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SUSTAINABLE CITIES PROJECT-II

Additional Financing



Republic of Türkiye
Çilimli Municipality

Çilimli Geothermal Well Drilling Project Environmental and Social Management Plan

Final Report

January 2024



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Çilimli Geothermal Well Drilling Project Environmental and Social Management Plan

Final Report

January 2024

Prepared by ACE Consulting and Engineering Inc.

Client: ILBANK A.Ş.

Project Owner: Çilimli Municipality

Revision No / Date: 07 / 19.01.2024

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List of Abbreviations

°C	: Celsius Degree
ACCOBAMS	: Agreement on the Conservation of Cetaceans of the Black Sea Mediterranean Sea and Contiguous Atlantic Area
ACE	: ACE Consulting and Engineering Inc.
AF	: Additional Financing
AFAD	: Disaster and Emergency Management Presidency
AoI	: Area of Influence
BOPE	: Blowout Prevention Equipment
Cd	: Cadmium
CH ₄	: Methane
CIMER	: Presidency Communication Center
CITES	: The Convention on International Trade in Endangered Species of Wild Fauna and Flora
cm	: Centimeter
CO	: Carbon Monoxide
dBA	: Decibel A Scale
DIKAB	: Düzce Provincial Solid Waste Association
DO	: Dissolved Oxygen
DSI	: State Hydraulic Works
E	: East
EBRD	: European Bank for Reconstruction and Development
E&S	: Environmental and Social
EA	: Environmental Assessment
EBRD	: European Bank for Reconstruction and Development
EHS	: Environment, Health, and Safety
EHSS	: Environmental, Health, Safety and Social
EIA	: Environmental Impact Assessment
EMEP	: Monitoring and Evaluation of the Long-range Transmission of Air Pollutants in Europe
ESIA	: Environmental and Social Impact Assessment
ESMF	: Environmental and Social Management Framework
ESMP	: Environmental and Social Management Plan
ESMR	: Environmental and Social Monitoring Report
ESMS	: Environmental and Social Management System
EU	: European Union



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EW	: East west
FI	: Financial Intermediary
GBV	: Gender-based Violence
GHG	: Greenhouse Gas
GRM	: Grievance Redress Mechanism
h	: hour
H₂S	: Hydrogen sulphide
ha	: hectare
ha	: hectare
HC	: Hydro carbon
HCl	: Hydrochloric acid
Hz	: Hertz
HF	: Hydrogen fluoride
hm	: hectometer
IFC	: International Finance Corporation
ILBANK	: ILBANK A.ř.
IUCN	: International Union for Conservation of Nature
K	: Permeability
KBA	: Key Biodiversity Area
kg	: kilogram
km	: Kilometer
km²	: Square kilometer
KPI	: Key Performance Indicator
kW	: kilowatt
kΩ	: Kilo ohm
L	: Liter
L&FS	: Life and Fire Safety
LARAP	: Land Acquisition and Resettlement Action Plan
LARPF	: Land Acquisition and Resettlement Policy Framework
LC	: Land cover
Leq	: Mean Tracheal Sound Energy
LTIR	: Lost Time Injury Rate
LU	: Land use
LUC	: Land Use Capability
m	: Meter
m²	: Square meter



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m³	: Meter cube
MEUCC	: Ministry of Environment, Urbanization and Climate Change
mm	: Millimeter
MoAF	: Ministry of Agriculture and Forest
MoTAT	: Mobile Hazardous Waste Delivery System
MSP	: Municipal Services Project
N₂O	: Nitrous Oxide
NA	: Not Applicable
NDE	: Number of Days Exceeded
NDE	: Number of Days Exceeded
NE	: North east
NGOs	: Non-Governmental Organizations
NO₂	: Nitrogen Dioxide
NO_x	: Nitrogen Oxides
NS	: North south
NW	: North west
OG	: Official Gazette
OHS	: Occupational Health and Safety
OIZ	: Organized Industrial Zone
OP	: Operational Policy
PAP	: Project Affected People
Pb	: Lead
PDEUCC	: Provincial Directorate of Environment, Urbanization and Climate Change
pH	: Potential of Hydrogen
PIF	: Project Identification File
PM₁₀	: Particulate matter less than 10 µm
PM_{2.5}	: Particulate matter less than 2.5 µm
PMU	: Project Management Unit
PPE	: Personal Protective Equipment
RAMAQ	: Regulation on Assessment and Management of Air Quality
RENC	: Regulation on Environmental Noise Control
RAP	: Resettlement Action Plan
RCIAP	: Regulation on Control of Industrial Air Pollution
S	: South



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s	: second
SCP	: Sustainable Cities Project
SDS	: Safety Data Sheet
SE	: Southeast
SEA	: Strategic Environmental Assessment
SEA/SH	: Sexual Exploitation and Abuse and Sexual Harassment
SEDAŐ	: Sakarya Electricity Distribution Corporation
SEP	: Stakeholder Engagement Plan
SO₂	: Sulphur Dioxide
SOP	: Series of Projects
SO_x	: Sulphur oxides
SW	: Southwest
t	: Tone
TDS	: Total Dissolved Solids
Tl	: Thallium
TL	: Turkish Lira
TurkStat	: Turkish Statistical Institute
UNECE	: United Nations Economic Commission for Europe
UTM	: Universal Transverse Mercator
WB	: World Bank
WBG	: World Bank Group
WHO	: World Health Organization
YIMER	: Foreigners Communication Center
µg	: Microgram
µs	: Micro Siemens



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Executive Summary

ILBANK A.ř. (ILBANK) is implementing the Sustainable Cities Project (SCP) with technical and financial support from the World Bank (WB) and European Union (EU). The Program assists cities through (a) planning for sustainable infrastructure service needs through more comprehensive and integrated municipal planning; (b) developing capital investment plans linked to urban plans to mobilize long-term financing that is essential in responding to investment priorities, and (c) financing infrastructure service requirements. The objective is to improve the planning capacity of and access to targeted municipal services in participating municipalities and utilities.

The Çilimli Geothermal Well Drilling Project (the Project) consists of drilling three geothermal wells in Çilimli District, Düzce Province in Türkiye in the scope of SCP-II Additional Financing (AF). The Geothermal Resource Exploration License numbered ARA.81.00.2020.JEO.1 (ER: 3397767), valid until 01.09.2024, has been obtained for the Project by Çilimli Municipality (see Annex 1). The first drilling point (SK-1) is located on an unused land in Ulucami Neighborhood on 656 block, parcel no 1, adjacent to Düzce Street. The second drilling point (SK-2) is an earthen land area located in Kiraztarla Village adjacent to the 510th m of Kiraztarla Village internal road. The last drilling point (SK-3) is an earthen land area located in Söğütlü Village adjacent to the 600th m of Söğütlü Street. The drilling depths will be 700 m for SK-1 drilling well and 600 m for SK-2 and SK-3 drilling wells. The project areas for SK-1, SK-2 and SK-3 are 581.74 m², 96.65 m² and 146.19 m², respectively. The scope of the Project only consists of an exploration phase to determine the potential quality and future use of the geothermal resource. In the next stage, studies will be carried out by the Municipality so that the resource can be used for geothermal plant, spa, or irrigation purposes, depending on the quality and temperature of the resource. The scope of the Project does not cover the operation of the wells.

Based on information provided by Çilimli Municipality, no expropriation/resettlement will occur in relation to the Project as all drilling well locations are either municipal or state property (see Annex 2). SK-1 drilling area belongs to State Hydraulic Works (DSI) and SK-2 drilling area is a municipal area which is under the responsibility of Düzce Provincial Special Administration; necessary consents have been obtained from DSI and Düzce Provincial Special Administration as given in Annex 3. SK-3 drilling area is a municipal land and is located next to a land that is under the legal entity of Söğütlü Village; an opinion letter from Söğütlü Village Headman has been obtained stating that the village commission has no objection to the drilling works and gives consent for the related works (see Annex 3). The lands to be used for the Project are currently not used by formal or informal users. Based on information provided by Çilimli Municipality, one lane of the road may be impacted during drilling works at SK-2 and SK-3 drilling locations, there will be no road closures and roads will be maintained by Çilimli Municipality if they are damaged during drilling works. The trees present in the SK-1 drilling area do not belong to any residents living in the area and are not used for commercial purposes. Based on information provided by Çilimli



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Municipality, there will no entrance to private lands, no trees will be cut at SK-1, SK-2 and SK-3 areas. The owners of the lands near SK-2 and SK-3 drilling area were informed about the Project by ilimli Municipality who have no objection to the Project.

This Environmental and Social Management Plan (ESMP) has been prepared by ACE Consulting and Engineering Inc. (ACE) to assess the environmental and social (E&S) impacts/risks of the Project, in line with the WB Operational Policy (OP) for Environmental Assessment (OP 4.01), Environmental and Social Management Framework (ESMF) of ILBANK for SCP-II AF and Turkish legislation. Presented in this ESMP are the legal framework for environmental and social management; project description; environmental and social baseline; environmental and social impacts/risks of the project; mitigation plan; monitoring plan; environmental and social monitoring report (ESMR); institutional arrangements for the project implementation, and the activities for the involvement of the public. A separate Stakeholder Engagement Plan (SEP) is also developed to identify the stakeholders (including local authorities, communities, workers, etc.), including the potentially vulnerable/disadvantaged individuals/groups, outline the sub-projects communication and engagement strategy, introduce tools and measures of engagement, and set out the principles of grievance of the Project in compliance with WB Safeguard Policies, including OPs (i.e., OP 4.01 - Environmental Assessment and WB's 2010 Policy on Access to Information), ESMF (including Stakeholder Engagement Framework) of ILBANK for SCP-II AF and Turkish legislation.

The main potential E&S impacts/risks have been identified as generation of excavated earth and waste and air/noise emissions impacts during the drilling phase. These impacts can be mitigated by taking appropriate measures to suppress dust emissions and decrease construction-related noise levels accordingly. The well development phase will generate drilling fluid/mud and geothermal brine, particularly those specific to the geothermal exploration drilling projects and appropriate management. Additional E&S effects will be related to the health and safety risks of the project-specific activities for both workers and the local community, which can be mitigated by implementing proper health and safety-related management plans accordingly. Based on information provided by ilimli Municipality, trees are not planned to be cut during drilling works at SK-1 drilling location and there will no entrance to private lands around SK-2 and SK-3 drilling wells. As a result, no adverse impact on land use is expected within the project's scope.

The project is listed in Annex II of the latest EIA Regulation published in the Official Gazette dated 29.07.2022 and numbered 31907 and was also listed in Annex II of the repealed EIA Regulation dated 25.11.2014 that both require preparation of a Project Identification File (PIF) instead of a full EIA Report. In this respect, a PIF dated December 2021 has been prepared in line with the EIA Regulation dated 25.11.2014 and submitted to the Ministry of Environmental, Urbanization, and Climate Change (MEUCC) on the 23rd of December 2021. The EIA process has been completed and the "EIA Not Required" certificate dated 13th of June 2022 has been taken by the authority based on the submitted PIF (see Annex 4). According to the latest EIA Regulation, the investment should start within 5 years as of the



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date the “EIA Not Required” certificate is issued, otherwise the “EIA Not Required” decision becomes invalid. The Project is classified as a **Category B** Project according to the WB OP 4.01.



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1 Introduction

1.1 Overview

The Sustainable Cities Project (SCP) builds on a Municipal Services Project (MSP) and its Additional Financing, which was implemented between 2005 and 2016, together with ILBANK. ILBANK is implementing the Program with technical and financial support from the WB and European Union (EU). The program aims to help municipalities: (i) respond to current and increasing demands for urban services; (ii) plan for future infrastructure service needs sustainably; (iii) mobilize financing to fund priority investments; and (iv) adhere to new spatial planning mandates and infrastructure service requirements. The proposed program is designed as a series of projects (SOP) and includes the following series:

- Sustainable Cities Project 1 (SCP-I),
- Sustainable Cities Project 2 (SCP-II),
- Sustainable Cities Project-II - Additional Financing (SCP-II AF).

The first project in the SOP, SCP I, consists of three components.

- **Component A:** Sustainable City Planning and Management Systems aimed at supporting reforms including policies and legislation that improve sustainable urban development planning, including technical assistance support (i) to municipalities/utilities for planning and management and the preparation of feasibility studies, environmental assessments, and engineering designs for municipal sub-projects; and (ii) to ILBANK for management of the grant and capacity building.
- **Component B:** Municipal Investments, which finance demand-driven municipal investments.
- **Component C:** which finances Project Management of ILBANK.

The second project in the SOP, SCP II consists of two components:

- **Component A:** Municipal Investments; this component was designed to finance demand-driven municipal infrastructure investments. Sectors eligible for investment included public transport, water and wastewater, solid waste management and energy.
- **Component B:** Project Management (financed by ILBANK) was designed to finance goods and consultancy services for project management, monitoring, evaluation, outreach, and communication. Municipalities under SCP II also benefitted from Technical Assistance under Component A of SCP I, which included the component for Sustainable Cities Planning and Management funded by the EU.



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SCP-II AF, includes the same two components as SCP-II. The SCP-II AF will also be very similar to SCP II in terms of nature of the subprojects (investments).

In the scope of SCP-II AF, ILBANK is responsible for identifying eligible sub-borrowers and ensuring that the sub-project eligibility criteria are met. The potential sub-projects were identified in five different sectors:

- Environmental infrastructure (water and sanitation and waste management),
- Energy efficiency (geothermal heating and drilling),
- Urban mobility (intercity railway line, bicycle road),
- Social infrastructure (kindergarten, center for disabled and elderly people),
- Disaster risk management (firefighting services) are listed within the scope of the terms of references.

Sub-projects should meet a set of eligibility criteria to ensure that all sub-projects supported under the project are financially, economically, and technically viable and meet all environmental and social requirements. The project's sub-borrowers (district municipalities, metropolitan municipalities, or their affiliated utilities) will have to meet the sub-borrower eligibility criteria and be mutually agreed upon by ILBANK and the WB. ILBANK will work with sub-borrowers to appraise sub-projects. The reports and studies of the proposed sub-projects will be reviewed and approved by ILBANK and the Strategy and Budget Office of the Presidency in terms of technical, environmental, social, financial, and economic perspectives and accordance with the WB environmental and social safeguard policies.

1.2 Scope of the Project

Çilimli Municipality has proposed a geothermal well drilling project as part of the SCP II - AF Group 4 to serve Çilimli District. The Project aims to identify, investigate, and develop the potential usage of geothermal water. The scope of the Project only consists of an exploration phase to determine the potential quality and future use of the geothermal resource.

ACE has been assigned to prepare environmental and social impact and risk assessment study reports for this project. The scope of ACE's assignment is as follows:

- Prepare an ESMP associated with the risk assessment and anticipated environmental and social impacts based on the principles set out in the Environmental and Social Management Framework (ESMF) (including Stakeholder Engagement Framework) and Land Acquisition and Resettlement Policy Framework (LARPF) of ILBANK¹. The

¹ <https://www.ilbank.gov.tr/sayfa/surdurulebilir-sehirler-projesi-ii-ek-finansman>



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ESMP aims to develop measures to be taken during construction and operation of the sub-projects to avoid, minimize, mitigate, compensate, and offset the identified adverse impacts, as well as the recommended specific actions, indicators for monitoring and evaluation, institutional responsibilities, reporting arrangements, and budget needed to implement these measures. Any Resettlement Action Plan (RAP) or Ex-Post Social Audit was not deemed necessary for this Project since the project does not require any land acquisition.

- Prepare a separate Stakeholder Engagement Plan (SEP) to identify the stakeholders, including the potentially vulnerable/disadvantaged individuals/groups, outline the sub-projects communication and engagement strategy, introduce tools and measures of engagement, and set out the principles of grievance regardless of the Project.
- Carry out a Public Consultation Meeting with interested and affected parties and all relevant stakeholders; Project Affected People (PAPs) including the vulnerable/disadvantaged individuals/groups and analysis of barriers, challenges, constraints to women's participation; about the potential environmental and social impacts and risks associated with the sub-projects.

1.3 Scope of ESMP

The ESMP addresses parameters, methods, and criteria to monitor and measure activities and/or conditions according to the objective and targets. Specific actions are described that the Çilimli Municipality and Contractor will take charge of implementing the mitigation measures and fulfilling the commitments in defined relevant legislation, subsequently through allowing and finally through adaptive management in response to monitoring and follow-up. The objective and target of these plans are to avoid, remove, or reduce any adverse environmental and social impacts/risks to acceptable levels.

The ESMP will cover the activities of the Project, including activities of the contractors, subcontractors, and primary suppliers whom the contractor has control or influence over. The level of detail and complexity of the plans is proportional to the expected impacts and risks of the Project.

The ESMP provides the Project's environmental and social risk management strategy. In addition, it serves as an "umbrella document" integrating 1) the findings of all impact studies carried out during land preparation, construction, and operation phases, 2) the plans and other provisions for complying with the requirements of the standards/policies that were triggered and 3) country- and site-specific information relevant for the project's management strategy. The ESMP is an integral part of the project proposal.



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The ESMP has the following content:

- Project description including log frame and project activities, location, geographic extent of the project, and any characteristics of the area of particular interest (e.g., near a protected area, area of cultural or historical interest);
- A brief reference to the legal framework for environmental and social management;
- The environmental and social baseline of the project area;
- Complete list of identified adverse environmental and social impacts that specific project activities may cause and their significance;
- Planned mitigation measures to avoid negative environmental and/or social impacts/risks, to minimize them to acceptable levels or compensate them; including responsibilities (staffing) and schedule for implementing the mitigation measures;
- Planned monitoring activities to follow adverse environmental and/or social impacts/risks and measuring the effectiveness of the mitigation measures; including responsibilities (staffing) and schedule for implementing the monitoring activities;
- Description of the executing entities' capacity to implement the ESMP and their responsibilities; where needed, provide for capacity building measures (to be included in the ESMP budget);
- Activities for the stakeholder consultation with the project-affected groups and non-governmental organizations (NGOs) during the ESMP process.

There are instances where a mitigation measure is already conceptualized as an activity in the project's main implementation plan. Such activities are included in the ESMP along with all other mitigation measures to provide an overall picture of the project's mitigation strategy and to be able to check the list of mitigation measures against the identified impacts. As such, it serves to analyze whether measures are sufficient, feasible, and sustainable for mitigating the impacts.

Environmental and social monitoring provides information on significant environmental and social issues, especially on the efficiency of measures taken and environmental and social impacts/risks of the project at the implementation stage of the project. Such information enables the assessment of the success of the measures that are part of project supervision for the Project Owner and supervision mechanism and allows proper action whenever necessary. Therefore, the ESMP defines the purposes and types of monitoring, types of monitoring and defines the indicators, thus connecting with project measures criteria.

Regarding the disclosure process of ESMP, the draft ESMP approved by ILBANK and WB has been disclosed and consulted with relevant stakeholders. The inputs/feedback received from the



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stakeholders during the public consultation meetings have been included in this report and the draft ESMP is finalized.



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2 Environmental Policy and Legislation Framework

The national and international regulatory framework and legislation relevant to the Project are presented in this chapter.

2.1 National Framework

Environmental Impact Assessment Regulation

The Environmental Impact Assessment (EIA) Regulation (Official Gazette (OG) numbered 31907 and dated 29.07.2022) governs the environmental impact assessment of investment projects in Türkiye and is largely in line with the EU Directive on EIA.

Screening

The EIA Regulation classifies projects into two categories

- **Annex I projects.** These are projects that have significant potential impacts and require an EIA. Annex I of the EIA Regulation lists these project types, where project proponents are expected to start the EIA procedure without any other screening process.
- **Annex II projects.** These are projects that may or may not significantly affect the environment. Annex II of the EIA Regulation lists these project types. Proponents of Annex II projects must submit a Project Identification File (PIF) to the Provincial Directorate of Environment, Urbanization, and Climate Change (PDEUCC). The PIF is prepared following the General Format for PIF provided in Annex IV of the EIA Regulation and contains information on (i) project characteristics; (ii) project site and existing environmental characteristics of the impact area; and (iii) significant environmental impacts of the project during construction and operation phases and measures to be taken. A non-technical summary of the above items is also added to the PIF. Based on the PIF and the Selection and Elimination Criteria specified in Annex IV of the EIA Regulation, PDEUCC determines whether an EIA is necessary or not.

Public Information and Participation Meetings

For projects that require the preparation of an EIA, the Governorate is required to inform the public that a project application has been submitted in a specified locality, that the EIA process has begun, and that the public may submit its comments and suggestions to the Governorate or Ministry of Environment, Urbanization and Climate Change (MEUCC). It is essential to make a publication at least 10 days before the Public Information and Participation Meeting with the date, location, and name of the relevant Project. The announcement is made using various



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methods, including the internet, bulletin boards, newspapers and loudspeaker announcements. MEUCC informs the public of the same through the internet.

A formal public information and participation meeting occurs for projects that are subject to an EIA after the screening process and prior to scoping. The project proponent organizes a “public information and participation meeting” chaired by PDEUCC in a location that affected local groups can access easily. The invitation to the meeting is published in a national and a local newspaper at least ten days prior to the meeting.

There is no public information and participation meeting required for Annex II projects, subject to preliminary environmental impact assessment via a PIF. The PDEUCC will inform the public about the decision through announcement in their website.

Scoping

The project proponent presents a project dossier (EIA Application File using the EIA outline (Annex III of the EIA Regulation) for Annex I projects) to a commission, which comprises representatives of MEUCC and relevant organizations identified by MEUCC. A Stakeholder Engagement Plan has to be prepared as an annex to the EIA Application File. Based on the information submitted and the views and suggestions received from the public, the commission determines the scope of the EIA and issues the “project-specific format” for the EIA Report to be prepared.

Review and Approval of the EIA Report

The commission reviews the draft version of the EIA report prepared using the project-specific format issued. A Final EIA Report, which incorporates the commission’s assessments, is then submitted to the MEUCC for final review. MEUCC gives the decision whether the “EIA is positive,” in which case the project proponent may implement the project, or “EIA is negative,” in which case the project may not go forward.

Disclosure

The draft EIA report is made available to the public for comments at MEUCC or the Provincial Directorate. After MEUCC’s final evaluation of the EIA report, the Governorate announces to the public MEUCC’s decision together with its justifications.

Monitoring and Inspection

According to the EIA Regulation, MEUCC monitors and inspects projects assessed as either “EIA not required” or “EIA is positive” based on provisions specified in the PIF or the EIA, respectively.



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The project is listed in Annex II of the latest EIA Regulation dated 29.07.2022 and was also listed in Annex II of the repealed EIA Regulation dated 25.11.2014 that both require preparation of a Project Identification File (PIF) instead of a full EIA Report. In this respect, a Project Identification File dated December 2021 has been prepared in line with the repealed EIA Regulation dated 25.11.2014 and submitted to the Ministry of Environment, Urbanization, and Climate Change (MEUCC) on the 23rd of December 2021. The EIA process has been completed and the “EIA Not Required” certificate dated 13th June 2022 has been taken by the authority based on the submitted PIF. The official letter stating that “EIA Not Required” decision is given and the certificate are provided as Annex 4. According to the latest EIA Regulation, the investment should start within 5 years as of the date the “EIA Not Required” certificate is issued, otherwise the “EIA Not Required” decision becomes invalid.

The main relevant legislation is listed below but not limited to:

National Legislation on Environment

- Environmental Law No: 2872; Official Gazette (OG) Date/Number: 11.08.1983/18132;
- Environmental Impact Assessment Regulation; OG Date/Number: 29.07.2022/310907;
- Regulation on Environmental Permits and Licensing; OG Date/Number: 10.09.2014/29115;
- Environmental Audit Regulation; OG Date/Number: 21.11.2008/27061;
- Exhaust Gas Emission Control Regulation; OG Date/Number: 11.03.2017/30004;
- Regulation on Control of Industrial Air Pollution; OG Date/Number: 03.07.2009/27277;
- Air Pollution Control Regulation Originating from Heating; OG Date/Number: 13.01.2005/25699;
- Regulation on Air Quality Assessment and Management; OG Date/Number: 06.06.2008/26898;
- Regulation on the Control of Odor Causing Emissions; OG Date/Number: 19.07.2013/28712;
- Waste Management Regulation; OG Date/Number: 02.04.2015/29314;
- Regulation on the Control of End-of-Life Tires (OG numbered 26357 and dated 25.11.2006);
- Regulation on the Regular Storage of Wastes; OG Date/Number: 26.03.2010/27533;
- Circular on Disposal of Wastes Resulting from Physical Processing of Drilling Mud and Chromium Mine (2012/15);



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- Regulation on Control of Waste Electrical and Electronic Equipment; OG Date/Number: 22.05.2012/28300;
- Regulation on the Management of Waste Oils; OG Date/Number: 21.12.2019/30985;
- Regulation on Control of Waste Vegetable Oils; OG Date/Number: 06.06.2015/29378;
- Regulation on the Control of Packaging Wastes; OG Date/Number: 26.06.2021/31523;
- Regulation on the Control of Waste Battery and Accumulators; OG Date/Number: 31.08.2004/25569;
- Zero Waste Regulation; OG Date/Number: 12.07.2019/30829;
- Communiqué on Recycling and Recovery of Certain Non-Hazardous Wastes; OG Date/Number: 17.06.2011/27967;
- Regulation on Control of Excavated Soil, Construction, and Demolition Wastes; OG Date/Number: 18.03.2004/25406;
- Regulation on Environmental Noise Control; OG Date/ Number: 30.11.2022/32029;
- Regulation on Environmental Noise Emission Created by Equipment Used in Open Area (2000/14/AT); OG Date/Number: 30.12.2006/26392;
- General Sanitation Law No: 1593; OG Date/Number: 06.05.1930/1489;
- Regulation on Environmental Management Services; OG Date/Number: 30.07.2019/30847;
- Water Pollution Control Regulation; OG Date/Number: 31.12.2004/25687;
- Regulation on Water Intended for Human Consumption OG Date/Number: 17.02.2005/25730;
- Regulation on Management of Surface Water Quality; OG Date/Number: 30.11.2012/28483;
- Law on Groundwater No.167; 23.12.1960/10688;
- Regulation on Protection of Groundwater against Pollution and Deterioration; OG Date/Number: 07.04.2012/28257;
- Communiqué On Determining the Protected Areas of Aquifer and Resources Which Supply Drinking Water; OG Date/Number: 10.10.2012/28437;
- Regulation on Pits to be Made in Places where Sewer Pipeline Construction is not Possible; OG Date/Number: 19/3/1971/13783;
- Regulation on the Protection of Wetlands; OG Date/Number: 04.04.2014/28962;



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- Prime Ministry Circular on “Stream Beds and Floods” No. 2006/27; 09.09.2006/26284;
- Regulation on Soil Pollution Control and Point-Source Contaminated Sites; OG Date/Number: 08.06.2010/27605;
- Spatial Plans Construction Regulation; OG Date/Number: 06.06.2008/26898);
- High Planning Council Decision; OG Date/Number: 18.12.2014/2014-39.

National Legislation on Health and Safety

- Occupational Health and Safety (OHS) Law No. 6331; OG Date/Number: 30.06.2012/28339;
- Regulation on OHS Risk Assessments; OG Date/Number: 29.12.2012/28512;
- Regulation on Duties, Authorizations, Responsibilities, and Training of Occupational Health and Safety Experts; OG Date/Number: 29.12.2012/28512;
- Regulation on Duties, Authorizations, Responsibilities, and Training of Workplace Doctors and Other Health Officials; OG Date/Number: 20.07.2013; 28713;
- Regulation on Procedures and Principles of Health and Safety Training of Employees; OG Date/Number: 15.05.2013/28648;
- Regulation on OHS Services; OG Date/Number: 29.12.2012/28512;
- Regulation on OHS Committees; OG Date/Number: 18.1.2013/28532;
- Regulation on Use of Personal Protective Equipment in Workplaces; OG Date/Number: 02.07.2013/28695;
- Regulation on Health and Safety Signs; OG Date/Number: 11.09.2013/28762;
- Regulation on Vocational Training for the Workers to be Worked in Dangerous and Very Dangerous Works; OG Date/Number: 13.07.2013 /28706;
- Regulation on Health and Safety Requirements in Use of Work Equipment; OG Date/Number: 25.04.2013/28628;
- Regulation on Personal Protective Equipment (PPE); OG Date/Number: 01.05.2019/30761;
- Regulation on Manual Handling Operations; OG Date/Number: 24.07.2013/28717;
- Regulation on the Protection of Employees from Noise Related Risks; OG Date/Number: 28.07.2013/28721;



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- Regulation on Protection of Employees from Vibration Risks; OG Date/Number: 22.08.2013/28743;
- Regulation on Control of Dust; OG Date/Number: 05.11.2013/28812;
- Regulation on Machinery Safety; OG Date/Number: 03.03.2009/27158;
- Regulation on Health and Safety Measures for Working with Asbestos; OG Date/Number: 25.01.2013/28539;
- Regulation on Emergencies at Workplaces; OG Date/Number: 18.6.2013/28681;
- Regulation on OHS in Construction Works OG Date/Number: 05.10.2013/28786;
- Regulation on OHS in Temporary or Fixed-Term Works; OG Date/Number: 23.08.2013/28744;
- First Aid Regulation OG Date/Number: 29.07.2015/29429.

National Legislation on Cultural Heritage Protection

- Law No. 2863 on the Protection of Cultural and Natural Assets; OG Date/Number: 18113/23.07.1983.

National Legislation on Labor Management

- Labor Law No. 4857; OG Date/Number: 10.06.2003/25134;
- Law on Unions and Collective Labor Contract No: 6356; OG Date/Number: 07.11.2012/28460
- Regulation on Work Durations related to the Labor Law; OG Date/Number: 06.04.2004/25425;
- Regulation on Overtime Work related to the Labor Law; OG Date/Number: 06.04.2004/25425;
- Regulation on Working Time That Cannot Be Divided to Weekly Workdays; OG Date/Number: 16.08.2013/28737;
- Regulation on Principles and Procedures for Employment of Children and Young Workers; OG Date/Number: 06.04.2004/25425;
- Regulation on Sub-Contractors; OG Date/Number: 27.09.2008/ 27010;
- Regulation on Minimum Wage; OG Date/Number: 01.08.2004/25540;
- Regulation on Annual Paid Vacation; OG Date/Number: 03.03.2004/25391;
- Regulation on Certain Procedures and Principles for Works that are conducted in Shifts; OG Date/Number: 07.04.2004/25426.



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National Legislation on Stakeholder Engagement and Grievance Redress Mechanism

- Right to Information Law. 4982; OG Date/Number: 24.10.2003/25269;
- Regulation on the Principles and Procedures for the Enforcement of the Law on the Right to Information; OG Date/Number: 27.04.2004/25445;
- Use of the Right to Petition Law. 3071; OG Date/Number: 10.11.1984/18571.
- Protection of Personal Data Law. 6698; OG Date/Number: 24.03.2016/29677

National Legislation on Geothermal Resources

- Geothermal Resources and Natural Mineral Waters Law No.5686; OG Date/Number: 13.06.2007/26551;
- Geothermal Resources and Natural Mineral Waters Law Enforcement Regulation; OG Date/Number: 11.12.2007/26727.

National Legislation on Soil Protection and Land Use

- Soil Protection and Land Use Law No. 5403; OG Date/Number: 19.07.2005/25580.

National Legislation on Traffic

- Highway Traffic Law No. 2918; OG Date/Number: 18.10.1983/18195;
- Regulation on Highway Traffic; OG Date/Number: 18.07.1997/23053.

2.2 International Framework

The international rules, regulations and conventions relevant to the Project is given below.

2.2.1 WB Operational Policies

OP 4.01 - Environmental Assessment

Project Categories and Screening

Under the WB's Operational Policy for Environmental Assessment (OP 4.01), projects are classified as Category A, B, and C according to the level of their likely impact on the environment:

- **Category A.** A proposed project is classified as Category A if it is likely to have significant adverse environmental and social impacts/risks (based on its type, location, sensitivity, scale, and the nature and magnitude of its potential environmental impacts/risks). These impacts are generally large-scale, irreversible, sensitive, diverse,



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cumulative, or precedent-setting and may affect an area broader than the sites or facilities financed by the project. For example, Category A projects have one or more of the following attributes: large-scale conversion or degradation of natural habitats; extraction, consumption, or conversion of substantial amounts of forest, mineral, and other natural resources; direct discharge of pollutants resulting in degradation of air, water or soil; production, storage, use or disposal of hazardous materials and wastes; measurable changes in the hydrologic cycle; risks associated with the proposed use of pesticides. Indicative examples in the context of the present project include the construction of a significant new wastewater treatment plant, a new landfill, and rehabilitation of an existing landfill with significant environmental impact.

- **Category B.** A proposed project is classified as Category B if the potential impacts on the environment and society are typically site-specific, reversible, less adverse than those of Category A subprojects, and mitigatory measures can be designed more readily. Projects in Category B sometimes differ only in scale from Category A projects of the same type. For example, large irrigation and drainage projects are usually categorized as A; however, small-scale projects of the same type may be classified as B. The same can be true for small-scale, relatively clean (gas or light diesel oil-fired) thermal power plants, micro-hydropower plants, and small sanitary landfills. Similarly, projects that finance rehabilitating or maintaining an existing infrastructure may have adverse impacts but are likely to be less significant compared to a Category A project and would be categorized as B. Indicative examples include rehabilitation or construction of water supply and/or sewerage network, water treatment plants, wastewater treatment plants which does not include an expansion or new construction, construction of small-scale water treatment plants, urban transport and energy efficiency. Although it has not been specified in the OP, Category B projects divide in two within its structure as Low B and High B projects in practice. Category High B projects have more impacts and mitigation measures than Category Low B projects. Yet, the impacts and mitigation measures are not significant enough to be recognized as Category A projects.
- **Category C.** A proposed project is classified as Category C if it is likely to have minimal or no adverse environmental impacts. For example, technical assistance projects in institutional development, computerization, and training fall in Category C.

When a WB-funded project involves a series of subprojects selected and funded by a financial intermediary (FI) using WB loan proceeds, the project is classified as Category FI. In such projects, the FI screens and classifies the proposed subprojects as Category A, B, or C following the above definitions and ensures that the borrower carries out the corresponding environmental assessment. Since the present project is an FI project, the following discussion will refer to subprojects only.



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Unlike the national EIA Regulation, no clear-cut border values distinguish the categories or any ready lists of project types for categorizing projects as A, B, and C; instead, projects are screened on a case-by-case basis. Although the categorization of projects is based on the magnitude of environmental impacts, projects with high-level social risks may also be determinative in categorizing a project.

The Project is classified as a Category B Project according to the WB OP 4.01.

Scope of Environmental Assessment

Analysis of alternatives is a particularly important feature of an Environmental and Social Impact Assessment (ESIA). For Category A sub-projects, the borrower is required to prepare an ESIA which examines the subproject's potential negative and positive environmental impacts as well as its social impacts, compares them with those of feasible alternatives (including the "without project" situation), and recommends any measures needed to prevent, minimize, mitigate, or compensate for adverse impacts and improve environmental and social performance. Analysis of alternatives is a particularly important feature of an ESIA. ESIA also includes an ESMP that details the measures to be taken during the implementation and operation of a (sub) project to eliminate, reduce or offset adverse environmental and social impacts, the actions needed to implement these measures and monitor indicators and responsibilities.

The scope of Environmental Assessment (EA) for a Category B subproject may vary from subproject to subproject. Still, it is narrower than the ESIA required for Category A. Like Category A ESIA; it examines the subproject's potential negative and positive environmental and social impacts/risks and it recommends any measures to prevent, minimize, mitigate, or compensate for adverse impacts and improve environmental performance. Suppose the project is recognized as a Category B; in that case, this information may be contained in an ESMP only unless site-specific issues necessitate a site-specific assessment in addition to the ESMP.

An example is modest scale building construction on a site in an urban area which would normally require only an ESMP if it is known that there are no environmental and social issues relating to the site. If it is constructed on a green field site, a simple EA would be needed to clarify whether any special environmental or social issues are of concern. The project could turn into Category A if EA work shows the likelihood of significant damage to natural habitat or cases requiring a significant amount of land. On the other hand, if the project is recognized as High B, a partial EA document or partial ESIA must satisfy the expected requirements.

Public Consultation

For all Category A and B subprojects proposed for WB financing, the borrower consults subproject-affected groups and Non-Governmental Organizations (NGOs) about the



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subproject's environmental and social aspects during the EA process and takes their views into account. The borrower initiates such consultations as early as possible. For Category A projects, consultations with these groups occur at least twice: a) shortly after environmental screening and before the terms of reference for the ESIA are finalized; and (b) once a draft ESIA report is prepared. The borrower provides for the initial consultation a summary of the proposed subproject's objectives, description, and potential impacts related to both environmental and social issues. For consultation after the draft ESIA report is prepared, the borrower provides a summary of the ESIA's conclusions. For Category B subprojects, at least one consultation is held with affected groups and local NGOs: once the draft EA report (including ESMP) is prepared. The borrower provides a summary of the EA's conclusions.

In addition, the borrower consults with such groups throughout project implementation as necessary to address EA-related issues that affect them.

For meaningful consultations between the borrower and project-affected groups and local NGOs on all Category A and B subprojects proposed for WB financing, the borrower provides relevant material (in local language) on time before consultation and in a form and language that is understandable and accessible to the groups being consulted.

Review and Approval of the EA

In FI projects, the responsibility to ensure that OP 4.01 requirements are met rests with the FI. The EA process should normally be completed before the FI approves a subproject for a WB loan financing.

Conditionality

In FI projects, the sub-loan agreement between ILBANK and the borrower must include the conditionality for the borrower to implement the ESMP for Category A and B subprojects. To fulfil its environmental and social obligation, the borrower may incorporate the ESMP into the procurement documents and contracts for works. The borrower must monitor and ensure that the contractor complies with the provisions of the ESMP. Non-compliance may lead to the suspension of WB funding for the subproject.

Disclosure

In addition to the disclosure requirements specified under "Public Consultation" above, for Category A subprojects, the FI/municipality must make the draft EIA Report in local language publicly available to subproject-affected groups and local NGOs before the meeting.



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When the ESIA of a Category A subproject is finalized, the FI transmits an English copy of the final report to WB, including an English language executive summary. The Bank distributes the executive summary to its executive directors and makes the report available through its external website.

In the case of Category B subprojects, the FI transmits to WB the final English language Category B EA report, and WB makes it available through its external website.

Implementation

During subproject implementation, the FI reports to WB on (a) compliance with measures agreed with the Bank based on the findings and results of the EA and additional social assessment (if any), including implementation of the ESMP; and (b) the findings of monitoring programs. The Bank bases supervision of the project's environmental and social aspects on the findings and recommendations of the EA and social assessment, including measures set out in the legal agreements, any ESMP, and other project documents.

The comparison between the World Bank Environmental Policy and the National Legislation is given in Table 2-1. Due to the gaps, this ESMP (including Chance Find Procedure provided in Annex-5) and a SEP were prepared by ACE.

Table 2-1. Comparison between the World Bank Environmental Policy and the National Legislation

Steps	EIA Regulation	World Bank OP 4.01
Screening	The EIA Regulation classifies the proposed projects into two categories: 1. Annex-I Projects: Projects with considerable potential impacts, which require an EIA process and EIA Report. 2. Annex-II Projects: Projects with or without considerable potential impacts on the environment.	Within the scope of WB OP 4.01, the proposed projects are classified into three categories: 1. Category A: A proposed project is classified as Category A, if it is likely to have significant adverse environmental and social impacts (depending on the type, location, sensitivity, and scale of the project and the nature and magnitude of its potential environmental impacts). In general, these impacts are major, irreversible, sensitive, variable, cumulative, precedent, and potentially influential over an area broader than the sites and facilities financed under the project. 2. Category B: A proposed project is classified as Category B if its environmental and social impacts are typically site-specific and structurally irreversible and if its impacts are less adverse than those of Category A subprojects and if mitigatory measures can be designed more readily than for Category A



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Steps	EIA Regulation	World Bank OP 4.01
		<p>subprojects. The projects classified as Category B sometimes vary from the same type of Category A projects only in terms of their scale.</p> <p>3. Category C: A proposed project is classified as Category C, if it is likely to have minimal or no adverse environmental impacts. If a project financed by the WB includes a series of sub-projects that are selected by a Financial Intermediary (FI) and financed by the WB loan, the project is classified as Category FI.</p>
Public/Stakeholder Consultation Meetings	<p>For the projects included in the list of Annex-I, which therefore require the preparation of an EIA report, the public information and participation meeting, whose place and date is decided by the Provincial Directorate, is held not later than 10 days prior to the meeting by disclosing it publicly in local and national newspapers.</p> <p>No public information and participation meeting is held for the projects included in the list of Annex-II.</p>	<p>For all Category A and B subprojects proposed for WB funding, the borrower will consult and consider the views of the project-affected groups and non-governmental organizations regarding the environmental impacts of the subproject during the EA process.</p>
Scope of Environmental Assessment	<p>For the projects in the list of Annex-I, an EIA Application File (EAF) will be prepared in line with the format given in Annex-III to the EIA Regulation. Cumulative environmental impact assessment, stakeholder engagement plan (SEP), environmental and social action plan, environmental monitoring plan, sustainability plan, zero waste plan, traffic management plan, greenhouse gas reduction plan and environmental and social management plan shall be attached to the relevant sections of the EIA Application File. According to the information given in the EAF, a special EIA report format will be prepared based on the views of committee members to be formed by the Ministry, and the EIA report will be written in line with this format, and then submitted to the Ministry.</p> <p>For the projects in the list of Annex-II, a Project Introduction File (PIF) will be prepared based on the format given in Annex-IV to the EIA Regulation. The prepared report will be submitted to the Provincial Directorate of Environment.</p>	<p>For Category A subprojects, the borrower is responsible for preparing an ESIA report that examines the project's potential negative and positive environmental and social impacts, compares them with those of feasible alternatives, and recommends any measures needed to prevent, minimize, mitigate, or compensate for adverse impacts and improve environmental and social performance.</p> <p>The scope of the environmental and social assessment document for a Category B subproject may vary from subproject to subproject, but it is narrower than that of Category A ESIA. As with the ESIA required for Category A, the borrower will investigate the potential negative and positive environmental and social impacts of the subproject, and will recommend measures required to prevent, minimize, mitigate or compensate for adverse impacts and enhance environmental and social performance. When the project category is identified as B; this information could be included in ESMP, if there are no site-specific problems that require a site-specific assessment process in addition to ESMP.</p>



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Steps	EIA Regulation	World Bank OP 4.01
EA Review and Approval	<p>The Committee will review the draft version of EIA report for the projects in the list of Annex-I. Then, the final EIA report containing the committee's assessments will be submitted to MEUCC for final review. MEUCC will determine whether EIA is positive; an "EIA Positive" decision is rendered, the project will not be continued further.</p> <p>The PIF prepared for the projects in the list of Annex-II will be reviewed by the Provincial Directorate of Environment, Urbanization and Climate Change and the "EIA Required" or "EIA Not Required" decision will be taken accordingly. For the projects for which the "EIA is Required" decision is rendered, the procedure governing the projects in the list of Annex-I will apply.</p>	<p>For projects involving Financial Intermediaries (FI), the financial intermediary is responsible for meeting the requirements in OP 4.01. Normally, the EA process should be completed by the Financial Intermediary before the subproject is approved for funding of WB loan.</p>
Disclosure	<p>The EIA Report for the projects in the list of Annex-I will be made available to the public opinion at the headquarters of MEUCC or provincial directorates. Following MEUCC's final assessment of the EIA report, the Governor's Office will disclose its reasoned decision publicly.</p> <p>For the projects in the list of Annex-II, the final PIF will be disclosed publicly at the Provincial Directorates.</p>	<p>In addition to the points given in the Public Participation section, the Financial Intermediary will make the draft ESIA report prepared in local language for Category A subprojects available at a public place accessible to project-affected groups and local Non-governmental organizations (NGOs). Upon finalization of a Category A subproject ESIA report, the Financial Intermediary will submit an English copy of the final report to the WB together with the English Executive Summary. The Bank will distribute the executive summary to its executive directors, and discloses it publicly on an external website.</p> <p>For Category B subprojects, the Financial Intermediary will submit an English copy of the final version of the Category B EA report to the WB and the WB will disclose it publicly on an external website.</p>
Implementation, Monitoring and Inspection	<p>Pursuant to the EIA Regulation, MEUCC will monitor and inspect the projects that are regarded as "EIA Not Required" or "EIA Positive", respectively, according to the provisions provided in PIF or EIA Report. In addition, the project owner should submit monitoring reports to MEUCC, and MEUCC needs to submit</p>	<p>During subproject implementation, the Financial Intermediary will report to the World Bank on (a) compliance with measures agreed with the Bank on the basis of the findings and results of the EA and additional social assessments, if any, including implementation of ESIA, and (b) the findings of monitoring programs. The Bank will base supervision of the project's environmental</p>



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Steps	EIA Regulation	World Bank OP 4.01
	these reports to the Governor's Office for announcement to the public.	aspects on the findings and recommendations of the Environmental Assessment, including the measures outlined in legal agreements, ESMP, and other project documents.

OP 4.04 - Natural Habitats

Subprojects that significantly impact a recognized critical habitat or ecosystem will be identified as ineligible. If the subproject's likely impact on natural habitats is not significant or the impact is not on critical habitats, then the priority is to solve the situation through re-siting. If that is not possible, the appropriate mitigation measures will be acknowledged for the related circumstance. The Project does not trigger OP 4.04 - Natural Habitats.

OP 4.11 - Physical Cultural Resources

As the initial stage of baseline studies, literature and surficial studies will be performed. Depending on these studies, the potential impact on these sources and related mitigation measures are assessed in EA/ESIA. However, buried assets (i.e., graves or mounds) may not be determined during baseline studies due to the nature of physical, cultural resources. The principal issue is twofold: (i) "chance finds" identification of during construction and (ii) potential impact of the project on known cultural values. Turkish laws, notably Law on the Protection of Cultural and Natural Assets No. 2863 (OG numbered 18113 and dated 21.07.1983) (revised through the amendment issued on OG numbered 25535 and dated 27.07.2004) and practices meet the WB requirements. The Regulation on Research, Drillings and Excavations concerning the Cultural and Natural Assets, published in the OG numbered 18485 and dated 10.08.1994, defines the procedures and obligations concerning the cultural and natural assets found out during construction. The municipalities are responsible for the application of the said law and regulation. As part of the regular reporting, the municipalities will inform ILBANK of the historical and cultural findings and the actions are taken. ILBANK is responsible for avoiding or mitigating impacts on the physical or cultural resources of the financed projects. Therefore, ILBANK will not proceed with sub-project funding until all requirements of the Turkish legislation are met. The Project does not trigger OP 4.11 - Physical Cultural Resources conditions.

OP 4.12 - Involuntary Resettlement

ILBANK has prepared a Land Acquisition and Resettlement Policy Framework (LARPF), which meets the requirements of the Bank's OP 4.12 during cases of land take. Some of the sub-projects may require additional land to be acquired for construction. In such cases, municipalities will try to avoid land take by considering alternative lands, which may belong to the municipality itself or any other public lands that may be transferred to the municipality for



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the Project. Existing roads and infrastructure lines will be applicable to avoid taking land in linear sub-project components. When the land take is inevitable, Project design will ensure that minimum land take is realized. In cases where there is a need to acquire additional land, a Land Acquisition and Resettlement Action Plan (LARAP) will be prepared by the borrowing municipality according to the LARPF prepared for the Project. Every sub-project that will require land acquisition shall have an individual LARAP that will be approved by ILBANK and cleared by the WB before construction. This Project does not trigger OP 4.12 - Involuntary Resettlement conditions.

OP 4.37 - Safety of Dams

Any sub-project that triggers the policy will not be eligible for financing under SCP. The Project does not trigger OP 4.37 - Safety of Dams conditions.

OP 7.50 - Projects on International Waterways

ILBANK ensures that the projects financed are located/depending on national waterways only. The waterways identified as NOT an international waterway (do not trigger OP 7.50) in Türkiye are as follows: Susurluk, North Aegean, Gediz, Küçük Menderes, Büyük Menderes, Western Mediterranean, Antalya, Sakarya, Western Black Sea, Yeşilirmak, Kızılırmak, Konya Kapalı, Eastern Mediterranean, Seyhan, Ceyhan, Eastern Black Sea, Burdur, Afyon, Central Anatolia, and Van. Any sub-project that triggers OP 7.50 will not be eligible for Bank financing. In this respect, the Project is not located in the international waterways. The Project does not trigger OP 7.50 - Projects on International Waterways conditions.

The WB OPs assessment for the Project is given in Table 2-2. Due to the gaps identified the ESMP and SEP have been prepared.

Table 2-2. WB OPs Triggered by the Project

Operational Policy	Triggered	Notes
OP 4.01 - Environmental Assessment	Yes	The construction and drilling activities are expected to cause environmental and social impacts. As a result, there is a need to identify and evaluate the potential environmental and social impacts of the Project and identify relevant mitigation measures, which is the scope of this ESMP study.
OP 4.04 - Natural Habitats	No	The Project is not located in neither critical and/or natural habitat, environmental protection zones nor sensitive area.
OP 4.09 - Pest Management	No	The Project does not include any activity that requires pest management.
OP 4.10 - Indigenous Peoples	No	This policy is not triggered as there are no people in Türkiye meeting the criteria in OP 4.10 for indigenous people.



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Operational Policy	Triggered	Notes
OP 4.11 - Physical Cultural Resources	No	There are no physical or cultural resources in the project area. The Chance Find Procedure prepared for the Project (presented in Annex 5) will be implemented by the Contractor during construction.
OP 4.12 - Involuntary Resettlement	No	No expropriation/resettlement will occur in relation to the Project as all drilling well locations are either municipal or state-authority property based on information provided by Çilimli Municipality. The lands to be used for the Project are not used by any formal/informal land users.
OP 4.36 - Forests	No	The Project will not be located in a forest area.
OP 4.37 - Safety of Dams	No	No dam or dam- like structure will be constructed nor the project will rely on the performance of an existing dam or a dam under construction within the scope of the Project.
OP 7.50 - Projects on International Waterways	No	The Project is not located on any international waterway.
OP 7.60 - Projects in Disputed Areas	No	The Project is not located within a disputed area.

2.2.2 World Bank Group (WBG) General Environmental, Health and Safety (EHS) Guidelines

The WBG EHS Guidelines are technical reference documents with general and industry-specific examples of Good International Industry Practice. If national regulations differ from the levels and measures stated in these guidelines, the most stringent requirement/standards will apply to the Project for all environmental and social standards. The General EHS Guidelines are organized as follows:

1. Environmental

- 1.1 Air Emissions and Ambient Air Quality
- 1.2 Energy Conservation
- 1.3 Wastewater and Ambient Water Quality
- 1.4 Water Conservation
- 1.5 Hazardous Materials Management
- 1.6 Waste Management
- 1.7 Noise
- 1.8 Contaminated Land

2. Occupational Health and Safety

- 2.1 General Facility Design and Operation
- 2.2 Communication and Training
- 2.3 Physical Hazards
- 2.4 Chemical Hazards



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- 2.5 Biological Hazards
- 2.6 Radiological Hazards
- 2.7 Personal Protective Equipment (PPE)
- 2.8 Special Hazard Environments
- 2.9 Monitoring
- 3. Community Health and Safety
 - 3.1 Water Quality and Availability
 - 3.2 Structural Safety of Project Infrastructure
 - 3.3 Life and Fire Safety (L&FS)
 - 3.4 Traffic Safety
 - 3.5 Transport of Hazardous Materials
 - 3.6 Disease Prevention
 - 3.7 Emergency Preparedness and Response
- 4. Construction and Decommissioning
 - 4.1 Environment
 - 4.2 Occupational Health & Safety
 - 4.3 Community Health & Safety

In addition to the WBG EHS General Guidelines, WBG Industry Sector Guidelines - EHS Guidelines for Geothermal Power Generation is also taken into account.

2.2.3 European Union Environment Policy

EU environment policy rests on precaution, prevention, and rectifying pollution at source, and on the “polluter pays” principle. The precautionary principle is a risk management tool invoked when there is scientific uncertainty about a suspected risk to community and occupational health or the environment emanating from a certain action or policy. For instance, should doubts arise about the potentially harmful effects of a product, and should — following an objective scientific evaluation — uncertainty persist, instructions may be given to stop the distribution of the product or remove it from the market. Such measures must be non-discriminatory and proportionate and reviewed once more scientific information is available. The “polluter pays” principle is implemented by the Environmental Liability Directive, which aims to prevent or otherwise remedy environmental damage to protected species or natural habitats, water, and soil. Operators of certain occupational activities, such as the transport of dangerous substances, or activities that imply discharge into waters, must take preventive measures in case of an imminent threat to the environment. If damage has already occurred, they are obliged to take the appropriate measures to remedy it and pay for the costs. The directive's scope has been broadened three times to include the management of extractive waste, the operation of geological storage sites, and the safety of offshore oil and gas operations, respectively.



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Certain projects that are likely to significantly affect the environment, e.g., constructing a motorway or an airport, are subject to an EIA. Equally, a range of public plans and programs (e.g., land use, transport, energy, waste, or agriculture) are subject to a similar strategic environmental assessment process (SEA). Here, environmental considerations are already integrated at the planning phase, and possible consequences are considered before a project is approved or authorized to ensure a high level of environmental protection. In both cases, consultation with the public is a central aspect. This goes back to the Aarhus Convention, a multilateral environmental agreement under the auspices of the United Nations Economic Commission for Europe (UNECE), which entered into force in 2001 and to which the EU and all its Member States are parties. It guarantees three rights to the public: public participation in environmental decision-making, access to environmental information held by public authorities (e.g., on the state of the environment or of community and occupational health were affected by the former), and the right of access to justice where the other two rights have been disregarded. Monitoring is crucial — both state of the environment and the level of implementation of EU environmental law.

2.2.4 International Conventions and Agreements related to Environment to which Türkiye is a Party of

Türkiye has ratified several international conventions and agreements to environmental conservation. Those conventions and agreements that are of relevance to the Project to which Türkiye is a party of are listed below:

- International Convention for the Protection of Birds, Paris 1959 (OG dated 17.12.1966, and numbered 12480)
- European Cultural Convention 19.12.1954 (OG dated 17.6.1957, and numbered 9635)
- Convention on the Protection of the World Cultural and Natural Heritage, Paris 1972 (OG dated 14.2.1983, and numbered 17959)
- Convention for the Conservation of European Wildlife and Natural Habitats, Bern 1979 (OG dated 20.2.1984, and numbered 18318)
- Convention on Long-range Transboundary Air Pollution, Geneva 1979 (OG dated 23.3.1983, and numbered 17996)
- Additional Protocol on Long-term Financing of the Co-operative Program for Monitoring and Evaluation of the Long-range Transmission of Air Pollutants in Europe (EMEP), 1979, to the Convention on Long-range Transboundary Air Pollution, Geneva 1984, (OG dated 23.7.1985, and numbered 18820)



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- Vienna Convention for the Protection of the Ozone Layer and the Montreal Protocol on Substances Depleting the Ozone Layer, (OG dated 8-9.9.1990, and numbered 20629)
- Convention on Biological Diversity, Rio de Janeiro, 5.6.1992 (OG dated 27.12.1996 and numbered 22860)
- Convention on Wetlands of International Importance, especially as Waterfowl Habitat (RAMSAR), (OG dated 17.5.1994, and numbered 21937)
- CITES Convention on International Trade in Endangered Species of Wild Flora and Fauna, (OG dated 20.06.1996)
- Agreement on the Conservation of Cetaceans of the Black Sea, Mediterranean Sea and Contiguous Atlantic Area (ACCOBAMS), 2001 (OG dated 04.04.2017 and numbered 30028)
- European Landscape Convention (Florence, 2000) (OG dated 27.07.2003 and numbered 25181)
- Convention on the Protection of the Black Sea Against Pollution, Bucharest 1992, (OG dated 14.12.1993 and numbered 21788)



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3 Project Description

This chapter provides the project characteristics, location, and categorization per national and international requirements.

3.1 Project Location

The Project will be implemented in ilimli District, Düzce Province in Türkiye.

3.2 Project Characteristics

The Project is the installation of three different drilling wells with the aim of identifying, investigating and developing the potential usage of geothermal resource. The scope of the Project only consists of an exploration phase to determine the potential quality and future use of the geothermal resource. The project scope does not include the operational aspects of the geothermal wells.

The responsible parties are the Project Management Unit (PMU) of ILBANK, implementing the Project as Borrower, WB, and EU providing technical and financial support as Lenders, ilimli Municipality, which is the Project Owner, in other words, the Sub-borrower of the project. A Supervision Consultant to assist ilimli Municipality and the Contractor to be awarded for the project activities will be selected later.

The project is listed under **Annex-II (List of Projects to be Applied with Selection-Screening Criteria)** Article 39 – Exploration and/or extraction of geothermal source of the latest EIA Regulation dated 29.07.2022, requiring preparation of a PIF. The Project was also listed under Annex-II Article 55 - Mining, petroleum, and geothermal resource exploration projects (excluding seismic, electric, magnetic, electromagnetic, geophysical, etc. explorations) of the repealed EIA Regulation dated 25.11.2014, requiring preparation of a PIF. Therefore, a PIF has been prepared in line with the EIA Regulation dated 25.11.2014, and the application to the MEUCC was made on 23rd of December 2021. The following EIA opinion letters stating no objection were received from the relevant authorities within the scope of EIA Regulation (see Annex 3) and the “EIA Not Required” certificate dated 13th June 2022 has been obtained from the PDEUCC by the Sub-borrower (see Annex 4):

- Düzce Special Provincial Administration, Directorate of Zoning and Urban Development– 18th February 2022,
- Düzce Special Provincial Administration, Directorate of Road and Transportation Services – 22nd February 2022,



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- The Ministry of Agriculture and Forest, General Directorate of State Hydraulic Works (DSİ), 5th Regional Directorate, 55th Branch Office – 22nd February 2022,
- Headman of Söğütlü Village – 25th February 2022.

