is not possible to reduce the exposure with other measures and it is only possible to comply with the limit value by using respiratory system protection, the workers/employees with the protector cannot work continuously. The maximum time each worker/employee will work is determined in advance and cannot be exceeded.
   - Appropriate rest breaks are given during the work using protective equipment, considering the physical conditions, climatic conditions, and the views of the workers/employees or their representatives.

5. Health Surveillance

An occupational physician / a workplace doctor will be appointed to provide health services at the workplace to protect and improve the health of workers/employees and to provide diagnosis and treatment services quickly in case of possible occupational diseases in line with the national legislation. His or her duties are listed below.

- Performs general examinations and tests, especially respiratory system examinations, and repeats lung radiographs at appropriate intervals if necessary.
- Makes recommendations to the employer on protective and preventive measures according to the results of the examinations and tests.
- Provides information to workers/employees about health assessments that should be carried out after the end of exposure.

6. Record Keeping

The Employer performing the asbestos dismantling, repairing, maintaining, or removal work or subcontracts the work; keeps and maintains records indicating the work performed by those involved in the work, the duration of the work, and the level of exposure. Any health personnel, health institution, or health organization can examine these records upon request. Workers/employees can get a copy of their records. Workers/employees or their representatives may receive general information about records anonymously. Records are retained for at least 40 years after exposure to asbestos dust ceases. In case of transfer of the workplace with its workers/employees, the records are delivered to the transferred business. In case of closure of the workplace, the records shall be delivered to the Provincial Directorate of Social Security Institution.

7. Reporting

IZSU will report details of any significant incidents involving asbestos within 48 hours and submit an incident report to ILBANK, including RCA, precautions and compensation measures taken within 30 business days. ILBANK will forward the incident report to the World Bank immediately upon receipt from the IZSU.

APPENDIX-D
Common OHS Risks and General Mitigation Measures

Risk Area	General Mitigation Measure
EXISTING ASBESTOS PIPELINE AREAS OF WATER SUPPY NETWORK	▪ At each workplace, an assessment will be carried out to identify any Asbestos Containing Materials (ACMs) that may be present. As a first attempt, during renewal of the pipelines, existing pipelines of water supply network will be left under the ground in the existing location. If they need to be removed because of new pipe installation requirements, then removal process will be executed, and specific precautions will be determined in line with the Regulation on Health and Safety Measures in Working with Asbestos dated 25.01.2013 (OG No: 28,539). In this respect, the generic Asbestos Management Plan, which is largely compliant with the national legislation, is presented in Appendix-C. Hence, it is recommended that this plan for managing ACMs is developed by the Contractor prior to construction. The relevant mitigation measures to be taken for the OHS are given in Table 4.
WORKING AT HEIGHTS Working from heights is the most common cause of fatal injuries to workers.	▪ All employees who have received a certificate from the workplace physician that they can work at height need suitable training in working on different pieces of equipment, and such work must be planned appropriately. Safety approaches and precautions should be adopted, such as: Where practical, avoid the need to work at height. ▪ Put collective measures and implement a ‘’Working at Height Permit System where working at height can’t be avoided to prevent falls. Such as the use of equipment to provide an extra level of safety to reduce the risk of a fall according to ‘’Occupational Health and Safety Regulation in Construction Works’, a scaffold with a double guard-rail or edge protection is needed. Minimize the consequences of a fall by providing a safety net. ▪ Wear the necessary Personal Protective Equipment (PPE) such as a safety harness.
MOVING OBJECTS A construction site is an ever-changing environment, with many objects moving around, often on uneven terrain. Delivery vehicles, heavy plant machinery and overhead lifting equipment pose a hazard to site workers and operators.	▪ Sites should always be planned to manage plant and pedestrian interface where physical barriers and suitable segregation is in place. ▪ To reduce risks, workers should: ▪ Never stand behind large operating plant machinery (sweeping area) and never stand under suspended loads. ▪ If they do not have lights or sound warnings, they should not be allowed to work in the project area. Periodic checks of the construction machines should be up to date. ▪ Always ensure you have a banksman to guide plant vehicles when reversing or manoeuvring on a public road. ▪ Always wear PPE such as a hard hat and high visibility jacket to ensure he/she is seen.
SLIPS, TRIPS, AND FALLS Slips, trips, and falls can happen in almost any environment, and, in construction, there are more common incidents of these kinds of injuries than in other industries. The HSE reports that around a	▪ Managers and Site supervisor on construction sites must effectively manage the site so that workers can move around it safely. Risks should always be reported and sorted to reduce the chances of injury. To reduce harm due to Slips,