According to the latest EIA Regulation, the investment should start within 5 years as of the date the “EIA Not Required” certificate is issued, otherwise the “EIA Not Required” decision becomes invalid.

The well locations are within the Geothermal Resource Exploration License obtained from Düzce Provincial Special Administration General Secretariat on 01.09.2020 for 1,654 hectares (ha) located in Çilimli District of Düzce Province (see Annex-1). Based on information provided by Çilimli Municipality, no expropriation/resettlement will occur in relation to the Project as all drilling well locations are either municipal or state-authority property and included in the zoning plan. SK-1 drilling area belongs to State Hydraulic Works (DSI) (the title deed is given in Annex 2) and SK-2 drilling area is a municipal area which is under the responsibility of Düzce Provincial Special Administration; necessary consents have been obtained from DSI and Düzce Provincial Special Administration as given in Annex 3. SK-3 drilling area is a municipal land and is located next to a land that is under the legal entity of Söğütlü Village; an opinion letter from Söğütlü Village Headman has been obtained stating that the village commission has no objection to the drilling works and gives consent for the related works (see Annex 3). The lands to be used for the Project are currently not used by formal or informal users. Therefore, any RAP or Ex-Post Social Audit was not deemed necessary for this Project.

The closest sensitive receptors to the drilling locations are given in Table 3-1.

Table 3-1. Closest Sensitive Receptors to the Drilling Locations

Well No.	Direction	Receptors	Distance (m)
SK-1	East	Akdere Stream	5
	West	Nearest house	75
	South	Hospital	130
	Northeast	Nearest house	75
	Southeast	Pharmacy	85
SK-2	North, East, South, West	Agricultural Land	10
	Northwest	Nearest house	325
SK-3	Northeast	Nearest house	40
	East	Agricultural Land	10
	West	Mosque	15
	Northwest	Nearest house	35



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The three drilling wells (SK-1, SK-2, and SK-3) are shown in Figure 3-1. The first drilling point (SK-1) is located in Ulucami Neighborhood on 656 block, parcel no 1, adjacent to Düzce Street and to the north of the District State Hospital. The second drilling point (SK-2) is located in Kiraztarla Village adjacent to the 510th m of Kiraztarla Village internal road. The last drilling point (SK-3) is located in Söğütlü Village adjacent to the 600th m of Söğütlü Street. Table 3-1 below shows the coordinates and depth of drilling points. Further explanations related to the location of drilling wells are given in below parts of the report.

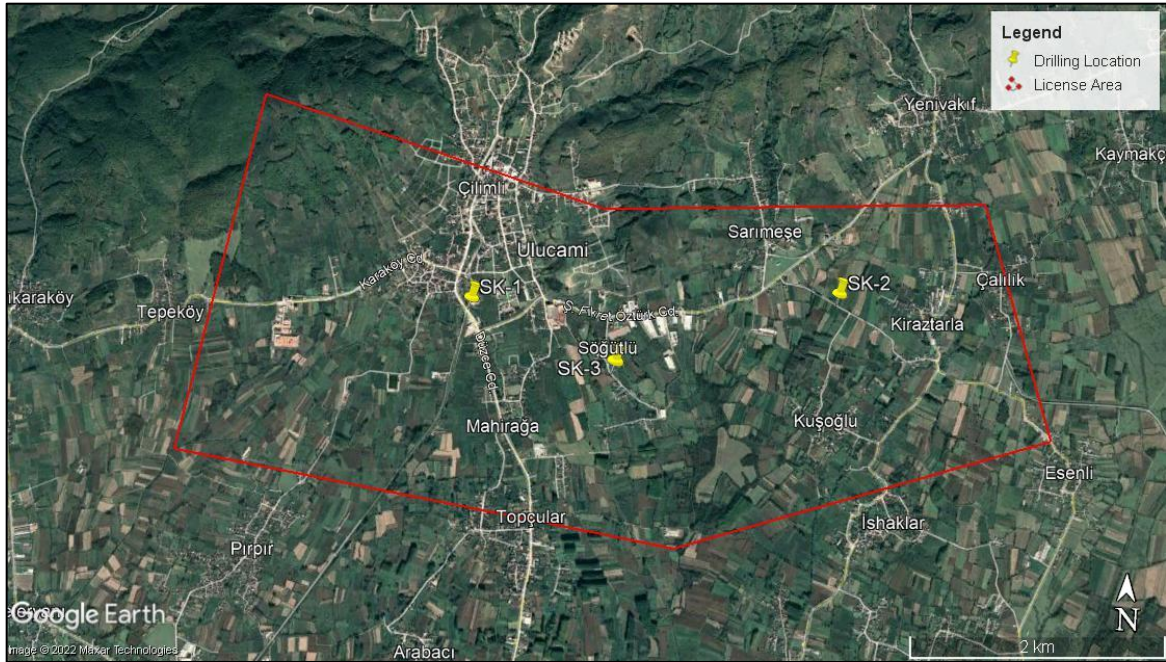


Figure 3-1. Geothermal Well Locations

Table 3-2. Well Locations and Drilling Depths

Well No.	Region	Universal Transverse Mercator (UTM) Coordinate System		Drilling Depth
		East Coordinate	North Coordinate	
SK-1	36 T	335415	4527963	700 m
SK-2	36 T	338387	4528054	600 m
SK-3	36 T	336581	4527467	600 m

Source: PIF for Çilimli Municipality, 2021



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Project activities will consist of:

- **Topsoil stripping:** The vegetative soil will be stripped from the site surface in the parts where the drilling activity will be carried out before the excavation work of the mud pits. These activities will be conducted only at the SK-1 drilling location. The stripped topsoil will be approximately 80 tones to be stripped from a 110 m² of area, according to PIF for Çilimli Municipality (2021), and will be temporarily stored in a designated area at the site for later use in the rehabilitation of the land and the creation of green areas.
- **Excavation works:** Earth material revealed during the excavation of the mud pits will be stored in the excavation storage area. The study areas will be restored when the drilling is completed.
- **Installation of the drilling rig:** The drill rig system consists of draw works, crane systems, pulleys, and motors. The drilling rig can be conventional fixed or movable/mobile. The rig parts are brought to the project area and assembled on site. The rig structure of the drilling machine will be strong enough to carry the drill and pipe string statically and movably and at the same time withstand a certain wind force. As the height of the tower increases, the length of pipe it can take at one time increases, so the drilling process is faster.
- **Installation of mud pits:** One of the essential processes in drilling activities is the formation of the mud system. Within the project's scope, in addition to the mud pit formed during the drilling process, a clean water tank will be created to prepare to drill fluid and ensure the reuse of the water released during the drilling process. A circulation tank will be built to reuse the water used during the drilling process.
- **Drilling works:** A rotary drilling machine will be used in the drilling method to explore the geothermal resource within the scope of the project. In the rotary drilling technique, the formation fragments formed as a result of breaking the formation by the incisors of a rotating drill under pressure will be thrown out with water. In this method, tearing with rotation is dominant, and the progress is provided by pressure and torque. The rotation process is the system that creates the drilling process in rotary drilling. A depth of 17.5 inches to 70 meters will be descended, and a 14-inch spiral welded casing pipe will be lowered to isolate surface loose formation and groundwater, if any.
- **Piping works:** Piping is conducted to the drilling depth specified within the project's scope.
- **Cementing works:** Cementing is the filling of the casing pipe/well walls with cement mortar. The material known as cement mortar is formed by mixing cement and water. The cementing process ensures that the casing pipes bond with the well wall (formation) to provide load-bearing and resistance against special well conditions. In addition, wells opened and closed with casing pipes will be cemented up to the surface.



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- **Well-completion tests:** Within the project's scope, wellheads will be equipped with wellhead equipment to supply resources. The wells where the geothermal resource is detected will be closed after installing the equipment used in the production wells, namely wellhead, so that the fluid does not pollute the environment.
- **Land rehabilitation activities:** After the drilling work at each drilling point is completed, the excavation soil will be laid in the pit areas, and the rehabilitation of the area will be carried out.

If well tests are successful, the casing pipe will be lowered, and the well mouth will be closed with a valve to protect the well. A closure process will be carried out if well tests show a low potential of the geothermal resource.

A drilling mud pit and an excavation soil storage area will be constructed at all drilling points. Site layout plans of mud pit and excavation soil storage area are given in Annex 6. Since they are located adjacent to/partly on the road, a topsoil storage area will not be necessary for the SK-2 and SK-3 drilling locations. A topsoil storage area will be needed only at the SK-1 drilling location. The areas for these project components are given in Table 3-3.

Table 3-3. Project Component Areas

Well No.	Project Area m ²	Mud Pit Area m ²	Topsoil Storage Area m ²	Excavation Soil Storage Area m ²
SK-1	581.74	45	65	65
SK-2	96.65	40	-	30
SK-3	146.19	40	-	30

Source: PIF for Çilimli Municipality, 2021

Based on the PIF, ten (10) people will be employed within the scope of the Project. Accommodation services are not anticipated for workers.

The planned project schedule has not been available for the Supervision Consultant review. However, based on the Project's PIF, the land preparation process will last seven days. The Project duration is expected to be between three to four months. The three wells will not be drilled simultaneously but rather will be drilled sequentially.

Under the WB's OP 4.01 for Environmental Assessment, projects are classified as Category A, B, and C according to their likely environmental impact, as given in Table 3-4. Çilimli Geothermal Well Drilling Project has been categorized as a Category B Project.



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Table 3-4. WB Project Categorization

Category Type	WB Categorization
Category A	A proposed project is classified as Category A if it is likely to have significant adverse E&S impacts (based on its type, location, sensitivity, scale, and the nature and magnitude of its potential environmental impacts). These impacts are generally large-scale, irreversible, sensitive, diverse, cumulative, or precedent-setting and may affect an area broader than the sites or facilities financed by the project.
Category B	A proposed project is classified as Category B if the potential E&S impacts are typically site-specific, reversible in nature, less adverse than those of Category A subprojects, and mitigatory measures can be designed more readily.
Category C	A proposed project is classified as Category C if it is likely to have minimal or no adverse environmental impacts.

A site reconnaissance visit was conducted on 2nd November 2021. A photo taken from the SK-1 drilling location during the site visit is shown in Figure 3-2.



Figure 3-2. Photograph of the Drilling Well Location SK-1



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SK-1 drilling area is an unused land belonging to the State Hydraulic Works (DSI) located adjacent to Düzce Street and Akdere Stream. There are a number of houses around the SK-1 drilling location; the nearest two houses are at a distance of 75 m to the west and northeast. Akdere Stream, Çilimli District State Hospital and a pharmacy is located to the east, south and southeast with distances of 5 m, 130 m and 85 m, respectively (see Figure 3-3). The trees present in the SK-1 drilling area do not belong to any residents living in the area and are not used for commercial or household consumption purposes. Based on information provided by Çilimli Municipality, trees are not planned to be cut during drilling works.



Figure 3-3. Satellite View of the SK-1 Drilling Location and surroundings (Plot: Ulucami Quarter Düzce Street, Plot No. 656 Parcel-1)

The photos taken from the SK-2 and SK-3 drilling locations during the site visit are shown in Figure 3-4, and Figure 3-5, respectively. The trees shown in the figures are in the borders of the agricultural lands owned by individuals.

SK-2 drilling area is an earthen land area adjacent to Kiraztarla Village Road and surrounded by agricultural lands. The nearest house is located to the northwest at a distance of 325 m. Based on information provided by Çilimli Municipality, one lane of the road may be impacted during drilling works. SK-2 drilling area and the road is under the responsibility of Düzce Provincial Special Administration (state authority), who provided consent for the drilling activity (see Annex-3). Based on information provided by Çilimli Municipality, there will be no entrance to



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private lands, no trees will be cut and the owners of the lands near SK-2 drilling area were informed about the Project by ilimli Municipality.

SK-3 drilling area is an earthen land area adjacent to Sütlü Street in Sütlü Village and surrounded by an agricultural area and a mosque located at distances of 10 m and 15 m to the east and west, respectively. The nearest houses are located to the northwest and northeast at distances of 35 m and 40 m, respectively. Based on information provided by ilimli Municipality, one lane of the road may be impacted during drilling works. SK-3 drilling area is a municipal land and the adjacent road is under the responsibility of ilimli Municipality. Based on information provided by ilimli Municipality, there will be no entrance to private lands, no trees will be cut and the owners of the lands near SK-3 drilling area were informed about the Project by ilimli Municipality. Sensitive receptors around SK-2 and SK-3 are shown in Figure 3-6 and Figure 3-7, respectively.



Figure 3-4. Photograph of the Drilling Well Location SK-2



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Figure 3-5. Photograph of the Drilling Well Location SK-3

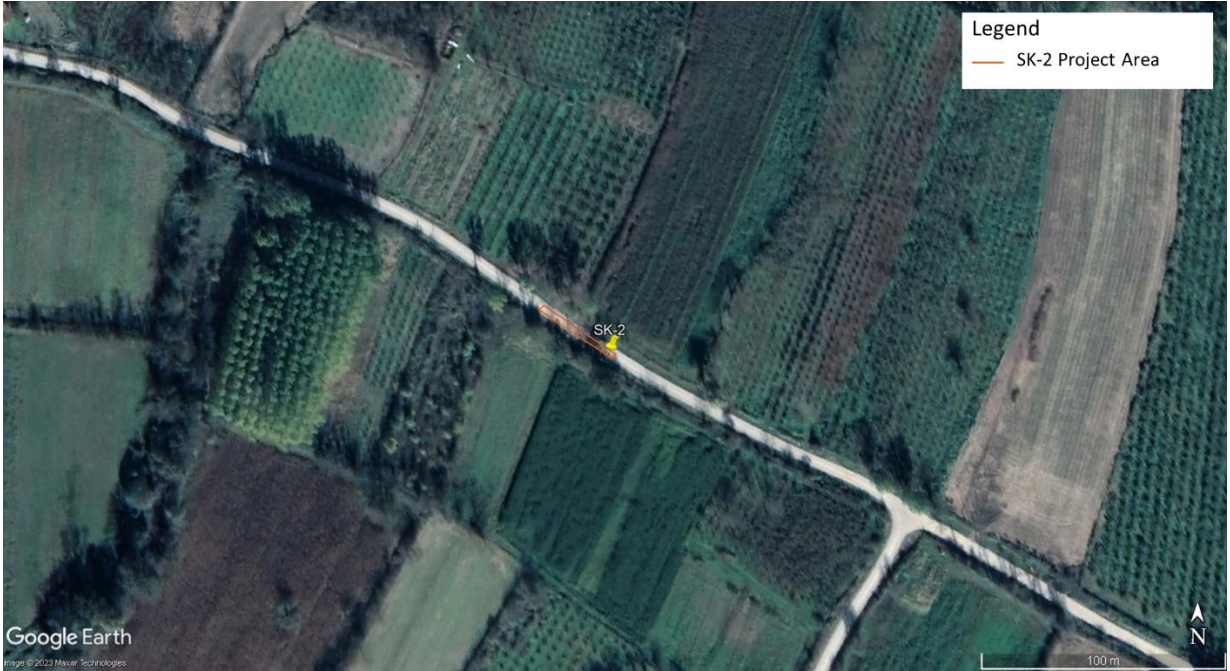


Figure 3-6. Satellite View of the SK-2 Drilling Location and surroundings (Plot: Kiraztarla Locality, Kiraztarla Village, Kiraztarla Road 510th m)



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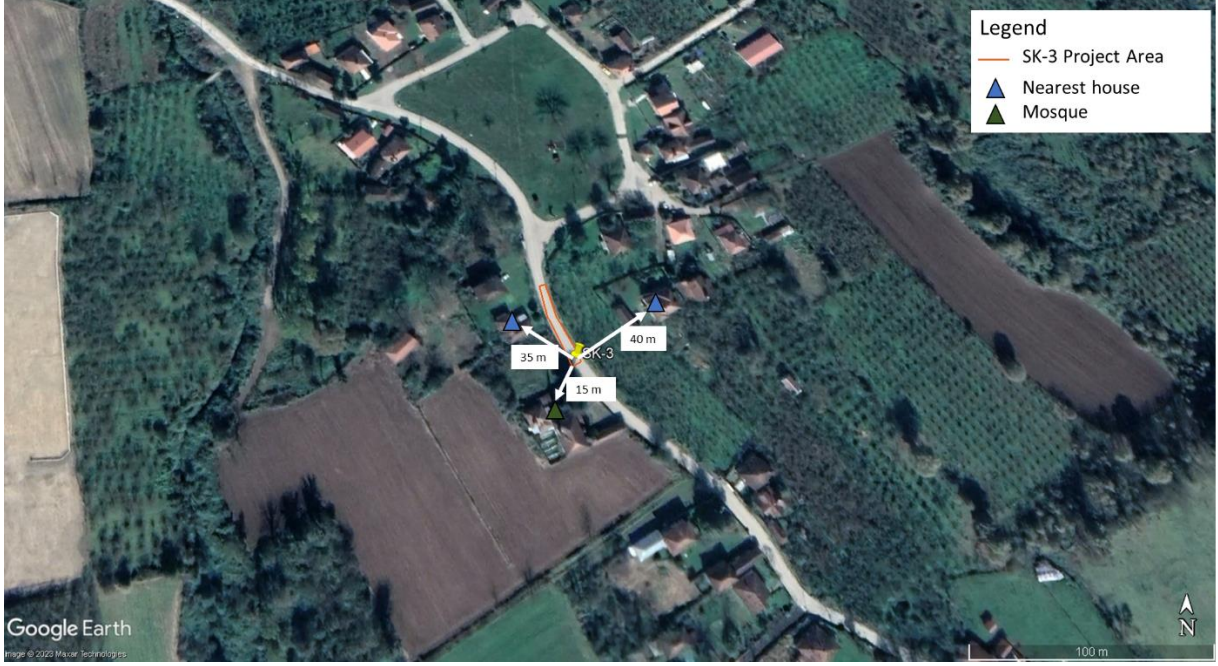


Figure 3-7. Satellite View of the SK-3 Drilling Location and surroundings (Plot: Sögütlü Village Plot No. 505 Parcel No. 10)



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4 Environmental and Social Baseline

This chapter presents the environmental and social baseline information for the Düzce Province and Çilimli District. The baseline is given for the Düzce Province and subsequently for the Çilimli District when the data pertinent to the Project development is available.

Baseline data collection was conducted through desktop studies and site surveys. In addition, a face-to-face briefing meeting was conducted with Çilimli Municipality on 2nd November 2021, and a site reconnaissance visit was conducted on the same date together with a Çilimli Municipality representative.

The existing E&S baseline conditions within the Project's Area of Influence (AoI) are briefly summarized in this Chapter. WB OP 4.01 defines AoI as the area likely to be affected by the project, including all its ancillary aspects and unplanned developments induced by the project. Considering the fact that the settlements closer than 75 m from the drilling locations will be the potential sensitive receivers of noise generation as reported in the PIF, the AoI can be defined as 100 m radius of each drilling location and illustrated in the map given in Figure 4-1. Within this AoI, potential receptors can be listed as follows:

- Project area covering the existing roads where geothermal well drilling will be conducted.
- Ulucami Neighborhood, Kiraztarla Village and Söğütlü Village where drilling activities will be conducted.
- Residents close to the SK-1 and SK-3 drilling locations.
- Institutional facilities, include Çilimli District State Hospital and Söğütlü Mukhtar Office close to the SK-1 and SK-3 drilling locations, respectively.
- Commercial facility, include a pharmacy (Eczane Dođan) close to the SK-1 drilling location.
- Akdere Stream adjacent to the SK-1 drilling location.

Based on the information provided in the PIF, there are no ancillary facilities as part of the Project; no concrete batching plant will be installed, and ready-mix concrete will be used.



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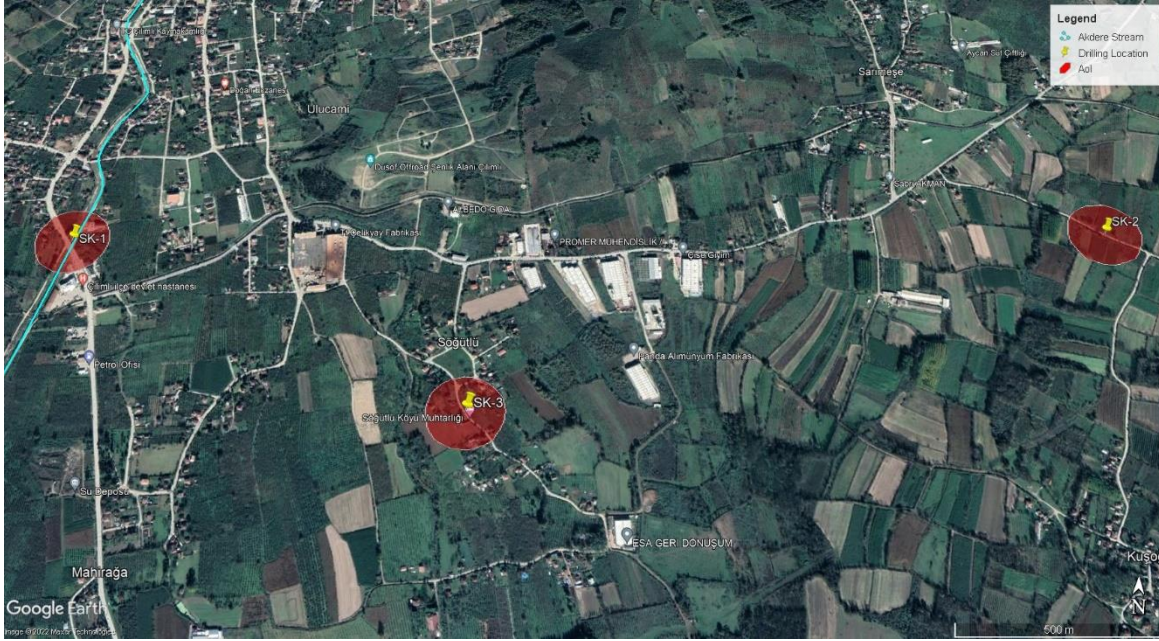


Figure 4-1. Project's Area of Influence

4.1 Environmental Baseline

4.1.1 Geography

Düzce Province

The Project will be developed in the Çilimli District of Düzce Province, Türkiye. Düzce Province is in the western Black Sea Region. It was formerly a district within the Bolu Province and became a province on December 9, 1999, after the major earthquakes of August 17 in Gölcük District and November 12, 1999, in Düzce Province [1]. The location of Düzce Province is given in Figure 4-2.

The province has 395,679 inhabitants (as of the end of 2020) within a 2,492 km² surface area. The population density is 158.8 inhabitants/km² [2]. Düzce Province is divided into eight districts (see Figure 4-3) as Akçakoca, Çilimli, Cumayeri, Düzce, Gölyaka, Gümüşova, Kaynaşlı and Yiğilca [3].



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Figure 4-2. Location of Düzce Province within Türkiye

Source: “The Official Website of Wikipedia” [https://tr.wikipedia.org/wiki/D%C3%BCzce_\(il\)](https://tr.wikipedia.org/wiki/D%C3%BCzce_(il)), 2022

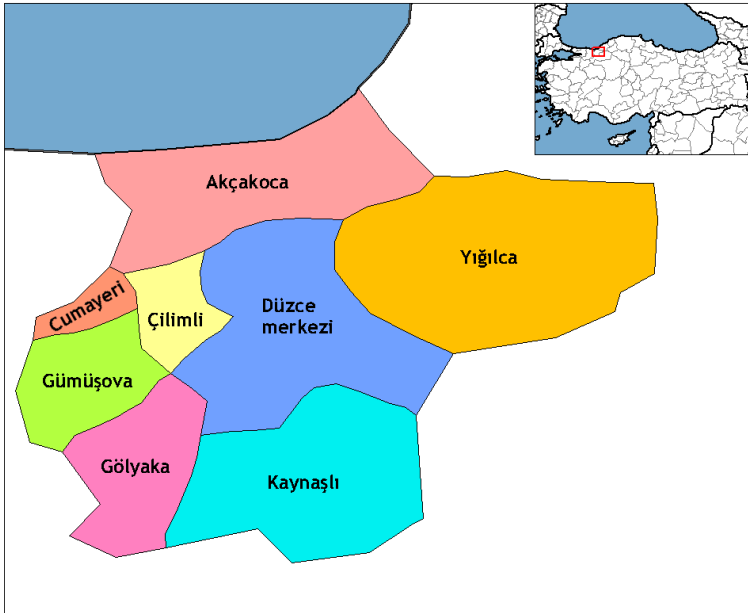


Figure 4-3. Districts of Düzce Province

Source: “The Official Website of Wikipedia”
https://tr.wikipedia.org/wiki/D%C3%BCzce%27nin_il%C3%A7eleri, 2022



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Düzce Province has a 22 km long coastline with the Black Sea in the north (see Figure 4-4 below). The province's territory is mainly mountains, except for the coastal part. There are Akçakoca Mountains in the northern region, Bolu Mountains in the eastern part, and Elmacık Mountains in the southern part. The Düzce Plain, located at the center of the province, is important for agricultural activities [1].



Figure 4-4. Satellite View of Düzce Province

Çilimli District

Çilimli District is 251 km from Ankara Province and 210 km from Istanbul Province. It is 15 km from the Düzce Province Center. The district population is 19,902, with 10,078 people living in urban areas and 9,824 rural areas [2]. The total surface area of the district is 63.8 km². The altitude of the district above sea level is 222 meters. To the north, the altitude increases and can reach 600-700 m in places [4]. The satellite view of Çilimli District is given in Figure 4-5.



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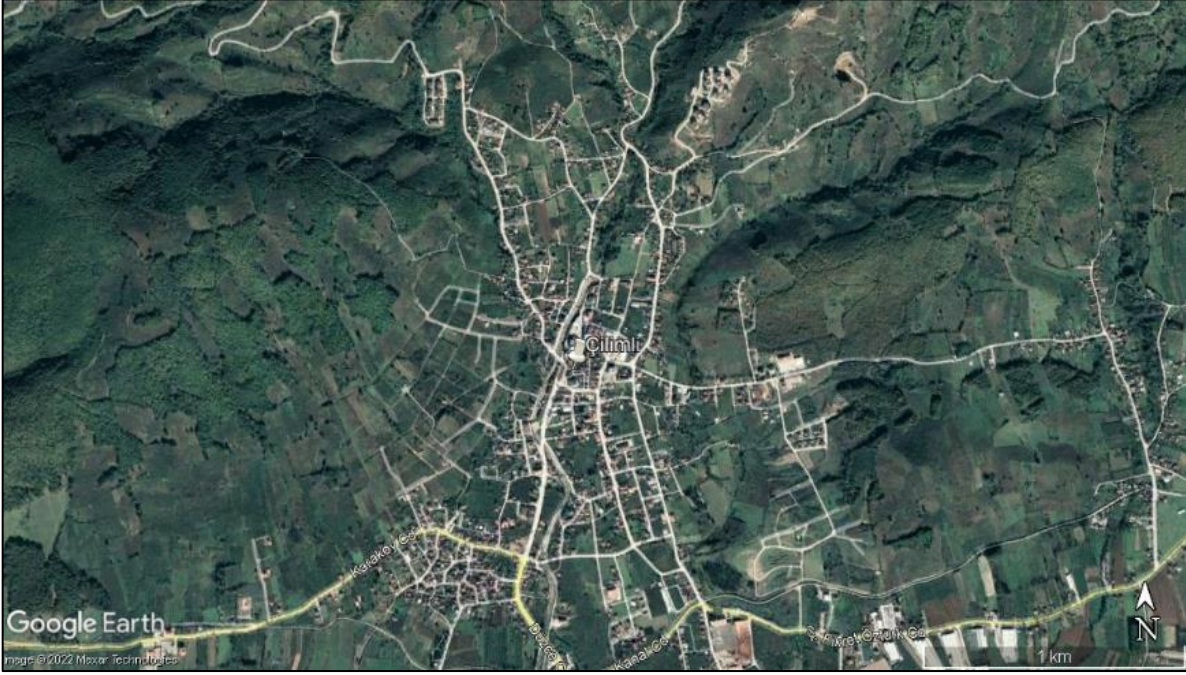


Figure 4-5. Satellite View of Çilimli District

4.1.2 Topography and Geology

Düzce Plain forming the mid-section of the Düzce Basin presents a low inclined topography toward the SW (toward Lake Eftani). The drainage network, which has developed based on the morphology of the basin, has NE-SW, east, and west flows. Küçük Melen River and Asarsuyu Creek drain the surface waters of the basin into Lake Eftani, whereas Büyük Melen River subsequently discharges the waters of Lake Eftani to the Black Sea in a south north-flowing direction. The hydrologic and morphologic features in the basin are the results of the intense tectonic activity that controls the basic structure and overall slope of the plain. The geological map of the Düzce Basin and its surroundings is given in Figure 4-6 [5].



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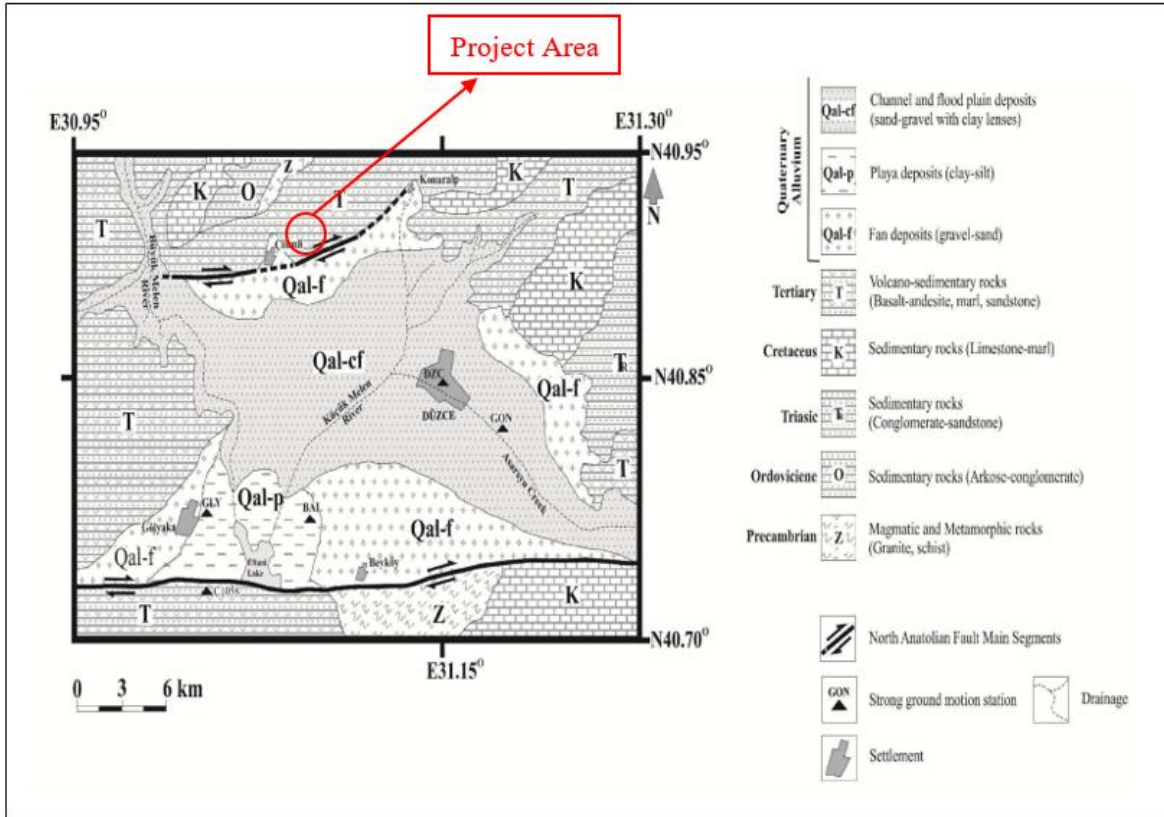


Figure 4-6. Geological Map of the Düzce Basin and Surroundings

Source: Coruk et al., 2012

The base rocks of the Düzce Plain consist of a group of Precambrian magmatic and metamorphic rocks (Z). Schists and granitic rocks are the base rocks with a thick sedimentary sequence. The sequence starts with the Ordovician sedimentary rocks composed of arkose and conglomerate (O). Alternating Triassic sandstone and conglomerate rocks (TR) overlay the Ordovician rocks outcrop in the basin's east. Cretaceous limestone-marl intercalations (K) on the Triassic rocks are widely observed in the region. Tertiary volcano-sedimentary rocks (T) with flysch character in some places deposited on the Cretaceous rocks. The volcano-sedimentary unit comprises intercalated basalt-andesite, marl, and sandstone lithologies. Basalts and andesites are the dominant lithologies in the southwestern part of the region. The youngest unit is the alluvium deposited in the basin. The thickness and lithological variation of the alluvium depend on the tectonic setting that directly affects the morphology and basin geometry. Alluvial fan deposits (Qal-f) on the north and south slopes of the mountains, channel, and flood plain deposits (Qal-cf) in the impact areas of Küçük Melen and Büyük Melen Rivers and Asarsuyu Creek, and lacustrine-playa deposits (Qal-p) around Lake Eftani were deposited under the effects of tectonic forces. Alluvial fan deposits consist of gravel-sand, channel, and flood plain deposits



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containing sand-gravel with clay lenses, and lacustrine-playa deposits are composed of clay-silt type sediments [5].

According to the Geothermal Survey Report dated 2017, there are Precambrian aged Yedigöller metagranitoids and Paleozoic aged Kurtköy, Ereğli, and Yılanlı formations that unconformably overlie this unit. While the Mesozoic aged Almacık ophiolitic mélangé is thrust over the Paleozoic unit, the Abant Formation unconformably overlies this unit, and the Akveren Formation is thrust over the Abant Formation. While the Cenozoic aged Çaycuma Formation and the Pliocene aged Karapürçek Formation were thrust over all these units, there are quite thick Quaternary aged alluviums and talus on all units towards the plain. The geological map of Düzce Province is given in Figure 4-7.

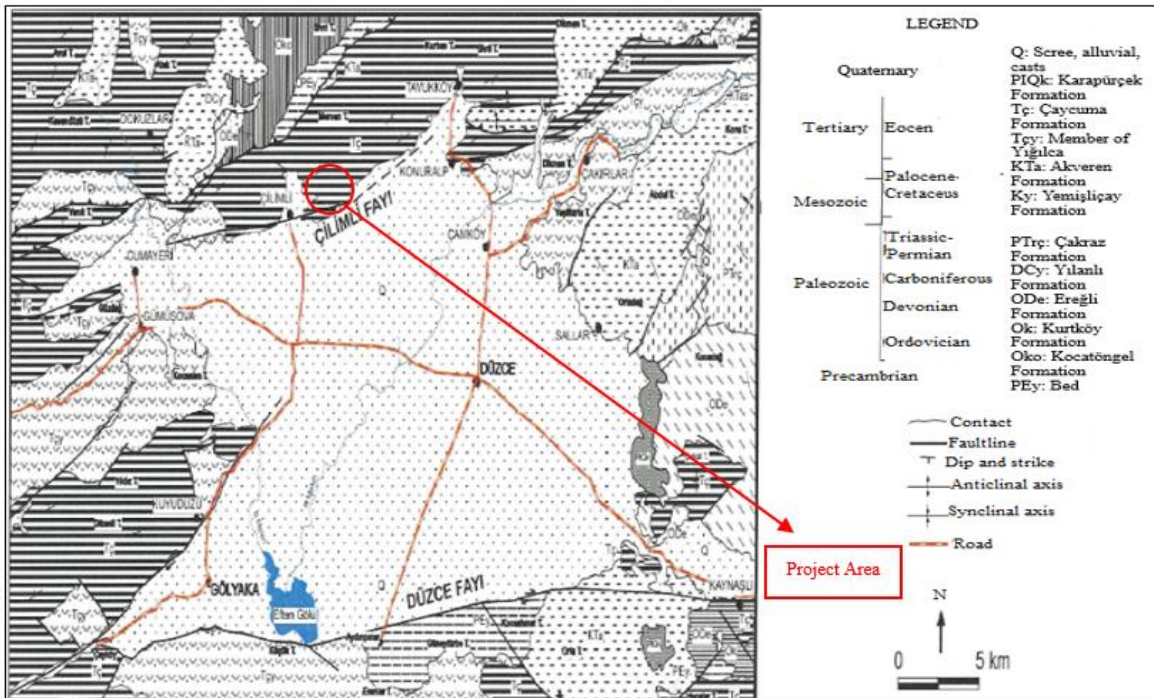


Figure 4-7. Geological Map of Düzce Province

Source: Geothermal Survey Report for Çilimli Municipality, 2017

The Çilimli District center sits on a relatively old alluvial fan (Qey) embedded in the Çaycuma Formation, on the northern edge of the Düzce Basin, partially on the basement rocks. The Akdere stream has deeply split the alluvial fan and created a low relief. This relief also played a role in forming the landslides just north of Çilimli. The part where the district is located and its north are very rugged. However, the faults have not been observed in that region (including the Çilimli Fault). These units are explained below, and the geology map of the project site is given in Figure 4-8.



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Çaycuma Formation: This formation is the most common unit of the mid-west Black Sea region. It is also known by the names Melendere and Kapaki Formation. It has a lithology consisting of an alternation of sandstone-conglomerate-marl-tuffite (volcanic sandstone). The alternation is not regular, and local sandstone, marl, or volcanic dominate. In some places, volcanic rocks are seen as agglomerate, lava, tuff, tuffite, and outcrop widely. These are mapped as weak units. They are in yellow, grey, and green colors, mostly grey green. Their lack of resistance to alteration and abrasion allowed the development of deep valleys. It has thick landslides. The unit appears compatible with the Akveren Formation it overlies and is transitional in some regions. It is of the early-middle Eocene age. Widespread volcanics in it are counted as Yiğilca members.

Yiğilca Member: Volcanic sandstones within the Çaycuma Formation completely transform into volcanites in some regions. Mainly composed of volcanic sandstone, tuff, tuffite, andesite-basaltic lavas, or volcanic breccia, the unit's color varies from dark grey-brownish grey to light green. The field location of the volcanic breccia is erratic, and they are primarily massive in appearance. The surface alteration is highly developed, but it has very firm ground characteristics. It is laterally transitive with the lower layers of the Çaycuma Formation. It is of the Early-Middle Eocene age.

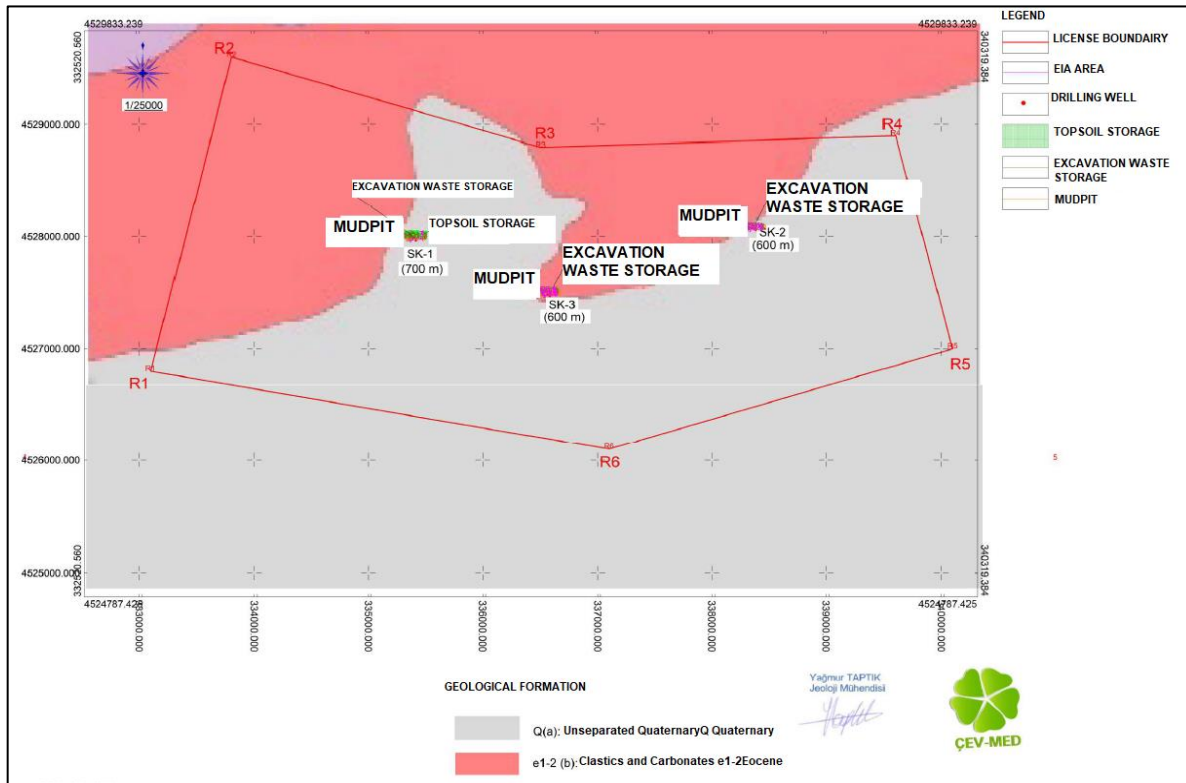


Figure 4-8. Geology Map of the Project Site and Surroundings

Source: PIF for Çilimli Municipality, 2021



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4.1.3 Hydrology and Hydrogeology

Surface Water

The streams located in the area outside the coastal part of the Akçakoca District of Düzce Province are part of the Melen Basin, in other words, Efteni Basin, a sub-basin of the Western Black Sea. The Büyük Melen Basin provides drinking water for the Istanbul Province. Except for the Akçakoca District, the entire province is within the Büyük Melen Basin. The main rivers in Düzce Province are the Küçük Melen, Asar Suyu, Uğur Suyu, Aksu, Karadere, Akdere, Büyük Melen and Çilimli. Çilimli Creek has a flow rate of 0.359 m³/h and is a tributary of Büyük Melen Stream [1].

The main lakes in Düzce Province are the Efteni Lake, Kuru Lake, Topuk Plateau Pond, Çamlıpınar Lake, Karagöl and Torkul Lake [1]. There are no lakes within the project area. Efteni Lake is located approximately 11.3 km south.

There is one dam in Düzce Province, namely Hasanlar Dam, which is located on Küçük Melen near Yığılca District and was completed in 1992 [1]. There are no dams within the project area.

The groundwater resources were being used for drinking water supply until 1994. The Uğur Suyu Stream's surface water resource was commissioned in 1994 and started to meet the province's water needs. The Stream is located 9-10 km SW of the Province. The stream water taken from Düzce Province is conveyed to the drinking water treatment plant in Beyköy by gravity via a transmission line of approximately 6.5 km. For the chemical treatment, aluminum sulphate solution is dosed in the raw water to improve the properties, sulphuric acid against microorganisms present in the water, and chlorine for disinfection. After being chemically treated at the treatment plant, the water is fed into the city water supply network. The total network length is 830 km [1].

The list of existing water intake structures in the Çilimli District is given in Table 4-1.

Table 4-1. Existing Water Intake Structures

Water source	Type of water intake structure	Water intake capacity (L/s)	Construction year
Bıçkıbaşı Spring	Catchment	10	2005
Kaplandede Tepe Locality	Catchment	6	1995
Kayadelen Spring	Catchment	3.5	1965

Source: Düzce Provincial Environmental Status Report, 2019



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Karadere and Akdere Creeks are within the boundaries of the Çilimli District [6]. The Project does not intersect with or close to Karadere Creek. The Akdere Creek is located next to the east of SK-1 well location with a 5 m distance. Akdere Creek is formed by two merging creeks, Bıçkı Creek and Bayramali Creek that originate from the Kaplandede Mountains. Information on the flow rate, regime and water quality for Akdere Creek was not available in the literature. Therefore, baseline water quality surveys have been requested prior to mobilization as part the ESMP.

There is also an irrigation channel that passes 240 m to the south of SK-1, 480 m to the north of SK-2 and 640 m to the north of SK-3, as shown in Figure 4-9. There will no interference with the irrigation channel during project activities.

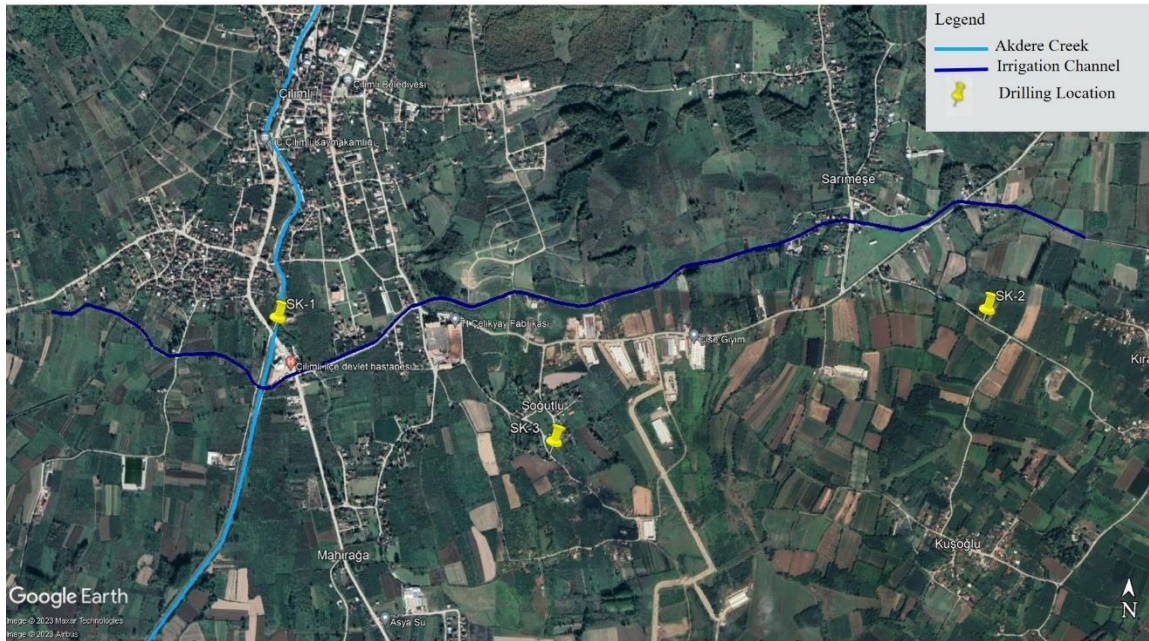


Figure 4-9. Akdere Creek Close to the Project Area

Groundwater

The main aquifer unit in the Düzce basin is the alluvium extending along the rivers and Düzce plain. The groundwater level is between 0.5 and 5 m in the upper unconfined aquifer, and it is artesian in the confined aquifer below [1]. The amount of groundwater used in the province in 2018 is 20,000 tons/year.

In Akçakoca-Kocaali Basin, few wells are present to establish the groundwater table. Since the basin topography is very uneven, it is estimated that there may be significant variations in



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groundwater levels depending on the quota and hydrogeological conditions. The groundwater depth in the valley alluvium is between 0.5 and 5 m [1].

The list of existing water wells in the Çilimli District is given in Table 4-2.

Table 4-2. Existing Water Wells

Well District/Local	Well Yield (L/s)	Pump Power (kW)	Pump capacity (L/s)	Construction year
Türbe Local Well 1	30	55	20	1992
Türbe Local Well 2	15	27	8	1992
Slaughterhouse Well	10	27	10	2007
Sports Field Well	10	37	10	1985

Source: *Düzce Provincial Environmental Status Report, 2019*

Water Quality

According to the water geochemistry research conducted within the Geothermal Survey Report mentioned earlier, analyses were made at nine water resources identified in the project license area. The photographs from the water sources in the project license area are given in Figure 4-10.



Figure 4-10. Photographs from the Water Sources within the Project License Area

Source: *Geothermal Survey Report for Çilimli Municipality, 2017*

As a result of these analyses, some semi-quantitative chemical analysis values and the physical parameters of the waters in the springs and drilling wells were detected. The water sampling locations are shown in Figure 4-11, and the analysis results are given in Table 4-3.



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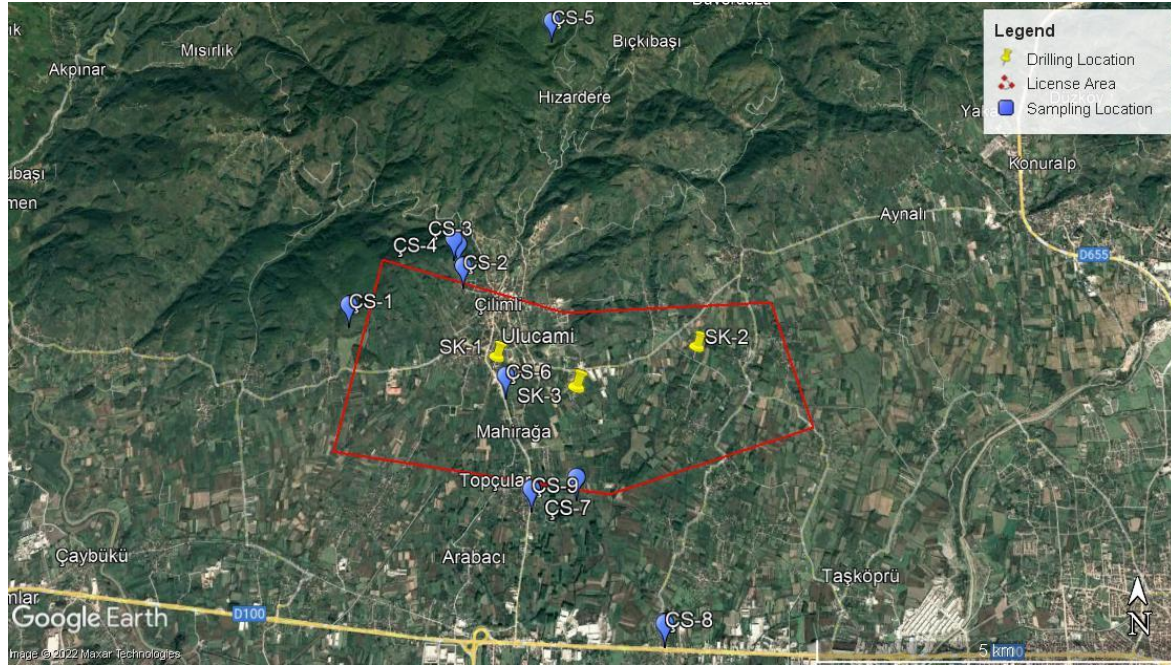


Figure 4-11. Water Sampling Locations within the Project License Area

Table 4-3. Water Quality Measurements within the License Area

Code of Location	UTM Coordinate System		Location	Conductivity (µs/cm)	TDS (mg/L)	Resistance (kΩ.cm)	Solidity (%)	DO (mg/L)	pH	Temperature (°C)
	East	North								
ÇS-1	333257	4528436	Yeşil Neighborhood	895	228	2,100	0.22	7.89	8.92	19
ÇS-2	334946	4529015	Düztarla Locality	880	323	1,512	0.32	3.81	8.14	19
ÇS-3	334877	4529342	Yeşiltepe Neighborhood	826	366	1,330	0.36	3.30	7.87	17
ÇS-4	334812	4529421	Düztarla Locality	827	362	1,353	0.36	7.60	7.82	16.2
ÇS-5	336337	4532891	Hızardere Village	801	93.5	1,540	0.09	9.42	8.46	15.4
ÇS-6	335580	4527338	Mahırağa Neighborhood	850	201.3	2,410	0.2	4.81	8.21	18.1
ÇS-7	336593	4525828	Topçular Neighborhood	813	143	3,340	0.14	3.45	7.89	15.4
ÇS-8	337784	4523793	İhsaniye Neighborhood	841	201	2,390	0.2	4.63	8.40	17.4
ÇS-9	335946	4525679	Topçular Neighborhood	821	139.9	3,430	0.14	3.85	8.46	15.9

Source: Geothermal Survey Report for Çilimli Municipality, 2017



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Based on Table 4-3, total dissolved solids (TDS) values range between 93.5 mg/l and 366 mg/l, while conductivity values range between 801 $\mu\text{s}/\text{cm}$ and 895 $\mu\text{s}/\text{cm}$. There is a direct proportional relationship between TDS and conductivity. The TDS in water and the conductivity value of the water increase at the same rate and decrease together. The resistance values of water, on the other hand, show an inverse relationship with TDS and therefore conductivity [32].

The resistance value of the water samples of the springs and boreholes in the Çilimli geothermal license area varies between 1,330 $\Omega\cdot\text{cm}$ and 3,430 $\Omega\cdot\text{cm}$. The pH values of the water samples in the study area varies between 7.82 and 8.92, and according to these pH values, the ground waters in the license area fall into basic water group. The reason why the groundwater in the license area are basic is that there are limestones and carbonate levels observed in the region [32].

The temperature values of the water samples varies between 15.4 $^{\circ}\text{C}$ and 19.0 $^{\circ}\text{C}$. These temperature values are values that should not be ignored in geothermal explorations, and are an indication that there is a mixture of geothermal hot and mineral waters in the groundwater in the license area [32].

The dissolved oxygen values of the waters in the study area varies between 3.30 mg/L and 9.42 mg/L. These values show that the waters of the springs with a high TDS value come from deeper, and the waters with a TDS value of less than 93.5 mg/L have a very high dissolved oxygen value such as 9.42 mg/L. This shows that waters with low TDS value are surface waters which are quite rich in terms of oxygen [32].

4.1.4 Seismicity

According to the Seismicity Map of Türkiye published by Disaster and Emergency Management Presidency (AFAD), which came into effect on January 1, 2019 [7], the Düzce Region is a high-risk earthquake region. The seismicity map of Türkiye is given in Figure 4-12.



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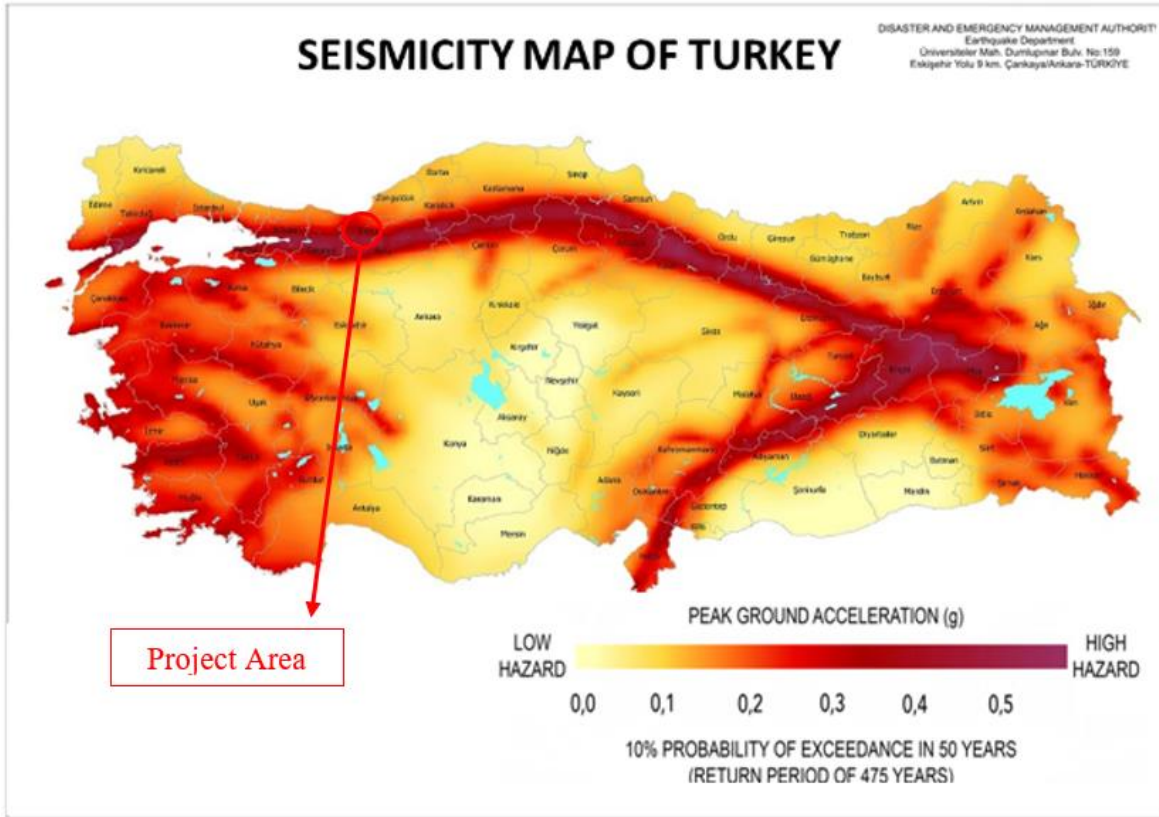


Figure 4-12. Seismicity Map of Türkiye

Source: “The Official Website of Ministry of Interior, Disaster and Emergency Management Presidency”
<https://depem.afad.gov.tr/depem-tehlike-haritasi>, 2022

Earthquakes and magnitudes around the project site are given in Figure 4-13. In the study area’s region, the effects of the Hercynian Orogeny affecting the ground units and the Alpine Orogeny affecting the Upper Cretaceous and later units are observed. These movements caused N-S folds and E-W fractures in the formations. In the region, Silurian and Devonian aged units show slight folding, Yılanlı Formation, and Alacağzı Formation are gradually transitional; it shows that the Akadian phase of the Hercynian Orogeny was not active.



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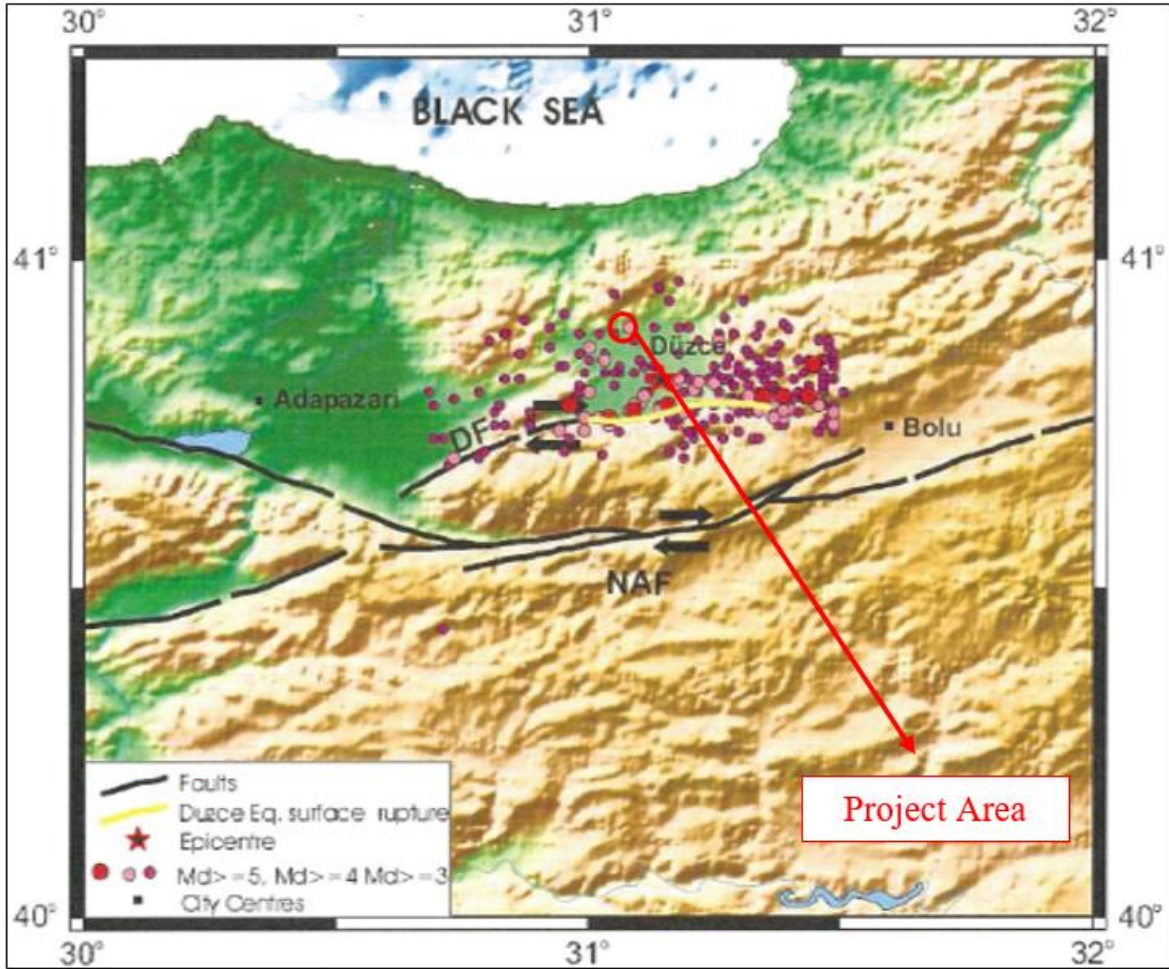


Figure 4-13. Earthquakes and Magnitudes around the Project Site

Source: Geothermal Survey Report for Çilimli Municipality, 2017

The location and geometrical features of the Karadere Segment within the right-lateral shear system in the region necessitate such an overthrust character. As a result of the basic geological mapping along the Karadere segment, reliable points where the long-term right-lateral displacement can be measured could not be determined. However, it has been revealed that significant vertical movements have occurred in the northern part of the segment since the Early-Middle Eocene, and the northern block has risen. The image of faults in the ground survey study area with overthrust component right-lateral movements along the Karadere segment is shown in Figure 4-14.



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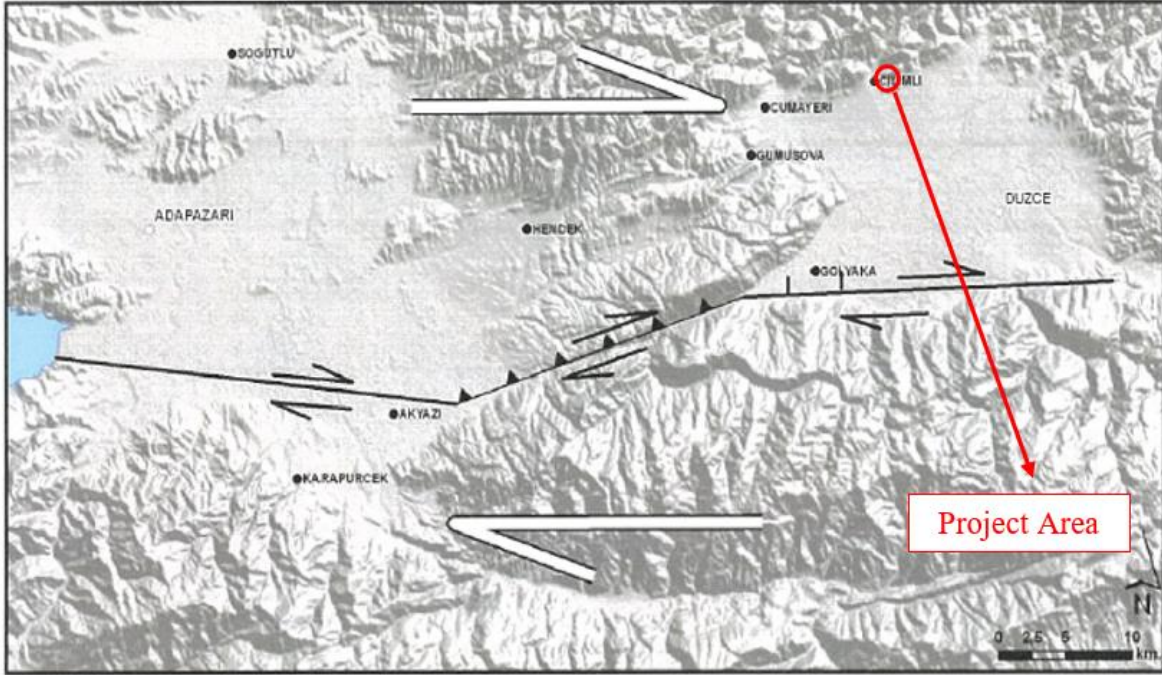


Figure 4-14. Image of Faults in the Ground Survey Study Area with Overthrust Component Right-lateral Movements along the Karadere Segment

Source: Geothermal Survey Report for Çilimli Municipality, 2017

4.1.5 Climatic Conditions and Meteorology

The Köppen-Trewartha climate classification defines six main climate groups. According to Trewartha, climate groups A, C, D, E, and F are the main thermal regions. The sixth group is the dry climate zone that intersects with other climate types except for the B, F arctic climate [8]. Düzce Province has a humid subtropical climate (Cfa) under the Köppen climate classification and an oceanic climate (Do) under the Trewartha climate classification. The Province experiences chilly, occasionally snowy winters and hot summers.

The annual average temperature is measured as 13.2°C while the coldest month is January (3.7°C), and the hottest month is July (22.6°C) according to the long-term meteorological data of the Turkish State Meteorological Service collected at the measurement stations in the Düzce Province (Akçakoca Lighthouse, Gölyaka, Düzce, Akçakoca, Yığılca Cumayeri, Yığılca-Yoğunpelit Village, Gölyaka-Kardüz Plateau, Çilimli, Kaynaşlı and Gümüşova). Abundant precipitation is observed in winter and autumn, while the driest season is summer [9]. The average annual rainfall is 817.7 mm.

The annual average humidity is 77.5%. The number of days with snowfall is six, and the duration of snow on the ground is five days. The frost event is observed for 44 days, while the



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fog event occurs 23 days a year, abundantly in November (8 days) [9]. Further long-term meteorological data is given in Table 4-4.

Table 4-4. Long Term Meteorological Data of Düzce Province (1959-2020)

Parameter	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Highest temperature °C	24.5	26.9	32.2	34.7	39.5	39.0	42.4	42.0	38.7	38.2	30.2	29.2	42.4
Average highest temperature °C	8.7	11.2	14.3	19.3	23.9	27.5	29.7	30.0	26.5	21.5	15.9	10.3	19.9
Average daily temperature °C	4.1	5.5	8.2	12.3	17.0	20.8	23.1	23.2	19.3	14.8	9.5	5.6	13.6
Average lowest temperature °C	0.8	1.5	3.7	7.1	11.5	15.2	17.4	17.8	13.9	10.3	5.3	2.3	8.9
Lowest temperature °C	-20.5	-17.3	-13.6	-3.0	0.4	6.6	8.8	7.6	4.5	-1.2	-6.8	-16.5	-20.5
Average of total monthly precipitation amount mm	87.1	70.7	77.1	60.6	61.5	76.7	39.3	51.1	52.7	82.8	67.6	95.7	822.9
Average number of rainy days	15.00	14.47	14.33	12.60	12.70	10.57	6.70	6.17	8.90	12.00	11.60	16.07	141.1
Average number of monthly sunny hours	58.9	84.8	117.8	162.0	210.8	246.0	272.8	254.2	195.0	136.4	87.0	52.7	1,878.4
Average number of daily sunny hours	1.9	3.0	.8	5.4	6.8	8.2	8.8	8.2	6.5	4.4	2.9	1.7	5.1

Source: Turkish State Meteorological Service (<https://www.mgm.gov.tr>)

4.1.6 Natural Hazards

Due to the steeply sloped surrounding rocks of the Düzce Basin and the nearly-flat topography of the Düzce Plain, an alluvial fan has formed in almost all the basin edges. On the other hand, streams in the basin have highly twisted and meandering channels. The low elevation difference between the mean bed slopes of the outer parts of the streams and the alluvial fans and the Efteni Lake causes the stream beds to remain very shallow. These drainage features create a significant flood risk for the Düzce Basin.

Mass movements are common around the Düzce Basin due to its abundant rainy climate and geological-geomorphological structure. Most of the dislocations resulted from the mass movements gained activity during the heavy rains in May 1998. Around the basin; Yazlık Creek, where Düzce-Akçakoca Highway passes, in the north, and Büyük Melen Stream valley in the north of Cumayeri are the areas where landslides are most intense. The second region where



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landslides are concentrated in the skirts of Almacık Mountain, which borders the south of the basin [10]. However, the project area is not located in these regions.

4.1.7 Land Use and Ownership

According to the General Directorate of Land Registry and Cadastral Parcel Inquiry Application, the ownership status of the drilling locations are given in Table 4-5 [11]:

Table 4-5 . Ownership Statuses of Drilling Locations

Drilling No	Land Use / Ownership
SK-1	Unused land in Çilimli Ulucami Neighborhood /owned by State Hydraulic Works (DSI) who provided consent for the Project
SK-2	Earthen land area adjacent to Kiraztarla Village road in Çilimli Kiraztarla Village / municipal area under the responsibility of Düzce Provincial Special Administration (including the adjacent road) who provided consent for the Project
SK-3	Earthen land area adjacent to Söğütlü Street in Çilimli Söğütlü Village / municipal area (including the adjacent road)

Source: PIF for Çilimli Municipality, 2021

Based on information provided by Çilimli Municipality, no expropriation/resettlement will occur in relation to the Project as all drilling well locations are either municipal or state-authority property and included in the zoning plan. SK-1 drilling area belongs to State Hydraulic Works (DSI) and SK-2 drilling area is a municipal area which is under the responsibility of Düzce Provincial Special Administration; necessary consents have been obtained from DSI and Düzce Provincial Special Administration as given in Annex 3. SK-3 drilling area is a municipal land and is located next to a land that is under the legal entity of Söğütlü Village; an opinion letter from Söğütlü Village Headman has been obtained stating that the village commission has no objection to the drilling works and gives consent for the related works (see Annex 3). The lands to be used for the Project are currently not used by formal or informal users.

Based on information provided by Çilimli Municipality, one lane of the road may be impacted during drilling works at SK-2 and SK-3 drilling locations. As indicated above, SK-2 drilling area and the road is under the responsibility of Düzce Provincial Special Administration (state authority) who provided consent for the drilling activity; SK-3 drilling area is a municipal land and the adjacent road is under the responsibility of Çilimli Municipality. As indicated by Çilimli Municipality, roads will be maintained by Çilimli Municipality if they are damaged during drilling works.

The trees present in the SK-1 drilling area do not belong to any residents living in the area and are not used for commercial or housing purposes. Based on information provided by Çilimli



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Municipality, trees are not planned to be cut during drilling works. Based on information provided by ilimli Municipality, there will no entrance to private lands, no trees will be cut and the owners of the lands near SK-2 and SK-3 drilling area were informed about the Project by ilimli Municipality who have no objection to the Project.

4.1.8 Soil Quality

Düzce Plain is a depression plain located in the center of Düzce Province. The Limeless Brown Forest soils observed in the mountainous areas around the plain are the most common soil group within the province's borders. These soils are generally deciduous in winter and spread in broad-leaved forests. The Red Yellow Podzolic soils on the Black Sea coast are another soil group with a wide distribution area dominated by the Black Sea climate, and they spread from the coastal area to the Düzce Plain. Alluvial soils, suitable for agriculture, are present in almost all of Düzce Plain. On the other hand, Brown Forest and Grey Brown Podzolic soils are observed in E and NE, respectively. Additionally, hydromorphic and colluvial soils in thin strips are also found in places in the province (see Figure 4-15) [12].

These lands positively contribute to the natural environment and can be evaluated for different activities, i.e., tourism and sports. Considering the land use capability of Düzce Province, while 21% of the land is suitable for cultivated agriculture, 79% consists of areas not suitable for which. Most of the productive lands in cultivated agriculture in Düzce Province exist in the Düzce Plain and its close surroundings. The lands located in high and sloping fields around the Düzce Plain are not suitable for cultivated agriculture (see Figure 4-16) [12].



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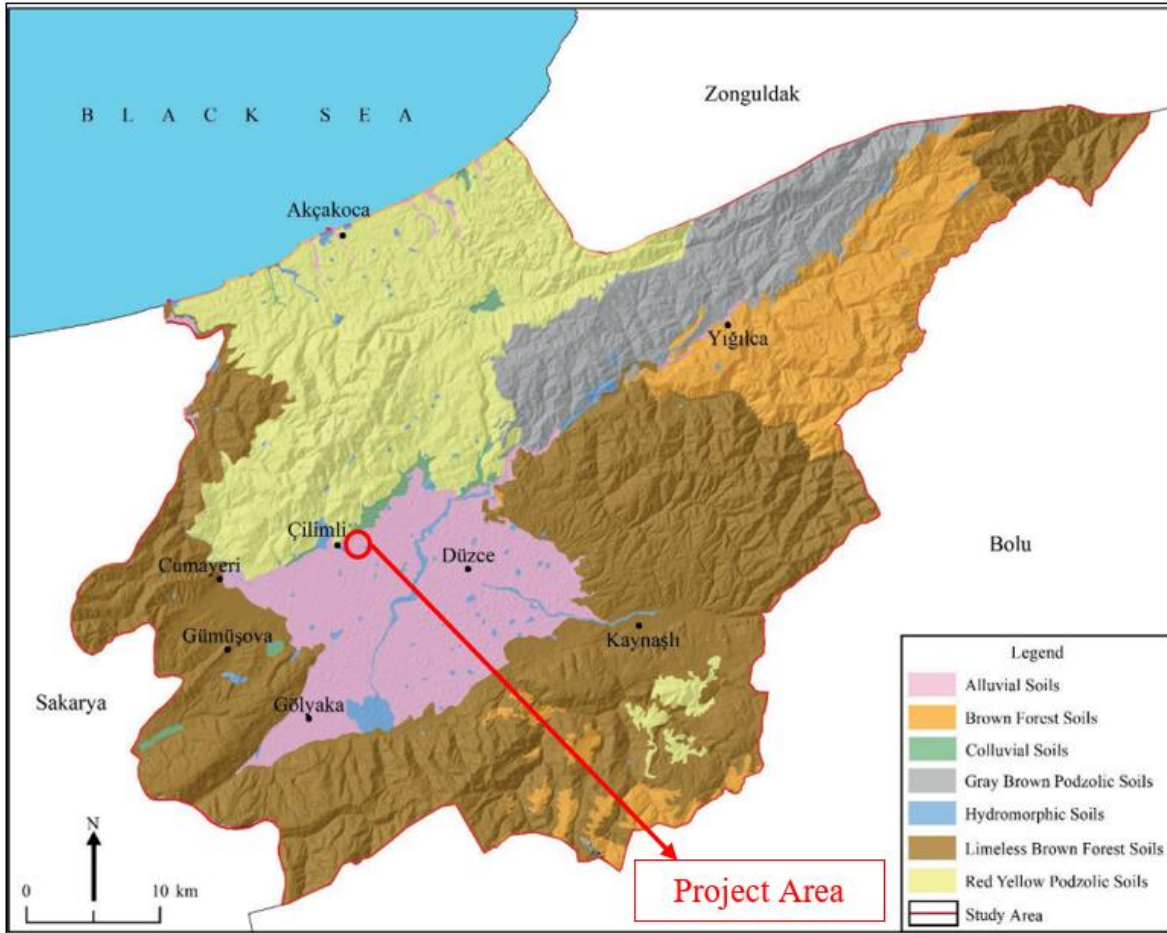


Figure 4-15. Distribution of Large Soil Groups in Düzce Province

Source: Siyavuş, 2021

The area and distribution of Land Use Capability (LUC) classes are factors impacting the distribution of land use (LU)/land cover (LC). Turkish General Directorate for Rural Services database defines the land use capabilities into eight different classes as summarized in Table 4-6. In this classification system, soils are categorized between Class I, which represent the arable lands on which agricultural activities can be conducted in the most efficient, economical, and simplest way without causing erosion, and Class VIII, which represent the lands that are not arable, cannot even be used as grassland or forest areas but support only wildlife development or can be used as resting area or national park by people.



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Table 4-6. Land Use Capability Classes

Class	Agricultural Potential	Definition of Land Use Capability
Class I	Agricultural lands suitable for agricultural soil cultivation	Class I land features include <ul style="list-style-type: none"> • flat or near flat, deep, fertile, and easily cultivated so that the conventional agricultural methods can be applied; • potential for water and soil erosion are minimal; have good drainage; are not prone to flood damage exposure; • suitable for hoe plants and other intensively grown crops; • Class I irrigated lands with low precipitation rates have slope values less than 1% slope, loamy structure, good water holding capacity, and medium level permeability.
Class II		Class II lands are decent lands that can only be processed after taking special precautions. Their difference from Class I lands are one or more limiting factors such as slight slope, moderate erosion, moderately thick soil, exposure to occasional moderate floods, and a moderate level of moisture that can easily be isolated.
Class III		Class III lands features include: <ul style="list-style-type: none"> • Moderately good grounds for hoe plants which can generate solid income provided they are utilized with a suitable cropping system and proper agricultural methods • Moderate slope, increased erosion sensitivity, excessive moisture, exposed soil, presence of stones, having a lot of sand and/or gravel, • Low water holding capacity and low yield are properties of this type of land.
Class IV		Class IV land features include <ul style="list-style-type: none"> • Constant utilization as meadows. Field crops can also be occasionally grown. • High levels of slope, bad soil characteristics, erosion, and climate are the factors limiting agricultural activities on these lands. Soils with low slopes and poor drainage are classified as Class IV lands. These soils are not subject to erosion but are unsuitable for growing many agricultural products as they have a low yield and a tendency to dry up in the spring suddenly.
Class V	Agricultural lands not suitable for soil cultivation	Class V lands features include <ul style="list-style-type: none"> • Use for long-life plantations such as meadows and forests. A few factors, such as stony structure and sogginess, hinder cultivation here. • Land is flat or near flat. It is not subject to an excessive amount of wind and water erosion. • Grazing and tree logging activities can be carried out
Class VI		Class VI lands require reasonable precautions even when used as forests or meadows since they have quite a bit of slope and are subject to severe erosion.
Class VII		Class VII lands have high slopes, are stony, and have been subject to violent erosion. Exposed soils, dry and/or some unfavourable conditions, and swamps can be classified as Class VII soil. These can be used as forests or meadows without showing due care
Class VIII	Non-arable lands	Class VIII lands exhibit features that prevent them from being used as forest, meadow, or cultivated land. This type of land is a habitat to the wildlife and can also be used for recreational purposes or as catchment basins for streams.

According to Figure 4-16, the land in Çilimli District consists of Class I (arable), IV (arable), VII (non-arable), and a small portion of Class II (arable) lands.



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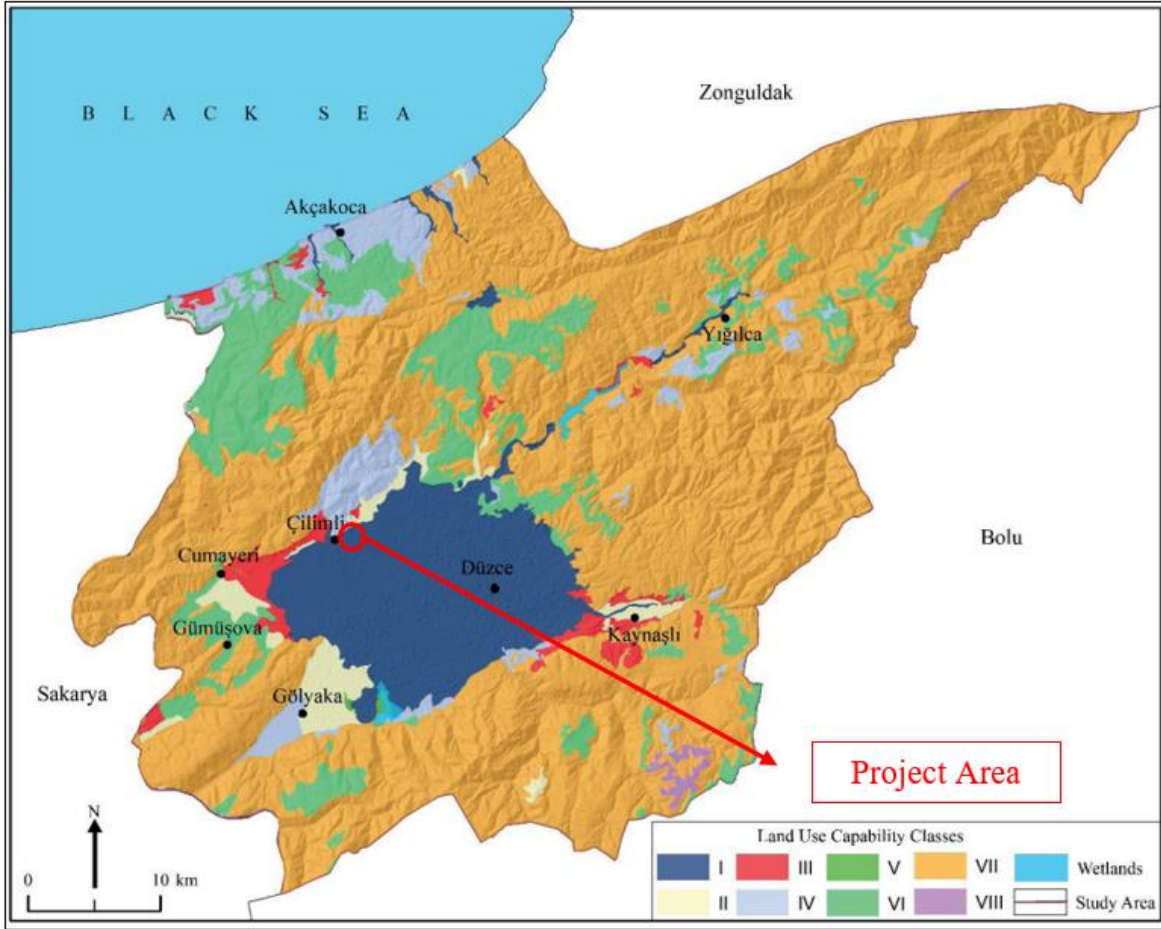


Figure 4-16. Land Capability Class Map of Düzce Province

Source: Siyavuş, 2021

Activity Preliminary Information Form applications submitted to PDEUCC within the scope of “Regulation on Control of Soil Pollution and Point Source Contaminated Sites” are being evaluated. The relevant inspections are ongoing by the authority. There are 193 suspicious areas and 16 areas requiring follow-up, and there is no contaminated area within the province’s borders [1]. There is no investigation study on soil quality specifically for the project area. The project area is not within the area where industrial activities are conducted; thus, it is not included within the potentially contaminated site as per Regulation on Control of Soil Pollution and Point Source Contaminated Sites.

4.1.9 Air Quality

The air quality of Düzce Province is measured at the air quality measurement station located in a nursery land (see Figure 4-17) within the province boundaries, which is approximately 12.7 km air distance from the drilling location (SK-2) [1].



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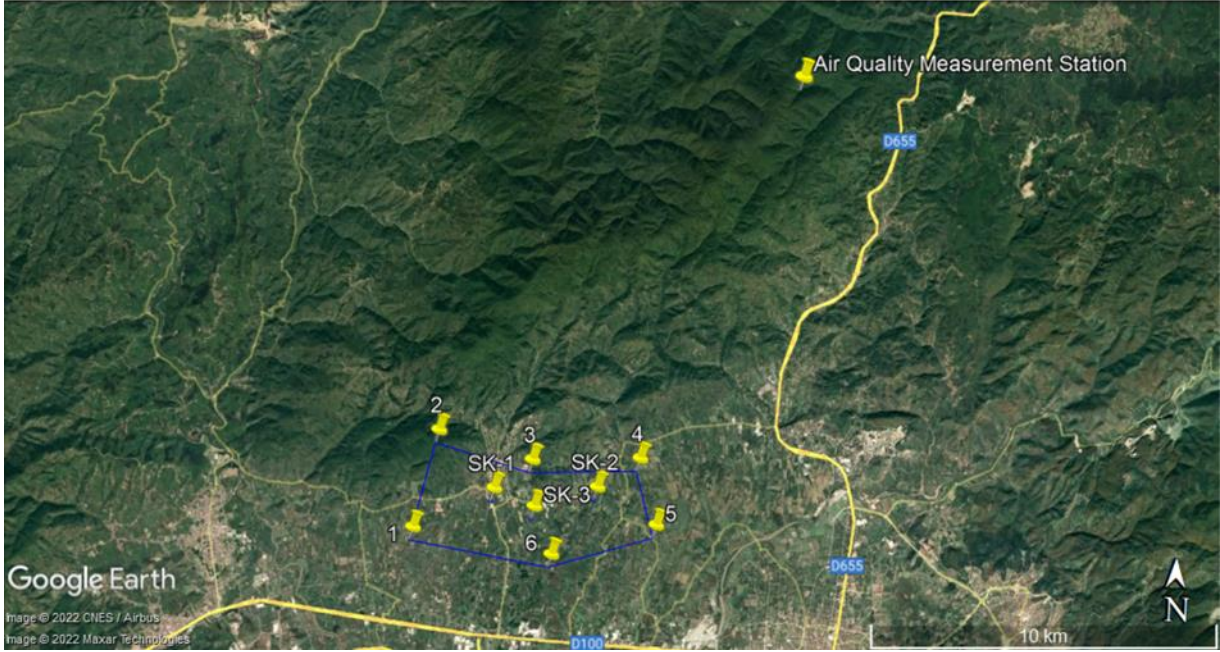


Figure 4-17. Location of Air Quality Measurement Station in the Düzce Province

Source: Düzce Province Environmental Status Report, 2020

The graphics given in Figure 4-18 and Figure 4-19 show the average daily PM₁₀ and SO₂ levels measured in 2020 [1].

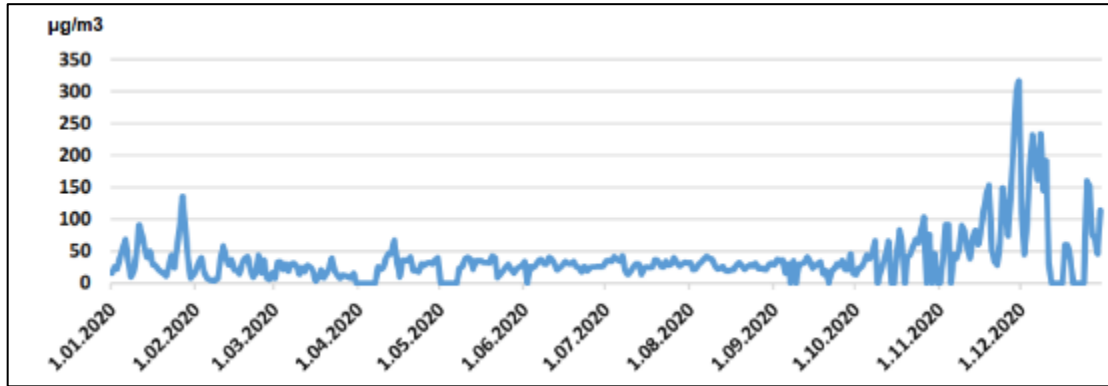


Figure 4-18. Daily Average Values for PM₁₀ Parameter

Source: Düzce Province Environmental Status Report, 2020



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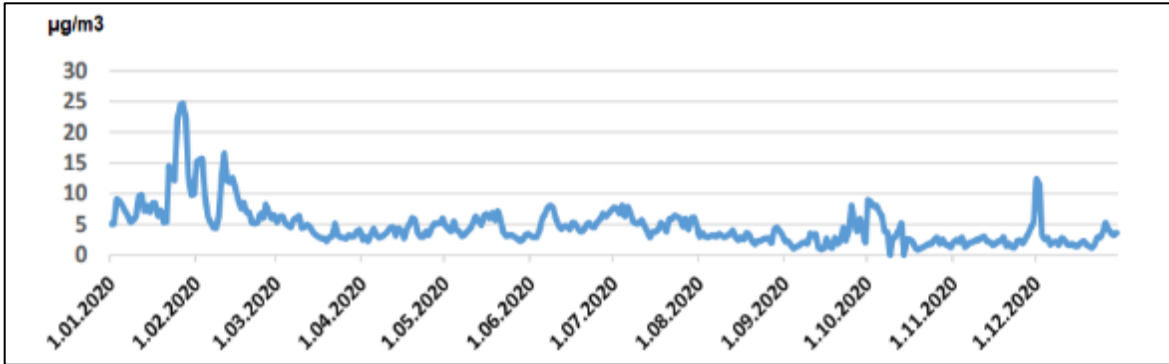


Figure 4-19. Daily Average Values for SO₂ Parameter

Source: *Düzce Province Environmental Status Report, 2020*

Table 4-7 provides legal limit values for air quality defined by the Regulation on the Assessment and Management of Air Quality.

Table 4-7. Air Quality Limit Values

Pollutant Parameter	Measurement Period	Limit Values (µg /m ³)
SO ₂	Hourly	350
	Daily	125
	Yearly	20
PM ₁₀	Daily	50
	Yearly	40
NO ₂	Hourly	200
	Yearly	40
Nox	Yearly	30
CO	8 hours average	10,000

Table 4-8 includes the number of days that exceeded (NDE) the legal limit values for air quality parameters in 2020 [1]. According to Table 4-8, average monthly concentrations of PM10 values in the province have exceeded the limit values several times; on the other hand, the other parameters were within the limit values.

Table 4-8. Average Monthly Concentrations of Air Quality Parameters in 2020 and NDE (µg/m³)

Central Station	SO ₂	NDE	PM ₁₀	NDE	CO	NDE	NO ₂	NDE	Nox	NDE
January	10.16	-	98.19	21	1432.79	-	27.49	-	105.25	-
February	8.76	-	60.29	17	896.63	-	32.29	-	71.73	-
March	4.07	-	49.79	14	522.08	-	11.40	-	40.51	-



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Central Station	SO ₂	NDE	PM ₁₀	NDE	CO	NDE	NO ₂	NDE	Nox	NDE
April	3.93	-	65.51	20	464.34	-	10.13	-	23.64	-
May	4.44	-	54.54	12	278.46	-	9.2	-	20.83	-
June	5.23	-	44.77	7	281.46	-	10.91	-	22.95	-
July	5.51	-	45.54	9	281.49	-	10.98	-	19.43	-
August	3.02	-	45.49	9	202.1	-	14.01	-	23.33	-
September	2.7	-	47.30	9	340.81	-	21.95	-	34.38	-
October	3.47	-	87.78	22	248.56	-	26.94	-	77.23	-
November	2.36	-	148.06	27	590.75	-	27.83	-	114.89	-
December	3.12	-	142.09	25	1204.11	-	27.24	-	107.23	-

Source: *Düzce Province Environmental Status Report, 2020*

The Düzce Province Clean Air Action Plan, revised to cover 2020-2024, was approved by the Local Environment Board decision numbered 2020/21, dated 17.02.2020. In addition, because of the air quality monitoring studies that started in the province in the last period of 2020, the revision of the 2020-2024 Düzce Provincial Clean Air Action Plan is on the agenda [1].

4.1.10 Waste Management

Düzce Provincial Solid Waste Association (DIKAB) was established between Düzce Province Municipalities with the Council of Ministers Decision dated 27.12.2002 and numbered 2002/5116 to find solutions to environmental problems negatively affecting public health in Düzce Province. Çilimli Municipality is also a member of the union. A Landfill Facility started operation in 2020 within the province to manage municipal wastes. The landfill facility has all the relevant environmental licenses and permits for operation and operates in compliance with relevant legislation. This landfill will be used during all phases of the Project.[1].

As of 01.10.2018, the Zero Waste Project has been implemented in the province, starting from the Governor's Office. The wastes have been collected separately in all Public Institutions and sent to recycling/disposal [1].

One disposal site is available within the province boundaries to dispose of excavation soil wastes. The number of waste treatment facilities in Düzce Province as of 2020 is shown in Table 4-9 [1].



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Table 4-9. Number of Waste Treatment Facilities in Düzce Province as of 2020

Sanitary Landfill	1
Licensed Packaging Waste Collection, Separation, and Recovery Facilities	27
Hazardous Waste Recovery Facilities	4
Waste Oil Recovery Facilities	-
Waste Vegetable Oil Recovery Facilities	-
Waste Battery and Accumulator Recovery Facilities	1
End-of-Life Tire Recovery Facilities	-
Medical Waste Sterilization Facilities	1
Non-Hazardous Waste Recovery Facilities	39
Waste Electrical and Electronic Goods Processing Plants	1
Mine Waste Disposal Facilities	-

Source: *Düzce Province Environmental Status Report, 2020*

4.1.11 Noise

While Düzce Municipality evaluates the complaints from the province's center, the complaints outside the adjacent areas and in the districts are handled by the Düzce Provincial Directorate of Environment, Urbanization and Climate Change (PDEUCC). The PDEUCC received several complaints in 2020 due to industrial activities [1]. No concerns were received during the public consultation meeting and the meetings done by Çilimli Municipality with public on potential impacts of the project activities on noise generation.

4.1.12 Flora & Fauna

The information on flora and fauna of Düzce Province was collected from PIF and the Düzce Provincial Environmental Status Reports (2019 & 2020).

Flora

Düzce Province is under the effect of the Euro-Siberian (Euxine) Floristic Area, Mediterranean Floristic Area and Irano-Turanian Floristic Area spreading in the NW Black Sea region. The province is in the transition zone of Euxine (Mid-West Black Sea) and Xsero-Euxine (Arid Western Black Sea) Floristic Areas. Samandere Valley starts from the Beyköy-Uğur Village in the SE of Düzce Province and stretches to Lake Abant and the Abant Mountains. The effect of the Mid-West Black Sea sub-floristic area (Sub-Euxine) of the Euro-Siberian Floristic Area is observed in the high places of Abant Mountains (1,600 m) facing NW, in the Samandere Valley and along the streams. The effect of the Mediterranean Floristic Area is locally observed in the front valley formed by Uğur Suyu Stream located between Beyköy-Uğur Village-Derdin and the northern part of Düzce Province. Irano-Turanian Floristic area is observed in the Central Anatolian section of Düzce, which is under the effect of steppe climate; transition areas to the



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Xero-Euxine Floristic Area in the south; the high parts of the Sinekli and Sakarca Plateaus; and the areas of the Abant Mountains (1,500-1,600 m) where subalpine vegetation is found. All these floristic areas are located at the intersection and transition points of the front Uđur Suyu Valley, which is in the řimřirlik Locality of Uđur Village and the Samandere Valley extending to Abant Lake due to their geographical location and geomorphological structure. The vegetation types in stream, relic maquis, forest, subalpine, and rock, and the rare plant habitats within these vegetation types are spread [1].

Studies conducted by the Düzce University for Düzce Province in 2019 revealed the presence of 102 families, 471 genera, 1200 species, and subspecies taxa. Of the total number of families, 6% fern, 3% Gymnospermae, and 91% Angiospermae families, and the total number of genera, 1.6% were ferns, 1% were Gymnospermae, and 97.4% were Angiospermae. Fern constitutes 1%, Gymnospermae 0.5%, and Angiospermae 98.5% of the total number of species and subspecies taxa. According to the conducted studies;

- Most of the plants have a very wide distribution area. Secondly, the presence of plants belonging to the Euro-Siberian Floristic Area is quite common. Besides, plants belonging to the Mediterranean and Irano-Turanian Floristic Areas are also grown.
- The families with the most genera in Düzce Province are as follows: Asteraceae (12.3%), Poaceae (8.2%), Brassicaceae (6.2%), Apiaceae (5.3%), Fabaceae (5%), 1), Lamiaceae (4.9%), Rosaceae (3.8%), Caryophyllaceae (3.6%), Orchidaceae (2.5%), Boraginaceae (2.3%), and other families (54%).
- The families containing the most species and subspecies taxa are Asteraceae (12.75%), Fabaceae (9.1%), Poaceae (6.8%), Lamiaceae (6.3%), Brassicaceae (4.2%), Caryophyllaceae (3.9%), Rosaceae (3.8%), Apiaceae (3.4%), Orchidaceae (2.5%), Boraginaceae (2.4%) and other families (44%, 85)
- The genera containing the most species and subspecies taxa are Trifolium (2.3%), Euphorbia (1.3%), Vicia (1.3%), Veronica (1.25%), Carex (1%), Medicago (1.16%), Ranunculus (1.08%), Lathyrus (1%), Ornithogalum (1%), Anthemis (0.9%), Salvia (0.9%) and other genera (86.65%).

The centers in Düzce Province where local endangered endemic plants are observed (see Figure 4-20), are as follows [13]:

- Valley slopes in the Scots pine (*Pinus sylvestris*) forests facing south of the valley formed by Aksu and Emeksiz streams at Elmacı Mountains,
- Rocky and clear areas in Horoz Kaya Locality between Toptepe and Güzel Creek Waterfall,
- Efteni Lake,
- Rocky areas around Hasanlar Dam,



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- Cumayeri District, Dokuz Değirmen Village,
- Menağzı Dune Fields,
- Samandere Valley Uğur Village-Şimşirlik Locality.

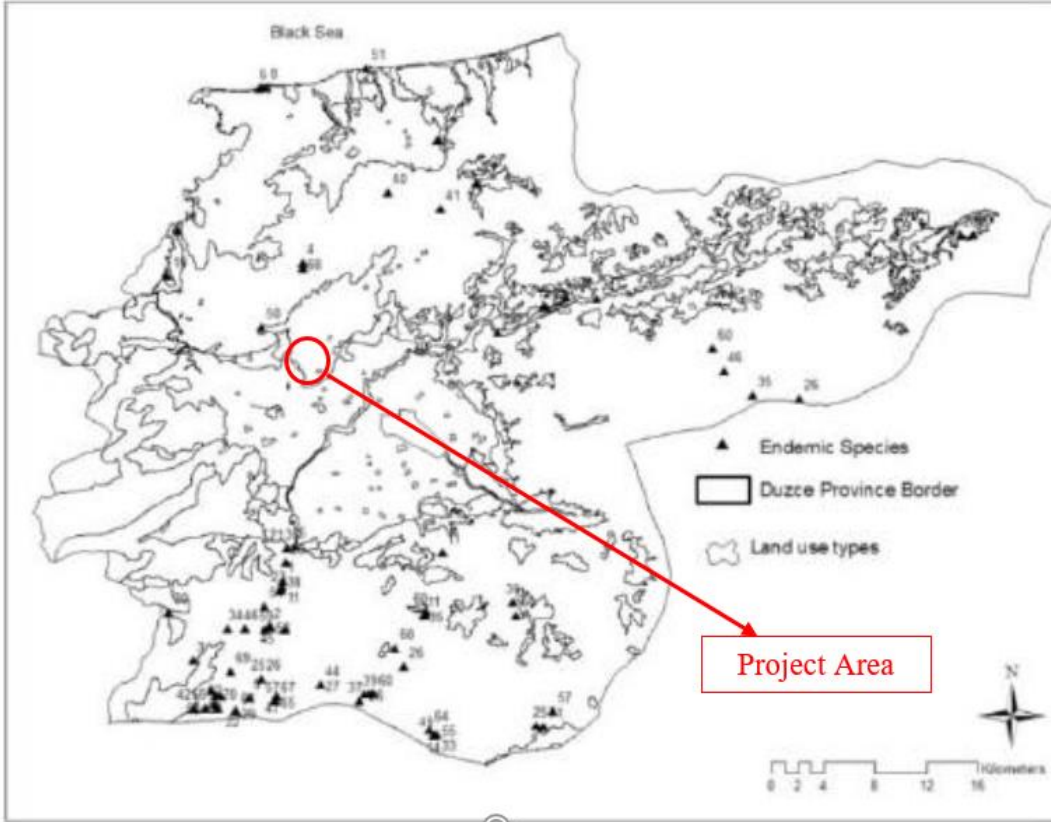


Figure 4-20. Representation of Drilling Locations in the Map of Distribution of Endemic Taxa in Düzce Province

Source: Aksoy and Uzun, 2011

As shown in Figure 4-20, no endemic species exist in the project area and its close vicinity; where the nearest endemic species is 3.2 km distant from the drilling location SK-1.

As reported in the PIF, the project area and its surroundings are in the A3 square (Bithyia Region) according to the P.H. Davis's Grid Square System (Flora of Türkiye and The East Aegean Islands). When the general flora characteristics of the Bithyia Region where the project site is located are examined, 11 endemic plant species were detected. However, these species are present among the regional species and not included in the local flora. Due to their wide distribution and high population density, they are not protected as per national and international legislation. Therefore, neither endemic plant nor flora species that fall into the Bern convention or Red Data Book categories are present in the project area and its surroundings. *Cyclamen*



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coum ssp Coum species, which is not endemic but under protection as per the Bern Convention, is found in the distant surroundings of the project area. Flora species and endemic plants in the region but not included in the local flora are listed below:

- *Lathyrus tukhtensis*
- *L. Czeczottianus*
- *Trifolium pannonicum var. Elongatum*
- *Jurinea pontica*
- *Onosma tauricum ssp. Brevifolium*
- *Verbascum bithynicum*
- *Orobanche hadroantha*
- *S.cretica ssp. Anatolica*
- *Asperula lilaciflora ssp. Phygia*
- *Galium fissurence*
- *Iris purpurobracteata*

The plants in question spread widely in the region. Species detected in the local flora are *smilax*, *Lupinus*, *taraxacum officinale*, *trifolium repens*, *agropyron repens*, *plantain*, *thorn graminea*, and herbaceous plants belonging to the Leguminous family. These plants are not protected or endemic plant species to be affected by the project activities.

Fauna

Rich vegetation, land structure, streams, and suitable climate create a favorable environment for wildlife in Düzce Province. However, systematic inventory studies that determine species, population, and habitats have not been carried out [14]. According to the survey related to the bird species living in Lake Efteni (which is located approximately 13.8 km, 14.3 km and 13.4 km to the south of SK-1, SK-2 and SK-3, respectively) carried out by Keten et al., 129 species were identified in the lake area.

Birds such as the cormorant, wild duck, wild goose, flamingo, swan, waterfowl, and Eurasian coot are present in the area, and partridge, dove, quail, freckle, bustard, crane, woodcock, pigeon, hawk, and eagle are frequently observed. In addition, fish species such as trout, carp, coral, and silverfish are present in Lake Efteni. Terrestrial animals such as bear, lynx, wild boar, deer, roe deer, wolf, marten, fox, badger, rabbit, skunk, weasel, beaver, and squirrel are found in forest areas [14].

According to all scientific studies, 722 species have been identified throughout the province of Düzce Province. The distribution of fauna species is given in Table 4-10 [15].



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Table 4-10. Distribution of Fauna Species

Phylum	Class	Order	Family	Species
Mollusca	1	2	2	3
Annelida	1	1	3	4
Arthropoda	2	12	95	515
Chordata	5	32	69	200
Total	9	47	169	722

Source: Ministry of Forestry and Water Affairs, General Directorate of Nature Conservation and National Parks, Department of Biological Diversity. Biodiversity Symposium, 2012

The most significant number of species was determined in insects among the total number of species. Considering the distribution of vertebrate species, the abundance of bird species draws attention. The distribution of vertebrate species by class in Düzce Province is given in Table 4-11 [15].

Table 4-11. Distribution of Vertebrate Species by Classes in Düzce Province

Chordata	Order	Family	Specie	Total Species in Türkiye	Specie Ratio of Düzce/Türkiye (%)
Fish	5	8	26	127	20
Amphibian	2	4	6	23	26
Reptile	2	5	7	120	6
Bird	17	40	142	466	30
Mammalian	6	12	19	160	12
Total	32	69	200	896	22

Source: Ministry of Forestry and Water Affairs, General Directorate of Nature Conservation and National Parks, Department of Biological Diversity. Biodiversity Symposium, 2012

Based on the PIF, the Agile Frog (*Rana dalmatina*) from amphibians in the region where the project area is located is under protection as per the Bern Convention. Some amphibians (i.e. frogs), reptiles (i.e. rock lizard) and birds (i.e. sparrows) were encountered in the project area according to the site-based studies conducted within the scope of PIF; however, it is stated that above-mentioned species under protection as per the Bern Convention is not included in the project area and local fauna. It was also reported that no significant breeding areas for fauna have been identified at the project site. It is concluded in the PIF that there are no species under protection by international legislation on the project site and no endemic fauna species are present in and/or the surroundings of the project area.



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4.1.13 Protected Areas

Legally Protected Sites

Online databases of MEUCC [16] and Google Earth kmz files of the Ministry of Agriculture and Forest (MoAF) [17] have been utilized to identify the protected sites in the vicinity of the project area, which are under protection by the national legislation.

Accordingly, the nearest protected sites to the project area are listed in Table 4-12 and shown in Figure 4-21.

Table 4-12. Distances between Protected Areas and Drilling Points

Protected Areas	Distance from SK-1 (km)	Distance from SK-2 (km)	Distance from SK-3 (km)
Demirciönü Natural Conservation Area	30.8	29.4	30.9
Fakıllı Cave District Natural Archaeological Site	20.8	19.9	21.2
Sarıyayla Göknarı (Fir) Natural Monument	10.8	10.8	11.5
Sarıkaya Cave District Natural Archaeological Site	29.5	27.1	29.0
Kurugöl Natural Park	23.1	20.7	22.1
Efteni Lake Wildlife Improvement Area	16.0	16.1	15.2
Aydınınar Waterfall Natural Park	16.4	15.7	15.4
Güzeldere Waterfall Natural Park	18.9	18.8	18.0
Samandere Waterfall Natural Monument	30.3	28.6	29.1
Bolu Yedigöller Wildlife Improvement Area	36.0	32.0	34.0



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Figure 4-21. Protected Areas around the Project Area

Key Biodiversity Areas

Key Biodiversity Areas (KBAs) have been identified in Türkiye, but there are no regulatory provisions for the identified KBAs except for those with legally protected status. The book entitled ‘KBAs of Türkiye’ was published by Doğa Derneği (Nature Society) in cooperation with the Turkish Ministry of Environment and Forest (former ministry, now MEUCC), several conservationists, and academicians. According to the book entitled ‘KBAs of Türkiye’ accessed via the official website of Nature Society, there are no KBAs at the vicinity of the Project site. The closest ones are Abant Mountains and Bolu Mountains [18]. The distances between the KBAs and three drilling points are given in Table 4-13, whereas these areas and the project site are shown in Figure 4-22.

Table 4-13. Distances between KBAs and Drilling Points

KBA	Distances (km)		
	SK-1	SK-2	SK-3
Abant Mountains	16.4	14.2	13.5
Bolu Mountains	30	27.4	29.1



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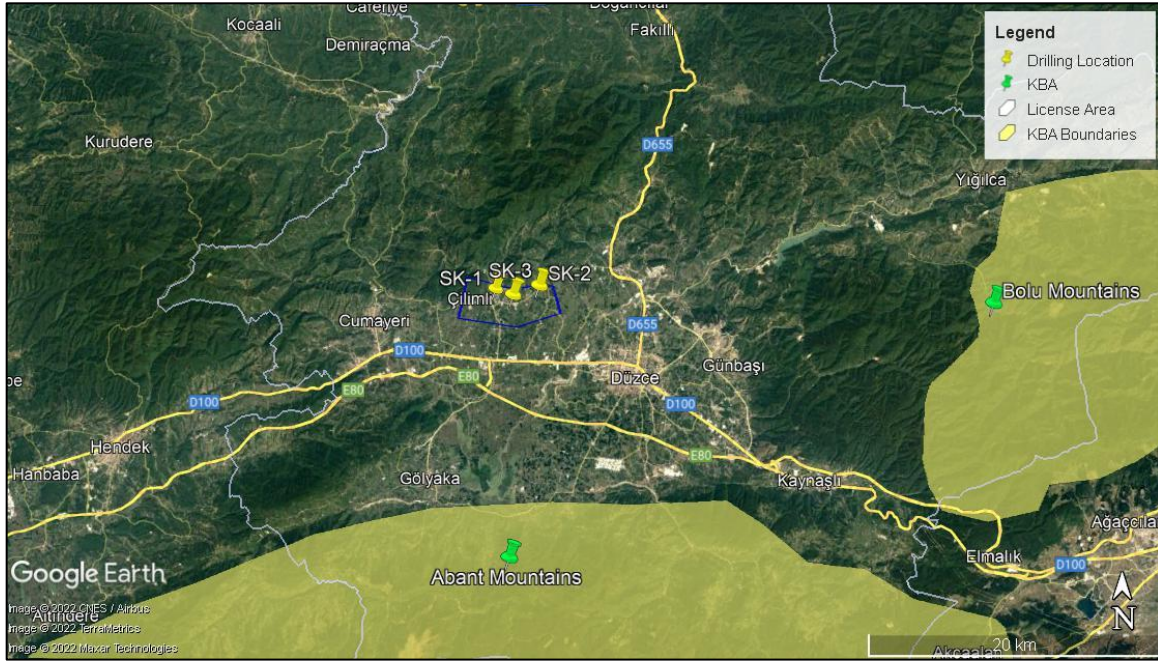


Figure 4-22. KBAs around the Project Site

Internationally Protected Areas

There are no internationally recognized areas of high biodiversity value (such as World Heritage Natural Sites, Biosphere Reserves, Ramsar Wetlands of International Importance, Important Bird Areas, and Alliance for Zero Extinction Sites) within the AoI.

4.1.14 Landscape

Karadağ and Şenik (2019) developed a landscape sensitivity map for the Düzce Province by considering four ecological processes: erosion sensitivity, landslide sensitivity, water infiltration sensitivity, and habitat fragmentation sensitivity. The erosion sensitivity increases in the mountainous areas to the province's north. It decreases in the southern and inner parts of which. Due to the high slope, elevation, fault lines, and habitat fragmentation, the landslide increases in the mountainous areas to the north. On the other hand, landslide sensitivity is low in the inner parts. Considering the water infiltration, it is generally moderate except in residential areas/artificial surfaces, and the sensitivity increases from the Black Sea coast to the inland. It was finally determined that mixed forests, coniferous forests, pastures, and leafy forests had high, moderate, and low habitat sensitivities. Thus, habitat sensitivity decreases in the eastern and southern parts of the province. Consequently, the province sensitivity map in Figure 4-23 below was developed by overlaying four sensitivity parameter data [19].



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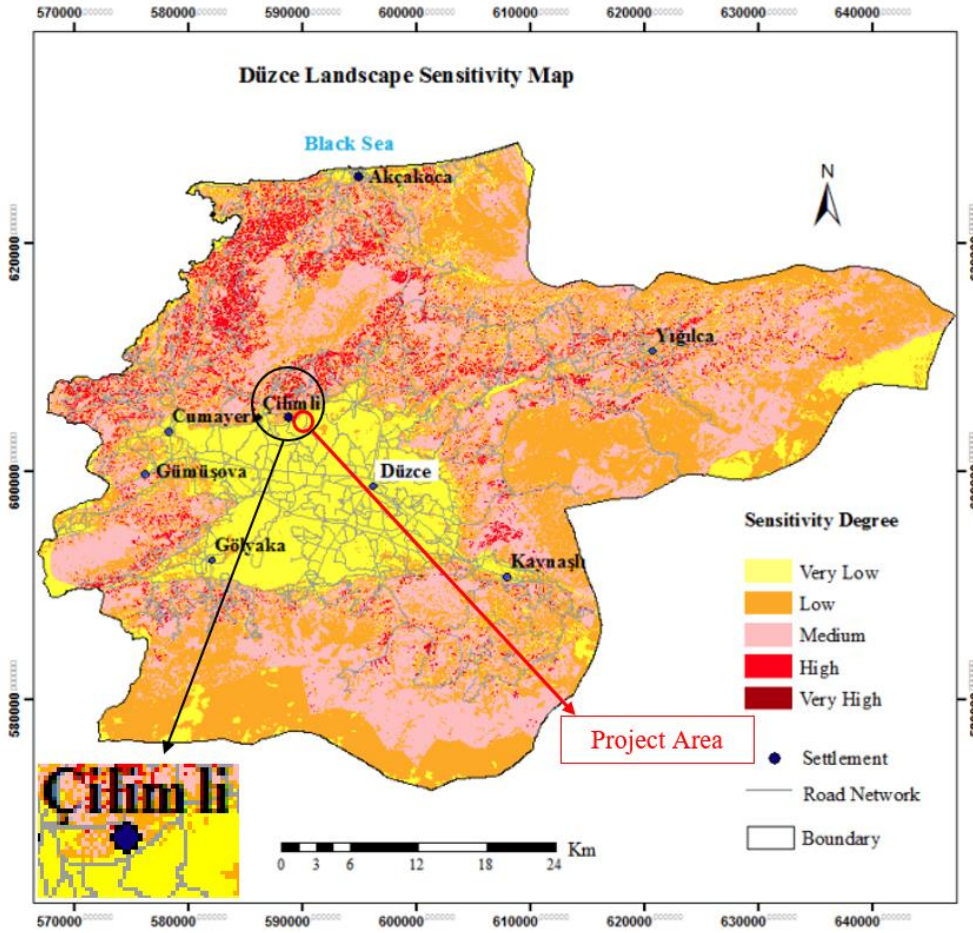


Figure 4-23. Düzce Landscape Sensitivity Map

As shown in Figure 4-23, Çilimli District is in low to medium sensitivity areas in terms of landscape. It is concluded in the study that in the low sensitive areas, the sensitivity is impacted by habitat fragmentation, water infiltration, and rare settlement. Besides, erosion, landslide, and water infiltration affect the sensitivity in the medium-sensitive areas where rural settlements and forests are particularly located.

4.2 Social Baseline

4.2.1 Population

The population of Çilimli District is 19,902 in 2020 according to the data obtained from Address Based Population Registration System of TurkStat. This population consists of 11,455 (57.55 %) men and 8,447 (42.44%) women. There is a prison in Serefiye Neighborhood of Çilimli District resulting in a gender population gap within the whole district. The population



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distribution by age group and gender for Çilimli District are given in Table 4-14 and Figure 4-24.