Risk Area	General Mitigation Measure
quarter of injuries reported are due to Slips, Trips and Falls. As construction sites often have uneven terrain and the typography is forever changing, it is unsurprising that slips, trips, and falls are a common hazard. HSE reports that several thousand construction workers are injured every year following a slip or trip. Most of these could be avoided by effectively managing working areas and access routes, such as excavations and footpaths.	Trips and Falls; ▪ Keep work and storage areas tidy and designate specific areas for waste collection. ▪ Where surfaces are slippery with mud, they should be treated with gravel. ▪ Where surfaces are slippery with ice, they should be treated with grit. ▪ All slippery areas should be signposted, and footwear with a good grip should be worn.
NOISE Working around loud, excessive, and repetitive noise can cause long term hearing problems, such as deafness. Noise can also be a dangerous distraction and may distract the worker from the task at hand, which can cause accidents.	▪ A comprehensive noise risk assessment should be carried out where the risk assessment has highlighted a noise hazard with the works to be undertaken.
HAND ARM VIBRATION SYNDROME HAVS (Hand Arm Vibration Syndrome) is a debilitating and painful disease of the blood vessels, nerves, and joints. It is typically caused by the continued use of hand-held power tools, including vibratory power tools and ground working equipment. Some of the workers at risk of developing HAVS, resulting in the inability to do fine work, and cold temperatures can trigger painful attacks on the fingers. Once the damage is done, it is permanent.	▪ HAVS is preventable if construction works are correctly planned to minimize exposure to vibration during work and workers are monitored are given appropriate protection when using vibrating tools and equipment.
MATERIAL HANDLING – MANUAL AND BY EQUIPMENT Materials and equipment are constantly being lifted and moved around construction sites, whether manually or by equipment. Either way, handling carries a degree of risk.	▪ For manual handling, training must be provided to ensure employees can lift and carry materials safely. ▪ For lifting equipment handling, there are lots of risks, especially when operating lifting equipment on uneven ground. If an employee is required to use lifting equipment, they must be trained to operate the equipment safely, and a regular test should be taken to check their ability to use the equipment. Always check your plant is fit for use and that it's certificated and inspected before use.
EXCAVATIONS Incidents commonly occur within excavations on construction sites, such as an unsupported excavation collapsing with workers inside.	▪ Common safety measures that need to be put in place according to ''Occupational Health and Safety Regulation in Construction Works'' to prevent excavations from collapse and to reduce the risk of operatives falling into excavations. ▪ Never work in an unsupported excavation. ▪ Shoring or terracing application will also be used. ▪ Ensure an excavation is supported and fully secure. ▪ Regularly inspect the excavation both before and during the work shift. ▪ Always check that the edge protection of an excavation is 100% intact before you enter it. ▪ Always maintain a safe distance from the edge of all deep excavations.
ELECTRICITY	▪ In civil engineering, strikes to services are

Risk Area	General Mitigation Measure
Most of the accidents arise from contact with overhead or underground power cables and electrical equipment/machinery.	common. The strikes happen when excavation is undertaken without adequately checking the ground for existing services. Consequently, incidents can easily be avoided by using technology such as CAT and Genny scanning equipment to scan an area and foresee potential services and prevent service strikes.
AIRBORNE FIBRES AND MATERIALS Construction dust is often an invisible, fine, and toxic mixture of hazardous materials and fibres. This can damage the lungs and lead to chronic obstructive pulmonary disease, asthma, silicosis, and other such diseases.	▪ All employers have to ensure suitably chosen protective equipment is used.
SITE SECURITY Having inadequate security around a construction site may danger the public and lead to an unnecessary incident	▪ Always make sure that boundary safety fencing is 100% secure and there are no openings for the public to access.
FIRE PROTECTION RISK Despite the presence of firefighting equipment, safe storage of chemicals, personnel training, controlled ignition, regular cleaning, and inspection measures, the risk of fire can increase if proper protection is not ensured.	▪ Fire-fighting equipment will be available on site (including but not limited to, rubber beaters when working in grass/bush areas, at least one fire extinguisher of the appropriate type when welding or other 'hot' activities are undertaken); ▪ Surplus chemicals/flammable materials needed at the project site will not be stacked and these chemicals will be stored in safe warehouses. Uncontrolled storage of chemicals increases the danger of fire and sabotage. ▪ All employees will be trained about the fire risks and how to deal with any fires in case occurs; • Fires won't be lit for any reason. ▪ Debris will be cleaned regularly. ▪ Work areas and buildings will be inspected regularly to detect and eliminate potential fire sources ▪ Smoking will be allowed only in designated smoking areas. Cigarette butts will not be thrown to the ground.