Table 4-14. Population Distribution by Age Group and Gender for Çilimli District

Age Group	Male	Female	Male (%)	Female (%)
0-4	556	493	4.85	5.84
5-9	583	540	5.09	6.39
10-14	575	527	5.02	6.24
15-19	621	520	5.42	6.16
20-24	760	512	6.63	6.06
25-29	907	568	7.92	6.72
30-34	1,071	566	9.35	6.70
35-39	1,061	608	9.26	7.20
40-44	1,143	593	9.98	7.02
45-49	925	558	8.08	6.61
50-54	775	478	6.77	5.66
55-59	707	631	6.17	7.47
60-64	624	560	5.45	6.63
65-69	455	453	3.97	5.36
70-74	338	355	2.95	4.20
75-79	172	232	1.50	2.75
80-84	120	139	1.05	1.65
85-89	49	80	0.43	0.95
90+	13	34	0.11	0.40

Source: TurkStat, 2020

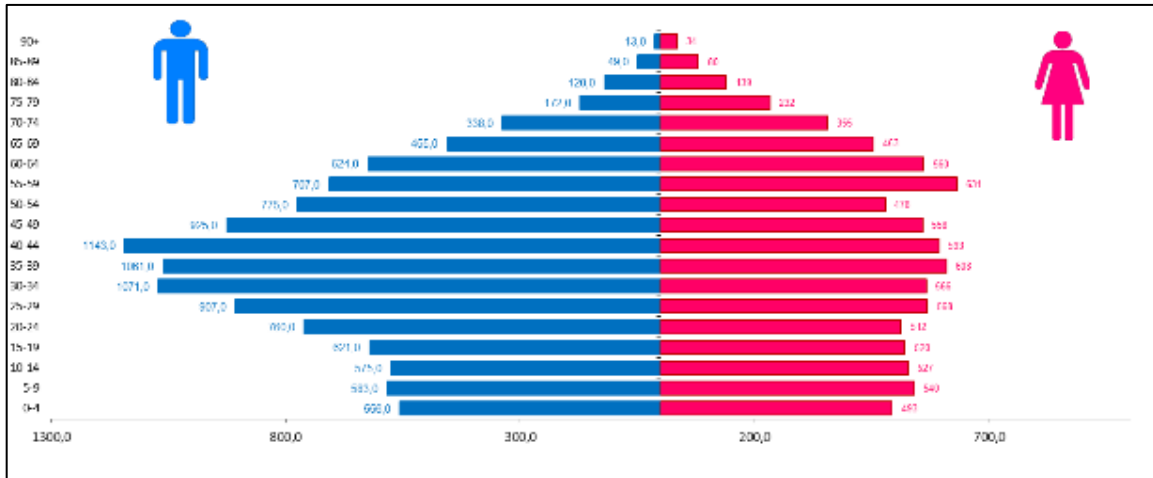


Figure 4-24. Population Distribution by Age Group and Gender for Çilimli District

Source: TurkStat, 2020



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Moreover, Çilimli District has the fourth highest population in Düzce Province with this population. The population distribution of Düzce Province and its districts are given in Table 4-18 [2].

Table 4-15. Population of Düzce Districts

District	Male	Female	Total	Population Percentage (%)
Çilimli	11,455	8,447	19,902	5.03
Akçakoca	19,321	19,908	39,229	9.91
Cumayeri	7,562	7,440	15,002	3.79
Gölyaka	10,288	10,120	20,408	5.16
Gümüşova	8,188	8,066	16,254	4.11
Kaynaşlı	10,361	10,184	20,545	5.19
Merkez	123,323	126,372	249,695	63.11
Yığılca	7,534	7,110	14,644	3.70

Source: TurkStat, 2020

The drilling locations are in Ulucami Neighborhood, Söğütlü Village and Kiraztarla Village which has a population of 2,042, 316, and 283, respectively. The distribution of the population in Ulucami Neighborhood, Söğütlü Village and Kiraztarla Village is given in Table 4-16. The number of people in AoI is approximately 50 people based on the information from Çilimli Municipality.

Table 4-16. Population Distribution in Ulucami Neighbourhood, Söğütlü Village and Kiraztarla Village

Location	Male	Female	Total
Ulucami Neighbourhood	1,002	1,040	2,042
Kiraztarla Village	134	146	280
Söğütlü Village	150	167	317

Based on phone interviews conducted with the headmen of Ulucami neighborhood, Kiraztarla and Söğütlü villages; the age distribution is mostly between 30-60, between 40-60 and under 50 and the approximate number of households are 400, 85 and 110 for Ulucami neighborhood, Kiraztarla village and Söğütlü village, respectively. Based on information provided by the headmen, there are vulnerable/disadvantaged individuals/groups in Ulucami neighborhood, Kiraztarla village and Söğütlü village. The list of these groups is given in Table 4-17. Social services, district governorship, and headmen look after these groups if they apply to these institutions. These groups need financial aid, supplies, and shelter.



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Table 4-17. Vulnerable/Disadvantaged Individuals/Groups in the Neighbourhoods

Type	Kiraztarla	Söğütlü	Ulucami
People who live with the assistance of others	3 households	1-2 people	5 people
Poor people	Not known	6-7 people	5 people
Old people	1-2 people	2 people	5-6 people
Female households	2-3 households	1-2 households	1-2 people
Physically handicapped people	1 person	1-2 households	2-3 people
Mentally handicapped people	2 people	1-2 people	3-4 people

4.2.2 Livelihood

Düzce Province is ranked 34th in socio-economic development according to the “Socio-Economic Development Ranking Survey of Provinces and Regions -2017” published by the Ministry of Industry and Technology. The gross value added per person for Düzce Province was 43,749 TL in 2019 [20] based on the Union of Chambers and Commodity Exchanges of Türkiye 2020 Economic Report.

Textile and textile products manufacturing, wood products manufacturing, and machinery and equipment manufacturing industry sectors in Düzce Province have come to the fore according to the Commercial Life and Production Status Report of Düzce Province, prepared by Düzce Commodity Exchange in 2020. Düzce Province, where 37% of the regional textile industry balance sheet is produced, ranks first in the textile industry in the region. As the most developed industrial sector in Düzce Province, the textile industry covers 20% of the industrial enterprises in the province, 25% of the total industrial workforce, and 23% of the provincial industrial sector balance sheet. Another sector in which the province has a high share in the regional industry is the wood products manufacturing sector. 18% of the balance sheet of the wood products manufacturing sector in the region is produced in Düzce Province; 17% of the enterprises operating in this sector are in Düzce Province. The wood products manufacturing sector has a share of 13% in the total balance sheet of the industrial sector of Düzce Province; the percentage of the enterprises operating in this sector within the entire enterprise in the province is 10%. However, the ratio of employment provided in this sector to the provincial industrial work ranks sixth at 8% [21].

As the most developed industrial sector in Düzce, the textile industry covers 20% of the industrial enterprises in the province, 25% of the total industrial workforce and 23% of the provincial industrial sector. [21].

Çilimli District is one of the districts closest to the city center, and hazelnut and corn are the main economic activities in the district. In addition, hazelnut cracking and forest products



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factories located within the district's borders play an important role in the employment of the district population [21].

There is one industrial zone named Çilimli Specialized Organized Industrial Zone (OIZ) in the Çilimli District and the area of the OIZ is 93 hectares (ha). The establishment and commercial transactions of Çilimli OIZ were completed on 25.07.2014. The appeal process continues for an area of 113 ha that the court cancelled. The Entrepreneurial Committee and the Board of Directors have been formed, and the zoning work continues [21].

The Çilimli District, which shows conscious development in agriculture and animal husbandry, is also evolving in industrialization. Approximately 15% of the population of the district is engaged in agriculture. Of the district's lands, 86% is arable land, 2% is meadow and pasture, 6% is forest land, 3% is non-productive land, and 3% is residential. Hazelnuts are planted on 35,250 ha of agricultural land, corn on 17,600 ha, wheat on 250 ha, paddy on 700 ha, various vegetables in 170 ha, and other agricultural products on 880 ha [22].

Cattle breeding is generally carried out in the district. This practice is not for commercial purposes but for pasture livestock and family business. In larger enterprises, 1391 large dairy cattle are raised [22].

It is seen that the forest's existence is rich in the district, and when thinning forest applications are made, it is a source of livelihood and a job for the low-income families with no land. There is no Forest Management Chief in the district. It is subordinate to Gümüşova Melen Forest Sub-District Directorate as a region. This sub-district directorate meets the fuel and food needs of the villages of the district [22].

There are five cooperative organizations in the district; the hazelnut agricultural sales cooperative, the agricultural credit cooperative, and three motor carrier cooperatives. Five hundred ninety-two taxpayers are registered with the Ministry of Treasury and Finance [22].

The D-100 highway passing through the city connects Ankara to Istanbul. With the heaviest traffic in Türkiye, this road is essential to Düzce Province, a recreation and tourism city between two densely populated cities [1]. With its plateaus, lakes, streams, and 28 km of coast opening to the Black Sea, it is a city suitable for all types of tourism [23].

Düzce Province enables important alternatives for sea and nature tourism with its forests, lakes, waterfalls, and beaches, such as rafting, motocross, off-road, bicycle sports, camping and caravan, and horseback riding, and aviation sports [23]. Hasanlar Dam can be used for recreational tourism and water sports purposes, and its irrigation, energy, and flood control functions. It is surrounded by dense greenery. After leaving the Düzce-Akçakoca highway, it can be reached quickly by traveling only 12 km, 18 km from the Düzce city center [1].



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Düzce Province is suitable for nature tourism with its land structure, climate, rich water resources, and vegetation. The important plateaus are Kardüz Plateau, Topuk Plateau and Pond, Pürenli Plateau, Sinekli Plateau, Kocayayla, Darıyeri Yörükler Plateau, Odayeri Plateau, Torkul Plateau and Pond, Balıklı Plateau, Hira Plateau, Derebalık Plateau and Sakarca Plateau [23].

Koçköy Cave, located in Yeni Quarter, Akçakoca District, was registered as immovable natural property in 2008 due to its rich and beautiful appearance in terms of stalactites, stalagmites and waterfalls and its tourism potential [1].

Faith tourism is a significant tourism activity in Çilimli District. The Shrines of Sheikh Aliyyül Muslihiddin, his sons, and grandchildren are important in faith tourism in the district. The shrines are 3.6 km away from the nearest project location (SK-1 Drilling Point) [24]. Figure 4-25 shows 35 km Çilimli Kaplandede Healing Water Walking Track (Starting Point) between Çilimli District, Kaplandede Mountain, and Healing Water (Şifalı Su); this is 600 m distant from the north of the nearest project location (SK-1) [25].

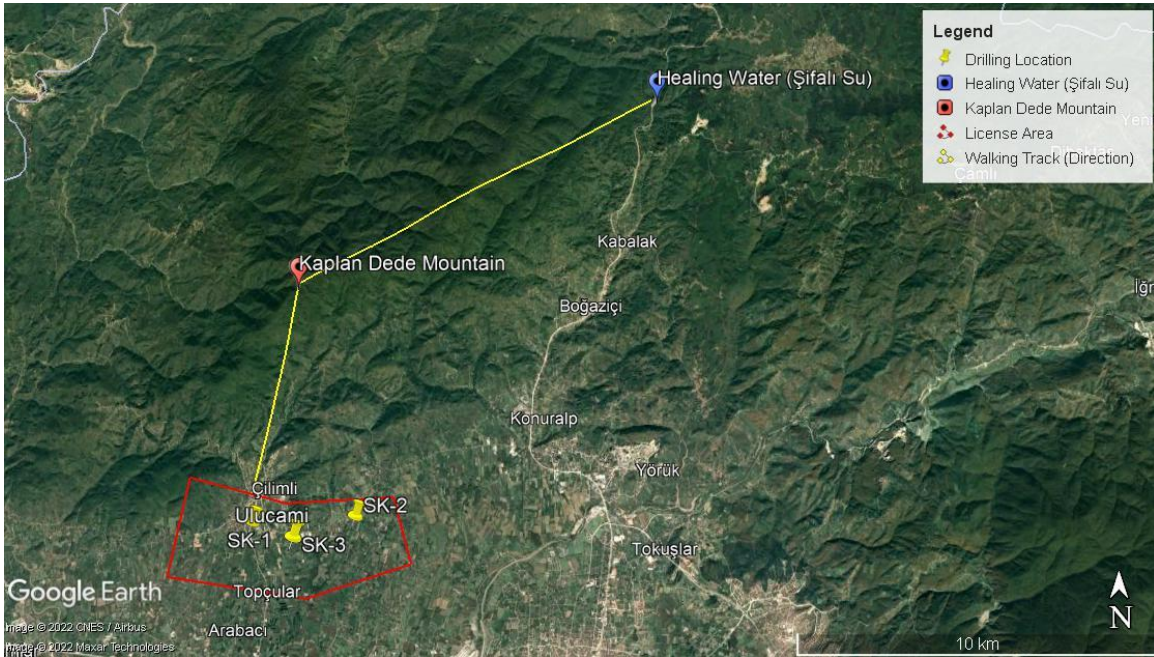


Figure 4-25. Çilimli Kaplandede Healing Water Walking Track

Based on information obtained during the phone interviews conducted with the headmen of Ulucami neighborhood, Kiraztarla and Söğütlü villages; livelihoods in the Kiraztarla village, Söğütlü village and Ulucami neighborhood are agriculture, livestock and industry sectors; the average monthly income data in the neighborhoods varies between 4,000 TL – 8,000 TL; and people living in the neighborhoods are usually owners of their houses.



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4.2.3 Employment

The TurkStat data of Türkiye and the TR42 region² between 2016 and 2020 are given in Figure 4-26. It is seen from Figure 4-26 that the unemployment rate has risen in both Türkiye and TR42 region after 2018. In addition, the unemployment rates of Türkiye and the TR42 region are almost the same every year except in 2020. In 2020, there is a 1% difference between those rates.

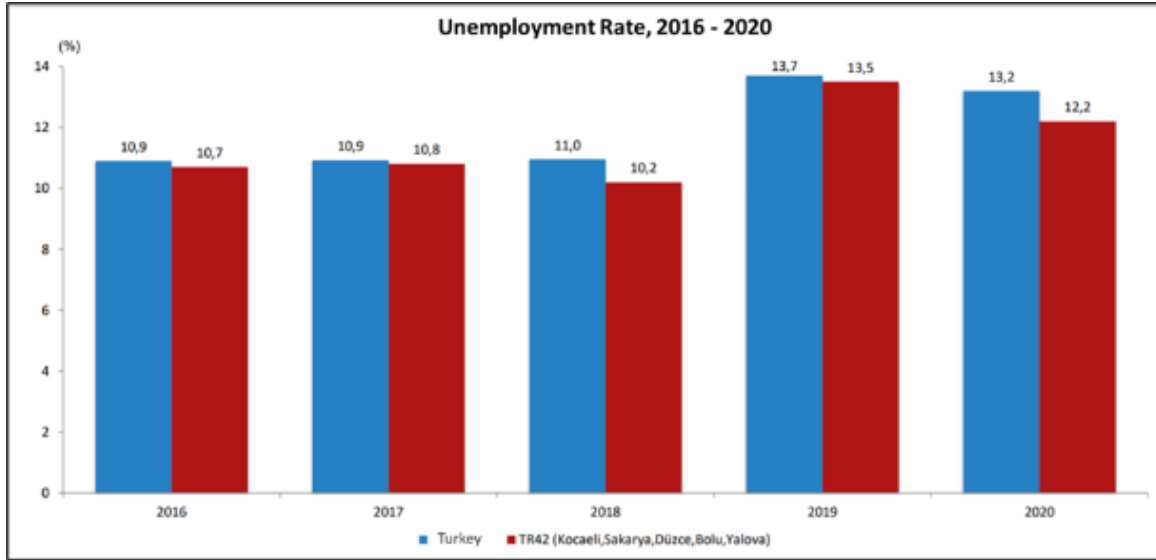


Figure 4-26. Unemployment Rate between 2016 and 2020

Source: TurkStat, 2020

According to TurkStat data for 2020, the service industry is the largest economic activity in the TR42 region and Türkiye. The percentage of the employment rate is given in Figure 4-27. The region's shares of service, farming, and industry sectors are 51.2%, 35.9%, and 12.8%, respectively.

² According to Türkiye Statistical Regional Units Classification, Düzce Province is included in TR42 region together with Kocaeli, Sakarya, Bolu and Yalova Provinces.



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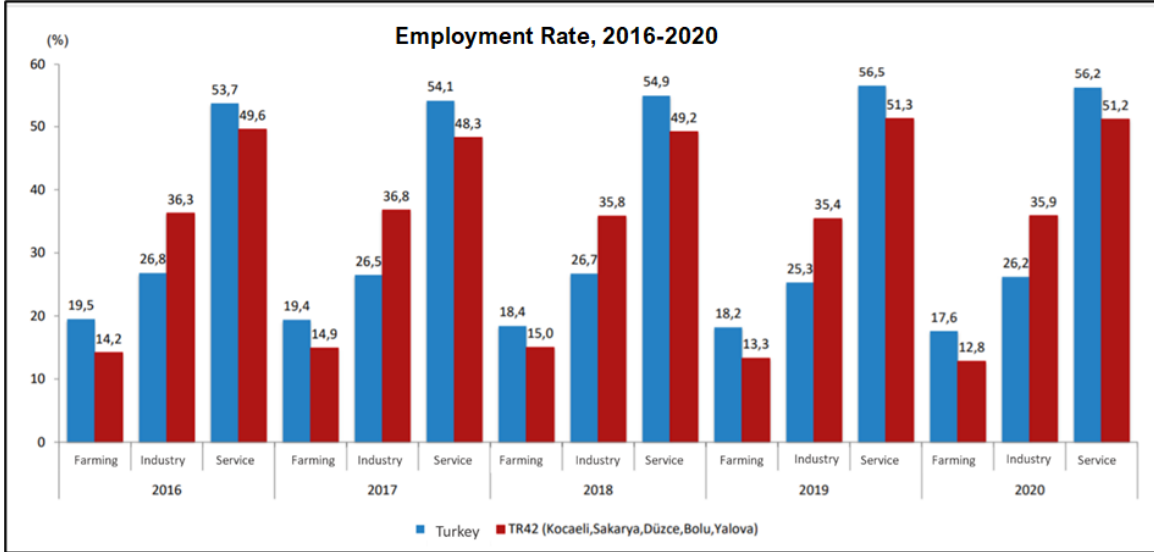


Figure 4-27. Employment Rate between 2016 and 2020

Source: TurkStat, 2020

Based on information obtained during the phone interviews conducted with the headmen of Ulucami neighborhood, Kiraztarla and Söğütlü villages; people tend to work in the private sector and in their own businesses. The headmen indicated that most of the residents;

- In Kiraztarla village are retired.
- In Söğütlü village are working in the private sector and retired.
- In Ulucami neighborhood are working in the private and public sectors, and retired.

4.2.4 Education

According to 2020 TurkStat data, attained education level in Düzce Province is given in Table 4-18, and it can be seen that at least % 97 of the province's population is literate.

Table 4-18. Attained education level in Düzce Province (Population 6 years of age and over), 2020

Total	Illiterate	Literate without a diploma	Primary school	Primary education	Junior and vocational high school	High and vocational high school	Universities and other higher educational institutions	Master (Including 5 or 6 Years Faculties)	Doctorate	Unknown
358,344	8,853	32,600	85,079	34,165	61,912	80,450	47,590	4,104	949	2,642

Source: TurkStat National Education Statistics Database, 2008-2020



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As of the 2014-2015 academic year, there are one Anatolian high school, one multi-program high school, eight primary schools, and one kindergarten in the district. Besides, a total of two private vocational and technical Anatolian high schools exist in the district. Çilimli Vocational School, where education started in the 2008 – 2009 academic year, is in the center. The school has two departments, namely, the Department of Crop and Animal Production (Organic Agriculture and Beekeeping Programs) and the Department of Accounting and Taxation (Accounting and Tax Applications Program), with 162 students studying. Sixty students in kindergarten and 2,465 students in Primary Education. There are a total of 283 students in the high school. The literacy rate in the district is 95%. The available statistics on education in the Çilimli District are provided in Table 4-19 and Table 4-20 [26, 27].

Table 4-19. Number of Students per Class

Kindergarten	Primary School	Secondary School	High School
14	17	19	22

Source: “The Official Website of Ministry of National Education” <http://cilimli.meb.gov.tr/www/cilimlide-egitim/icerik/281>, 2018

Table 4-20. Capacity of Education Personnel

Director	Manager	Assistant Manager	Chief	Officer	Data Preparation and Control Operator	Teacher (Permanent)	Teacher (Paid)	Servant
2	11	17	3	2	1	158	37	8

Source: “The Official Website of Ministry of National Education” <http://cilimli.meb.gov.tr/www/cilimlide-egitim/icerik/281>, 2018

Based on information obtained during the phone interviews conducted with the headmen of Ulucami neighborhood, Kiraztarla and Söğütlü villages; there are two kindergartens, one primary school and one secondary school, one high school and one university (2-years) in Ulucami neighborhood; there are no schools within the borders of Kiraztarla and Söğütlü villages.

4.2.5 Health

In addition to the health centers in the district center, Dikmeli, and Pırpır Villages, one health center has been completed in Yenivakıf and Kırkharman villages. There are two medical doctors (one Institutional Supervisor and one dentist) in the District Community Health Center. Besides, four family doctors work in the Family Medicine Center, and there is one Family Physician each in Pırpır and Dikmeli Villages. Whereas one Family Health Personnel works in Yenivakıf village, there are no personnel in the Kırkharman health center. There are health houses



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affiliated with the health centers providing health services to the public, and these are located in Karaçörtlen, Yukarıkaraköy, and Tepeköy villages in the district. However, only Karaçörtlen Health House is active with one midwife. In the Health House building in the Topçular District, 112 Emergency Health Service is provided by eight health personnel, four drivers, and one ambulance. Other health houses are not active due to a lack of personnel and family medicine. There is no Private Health Polyclinic in the district [26, 28].

Based on information obtained during the phone interviews conducted with the headmen of Ulucami neighborhood, Kiraztarla and Söğütlü villages; there is one hospital and four pharmacies in Ulucami neighborhood, there are no health facilities in Kiraztarla and Söğütlü villages.

4.2.6 Public Utilities

As previously mentioned, Uğur Suyu Stream has met the water demand of Düzce Province since 1994. The sewerage network in Düzce Province was completed in 1968. The total length of the network is 620 km. The sewerage system serves 95% of the population of Düzce Municipality, and the sewerage system ends with the Düzce Central Wastewater Treatment Plant [1]. Approximately 15% of the settlements use septic tanks in and around the city center.

Sakarya Electricity Distribution Corporation (SEDAŞ) provides electrical energy in Düzce Province [29].

The Local Environment Board Decision (dated 13.07.2017 and numbered 2017/12) has encouraged/recommended using natural gas for heating purposes in the Province by considering the meteorological data and topographic structure of the province to protect human health against the damages of air pollution caused by heating in winter [30].

4.2.7 Cultural Heritage

As shown in Figure 4-28, Aliyyü'l Muslihiddin tomb is 3.7 km from the SK-1 drilling location, and Yabalı Dede tomb is 9.8 km away from the SK-2 drilling location. Besides the Kaplan Dede tomb and ten historical tombstones from the Ottoman period are located on the summit of Kaplan Dede Mountain, which is 6.8 km away from the SK-2 drilling location [4]. Therefore, there is no known cultural heritage in AoI.

Based on information obtained during the phone interviews conducted with the headmen of Ulucami neighborhood, Kiraztarla and Söğütlü villages; there are no areas/trees/buildings with cultural/religious importance within Ulucami neighborhood, Kiraztarla and Söğütlü villages.



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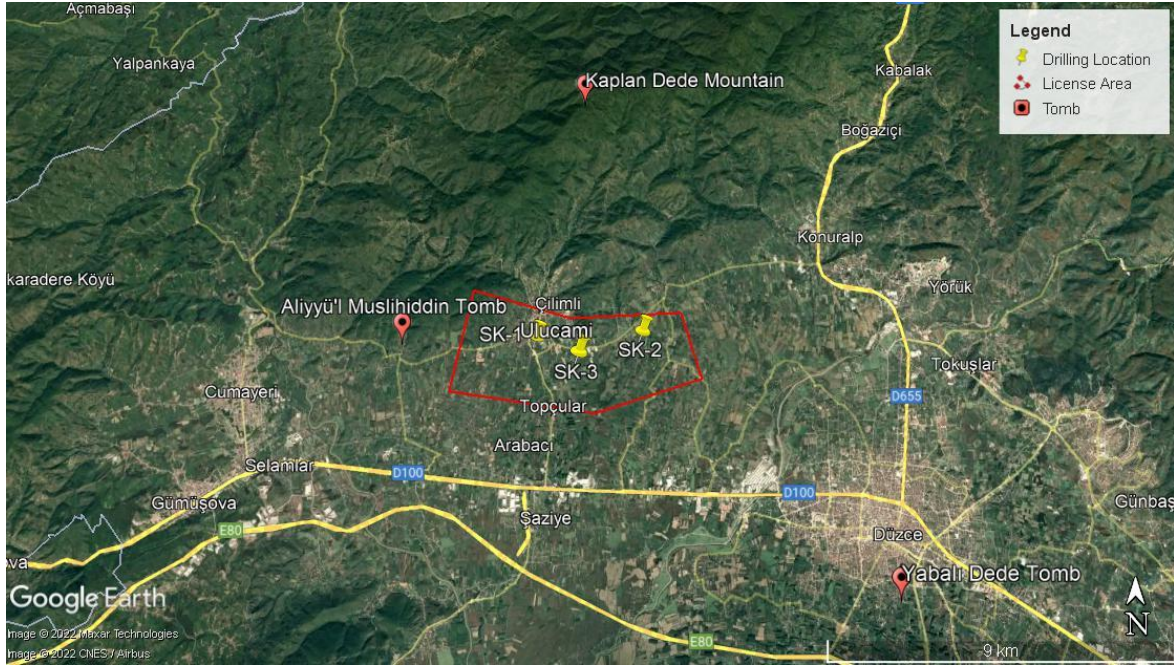


Figure 4-28. Historical Tombs around the Project Area

4.2.8 Traffic

D-100 Ankara – İstanbul Highway passes through the southern part of the Çilimli District. The district is 218 km from Istanbul Province and 253 km from Ankara Province [26]. Transportation to Düzce Merkez District is provided by a 20 km vehicle road connected to this D-100 highway. Access to the E80 İstanbul-Ankara Anatolian Motorway is provided by the junction located west of this road connecting to the highway. The distance of the connection is about 2 km. Similarly, transportation to Çilimli District can be provided by both the D-100 highway and the E80 motorway.

According to the interviews with the headmen, it was stated that the road in front of SK-1 is quite wide and the traffic is not heavy in the district, the road in front of SK-2 is a field road and there is no traffic, and the road in front of SK-3 is a road in the village and there is no traffic at all. In addition, it was stated by the headmen that each of the roads in front of the project areas has an alternative and that the traffic can be managed very easily. As of December 2020, there were 115,814 motor vehicles registered for traffic in Düzce Province [1].

SK-1 drilling location is adjacent to Düzce Street which is one of the main streets in Ulucami neighborhood. SK-2 drilling location is adjacent to the 510th m of Kiraztarla Village internal road in Kiraztarla village. SK-3 drilling location is adjacent to the 600th m of Söğütlü Street in



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5 Environmental and Social Impacts

This chapter presents the anticipated E&S risk and impacts that the project might cause. It should be noted that the three well locations are at a distance where cumulative impacts are not expected to occur.

5.1 Environmental Impacts

5.1.1 Air Emissions

Dust and Gas Emissions

Dust emission typically occurs during the excavation of the topsoil, earthwork, and land levelling operations in geothermal drilling operations. In the drilling process, minor dust generation is expected due to the nature of the project activities since the drill bit is below the ground level. There will be minor and temporary dust emissions when the mud pits are excavated at the well location. The three well locations are at a distance where cumulative impacts are not expected.

Only topsoil stripping, excavation, and land levelling will be carried out during the land preparation stage. Excavation works will be carried out at the well locations to form mud pits before drilling. The excavated soils will be loaded on trucks and transported to the excavation soil storage areas. Not all wells will be drilled simultaneously within the project's scope but will be opened sequentially.

In the Regulation on Control of Industrial Air Pollution (RCIAP), a modelling study is required to be conducted for dust emission values above 1.0 kg/hour. Concerning the PIF, the total dust generated within the project's scope is calculated according to controlled and uncontrolled working conditions, in other words, under which proactive/mitigation measures are taken and not taken, by using the emission factors specified in Table 12.6 in Annex 12 of the RCIAP as given in

Thus, the modelling study is not required to be conducted in this respect. Therefore, the footprint of each drilling activity is limited with the size of each project area given in

In the Industrial Air Pollution Control Regulation, modeling is required for values above 1.0 kg/hour. Therefore, according to the controlled and uncontrolled emission values in Table 5-1, modeling is not required.



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Table 5-1. Dust to be generated in Each Drilling Location within the Scope of the Project

Project Area	Activity	Sub-activity	Controlled (kg/hour)	Uncontrolled (kg/hour)	Project Area (m ²)
SK-1	Vegetative soil stripping	Stripping	0.0275	0.055	581.74
		Loading	0.011	0.022	
		Transportation	0.0022	0.0044	
		Unloading	0.011	0.022	
		Storage	0.0008	0.0016	
	Soil excavation	Excavation	0.03375	0.0675	
		Loading	0.0135	0.027	
		Transportation	0.0022	0.0044	
		Unloading	0.0135	0.027	
		Storage	0.0008	0.0016	
SK-2	Soil excavation	Excavation	0.03	0.06	96.65
		Loading	0.012	0.024	
		Transportation	0.00175	0.0035	
		Unloading	0.012	0.024	
		Storage	0.00036	0.000725	
SK-3	Soil excavation	Excavation	0.03	0.06	146.19
		Loading	0.012	0.024	
		Transportation	0.00175	0.0035	
		Unloading	0.012	0.024	
		Storage	0.00036	0.000725	

Source: PIF for Çilimli Municipality, 2021

Since the greenhouse gases (GHGs) in geothermal reservoirs are mainly composed of CO₂, which constitutes about 95% of GHGs, and CH₄, which can be up to 1.5% in rare cases [31]. These two leading gases will be considered during drilling activities. CO₂ is not considered toxic but can be fatal at high concentrations due to the exclusion of oxygen or alteration of pH in the blood. In addition, CO₂ is the most critical GHG causing climate change. It absorbs less heat per molecule than GHGs like CH₄ or N₂O, but it is more abundant and stays in the atmosphere much longer. Hydrogen sulphide (H₂S) is commonly found in geothermal exploration wells, and the release of this gas can lead to occupational health and safety (OHS) problems in wells during the first discharge. H₂S dissolves in water and therefore may not be a problem during drilling.

The air quality standards in Türkiye are defined in the Regulation on Assessment and Management of Air Quality (RAMAQ) and the Regulation on Control of Industrial Air Pollution (RCIAP). The project will comply with the air quality limit values defined in the RAMAQ for various pollutants given in Table 5-2 and Table 5-3.



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Table 5-2. Air Quality Limit Values Defined in RAMAQ

Parameter	Average Duration	Limit Value	Upper Limit	Lowest Limit
PM ₁₀	24 hours	50 µg/m ³ (not exceeded more than 35 times in a year)	30 µg/m ³	20 µg/m ³
	Yearly	40 µg/m ³	14 µg/m ³	10 µg/m ³
SO ₂	24 hours	125 µg/m ³	75 µg/m ³ (not exceeded more than 3 times in a year)	50 µg/m ³ (not exceeded more than 3 times in a year)
	Yearly and winter season	20 µg/m ³	12 µg/m ³	8 µg/m ³
NO ₂	Hourly	200 µg/m ³ (not exceeded more than 18 times in a year)	140 µg/m ³ (not exceeded more than 18 times in a year)	100 µg/m ³ (not exceeded more than 18 times in a year)
	Yearly	40 µg/m ³	32 µg/m ³	26 µg/m ³
NO _x	Yearly	30 µg/m ³	24 µg/m ³	19.5 µg/m ³
Pb	Yearly	0.5 µg/m ³	0.35 µg/m ³	0.25 µg/m ³
Benzene	Yearly	5 µg/m ³	3.5 µg/m ³	2 µg/m ³
CO	Yearly	10 µg/m ³	7 µg/m ³	5 µg/m ³

Table 5-3. Air Quality Limit Values Defined in RCIAP

Parameter	Time	Unit	Year	
			2019-2023	2024 and later
SO ₂	Hourly (Not exceeded more than 24 times in a year)	µg/m ³	350	350
	24 hours		125	125
	Long Term Limit Value		60	60
	**Yearly and Winter Season (1 October-31 March)		20	20
NO ₂	Hourly (Not exceeded more than 18 times in a year)	µg/m ³	250	200*
	Yearly		40*	40



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Parameter	Time	Unit	Year		
			2019-2023	2024 and later	
PM ₁₀	24 hours (Not exceeded more than 35 times in a year)	µg/m ³	50	50	
	Yearly		40	40	
Pb	Yearly	µg/m ³	0,5	0,5	
CO	Maximum daily 8-hour average	mg/m ³	10	10	
Cd	Long Term Limit Value	µg/m ³	0.02	0,02	
HCl	Short Term Limit Value	µg/m ³	150	150	
	Long Term Limit Value		60	60	
HF	Hourly	µg/m ³	30	30	
	Short Term Limit Value		5	5	
H ₂ S	Hourly	µg/m ³	100	100	
	Short Term Limit Value		20	20	
Total organic compounds (In terms of carbon)	Hourly	µg/m ³	280	280	
	Short Term Limit Value		70	70	
Precipitated dust	Short Term Limit Value	mg/m ² day	390	390	
	Long Term Limit Value		210	210	
In Participated Dust	Pb and compound	Long Term Limit Value	mg/m ² day	250	250
	Cd and compound	Long Term Limit Value		3.75	3.75
	Tl and compound	Long Term Limit Value		5	5

According to the WBG EHS Guideline for Air Emissions and Air Quality, the Project will comply with the recommended World Health Organization (WHO) Air Quality Guideline values in 2021, given in Table 5-4.

Table 5-4. WHO Air Quality Guideline Values (2021)

Parameter	Time	Value (µg/m ³)
SO ₂	24 Hours	40
NO ₂	24 Hours	25
	Yearly	10
PM ₁₀	24 Hours	45
	Yearly	15
PM _{2,5}	24 Hours	15
	Yearly	5
O ₃	Maximum 8 hours per day	100
	Peak season	60



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Exhaust Gas Emissions

Exhaust gas emission is expected due to the simultaneous operation of the construction machinery to be used during the project activities. During drilling activities, NO_x, CO, and SO_x emissions are generated from construction machinery (drilling rig, water tank, loader, truck, etc.) and the generator due to diesel fuel. The impact area of the exhaust emissions arising from the fuel used in the machinery and equipment in the activity area is limited to the area where the works will be carried out.

The mass flow rates for air emissions expected to originate from construction machinery have been calculated within the scope of PIF and given in Table 5-5.

Table 5-5. Emission of Pollutants Expected to Originate from Construction Machinery

Emission Type	Rate of Emission (kg/h)
CO	0.19
HC	0.57
NO _x	0.70
SO _x	0.13

Source: PIF for Çilimli Municipality, 2021

For these emissions, the limit values in RCIAP are given in Table 5-6.

Table 5-6. Air Quality Limit Values for Emissions outside Chimney Defined in the RCIAP

Emissions	Mass flow rates for operating hours and normal operating conditions (kg/hour)
CO	50
HC	-
No _x	4
So _x	6

Since the calculated values in Table 5-5 are below the limit values specified in Annex-2 of the RCIAP, there is no need to calculate the contribution value to air pollution and the total pollution value [11].

5.1.2 Noise and Vibration

Noise and vibration will occur during the drilling rig operation and other vehicles (water tank, loader, truck, and generator) to be used within the project's scope. Noise and vibration generation have potential negative impacts on the workers, local people, and animals in the surrounding area of the project site. The environmental noise limit values for different sources



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provided in Table 1 of Annex-2 in Regulation on Environmental Noise Control (RENC) are given in Table 5-7.

Table 5-7. Environmental Noise Limit Values for Different Sources

Source	Measured Parameter	Environmental Noise Level		
		Daytime (07.00-19.00)	Evening (19.00-23.00)	Night (23.00-07.00)
Industrial facilities, transportation sources	LA _{eq,5min}	65 dB	60 dB	55 dB
Businesses that broadcast music	LA _{eq 63-250 Hz}	60 dB	55 dB	50 dB
Workplaces	LA _{eq,5min}	Background + 5 dB		Background + 3 dB
In case of multiple workplaces	LA _{eq,5min}	Background + 7 dB		Background + 5 dB
All sources	LC _{max}	100 dB		

The allowed time zones for construction site activities carried out in the open air and causing environmental noise are 10:00-22:00 as per RENC. Nevertheless, the construction works will be conducted between 10:00 a.m (i.e. the allowed start time for construction activities as per RENC) and 19:00 pm (i.e. the end of the daytime period as per RENC). The noise limit values for WBG General EHS Guideline considering the receptors in the residential, institutional, educational, industrial, and commercial areas are given in Table 5-8.

Table 5-8. WBG General EHS Guideline Noise Limit Values

Type of the Receptor	WBG General EHS Guideline	
	Daytime (07.00-22.00)	Night-time (22.00-07.00)
Residential	55	45
Institutional, educational		
Industrial	70	70
Commercial		

Additionally, noise impacts should not exceed the levels presented in the WBG General EHS Guidelines (Table 1.7.1) or result in a maximum increase in background levels of 3 dB at the nearest receptor location off-site.

The limit values for environmental vibration considering sensitive receptors are addressed in Table 5 of Annex-2 in RENC and provided in Table 5-9.



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Table 5-9. Maximum Permissible Values of Ground Vibrations to be created by Constructions and Construction Machinery outside the Nearest Most Sensitive and Sensitive Usage Area

Area Category	Maximum Permissible Value (mm/s) (Frequency bands between 1 Hz and 80 Hz)	
	Continuous Vibration	Intermittent Vibration
Residential	5	10
Commercial	15	30
Historical and natural buildings	2	5

There is no settlement near the SK-2. However, there are settlements near the SK-1 and SK-3. SK-3 is in Söğütlü (Hatip) Village, and the drilling point is in the middle of the territory. Noise will be generated during the operation of the drilling machine and other vehicles to be used within the project's scope. Work will be done within the project's scope in a shift of 8 hours/day. The list of vehicles and facilities that will cause noise during the project activities and their engine power are given in Table 5-10.

Table 5-10. List of Vehicles and Facilities in the Project

Machines and Equipment	Number	Engine Power (kW)
Drilling Rig	1	110
Water Tank	1	100
Loader	1	250
Truck	1	200
Generator	1	90

Source: PIF for Çilimli Municipality, 2021

The Geothermal Resource Exploration License area is 8.54 km from the center of Düzce Province. In the NW, approximately 1.2 km south of Çilimli District center, there are SK-1 in Ulucami Village, SK-2 about 1.70 km SE of Çilimli District center, and SK-3 approximately 2.96 km east of Çilimli District center. The distance from the nearest settlement distances to drilling points is given in Table 5-11.

Table 5-11. Nearest Settlement Distances to Drilling Points

Drilling Points	Directions	Distance (m)
SK-1	NW	52.8
	E	67.6
	NE	105
SK-2	S	305
	NE	346
SK-3	E	43
	SE	24
	E	15

Source: PIF for Çilimli Municipality, 2021



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Calculations are carried out by assuming that all machines are working simultaneously within the scope of PIF. According to the limit values determined for the environmental noise level specified in the RENC, the noise level originating from the project remains below the limit values (65 dBA) at the first 75 m distance from the activity area. Therefore, the settlements closer than 75 m from the drilling locations will be the potential sensitive receivers impacted by the project activities. Distribution of average sound pressure levels to be generated in the scope of the project by distance is given in Table 5-12.

Table 5-12. Distribution of Average Sound Pressure Levels to be generated in the Scope of the Project by Distance

Distance (m)	L _T (dBA)
10	80.628
25	72.882
50	66.862
75	63.340
100	60.841
200	54.820
230	53.606
250	52.882
320	50.738
500	46.862
1000	40.841
1500	37.319
1600	36.759
2000	34.820
3000	31.298

As stated in the PIF, within the project's scope, work will only be carried out during the daytime, and there will be no work in the evening and night-time periods. It is planned to work in a shift of 8 hours/day between 09:00 and 17:00.

Generated noise during the project activities will be temporary. Noise monitoring will be conducted to assess whether the measured result exceeds the limits if any grievance is received from the nearest receptors.

5.1.3 Water Sources and Wastewater

In general, the potential effects of geothermal drilling activities on surface waters and groundwater and the magnitude of the impact may vary depending on the cause. The water consumption during project activities and generation of activity-related (personnel and operational) wastewaters can potentially impact surface waters and groundwater.



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There will be a need for sanitary water, drinking water, and process water during the project activities. The drinking water needs of the personnel to be employed within the project's scope will be supplied with carboys. The sanitary water for personnel needs and water for drilling fluid/mud and water spraying purposes against dust emissions will be met by tankers from Çilimli Municipality. Water consumption within the scope of the project is calculated as bellowing as per PIF (2021):

- **Personnel Activities and Water Consumptions:** 10 people will be employed during project activities. According to the data from the TurkStat, the amount of water consumed per person in Düzce is 195 L/person-day. The wastewater generated by the personnel was calculated as 1.959 m³ /day. The wastewater will be collected into the septic tanks of mobile toilets and transferred to Çilimli Municipality Treatment Facility.
- **Dust Formation Control through the Project Site:** Watering will be done in the project site against dust formation that may occur during the movements of the construction machines during project activities. Within the scope of dust control studies, it is foreseen that a total of 10 m³/day water will be used per day. Since the water will evaporate, there is no wastewater formation after the dust control process.
- **Drilling Activities:** There will be water consumption for cooling and lubricating the drill and pipes, preventing residues from settling, carrying residues above ground, cleaning the bottom of the well, preventing collapse and pitting, protecting against corrosion, controlling high forming pressures, creating an impervious surface. Tankers from Çilimli Municipality will meet the water used for drilling fluid. It is foreseen that 50 m³ of water will be used daily for each well in the drilling fluid to be used within the scope of drilling works. The loss rate of this water and how much to add each time in line with this loss rate will vary according to the progress of the drilling works. There will not be any water extraction from the nearby stream.

It is planned to take an average of 30 days to complete the operation at one drilling location.

With this calculation; $50 \text{ m}^3 / 30 \text{ days} = 1.66 \text{ m}^3 / \text{day}$ water usage is anticipated.

Thus, because of project activities, the following liquid wastes will be generated:

- Domestic wastewater will be generated during the project activities due to personnel to be employed.
- Drilling fluids are required to remove cuttings from the well, cool and lubricate the bit and the drill string, form a filter cake in the well, and control the pressures during



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drilling. The use of drilling fluid also ensures that the well wall is kept stable, includes an impermeable layer to prevent fluid loss in the well formation, and prevents aquifers' contamination. Water-based mud, including bentonite, a non-hazardous clay material, will be used for geothermal drilling. On the other hand, if an additional process (i.e., acidizing) is implemented during the drilling stage, which can impact the quality of the drilling fluid, drilling fluid can be evaluated as hazardous waste.

- The brine during the well tests will be reinjected to the geothermal reservoir if possible; otherwise, it will be stored in the mud pit and evaluated as process wastewater after well test completion.

The amount of wastewater generated within the project's scope is given in Table 5-13 below.

Table 5-13. Wastewater Produced During the Project

Utilization Purpose	m ³ /day
Wastewater produced by personnel	1.95
Wastewater produced by drilling activities	1.66
Daily water requirement to prevent dust formation	10
Total	13.61
30 days in each drilling location (90 days)	1,224.9 m ³ water

Source: PIF for Çilimli Municipality, 2021

In general, stressing local water sources due to water use is another impact that can affect the surface waters and groundwater. Also, one of the causes of the potential effects on surface waters and groundwater is the accidents that may occur during project activities. Liquid wastes can easily leak into soil and groundwater if no precautions are taken. This situation negatively affects soil and groundwater quality. When stored under unfavorable conditions, liquid wastes may mix with surface waters. In addition, air quality can be adversely affected by the evaporation of liquid wastes. In geothermal drillings, it is possible to contaminate the aquifers if the application is not made correctly during the project activities. Inefficient insulation may cause geothermal fluids to leak into the groundwater resulting in contamination. This reduces both the well efficiency and the quality of the groundwater aquifer.

Akdere Stream is located next to the east of SK-1 well location with 17.8 m distance. Besides, "Efteni Lake" is approximately 11.3 km south of the project site. There are no springs or groundwater wells in the vicinity of the project site.

Any flow into the Akdere stream will be prevented by ensuring the stability of the creek wall and proper design of the mud pit during the construction phase at SK-1 drilling location.



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The project activities are not expected to impact surface water quality by implementing proper mitigation measures included in Chapter 6 of this plan.

5.1.4 Soil Quality

Chemicals such as maintenance oils will be used to maintain vehicles and other machinery equipment during the project activities. Fuel oil can be generated from vehicles and other machinery and contaminate the soil unless vehicles and other machinery equipment are not kept properly. During the project activities, soil can be contaminated due to spilling or leaking hazardous materials, i.e., compressed gas cylinders, caustics, paints, thinners, etc. The generation of waste is another aspect in terms of soil pollution. Potential negative impact on soil quality can occur due to contamination originating from chemicals and hazardous materials used and generated wastes unless appropriate management systems for these pollution elements are in place.

There are agricultural lands around the drilling locations of SK-2 and SK-3. To prevent soil contamination, a mud pit will be built in each drilling area to be made within the scope of the project. The drilling mud, which will be formed during drilling and accumulated in the mud pit, will left to dry, tested and subsequently disposed of based on the results of the testing (inert, nonhazardous or hazardous) in line with the waste management regulations.. The disposal method will be based on the characteristics of the mud (inert, non-hazardous, or hazardous) and be sent to a licensed disposal facility accordingly. To prevent leakage, a Chemicals and Hazardous Materials Management Plan to be prepared by the Contractor will be implemented. In case of leakage to agricultural lands, an Emergency Response Plan (including emergency issues on community health, safety, and security) and a Community Health & Safety and Security Plan to be prepared by the Contractor will be implemented.

The dimensions of the mud pits are given in Table 5-14.

Table 5-14. Mud Pit Dimensions

Drilling Code	Mud Pit Length (m)	Mud Pit Width (m)	Mud Pit Depth (m)	Mud Pit Volume (m ³)
SK-1	9	5	1.5	67.5
SK-2	20	2	1.5	60
SK-3	20	2	1.5	60

After the drilling work is completed, the mud in the mud pits will be left to dry and managed as in the paragraph below. After the drying and removal of the mud is completed, excavation soil



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will be laid in the pit area and the road will be restored to its original state. Only bentonite and water will be used to prepare drilling mud.

In addition, the following provisions will be acted upon:

- Drilling mud will not be discharged directly into receiving environments.
- The drilling mud pit to be created will have a volume of at least 2 times the volume of the finished borehole, and 3 pools of 9 m x 5 m x 1.5 m and 20 m x 2 m x 1.5 m in size will be created.
- Impermeability will be provided using natural/ geosynthetic clay or geomembrane in the mud pit and top cover system.
- The topsoil that emerges during the preparation of the mud pit will be deposited in a suitable place to be used later to close the mud pit.
- Structures will be created to prevent surface water from entering the mud pit.
- The drilling mud generated at the end of the drilling works will be left to dry, tested and subsequently disposed of based on the results of the testing (inert, non-hazardous, or hazardous) in line with the waste management regulations. The disposal method will be based on the characteristics of the mud (inert, non-hazardous, or hazardous) and be sent to a licensed disposal facility accordingly.
- Following removal of the mud, the mud pit will be filled with excavated material.

The vegetative soil will be stripped from the field surface in the parts where drilling activities will be carried out and before the excavation of the drilling mud pits. The vegetative soil taken will be temporarily stored in a designated area on the site for later use in the rehabilitation of the land and the creation of green areas. There is vegetative soil on block 656 and parcel 1 at SK-1 drilling location where the drilling activity will be carried out. Since drilling locations 2 and 3 are earthen land areas adjacent to Kiraztarla road and Söğütlü village road, there is no vegetal soil. For this reason, a 65 m² vegetable soil storage area including excavation storage area will be created in the SK-1 project area.

In the parts where the drilling activity will be carried out, the excavation of the excavation works of the drilling locations will be stored in the excavation storage area (65 m² for SK-1, 30 m² for SK-2 and SK-3), and the working areas will be restored when the drilling work is completed.

During the construction phase, if appropriate mitigation measures are not taken, soil erosion may be caused by exposure of soil surfaces to rain and wind during site clearing, earthmoving, and excavation activities. The mobilization and transport of soil particles may, in turn, result in sedimentation of surface drainage networks, which may result in impacts on the quality of natural water systems and, ultimately, the biological systems that use these waters.



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5.1.5 Waste Management

The types of waste expected to generate during the project activities are evaluated in the following sub-headings. The mitigation measures against potential impacts of the waste to be generated within the scope of the Project is provided in Chapter 6 of this plan.

Drilling Mud

A mixture of bentonite as a non-hazardous clay material and water will be used to prepare drilling mud during the drilling works to prevent damage to drilling rigs. This drilling mud will be collected in mud pits to be installed and evaluated as waste after usage. On the other hand, if an additional process (i.e., acidizing) is implemented during the drilling stage, which can impact the quality of the drilling mud, drilling mud can be evaluated as hazardous waste. As previously indicated, the mud will be left to dry, subsequently tested for waste characterization and disposed of based on the results of the testing (inert, non-hazardous, or hazardous) by a licensed company in line with waste management regulations. The disposal method will be based on the characteristics of the mud (inert, non-hazardous, or hazardous) and be sent to a licensed disposal facility accordingly.

A mud pit will be built to collect drilling mud in each area. The amount of drilling mud to be used varies based on the drilling volume and the nature of the formation. The volume of each drilling is given in Table 5-15.

Table 5-15. Drilling Volume for each Drilling Well

Drilling Code	Drilling Diameter (m)	Drilling Length (m)	Depth (m)	Drilling Volume (m ³)
SK-1	0.44	70	700	10.86
	0.21	630		23.05
SK-2	0.44	70	600	10.86
	0.21	530		19.39
SK-3	0.44	70	600	10.86
	0.21	530		19.39

Source: PIF for Çilimli Municipality, 2021

Best practices for liquid and solid material management for geothermal drilling are illustrated in Figure 5-1.



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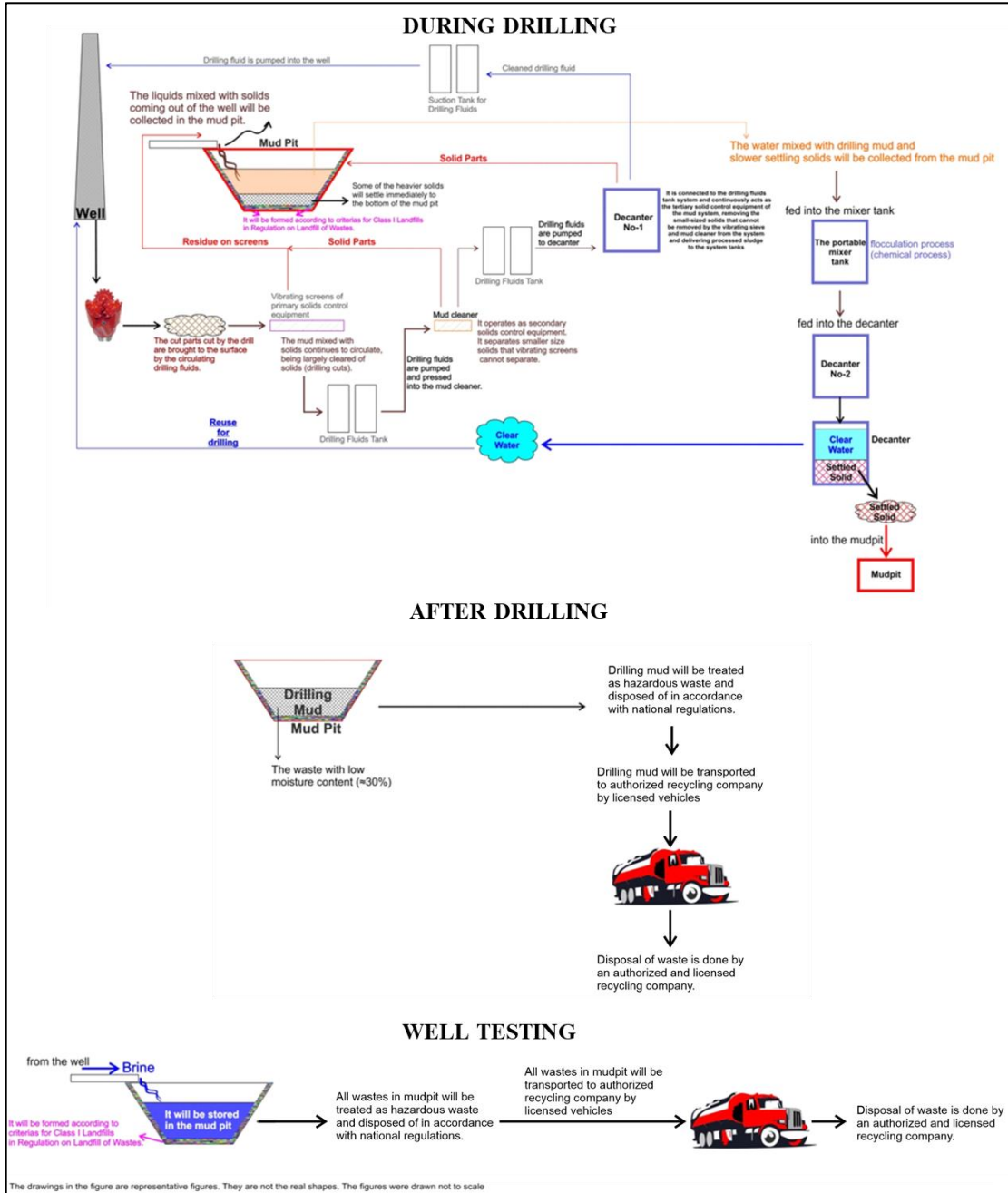


Figure 5-1. Best Practices for Liquid and Solid Material Management for Geothermal Drilling (Bozköy geothermal exploration well project environmental and social management plan-prepared for the TKYB, 2021³)

³<https://kalkinma.com.tr/en/about-us/environmental-development/public-disclosures-related-to-environmental-and-social>



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Domestic Solid Waste

Substantial amount of solid waste is not generated in geothermal drilling operations. Generally, domestic solid waste (non-hazardous) is generated from working personnel. According to the TurkStat data of Düzce Province Municipal Statistics, daily domestic solid waste is 1.17 kg/person-day. Using this information, the amount of solid waste originating from the personnel is calculated as 11.7 kg/day [11].

If waste management is not conducted correctly, it will cause visual and environmental pollution. While visual pollution causes social implications, environmental pollution will affect soil, air, water, and living species. Depending on the type of solid waste, the air quality may be affected if dissolved and mixed into the air. These wastes deteriorate the soil, surface, and groundwater quality if they are not properly collected and stored. It also attracts wild animals to the area if there is food residue on solid wastes. This situation may cause adverse effects for both the working staff and the wild animals.

Packaging Waste

Packaging wastes (cardboard box, nylon bag, etc.) will be generated from packaging materials such as clay, cement, etc., to be used in drilling operations. In addition, there are also packaging wastes originating from domestic solid wastes originating from personnel. If these wastes are not contributed to the economy, they increase landfill capacity, thereby environmental pollution.

The High Planning Council Decision states that 20% of municipal wastes are packaging wastes. In this direction, the amount of packaging waste produced during the project activities was calculated as 2.34 kg/day by taking 20% of the domestic solid waste produced and given in Table 5-16.

Table 5-16. Possible Packaging Wastes to Occur in the Field of Activity

Waste Code	Type of Package Waste
15 01 01	Paper and cardboard package
15 01 02	Plastic package
15 01 04	Metallic package
15 01 07	Glass package

Source: PIF for Çilimli Municipality, 2021



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Excavation Waste and Topsoil

Excavation soil will be generated due to drilling activities and excavation work of mud pits. If the excavation waste management is not done correctly, it causes erosion, dust emission, loss of material used as backfill material, and loss of soil yield.

Excavation works will be conducted before drilling activities and installing mud pits. There is topsoil at the SK-1 drilling location; however, since the other drilling locations are on the roads, there is no topsoil at these locations. Excavation will be conducted for the mud pit at a 1.5 m depth for each drilling area. Information on the amount of excavation soil to be excavated is given in Table 5-17.

Table 5-17. Amount of Soils to be excavated

Drilling Location	Area (m ²)	Depth of Excavation (m)	Amount of Soil to be Excavated	
			m ³	ton
SK-1	45	1.5	67.5	108
SK-2	40		60.0	96
SK-3	40		60.0	96

Source: PIF for Çilimli Municipality, 2021

After the drilling work at each drilling point is completed, the excavation soil will be laid in the pit areas, and the rehabilitation of the area will be carried out. The excavation soil for the mud pits will be temporarily stored in the excavation soil storage area determined at each drilling site.

Vegetable Oil Waste

Since the food needs of the personnel who will participate in the project will be outsourced, no vegetable waste oil generation is expected during the project phases.

Waste Oils

Maintenance of the drilling rig and tools during geothermal resource exploration and oil changes will be made at service stations. Therefore, the generation of waste oil during the activity is not expected. However, in emergencies, waste oils may occur due to intervention.

Storage and disposal of waste oils may seriously affect water, air, and soil. Oils poured into the surface waters (e.g., water, water sources, sewers, water drains, etc.) reduce photosynthesis in aqueous media by forming a layer that prevents sunlight on the water surface. This prevents oxygen feedback, disrupts the oxygen cycle, and allows anaerobic microorganisms to grow.



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Therefore, fish, microorganisms, and other aerobic organisms in the food chain in the aquatic environment are negatively affected by the lack of oxygen.

Possible waste oils generated during the project activity are specified in Table 5-18.

Table 5-18. Waste Oils Possible to Occur in the Field of Activity

Waste Code	Type of Package Waste
13 02 08	Other engine transmission and lubricating oils

Source: PIF for Çilimli Municipality, 2021

Waste Batteries and Accumulators

Authorized services will replace the batteries within the project's scope. Therefore, there will be no waste batteries and accumulators in the project site, where the batteries that will be formed, which have completed their life, will be taken by the authorized service.

Batteries contain metal and chemical pollutants. If waste batteries are not stored and disposed of under suitable conditions, pollutants in the batteries may be mixed with water and soil, causing water and soil quality to deteriorate.

Possible waste batteries and accumulators that occur during the project activities are listed in Table 5-19.

Table 5-19. Waste Batteries and Accumulators Possible to Occur During Project Activities

Waste Code	Type of batteries and accumulators
16 06 01	Leaded Batteries-accumulators
16 06 02	Nickel cadmium batteries
16 06 03	Batteries containing mercury

Source: PIF for Çilimli Municipality, 2021

End of Life Tires

Maintenance and repair of vehicles and work machines at authorized services will be carried out within the project's scope. No end-of-life tires will be of concern at the project area in this context.

Medical Waste

There will be no infirmary in the project area. In case of any health problems of the working personnel, they will be taken to the nearest health center or hospital. Therefore, no medical waste generation is foreseen. However, first aid kits will be kept ready in the field of activity to



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respond to possible accidents. As a result of medical intervention, medical waste will be generated. Besides, personal hygiene material/equipment wastes (such as single-use masks gloves) against COVID-19 will be treated as medical waste.

In a medical waste generation, if it is not properly collected, stored, and disposed of, it can lead to significant environmental pollution leading to soil, surface, and groundwater quality deterioration and sanitary and public health problems.

5.1.6 Land Use

SK-1 drilling area belongs to State Hydraulic Works (DSİ) and SK-2 drilling area is a municipal area which is under the responsibility of Düzce Provincial Special Administration; necessary consents have been obtained from DSİ and Düzce Provincial Special Administration as given in Annex 3. SK-3 drilling area is a municipal land and is located next to a land that is under the legal entity of Söğütlü Village; an opinion letter from Söğütlü Village Headman has been obtained stating that the village commission has no objection to the drilling works and gives consent for the related works (see Annex 3). The lands to be used for the Project are currently not used by formal or informal users. Furthermore, according to the opinion letter received from the MoAF, General Directorate of DSİ, 5th Regional Directorate, 55th Branch Office on 22nd February 2022, the project license area and SK-2 and SK-3 drilling locations are located within the boundaries of Düzce Plain Irrigation area. Çilimli Municipality will implement the mitigation measures addressed in the relevant letter to protect the irrigation area from potential adverse impacts of project activities (see Annex 3).

Based on information provided by Çilimli Municipality, one lane of the road may be impacted during drilling works at SK-2 and SK-3 drilling locations. As indicated above, SK-2 drilling area and the road is under the responsibility of Düzce Provincial Special Administration (state authority) who provided consent for the drilling activity; SK-3 drilling area is a municipal land and the adjacent road is under the responsibility of Çilimli Municipality. As indicated by Çilimli Municipality, roads will be maintained by Çilimli Municipality if they are damaged during drilling works.

The trees present in the SK-1 drilling area do not belong to any residents living in the area and are not used for commercial or housing purposes. Based on information provided by Çilimli Municipality, trees are not planned to be cut during drilling works. Based on information provided by Çilimli Municipality, there will no entrance to private lands, no trees will be cut and the owners of the lands near SK-2 and SK-3 drilling area were informed about the Project by Çilimli Municipality who have no objection to the Project. As a result, no adverse impact on land use is expected within the project's scope.



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5.1.7 Landscape

Çilimli District is in low to medium sensitivity areas in terms of landscape. It is concluded in the study conducted by Karadađ and řenik (2019) that in the low sensitive areas, the sensitivity is impacted by habitat fragmentation, water infiltration, and rare settlement. Besides, erosion, landslide, and water infiltration affect the sensitivity in the medium-sensitive areas where rural settlements and forests are mainly located. No adverse impact on the landscape is expected since the project area is not included in any agricultural or forest land. Furthermore, the visual impacts of project activities on the landscape are temporary and will be minimized by implementing good landscaping practices.

5.1.8 Protected Areas

According to the national legislation, the project area does not lie within any natural habitat or protected zone. Besides, considering the AoI, any adverse impact on the protected areas around the project site is not expected since the nearest of which is Sarıyayla Göknaı Natural Monument, with 10.8 and 11.5 km air distances from the SK 1 & SK-2 and SK-3 drilling locations, respectively. Besides, there are no internationally recognized areas of high biodiversity value (such as World Heritage Natural Sites, Biosphere Reserves, Ramsar Wetlands of International Importance, Key Biodiversity Areas, Important Bird Areas, and Alliance for Zero Extinction Sites) within AoI.

5.1.9 Flora & Fauna

As reported in the PIF (2021), 11 endemic plant species spread widely in the region were detected. These species are present among the regional species but not included in the local flora. *Cyclamen coum ssp Coum* species, which is not endemic but under protection as per the Bern Convention, is found in the borders of Bilecik Province with approximate distance of 120 km southwest of the project area. Additionally, the Agile Frog (*Rana dalmatina*) from amphibians and the Rock Lizard (*Lacerta saxicola ssp. Tristis*) from reptiles in the Black Sea region are under protection in accordance with the Bern Convention. However, these species are not included in the project area and are not included in the local fauna.

As concluded in the PIF, flora and fauna species in the project area are not the species that will be irreversibly damaged/disturbed by the project activities. Fauna species will be affected by noise and activity in the environment during the project activities and will be attracted to more suitable alternative habitats in the background. There may be some loss in narrow-living fauna species. These adverse effects will be minimized by taking measures covered in Chapter 6 of this document.



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5.1.10 Chemicals and Hazardous Materials Management

Chemicals such as maintenance oils will be used to maintain vehicles and other machinery equipment during the project activities.

Fuel oil can be generated from vehicles and other machinery used during the construction phase and contaminate the environment unless cars and other machinery equipment are not appropriately kept. During the project activities, soil and water can be contaminated due to spilling or leaking hazardous materials, i.e., compressed gas cylinders, caustics, paints, thinner, etc.

Drilling fluids are required to remove cuttings from the well, cool and lubricate the bit and the drill string, form a filter cake in the well, and control the pressures during drilling. The use of drilling fluid also ensures that the well wall is kept stable, includes an impermeable layer to prevent fluid loss in the well formation, and prevents aquifers' contamination. Water-based mud, including bentonite, a non-hazardous clay material, will be used for geothermal drilling. On the other hand, if an additional process (i.e., acidizing) is implemented during the drilling stage, which can impact the quality of the drilling fluid, drilling fluid can be evaluated as hazardous waste.

There is a risk of respiratory system, eye, skin and ear diseases due to the use of bentonite clay in drilling mud (Liquid). For this reason, the use of protective materials such as gloves, goggles, mouth guards, masks, and earmuffs in the drilling training process will be explained in practice. Trainings will be recorded. The contractor will inspect that the protective materials are used appropriately during drilling as provided in the scope of the training.

5.2 Social Impacts

5.2.1 Traffic

Traffic density is anticipated to increase at the access ways to the project locations due to truck movement during the construction phase. Due to increased traffic along the existing roads, this traffic congestion will be temporary and limited during the construction stage. A traffic management plan will be developed at the time of the project implementation by the municipality by identifying alternative roads if needed while ensuring that access to agricultural roads are not prevented.

Based on information provided by Çilimli Municipality, one lane of the road may be impacted during drilling works at SK-2 and SK-3 drilling locations and there will be no road closures. As indicated by Çilimli Municipality, roads will be maintained by Çilimli Municipality if they are damaged during drilling works.



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Another potential impact is injuries to the project personnel and the public due to traffic accidents. These potential impacts can be mitigated if the mitigation measures and monitoring requirements addressed in Chapter 6 and Chapter 7 of this document are implemented effectively.

5.2.2 Working Conditions and Worker Management

There will be workers who will be directly engaged by the Sub-borrower (direct workers), potentially workers employed through third parties to perform work related to core business processes of the project, as well as workers engaged by the Sub-borrower's primary suppliers (supply chain workers). Workers have rights under national labor and employment law and any applicable collective agreements, including the rights related to work hours, wages, overtime, compensation, and benefits upon beginning the working relationship and when any material changes occur. Although not anticipated, if there will be accommodation services for workers, the Sub-borrower will put in place and implement policies on the quality and management of the accommodation and provision of basic services.

Potential adverse impacts of project activities on workers in terms of working conditions and worker management are as follows:

- Recruitment and hiring, compensation (including wages and benefits), working conditions and terms of employment, access to training, job assignment, promotion, termination of employment, or termination of employment retirement, and disciplinary practices must be implemented under non-discrimination and equal opportunity conditions. However, there is a risk of unequal recruitment and wage payment, and discriminatory and unfair treatment of employees.
- There may be a risk of employing migrant workers who are not engaged on substantially equivalent terms and conditions with the non-migrant workers carrying out similar work.
- There may be a risk of employing children (under 18) since they are economically exploitative during the project activities despite definitive provisions of the Labor Law. There may be underage employees who work in a manner that interferes with their education and/or their health. Physical, mental, spiritual, moral, or social development may be affected adversely due to work.
- Women employees may be more vulnerable to harassment, intimidation, and exploitation.

The mitigation measures against potential impacts of working conditions and management are provided in Chapter 6.



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5.2.3 Occupational Health and Safety

In geothermal drilling projects, construction, drilling and closure works can cause accidents/incidents that may threaten the health and safety of workers if measures are not taken. Thus, ilimli Municipality, contractors, and sub-contractors must provide a safe and healthy work environment.

Geothermal gases (i.e., H₂S), confined spaces, heat, and potential well blowout accidents to which workers can be exposed to are project-specific potential adverse impacts on the health and safety of workers during drilling operations.

Possible hazards and risks that are present during drilling activities and measures to be taken are listed below.

- Noise generated by drill motor, mud pumps and tool in the well at construction phase: There are risks of occupational accidents resulting from hearing loss, decreased concentration, attention and reaction capacity of the employee, central nervous system disorders, stress and decreased working efficiency. Risk assessment will need to be conducted and appropriate mitigation plans for the noise minimization and use of Personal Protection Equipment (PPE) will be established.
- Accidents that may occur due to the use of bentonite clay in drilling mud (Liquid) which are risks of respiratory system, eye, skin and ear diseases. Appropriate PPE and handling of material will be identified and implemented based on the Material Safety Data Sheets (MSDS) information
- Hazards that may present while working on the drilling machine tower (balcony) which include working at height, impact from moving machinery parts and risk of falling. Risk assessment process will be used to identify specific tasks and job safety analysis will be developed. Mitigation measures will be developed that will include safety harness use, use of guardrails and protective barriers with machinery parts.
- Well explosion and uncontrolled gas release. H₂S measurements will be continuously conducted and emergency response plan will include evacuation procedures.

The spread of infectious diseases among the workers, particularly COVID-19 and its variants, is another potential adverse impact on OHS and community health. This impact can also result in increased pressure on healthcare infrastructure.

The mitigation measures against potential impacts of project activities on worker health and safety are provided in Chapter 6 of this plan.



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5.2.4 Community Health, Safety and Security

Road safety is one of the most significant community-safety risks posed to communities during the project activities. Roads may experience an increased level of traffic, temporary disruption through traffic congestion and/or the transport of oversized loads. In addition to chemical hazards due to exposure to a hazardous material, the risk of physical hazards such as contact with hot components, equipment failure, etc., can have adverse impacts on community health and safety.

Noise and air pollution (particularly exposure to H₂S emissions) can cause discomfort and airborne diseases (asthma, allergy, etc.) in the communities living close to the activity area. Besides, if groundwater aquifer is contaminated during drilling activities and/or geothermal fluids are discharged to the surface waters, resulting in contamination, the quality of drinking waters and irrigation waters to be utilized for agricultural activities can be impacted adversely. This can affect public health negatively.

Mainly, there are houses adjacent to the SK-3 drilling location, which can be affected more adversely from project activities in terms of the issues mentioned above.

There will be no spread of infectious diseases since labor influx is not expected within the project's scope.

The emergency plan components are given in Figure 5-2.

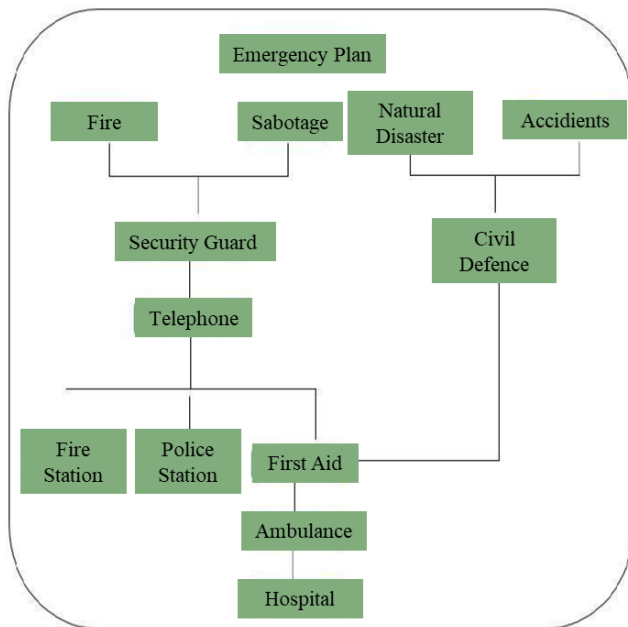


Figure 5-2. Emergency Plan Diagram



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During the project activities, there may be “disadvantaged or vulnerable” individuals/groups who may be more likely to be adversely affected by the project impacts and/or more limited than others in their ability to take advantage of a project’s benefits. Such individual/group is also more likely to be excluded from/unable to participate fully in the mainstream consultation process and may require specific measures and assistance. The potential vulnerable/disadvantaged groups that may be present in the work area of the project development are as follows:

- Households with physically and / or mentally disabled family members,
- People with chronic diseases,
- Elderly people over 70 years of age who live alone and in need of care,
- Female-headed households,
- Households where the head of the household is a child,
- Households with low or no income, and
- Refugee households.

The number of disadvantaged/vulnerable individuals/groups is given in Table 4-17. Based on the information provided by headmen, these groups may be affected by the Project because of temporary road closure (if any), noise of drilling at Söğütlü and Ulucami neighborhoods.

Gender-based Violence (GBV) and Sexual Exploitation and Abuse and Sexual Harassment (SEA/SH) may also pose a risk to community health, safety, and security.

The potential risks and impacts to the community will need to be managed appropriately during the project's construction phase through the measures addressed in Chapter 6 of this plan.

5.2.5 Employment

Exploration well drilling is a short-term project activity. However, additional wells will be drilled in case of promising drilling results, creating more job opportunities. When the Project is developed into the operational phase, there will be more employment opportunities also for longer terms. Thus, the Project is expected to positively affect by creating job opportunities in the region.

It is expected that around ten (10) personnel at the peak period of the construction phase will be employed as shown in Table 5-20.



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Table 5-20. Number of Personnel to Take Part in the Project

Personnel	Number
Engineer	1
Drilling Operator	1
Construction Equipment Operator	1
Driver	2
Workers (including drilling operator supporters)	5

5.2.6 Access to Services

Infrastructure such as gas, electricity, telecommunication, etc., is prone to damage during project activities. Utmost attention should be paid in this respect and all relevant permits will also be taken; necessary protocols will be signed if there is any interaction with 3rd party structure/infrastructure.

5.2.7 Cultural Assets

Since earthworks covering land arrangement activities of the project area will be conducted as a first step within the project's scope, there is a possibility to find cultural asset during this step of the construction phase. For any findings, a chance-find procedure to be prepared before initialization of any activity (please See Table 6-1) will be in place, in which communication will be established with the relevant authorities and the legislation will be applied. The Chance Find Procedure prepared for the Project is presented in Annex 5. The Contractor is responsible for the implementation of the chance find procedure during construction.

5.2.8 Land Acquisition

Based on information provided by Çilimli Municipality, no expropriation/resettlement will occur in relation to the Project as all drilling well locations are either municipal or state-authority property and included in the zoning plan. SK-1 drilling area belongs to State Hydraulic Works (DSI) (the title deed is given in Annex 2) and SK-2 drilling area is a municipal area which is under the responsibility of Düzce Provincial Special Administration; necessary consents have been obtained from DSI and Düzce Provincial Special Administration as given in Annex 3. SK-3 drilling area is a municipal land and is located next to a land that is under the legal entity of Söğütlü Village; an opinion letter from Söğütlü Village Headman has been obtained stating that the village commission has no objection to the drilling works and gives consent for the related works (see Annex 3). The lands to be used for the Project are currently not used by formal or informal users.



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5.2.9 Livelihood

No impact is expected on livelihoods since exploration well drilling is a short-term project activity and may only cause soil contamination type of impact on 50 people. Therefore, the Project Owner will take the necessary responsibility in case of material damage caused by pollution.



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6 Mitigation Plan

The Project is the drilling and completion of geothermal drilling wells. The project does not include the operational phase of the drilling wells. The mitigation plan has been developed as follows:

- Preconstruction Phase: Preparations before site mobilization,
- Construction Phase: Site construction activities to prepare for drilling activities. These include vegetative soil (topsoil) stripping, excavation works, installation of drilling rig, and installation of mud pits,
- Drilling Phase: Well drilling activities; these include drilling works, piping works, cementing works, and well completion tests,
- Closure Phase: Land rehabilitation activities.

The mitigation plans for the pre-construction, construction, drilling and closure phases are presented in Table 6-1, Table 6-2, Table 6-3 and Table 6-4, respectively. During the implementation of the mitigation plans, the most stringent requirement/standards among the national legislation and WB standards and also the most up-to-date legislation will be complied with. “Impact Significance” in Table 6-1, Table 6-2, Table 6-3 and Table 6-4 is determined considering that no mitigation measures are taken. Impact significance is determined considering the value/sensitivity of a resource/receptor that might be affected and the magnitude of potential impacts on that resource/receptor by taking into account various factors such as legislation, policies, standards; area of influence; persistence of impacts; and status of a resource/receptor.

6.1 Mitigation Plan for the Pre-Construction Phase

The mitigation plan for the pre-construction phase is presented in Table 6-1.



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Table 6-1. Mitigation Plan for Pre-Construction Phase

PRE-CONSTRUCTION PHASE						
Issue	Potential Impact	Type of Impact (Direct and/or Indirect)	Impact Significance (Low, Medium, High, Extremely High)	Mitigation Measures	Cost	Responsible Party
EIA Permitting	Affecting / destruction of environment	Direct	High	<ul style="list-style-type: none"> - Implementing the requirements of the opinion letters from relevant institutions regarding the Project during the EIA process - Ensuring validity of all necessary environmental permits within the Project's scope obtained during the EIA process. 	To be covered within the project budget	Çilimli Municipality
Environmental and Social Management Plans	Lack of management plans and untrained personnel	Direct	High	<ul style="list-style-type: none"> - Following E&S-related sub-management documentation will be prepared, and all employees will be provided with necessary training on: <ul style="list-style-type: none"> - Air Emissions Management Plan - Noise & Vibration Management Plan - Waste Management Plan - Topsoil Management Plan - Erosion Control Procedure - Chemicals and Hazardous Materials Management Plan - Traffic Management Plan - Emergency Response Plan (<i>including emergency issues on community health, safety, and security</i>) - Community Health & Safety and Security Plan - SEP including External Grievance Redress Mechanism (GRM) - Human Resources Management Plan and Procedures including "Internal GRM" - OHS Management Plan and Procedures - E&S attendants (at least one Environmental & Social Expert and an OHS Expert) will be employed and responsible for implementing ESMP and the sub-management mentioned above documentation. 	To be covered within the project budget	Contractor
Physical Environment						
Waste Management	Wastes	Direct and indirect	Medium	<ul style="list-style-type: none"> - Licensed companies will be contracted for the recycling/disposal of wastes. 	To be covered within the project budget	Contractor



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PRE-CONSTRUCTION PHASE						
Issue	Potential Impact	Type of Impact (Direct and/or Indirect)	Impact Significance (Low, Medium, High, Extremely High)	Mitigation Measures	Cost	Responsible Party
Surface Water Quality	Surface water quality in Akdere Creek	Direct	High	- Undertake surface water quality sampling at Akdere Creek according to the parameters set forth in Surface Water Quality Regulation prior to the start of construction works to establish baseline conditions.	To be covered within the project budget	Contractor
Noise & Vibration	Noise / vibration generation	Direct	Medium	- Vehicles without noise reduction silencers will not be used for the project. The machines to be used will be new and qualified, state-of-the-art technology products and traffic inspection and exhaust measurements are constantly updated. This issue will be included in the contract to be signed with the Contractor. - Baseline noise measurements at closest sensitive receptors will be conducted before any activity to define further corrective actions and mitigation measures if needed (See Table 7-1)	To be covered within the project budget	Contractor
Air Quality	Dust emissions	Direct	High	- Baseline air quality measurements at closest sensitive receptors will be conducted before any activity to define further corrective actions and mitigation measures if needed (See Table 7-1)	To be covered within the project budget	Contractor
Biological Environment						
Flora & Fauna	Habitat loss / Influence of natural life	Direct	Low	- Employees will be trained on the protection of natural life	To be covered within the project budget	Contractor
Landscape	Aesthetic and landscape problem (Visual pollution)	Direct	Low	- Location design will be done carefully in a manner not to harm aesthetic values. - Features of the European Landscape Convention will be complied as applicable to the project. - to recognize landscapes in law as an essential component of people's surroundings, an expression of the diversity of their shared cultural and natural heritage, and a foundation of their identity; - to establish and implement landscape policies aimed at landscape protection, management and planning through the adoption of the specific measures set out in Article 6;	To be covered within the project budget	Contractor



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PRE-CONSTRUCTION PHASE						
Issue	Potential Impact	Type of Impact (Direct and/or Indirect)	Impact Significance (Low, Medium, High, Extremely High)	Mitigation Measures	Cost	Responsible Party
				<ul style="list-style-type: none"> - to establish procedures for the participation of the general public, local and regional authorities, and other parties with an interest in the definition and implementation of the landscape policies mentioned in Annex 6 of the convention; - to integrate landscape into its regional and town planning policies and in its cultural, environmental, agricultural, social and economic policies, as well as in any other policies with possible direct or indirect impact on landscape. 		
Socio-Economic Environment						
Community Health & Safety and Security	Incidents due to lack pedestrian and traffic safety	Direct	High	<ul style="list-style-type: none"> - Safety measures will be taken for the traffic flow in line with the approved traffic circulation projects, and warning signs will be installed as per “Highway Traffic Law”. - Perimeter safety of the worksite will be established, and audio and flashing warning signs will be installed to sustain safety and security. Visible warning and informative signs will be placed on the Project site as per “Regulation on Health and Safety Signs”. - Measures (fences, warning signs, etc.) will be taken to prevent unauthorized access to the construction site to minimize potential adverse impacts on the community. - Temporary pedestrian walks or walkways will be built for safety in compliance with the requirements for the passage of individuals with physical challenges and other vulnerable/disadvantaged individuals/groups, such as pregnant, elderly, children. - Measures will be taken to avoid trespassing of animals, such as cats, dogs, etc., from the excavation area. - Traffic flows will be timed to avoid periods of heavy traffic along main access roads. The roads used will be ensured to pass through places with no sensitive receivers, such as the school and the settlement. 	To be covered within the project budget	Çilimli Municipality (for off-site measures), Contractor (for on-site measures)



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PRE-CONSTRUCTION PHASE						
Issue	Potential Impact	Type of Impact (Direct and/or Indirect)	Impact Significance (Low, Medium, High, Extremely High)	Mitigation Measures	Cost	Responsible Party
				<ul style="list-style-type: none"> - Alternative roads will be identified not to cause any problems with the roads used by the locals during working hours. - The residents will be informed about the construction works to be executed at least one week in advance. All safety measures taken will be introduced to the local communities in safety awareness meetings. - All heavy goods vehicles will be equipped with audible reversing alarms. - The drivers and work machine operators will be informed about safe driving, and all employees will be trained on Traffic Management Plan. - Working hours will be limited in a manner not to disturb local community. - Speed limits will be defined. - Driver licenses will be checked. 		
Stakeholder Engagement	Socio-economic impacts on Stakeholders	Direct	High	<ul style="list-style-type: none"> - Approved ESMP and SEP will be disclosed on the various communication platforms, i.e., municipality website and neighborhood headman's offices, to get public suggestions and comments. - The project's disclosure documents (posters, brochures, leaflets, etc.) will be prepared, including the project schedule. - The public will be informed about the External GRM. - Consultation meetings will be held with the local communities regarding the project components and activities. - It will be ensured that vulnerable/disadvantaged individuals/groups (see Section 5.2.4) will participate fully in the mainstream consultation process. - Workers will be informed about relationships with the local community before the commencement of works. 	To be covered within the project budget	Çilimli Municipality Contractor
Employment	Local labor	Direct	Low	<ul style="list-style-type: none"> - Local workforce and recruitment options will be preferred as much as possible. - 	To be covered within the project budget	Contractor



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PRE-CONSTRUCTION PHASE						
Issue	Potential Impact	Type of Impact (Direct and/or Indirect)	Impact Significance (Low, Medium, High, Extremely High)	Mitigation Measures	Cost	Responsible Party
				<ul style="list-style-type: none"> The recruitment process will prioritize employment from the affected settlements and disadvantaged groups (younger men, women, disabled people, ethnic minorities, etc.). Goods and service procurement will be made from the local suppliers as much as possible. 		
Access to Services	Existing infrastructure	Direct	Medium	<ul style="list-style-type: none"> The relevant institutions (gas, electricity, telecommunication, fuel lines, etc.) will be informed before construction works. The necessary permits and infrastructure maps of existing gas, electricity, telecommunication lines etc. will be obtained to avoid damage to the other structures. 	To be covered within the project budget	Çilimli Municipality Contractor
Cultural Assets	Cultural heritage	Direct	Low	<ul style="list-style-type: none"> Ensure that the Chance Find Procedure given in Annex 5 is provided with the bidding document during contractor selection. 	To be covered within the project budget	Çilimli Municipality
				<ul style="list-style-type: none"> Train employees on the chance find procedure. 		Contractor
Labor and Working Conditions						
Working Conditions and Worker Management	OHS	Direct	High	<ul style="list-style-type: none"> People with appropriate education/training in the work area will be recruited as per “Regulation on Procedures and Principles of Health and Safety Training of Employees.” Workers will be informed about job descriptions, responsibilities, and risks of OHS before the commencement of works. Code of Conduct will be read and signed by each worker prior to start to work. A full-time Occupational Safety Expert will be employed to be assigned specifically to the Project until completion of Contractor’s works to ensure continuous control and management of occupational safety issues. Workers will be equipped with all required Personal Protective Equipment (PPE) (helmet, safety belt, safety outfit, goggles, mask, steel cap boots, gloves, etc.) as per “Regulation on Use of Personal Protective Equipment in Workplaces.” Risk Assessment Reports will be prepared for all works to be carried out, and necessary measures to avoid relevant risks as per “OHS Risk Assessment Regulation.” 	To be covered within the project budget	Contractor



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PRE-CONSTRUCTION PHASE						
Issue	Potential Impact	Type of Impact (Direct and/or Indirect)	Impact Significance (Low, Medium, High, Extremely High)	Mitigation Measures	Cost	Responsible Party
				- Emergency teams will be built, and training will be carried out according to the emergency scenarios as per “Regulation on Emergencies at Workplaces” and “First Aid Regulation.”		
Labor and Working Conditions	Labor management	Direct	High	<ul style="list-style-type: none"> - Employees will receive written contracts with job description, working hours, wages, and other rights and responsibilities defined and be trained about job descriptions/ responsibilities and human resources policy together with the internal GRM. - Child labor will not be employed. - If accommodation is required for the employees specialized in a particular matter and arriving from out of Çilimli District, accommodation will be provided at appropriate locations. According to “European Bank for Reconstruction and Development (EBRD)/IFC Guidance Note Workers’ Accommodation: Processes and Standards” the accommodation units will be established. - Compliance with the code of conduct rules, including GBV and SEA/SH, which are included in the training to be provided, will be in the contract articles of the personnel. 	To be covered within the project budget	Contractor



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6.2 Mitigation Plan for the Construction Phase

The mitigation plan for the project's construction phase is presented in Table 6-2.

Table 6-2. Mitigation Plan for the Construction Phase

CONSTRUCTION PHASE (Vegetal Soil (Topsoil) Stripping, Excavation Works, Installation of Drilling Rig, and Installation of Mud Pits)						
Issue	Potential Impact	Type of Impact (Direct and/or Indirect)	Impact Significance (Low, Medium, High, Extremely High)	Mitigation Measures	Cost	Responsible Party
Physical Environment						
Waste Management	Waste generation	Direct and indirect	Medium	<ul style="list-style-type: none"> - Measures for minimum waste generation will be undertaken, i.e., training personnel regarding waste management practices to raise awareness of waste reduction and management in accordance with waste management hierarchy (prevent, reduce, reuse, recycle, recover, dispose). - Wastes will be separated from each other based on their waste categories (recyclable, hazardous, inert, non-hazardous, etc.). - The temporary storage of wastes will be conducted without harming the environment. In this respect, the mitigation measures for the temporary storage area listed below will be taken: <ul style="list-style-type: none"> - Wastes will be stored temporarily so that they do not react with each other. - Hazardous and non-hazardous waste storage areas will also be segregated, the waste code, the amount of waste stored, and the date of storage will be defined on the stored wastes. - Except for medical wastes, hazardous wastes will be stored in the temporary storage area for a maximum of 6 months and non-hazardous wastes for a maximum of 1 year. - If one thousand kilograms or more of hazardous waste per month is produced, a temporary storage permit will be obtained from the PDEUCC. 	To be covered within the project budget	Contractor



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CONSTRUCTION PHASE (Vegetal Soil (Topsoil) Stripping, Excavation Works, Installation of Drilling Rig, and Installation of Mud Pits)						
Issue	Potential Impact	Type of Impact (Direct and/or Indirect)	Impact Significance (Low, Medium, High, Extremely High)	Mitigation Measures	Cost	Responsible Party
				<ul style="list-style-type: none"> - Dangerous Goods and Hazardous Waste Compulsory Liability Insurance will be taken out for hazardous waste temporary storage area/containers. - Wastes will be transferred to licensed recycle/disposal facilities. - Incineration or burying of waste by any means and/or dumping to nearby water resources will not be allowed. - Domestic wastes to be generated within the scope of the Project will be collected separately according to their qualities (organic, glass, plastic, paper, metal, etc.) in sealed, closed containers that will not disturb the environment in terms of appearance and odor. The wastes to be collected regularly will be collected in closed and sealed garbage bags and left to the nearest garbage container. Çilimli Municipality will collect the municipal solid waste and the collected municipal solid waste will be disposed to the closest licensed sanitary landfill, which is Düzce Sanitary Landfill. Waste generation, storage, and disposal records will be kept. - “Waste Management Regulation” and WBG General EHS Guidelines Environmental (Waste Management) Criteria will be complied with. - Waste Management Plan will be implemented. 		
	Domestic waste	Direct and indirect	Low	<ul style="list-style-type: none"> - Domestic wastes will be collected separately according to their categories (organic, glass, plastic, paper, metal, etc.) in sealed closed containers that will not disturb the environment in terms of appearance and odor. Çilimli Municipality will regularly collect them. - In the disposal of domestic solid wastes, all personnel will be trained on applicable waste management practices (no littering of surface waters, lakes, and streams, similar receiving environments, streets, roads, open areas). - The provisions of the Waste Management Regulation will be complied with for the management of domestic solid wastes. 	To be covered within the project budget	Contractor



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CONSTRUCTION PHASE (Vegetal Soil (Topsoil) Stripping, Excavation Works, Installation of Drilling Rig, and Installation of Mud Pits)						
Issue	Potential Impact	Type of Impact (Direct and/or Indirect)	Impact Significance (Low, Medium, High, Extremely High)	Mitigation Measures	Cost	Responsible Party
	Excavation waste and topsoil	Direct	Medium	<ul style="list-style-type: none"> - Excavation waste will be collected and transported to the designated area for temporary storage. When the drilling work is completed, the project area will be restored with this excavation soil. - Reuse will be made for most of the excavated materials in the backfilling of the excavation site. The remaining part will be transported to an area designated by the Metropolitan Municipality consistent with the “Regulation on Control of Excavated Soil, Construction and Demolition Waste” and WBG General EHS Guidelines - (Construction and Decommissioning)). - The topsoil at the SK-1 location will be stripped before the excavation/drilling works and stored in the designated area for subsequent land rehabilitation. Excavated topsoil, which will be stored within the area for a short time, will be covered with canvas or plastic material to avoid erosion or washouts for landscaping activities in line with Soil Protection and Land Use Law No. 5403. - During the works, the water in the stream beds will not be blocked in any way; excavated materials will not be thrown away. - “Waste Management Plan” and “Topsoil Management Procedure” will be implemented. 	To be covered within the project budget	Contractor
	Drilling mud	Direct	High	<ul style="list-style-type: none"> - A mud pit will be built within the project's scope in each drilling area. Mud pit volumes will be sufficient to collect all liquid drilling wastes. In compliance with the Circular on Disposal of Wastes Resulting from Physical Processing of Drilling Mud and Chromium Mine (2012/15), as required in Article 4, the volume of the mud pit will be at least two times the volume of the finished well. As calculated in the PIF, the dimensions of mud pits are as follows: <ul style="list-style-type: none"> - Mud pit 1 = 9 m × 5 m × 1.5 m = 67.82 m³ - Mud pit 2 = 20 m × 2 m × 1.5 m = 60.50 m³ - Mud pit 3 = 20 m × 2 m × 1.5 m = 60.50 m³ 	To be covered within the project budget	Contractor



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CONSTRUCTION PHASE (Vegetal Soil (Topsoil) Stripping, Excavation Works, Installation of Drilling Rig, and Installation of Mud Pits)						
Issue	Potential Impact	Type of Impact (Direct and/or Indirect)	Impact Significance (Low, Medium, High, Extremely High)	Mitigation Measures	Cost	Responsible Party
				<ul style="list-style-type: none"> - Impermeability will be provided using natural/ geosynthetic clay or geomembrane in the mud pit and top cover system. It will be made according to the Class I Landfills in Regulation on Landfill of Wastes criteria, with the worst-case scenario in mind. Impermeability conditions are as follows: <ul style="list-style-type: none"> - The mud pit bottom permeability must have a minimum $K \leq 1.0 \times 10^{-9}$ m / sec and thickness ≥ 1 m or equivalent. - Artificial impermeability material will be used if the geological impermeability layer does not meet these conditions. It will be strengthened by using geomembrane. - The total thickness of the impermeable layer will not be less than 0.5 meters. - A drainage layer with at least $K \geq 1.0 \times 10^{-4}$ m / s permeability will be applied. - In compliance with Article 16-4 of the Regulation on Landfill of Wastes, drainage channels will be established around the wells, and contamination of surface waters will be prevented. 		
	Packaging waste	Direct and indirect	Low	<ul style="list-style-type: none"> - Packaging waste will be collected and stored separately in separate containers, marked for each type of waste, placed in the activity area (glass, metal, plastic, paper/cardboard, and wood). - Packaging waste will be delivered to the licensed recycling or the collection system of Çilimli Municipality. - Regulation on the Control of Packaging Waste will be complied. 	To be covered within the project budget	Contractor
	Waste oil	Direct and indirect	Low	<ul style="list-style-type: none"> - In the case of waste oil generation at the site, the requirements of Regulation on the Management of Waste Oils will be adhered to. - Waste oils will be collected in closed containers with impermeable lids, marked with appropriate color and waste codes in special areas (oil proof concrete floors of at least 25 cm thickness, covered with geomembrane or epoxy coating). - Maintenance and oil change of equipment and machines will be made on a leak-proof surface in a specified part of the 	To be covered within the project budget	Contractor



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CONSTRUCTION PHASE (Vegetal Soil (Topsoil) Stripping, Excavation Works, Installation of Drilling Rig, and Installation of Mud Pits)						
Issue	Potential Impact	Type of Impact (Direct and/or Indirect)	Impact Significance (Low, Medium, High, Extremely High)	Mitigation Measures	Cost	Responsible Party
				<p>operating area, in a rain-proof building. In the field of operation, waste oil spills will be immediately removed from surfaces with absorbent spill kits, which in turn will be disposed of as per the provisions of the Regulation on the Management of Waste Oils.</p> <ul style="list-style-type: none"> - Oil changes on site will be avoided as much as possible, and waste oil generation is expected to be at a minimum level. Waste oils will be treated as an environmental priority and disposed of as per the Regulation on the Management of Waste Oils. - Waste oil analyses will be made as per the Regulation on the Management of Waste Oils. According to the analysis results, licensed disposal firms or licensed recycling facilities will be contacted to dispose the oil. The oils of different categories will not be mixed, and they will be given to licensed waste oil collectors, treatment plants, or collection points. 		
	Waste battery and accumulators	Direct and indirect	Low	<ul style="list-style-type: none"> - The waste batteries to be generated within the scope of the activity will be collected separately from other wastes and delivered to collection points of battery sellers or Çilimli Municipality. Disposal of batteries into the ground and water bodies will be strictly banned. - The provisions of the Regulation on Control of Waste Batteries and Accumulators will be complied with. 	To be covered within the project budget	Contractor
	Medical waste	Direct and indirect	Low	<ul style="list-style-type: none"> - The medical wastes generated will not be mixed with other debris in any way. They will be collected in sealed medical bags and delivered to licensed medical waste collection companies to be transported in medical waste transport vehicles. The waste will be disposed of in licensed medical waste disposal / medical waste sterilization facilities. - Red-colored tear-resistant plastic bags, in line with the specifications described in the Regulation on Control of Medical Wastes, will be used for collecting medical wastes. - Personal hygiene material/equipment wastes (such as single-use masks gloves) will be collected, temporarily stored, transported, and delivered to waste processing facilities per 	To be covered within the project budget	Contractor



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CONSTRUCTION PHASE (Vegetal Soil (Topsoil) Stripping, Excavation Works, Installation of Drilling Rig, and Installation of Mud Pits)						
Issue	Potential Impact	Type of Impact (Direct and/or Indirect)	Impact Significance (Low, Medium, High, Extremely High)	Mitigation Measures	Cost	Responsible Party
				Circular 2020/12 of MEUCC on COVID-19 Measures in the Management of Personal Hygiene Equipment Wastes. - The provisions of the Regulation on the Control of Medical Wastes will be complied with strictly.		
Land and Soil	Soil erosion and contamination	Direct	High	- Activities will be avoided during periods of heavy rainfall as much as possible. - Clean water flow will be separated or diverted. - Adequate road drainage based on road width, surface material, compaction, and maintenance will be ensured. - To prevent leakage, a Chemicals and Hazardous Materials Management Plan will be implemented. In case of leakage to agricultural lands, an Emergency Response Plan (including emergency issues on community health, safety, and security) and a Community Health & Safety and Security Plan will be implemented. - “Erosion Control Procedure” will be implemented.	To be covered within the project budget	Contractor
Land Use	Damages to neighbouring lands	Direct	Medium	- Precautions will be taken by the contractor to prevent damages to neighbouring lands. - Damages to neighbouring lands (if any) will be detected by Çilimli Municipality. Necessary procedures according to relevant regulations will be implemented by the contractor and Çilimli Municipality.	To be covered within the project budget	Contractor
Water Sources and Wastewater	Drilling fluid	Direct	High	- The well coatings will be faultless and impermeable against contamination of groundwater aquifers. The wells will be cemented and coated with steel pipes to prevent groundwater contamination according to the latest technology. - In compliance with “Prime Ministry No. 2006/27 Circular on “Stream Beds and Floods”, during the works, the water in the stream beds will not be blocked in any way, and no operation facilities will be built on the beds. The stream formation will not be changed in any way by machine interventions. - In compliance with Article 16-4 of the Regulation on Landfill of Wastes, drainage channels will be established around the wells, and contamination of surface waters will be prevented.	To be covered within the project budget	Contractor



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CONSTRUCTION PHASE (Vegetal Soil (Topsoil) Stripping, Excavation Works, Installation of Drilling Rig, and Installation of Mud Pits)						
Issue	Potential Impact	Type of Impact (Direct and/or Indirect)	Impact Significance (Low, Medium, High, Extremely High)	Mitigation Measures	Cost	Responsible Party
				<ul style="list-style-type: none"> - All project activities will be aligned with Geothermal Resources and Natural Mineral Waters Law Implementation Regulation, Water Pollution Control Regulation, Regulation on the Protection of Groundwater against Pollution and Degradation, Waste Management Regulation, Regulation on Management of Surface Water Quality, and Prime Ministry No. 2006/27 Circular on “Stream Beds and Floods”. - - Any flow into the Akdere creek will be prevented by ensuring the stability of the creek wall and proper design of the mud pit during the construction phase at SK-1 drilling location. 		
	Domestic wastewater	Direct	Medium	<ul style="list-style-type: none"> - Domestic wastewater generated by personnel will be collected in portable WCs, drawn with a vacuum truck belonging to Düzce Province Çilimli Municipality Water and Sewerage Directorate, and disposed of at the Düzce WWTP. - All construction activities will be aligned with Water Pollution Control Regulation. 	To be covered within the project budget	Contractor
	Effects on “Düzce Plain Irrigation Area”	Direct	High	<ul style="list-style-type: none"> - According to the opinion letter received from the MoAF, General Directorate of DSİ, 5th Regional Directorate, 55th Branch Office on 22nd February 2022, project license area together with SK-2 and SK-3 drilling locations are located within the boundaries of Düzce Plain Irrigation area. The mitigation measures addressed in the relevant letter and listed below will be implemented in order to prevent the irrigation area from potential adverse impacts of project activities: <ul style="list-style-type: none"> - Solid waste, excavation waste, etc. will not to be disposed of / stockpiled to stream beds and a fixed facility will not be established on which, - No interventions that narrow the stream beds and adversely affect the flow regimes will be made, - All precautions will be taken against environmental surface waters and floods that may occur in possible excessive precipitation, 	To be covered within the project budget	Contractor Çilimli Municipality



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CONSTRUCTION PHASE (Vegetal Soil (Topsoil) Stripping, Excavation Works, Installation of Drilling Rig, and Installation of Mud Pits)						
Issue	Potential Impact	Type of Impact (Direct and/or Indirect)	Impact Significance (Low, Medium, High, Extremely High)	Mitigation Measures	Cost	Responsible Party
				<ul style="list-style-type: none"> - It will be compliance with all the directives of DSI in case the protection area and operation area are determined in accordance with the provisions of the "Law on Groundwater No.167" and the "Communiqué on the Determination of the Protected Areas of Aquifers and Resources from which Drinking Water Supply" within the scope of the Western Black Sea Hydrogeological Survey Report, - In case of encountering wells with certificates belonging to private individuals within the scope of project works, all rights of these wells will be protected, - In case of wells, springs and caissons for potable-use water purposes within the project area, an opinion from the relevant Municipality or institution will be obtained. 		
Surface Water Quality	Surface water quality in Akdere Creek	Direct	High	<ul style="list-style-type: none"> - Periodic surface water quality monitoring will be conducted during construction at Akdere Creek according to the parameters set forth in Surface Water Quality Regulation. - Size of the working area in the creek will be reduced and limited as much as practicable. - Water flow in the creek will not be fully blocked, and continuity of the flow will be maintained as much as possible. - Standard pollution control measures will be implemented i.e. to prevent silt contamination by keeping water out of the work area using appropriate isolation techniques. - Re-fuelling of all vehicles and machinery will be avoided to the extent possible. If needed, re-fuelling will be carried out at minimum 30 m of the creeks. - Storage and handling of fuels, oils and other hazardous chemicals near the creek will be limited to the extent possible. These materials will be stored on sealed surfaces and within secondary containment; - The working area will be fenced. - Movement of equipment inside the creeks will be prevented to the extent possible. 	To be covered within the project budget	Contractor



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CONSTRUCTION PHASE (Vegetal Soil (Topsoil) Stripping, Excavation Works, Installation of Drilling Rig, and Installation of Mud Pits)						
Issue	Potential Impact	Type of Impact (Direct and/or Indirect)	Impact Significance (Low, Medium, High, Extremely High)	Mitigation Measures	Cost	Responsible Party
				<ul style="list-style-type: none"> - Training will be provided to machine operators regarding the working procedures, with attention to machine and equipment inspection for leaks prior to use, safe storage and handling of fuels/oils near the watercourse and/or precautionary measures to prevent contamination of the creeks. - Chemicals and Hazardous Materials Management Plan” will be implemented. 		
Chemicals and Hazardous Materials Management	Soil, air, and water pollution	Direct and indirect	Medium	<ul style="list-style-type: none"> - Chemical materials will be stored, transported, and handled consistent with their Safety Data Sheets (SDSs). To prevent potential spills, all hazardous materials will be stored in designated areas with secondary containment and handled by authorized staff. - Leak-proof containers labelled with information on their composition, properties, and handling information will be used for temporary storage to prevent spillage and leaching. - The conditions of the vehicles and other machinery equipment to be used during the works will be regularly reviewed. - Employees will be trained on the management of chemicals and hazardous materials. - “Chemicals and Hazardous Materials Management Plan” and “Emergency Response Plan” including responses against spillages/leakages will be implemented. The actions to be taken in an emergency and assigned to emergency teams will be defined. - Spill kits will be available at the site to be used immediately when needed. Spills/leaks will be promptly contained and cleaned up to minimize their effects and consequences. Appropriate cleaning equipment for spills and accidents will be procured and maintained at the site, and cleaning teams will be assigned to use the equipment. 	To be covered within the project budget	Contractor
Noise & Vibration	Noise & vibration generation	Direct	Medium	<ul style="list-style-type: none"> - As stated in the PIF, within the project’s scope, work will only be carried out during the daytime, and there will be no work in the evening and night-time periods. It is planned to work 8 hours/day. Working hours will be limited between 10:00 	To be covered within the	Contractor



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CONSTRUCTION PHASE (Vegetal Soil (Topsoil) Stripping, Excavation Works, Installation of Drilling Rig, and Installation of Mud Pits)						
Issue	Potential Impact	Type of Impact (Direct and/or Indirect)	Impact Significance (Low, Medium, High, Extremely High)	Mitigation Measures	Cost	Responsible Party
				<p>a.m (i.e. the allowed start time for construction activities as per RENC) and 19:00 pm (i.e. the end of the daytime period as per RENC) to minimize the impact.</p> <ul style="list-style-type: none"> - The residents of nearby settlements will be informed about the time of construction activities. - Considering the sensitive receptors such as nearby residential receptors, hospitals and schools, compliance will be ensured with the (daytime) 55 dBA limit value (WBG General EHS Guidelines Environmental Noise) for continuous worksite noise at the vicinity of the project site. - The annual examination of the vehicles will be controlled and enforced. All machinery and equipment that will cause noise in the enterprise will be regularly maintained and renewed when their economic life is over. Operation equipment will not be operated simultaneously. It will be ensured that the vehicles will not disturb the environment, and they will not be allowed to install light and sound equipment that will distract attention, apart from those required for legal and security reasons. - Extra attention will be paid not to allow vehicles to exceed the transport speed limits; attention will be paid not to exceed the limits in the load on the axle weights of the vehicles. - Transport activities on the settlement routes will be programmed to reduce noise at certain time intervals (at night or on weekends). - Employees will be trained in noise mitigation measures. Drivers of trucks and vehicles will adhere to defined speed limits and be warned against creating unnecessary noise by using horns during the construction phase. - Unnecessary use of machine equipment causing noise will be prevented. Idling of the vehicles that are not currently in use will be prevented. - In case of a complaint, noise measurements in compliance with RENC and WBG General EHS Guidelines Environmental Noise will be conducted as soon as possible. If 	project budget	



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CONSTRUCTION PHASE (Vegetal Soil (Topsoil) Stripping, Excavation Works, Installation of Drilling Rig, and Installation of Mud Pits)						
Issue	Potential Impact	Type of Impact (Direct and/or Indirect)	Impact Significance (Low, Medium, High, Extremely High)	Mitigation Measures	Cost	Responsible Party
				<p>measured levels are above legal limits and/or WBG General EHS Guidelines and/or resulted as an increase in background levels of 3 dB when compared to background noise levels measured during pre-construction phase, further measures i.e., selecting equipment with lower sound power levels, installing acoustic barriers/vibration isolation for mechanical equipment, limiting the hours of operation for specific pieces of equipment or operations, etc.</p> <ul style="list-style-type: none"> - Noise barriers will be implemented. - “Noise & Vibration Management Plan” will be implemented. 		
Air Quality	Dust emissions	Direct	Medium	<ul style="list-style-type: none"> - Compliance will be ensured with the air emission limit values addressed in Industrial Air Pollution Control Regulation and WBG General EHS Guidelines Environmental Air Emissions and Ambient Air Quality. - The loads will be covered with suitable material (tarp, etc.) to minimize dust generation. - During transportation, excavated materials will be covered with nylon canvas or materials with grain size larger than 10 mm. - Protective covers or curtains will be used for the areas where most of the dust is formed. - Vehicles will not be loaded above capacity. Excess material will be removed, and the worksite will be cleaned after completing works. - If necessary, dust suppression will be done by water spraying during filling, emptying, and transfer works. Unloading will be done carefully. - Speed limitation will be introduced to the vehicles that will move in and around the project location. - During the transport of materials to the site, the wheels of the vehicles will be washed periodically to prevent dust emissions. - The construction equipment and vehicles need to be regularly checked, and the maintenance of relevant equipment will be performed to reduce dust emissions. 	To be covered within the project budget	Contractor



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CONSTRUCTION PHASE (Vegetal Soil (Topsoil) Stripping, Excavation Works, Installation of Drilling Rig, and Installation of Mud Pits)						
Issue	Potential Impact	Type of Impact (Direct and/or Indirect)	Impact Significance (Low, Medium, High, Extremely High)	Mitigation Measures	Cost	Responsible Party
				<ul style="list-style-type: none"> - Employees will be trained on the management of air emissions. - “Air Emissions Management Plan” will be implemented. - Employees will be trained on the management of dust emissions issues. - PM10 measurements will be conducted accordingly if any grievance regarding dust generation is received from the nearest receptors. Suppose measured levels are above legal limits and/or WBG General EHS Guidelines standards and/or significantly above from the baseline measurement results identified during the pre-construction phase. In that case, mitigation measures here will need to be enhanced, i.e., increasing wet suppression/watering activities, applying non-toxic chemicals, and further reducing speed/traffic. 		
	Exhaust gas emissions	Direct	Medium	<ul style="list-style-type: none"> - Exhaust emission measurement of the vehicles used (such as trucks) will be done regularly in certain periods. - New and well-maintained vehicles will be used to control the gas emissions generated within the activity's scope. - Unnecessary use of machinery and equipment causing emissions will be prevented. - “Air Emissions Management Plan” will be implemented. - Employees will be trained on the management of dust emissions issues. - The provisions of the Regulation on Control of Exhaust Gas Emissions will be complied with regarding the exhaust emissions to occur within the scope of this activity. 	To be covered within the project budget	Contractor
Biological Environment						
Landscape	Aesthetic and landscape problem (Visual pollution)	Direct	Low	<ul style="list-style-type: none"> - Employees will be trained on good housekeeping practices implemented at the construction site. - Disturbing images will be screened. - Wastes are temporarily stored under proper conditions and delivered to licensed companies for recycle or disposal in compliance with national “Waste Management Regulation”. - European Landscape Convention will be complied with. 	To be covered within the project budget	Contractor



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CONSTRUCTION PHASE (Vegetal Soil (Topsoil) Stripping, Excavation Works, Installation of Drilling Rig, and Installation of Mud Pits)						
Issue	Potential Impact	Type of Impact (Direct and/or Indirect)	Impact Significance (Low, Medium, High, Extremely High)	Mitigation Measures	Cost	Responsible Party
Flora & Fauna	Habitat loss / Influence of natural life	Direct and indirect	Low	<ul style="list-style-type: none"> - Existing roads will be used. - Unnecessary space use will be prevented. - If fauna species are encountered in the field of activity, they will not be disturbed and the workers/employees will wait until they depart or will ask the assistance of the environmental expert on site for their safe removal and relocation to a suitable environment. - Visual controls will be performed during the activity, and animals will be transported to similar habitats with appropriate methods from these areas by environmental experts. - Any fauna species that lives in the close vicinity of the project area will not be intervened. - Employees will be trained on the protection of natural life by expert biologists. - In all activities carried out within the project's scope, wild fauna species will never be deliberately harmed in line with Land Hunting Law No. 4915, the Decisions of the Central Hunting Commission held every year, and Articles 6 - 7 of the Bern Convention. 	To be covered within the project budget	Contractor
Socio-Economic Environment						
Community Health & Safety and Security	Incidents due to lack pedestrian and traffic safety	Direct	High	<ul style="list-style-type: none"> - Safety measures will be taken for the traffic flow in line with the approved traffic circulation projects, and warning signs will be installed as per "Highway Traffic Law." - Perimeter safety of the worksite will be established, and audio and flashing warning signs will be installed to sustain safety and security. Visible warning and informative signs will be placed on the project site as per "Regulation on Health and Safety Signs". - Measures (fences, warning signs, etc.) will be taken to prevent unauthorized access to the construction site to minimize potential adverse impacts on the community. Fences will be 	To be covered within the project budget	Çilimli Municipality (for off-site measures), Contractor (for on-site measures)



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				<p>established around the mud pits with appropriate warning signs to protect wildlife and people.</p> <ul style="list-style-type: none"> - Temporary pedestrian walks or walkways will be built for safety in compliance with the requirements for the passage of individuals with physical challenges and other vulnerable/disadvantaged individuals/groups, such as pregnant, elderly, children. - Measures will be taken to avoid trespassing of animals, such as cats, dogs, etc., from the excavation area. - Driver licenses will be checked of relevant project staff. - All heavy goods vehicles will be equipped with audible reversing alarms. - It will be ensured that vehicle maintenance is regularly conducted and manufacturer-approved parts are used against equipment malfunction or premature failure. - Good practices will be implemented to avoid overtiredness, i.e., adopting limits for trip duration and arranging driver rosters. - The drivers and work machine operators will be informed about safe driving, and all employees will be trained on Traffic Management Plan. - Traffic flows will be timed to avoid periods of heavy traffic along main access roads. The roads used will be ensured to pass through places with no sensitive receivers, such as the school and the settlement. - Compliance with speed limit rules will be ensured. - During transport activities, existing roads will not be harmed. In case of any damage to the roads, it will be repaired. - The residents will be informed about the extraordinary works to be executed at least one week in advance. - It will be acknowledged by the contractor that all work will be carried out in a safe and disciplined manner and will be designed to minimize risks to neighboring residents and the environment. - “Community Health & Safety and Security Management Plan” and “Traffic Management Plan” and “Emergency Response Plan” including traffic-related emergency issues will be implemented. - Keep Grievance Register. 		
Access to Services	Existing infrastructure	Direct	Medium	<ul style="list-style-type: none"> - Any damage to the existing infrastructure (gas, electricity, telecommunication, fuel lines, etc.) will be avoided. - “Community Health & Safety and Security Management Plan” will be implemented. 	To be covered within the	Contractor



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CONSTRUCTION PHASE (Vegetal Soil (Topsoil) Stripping, Excavation Works, Installation of Drilling Rig, and Installation of Mud Pits)						
Issue	Potential Impact	Type of Impact (Direct and/or Indirect)	Impact Significance (Low, Medium, High, Extremely High)	Mitigation Measures	Cost	Responsible Party
					project budget	
Cultural Assets	Affecting / destruction of cultural assets	Direct	Low	<ul style="list-style-type: none"> All activities will be put on hold in case of finding historic artifacts and materials that may have a cultural or historical value, and the General Directorate of Cultural Assets and Museums will be contacted and an official instruction will be waited. For any findings, the “Chance Find Procedure” will be implemented, in which communication with the relevant authorities and application of the “Law on the Protection of Cultural and Natural Assets” are addressed. Employees will be trained on the chance find procedure. 	To be covered within the project budget	Contractor
Stakeholder Engagement	Socio-economic impacts on stakeholders	Direct	High	<ul style="list-style-type: none"> It will be ensured that an external grievance management system will be in place that enables the community to raise concerns. Consultation meetings with the local communities will be held regarding the project components and activities. The public will be informed regularly about the latest traffic arrangements and project schedule. Special measures will be taken to ensure that vulnerable/disadvantaged individuals/groups will participate fully in the mainstream consultation process. Employees will be trained on good relationships with the local community. “SEP” will be implemented. External GRM within the scope of SEP will be enforced. 	To be covered within the project budget	Çilimli Municipality, Contractor (for specifically local stakeholders and employees)



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CONSTRUCTION PHASE (Vegetal Soil (Topsoil) Stripping, Excavation Works, Installation of Drilling Rig, and Installation of Mud Pits)						
Issue	Potential Impact	Type of Impact (Direct and/or Indirect)	Impact Significance (Low, Medium, High, Extremely High)	Mitigation Measures	Cost	Responsible Party
Employment	Local labor	Direct	Low	<ul style="list-style-type: none"> Local workforce and recruitment options will be considered as much as possible. Before the start of the drilling activities, at least 15 days in advance, a community awareness meeting will be conducted following COVID-19 pandemic restrictions to describe the recruitment process in detail: employment expectations, duration, employment categories (skilled, skilled-semi, and unskilled), job descriptions, code of conduct, the detailed application process, interview locations, dates, and conditions of recruitment, etc. Appropriate communication channels will ensure the wide distribution of employment opportunities to all affected communities. Proper communication channels include but are not limited to village headmen, Headmen's office notice boards, mosques, websites, local press, recruitment leaflets in affected villages, etc. During community meetings, emphasis will also be put on the temporary nature of work opportunities to ensure that people manage their expectations and understand the consequences of leaving their previous job or farming activities to join the project. No hiring will occur at worksites and hiring will only be considered if a formal request is made via the official application procedure. The recruitment process will prioritize employment from the affected settlements and disadvantaged groups (younger men, women, disabled people, ethnic minorities, etc.). Goods and service procurement will be made from the local suppliers as much as possible. "Human Resources Management Plan and Procedures" including "Internal GRM" will be implemented. Employees will be provided training on human resources policy and the internal GRM. 	To be covered within the project budget	Contractor



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CONSTRUCTION PHASE (Vegetal Soil (Topsoil) Stripping, Excavation Works, Installation of Drilling Rig, and Installation of Mud Pits)						
Issue	Potential Impact	Type of Impact (Direct and/or Indirect)	Impact Significance (Low, Medium, High, Extremely High)	Mitigation Measures	Cost	Responsible Party
Labor and Working Conditions						
OHS	Effects on work and working conditions	Direct	High	<ul style="list-style-type: none"> All regulations, procedures, and principles published regarding OHS as part of OHS Law will be followed throughout the construction phase with the consideration of the WBG's EHS Guidelines. A safe working environment with safe equipment will be provided. Necessary signposting will be implemented through the project sites and information will be provided to workers related to key rules and regulations to follow. People with appropriate education/training regarding the work area will be recruited. A full-time Occupational Safety Expert will be employed to be assigned specifically to the Project until completion of Contractor's works to ensure continuous control and management of occupational safety issues". Orientation and periodical training will be provided to the personnel on OHS issues as per "Regulation on Procedures and Principles of Health and Safety Training of Employees". The training program will include project-specific issues, i.e., well, blowout/accidents. Workers will be equipped with all required PPE (helmet, safety belt, safety outfit, goggles, mask, steel cap boots, gloves, etc.) as per "Regulation on Use of Personal Protective Equipment in Workplaces". All equipment allocated and used during the project will meet international standards to maintain performance and safety. During the operation of the project areas, work will be carried out by the provisions of the "Regulation on the Protection of Employees from Risks Related to Noise". Work procedures will be followed for confined spaces. 	To be covered within the project budget	Contractor



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CONSTRUCTION PHASE (Vegetal Soil (Topsoil) Stripping, Excavation Works, Installation of Drilling Rig, and Installation of Mud Pits)						
Issue	Potential Impact	Type of Impact (Direct and/or Indirect)	Impact Significance (Low, Medium, High, Extremely High)	Mitigation Measures	Cost	Responsible Party
				<ul style="list-style-type: none"> All the relevant procedures will be prepared in accordance with applicable national requirements and internationally accepted standards. Toolbox talks will be provided to the employees, indicating the possible risks regarding the worksite and works to be carried out. Loading and unloading activities will be carried out with dedicated and competent persons to oversee the activity (flagman, banksman, rigger, etc.). All trainings, accidents and incidents (fatalities, lost time incidents, any significant events including spills, fire, outbreak of pandemic or communicable diseases, social unrest, etc.) will be recorded. In case of any significant accident/incident (e.g., environmental, social, labor, or lost-time accident/incidents) the contractor will notify Çilimli Municipality. Then, Municipality will inform ILBANK and ILBANK will inform WB within three business days. In 30 days, a report will be presented to ILBANK and WB explaining the causes of the incidents and the actions taken after the incident. The area will be enclosed with barriers and enlightened together with the necessary signs since the drilling equipment will be kept on site. It will be ensured that areas where construction work is carried out will not be accessible other than the authorized personnel. It will be ensured that the following documentation is implemented by contractor; <ul style="list-style-type: none"> OHS Management Plan and Procedures, Risk Assessment Reports are prepared for all works to be carried out, and necessary measures will be taken to avoid these risks as per "OHS Risk Assessment Regulation". "Emergency Response Plans" are prepared for a possible accident as per "Regulation on Emergencies at Workplaces" 		



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CONSTRUCTION PHASE (Vegetal Soil (Topsoil) Stripping, Excavation Works, Installation of Drilling Rig, and Installation of Mud Pits)						
Issue	Potential Impact	Type of Impact (Direct and/or Indirect)	Impact Significance (Low, Medium, High, Extremely High)	Mitigation Measures	Cost	Responsible Party
				<p>and “First Aid Regulation”. The plan will include project-specific emergency issues. Emergency teams will be built, and training/drills will be carried out according to the emergency scenarios.</p> <ul style="list-style-type: none"> It will be ensured that the following mitigation measures are in place due to particularly COVID-19 and its variants’ outbreak: <ul style="list-style-type: none"> Providing surveillance and active screening and treatment of workers, Conducting training for employees on prevention from COVID-19 and its variants, Immunizing workers to improve health and guard against infection, Getting medical clearance is required for return to work for all employees diagnosed with COVID-19 and its variants, Taking safety measures in line with international best practice and Turkish Legislation including the health and safety measures related to COVID-19 provided by the Ministry of Health and Ministry of Family, and Labor and Social Services, Addressing any pandemic/communicable disease risk during project and site-specific OHS management plan including the necessary measures, Conducting track and trace investigation following COVID-19 and its variants’ control program. 		
Labor and Working Conditions	Labor management	Direct	High	<ul style="list-style-type: none"> All regulations, procedures, and principles published regarding labor and working conditions as part of Labor Law will be followed throughout the construction phase. Employees will be trained about job descriptions/responsibilities and human resources policy together with the internal GRM. Workers will be issued a written contract with a job description, information about work hours, wages and their rights and obligations. 	To be covered within the project budget	Contractor



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CONSTRUCTION PHASE (Vegetal Soil (Topsoil) Stripping, Excavation Works, Installation of Drilling Rig, and Installation of Mud Pits)						
Issue	Potential Impact	Type of Impact (Direct and/or Indirect)	Impact Significance (Low, Medium, High, Extremely High)	Mitigation Measures	Cost	Responsible Party
				<ul style="list-style-type: none">• It will be ensured that employees work in a fair-treated work environment with no discrimination, and equal opportunities will be offered for all personnel employed.• Child labor will not be employed.• “Human Resources Management Plan and Procedures” including “Internal GRM” will be implemented.• Keep grievance register.• Compliance with the code of conduct rules, including GBV and SEA/SH, which are included in the training to be provided, will be in the contract articles of the personnel.		



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6.3 Mitigation Plan for the Drilling Phase

The mitigation plan for the drilling phase of the project is presented in Table 6-3. The drilling phase consists of drilling works, piping works, cementing works, and well completion tests.

Table 6-3. Mitigation Plan for the Drilling Phase

DRILLING PHASE (Drilling Works, Piping Works, Cementing Works, and Well Completion Tests)						
Issue	Potential Impact	Type of Impact (Direct and/or Indirect)	Impact Significance (Low, Medium, High, Extremely High)	Mitigation Measures	Cost	Responsible Party
Physical Environment						
Waste Management	Waste generation	Direct and indirect	Medium	<ul style="list-style-type: none"> Measures for minimum waste generation will be undertaken, i.e., training personnel regarding waste management practices to raise awareness of waste reduction and management in accordance with waste management hierarchy (prevent, reduce, reuse, recycle, recover, dispose). Wastes will be separated from each other based on their waste categories (recyclable, hazardous, inert, non-hazardous, etc.). Incineration or burying of waste by any means and/or dumping to nearby water resources will not be allowed The temporary storage of wastes will be conducted without harming the environment. In this respect the mitigation measures for temporary storage area listed below will be taken: <ul style="list-style-type: none"> Wastes will be stored temporarily stored in a manner that they do not react with each other. Hazardous and non-hazardous waste storage areas will be segregated also the waste code, the amount of waste stored and the date of storage will be defined on the stored wastes. Except for medical wastes, hazardous wastes will be stored in the temporary storage area for a maximum of 6 months and non-hazardous wastes for a maximum of 1 year. If it is produced one thousand kilograms or more of hazardous waste per month, a temporary storage permit will be obtained from the PDEUCC. 	To be covered within the project budget	Contractor



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DRILLING PHASE (Drilling Works, Piping Works, Cementing Works, and Well Completion Tests)						
Issue	Potential Impact	Type of Impact (Direct and/or Indirect)	Impact Significance (Low, Medium, High, Extremely High)	Mitigation Measures	Cost	Responsible Party
				<ul style="list-style-type: none"> - Dangerous Goods and Hazardous Waste Compulsory Liability Insurance will be taken out for hazardous waste temporary storage area/containers. • Wastes will be transferred to licensed recycle/disposal facilities. • Çilimli Municipality will collect the municipal solid waste and the collected municipal solid waste will be disposed to the closest licensed sanitary landfill, which is Düzce Sanitary Landfill. Waste generation, storage, and disposal records will be kept. • “Waste Management Regulation” and WBG General EHS Guidelines Environmental (Waste Management) Criteria will be complied with. • Waste Management Plan will be implemented. 		
	Domestic waste	Direct and indirect	Low	<ul style="list-style-type: none"> • Domestic wastes will be collected separately according to their categories (organic, glass, plastic, paper, metal, etc.) in sealed closed containers that will not disturb the environment in terms of appearance and odor. Çilimli Municipality will regularly collect them. • In the disposal of domestic solid wastes, all personnel will be trained on applicable waste management practices (no littering of surface waters, lakes, and streams, similar receiving environments, streets, roads, open areas). • The provisions of the Waste Management Regulation will be complied with for the management of domestic solid wastes. 	To be covered within the project budget	Contractor
	Drilling mud	Direct	High	<ul style="list-style-type: none"> • Drilling mud collected in the mud pit will be analyzed in a licensed laboratory to identify the waste type and code required in Article 12 of Waste Management Regulation. Waste threshold concentrations are given in Annex 3 of the relevant regulation. • Identified waste will be appropriately treated as required in Article 9 - Item 1 - Sub-clause g of Waste Management Regulation. In this respect, it will be transported to licensed treatment and disposal facilities with appropriately licensed waste transport tankers. Waste delivery and subsequent disposal records will be provided. The relevant regulation gives disposal and recycling methods in Annex 2. 	To be covered within the project budget	Contractor



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DRILLING PHASE (Drilling Works, Piping Works, Cementing Works, and Well Completion Tests)						
Issue	Potential Impact	Type of Impact (Direct and/or Indirect)	Impact Significance (Low, Medium, High, Extremely High)	Mitigation Measures	Cost	Responsible Party
	Packaging waste	Direct and indirect	Low	<ul style="list-style-type: none"> Packaging waste will be collected and stored separately in separate containers, marked for each type of waste, placed in the activity area (glass, metal, plastic, paper/cardboard, and wood). Packaging waste will be delivered to the licensed recycling or the collection system of Çilimli Municipality. Regulation on the Control of Packaging Waste will be complied. 	To be covered within the project budget	Contractor
	Waste oil	Direct and indirect	Low	<ul style="list-style-type: none"> In the case of waste oil generation at the site, the requirements of Regulation on the Management of Waste Oils will be adhered to. Waste oils will be collected in closed containers with impermeable lids, marked with appropriate color and waste codes in special areas (oil proof concrete floors of at least 25 cm thickness, covered with geomembrane or epoxy coating). Maintenance and oil change of equipment and machines will be made on a leak-proof surface in a specified part of the operating area, in a rain-proof building. In the field of operation, waste oil spills will be immediately removed from surfaces with absorbent spill kits, which in turn will be disposed of as per the provisions of the Regulation on the Management of Waste Oils. Oil changes on site will be avoided as much as possible, and waste oil generation is expected to be at a minimum level. Waste oils will be treated as an environmental priority and disposed of as per the Regulation on the Management of Waste Oils. Waste oil analyses will be made as per the Regulation on the Management of Waste Oils. According to the analysis results, licensed disposal firms or licensed recycling facilities dispose of the oil. The oils of different categories will not be mixed, and they will be given to licensed waste oil collectors, treatment plants, or collection points. 	To be covered within the project budget	Contractor
	Waste battery and accumulators	Direct and indirect	Low	<ul style="list-style-type: none"> The waste batteries to be generated within the scope of the activity will be collected separately from other wastes and delivered to collection points of battery sellers or Çilimli Municipality. Disposal of batteries into the ground and water bodies will be strictly banned. 	To be covered within the project budget	Contractor



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DRILLING PHASE (Drilling Works, Piping Works, Cementing Works, and Well Completion Tests)						
Issue	Potential Impact	Type of Impact (Direct and/or Indirect)	Impact Significance (Low, Medium, High, Extremely High)	Mitigation Measures	Cost	Responsible Party
				<ul style="list-style-type: none"> The provisions of the Regulation on Control of Waste Batteries and Accumulators will be complied with. 		
	Medical waste	Direct and indirect	Low	<ul style="list-style-type: none"> The medical wastes generated will not be mixed with other wastes in any way. They will be collected in sealed medical bags and delivered to licensed medical waste collection companies to be transported in medical waste transport vehicles. The waste will be disposed of in licensed medical waste disposal / medical waste sterilization facilities. Red-colored tear-resistant plastic bags, in line with the specifications described in the Regulation on Control of Medical Wastes, will be used for collecting medical wastes. Personal hygiene material/equipment wastes (such as single-use masks gloves) will be collected, temporarily stored, transported, and delivered to waste processing facilities per Circular 2020/12 of MEUCC on COVID-19 Measures in the Management of Personal Hygiene Equipment Wastes. The provisions of the Regulation on the Control of Medical Wastes will be complied with strictly. 	To be covered within the project budget	Contractor
Water Sources and Wastewater	Drilling fluid	Direct	High	<ul style="list-style-type: none"> Drilling fluid will be used as recirculated as possible. Final disposal will be with a licensed disposal company following testing the fluid characteristics to identify hazardous characteristics. A mud pit will be built in each drilling area to collect drilling fluid with soil. The drilling mud, which will be formed during drilling and accumulated in the mud pit, will be dried, tested for waste characterization and subsequently disposed of based on the results of the testing (inert, non-hazardous, or hazardous) in line with waste management regulations. The disposal method will be based on the characteristics of the mud (inert, non-hazardous, or hazardous) and be sent to a licensed disposal facility accordingly. The aquifer tests will be best applied, and the re-injection well planning for the production period will be appropriately performed. During the works, the water in the stream beds will not be blocked in any way. No operation facilities will be built on the beds. The stream formation will not be changed in any way by machine interventions. Uncontrolled discharge from the pit will be prevented. 	To be covered within the project budget	Contractor



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Issue	Potential Impact	Type of Impact (Direct and/or Indirect)	Impact Significance (Low, Medium, High, Extremely High)	Mitigation Measures	Cost	Responsible Party
				<ul style="list-style-type: none"> Bentonite will be temporarily stored on site to ensure that it does not impact human health and the environment. The measures will ensure protection from weather conditions and prevention from dust emissions. All project activities will be aligned with Geothermal Resources and Natural Mineral Waters Law Implementation Regulation, Water Pollution Control Regulation, Regulation on the Protection of Groundwater against Pollution and Degradation, Waste Management Regulation, Regulation on Management of Surface Water Quality, and Prime Ministry No. 2006/27 Circular on “Stream Beds and Floods”. 		
	Brine	Direct	High	<ul style="list-style-type: none"> The brine during the well tests will be reinjected to the geothermal reservoir, if possible; otherwise, it will be stored in the mud pit and evaluated as process wastewater after well test compilation. After that, it will be analyzed to establish the treatment and disposal requirements and transported to licensed treatment and disposal facilities with appropriately licensed waste transport tankers in line with Waste Management Regulation. In compliance with Article 16-4 of the Regulation on Landfill of Wastes, drainage channels will be established around the well, and contamination of surface waters will be prevented. Uncontrolled discharge from the pit will be prevented. 	To be covered within the project budget	Contractor
	Domestic wastewater	Direct	Medium	<ul style="list-style-type: none"> Domestic wastewater generated by personnel will be collected in portable WCs, drawn with a vacuum truck belonging to Düzce Province Çilimli Municipality Water and Sewerage Directorate, to be discharged to the Düzce WWTP All project activities will be aligned with Water Pollution Control Regulation. 	To be covered within the project budget	Contractor
	Effects on “Düzce Plain Irrigation Area”	Direct	High	<ul style="list-style-type: none"> According to the opinion letter received from the MoAF, General Directorate of DSİ, 5th Regional Directorate, 55th Branch Office on 22nd February 2022, project license area together with SK-2 and SK-3 drilling locations are located within the boundaries of Düzce Plain Irrigation area. The mitigation measures addressed in the relevant letter and listed below will be implemented in order to prevent the irrigation area from potential adverse impacts of project activities: 	To be covered within the project budget	Contractor Çilimli Municipality



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				<ul style="list-style-type: none"> - Solid waste, excavation waste, etc. will not to be disposed of / stockpiled to stream beds and a fixed facility will not be established on which, - No interventions that narrow the stream beds and adversely affect the flow regimes will be made, - All precautions will be taken against environmental surface waters and floods that may occur in possible excessive precipitation, - It will be compliance with all the directives of DSI in case the protection area and operation area are determined in accordance with the provisions of the "Law on Groundwater No.167" and the "Communiqué on the Determination of the Protected Areas of Aquifers and Resources from which Drinking Water Supply" within the scope of the Western Black Sea Hydrogeological Survey Report, - In case of encountering wells with certificates belonging to private individuals within the scope of project works, all rights of these wells will be protected. • In case of wells, springs and caissons for potable-use water purposes within the project area, an opinion from the relevant Municipality or institution will be obtained. 		
Surface Water Quality	Surface water quality in Akdere Creek	Direct	High	<ul style="list-style-type: none"> • Periodic surface water quality monitoring will be conducted during construction at Akdere Creek according to the parameters set forth in Surface Water Quality Regulation. • Size of the working area in the creek will be reduced and limited as much as practicable. • Water flow in the creek will not be fully blocked, and continuity of the flow will be maintained as much as possible. • Standard pollution control measures will be implemented i.e. to prevent silt contamination by keeping water out of the work area using appropriate isolation techniques. • Re-fuelling of all vehicles and machinery will be avoided to the extent possible. If needed, re-fuelling will be carried out at minimum 30 m of the creeks. 	To be covered within the project budget	Contractor



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				<ul style="list-style-type: none"> Storage and handling of fuels, oils and other hazardous chemicals near the creek will be limited to the extent possible. These materials will be stored on sealed surfaces and within secondary containment; The working area will be fenced. Movement of equipment inside the creeks will be prevented to the extent possible. Training will be provided to machine operators regarding the working procedures, with attention to machine and equipment inspection for leaks prior to use, safe storage and handling of fuels/oils near the watercourse and/or precautionary measures to prevent contamination of the creeks. Chemicals and Hazardous Materials Management Plan” will be implemented. 		
Chemicals and Hazardous Materials Management	Soil, air, and water pollution	Direct and indirect	Medium	<ul style="list-style-type: none"> Chemical materials will be stored, transported, and handled consistently with their SDSs. To prevent potential spills, all hazardous materials will be held in designated areas with secondary containment and handled by authorized staff. Leak-proof containers labelled with information on their composition, properties, and handling information will be used for temporary storage to prevent spillage and leaching. The conditions of the vehicles and other machinery equipment to be used during the works will be regularly reviewed. Employees will be trained on the management of chemicals and hazardous materials. “Chemicals and Hazardous Materials Management Plan” and “Emergency Response Plan” including responses against spillages/leakages will be implemented. The actions to be taken in an emergency and assigned to emergency teams will be defined. Spill kits will be available at the site to be used immediately when needed. Spills/leaks will be promptly contained and cleaned up to minimize their effects and consequences. Appropriate cleaning equipment for spills and accidents will be procured and maintained at the site, and cleaning teams will be assigned to use the equipment. 	To be covered within the project budget	Contractor



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Noise & Vibration	Noise &, vibration generation	Direct	Medium	<ul style="list-style-type: none"> As stated in the PIF, within the project's scope, work will only be carried out during the daytime, and there will be no work in the evening and night-time periods. It is planned to work 8 hours/day. Working hours will be limited between 10:00 am (i.e. the allowed start time for construction activities as per RENC) and 19:00 pm (i.e. the end of the daytime period as per RENC). The residents of nearby settlements, the mukhtars' office, the medical facility and commercial elements shall be informed about the time of project activities. Number of people in the AoI is expected as 50 people. Considering the sensitive receptors such as nearby residential receptors, hospitals and schools, compliance will be ensured with the (daytime) 55 dBA limit value (WBG General EHS Guidelines Environmental Noise) for continuous worksite noise at the vicinity of the project site. . In geothermal drilling, the sound level can be reduced by using silencers in drilling machines. After the drilling stage, there may be noise during the well testing stages. Good conditions can also be achieved using silencers during well tests. The annual examination of the vehicles will be controlled and enforced. All machinery and equipment that will cause noise in the enterprise will be regularly maintained and renewed when their economic life is over. Operation equipment will not be operated simultaneously. It will be ensured traffic inspections and exhaust measurements of the machines/vehicles are constantly up to date. It will be ensured that the vehicles will not disturb the environment, and they will not be allowed to install light and sound equipment that can distract attention, apart from those required for legal and security reasons. Extra attention will be paid not to allow vehicles to exceed the transport speed limits; attention will be paid not to exceed the limits in the load on the axle weights of the vehicles. Transport activities on the settlement routes will be programmed to reduce noise at certain time intervals (at night or on weekends). Employees will be trained on noise mitigation measures. Drivers of trucks and vehicles will adhere to defined speed limits and be warned against creating unnecessary noise by using horns during the project activities. 	To be covered within the project budget	Contractor



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				<ul style="list-style-type: none"> Unnecessary use of machine equipment causing noise will be prevented. Idling of the vehicles that are not currently in use will be prevented. In case of a complaint, noise measurements in compliance with RENC and WBG General EHS Guidelines Environmental Noise will be conducted as soon as possible. If measured levels are above legal limits and WBG General EHS Guidelines and/or resulted as an increase in background levels of 3 dB when compared to background noise levels measured during pre-construction phase, further measures, i.e., installing the noise barrier, will be taken to decrease noise levels. “Noise & Vibration Management Plan” will be implemented. 		
Air Quality	Dust emissions	Direct	Medium	<ul style="list-style-type: none"> Compliance will be ensured with the air emission limit values addressed in Industrial Air Pollution Control Regulation and WBG General EHS Guidelines Environmental Air Emissions and Ambient Air Quality. The loads will be covered with suitable material (tarpaulin, etc.) to minimize dust generation. Protective covers or curtains will be used for the areas where most of the dust is formed. Vehicles will not be loaded above capacity. Excess material will be removed, and the worksite will be cleaned after completing works. If necessary, dust suppression will be done by water spraying during filling, emptying, and transfer works. Unloading will be done carefully. Speed limitation will be introduced to the vehicles that will move in and around the drilling location. During the transport of materials to the site, the wheels of the vehicles will be washed periodically to prevent dust emissions. The operation equipment and vehicles need to be regularly checked, and the maintenance of relevant equipment will be performed to reduce dust emissions. Employees will be trained on the management of dust emissions. “Air Emissions Management Plan” will be implemented. 	To be covered within the project budget	Contractor



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				<ul style="list-style-type: none"> PM10 measurements will be conducted accordingly if any grievance regarding dust generation is received from the nearest receptors. Suppose measured levels are above legal limits and/or WBG General EHS Guidelines and/or significantly above from the baseline measurement results identified during the pre-construction phase. In that case, mitigation measures here will need to be enhanced, i.e., increasing wet suppression/watering activities, applying non-toxic chemicals, further reducing speed/traffic. 		
	Gas emissions	Direct	High	<ul style="list-style-type: none"> Continuous monitoring and warning systems will be established for gas emissions. Safety measures will be taken when a difference is observed. <ul style="list-style-type: none"> CO₂ monitoring can normally be accomplished by measuring its concentration levels in the air with portable detectors. H₂S monitoring can be accomplished by using portable or fixed detectors. These detectors will also have a warning system with an alarm. The maintenance of the systems will be carried out regularly. Employees will be trained on potential gas emissions, monitoring systems, and emergencies related to gas emissions. The Emergency Response Plan will cover the gas emission security planning and uncontrolled gas emission. 	To be covered within the project budget	Contractor
	Exhaust gas emissions	Direct	Medium	<ul style="list-style-type: none"> Exhaust emission measurement of the vehicles used (such as trucks) will be done regularly in certain periods. New and well-maintained vehicles will be used to control the gas emissions generated within the activity's scope. Unnecessary use of machinery and equipment causing emissions will be prevented. Employees will be trained on the management of exhaust gas emissions. The provisions of the Regulation on Control of Exhaust Gas Emissions will be complied with regarding the exhaust emissions to occur within the scope of this activity. 	To be covered within the project budget	Contractor



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Biological Environment						
Landscape	Aesthetic and landscape problem (Visual pollution)	Direct	Low	<ul style="list-style-type: none"> Housekeeping will be conducted across the site in a manner to prevent visual pollution. Wastes are temporarily stored under proper conditions and delivered to licensed companies for recycle or disposal in compliance with national "Waste Management Regulation". Employees will be trained on good housekeeping practices implemented at the project site. European Landscape Convention will be complied. 	To be covered within the project budget	Contractor
Flora & Fauna	Habitat loss / Influence of natural life	Direct and indirect	Low	<ul style="list-style-type: none"> Existing roads will be used. Unnecessary space use will be prevented. If fauna species are encountered in the field of activity, they will not be disturbed and the workers/employees will wait until they depart or will ask the assistance of the environmental expert on site for their safe removal and relocation to a suitable environment. Visual controls will be performed during the activity, and animals will be transported to similar habitats with appropriate methods from these areas by environmental experts. Any fauna species that lives in the close vicinity of the project area will not be intervened. Employees will be trained on the protection of natural life by expert biologists. In all activities carried out within the project's scope, wild fauna species will never be deliberately harmed in line with Land Hunting Law No. 4915, the Decisions of the Central Hunting Commission held every year, and Articles 6 - 7 of the Bern Convention. 	To be covered within the project budget	Contractor



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Socio-Economic Environment						
Community Health & Safety and Security	Incidents due to lack of pedestrian and traffic safety	Direct	High	<ul style="list-style-type: none"> Safety measures will be taken for the traffic flow in line with the approved traffic circulation projects, and warning signs will be installed as per “Highway Traffic Law”. Perimeter safety of the worksite will be established, and audio and flashing warning signs will be installed to sustain safety and security. Visible warning and informative signs will be placed on the Project site as per “Regulation on Health and Safety Signs”. Measures (fences, warning signs, etc.) will be taken to prevent unauthorized access to the project site to minimize potential adverse impacts on the community. Fences will be established around the mud pits with appropriate warning signs to protect wildlife and people. Temporary pedestrian walks or walkways will be built for safety in compliance with the requirements for the passage of individuals with physical challenges and other vulnerable/disadvantaged individuals/ groups, such as pregnant, elderly, children. Measures will be taken to avoid trespassing of animals, such as cats, dogs, etc., from the excavation area. Driver licenses (of relevant project personnel) will be checked. All heavy goods vehicles will be equipped with audible reversing alarms. It will be ensured that vehicle maintenance is regularly conducted and manufacturer-approved parts are used against equipment malfunction or premature failure. Good practices will be implemented to avoid overtiredness, i.e., adopting limits for trip duration and arranging driver rosters. The drivers and work machine operators will be informed about safe driving, and all employees will be trained on Traffic Management Plan. 	To be covered within the project budget	Contractor



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				<ul style="list-style-type: none"> Traffic flows will be timed to avoid periods of heavy traffic along main access roads. The roads used will be ensured to pass through places with no sensitive receivers, such as the school and the settlement. Compliance with speed limit rules will be ensured. During transport activities, existing roads will not be harmed. In case of any damage to the roads, it will be repaired. The residents and institutions within AoI will be informed about the extraordinary works to be executed at least one week in advance. It will be acknowledged by the contractor that all work will be carried out in a safe and disciplined manner and will be designed to minimize risks to neighboring residents and the environment. “Community Health & Safety and Security Management Plan” and “Traffic Management Plan” and “Emergency Response Plan” including traffic-related emergency issues will be implemented. Emergency Response Plans will include community health and safety, security issues in case of an emergency i.e. well blow-out, gas emissions, chemical spills, fire, etc. In this respect, emergency planning will be particularly designed in a manner to allow community effective response to gas monitoring system alerting and well blow-out as project-specific emergency situations in addition to other emergency scenarios. 		
Access to Services	Existing infrastructure	Direct	Medium	<ul style="list-style-type: none"> Any damage to the existing infrastructure (gas, electricity, telecommunication, fuel lines, etc.) will be avoided. “Community Health & Safety and Security Management Plan” will be implemented. 	To be covered within the project budget	Contractor
Cultural Assets	Affecting / destruction of cultural assets	Direct	Low	<ul style="list-style-type: none"> All activities will be put on hold in case of finding historic artifacts and materials that may have a cultural or historical value. The General Directorate of Cultural Assets and Museums will be contacted and an official instruction will be waited. For any findings, the “Chance Finds Procedure” will be implemented, in which communication with the relevant authorities and application of the “Law on the Protection of Cultural and Natural Assets” are addressed. 	To be covered within the project budget	Contractor



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				<ul style="list-style-type: none"> Employees will be trained on the chance find procedure. 		
Stakeholder Engagement	Socio-economic impacts on stakeholders	Direct	High	<ul style="list-style-type: none"> It will be ensured that an external grievance management system will be in place that enables the community to raise concerns. Consultation meetings with the local communities will be held regarding the project components and activities. The public will be informed regularly about the latest traffic arrangements and project schedule. It will be ensured that vulnerable/disadvantaged individuals/groups will participate fully in the mainstream consultation process. Employees will be trained on good relationships with the local community. “SEP” will be implemented. External GRM within the scope of SEP will be implemented. 	To be covered within the project budget	Çilimli Municipality, Contractor
Employment	Local labor	Direct	Low	<ul style="list-style-type: none"> Local workforce and recruitment options will be considered as much as possible. During community meetings, emphasis will also be put on the temporary nature of work opportunities to ensure that people manage their expectations and understand the consequences of leaving their previous job or farming activities to join the project. No hiring will occur at worksites, and hiring will only be considered if a formal request is made via the official application procedure. The recruitment process will prioritize employment from the affected settlements and disadvantaged groups (younger men, women, disabled people, ethnic minorities, etc.). Goods and service procurement will be made from the local suppliers as much as possible. “Human Resources Management Plan and Procedures” including “Internal GRM” will be implemented. 	To be covered within the project budget	Contractor



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				<ul style="list-style-type: none"> Employees will be provided training on human resources policy and the internal GRM. 		
Labor and Working Conditions						
OHS	Effects on work and working conditions	Direct	High	<ul style="list-style-type: none"> All regulations, procedures, and principles published regarding OHS as part of OHS Law, Labor Law and will be followed throughout the construction phase with the consideration of the World Bank Group's EHS Guidelines. A safe working environment with safe equipment will be provided, i.e., usage of Blowout Prevention Equipment (BOPE) consisting of combinations of valves, rams, packers, and rotating heads enabling control of fluids and gases that could flow from the well. Necessary signposting will be implemented through the project sites and information will be provided to workers related to key rules and regulations to follow. People with appropriate education/training regarding the work area will be recruited for. A full-time Occupational Safety Expert will be employed to be assigned specifically to the Project until completion of Contractor's works to ensure continuous control and management of occupational safety issues". Orientation and periodical training will be provided to the personnel on OHS issues as per "Regulation on Procedures and Principles of Health and Safety Training of Employees". The training program will include project-specific issues, i.e., well, blowout/accidents. Workers will be equipped with all required PPE (helmet, safety belt, safety outfit, goggles, mask, steel cap boots, gloves, etc.) as per "Regulation on Use of Personal Protective Equipment in Workplaces". All equipment allocated and used during the project will meet international standards to maintain performance and safety. 	To be covered within the project budget	Contractor



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				<ul style="list-style-type: none"> • During the operation of the project areas, work will be carried out by the provisions of the "Regulation on the Protection of Employees from Risks Related to Noise". • Work procedures will be followed for confined spaces. • For possible heat exposure, measures listed below will be taken: <ul style="list-style-type: none"> – Reducing the time required for work in elevated temperature environments and ensuring access to drinking water, – Shielding surfaces where workers come in close contact with hot equipment, including generating equipment, pipes etc., – Use of PPE as appropriate, including insulated gloves and shoes, – Implementing appropriate safety procedures during the exploratory drilling process. • All the relevant procedures will be prepared in accordance with applicable national requirements and internationally accepted standards. • Toolbox talks will be provided to the employees, indicating the possible risks regarding the worksite and works to be carried out. • All trainings and incidents (fatalities, lost time incidents, any significant events including spills, fire, outbreak of pandemic or communicable diseases, social unrest, etc.) will be recorded. • In case of any significant incident (e.g., environmental, social, labor, or lost-time incidents) the contractor will elucidate Çilimli Municipality. Then, Municipality will inform ILBANK and ILBANK will inform WB within three business days. In 30 days, a report will be presented to ILBANK and WB explaining the causes of the incidents and the actions taken after the incident. • The area will be enclosed with barriers and enlightened together with the necessary signs since the drilling equipment will be kept on site. • It will be ensured that the following documentation is implemented by contractor <ul style="list-style-type: none"> – OHS Management Plan and Procedures, 		



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DRILLING PHASE (Drilling Works, Piping Works, Cementing Works, and Well Completion Tests)						
Issue	Potential Impact	Type of Impact (Direct and/or Indirect)	Impact Significance (Low, Medium, High, Extremely High)	Mitigation Measures	Cost	Responsible Party
				<ul style="list-style-type: none"> - Risk Assessment Reports are prepared for all works to be carried out, and necessary measures will be taken to avoid these risks as per "OHS Risk Assessment Regulation". - "Emergency Response Plans" are prepared for a possible accident as per "Regulation on Emergencies at Workplaces" and "First Aid Regulation". The plan will include project-specific emergency issues, i.e., well, blowout/accidents, gas monitoring system alerting in addition to other emergency situations and emergency planning will be designed in a manner to allow workers effective response to emergencies. Emergency teams will be built, and training/drills will be carried out according to the emergency scenarios. • It will be ensured that the following mitigation measures are in place due to particularly COVID-19 and its variants' outbreak: <ul style="list-style-type: none"> - Providing surveillance and active screening and treatment of workers, - Conducting training for employees on prevention from COVID-19 and its variants, - Immunizing workers to improve health and guard against infection, - Getting medical clearance is required for return to work for all employees diagnosed with COVID-19 and its variants, - Taking safety measures in line with international best practice and Turkish Legislation including the health and safety measures related to COVID-19 provided by the Ministry of Health and Ministry of Family, and Labor and Social Services, - Addressing any pandemic/communicable disease risk during project and site-specific OHS management plan including the necessary measures, - Conducting track and trace investigation following COVID-19 and its variants' control program. 		



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DRILLING PHASE (Drilling Works, Piping Works, Cementing Works, and Well Completion Tests)						
Issue	Potential Impact	Type of Impact (Direct and/or Indirect)	Impact Significance (Low, Medium, High, Extremely High)	Mitigation Measures	Cost	Responsible Party
Labor and Working Conditions	Labor management	Direct	High	<ul style="list-style-type: none">All regulations, procedures, and principles published regarding labor and working conditions as part of Labor Law will be followed throughout the construction phase.Employees will be trained about job descriptions/responsibilities and human resources policy together with the internal GRM.Workers will be issued a written contract with a job description, information about work hours, wages and their rights and obligations.It will be ensured that employees work in a fair-treated work environment with no discrimination, and equal opportunities will be offered for all personnel employed.Child labor will not be employed.“Human Resources Management Plan and Procedures” including “Internal GRM” will be implemented.Keep grievance register.Compliance with the code of conduct rules, including GBV and SEA/SH, which are included in the training to be provided, will be in the contract articles of the personnel.	To be covered within the project budget	Contractor



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6.4 Mitigation Plan for the Closure Phase

The mitigation plan for the closure phase of the Project is presented in the Table 6-4 below.

Table 6-4. Mitigation Plan for the Closure Phase

CLOSURE PHASE (Land Rehabilitation Activities)						
Issue	Potential Impact	Type of Impact (Direct and/or Indirect)	Impact Significance (Low, Medium, High, Extremely High)	Mitigation Measures	Cost	Responsible Party
Physical Environment						
Waste Management	Waste generation	Direct and indirect	Medium	<ul style="list-style-type: none"> Measures for minimum waste generation will be undertaken, i.e., training to personnel regarding waste management practices to raise awareness of waste reduction and management in accordance with waste management hierarchy (prevent, reduce, reuse, recycle, recover, dispose). Wastes will be separated from each other based on their waste categories (recyclable, hazardous, inert, non-hazardous, etc.). The temporary storage of wastes will be conducted without harming the environment. Wastes will be transferred to licensed recycle/disposal facilities. Incineration or burying of waste by any means and/or dumping to nearby water resources will not be allowed. Çilimli Municipality will collect the municipal solid waste and the collected municipal solid waste will be disposed to the closest licensed sanitary landfill, which is Düzce Sanitary Landfill. Waste generation, storage, and disposal records will be kept. “Waste Management Regulation” and WBG General EHS Guidelines Environmental (Waste Management) Criteria will be complied with. Waste Management Plan will be implemented. 	To be covered within the project budget	Contractor
	Domestic waste	Direct and indirect	Low	<ul style="list-style-type: none"> Domestic wastes will be collected separately according to their categories (organic, glass, plastic, paper, metal, etc.) in sealed closed containers that will not disturb the environment in terms of appearance and odor. Çilimli Municipality will regularly collect them. 	To be covered within the project budget	Contractor



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CLOSURE PHASE (Land Rehabilitation Activities)						
Issue	Potential Impact	Type of Impact (Direct and/or Indirect)	Impact Significance (Low, Medium, High, Extremely High)	Mitigation Measures	Cost	Responsible Party
				<ul style="list-style-type: none"> In the disposal of domestic solid wastes, all personnel will be trained on applicable waste management practices (no littering of surface waters, lakes, and streams, similar receiving environments, streets, roads, open areas). The provisions of the Waste Management Regulation will have complied with for the management of domestic solid wastes. 		
	Excavation waste and topsoil	Direct	High	<ul style="list-style-type: none"> When the drilling work is completed, the project area will be restored with the excavation soil. Reuse will be made for most of the excavated materials in the backfilling of the excavation site. The remaining part will be transported to an area designated by the Metropolitan Municipality inconsistent with the national “Regulation on Control of Excavated Soil, Construction and Demolition Waste” and WBG General EHS Guidelines (Construction and Decommissioning). The topsoil at the SK-1 location stripped before the excavation/drilling works will be used to rehabilitate the land. The drilling mud, which will be formed during drilling and accumulated in the mud pit, will be dried tested for waste characterization and subsequently disposed of based on the results of the testing (inert, non-hazardous, or hazardous) in line with waste management regulations. The disposal method will be based on the characteristics of the mud (inert, non-hazardous, or hazardous) and be sent to a licensed disposal facility accordingly. During the works, the water in the stream beds will not be blocked in any way. Excavation materials will not be thrown away. “Waste Management Plan” and “Topsoil Management Plan” will be implemented. 	To be covered within the project budget	Contractor
	Drilling mud	Direct	High	<ul style="list-style-type: none"> Drilling mud collected in the mud pit will be analyzed in a licensed laboratory to identify the waste type and code required in Article 12 of Waste Management Regulation. Waste threshold concentrations are given in Annex 3 of the relevant regulation. Identified waste will be appropriately treated as required in Article 9 - Item 1 - Sub-clause g of Waste Management Regulation. In this respect, it will be transported to licensed treatment and disposal facilities with appropriately 	To be covered within the project budget	Contractor



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CLOSURE PHASE (Land Rehabilitation Activities)						
Issue	Potential Impact	Type of Impact (Direct and/or Indirect)	Impact Significance (Low, Medium, High, Extremely High)	Mitigation Measures	Cost	Responsible Party
				licensed waste transport tankers. Waste delivery and subsequent disposal records will be provided. Disposal and recycling methods are given in Annex 2 of the relevant regulation.		
	Packaging waste	Direct and indirect	Low	<ul style="list-style-type: none"> Packaging waste will be collected and stored separately in separate containers, marked for each type of waste, placed in the activity area (glass, metal, plastic, paper/cardboard, and wood). Packaging waste will be delivered to the licensed recycling or the collection system of Çilimli Municipality. Regulation on the Control of Packaging Waste will be complied. 	To be covered within the project budget	Contractor
	Waste oil	Direct and indirect	Low	<ul style="list-style-type: none"> In the case of waste oil generation at the site, the requirements of Regulation on the Management of Waste Oils will be adhered to. Waste oils will be collected in closed containers with impermeable lids, marked with appropriate color and waste codes in special areas (oil proof concrete floors of at least 25 cm thickness, covered with geomembrane or epoxy coating). Maintenance and oil change of equipment and machines will be made on a leak-proof surface in a specified part of the operating area, in a rain-proof building. In the field of operation, waste oil spills will be immediately removed from surfaces with absorbent spill kits, which in turn will be disposed of as per the provisions of the Regulation on the Management of Waste Oils. Oil changes on site will be avoided as much as possible, and waste oil generation is expected to be a minimum level. Waste oils will be treated as an environmental priority and disposed of as per the Regulation on the Management of Waste Oils. Waste oil analyses will be made as per the Regulation on the Management of Waste Oils. According to the analysis results, licensed disposal firms or licensed recycling facilities dispose of the oil. The oils of different categories will not be mixed, and they will be given to licensed waste oil collectors, treatment plants, or collection points. 	To be covered within the project budget	Contractor



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CLOSURE PHASE (Land Rehabilitation Activities)						
Issue	Potential Impact	Type of Impact (Direct and/or Indirect)	Impact Significance (Low, Medium, High, Extremely High)	Mitigation Measures	Cost	Responsible Party
	Waste battery and accumulators	Direct and indirect	Low	<ul style="list-style-type: none"> The waste batteries to be generated within the scope of the activity will be collected separately from other wastes and delivered to collection points of battery sellers or Çilimli Municipality. Disposal of batteries into the ground and water bodies will be strictly banned. The provisions of the Regulation on Control of Waste Batteries and Accumulators will be complied with. 	To be covered within the project budget	Contractor
	Medical waste	Direct and indirect	Low	<ul style="list-style-type: none"> The medical wastes generated will not be mixed with other wastes in any way. They will be collected in sealed medical bags and delivered to licensed medical waste collection companies to be transported in medical waste transport vehicles. The waste will be disposed of in licensed medical waste disposal / medical waste sterilization facilities. In line with the Regulation on Control of Medical Wastes' specifications, red-colored tear-resistant plastic bags will be used for collecting medical wastes. Personal hygiene material/equipment wastes (such as single-use masks gloves) will be collected, temporarily stored, transported, and delivered to waste processing facilities per Circular 2020/12 of MEUCC on COVID-19 Measures in the Management of Personal Hygiene Equipment Wastes. The provisions of the Regulation on the Control of Medical Wastes will be complied with strictly. 	To be covered within the project budget	Contractor
Water Sources and Wastewater	Domestic wastewater	Direct	Medium	<ul style="list-style-type: none"> Domestic wastewater generated by personnel will be collected in portable WCs, drawn with a vacuum truck belonging to Düzce Province Çilimli Municipality Water and Sewerage Directorate, and to be discharged to the Düzce WWTP. All construction will be aligned with Water Pollution Control Regulation. 	To be covered within the project budget	Contractor
Chemicals and Hazardous Materials Management	Soil, air, and water pollution	Direct and indirect	Medium	<ul style="list-style-type: none"> Chemical materials will be stored, transported, and handled consistently with their SDSs. To prevent potential spills, all hazardous materials will be held in designated areas with secondary containment and handled by authorized staff. Leak-proof containers labelled with information on their composition, properties, and handling information will be used for temporary storage to prevent spillage and leaching. 	To be covered within the project budget	Contractor



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CLOSURE PHASE (Land Rehabilitation Activities)						
Issue	Potential Impact	Type of Impact (Direct and/or Indirect)	Impact Significance (Low, Medium, High, Extremely High)	Mitigation Measures	Cost	Responsible Party
				<ul style="list-style-type: none"> The conditions of the vehicles and other machinery equipment to be used during the works will be regularly reviewed. Employees will be trained on the management of chemicals and hazardous materials. “Chemicals and Hazardous Materials Management Plan” and “Emergency Response Plan” including responses against spillages/leakages will be implemented. The actions to be taken in an emergency and assigned to emergency teams will be defined. Spill kits will be available at the site to be used immediately when needed. Spills/leaks will be promptly contained and cleaned up to minimize their effects and consequences. Appropriate cleaning equipment for spills and accidents will be procured and maintained at the site, and cleaning teams will be assigned to use the equipment. 		
Noise & Vibration	Noise &, vibration generation	Direct	Medium	<ul style="list-style-type: none"> As stated in the PIF, within the project's scope, work will only be carried out during the daytime, and there will be no work in the evening and night-time periods. It is planned to work 8 hours/day. Working hours will be limited between 10:00 am (i.e. the allowed start time for construction activities as per RENC) and 19:00 pm (i.e. the end of the daytime period as per RENC). The residents of nearby settlements will be informed about the time of construction activities. Considering the sensitive receptors such as nearby residential receptors, hospitals and schools, compliance will be ensured with the (daytime) 55 dBA limit value (WBG General EHS Guidelines Environmental Noise) for continuous worksite noise at the vicinity of the project site. The annual examination of the vehicles will be controlled and enforced. All machinery and equipment that will cause noise in the enterprise will be regularly maintained and renewed when their economic life is over. Operation equipment will not be operated simultaneously. It will be ensured that the vehicles will not disturb the environment, and they will not be allowed to install light and sound equipment that will distract attention, apart from those required for legal and security reasons. 	To be covered within the project budget	Contractor



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CLOSURE PHASE (Land Rehabilitation Activities)						
Issue	Potential Impact	Type of Impact (Direct and/or Indirect)	Impact Significance (Low, Medium, High, Extremely High)	Mitigation Measures	Cost	Responsible Party
				<ul style="list-style-type: none"> • Extra attention will be paid not to allow vehicles to exceed the transport speed limits; attention will be paid not to exceed the limits in the load on the axle weights of the vehicles. • Transport activities on the settlement routes will be programmed to reduce noise at certain time intervals (at night or on weekends). • Employees will be trained on noise mitigation measures. Drivers of trucks and vehicles will adhere to defined speed limits and be warned against creating unnecessary noise by using horns during the construction phase. • Unnecessary use of machine equipment causing noise will be prevented. Idling of the vehicles that are not currently in use will be prevented. • In case of a complaint, noise measurements in compliance with RENC and WBG General EHS Guidelines Environmental Noise will be conducted as soon as possible. If measured levels are above legal limits and/or WBG General EHS Guidelines Environmental Noise standards, and/or resulted as an increase in background levels of 3 dB when compared to background noise levels measured during pre-construction phase further measures, i.e., noise barrier installation, will be taken to decrease noise levels. • “Noise & Vibration Management Plan” will be implemented. 		
Air Quality	Dust emissions	Direct	Medium	<ul style="list-style-type: none"> • Compliance will be ensured with the air emission limit values addressed in Industrial Air Pollution Control Regulation and WBG General EHS Guidelines Environmental Air Emissions and Ambient Air Quality. • The loads will be covered with suitable material (tarpaulin, etc.) to minimize dust generation. • Protective covers or curtains will be used for the areas where most of the dust is formed. • Vehicles will not be loaded above capacity. Excess material will be removed, and the worksite will be cleaned after completing works. • If necessary, dust suppression will be done by water spraying during filling, emptying, and transfer works. Unloading will be done carefully. • Speed limitation will be introduced to the vehicles that will move in and around the drilling location. 	To be covered within the project budget	Contractor



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CLOSURE PHASE (Land Rehabilitation Activities)						
Issue	Potential Impact	Type of Impact (Direct and/or Indirect)	Impact Significance (Low, Medium, High, Extremely High)	Mitigation Measures	Cost	Responsible Party
				<ul style="list-style-type: none"> During the transport of materials to the site, the wheels of the vehicles will be washed periodically to prevent dust emissions. The construction equipment and vehicles need to be regularly checked, and the maintenance of relevant equipment will be performed to reduce dust emissions. Employees will be trained on the management of dust emissions. “Air Emissions Management Plan” will be implemented. Dust measurements will be conducted accordingly if any grievance regarding dust generation is received from the nearest receptors. Suppose measured levels are above legal limits and/or WBG General EHS Guidelines and/or significantly above from the baseline measurement results identified during the pre-construction phase. In that case, mitigation measures here will need to be enhanced, i.e., increasing wet suppression/watering activities, applying non-toxic chemicals, and further reducing speed/traffic. 		
	Exhaust gas emissions	Direct	Medium	<ul style="list-style-type: none"> Exhaust emission measurement of the vehicles used (such as trucks) will be done regularly in certain periods. New and well-maintained vehicles will be used to control the gas emissions generated within the activity's scope. Unnecessary use of machinery and equipment causing emissions will be prevented. The provisions of the Regulation on Control of Exhaust Gas Emissions will be complied with regarding the exhaust emissions to occur within the scope of this activity. Employees will be provided training on the management of exhaust gas emissions. 	To be covered within the project budget	Contractor
Biological Environment						
Landscape	Aesthetic and landscape problem (Visual pollution)	Direct	Low	<ul style="list-style-type: none"> Good housekeeping at the construction site will be implemented. Disturbing images will be screened. 	To be covered within the	Contractor



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CLOSURE PHASE (Land Rehabilitation Activities)						
Issue	Potential Impact	Type of Impact (Direct and/or Indirect)	Impact Significance (Low, Medium, High, Extremely High)	Mitigation Measures	Cost	Responsible Party
				<ul style="list-style-type: none"> Wastes are temporarily stored under proper conditions and delivered to licensed companies for recycle or disposal in compliance with national "Waste Management Regulation". European Landscape Convention will be complied. 	project budget	
Flora & Fauna	Habitat loss / Influence of natural life		Low	<ul style="list-style-type: none"> Existing roads will be used. Unnecessary space use will be prevented. If fauna species are encountered in the field of activity, they will not be disturbed and the workers/employees will wait until they depart or will ask the assistance of the environmental expert on site for their safe removal and relocation to a suitable environment. Visual controls will be performed during the activity, and animals will be transported to similar habitats with appropriate methods from these areas by environmental experts. Any fauna species that lives in the close vicinity of the project area will not be intervened. Employees will be trained on the protection of natural life by expert biologists. In all activities carried out within the project's scope, wild fauna species will never be deliberately harmed in line with Land Hunting Law No. 4915, and the Decisions of the Central Hunting Commission held every year, and Articles 6 - 7 of the Bern Convention. 	To be covered within the project budget	Contractor
Socio-Economic Environment						
Community Health & Safety and Security	Incidents due to lack pedestrian and traffic safety	Direct	High	<ul style="list-style-type: none"> Safety measures will be taken for the traffic flow in line with the approved traffic circulation projects, and warning signs will be installed as per "Highway Traffic Law". Perimeter safety of the worksite will be established, and audio and flashing warning signs will be installed to sustain safety and security. Visible warning and informative signs will be placed on the Project site as per "Regulation on Health and Safety Signs". Measures (fences, warning signs, etc.) will be taken to prevent unauthorized access to the construction site to minimize potential adverse impacts on the 	To be covered within the project budget	Contractor



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CLOSURE PHASE (Land Rehabilitation Activities)						
Issue	Potential Impact	Type of Impact (Direct and/or Indirect)	Impact Significance (Low, Medium, High, Extremely High)	Mitigation Measures	Cost	Responsible Party
				<p>community. Fences will be established around the mud pits with appropriate warning signs to protect wildlife and people.</p> <ul style="list-style-type: none"> • Temporary pedestrian walks or walkways will be built for safety in compliance with the requirements for the passage of individuals with physical challenges and other vulnerable/disadvantaged individuals/ groups, such as pregnant, elderly, children. • Measures will be taken to avoid trespassing of animals, such as cats, dogs, etc., from the excavation area. • Driver licenses will be checked. • All heavy goods vehicles will be equipped with audible reversing alarms. • It will be ensured that vehicle maintenance is regularly conducted and manufacturer-approved parts are used against equipment malfunction or premature failure. • Good practices will be implemented to avoid overtiredness, i.e., adopting limits for trip duration and arranging driver rosters. • The drivers and work machine operators will be informed about safe driving, and all employees will be trained on Traffic Management Plan. • Traffic flows will be timed to avoid periods of heavy traffic along main access roads. It will be ensured that the roads to be used will pass through places with no sensitive receivers such as the school and the settlement. • Compliance with speed limit rules will be ensured. • During transport activities, existing roads will not be harmed. In case of any damage to the roads, it will be repaired. • The residents will be informed about the extraordinary works to be executed at least one week in advance. • “Community Health & Safety and Security Management Plan” and “Traffic Management Plan” and “Emergency Response Plan” including traffic-related emergency issues will be implemented. • Keep Grievance Register. 		



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CLOSURE PHASE (Land Rehabilitation Activities)						
Issue	Potential Impact	Type of Impact (Direct and/or Indirect)	Impact Significance (Low, Medium, High, Extremely High)	Mitigation Measures	Cost	Responsible Party
Access to Services	Existing infrastructure	Direct	Medium	<ul style="list-style-type: none"> Any damage to the existing infrastructure (gas, electricity, telecommunication, fuel lines, etc.) will be avoided. “Community Health & Safety and Security Management Plan” will be implemented. 	To be covered within the project budget	Contractor
Cultural Assets	Affecting / destruction of cultural assets	Direct	Low	<ul style="list-style-type: none"> All activities will be put on hold in case of finding historic artifacts and materials that may have a cultural or historical value, and General Directorate of Cultural Assets and Museums will be contacted and an official instruction will be waited. For any findings, the “Chance Finds Procedure” will be implemented, in which communication with the relevant authorities and application of the “Law on the Protection of Cultural and Natural Assets” are addressed. Employees will be trained on the chance find procedure 	To be covered within the project budget	Contractor
Stakeholder Engagement	Socio-economic impacts on stakeholders	Direct	High	<ul style="list-style-type: none"> It will be ensured that an external grievance management system will be in place to enable the community to raise concerns. Consultation meetings with the local communities will be held regarding the project components and activities. The public will be informed regularly about the latest traffic arrangements and project schedule. It will be ensured that vulnerable/disadvantaged individuals/groups will participate fully in the mainstream consultation process. Employees will be trained on good relationships with the local community. “SEP” will be implemented. External GRM within the scope of SEP will be implemented. 	To be covered within the project budget	Çilimli Municipality Contractor
Labor and Working Conditions						
OHS	Effects on work and working conditions	Direct	High	<ul style="list-style-type: none"> All regulations, procedures, and principles published regarding OHS as part of OHS Law will be followed throughout the construction phase. A safe working environment with safe equipment will be provided. 	To be covered within the	Contractor



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CLOSURE PHASE (Land Rehabilitation Activities)						
Issue	Potential Impact	Type of Impact (Direct and/or Indirect)	Impact Significance (Low, Medium, High, Extremely High)	Mitigation Measures	Cost	Responsible Party
				<ul style="list-style-type: none"> • People with appropriate education/training regarding the work area will be recruited. • A full-time Occupational Safety Expert will be employed to be assigned specifically to the Project until completion of the works to ensure continuous control and management of occupational safety issues. ”. Orientation and periodical training will be provided to the personnel on OHS issues as per “Regulation on Procedures and Principles of Health and Safety Training of Employees”. The training program will include project-specific issues, i.e., well blowout/accidents. • Workers will be equipped with all required PPE (helmet, safety belt, safety outfit, goggles, mask, steel cap boots, gloves, etc.) as per “Regulation on Use of Personal Protective Equipment in Workplaces”. • During the operation of the project areas, work will be carried out by the provisions of the "Regulation on the Protection of Employees from Risks Related to Noise". • Permit-to-work system will be developed and implemented also work procedures for which will be followed i.e. confined areas, work at height, etc. • Toolbox talks will be provided to the employees, indicating the possible risks regarding the worksite and works to be carried out. • It will be ensured that the following documentation is implemented by contractor <ul style="list-style-type: none"> – OHS Management Plan and Procedures, – Risk Assessment Reports are prepared for all works to be carried out, and necessary measures will be taken to avoid these risks as per “OHS Risk Assessment Regulation”. – "Emergency Response Plans" are prepared for a possible accident as per “Regulation on Emergencies at Workplaces” and “First Aid Regulation”. The plan will include project-specific emergency issues. Emergency teams will be built, and training/drills will be carried out according to the emergency scenarios. • It will be ensured that the following mitigation measures are in place due to particularly COVID-19 and its variants’ outbreak: 	project budget	



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CLOSURE PHASE (Land Rehabilitation Activities)						
Issue	Potential Impact	Type of Impact (Direct and/or Indirect)	Impact Significance (Low, Medium, High, Extremely High)	Mitigation Measures	Cost	Responsible Party
				<ul style="list-style-type: none"> – Providing surveillance and active screening and treatment of workers, – Conducting training for employees on prevention from COVID-19 and its variants, – Immunizing workers to improve health and guard against infection, – Getting medical clearance is required for return to work for all employees diagnosed with COVID-19 and its variants, – Conducting track and trace investigation following COVID-19 and its variants' control program 		
Labor and Working Conditions	Labor management	Direct	High	<ul style="list-style-type: none"> • All regulations, procedures, and principles published regarding labor and working conditions as part of Labor Law will be followed throughout the construction phase. • Employees will be trained about job descriptions/responsibilities and human resources policy together with the internal GRM. • Workers will be issued a written contract with a job description, information about work hours, wages and their rights and obligations. • It will be ensured that employees work in a fair-treated work environment with no discrimination, and equal opportunities will be offered for all personnel employed. • Child labor will not be employed. • “Human Resources Management Plan and Procedures” including “Internal GRM” will be implemented. • Keep grievance register. • Compliance with the code of conduct rules, including GBV and SEA/SH, which are included in the training to be provided, will be in the contract articles of the personnel. 	To be covered within the project budget	Contractor



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7 Monitoring Plan

Çilimli Municipality will monitor the environmental and social impacts of the project activities regularly against Environmental, Social, and Occupational/Community Health and Safety Key Performance Indicators (KPIs) to be clarified considering relevant national legislation and international standards by the Municipality. Monitoring procedures and subsequent reporting in an appropriate format to be developed in this respect will be defined and conducted by Çilimli Municipality. Moreover, during the implementation of the monitoring plans, the most stringent among the national legislation and WB standards and also the most up-to-date legislation will be complied.

7.1 Monitoring Plan for the Pre-Construction Phase

The monitoring plan for the project's pre-construction phase is presented in Table 7-1 below.

Table 7-1. Monitoring Plan for the Pre-Construction Phase

PRE-CONSTRUCTION PHASE									
Issue	Monitoring Location	Timing / Frequency of Monitoring	Parameters Monitored	Monitoring Method	Target/ threshold values	Legal Requirements for monitoring	KPIs	Cost	Responsible Party
Permitting	Project / Accommodation Area (if provided)	Before commencement of works	Permits issues regarding the project	A permit register	Comply with the Environmental Law and Relevant Regulations	Environmental Law and Relevant Regulations	Completed permitting processes	To be covered within the project budget	Çilimli Municipality Contractor
Physical Environment									
Soil Quality (preliminary assessment)	Project area	Before the commencement of works	Alterations in the land structure and debris collection (erosion)	Preparation of Erosion Control Procedure, training of employees/ workers on the procedure	Comply with the WBG General EHS Guidelines: Construction and Decommissioning by ensuring erosion control	WBG General EHS Guidelines: Construction and Decommissioning	Erosion Control Procedure and training records in place	To be covered within the project budget	Çilimli Municipality Contractor



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PRE-CONSTRUCTION PHASE									
Issue	Monitoring Location	Timing / Frequency of Monitoring	Parameters Monitored	Monitoring Method	Target/ threshold values	Legal Requirements for monitoring	KPIs	Cost	Responsible Party
Waste Management	Project Area	Before the commencement of works	Identification of the management of solid and liquid wastes	Preparation of Waste Management Plan, training of employees and workers on the Plan, agreements with licensed companies for recycling	Comply with the Regulation on Waste Management and WBG General EHS Guidelines: Environmental (Waste Management)	Regulation on Waste Management and WBG General EHS Guidelines: Environmental (Waste Management)	Waste Management Plan and training records in place	To be covered within the project budget	Contractor
Surface Water Quality	At Akdere Creek	Before the commencement of works	Parameters specified in Regulation on Surface Water Quality	Water analysis by an authorized environmental laboratory	Comply with the Regulation on Surface Water Quality	Surface Water Quality Regulation	Surface water quality sampling conducted and analysis results in place	To be covered within the project budget	Contractor
Chemicals and Hazardous Materials Management	Project Area	Before the commencement of works	Identification of the management of chemicals and hazardous materials	Preparation of Chemicals and Hazardous Materials Management Plan, training of employees and workers on the Plan	Comply with the Environmental Law and WBG General EHS Guidelines: Environmental (Hazardous Material Management) by providing appropriate storage, transportation, and disposal	Environmental Law Regulation on Safety Data Sheets Regarding Harmful Substances and Mixtures WBG General EHS Guidelines: Environmental (Hazardous Material Management)	Chemicals and Hazardous Materials Management Plan and training records in place	To be covered within the project budget	Contractor
Air Quality	Project Area	Before the commencement of works	Identification of the management of air emissions	Preparation of Air Emissions Management Plan, training of	Comply with the legal limits addressed in the RAMAQ (Regulation on	RAMAQ and WBG General EHS Guidelines: Environmental	Air Emissions Management Plan and	To be covered within the	Contractor



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PRE-CONSTRUCTION PHASE									
Issue	Monitoring Location	Timing / Frequency of Monitoring	Parameters Monitored	Monitoring Method	Target/ threshold values	Legal Requirements for monitoring	KPIs	Cost	Responsible Party
				employees and workers on the Plan	Assessment and Management of Air Quality) World Health Organization (WHO) Ambient Air Quality Guidelines	(Air Emissions and Ambient Air Quality)	training records in place	project budget	
	At least one sensitive receptor for each drilling point. To be defined in Air Emissions Management Plan via taking Table 3-1. Closest Sensitive Receptors to the Drilling Locations into account	Before the commencement of works	Dust emissions (PM ₁₀)	Air emission measurement (via an authorized environmental laboratory)	N/A	RAMAQ and WBG General EHS Guidelines: Environmental (Air Emissions and Ambient Air Quality)	Air emission measurements conducted and analysis results in place	To be covered within the project budget	Çilimli Municipality Contractor
Noise and Vibration	Project Area	Before the commencement of works	Identification of the management of noise and vibration	Preparation of Noise and Vibration Management Plan, training of employees and workers on the Plan	Comply with the legal limits addressed in the Regulation on Environmental Noise Control WBG General EHS Guidelines – Noise Level Guidelines	Regulation on Environmental Noise Control and WBG General EHS Guidelines: Environmental (Noise and Vibration Management)	Noise and Vibration Plan and training records in place	To be covered within the project budget	Contractor
	At least one sensitive receptor for each drilling	Before the commencement of works	Noise levels	48-hour noise measurements/ handheld device	N/A	RENC and WBG General EHS Guidelines: Environmental	Noise measurements conducted and	To be covered within the	Çilimli Municipality Contractor



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PRE-CONSTRUCTION PHASE									
Issue	Monitoring Location	Timing / Frequency of Monitoring	Parameters Monitored	Monitoring Method	Target/ threshold values	Legal Requirements for monitoring	KPIs	Cost	Responsible Party
	point. To be defined in Noise and Vibration Management Plan via taking Table 3-1. Closest Sensitive Receptors to the Drilling Locations into account			(via an authorized environmental laboratory)		(Noise Management)	analysis results in place	project budget	
Topsoil	Project Area	Before the commencement of works	Identification of the management of topsoil	Preparation of Topsoil Management Plan, training of employees and workers on the Plan	Comply with the WBG General EHS Guidelines: Construction and Decommissioning by protecting topsoil	WBG General EHS Guidelines: Construction and Decommissioning	Topsoil Management Plan and training records in place	To be covered within the project budget	Contractor
Socio-Economic Environment									
Community Health & Safety and Security Community Health & Safety and Security	Project Area	Before the commencement of works	Identification of the management of transportation, pedestrian, and traffic safety	Preparation of Community Health & Safety and Security Management Plan, Traffic Management Plan, training of employees and workers on the plans	Comply with the Highway Traffic Law (No. 2918) and WBG General EHS Guidelines: Community Health and Safety by ensuring traffic safety	Highway Traffic Law (No. 2918) and WBG General EHS Guidelines: Community Health and Safety	Community Health&Safety and Security Management Plan, Traffic Management Plan and training records in place	To be covered within the project budget	Contractor
	Project Area	Before the commencement of works	Identification of the management of stakeholders	Announcements from the various communication platforms, i.e., municipality website and	Comply with the Right to	Right to Information Law. 4982; Regulation on the Principles and	Copies of announcements made, disclosure documents in place, meeting	To be covered within the	Contractor



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PRE-CONSTRUCTION PHASE									
Issue	Monitoring Location	Timing / Frequency of Monitoring	Parameters Monitored	Monitoring Method	Target/ threshold values	Legal Requirements for monitoring	KPIs	Cost	Responsible Party
				neighborhood headman's offices, to the public, Preparation of disclosure documents (posters, brochures, leaflets, vb.), Number of consultation meetings with the local communities and mukhtars, establishing of a grievance management system, Preparation of Stakeholder Engagement Plan including Grievance Redress Mechanism (GRM) and training of employees and workers on the Plan	Information Law. 4982; Regulation on the Principles and Procedures for The Enforcement of the Law on the Right to Information; and Use of the Right to Petition Law. 3071 by conducting effective communication with stakeholders with addressing their concerns	Procedures for The Enforcement of the Law on the Right to Information; and Use of the Right to Petition Law. 3071	minutes, Number and nature of grievances and Percentage of Closed Grievances, SEP and training records in place	project budget	
Cultural Assets	Project Area	Before the commencement of works	Identification of the management of cultural heritage	Training of employees and workers on the Chance Find Procedure	Comply with Law No. 2863 protecting archaeological and cultural heritage	Law No. 2863 on the Protection of Cultural and Natural Assets	Training records in place	To be covered within the project budget	Contractor



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PRE-CONSTRUCTION PHASE									
Issue	Monitoring Location	Timing / Frequency of Monitoring	Parameters Monitored	Monitoring Method	Target/ threshold values	Legal Requirements for monitoring	KPIs	Cost	Responsible Party
					Chance Find Procedure				
Labor and Working Conditions									
Labor management	Project Area	Before the commencement of works	Identification of labor management practices	Preparation of Human Resources Management Plan and Procedures, training of employees and workers on the Procedure.	Comply with Labor Law and regulations	Labor Law and regulations	Human Resources Management Plan and training records in place	To be covered within the project budget	Contractor
Working Conditions	Accommodation Area (if provided)	Before the commencement of works	Addressed in Annex 1 of the Guidance note by IFC and EBRD on Workers Accommodation	Checklist: Annex 1 of the Guidance note by IFC and EBRD on Workers Accommodation	Comply with the Guidance note by IFC and EBRD on Workers Accommodation	A Guidance note by IFC and EBRD on Workers Accommodation	Accommodation conditions complying with Guidance note by IFC and EBRD on Workers Accommodation	To be covered within the project budget	Contractor
OHS	Drilling locations	Before the commencement of works	Identification of OHS requirements	Preparation of an OHS Management Plan, Emergency Response Plan, maintain all required PPEs Check if the BOPE is in working order.	Comply with the OHS Law and related regulations WBG General EHS Guidelines: OHS	OHS Law and regulations WBG General EHS Guidelines: OHS	OHS Management Plan and PPEs in place Proper BOPE Emergency Response Plan in place including project-specific emergency response scenarios, i.e., well blowout	To be covered within the project budget	Contractor



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7.2 Monitoring Plan for the Construction Phase

The monitoring plan for the project's construction phase is presented in Table 7-2.

Table 7-2. Monitoring Plan for the Construction Phase

CONSTRUCTION PHASE (Vegetal Soil Stripping, Excavation Works, Installation of Drilling Rig, and Installation of Mud pits)									
Issue	Monitoring Location	Timing / Frequency of Monitoring	Parameters Monitored	Monitoring Method	Target/ threshold values	Legal Requirements for monitoring	KPIs	Cost	Responsible Party
Physical Environment									
Soil Quality	Areas where topsoil stripped	Continuously	Topsoil storage	Visual inspection	Comply with the WBG General EHS Guidelines: Construction and Decommissioning by protecting topsoil Comply with Topsoil Management Plan and Procedure	WBG General EHS Guidelines: Construction and Decommissioning	Preserved topsoil	To be covered within the project budget	Contractor
	Project area	During heavy rainy weathers	Taken measures during pre-construction, i.e., site-specific erosion control, sediment control, landscaping, and reinstatement	Visual inspection	Comply with the WBG General EHS Guidelines: Construction and Decommissioning by controlling erosion Comply with Erosion Control Procedure	WBG General EHS Guidelines: Construction and Decommissioning	Controlled erosion	To be covered within the project budget	Contractor
	Project area and nearest access roads	During summertime with high temperature	Wind erosion	Visual inspection	Comply with the WBG General EHS Guidelines: Construction and	WBG General EHS Guidelines:	Suppressed dust emission	To be covered within the project budget	Çilimli Municipality Contractor



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CONSTRUCTION PHASE (Vegetal Soil Stripping, Excavation Works, Installation of Drilling Rig, and Installation of Mud pits)									
Issue	Monitoring Location	Timing / Frequency of Monitoring	Parameters Monitored	Monitoring Method	Target/ threshold values	Legal Requirements for monitoring	KPIs	Cost	Responsible Party
					Decommissioning by preventing wind erosion Comply with Erosion Control Procedure	Construction and Decommissioning			
Air quality	Sensitive receptors	In case any grievance	Dust and gas emissions	Air emission measurement (via an authorized environmental laboratory) Visually (based on the irritation in the respiratory system)	Comply with the legal limits addressed in the RAMAQ and WHO Ambient Air Quality Guidelines Comply with Air Emissions Management Plan Do not result a significant increase on background measurement results.	RAMAQ and WBG General EHS Guidelines: Environmental (Air Emissions and Ambient Air Quality)	Air emission levels complied with the national and international limits	To be covered within the project budget	Contractor
	Project area	At the early stage of the operations	Exhaust emissions	Maintenance and inspection documents of vehicles will be checked. The exhaust gas emission measurement documents will be checked.	Comply with the legal limits addressed in the RCIAP Comply with Air Emissions Management Plan	RCIAP and Regulation on Control of Exhaust Gas Emissions	Air emission levels complied with the national limits	To be covered within the project budget	Contractor



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CONSTRUCTION PHASE (Vegetal Soil Stripping, Excavation Works, Installation of Drilling Rig, and Installation of Mud pits)									
Issue	Monitoring Location	Timing / Frequency of Monitoring	Parameters Monitored	Monitoring Method	Target/ threshold values	Legal Requirements for monitoring	KPIs	Cost	Responsible Party
Waste Management and Pollution Prevention	Project area	Continuously	Waste generation	Visual inspection regarding proper collection and temporary storage of wastes and records kept regarding their coordinated recycle / disposal via licensed firms	Comply with the Regulation on Waste Management and WBG General EHS Guidelines: Environmental (Waste Management) Comply with Waste Management Plan	Regulation on Waste Management and WBG General EHS Guidelines: Environmental (Waste Management)	Wastes properly temporarily stored and delivered to recycle/disposal Protected environment, OHS, and community health	To be covered within the project budget	Contractor
	Project area	Each waste delivery operation	Hazardous & non-hazardous waste amounts	Mobile Hazardous Waste Delivery System (MoTAT) records Assumptions for (non-hazardous)	Comply with the Waste Management Regulation by taking remedial actions if generations dramatically increase to minimize the adverse impact on natural resources Comply with Waste Management Plan, Chemicals and Hazardous Materials Management Plan and Emergency Response Plan	Waste Management Regulation	Waste minimization as much as possible	To be covered within the project budget	Contractor



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CONSTRUCTION PHASE (Vegetal Soil Stripping, Excavation Works, Installation of Drilling Rig, and Installation of Mud pits)									
Issue	Monitoring Location	Timing / Frequency of Monitoring	Parameters Monitored	Monitoring Method	Target/ threshold values	Legal Requirements for monitoring	KPIs	Cost	Responsible Party
					including responses against spillages/leakages				
Surface Water Quality	At Akdere Creek	Once a month	Parameters specified in Regulation on Surface Water Quality	Water analysis by an authorized environmental laboratory	Comply with the Regulation on Surface Water Quality	Surface Water Quality Regulation	Water quality parameters complied with the national limits	To be covered within the project budget	Contractor
Noise and Vibration	Sensitive receptors	In case any grievance	Noise & vibration levels	24-hour noise measurements / handheld device (via an authorized environmental laboratory)	Comply with the legal limits addressed in the RENC WBG General EHS Guidelines – Noise Level Guidelines Comply with Noise & Vibration Management Plan Do not result an increase in background levels of 3 dB when compared to background noise levels measured during pre-construction phase	RENC and WBG General EHS Guidelines: Environmental (Noise Management)	Noise emission levels complied with the national and international limits	To be covered within the project budget	Contractor
Management of chemicals and hazardous materials	Below and around the storage or usage locations for the materials.	Daily	Fuel oil, maintenance oil, antifreeze, etc.	Visual inspections	Comply with the Environmental Law and WBG General EHS Guidelines: Environmental	Environmental Law Regulation on SDSs Regarding Harmful	Non-contaminated environment	To be covered within the project budget	Contractor



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CONSTRUCTION PHASE (Vegetal Soil Stripping, Excavation Works, Installation of Drilling Rig, and Installation of Mud pits)									
Issue	Monitoring Location	Timing / Frequency of Monitoring	Parameters Monitored	Monitoring Method	Target/ threshold values	Legal Requirements for monitoring	KPIs	Cost	Responsible Party
	Near the vehicles and around the vehicles				(Hazardous Material Management) by providing appropriate storage, transportation, and disposal Comply with Chemicals and Hazardous Materials Management Plan	Substances and Mixtures WBG General EHS Guidelines: Environmental (Hazardous Material Management)			
Spills/Leakages	Project Area	In the event of an incident	Environmental incidents	Incident accident and near-miss logs, accident types, and if necessary, Lost Time Injury Rates (LTIR)	Comply with the Environmental Law by preventing further incidents Comply with Emergency Response Plan including responses against spillages/leakages	Environmental Law	Zero incident	To be covered within the project budget	Contractor
Enforcement Actions by Regulatory Authorities	Project area	In the event of environmental prosecution – non-regulatory compliance	Environmental prosecutions - regulatory non-compliances	Enforcement records (audit reports, etc.)	Comply with the Environmental Law and regulations	Not Applicable (NA)	Zero environmental prosecution - regulatory noncompliance	Çilimli Municipality, Contractor	Çilimli Municipality Contractor
Biological Environment									
Flora & Fauna	Drilling location and neighborhoods	Prior to drilling, during site setup, during drilling and final closure	Habitats and natural life Flora - fauna	Biodiversity experts must monitor it.	Comply with Land Hunting Law No. 4915, the Decisions of the Central	WB OP 4.04 EU Habitats Directive (92/43/EEC)	Protection of habitats and natural life	To be covered within the project budget	Contractor



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CONSTRUCTION PHASE (Vegetal Soil Stripping, Excavation Works, Installation of Drilling Rig, and Installation of Mud pits)									
Issue	Monitoring Location	Timing / Frequency of Monitoring	Parameters Monitored	Monitoring Method	Target/ threshold values	Legal Requirements for monitoring	KPIs	Cost	Responsible Party
		as a one day monitoring period for each case			Hunting Commission held every year, and Articles 6 - 7 of the Bern Convention.	EU Birds Directive (2009/147/EC) International Union for Conservation of Nature (IUCN) (Red List of Endangered Species) BERN Convention			
Landscape	Drilling location and neighborhoods	Daily	Aesthetic and landscape problem (Visual pollution)	Field observations	Comply with the European Landscape Convention.	European Landscape Convention	Protection of aesthetic values without damage to landscape	To be covered within the project budget	Contractor
Socio-Economic Environment									
Cultural Heritage	Project area and its vicinity	Continuously	Finding historical artefacts and other materials that have historical values	To be monitored during the activities, visually, records kept during the construction period	Comply with Law No. 2863 by protecting archaeological and cultural heritage Comply with the Chance Find Procedure	Law No. 2863 on the Protection of Cultural and Natural Assets	Protection of any material having a historical value which is found Information to General Directorate of Cultural Assets and Museums	No cost	Contractor



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CONSTRUCTION PHASE (Vegetal Soil Stripping, Excavation Works, Installation of Drilling Rig, and Installation of Mud pits)									
Issue	Monitoring Location	Timing / Frequency of Monitoring	Parameters Monitored	Monitoring Method	Target/ threshold values	Legal Requirements for monitoring	KPIs	Cost	Responsible Party
Traffic and Transportation	All drivers/ vehicles and equipment	Records maintained and up to date	Driver and vehicle competency	Checking employment (driver licenses) and vehicle maintenance records, visual control of installed warning signs, checking speed limits	Comply with the Highway Traffic Law (No. 2918) and WBG General EHS Guidelines: Community Health and Safety by ensuring traffic safety	Highway Traffic Law (No. 2918) and WBG General EHS Guidelines: Community Health and Safety	Safe traffic conditions	To be covered within the project budget	Contractor
	Transportation routes	Daily	Increase in traffic load	Control of field and traffic routes	Comply with the Highway Traffic Law (No. 2918) and WBG General EHS Guidelines: Community Health and Safety by ensuring traffic safety Comply with Traffic Management Plan” and Emergency Response Plan including traffic-related emergency issues	Highway Traffic Law (No. 2918) and WBG General EHS Guidelines: Community Health and Safety	Safe transportation conditions	To be covered within the project budget	Contractor
Pedestrian safety	Project area	Daily	Monitoring of safety conditions at the site, fencing of construction	Visual control of the signs	Comply with the Highway Traffic Law (No. 2918) and WBG General EHS Guidelines: Community	Highway Traffic Law (No. 2918) and WBG General EHS Guidelines: Community Health and Safety	Safe pedestrian transportation conditions	To be covered within the project budget	Contractor



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CONSTRUCTION PHASE (Vegetal Soil Stripping, Excavation Works, Installation of Drilling Rig, and Installation of Mud pits)									
Issue	Monitoring Location	Timing / Frequency of Monitoring	Parameters Monitored	Monitoring Method	Target/ threshold values	Legal Requirements for monitoring	KPIs	Cost	Responsible Party
			areas/drilling locations, audio and flash warning signs as necessary		Health and Safety by ensuring traffic safety				
Community Health & Safety and Security	Project area and its vicinity	In the event of a grievance/ suggestion	External grievances	Grievance Redress Mechanism (GRM) (see Section 8.2)	Comply with the Right to Information Law. 4982; Regulation on the Principles and Procedures for The Enforcement of the Law on the Right to Information; and Use of the Right to Petition Law. 3071 by conducting effective communication with nearby communities and other stakeholders with addressing their concerns Comply with Community Health & Safety and Security Management Plan	Right to Information Law. 4982; Regulation on the Principles and Procedures for The Enforcement of the Law on the Right to Information; and Use of the Right to Petition Law. 3071	Number and nature of grievances, response time and Percentage of Closed Grievances	To be covered within the project budget	Çilimli Municipality Contractor



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CONSTRUCTION PHASE (Vegetal Soil Stripping, Excavation Works, Installation of Drilling Rig, and Installation of Mud pits)									
Issue	Monitoring Location	Timing / Frequency of Monitoring	Parameters Monitored	Monitoring Method	Target/ threshold values	Legal Requirements for monitoring	KPIs	Cost	Responsible Party
	A location where an incident occurs due to project activities	In the event of an incident, accident and near miss	Incidents, accidents and near misses	Incident accident and near miss logs, accident types and if necessary LTIR	To prevent further incidents, accidents and near misses Comply with Traffic Management Plan” and Emergency Response Plan including traffic-related emergency issues	NA	Zero incident, accident and near miss	No cost	Contractor Çilimli Municipality
Labor and Working Conditions									
OHS	Project area	In the event of a prosecution / regulatory non-compliance	Health and Safety prosecutions - regulatory noncompliance	Prosecutions, audit reports, etc.	Comply with the OHS Law and regulations Comply with OHS Management Plan and Procedures	OHS Law and regulations	Zero prosecution / regulatory non-compliance	To be covered within the project budget	Contractor
	Project area and places where workers exist related to work	In the event of an incident, accident and near miss	Incidents, accidents and near misses	Incident accident and near-miss logs, accident types, and if necessary LTIR	Comply with the OHS Law by preventing further incidents Comply with OHS Management Plan and Procedures and Emergency Response Plan	OHS Law	Zero incident, accident and near miss	To be covered within the project budget	Contractor



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CONSTRUCTION PHASE (Vegetal Soil Stripping, Excavation Works, Installation of Drilling Rig, and Installation of Mud pits)									
Issue	Monitoring Location	Timing / Frequency of Monitoring	Parameters Monitored	Monitoring Method	Target/ threshold values	Legal Requirements for monitoring	KPIs	Cost	Responsible Party
	Project area	Daily	Site observations	Site check records i.e., periodic health screening records of personnel, risk assessments, PPE delivery forms, training records, site implementations	Comply with the OHS Law and regulations WBG General EHS Guidelines: OHS by taking corrective actions to prevent incidents Comply with OHS Management Plan and Procedures	OHS Law and regulations WBG General EHS Guidelines: OHS	Number and percentage of closed corrective actions	To be covered within the project budget	Contractor
	Project area	In the event of a grievance/suggestion	Internal grievances	GRM (see Section 8.2)	Comply with the Right to Information Law. 4982; Regulation on the Principles and Procedures for The Enforcement of the Law on the Right to Information; and Use of the Right to Petition Law. 3071 by conducting effective communication with employees with addressing their concerns	Right to Information Law. 4982; Regulation on the Principles and Procedures for The Enforcement of the Law on the Right to Information; and Use of the Right to Petition Law. 3071	Number and nature of grievances, response time and Percentage of Closed Grievances	To be covered within the project budget	Contractor



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CONSTRUCTION PHASE (Vegetal Soil Stripping, Excavation Works, Installation of Drilling Rig, and Installation of Mud pits)									
Issue	Monitoring Location	Timing / Frequency of Monitoring	Parameters Monitored	Monitoring Method	Target/ threshold values	Legal Requirements for monitoring	KPIs	Cost	Responsible Party
					Comply with OHS Management Plan and Procedures				
Working Conditions and Worker Management	Project area	In the event of a grievance/ suggestion	Internal grievances	GRM (see Section 8.2)	Comply with the Right to Information Law. 4982; Regulation on the Principles and Procedures for The Enforcement of the Law on the Right to Information; and Use of the Right to Petition Law. 3071 by conducting effective communication with employees with addressing their concerns	Right to Information Law. 4982; Regulation on the Principles and Procedures for The Enforcement of the Law on the Right to Information; and Use of the Right to Petition Law. 3071	Number and nature of grievances , response time and Percentage of Closed Grievances	To be covered within the project budget	Contractor
	Project area	During project activities	Workers' rights	Control of contracts	Comply with Labor Law	All regulations, procedures and principles published regarding labor and working conditions as part of Labor Law	Protection of workers' rights	To be covered within the project budget	Contractor



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CONSTRUCTION PHASE (Vegetal Soil Stripping, Excavation Works, Installation of Drilling Rig, and Installation of Mud pits)									
Issue	Monitoring Location	Timing / Frequency of Monitoring	Parameters Monitored	Monitoring Method	Target/ threshold values	Legal Requirements for monitoring	KPIs	Cost	Responsible Party
	Accommodation Area (if provided)	Continuously	Addressed in Annex 1 of the Guidance note by IFC and EBRD on Workers Accommodation	Checklist (Annex 1 of the Guidance note by IFC and EBRD on Workers Accommodation)	Comply with the Guidance note by IFC and EBRD on Workers Accommodation	A Guidance note by IFC and EBRD on Workers Accommodation	Accommodation conditions complied with Guidance note by IFC and EBRD on Workers Accommodation	To be covered within the project budget	Contractor



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7.3 Monitoring Plan for the Drilling Phase

The monitoring plan for the drilling phase of the project is presented in Table 7-3.

Table 7-3. Monitoring Plan for the Drilling Phase

DRILLING PHASE (Drilling Works, Piping Works, Cementing Works, and Well Completion Tests)									
Issue	Monitoring Location	Timing / Frequency of Monitoring	Parameters Monitored	Monitoring Method	Target/ threshold values	Legal Requirements for monitoring	KPIs	Cost	Responsible Party
Physical Environment									
Soil Quality	Areas where topsoil stripped	Continuously	Topsoil storage	Visual inspection	Comply with the WBG General EHS Guidelines: Construction and Decommissioning by protecting topsoil	WBG General EHS Guidelines: Construction and Decommissioning	Preserved topsoil	To be covered within the project budget	Contractor
	Project area	During heavy rainy weathers	Taken measures during pre-construction, i.e., site-specific erosion control, sediment control, landscaping, and reinstatement	Visual inspection	Comply with the WBG General EHS Guidelines: Construction and Decommissioning by controlling erosion	WBG General EHS Guidelines: Construction and Decommissioning	Controlled erosion	To be covered within the project budget	Contractor
	Project area and nearest access roads to the which	During summertime with high temperature	Wind erosion	Water spraying against dust	Comply with the WBG General EHS Guidelines: Construction and Decommissioning by preventing wind erosion	WBG General EHS Guidelines: Construction and Decommissioning	Suppressed dust emission	To be covered within the project budget	Çilimli Municipality Contractor



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DRILLING PHASE (Drilling Works, Piping Works, Cementing Works, and Well Completion Tests)									
Issue	Monitoring Location	Timing / Frequency of Monitoring	Parameters Monitored	Monitoring Method	Target/ threshold values	Legal Requirements for monitoring	KPIs	Cost	Responsible Party
Air quality	Sensitive receptors	In case any grievance To be monitored visually (based on the irritation in the respiratory system)	Dust and gas emissions	Instant measurement / flowmeter	Comply with the legal limits addressed in the RAMAQ and WHO Ambient Air Quality Guidelines Do not result a significant increase on background measurement results.	RAMAQ and WBG General EHS Guidelines: Environmental (Air Emissions and Ambient Air Quality)	Air emission levels complied with the national and international limits	To be covered within the project budget	Contractor through an authorized company
	Project area	At the early stage of the operations	Exhaust emissions	Maintenance and inspection documents of vehicles will be checked. The exhaust gas emission measurement documents will be checked.	Comply with the legal limits addressed in the RCIAP	RCIAP and Regulation on Control of Exhaust Gas Emissions	Air emission levels complied with the national limits	To be covered within the project budget	Contractor through an authorized company
Waste Management and Pollution Prevention	Project area	Continuously	Waste generation	Proper temporary storage of wastes and their coordinated recycle / disposal via licensed firms	Comply with the Regulation on Waste Management and WBG General EHS Guidelines: Environmental (Waste Management)	Regulation on Waste Management and WBG General EHS Guidelines: Environmental (Waste Management)	Wastes properly temporarily stored and delivered to recycle/disposal Protected environment, OHS and community health	To be covered within the project budget	Contractor



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DRILLING PHASE (Drilling Works, Piping Works, Cementing Works, and Well Completion Tests)									
Issue	Monitoring Location	Timing / Frequency of Monitoring	Parameters Monitored	Monitoring Method	Target/ threshold values	Legal Requirements for monitoring	KPIs	Cost	Responsible Party
	Project area	Each waste delivery operation	Hazardous & non-hazardous waste amounts	Mobile Hazardous Waste Delivery System (MoTAT) records Assumptions for (non-hazardous)	Comply with the Waste Management Regulation by taking remedial actions if generations dramatically increase to minimize the adverse impact on natural resources	Waste Management Regulation	Waste minimization as much as possible	To be covered within the project budget	Contractor
Surface Water Quality	At Akdere Creek	Prior to and during drilling	Parameters specified in Regulation on Surface Water Quality	Water analysis by an authorized environmental laboratory	Comply with the Regulation on Surface Water Quality	Surface Water Quality Regulation	Water quality parameters complied with the national limits	To be covered within the project budget	Contractor
Noise and Vibration	Sensitive receptors	In case any grievance	Noise & vibration levels	24-hour measurements/h andheld device	Comply with the legal limits addressed in the RENC WBG General EHS Guidelines – Noise Level Guidelines Do not result an increase in background levels of 3 dB when compared to background noise levels measured during pre-construction phase	RENC and WBG General EHS Guidelines: Environmental (Noise Management)	Noise emission levels complied with the national and international limits	To be covered within the project budget	Contractor through an authorized company



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DRILLING PHASE (Drilling Works, Piping Works, Cementing Works, and Well Completion Tests)									
Issue	Monitoring Location	Timing / Frequency of Monitoring	Parameters Monitored	Monitoring Method	Target/ threshold values	Legal Requirements for monitoring	KPIs	Cost	Responsible Party
Management of chemicals and hazardous materials	Below and around the storage or usage locations for the materials. Near the vehicles and around the vehicles	Daily	Fuel oil, maintenance oil, antifreeze, etc.	Visual inspections	Comply with the Environmental Law and WBG General EHS Guidelines: Environmental (Hazardous Material Management) by providing appropriate storage, transportation, and disposal	Environmental Law Regulation on Safety Data Sheets Regarding Harmful Substances and Mixtures WBG General EHS Guidelines: Environmental (Hazardous Material Management)	Non-contaminated environment	To be covered within the project budget	Contractor
Spills/Leakage	Project Area	In the event of an incident	Environmental incidents	Incident accident and near-miss logs, accident types, and if necessary, LTIR	Comply with the Environmental Law by preventing further incidents	Environmental Law	Zero incident	To be covered within the project budget	Contractor
Enforcement Actions by Regulatory Authorities	Project area	In the event of environmental prosecution - non regulatory compliance	Environmental prosecutions - regulatory non-compliances	Enforcement records (audit reports, etc.)	Comply with the Environmental Law and regulations	Not Applicable (NA)	Zero environmental prosecution - regulatory noncompliance	Çilimli Municipality, Contractor	Çilimli Municipality Contractor
Biological Environment									
Flora & Fauna	Drilling location and neighborhoods	Prior to drilling, during site setup, during drilling and final closure as a one day monitoring	Habitats and natural life Flora - fauna	Biodiversity experts must monitor it.	Comply with Land Hunting Law No. 4915 together with the Decisions of the Central Hunting Commission held every year and	WB OP 4.04 EU Habitats Directive (92/43/EEC) EU Birds Directive (2009/147/EC)	Protection of habitats and natural life	To be covered within the project budget	Contractor



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DRILLING PHASE (Drilling Works, Piping Works, Cementing Works, and Well Completion Tests)									
Issue	Monitoring Location	Timing / Frequency of Monitoring	Parameters Monitored	Monitoring Method	Target/ threshold values	Legal Requirements for monitoring	KPIs	Cost	Responsible Party
		period for each case			Articles 6 - 7 of the Bern Convention.	IUCN (Red List of Endangered Species) BERN Convention			
Landscape	Drilling location and neighborhoods	Daily	Aesthetic and landscape problem (Visual pollution)	Field observations	Comply with the European Landscape Convention.	European Landscape Convention	Protection of aesthetic values without damage on landscape	To be covered within the project budget	Contractor
Socio-Economic Environment									
Cultural Heritage	Project area and its vicinity	Continuously	Finding historical artefacts and other materials that have historical values	To be monitored during the activities, visually, records kept during the construction period	Comply with the Law No. 2863 on the by protecting archaeological and cultural heritage Comply with the Chance Find Procedure	Law No. 2863 on the Protection of Cultural and Natural Assets	Protection of any material having a historical value which is found Information to General Directorate of Cultural Assets and Museums	No cost	Contractor
Traffic and Transportation	All drivers/ vehicles and equipment	Records maintained and up to date	Driver and vehicle competency	Checking employment (driver licenses) and vehicle maintenance records, visual control of installed warning signs, checking speed limits	Comply with the Highway Traffic Law (No. 2918) and WBG General EHS Guidelines: Community Health and Safety by ensuring traffic safety	Highway Traffic Law (No. 2918) and WBG General EHS Guidelines: Community Health and Safety	Safe traffic conditions	To be covered within the project budget	Contractor



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DRILLING PHASE (Drilling Works, Piping Works, Cementing Works, and Well Completion Tests)									
Issue	Monitoring Location	Timing / Frequency of Monitoring	Parameters Monitored	Monitoring Method	Target/ threshold values	Legal Requirements for monitoring	KPIs	Cost	Responsible Party
	Transportation routes	Daily	Increase in traffic load	Control of field and traffic routes	Comply with the Highway Traffic Law (No. 2918) and WBG General EHS Guidelines: Community Health and Safety by ensuring traffic safety	Highway Traffic Law (No. 2918) and WBG General EHS Guidelines: Community Health and Safety	Safe transportation conditions	To be covered within the project budget	Contractor
Pedestrian safety	Project area	Daily	Monitoring of safety conditions at the site, fencing of construction areas/drilling locations, audio and flash warning signs as necessary	Visual control of the signs	Comply with the Highway Traffic Law (No. 2918) and WBG General EHS Guidelines: Community Health and Safety by ensuring traffic safety	Highway Traffic Law (No. 2918) and WBG General EHS Guidelines: Community Health and Safety	Safe pedestrian transportation conditions	To be covered within the project budget	Contractor
Community Health & Safety and Security	Project area and its vicinity	In the event of a grievance/ suggestion	External grievances	GRM (see Section 8.2)	Comply with the Right to Information Law. 4982; Regulation on the Principles and Procedures for The Enforcement of the Law on the Right to Information; and Use of the Right to Petition Law. 3071 by conducting effective communication	Right to Information Law. 4982; Regulation on the Principles and Procedures for The Enforcement of the Law on the Right to Information; and Use of the Right to Petition Law. 3071	Number and nature of grievances, response time and Percentage of Closed Grievances	To be covered within the project budget	Contractor Çilimli Municipality



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DRILLING PHASE (Drilling Works, Piping Works, Cementing Works, and Well Completion Tests)									
Issue	Monitoring Location	Timing / Frequency of Monitoring	Parameters Monitored	Monitoring Method	Target/ threshold values	Legal Requirements for monitoring	KPIs	Cost	Responsible Party
					with nearby communities and other stakeholders with addressing their concerns				
	A location where an incident occurs due to project activities	In the event of an incident, accident and near miss	Incidents, accidents and near misses	Incident accident and near miss logs, accident types and if necessary LTIR	To prevent further incidents, accidents and near misses	NA	Zero incident, accident and near miss	No cost	Contractor Çilimli Municipality
Labor and Working Conditions									
OHS	Project area	Continuously	Health and Safety prosecutions – non-regulatory compliance	Prosecutions, audit reports, etc.	Comply with the OHS Law and regulations	OHS Law and regulations	Zero prosecution / regulatory non-compliance	To be covered within the project budget	Contractor
	Project area	Hourly	H ₂ S and CO ₂ gases	Control of maintenance and detectors Checking and recording the concentration of gases	Comply with the OHS Law and regulations	OHS Law and regulations	Acceptable measured gas concentrations in terms of human health	To be covered within the project budget	Contractor
	Project area and places where workers exist related to work	In the event of an incident, accident and near miss	Incidents, accidents and near misses	Incident accident and near-miss logs, accident types and if necessary LTIR	Comply with the OHS Law by preventing further incidents	OHS Law	Zero incident, accident and near miss	To be covered within the project budget	Contractor



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DRILLING PHASE (Drilling Works, Piping Works, Cementing Works, and Well Completion Tests)									
Issue	Monitoring Location	Timing / Frequency of Monitoring	Parameters Monitored	Monitoring Method	Target/ threshold values	Legal Requirements for monitoring	KPIs	Cost	Responsible Party
	Project area	Daily	Site observations	Site check records i.e., periodic health screening records of personnel, risk assessments, PPE delivery forms, training records	Comply with the OHS Law and regulations WBG General EHS Guidelines: OHS by taking corrective actions to prevent incidents	OHS Law and regulations WBG General EHS Guidelines: OHS	Number and percentage of closed corrective actions	To be covered within the project budget	Contractor
	Project area	In the event of a grievance/ suggestion	Internal grievances	GRM (see Section 8.2)	Comply with the Right to Information Law. 4982; Regulation on the Principles and Procedures for The Enforcement of the Law on the Right to Information; and Use of the Right to Petition Law. 3071 by conducting effective communication with employees with addressing their concerns	Right to Information Law. 4982; Regulation on the Principles and Procedures for The Enforcement of the Law on the Right to Information; and Use of the Right to Petition Law. 3071	Number and nature of grievances, response time and Percentage of Closed Grievances	To be covered within the project budget	Contractor
Working Conditions and Worker Management	Project area	In the event of a grievance/ suggestion	Internal grievances	GRM (see Section 8.2)	Comply with the Right to	Right to Information Law. 4982; Regulation on the Principles and	Number and nature of grievances, response time and Percentage	To be covered within the project budget	Contractor



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DRILLING PHASE (Drilling Works, Piping Works, Cementing Works, and Well Completion Tests)									
Issue	Monitoring Location	Timing / Frequency of Monitoring	Parameters Monitored	Monitoring Method	Target/ threshold values	Legal Requirements for monitoring	KPIs	Cost	Responsible Party
					Information Law. 4982; Regulation on the Principles and Procedures for The Enforcement of the Law on the Right to Information; and Use of the Right to Petition Law. 3071 by conducting effective communication with employees with addressing their concerns	Procedures for The Enforcement of the Law on the Right to Information; and Use of the Right to Petition Law. 3071	of Closed Grievances		
	Project area	During project activities	Workers' rights	Control of contracts	Comply with Labor Law	All regulations, procedures, and principles published regarding labor and working conditions as part of Labor Law	Protection of workers' rights	To be covered within the project budget	Contractor
	Accommodation Area	Continuously	Addressed in Annex 1 of the Guidance note by IFC and EBRD on Workers Accommodation	Checklist: Annex 1 of the Guidance note by IFC and EBRD on Workers Accommodation	Comply with the Guidance note by IFC and EBRD on Workers Accommodation	A Guidance note by IFC and EBRD on Workers Accommodation	Accommodation conditions complied with Guidance note by IFC and EBRD on Workers Accommodation	To be covered within the project budget	Contractor



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7.4 Monitoring Plan for the Closure Phase

The monitoring plan for the closure phase of the Project is presented in the Table 7-4 below.

Table 7-4. Monitoring Plan for the Closure Phase

CLOSURE PHASE (Land Rehabilitation Activities)									
Issue	Monitoring Location	Timing / Frequency of Monitoring	Parameters Monitored	Monitoring Method	Target/ threshold values	Legal Requirements for monitoring	KPIs	Cost	Responsible Party
Physical Environment									
Soil Quality	Project area	During heavy rainy weathers	Taken measures during pre-construction, i.e., site-specific erosion control, sediment control, landscaping, and reinstatement	Visual inspection	Comply with the WBG General EHS Guidelines: Construction and Decommissioning by controlling erosion	WBG General EHS Guidelines: Construction and Decommissioning	Controlled erosion	To be covered within the project budget	Contractor
	Project area and nearest access roads to the which	During summertime with high temperature	Wind erosion	Water spraying against dust	Comply with the WBG General EHS Guidelines: Construction and Decommissioning by preventing wind erosion	WBG General EHS Guidelines: Construction and Decommissioning	Suppressed dust emission	To be covered within the project budget	Çilimli Municipality Contractor
	Relayed areas with the stored topsoil and/or revegetated areas	During revegetation and /or topsoil relaying activities	Relayed topsoil and/or revegetation	Visual inspection	Comply with the WBG General EHS Guidelines: Construction and Decommissioning by preventing soil erosion and landscape	WBG General EHS Guidelines: Construction and Decommissioning	Controlled soil erosion Protected landscape	To be covered within the project budget	Contractor



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CLOSURE PHASE (Land Rehabilitation Activities)									
Issue	Monitoring Location	Timing / Frequency of Monitoring	Parameters Monitored	Monitoring Method	Target/ threshold values	Legal Requirements for monitoring	KPIs	Cost	Responsible Party
Air quality	Sensitive receptors	In case any grievance To be monitored visually (based on the irritation in the respiratory system)	Dust and gas emissions	Instant measurement / flowmeter	Comply with the legal limits addressed in the RAMAQ and WHO Ambient Air Quality Guidelines Do not result a significant increase on background measurement results.	RAMAQ and WBG General EHS Guidelines: Environmental (Air Emissions and Ambient Air Quality)	Air emission levels complied with the national and international limits	To be covered within the project budget	Contractor through an authorized company
Waste Management and Pollution Prevention	Project area	Continuously	Waste generation	Proper temporary storage of wastes and their coordinated recycle / disposal via licensed firms	Comply with the Regulation on Waste Management and WBG General EHS Guidelines: Environmental (Waste Management)	Regulation on Waste Management and WBG General EHS Guidelines: Environmental (Waste Management)	Wastes properly temporarily stored and delivered to recycle/disposal Protected environment, OHS, and community health	To be covered within the project budget	Contractor
	Project area	Each waste delivery operation	Hazardous & non-hazardous waste amounts	MoTAT records Assumptions for (non-hazardous)	Comply with the Waste Management Regulation by taking remedial actions if generations dramatically increase to minimize the adverse impact on natural resources	Waste Management Regulation	Waste minimization as much as possible	To be covered within the project budget	Contractor
Noise and Vibration	Sensitive receptors	In case any grievance	Noise & vibration levels	24-hour measurements/handheld device	Comply with the legal limits addressed in the RENC	RENC and WBG General EHS Guidelines: Environmental	Noise emission levels complied with the national and	To be covered within the project budget	Contractor through an authorized company



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CLOSURE PHASE (Land Rehabilitation Activities)									
Issue	Monitoring Location	Timing / Frequency of Monitoring	Parameters Monitored	Monitoring Method	Target/ threshold values	Legal Requirements for monitoring	KPIs	Cost	Responsible Party
					WBG General EHS Guidelines – Noise Level Guidelines Do not result an increase in background levels of 3 dB when compared to background noise levels measured during pre-construction phase	(Noise Management)	international limits		
Management of chemicals and hazardous materials	Below and around the storage or usage locations for the materials. Near the vehicles and around the vehicles	Daily	Fuel oil, maintenance oil, antifreeze, etc.	Visual inspections	Comply with the Environmental Law and WBG General EHS Guidelines: Environmental (Hazardous Material Management) by providing appropriate storage, transportation, and disposal	Environmental Law Regulation on Safety Data Sheets Regarding Harmful Substances and Mixtures WBG General EHS Guidelines: Environmental (Hazardous Material Management)	Non-contaminated environment	To be covered within the project budget	Contractor
Spills/Leakages	Project Area	In the event of an incident	Environmental incidents	Incident accident and near-miss logs, accident types, and if necessary LTIR	Comply with the Environmental Law by preventing further incidents	Environmental Law	Zero incident	To be covered within the project budget	Contractor
Enforcement Actions by Regulatory Authorities	Project Area	In the event of environmental prosecution – non-regulatory compliance	Environmental prosecutions - regulatory non-compliances	Enforcement records (audit reports, etc.)	Comply with the Environmental Law and regulations	NA	Zero environmental prosecution - regulatory noncompliance	To be covered within the project budget	Çilimli Municipality Contractor



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CLOSURE PHASE (Land Rehabilitation Activities)									
Issue	Monitoring Location	Timing / Frequency of Monitoring	Parameters Monitored	Monitoring Method	Target/ threshold values	Legal Requirements for monitoring	KPIs	Cost	Responsible Party
Biological Environment									
Landscape	Drilling location and neighborhoods	Daily & before the site is closed at the end of work	Aesthetic and landscape problem (Visual pollution)	Field observations	Comply with the European Landscape Convention.	European Landscape Convention	Protection of aesthetic values without damage to the landscape	To be covered within the project budget	Contractor
Socio-Economic Environment									
Cultural Heritage	Project area and its vicinity	Continuously	Finding historical artefacts and other materials that have historical values	To be monitored during the activities, visually, records kept during the construction period	Comply with Law No. 2863 by protecting archaeological and cultural heritage Comply with the Chance Find Procedure	Law No. 2863 on the Protection of Cultural and Natural Assets	Protection of any material having a historical value which is found Information to General Directorate of Cultural Assets and Museums	No cost	Contractor
Traffic and Transportation	All drivers/ vehicles and equipment	Records maintained and up to date	Driver and vehicle competency	Checking employment (driver licenses) and vehicle maintenance records, visual control of installed warning signs, checking speed limits	Comply with the Highway Traffic Law (No. 2918) and WBG General EHS Guidelines: Community Health and Safety by ensuring traffic safety	Highway Traffic Law (No. 2918) and WBG General EHS Guidelines: Community Health and Safety	Safe traffic conditions	To be covered within the project budget	Contractor
	Transportation routes	Daily	Increase in traffic load	Control of field and traffic routes	Comply with the Highway Traffic Law (No. 2918) and WBG General EHS Guidelines: Community Health	Highway Traffic Law (No. 2918) and WBG General EHS Guidelines: Community Health and Safety	Safe transportation conditions	To be covered within the project budget	Contractor



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CLOSURE PHASE (Land Rehabilitation Activities)									
Issue	Monitoring Location	Timing / Frequency of Monitoring	Parameters Monitored	Monitoring Method	Target/ threshold values	Legal Requirements for monitoring	KPIs	Cost	Responsible Party
					and Safety by ensuring traffic safety				
Community Health & Safety and Security	Project area and its vicinity	In the event of a grievance/suggestion	External grievances	GRM (see Section 8.2)	Comply with the Right to Information Law. 4982; Regulation on the Principles and Procedures for The Enforcement of the Law on the Right to Information; and Use of the Right to Petition Law. 3071 by conducting effective communication with nearby communities and other stakeholders with addressing their concerns	Right to Information Law. 4982; Regulation on the Principles and Procedures for The Enforcement of the Law on the Right to Information; and Use of the Right to Petition Law. 3071	Number and nature of grievances, response time and Percentage of Closed Grievances	To be covered within the project budget	Çilimli Municipality, Contractor
	A location where an incident occurs due to project activities	In the event of an incident, accident and near miss	Incidents, accidents and near misses	Incident accident and near miss logs, accident types and if necessary LTIR	To prevent further incidents	NA	Zero incident, accident and near miss	No cost	Contractor, Çilimli Municipality
Labor and Working Conditions									
OHS	Project area	Continuously	Health and Safety prosecutions - non-regulatory compliance	Prosecutions, audit reports, etc.	Comply with the OHS Law and regulations	OHS Law and regulations	Zero prosecution / regulatory non-compliance	To be covered within the project budget	Contractor
	Project area and places where workers	In the event of an incident,	Incidents, accidents and near misses	Incident accident and near-miss logs, accident	Comply with the OHS Law by	OHS Law	Zero incident, accident and near miss	To be covered within the	Contractor



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CLOSURE PHASE (Land Rehabilitation Activities)									
Issue	Monitoring Location	Timing / Frequency of Monitoring	Parameters Monitored	Monitoring Method	Target/ threshold values	Legal Requirements for monitoring	KPIs	Cost	Responsible Party
	exist related to work	accident and near miss		types, and if necessary LTIR	preventing further incidents			project budget	
	Project area	Daily	Site observations	Site check records, i.e., periodic health screening records of personnel, risk assessments, PPE delivery forms, training records	Comply with the OHS Law and regulations WBG General EHS Guidelines: OHS by taking corrective actions to prevent incidents	OHS Law and regulations WBG General EHS Guidelines: OHS	Number and percentage of closed corrective actions	To be covered within the project budget	Contractor
	Project area	In the event of a grievance/ suggestion	Internal grievances	GRM (see Section 8.2)	Comply with the Right to Information Law. 4982; Regulation on the Principles and Procedures for The Enforcement of the Law on the Right to Information; and Use of the Right to Petition Law. 3071 by conducting effective communication with employees with addressing their concerns	Right to Information Law. 4982; Regulation on the Principles and Procedures for The Enforcement of the Law on the Right to Information; and Use of the Right to Petition Law. 3071	Number and nature of grievances , response time and Percentage of Closed Grievances	To be covered within the project budget	Contractor
Working Conditions and Worker Management	Project area	In the event of a grievance/ suggestion	Internal grievances	GRM (see Section 8.2)	Comply with the Right to Information Law. 4982; Regulation on the Principles and Procedures for The Enforcement of the	Right to Information Law. 4982; Regulation on the Principles and Procedures for The Enforcement of the Law on the	Number and nature of grievances, response time and Percentage of Closed Grievances	To be covered within the project budget	Contractor



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CLOSURE PHASE (Land Rehabilitation Activities)									
Issue	Monitoring Location	Timing / Frequency of Monitoring	Parameters Monitored	Monitoring Method	Target/ threshold values	Legal Requirements for monitoring	KPIs	Cost	Responsible Party
					Law on the Right to Information; and Use of the Right to Petition Law. 3071 by conducting effective communication with employees with addressing their concerns	Right to Information; and Use of the Right to Petition Law. 3071			
	Project area	During project activities	Workers' rights	Control of contracts	Comply with Labor Law	All regulations, procedures, and principles published regarding labor and working conditions as part of Labor Law	Protection of workers' rights	To be covered within the project budget	Contractor
	Accommodation Area	Continuously	Addressed in Annex 1 of the Guidance note by IFC and EBRD on Workers Accommodation	Checklist: Annex 1 of the Guidance note by IFC and EBRD on Workers Accommodation	Comply with the Guidance note by IFC and EBRD on Workers Accommodation	A Guidance note by IFC and EBRD on Workers Accommodation	Accommodation conditions complied with Guidance note by IFC and EBRD on Workers Accommodation	To be covered within the project budget	Contractor



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8 Institutional Arrangements

The responsible parties of the project, which put forward the project, are the Project Management Unit (PMU) of ILBANK acting as a financial intermediary as Borrower, WB, and EU providing technical and financial support as Lenders, Çilimli Municipality, which is the Project Owner, in other words, the Sub-borrower of the project, Supervision Consultant to assist Çilimli Municipality and the Contractor to be awarded for the project activities. Table 8-1 summarizes roles and responsibilities.

Çilimli Municipality (Main Beneficiary Institution/Sub-borrower/Project Owner) and its General Responsibilities

The general responsibilities of Çilimli Municipality are as follows:

- Provide health and social aid, including public hygiene,
- Enable public works covering the construction of urban roads, bridges, and similar infrastructure defined in the development plan, and land expropriations for the construction work,
- Provide culture and training activities,
- Maintain welfare of people including public health and sanitation installation practices as well as agriculture and economy,

Main duties of Çilimli Municipality Technical Works:

- Responsible for construction and operation of the required infrastructure and upper structure in principle.
- Responsible for getting required permits, including pre-construction, during construction, and post-construction permits.
- Responsible for the construction, operation, and maintenance of buildings, roads, and urban wastewater infrastructure within their service areas.
- Çilimli Municipality (Main Beneficiary Institution/Sub-borrower/Project Owner)

Çilimli Municipality (Main Beneficiary Institution/Sub-borrower/Project Owner)

In addition to the general responsibilities mentioned above, Çilimli Municipality is responsible for managing the environmental and social risks and impacts originating from the project during the project activities. Çilimli Municipality will ensure adequate resources are distributed on an ongoing basis to meet the requirements of ESMP and that the personnel responsible for accomplishing tasks and needs of the system are capable of the cause of training and experience. Based on information provided by Çilimli Municipality, the upper management will undertake necessary works after the tender phase for appointing necessary environmental and social experts/teams.



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During the tender stage for the construction phase, which will be carried out according to the Public Procurement Authority Legislation and will follow the legal requirements of the WB, Çilimli Municipality will include the ESMP in the tendering documents and ensure that the Contractor is aware of and complies with the environmental and social commitments made. Reflecting any revisions made by the Contractor on the relevant project documents, informing ILBANK about the process, and conducting the necessary consultation process about implemented and approved changes are among the duties of Çilimli Municipality.

The Municipality is also responsible for ensuring the organization of the stakeholder consultation meeting to receive the opinions of the possible affected communities, together with the Supervision Consultant. A GRM will be structured and applied.

The other roles and responsibilities of Çilimli Municipality are as follows:

- Disclose the ESMP and SEP documents on the Municipality website and at neighborhood headman's offices before the commencement of construction activities;
- Provide technical and data support during the supervision of Contractors and the preparation of technical and financial feasibility reports regarding projects;
- Supervise works realized by consultants during the project activities in line with the ESMP.
- If ILBANK identifies any problem in the implementation of ESMP, agree on the measures that must be taken for solving the subject issues;
- Check both the technical and administrative progress of contract packages and the implementation of the points provided in ESMP and SEP on site together with Environmental, Social and OHS Experts (at least one Environmental & Social Expert and one OHS Expert);
- Establish, implement, and monitor GRM in coordination with ILBANK;
 - Provide appropriate procedures to effectively solve the problems of the affected people on time and without causing any unjust suffering,
 - Take special measures to provide equal accession of vulnerable/disadvantaged individuals/groups (e.g., senior citizens, disabled, etc.) to grievance resolving mechanisms,
 - Exert all necessary efforts to announce the project's GRM to affected people and settlement(s) and other interested stakeholders through all types of disclosure and consultation meetings throughout the project duration.
- Review of the Environmental and Social Monitoring Reports (ESMRs) to be submitted by contractors monthly, introduce them to ILBANK quarterly after being reviewed, in addition to on-site inspections.



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ILBANK (Borrower)

ILBANK is the related institution of MEUCC. The Bank has two core functions, namely, (i) support infrastructure development at the local level through technical assistance, grants, and loans, (ii) transfer central tax revenues to local authorities.

Municipalities are the stakeholders of ILBANK. ILBANK plans to build and finance water supply, sewage networks, water and wastewater treatment plants, solid waste management systems, geothermal applications, and building constructions needed by municipalities. ILBANK will ensure the execution of the following specifically for this project:

- Auditing the Project Owner's performance regarding compliance with the provisions set out in the ESMP during the project activities;
- Guide public consultation participation and announcement requirements, as well as Çilimli Municipality's project documents in compliance with WB requirements,
- Guide Çilimli Municipality officials and consultants about WB operational policies (documents and procedures) on environmental assessment, physical cultural resources, land acquisition and involuntary resettlement, natural habitats, forests, and international waterways,
- Reviewing and re-submission of the relevant documents for the approval of WB after the necessary revisions are made, if any of the approved project documents require modification, and follow up consultation and publication of the approved documents by Çilimli Municipality on time,
- Monitoring environmental and social issues included in the mitigation plan through the experts assigned by ILBANK. Potential negative environmental and social impacts and risks are planned to be prevented or mitigated during the project activities. Environmental and Social Monitoring System will include but not limited the following:
 - General Environment
 - Air Emissions
 - Noise
 - Waste
 - Grievance
 - Health and Safety
 - Community Health and Safety
- Regularly supervise during the project activities to ensure proper implementation of ESMP. If any problem is identified in the implementation of ESMP, inform Çilimli Municipality accordingly and agree on the measures that must be taken for solving the subject issues,



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- Review Quarterly Environmental and Social Monitoring Reports (ESMRs) prepared and submitted by CM to ILBANK and submission of ESMRs to WB once every six months after reviewing,
- Preparation and submission of Project Progress Reports to WB once every six months,
- Review documents related to the environmental and social assessment of the project, provide comments to consultants and giving official approval to these documents and procedures by the requirements of the WB safeguards policies,
- Document the performance, recommendations, and additional steps to be taken as part of the overall project inspection to be monitored and inspected by Çilimli Municipality to implement ESMP requirements,
- Have an opinion about the thoughts of the relevant groups and local environmental/social experts on the environmental and social aspects of the project actions and, if necessary, meet with them during site visits,
- Facilitate coordination and communication with the WB's monitoring missions on project implementation's environmental and social safety measures.

World Bank

WB will approve the use of the loan obtained from the Bank as part of the relevant work and compliance of the Tenders and Contracts with the WB tender, contract documents, and procedures. The transactions to be made will be checked by the Bank in specific periods. Moreover, WB will audit the Project Owner's compliance with the provisions set out in the ESMP managed by the Project Owner during the project activities via the Project Progress Reports and ESMRs to be submitted by ILBANK every six months. The WB project team will visit project sites to conduct its own monitoring at certain intervals or when necessary. To bring any other problems to WB's attention, they can also present reports whenever necessary at shorter intervals.

E&S Consultant

ACE, who prepared the ESMP and the SEP for the Project, is the E&S Consultant and will provide necessary information to the Project Owner and take part in organizing the ESMP consultation meeting to be held for the stakeholders and finalizing the ESMP and this SEP as per the concerns/opinions of the stakeholders of the Project.

Supervision Consultant

The roles and responsibilities of the Supervision Consultant, to be selected by tender process to be opened by Çilimli Municipality and approved by ILBANK, are as follows:



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- Guide public participation and announcement requirements, as well as the project documents of Çilimli Municipality in compliance with WB requirements;
- If the consultation process coincides with the COVID-19 pandemic period, monitoring and auditing the consultation process to ensure that it is managed with additional measures in line with the government's restrictions valid for the relevant period. According to the "Interim Advice for IFC Clients on Safe Stakeholder Engagement in The Context of COVID-19"⁴ published by the IFC on May 15, 2020. In this respect, stakeholder engagement activities will be carried out through safe and effective channels, considering the relevant national and local regulations as well as the health-related recommendations and guidelines of national and international health authorities due to the COVID-19 outbreak;
- Guide Çilimli Municipality officials about WB operational policies (documents and procedures) on environmental assessment, physical cultural resources, land acquisition and involuntary resettlement, natural habitats, forests, and international waterways;
- Provide necessary information to Çilimli Municipality at the ESMP introduction meeting to be held for the stakeholders and non-governmental organizations as part of the project,
- Monitor GRM and review the complaints to Çilimli Municipality,
- Inspect and monitor the contractor's activities on site on a daily basis. Supervision Consultant will have the authority to ensure all E&S (including OHS) measures are duly taken by the contractor on site and may stop the construction works and/or issue fine to the contractor, etc. in case of non-compliances.
- Prepare quarterly ESMRs based on on-site observations, including non-compliances relevant corrective actions taken and submit those reports to Çilimli Municipality.

To fulfill the roles as mentioned above and responsibilities, the Supervision Consultant will appoint the personnel given below:

The **Contract Manager** will be responsible for inspecting the Contractor to ensure that the recommendations and requirements given in the Project disclosure package specified in SEP of this Project are fulfilled. The Contract Manager will be responsible for continuously supervising and monitoring processes and actions undertaken by the Contractor and identifying the measures to deal with any areas of non-conformity. This includes periodic audits, inspections and/or on-site checks of project areas or worksites and/or records and reports compiled by the Contractor.

4

https://www.ifc.org/wps/wcm/connect/30258731-0e7d-4cb2-863c-a6fb4c6d0d95/Tip+Sheet_Interim+Advice_StakeholderEngagement_COVID19_May2020.pdf?MOD=AJPERE&S&CVID=n9s.b9a



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The **Environmental and Social Expert** will be responsible for supervising the implementation of all environmental and social mitigation measures provided in the Project disclosure package and reporting to the Contract Manager regularly. Besides, the Expert will be responsible for supervising the implementation of ESMP and SEP. The expert is expected to be a graduate of a university or similar institution in relevant disciplines (a master's degree would be an asset) and fluent in English and Turkish (both written and spoken).

The **Occupational Health and Safety Expert** will be responsible for supervising the OHS issues at the site and will have the National General Certificate of Occupational Health and Safety or equivalent. Graduation from a university or a similar institution in the relevant discipline would be an asset.

Contractor

The roles and responsibilities of the Contractor are as follows:

- Practice all the conditions and rules mentioned in the ESMP document, which is a part of the contract document on-site and at the technical office and revise it with Çilimli Municipality if required;
- Provide necessary training to the staff, who will work during the construction phase;
- Manage GRM (assign a GM focal point and set up a recording system) and regularly report the complaints to Çilimli Municipality;
- Regularly monitor the project activities and drafting monthly ESMRs based on-site observation, including non-compliances and submitting those reports to Çilimli Municipality every month;
- Ensure compliance with project standards and obtain relevant permits and licenses;
- Immediately notify Çilimli Municipality immediately of any significant environmental (including OHS) or social events (e.g., fatalities, loss of time incidents, environmental spills, etc.), and Çilimli Municipality will inform ILBANK and WB about the incident in three (3) business days. A report on the root causes of the incident and the corrective actions to be taken will be submitted to ILBANK and WB within 30 days;
- Develop and implement Human Resource Management Procedure including working conditions, fair treatment, non-discrimination, equal opportunity, vulnerable/disadvantaged workers, sexual exploitation and abuse and sexual harassment (SEA/SH), prevention of child labor and forced labor issues under the project's Labor and Employment Policy for the construction phase;
- Ensure other agreements regarding the implementation of the requirements of ESMP and SEP and other environmental and social protection measures are signed;
- Ensure healthy and safe working conditions for all employees.



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To fulfil the roles as mentioned above and responsibilities, the Contractor at least will appoint the personnel given below:

- **A full time Environmental and Social Expert** will be responsible for ensuring and supervising the implementation of all environmental and social mitigation measures provided in the Project disclosure package at site and reporting to the Contractor management regularly. Besides, the Expert will be responsible for supervising the implementation of ESMP and SEP. The expert is expected to be a graduate of a university or similar institution in relevant disciplines (a master's degree would be an asset) and fluent in English and Turkish (both written and spoken).
- **A full time Occupational Health and Safety Expert** will be responsible for supervising the OHS issues at the site and be certified for recognized international safety competency, such as the National General Certificate of Occupational Health and Safety or equivalent. Graduation from a university or a similar institution in the relevant discipline would be an asset.

Table 8-1 summarizes roles and responsibilities of the parties involved in the Project.

Table 8-1. Summary of the Roles and Responsibilities in the Project

Project Party	CONTRACTOR	Çilimli Municipality	ILBANK
Financial Roles	-	Beneficiary	Financial Instrument
Application Process	Construction of request-based applications	Provision of request-based applications	Review and analysis of the applications to be submitted to WB
Preparation Process	Implementation of the laws, regulations, and other related policies brought by WB and ILBANK through CM and required to be complied with	Implementation of the laws, regulations, and other related policies brought by WB through ILBANK and required to be complied with	Establish coordination among the selected municipalities to ensure compliance with all the rules and regulations throughout the project Forming an internal working structure for the investment options
Number of Personnel	Assigning an environmental and social expert and an occupational health and safety expert and also approximately 10 employees during the construction phase	Assigning a social expert and an environmental expert	Determination of the team structure
Roles in the Project	Construction of the Project, Preparing monthly ESMRs and establishing GRM	Preparing ESMP, consultation, and publication of the document, establishing GRM, and announcing it to the stakeholder	Main responsible for the monitoring of ESMP and the GRM
Reporting	Carry out the construction phase in accordance with the tender conditions determined by CM	Put all the project construction works and consultancy services on the tender as part of the previously determined rules	Supervise and monitor all the processes to ensure that all the environmental and social operational policies of WB are properly implemented



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Submission periods for ESMRs, Project Progress Reports and Grievance Register according to each project party is provided in Figure 8-1, while the organigram presenting the roles and responsibilities of the project parties regarding ESMP implementation, monitoring and reporting is given in Figure 8-2.

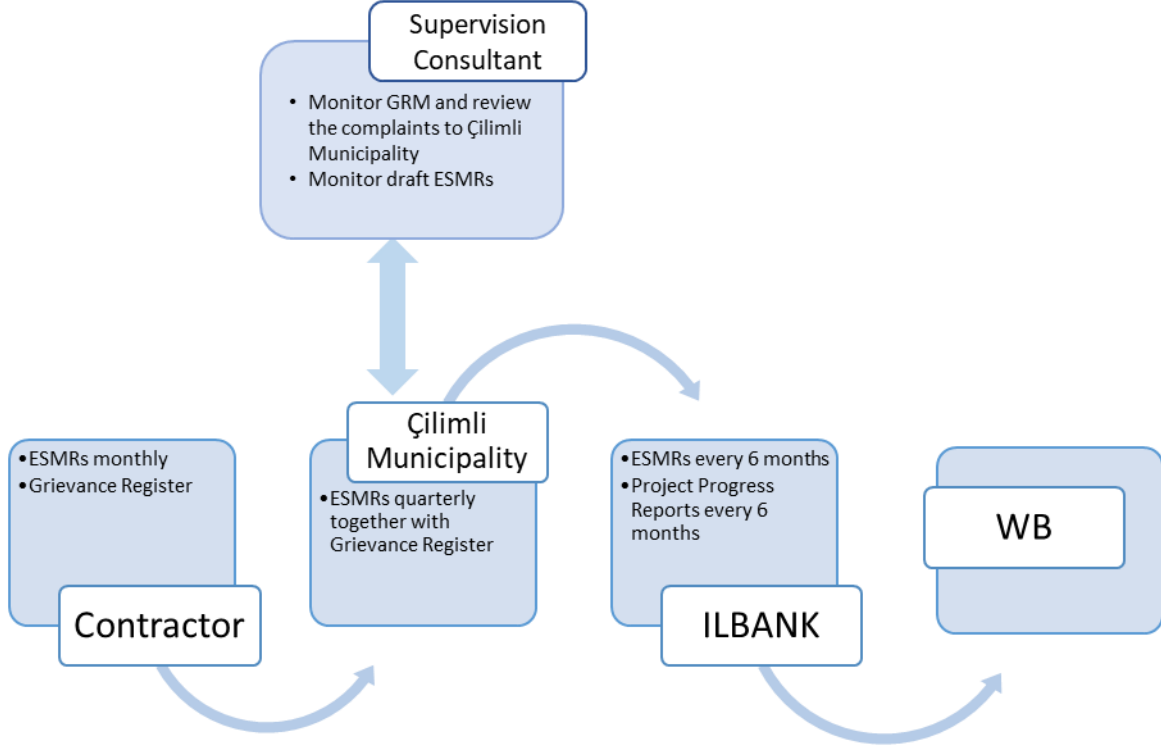


Figure 8-1 . Submission Periods for ESMR, Project Progress Report and Grievance Register during ESMP Implementation



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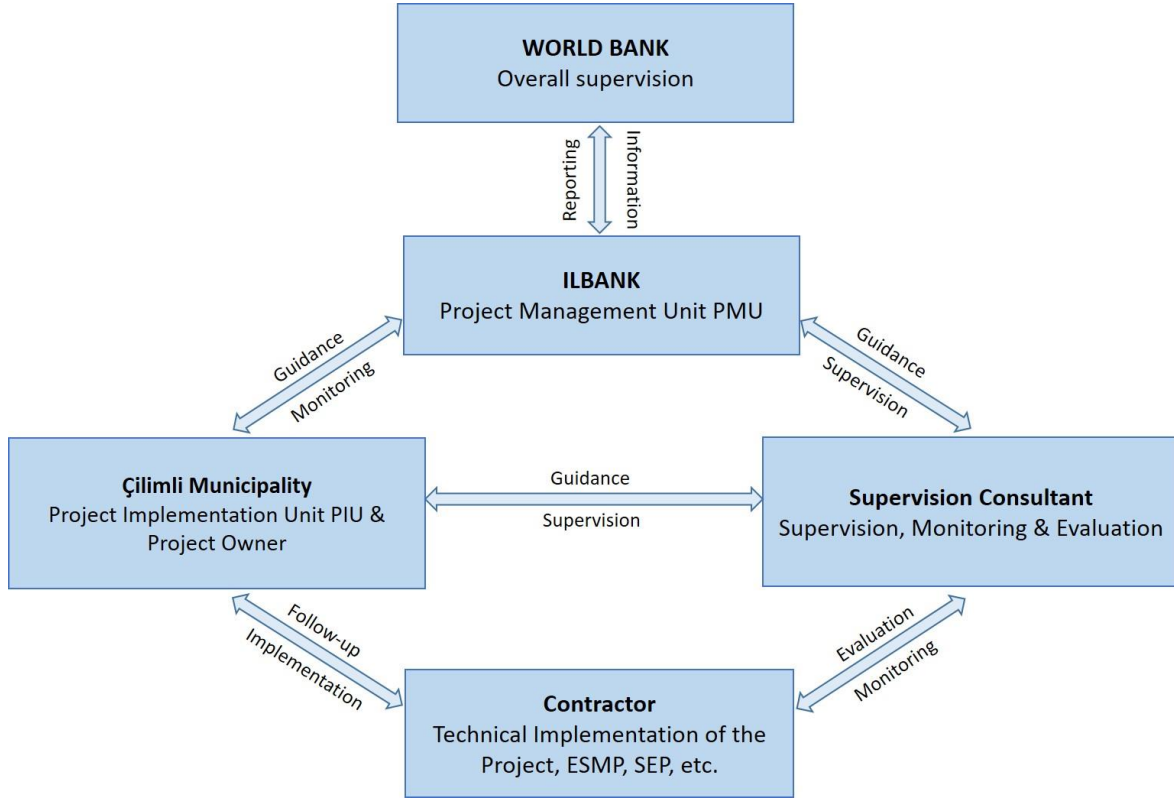


Figure 8-2. Organigram presenting Roles and Responsibilities of Project Parties for ESMP Implementation, Monitoring and Reporting

8.1 Training

The Sub-borrower will implement a training and awareness program covering ESMP expectations and commitments. ACE will organize, together with the Sub-borrower, a workshop for this training by the scope of work in its current contract. As a minimum requirement, this program will be implemented as training for employees and contractors responsible for the implementation of ESMP. The Sub-borrower will provide training to employees and subcontractors before the construction phase. The training will last at least two days and be organized twice a year. Depending on the level of responsibility for implementing ESMP, further training programs may need to be implemented.

Necessary training will be given to the workers before the recruitment process. Compliance with the code of conduct rules, including GBV, SEA/SH, which are included in the training to be provided, will be in the contract articles of the personnel. The contract will clearly state the sanctions for non-compliance with the code of conduct. Code of Conduct will be provided to each worker at the recruitment phase and signed by the worker as part of their work contract.

Measurement and evaluation should be done at the end of the training given to the personnel. This is intended to enhance the personnel's competency. According to the review results, the



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training program can be modified, trainers can be replaced or training can be repeated, if needed, upon determining whether the training is effective.

The training program/modules will address a range of issues, including but not limited to:

- Purpose and content of ESMP regarding the Project activities,
- Requirements in management plans including Traffic Management Plan, Chance Finds Procedure, etc. and monitoring activities to be performed within the scope of this plan,
- Understanding of the sensitive environmental and social receptors within the project area and its vicinity, and
- Awareness-raising about the potential risk and impacts of the project activities,
- GRM developed within the scope of the project for the public
- GRM developed within the scope of the project for project personnel,
- Community health and safety risks and measures,
- OHS, first aid, emergency preparedness and response,
- COVID-19 related measures and protection measures,
- Code of conduct and clothing,
- Communication with the local community,
- Code of conduct training, including GBV, SEA/SH,
- Traffic and road safety principles, and
- Training aiming at the sorting, storage, and environmental planning of waste.

The Sub-borrower will ensure that all personnel responsible for implementing this ESMP are competent in education, training, and experience. All personnel will be provided with environmental and social training appropriate to their scope of activity and level of responsibility.

8.2 Grievance Redress Mechanism (GRM)

The purpose of the GRM is foremost to give access to a problem-solving procedure to stakeholders, including affected communities and project workers. Grievances can indicate growing stakeholder concerns and escalate if not identified and resolved. Identifying and responding to grievances supports the development of positive relationships between Project workers, local communities, and other stakeholders.

The structured GRM will ensure that grievances associated with the Project are addressed through a transparent and impartial process. From the early stages of the project lifecycle, the grievance procedure will continue to be disclosed to the public through individual or group meetings, printed materials, notice boards. Employees will be provided training on internal GRM.

All municipalities adopted a 'White Desk' system to have feedback from citizens. While the White Desk system is not regarded as a GRM, it is recognized as a general grievance system



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adopted by municipalities within their organizations. Currently, the Sub-borrower handles public grievances and views through the White Desk system managed by ilimli Municipality. 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. For this reason, the White Desk system for this Project will be maintained as the primary GRM.

At the meetings with stakeholders, who are people living in the district, NGOs, vulnerable/disadvantaged people and other project beneficiaries, it was identified that the stakeholders know the 'White Desk' system and use this communication channel. In addition, they remarked that they will prefer it as the communication channel for this Project. However, a central system will be established by the Municipality that will be integrated to the White Desk system to effectively monitor the grievances regarding the Project. There will be a common GRM system under this Project for ilimli Municipality, subcontractors, workers/employees.

The Contractor will inform the GRM to the direct and subcontracted employees and stakeholders explaining the channels for internal communication and raising grievances. The workers will be informed of the mechanism and procedures at the time of hire in their local language. As a best practice, options of anonymous grievance redress mechanisms will be established to encourage concerns to be raised freely. A detailed procedure to explain the use of suggestion and grievance boxes to the employees and the Municipality will be developed. There will be a designated person within the Contractor management that will collect the grievances and submit them to the municipality. Internal grievances will be assessed by the Contractor management and remedial actions will be implemented. Remedial measures for the external grievances will be developed and submitted to the municipality for review and then implemented.

In addition to the White Desk channel, an officer from the municipality will be appointed to transfer to the central system all grievances and suggestions that are communicated to the project officials and personally left in grievance boxes, conveyed by stakeholders who want to communicate based on the project documentation, conveyed by the personnel during the project activities, and communicated to subcontractors and inserted in a petition. The said officer will be responsible for recording and following up on each grievance and/or suggestion until resolved. The White Desk officers and the officer appointed by the Municipality will be available for contact constantly and ensure that grievances are recorded and followed up in a central system.

Stakeholders will be able to communicate their grievances and views via the channels presented below:

- ilimli Municipality Website (<https://www.cilimli.bel.tr/iletisim>): The municipality website enables citizens to communicate electronically with public



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relations specialists. Citizens can further communicate their requests In-person to resolve any issues quickly.

- Contact Details of Çilimli Municipality GRM Officer to be assigned (i.e., Name-Last Name, E-mail, and Phone),
- Call Center 153 (Alo 153): The White Desk system is reachable via call center (Alo 153), website, or personal application. Alo 153 call center aims to provide higher quality assistance and faster solutions to citizens with the help of the White Desk solution team. For each opinion/grievance, a tracking number will be assigned, which allows the status of the opinion/grievance to be followed up.
- Contact Number of Contractor GRM Officer to be assigned,
- Çilimli Municipality Address for Petition Service (Ulucami Mah. Pazaryeri Sk. No: 01 Çilimli / DÜZCE),
- Grievance Form and Grievance Close-Out Form (see sample for Annex 7 and Annex 8) provided for grievance and request boxes to be installed in the Municipal building,
- Grievance/notice boxes to be installed by the Contractor at the project site during the project activities.

In cases when stakeholders fail to reach a satisfactory solution through the channels provided above, they will be able to reach ILBANK's communication channels listed below, the Presidency Communication Center (CIMER), the Foreigners Communication Center (YIMER), and the relevant legal institutions.

ILBANK's Communication Channels:

- ILBANK Website (<https://www.ilbank.gov.tr/form/bilgiedinmeuluslararasi>)
- ILBANK Contact number for Complaints, Wishes, Suggestions 0 312 508 7979
- ILBANK E-mail (bilgiuidb@ilbank.gov.tr)
- ILBANK Address for Petition Service (ILBANK International Relations Department, GRM Team - Emniyet Mahallesi Hipodrom Caddesi No:9/21 Yenimahalle/ANKARA)

CIMER:

- CIMER Website (www.cimer.gov.tr)
- CIMER Call Center (150)
- CIMER Phone Number: +90 312 525 55 55 - Fax Number: +90 0312 473 64 94
- Mail addressed to the Republic of Türkiye, Directorate of Communications



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- Individual applications at the community relations desks at governorates, ministries, and district governorates

YIMER has been providing a centralized complaint system for foreigners:

- YIMER Website (www.yimer.gov.tr)
- YIMER Call Center (157)
- YIMER Phone Number: +90 312 5157 11 22 - Fax Number: +90 0312 920 06 09
- Mail addressed to the Republic of Türkiye, Directorate of Communications
- Individual applications at the Republic of Türkiye General Directorate of Migration Management

Applicants, whose complaints could not be resolved through existing GRM or whose complaints contain sensitive issues can always apply to the relevant legal institutions. Relevant Legal Institutions: Relevant Institutions can be summarized as, but are not limited to, follows.

- Civil Courts of First Instance,
- Administrative Court,
- Commercial Courts of First Instance,
- Labor Courts, and
- Ombudsman (<https://ebasvuru.ombudsman.gov.tr/>)

Relevant legal process will be monitored through GRM.

In cases when stakeholders fail to reach a solution for sensitive grievances (SEA/SH and GBV in the workplace or potential child abuse in project areas) by applicable means, they will be able to seek the help of ILBANK in line with ILBANK's sensitive grievances policies.

- ILBANK Website (<https://www.ilbank.gov.tr/form/bilgiedinmeuluslararasi>)
- ILBANK E-mail (etikuidb@ilbank.gov.tr)
- ILBANK Address for Petition Service (ILBANK International Relations Department, GRM Team - Emniyet Mahallesi Hipodrom Caddesi No:9/21 Yenimahalle/ANKARA)

During the project activities, the GRM described above will continue to be driven by stakeholders' views, making this procedure accessible to all affected stakeholders. Requests that require urgent remedy and/or support will be responded to and given support within the same day. All outstanding grievances/requests will be recorded within two (2) business days, reviewed, assessed within ten business days, and concluded no later than 15 business days. Corrective actions will be taken to resolve the grievance.



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The uptake, flow and processing of complaints are represented in Figure 8-3.

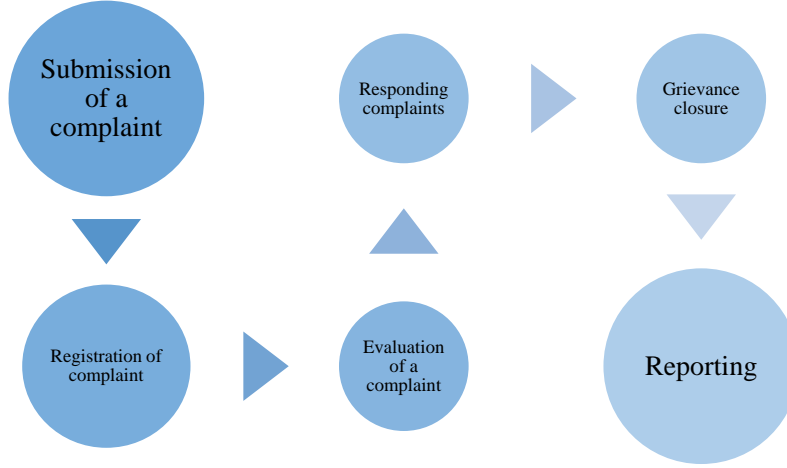


Figure 8-3. Uptake, Flow and Processing of Complaints

GRM flow chart explanation for public and Project personnel is given in Table 8-2 and Table 8-3, respectively.

Table 8-2. Grievance Redress Mechanism Flow Chart for Public

Grievance Redress Process	Requirement/Action
Submission of a complaint	Receiving the grievance by any communication channel explained above. (At this point, if the grievance is a sensitive complaint involving child abuse, SEA/SH, immediate action will be taken within 48 hours after receiving the complaint.)
Registration of complaint	Registering/recording through making an entry in the grievance register table (see Annex 9 for a sample) filling of the Grievance Form (see Annex 7 for a sample). All the complaints will be registered to the Municipality record into a central database within two (2) days, and feedback will be given to the complainant. If the complainant requests that this complaint be treated anonymously, this complaint will be recorded anonymously, and the request will be met.
Evaluation of a complaint	Evaluate the complaints within ten (10) working days and determine whether the complaint meets the admissibility criteria. If the complaint is not valid, provide a relevant explanation to the complainant.
Responding complaints	Grievance will be assessed by the Çilimli Municipality Directorate of Technical Works. The affected community representatives such as from local Civil Society Organization (CSO)/NGOs and/or mukhtars will be consulted depending on the type of grievance. If needed, the grievance will be examined on-site. Response/redress of grievance will be communicated to the petitioner via telephone or email, whichever is preferred. If it cannot be resolved, the complainant will have the right to apply to ILBANK or the Court of First Instance, depending on a grievance.
Grievance closure	Grievances are closed within fifteen (15) business days as of date of application unless an alternative agreement is made with the Complainant and filling of the Grievance Close Out Form (see Annex 8 for a sample). Note that if complaints are not closed



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Grievance Redress Process	Requirement/Action
	<p>within fifteen (15) business days, the extenuating circumstances are documented and reported.</p> <p>It should be noted that the action is taken, and the result of this anonymously recorded grievance should be shared on the Çilimli Municipality website, so that anonymous complainants are informed about their complaint and the results.</p>
If a complaint cannot be resolved	<p>GRM procedure is monitored by ILBANK. This is as follows:</p> <ul style="list-style-type: none"> -Lodging of grievance will be confirmed. -Grievance will be assessed by the municipality and ILBANK will be informed. -Response / redress of grievance will be communicated to petitioner by the municipality. ILBANK will monitor the municipality to run the GRM smoothly. The response time in this level is 30 days. -If cannot be resolved, petitioner will be referred to Court of First Instance.
Reporting	<p>Ensure that all process conducted in compliance with Grievance process by responsible department</p> <p>The grievances will be analyzed at regular intervals to analyze the frequency of different types of complaints, who most frequently lodge complaints, and how complaints have been resolved. Such analysis may for example, reflect that there are far more complaints in relation to specific contractors, or that certain works results in comparatively many complaints, etc.</p> <p>Report the results to management</p>

Table 8-3. Grievance Redress Mechanism Flow Chart for Project Personnel

Grievance Redress Process	Requirement/Action
Submission of a complaint	Receiving the grievance by any communication channel explained above. (At this point, if the grievance is a sensitive complaint involving child abuse, SEA/SH, Contractor Officer will be contacted immediately and immediate action will be taken within 48 hours after receiving the complaint.)
Registration of complaint	<p>Registering/recording through making an entry in the grievance register table filling of the Grievance Form to be developed by the Contractor. All the complaints will be internally registered and subsequently registered to the Municipality record via the Contractor Officer within two (2) days, and feedback will be given to the complainant.</p> <p>If the complainant requests that this complaint be treated anonymously, this complaint will be recorded anonymously, and the request will be met.</p>
Evaluation of a complaint	Evaluate the complaints within ten (10) working days and determine whether the complaint meets the admissibility criteria. If the complaint is not valid, provide a relevant explanation to the complainant.
Responding complaints	<p>Grievance will be assessed by the Contractor and Contractor Officer and as needed Çilimli Municipality Directorate of Technical Works. The affected community representatives such as from local CSO/NGOs and/or mukhtars will be consulted depending on the type of grievance. If needed, the grievance will be examined on-site.</p> <p>Response/redress of grievance will be communicated to the petitioner via telephone or email.</p> <p>If it cannot be resolved, the complainant will have the right to apply to ILBANK depending on a grievance.</p>
Grievance closure	Grievances are closed within fifteen (15) Business Days as of date of application unless an alternative agreement is made with the Complainant. Note that if complaints are not



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Grievance Redress Process	Requirement/Action
	closed within fifteen (15) business days, the extenuating circumstances are documented and reported to the Contractor Officer.
If a complaint cannot be resolved	GRM procedure is monitored by ILBANK. This is as follows: -Lodging of grievance will be confirmed. -Grievance will be assessed by the municipality and ILBANK will be informed. -Response / redress of grievance will be communicated to petitioner by the municipality. ILBANK will monitor the municipality to run the GRM smoothly. The response time in this level is 30 days. -If cannot be resolved, petitioner will be referred to Court of First Instance.
Reporting	Ensure that all process conducted in compliance with Grievance process by Contractor responsible department Contractor Officer The grievances will be analyzed at regular intervals to analyze the frequency of different types of complaints, who most frequently lodge complaints, and how complaints have been resolved. Such analysis may for example, reflect that there are far more complaints in relation to specific contractors, or that certain works results in comparatively many complaints, etc. Report the results to management

The grievances are currently categorized by the White Desk system when the grievance is received. If urgent support is required, White Desk officers offer solutions by immediately contacting the relevant departments. The officer will adopt the same approach to be assigned by the Municipality.

In cases where a long-term program is required for a satisfactory resolution, this will be discussed in detail in the registration file for specific grievances. The complainant will be informed about the new schedule for resolving the grievance.

Both the officers managing the White Desk system and the officer appointed by the Municipality to record grievances in a central system will be trained and become knowledgeable about the guidelines prepared by the WB to prevent sexual exploitation, abuse, and harassment cases for the projects financed under construction works. Grievances of GBV, SEA/SH can result in a culture of silence due to negative reactions from the community. To avoid this, the complainant will be assured confidentiality when raising grievances involving these issues about the project. In addition, the authorities handling the grievances should address such issues confidently and by an unbiased approach.

CM will submit reports on its environmental and social performances in the periods agreed with ILBANK, along with a summary of the grievances and how they are resolved. Besides, Grievance Register will be provided to ILBANK during quarterly monitoring studies. Further details will be given in the SEP.



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9 Stakeholder Engagement

A stakeholder is defined as any individual, organization, or group potentially affected by the Project or who has an interest in the Project and its impacts. The objective of stakeholder identification is to establish which stakeholders may be directly or indirectly affected – either positively or negatively - (“affected parties”) or have an interest in the Project (“other interested parties”).

A SEP has been prepared for this project to identify project stakeholders (including local authorities, communities, workers, etc.) and establish engagement methods for the future of the Project. Efforts must be made to identify disadvantaged and vulnerable stakeholders who may be differentially or disproportionately affected by the Project or who may have difficulty participating in the engagement and development processes. Stakeholder identification is also an ongoing process and will require regular review and update. Further details will be given in the SEP.

This will be under the responsibility of a person from the Public Relations Unit who will be assigned for the implementation of SEP by the Sub-borrower or under the responsibility of a specifically designated person with the qualifications required to perform the task. The SEP responsible will also perform the following tasks:

- Liaise with the Supervision Consultant, the Contract Manager, the sub-borrower and Contractor Environmental and Social Expert and Occupational Health and Safety Expert
- Follow progress of the preconstruction, construction phases
- Conduct regular meetings with project parties as above to discuss outcome of the stakeholder engagement and issues emerging or likely to emerge
- Assess the effectiveness of the engagement process of the above parties and as needed revise the process

The Sub-borrower has ultimate responsibility for the implementation of this SEP. During the project activities, the Sub-borrower will keep the information below up-to-date and accessible by providing information on the development of and practices under the Project. The information will include:

- Key Project phases and schedules (e.g., obtaining permits, starting the project activities, construction schedule, etc.) as discussed in the ESMP
- Any disruption related to the project (e.g., Road closures, access, and infrastructure disruptions) as discussed in the ESMP and reflected in the SEP and GRM
- Important consultations/meetings with potential consequences that may affect the community and local people (see Annex 10 for a sample consultation form) and
- EHS performance (e.g., Information about accidents, monitoring results) in ESMP



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The Consultation Form to be used during the stakeholder engagement process is provided as Annex 10 of this plan.

9.1 Identification of Stakeholders

Before the project begins, it is crucial to determine the positive and negative effects directly or indirectly on people. All the project affected parties and other interested parties that can be for or against the Project are defined as stakeholders. The potential list of stakeholders is given in Table 9-1. Further identification will be conducted within the SEP. Population of affected neighborhoods is provided in Section 4.2.1.

Table 9-1. Key Stakeholders of the Project

Stakeholder Category	Level	Stakeholder Group	Definitive Stakeholders	Specific Interest/Relevance
Directly Affected Stakeholders	Local	Residential Areas/Local Communities/ Potentially Project Affected People/ Affected Land Owners / Users	Neighborhoods; Ulucami, Villages; Kiraztarla, Söğütlü, Residents adjacent and close to the Project area (SK-3 and SK-1 drilling locations)	<ul style="list-style-type: none"> - Overview of E&S impacts - Community engagement for assessing the effectiveness of mitigation measures - Cooperation to maximize benefits and planning for local employment and the supply of goods and services - Ensuring that vulnerable/disadvantaged individuals/groups have access to sufficient information about the Project, ensuring that they benefit equally from the Project
Indirectly Affected Stakeholders	National	Ministries and Relevant Central Authorities		<ul style="list-style-type: none"> - National and regional planning and development - Project-related permitting processes, mitigation measures implementation - Policy formulation - Interaction between parties - Management of cumulative Impacts
Other Interested Parties	Local	NGOs		<ul style="list-style-type: none"> - Engagement with environmental, health and safety (EHS) and social impact/risk mitigations for the Project
		Governmental / Local Authorities and Agencies		<ul style="list-style-type: none"> - Project-related permitting processes - Coordination of project activities and processes - Management of environmental and social impacts/risks (waste, wastewater) and mitigation measures - Policy formulation - Emergency preparedness and coordination - Planning of social responsibility/social development projects - Interaction between parties - Construction and operation activities within their scope of responsibilities - Engagement with EHSS impacts and mitigations



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Stakeholder Category	Level	Stakeholder Group	Definitive Stakeholders	Specific Interest/Relevance
		Business Enterprises	Business enterprises located in the Project area	- Supply of goods and services related to the project
		Universities	Düzce University	- Technical consultancy
		Local Media	Local newspapers, local magazines, local TV channels, etc.	- Project information disclosure to the stakeholders
			Düzce Journalists' Association	
Vulnerable /Disadvantaged Individuals/ Groups	Local	Vulnerable/ Disadvantaged Individuals/ Groups	<ul style="list-style-type: none"> • Households with physically and / or mentally disabled family members, • People with chronic diseases, • Elderly people over 70 years of age who live alone and in need of care, • Female-headed households, • Households where the head of the household is a child, • Households with low or no income, and Refugee households. 	<ul style="list-style-type: none"> - Overview of E&S impacts - Community engagement for assessing the effectiveness of mitigation measures - Cooperation to maximize benefits and planning for local employment and the supply of goods and services - Ensuring that vulnerable/disadvantaged individuals/groups have access to sufficient information about the Project, ensuring that they benefit equally from the Project

Stakeholder consultation meetings aim to inform and consult the stakeholders about the project and the process, share necessary information about the project with the public, receive their concerns, complaints, and views related to the project, take them into account, and communicate effectively with stakeholders.

9.2 Announcements during the Project Activities

The Sub-borrower will notify the headman's office in the AoI two days before any possible temporary road closure during project activities. Similarly, the Sub-borrower will inform the affected local people of the future works in the Municipal building and/or on the notice platforms two (2) days in advance.

Likewise, businesses, schools and/or hospitals potentially affected by project activities will be notified of the works two days in advance. Activities will be driven by the feedback received from stakeholders so that businesses and/or services are not disrupted.



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9.3 Further Stakeholder Engagement Activities

For all Category A and B subprojects proposed for the WB financing, the Borrower consults project-affected groups and local NGOs about the project’s social and environmental aspects and takes their views into account during the EA process. The borrower initiates such consultations as early as possible. For Category B subprojects, at least one consultation with affected groups and other relevant/affected stakeholders is anticipated after the draft ESMP report is completed. This consultation will include, but is not necessarily limited to, the following topics anticipated:

- Objective of the Project,
- Social, environmental, and ecological impacts that are determined to occur upon the Project,
- Impacts and the mitigation or enhancement measures that are being implemented,
- Roles and responsibilities,
- Monitoring and management measures, and
- Information on the GRM for the Project.

Apart from that, the Sub-borrower will be responsible for engagement with stakeholders as an ongoing process throughout the life of the Project. Identifying and responding to grievances supports the development of positive relationships between projects, communities, and other stakeholders. Grievances can indicate growing stakeholder concerns (real and perceived) and can escalate if not identified and resolved.

Internal and external stakeholders will share their opinions and grievances via a range of options such as the Sub-borrower’s website, letters, and face-to-face meetings to implement the SEP.

The GRM will be advertised and announced to affected stakeholders in an easily accessible language and form, to know the process, know they have the right to submit a grievance and understand how the mechanism will work and how their grievance will be addressed. In most cases, a grievance or complaint will be submitted by a stakeholder or resident by phone, in writing, or by speaking with one of the company’s grievances officers. Further information on the Sub-borrower’s GRM is presented in Section 8.2.

The participant lists and/or the forms to be used during stakeholder engagement activities that will include duties, e-mail addresses and contact numbers of the participants will be kept in the records and will be shared in the SEP after the respective lines containing personal data are blurred considering “The Law on The Protection of Personal Data”. Moreover, the screenshots of the newspaper ads, full minutes of the meeting and all materials/documents/forms related with the preliminary stakeholder consultation meeting will be provided as an annex to the SEP.



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9.4 Disclosure of Information and Stakeholder Engagement during the COVID-19 Process

The unprecedented nature of the COVID-19 Pandemic process implies that all elements of Project activities, including stakeholder engagement, may be affected. Given the compulsory restrictions and social distancing measures associated with COVID-19, alternative approaches to stakeholder engagement emerged in the short term.

In efforts to disseminate information, the Sub-borrower will try to communicate reliable and accurate information to all stakeholders by ensuring that the information is in a form and language that is easily understandable and culturally appropriate.

It is recommended to use the following tools to interact with stakeholders during the pandemic period if they are not limited to:

- Brochures
- E-mail
- Notice boards intended for the public
- Phone interviews and messaging
- Sub-borrower's website

Additionally, changes in the operations of the Sub-borrower, which are caused by COVID-19 and which may have an impact on the public, will be reported accordingly. These include, but are not limited to:

- Changes in the project resulting from COVID-19
- Changes in the presentation of social development programs
- Changes in employment, procurement from local businesses, etc.
- Changes in timeframes to solve public grievances
- New or modified public awareness communication campaigns on COVID-19, which are coordinated with relevant authorities and based on the information from recognized sources such as the WHO, “Guidance to COVID-19 Outbreak Management and Working” published by Ministry of Health of Türkiye and “Interim Advice for IFC Clients on Safe Stakeholder Engagement in the Context of COVID-19” published by IFC.

Lastly, the Project will consider the new approaches shown in Table 9-2 to engage during COVID-19 effectively.



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Table 9-2. Alternative Information Disclosure and Stakeholder Engagement Measures during the COVID-19 Restrictions

Stakeholder Groups	Topics	Frequency	Methods and Materials	Lead and Supporting Responsibility
Government / Authorities <ul style="list-style-type: none"> Düzce PDEUCC Düzce Governorate Provincial Directorate of Agriculture and Forestry 55th Regional Directorate of State Hydraulic Works 	<ul style="list-style-type: none"> Updates on project activities and progress Local procurement and employment data Updates on social distancing restrictions and COVID-19 related measures 	When necessary	Teleconference Virtual meetings Written up-to-date information Project Owner's website GRM	Sub-borrower
Municipalities / Neighborhoods <ul style="list-style-type: none"> Düzce Municipality Çilimli Municipality Arabacı Neighborhood Headman Mahırağa Neighborhood Headman Şerifiye Neighborhood Headman Topçular Neighborhood Headman Ulucami Neighborhood Headman Yeşil Neighborhood Headman Yeşiltepe Neighborhood Headman Kiraztarla Village Headman Söğütlü Village Headman People residing in Ulucami Neighborhood, Kiraztarla Village and Söğütlü Village Residents of houses adjacent to the well locations The vulnerable/disadvantaged people in the AoI The owners/users of lands adjacent to the wells NGOs <ul style="list-style-type: none"> Organic Agriculture and Apiculture Development 	<ul style="list-style-type: none"> Required updates on project activities and progress Updates on social distancing restrictions and COVID-19 related measures 	When necessary	Teleconference Virtual meetings Written up-to-date information Project Owner's website GRM	Sub-borrower



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Stakeholder Groups	Topics	Frequency	Methods and Materials	Lead and Supporting Responsibility
Association Around Düzce Province				
Internal Stakeholders <ul style="list-style-type: none"> All employees 	<ul style="list-style-type: none"> Updates on the project progress and planning Changes in project operational procedures and emergency response plans Changes in occupational health and safety and labor conditions and (if any) guidance on access to subsidies Measures to be taken in case of COVID-19 symptoms Locations of centers specific to COVID-19 cases Updates on new labor regulations regarding COVID-19 measures 	When necessary	E-mail / SMS to be sent to all personnel Virtual meetings Teleconference Sub-borrower's websites Written up-to-date information	Sub-borrower, Contractor and Sub-contractor(s)

9.5 Consultation Meetings with the Municipality and Site Visits during Preparation of the ESMP

The project site was visited on 2nd November 2021 by ACE experts (Project Coordinator and Environmental Engineer). A meeting was conducted with the Civil Works Director from Çilimli Municipality. The Municipality representative was informed about ACE's job description, the scope of studies to be performed and which data will be asked. ACE explained how the process will be conducted and what kind of studies will be performed. The work done by this time was requested. Information was requested on the zoning status of the project area, the settlement on the project area, and places to be confiscated. The Municipality stated that the project area is the Municipality's land, that no expropriation is required, and that there is no residential area at the project area. After the meeting, a site visit was performed. Agreed actions are given below;

- Conducting EIA permitting process,
- Providing project kmz to ACE,



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- Providing the data to the ACE team,
- Providing correspondence from related institutions, if any.

During the meeting, project data was provided to ACE. According to the information obtained from the Municipality, three wells are drilled within the project's scope, and there is no settlement in the project area. Project data provided to ACE consisted of:

- Geothermal Survey Report,
- Gravity Study Assessment Report,
- Gas Measurement of CO₂ Assessment Report,
- Exploration License,
- Exploration Activity Report,
- Location Map of Geothermal Well Drilling Points.

In addition, phone interviews were conducted on 20th of October 2022 with the headmen of Ulucami neighborhood, Kiraztarla and Söğütlü villages where drilling wells will be located. The headmen of the neighborhoods were informed about the project and the information about social baseline of the neighborhoods were discussed.

9.6 Previous Stakeholder Consultation Activities

In this section, the details of administrative and technical studies conducted in stakeholder consultation, the findings, and results obtained from the meeting are given in the following subsections.

9.6.1 Stakeholder Consultation Meeting-1

A preliminary stakeholder consultation meeting was conducted on 2nd of November 2021 by ACE and CM representatives at CM Council Chamber by taking necessary COVID-19 measures. Newspaper advertisements were published in Gündem and Manşet newspapers on 23rd of October 2021. Hanger flyers were placed at certain locations. Local people and authorities from several organizations were invited to the meeting. Participants' identities were recorded in participants' lists. Newspaper announcements, hanger flyers and the brochures distributed at the meeting are presented in Annex 11.

A total of 26 people attended the meeting, which included Citizens, mukhtars, local residents and authorities from several organizations. Attendance sheet is provided in Annex 11.

At the beginning of the meeting, presentations covering technical details of the Project and details on SCP II-AF, implementation arrangements, purpose and scope of the environmental and social assessment documents prepared for the project have been delivered by CM and ACE, respectively.

Photographs taken during the meeting are given in Annex 11.



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During the meeting, communication details through which the stakeholders can submit/share their comments, concerns, questions, etc. have been provided to the stakeholders.

At the end of the meeting, there was also a question/answer session where participants raised questions, concerns, and suggestions (see Section 9.6.1.2).

9.6.1.1 Questionnaire Study

During the meeting, views/complaints forms prepared beforehand (see Annex 11) were distributed to all participants to obtain their concerns, complaints, and comments about the Project. The form consists of information of participants, views, and complaints about the Project.

After the meeting, forms were gathered from the participants. None of the participants filled out the form.

9.6.1.2 People's Concerns, Views/Complaints on the Projects, and Assessments on the Issues

The presentation made by ACE experts during the meeting, informed the public of the process for preparation of the ESMP, why there is an need for preparation of an ESMP and how the stakeholders can involve in the process. At the end of the meeting, there was a question/answer session. Questions were asked by the participants, and the answers given to these questions during the meeting are provided below.

Question-1

- For what purpose will we use this project?

Answer: Çilimli Municipality

- This project only covers well drilling. In the next stage, studies will be carried out so that this water can be used for geothermal plant, spa, or irrigation purposes, depending on the quality and temperature of the water. It has been seen that hot water is used for different purposes in other countries. However, our first goal is to use this water in the geothermal plant.

Question-2

- In my research on the project, I saw that such projects are joint in the Aegean region. Why was the Çilimli region chosen for this project? Because I read the news that a few wells in the Aegean region were closed due to improper and adverse effects on the environment. When this project is carried out, will there be negative effects such as carbon emissions in the plant, negative effects on human health due to other released gases, or an increase in temperature in the region? In the Environmental and Social Impact Assessment (ESIA) Report, will these impacts be evaluated?



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Answer: ACE

- The scope of this project is only about well drilling.

Question-3

- What will be the gain of the municipality and the gain of the people here?

Answer: Çilimli Municipality

- This project is being done for the development of the region. Depending on the quality of the water coming out, the use of the water in the geothermal plant or different purposes such as heating will be evaluated in the next stage.

Question-4

- It seems that three wells will be drilled in the project. Will there be expropriations in these areas?

Answer: Çilimli Municipality

- No, there won't.

Question-5

- Will the project harm hazelnut production?

Answer: ACE

- Not within the scope of this project. But in the project to be carried out on the use of water in the next stage, the impact of water on the environment and naturally on hazelnut production will be evaluated. By determining the parameters that will affect hazelnut production, critical areas that need analysis and measurement will be determined, and the details will be discussed in the ESIA Report of that project.

Question-6

- How will the sludge that will come out of the drilling points be evaluated?

Answer: ACE

- It will be kept in impermeable pools, and the sludge will be disposed of.

Question-7

- Will the temperature increase in our region? I am worried about global warming.

Answer: ACE

- This is not the subject of the project, but this impact will also be assessed when evaluating water use in the future.

Question-8

- It is stated at the presentation that the drilling area is 1,654 ha. Is this area the same as the area of the geothermal plant?



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Answer: Çilimli Municipality

- The total drilling area is 1,654 ha. Although the area of the geothermal plant is not yet certain, it is estimated that the area of the geothermal plant will cover a smaller area.

Question-9

- Çilimli is a farming district. Is it possible to use the water in our greenhouses? Will this water have advantages for agriculture activities?

Answer: Çilimli Municipality

- According to the quality of the water coming out, if it cannot be used thermally, the use of this water in different areas will be evaluated.

Answer: ACE

- After the drilling wells are drilled, the works will continue and be evaluated based on the EIA legislation. Some analyzes will be carried out to determine the quality of the water. The direction of investment will be determined according to the results.

9.6.1.3 Comments

In the meeting, participants were involved with their questions. The questions were generally about possible/negative effects on topography, hazelnut production, and agricultural activities and the advantages of Project for the public.

Although most of the questions were about what will happen after drilling of geothermal wells and not related to the Project, all the questions were answered by ACE and Çilimli Municipality kindly. It was clearly stated that the Project only covers the drilling of geothermal wells.

During the meeting, participants were informed about the “Sustainable Cities Project” and it was stated that if they have any questions or suggestions or want to know details about the projects, they can send a mail or call the Çilimli Municipality or ACE experts.

In conclusion, the stakeholder consultation meeting provided local people with more detailed information about the Project, the process of the Project, the meaning of ESMP, and the importance of determination of E&S impacts. It has been seen that although local citizens have some concerns about the Project, they support the Project.

9.6.2 Stakeholder Consultation Meeting-2

A second stakeholder consultation meeting was conducted on 4th of January 2024 after the submission of the draft ESMP of the Project to ILBANK/WB and its approval. Minutes of meeting and other information related to the meeting are presented in Annex 12.



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References

1. Düzce Governorship Provincial Directorate of Environment and Urban Planning. (2021). Düzce Province 2020 Environmental Status Report, web site: <https://ced.csb.gov.tr/2020-yili-il-cevre-durum-raporlari-i-102101>
2. The Official Website of TurkStat” <https://www.turkstat.gov.tr/> 2020
3. The Official Website of Düzce Municipality: <https://duzce.bel.tr/21-ilceler> (2022)
4. The Official Website of Çilimli Municipality: <https://www.cilimli.bel.tr/detay/cilimli-tarihi>; <https://www.cilimli.bel.tr/detay/cografi-yapi> (2022)
5. Coruk, Ö., Karakaş, A. & Ulutaş, E.. ‘Determination of Soil Amplification and Predominant Period in Düzce Basin’. 2012. International Geophysical Conference and Oil & Gas Exhibition Istanbul.
6. Exploration Activity Report for Çilimli Municipality. 2021
7. T.R. Ministry of Interior, Disaster and Emergency Management Presidency, Earthquake Department. Türkiye Earthquake Hazard Map. Web site: <https://deprem.afad.gov.tr/deprem-tehlike-haritasi>
8. Turkish Climate According to Köppen-Trewartha Climate Classification. 2018. Turkish State Meteorological Service. https://www.mgm.gov.tr/FILES/iklim/iklim_siniflandirmalari/K%C3%B6ppen-Trewatha.pdf
9. Turkish State Meteorological Service, Long-Term Meteorological Data of Düzce Province (1959–2020).
10. Düzce Province Report. 2001. General Directorate of Regional Development and Structural Compliance https://sbb.gov.tr/wp-content/uploads/2018/11/Duzce_ili_raporu%E2%80%8B.pdf
11. Project Identification File of Çilimli Geothermal Drilling Project for Çilimli Municipality. 2021. Çevmed.
12. Siyavuş, A. E., ‘Changes in Land Use and Land Cover of Düzce Province (1990-2018)’. Journal of Geography. <https://dergipark.org.tr/tr/pub/iucografya/issue/63677/816407>
13. Aksoy, N& Uzun, O., 2011. ‘Distribution and Conservation of Endemic Plants in the Düzce Province’. International Journal of Physical Sciences.
14. The Official Website of Düzce Municipality: <https://duzce.bel.tr/69-dogal-yasam> (2022)
15. Ministry of Forestry and Water Affairs, General Directorate of Nature Conservation and National Parks, Department of Biological Diversity. Biodiversity Symposium, 2012. Web site: <https://www.tarimorman.gov.tr/DKMP/Belgeler/dkmp/kutuphane/81.pdf>
16. “Atlas online database of MEUCC” <https://www.atlas.gov.tr/> (2021)
17. “Google Earth kmz files of MoAF” <http://veri.tarimorman.gov.tr/layers/?limit=100&offset=0> (2021)



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18. The Official Website of Nature Society: [http://www.dogadernegi.org/onemli-doga-
alanlari/](http://www.dogadernegi.org/onemli-doga-
alanlari/) (2022)
19. Karadađ, A. A. and řenik, B. ‘Landscape Sensitivity Analysis as an Ecological Key: The Case of Düzce, Türkiye’. Applied Ecology and Environmental Research. http://www.aloki.hu/pdf/1706_1427714296.pdf
20. “Socio-Economic Development Ranking Survey of Provinces and Regions -2017”, Ministry of Finance, Economy and Development. 2017. Web site: <https://www.sanayi.gov.tr/merkez-birimi/b94224510b7b/sege/il-sege-raporlari>
21. Düzce Commercial Life and Production Status Report. 2020. Düzce Commodity Exchange. Web site: [https://www.duzcetb.org.tr/Dosyalar/DUZCE-PANAROMASI-
VE-EKONOMIK-GOSTERGELERI-RAPORU.pdf](https://www.duzcetb.org.tr/Dosyalar/DUZCE-PANAROMASI-
VE-EKONOMIK-GOSTERGELERI-RAPORU.pdf)
22. The Official Website of Çilimli Municipality: <https://www.cilimli.bel.tr/detay/ekonomik-durum> (2022)
23. The Official Website of Düzce Governorship: [http://www.duzce.gov.tr/kultur-ve-
turizm](http://www.duzce.gov.tr/kultur-ve-
turizm) (2022)
24. The Official Website of Düzce Provincial Directorate of Culture and Tourism: <https://duzce.ktb.gov.tr/TR-211637/cilimli.html> (2022)
25. The Official Website of Türkiye Culture Portal: [https://www.kulturportali.gov.tr/turkiye/duzce/TurizmAktiviteleri/cilimli-kaplandede-
sifali-su-yuruyus-parkuru](https://www.kulturportali.gov.tr/turkiye/duzce/TurizmAktiviteleri/cilimli-kaplandede-
sifali-su-yuruyus-parkuru) (2020)
26. Düzce Çilimli OIZ Revision Master and Implementation Zoning Plan Explanation Report. 2020. [https://webdosya.csb.gov.tr/db/duzce/duyurular/cilimli-osb--8230-
43858-20200916164824.pdf](https://webdosya.csb.gov.tr/db/duzce/duyurular/cilimli-osb--8230-
43858-20200916164824.pdf)
27. The Official Website of Ministry of National Education: <http://cilimli.meb.gov.tr/www/cilimlide-egitim/icerik/281> (2018)
28. The Official Website of Çilimli District Governorship: [http://www.cilimli.gov.tr/idari-
yapi-](http://www.cilimli.gov.tr/idari-
yapi-) (2022)
29. The Official Website of SEDAŞ: [https://www.sedas.com/tr-
tr/DagitimHizmetleri/Pages/DagitimHizmetleri.aspx](https://www.sedas.com/tr-
tr/DagitimHizmetleri/Pages/DagitimHizmetleri.aspx) (2022)
30. Düzce Province 2019 Environmental Status Report, web site: <https://ced.csb.gov.tr/2019-yili-il-cevre-durum-raporlar-i-98681>
31. World Energy Resources. 2016. World Energy Council. [https://www.worldenergy.org/assets/images/imported/2016/10/World-Energy-
Resources-Full-report-2016.10.03.pdf](https://www.worldenergy.org/assets/images/imported/2016/10/World-Energy-
Resources-Full-report-2016.10.03.pdf)
32. Geothermal Survey Report for Çilimli Municipality. 2017. ILBANK.
33. Keten, A., Arslangöndođdu, Z. & Selmi, E., ‘Ornithofauna of Efteni Lake in Düzce’. Journal of Forestry. <https://dergipark.org.tr/tr/download/article-file/272689>
34. Google Earth. Web site: <https://earth.google.com/web/>



This project is co-funded by the European Union, the Republic of Turkey and the World Bank
Bu Proje Avrupa Birliđi, Türkiye Cumhuriyeti ve Dünya Bankası tarafından ortaklařa finanse edilmektedir

35. Map of prohibited and open hunting areas in 2021-2022, Ministry of Agriculture and Forestry. Web site: <https://avlakharitalari.tarimorman.gov.tr/>
36. T.R. Ministry of Agriculture and Forestry, General Directorate of Nature Conservation and National Parks. Website:
<https://www.tarimorman.gov.tr/DKMP/Belgeler/Korunan%20Alanlar%20Listesi/1-%20Milli%20Parklar.pdf>
37. The Official Website of Türkiye Cultural Heritage: <http://www.kulturvarliklari.org/kve> (2022)
38. _The Official Website of Wikipedia: Map of Düzce Province:
[https://tr.wikipedia.org/wiki/D%C3%BCzce_\(il\)](https://tr.wikipedia.org/wiki/D%C3%BCzce_(il)) (2022)
Map of Districts of Düzce Province:
https://tr.wikipedia.org/wiki/D%C3%BCzce%27nin_il%C3%A7eleri
39. Environment policy: General Principles and Basic Framework, Web site:
<https://www.europarl.europa.eu/factsheets/en/sheet/71/environment-policy-general-principles-and-basic-framework>
40. Environmental and Social Framework, World Bank. Web site:
<https://www.worldbank.org/en/projects-operations/environmental-and-social-framework>,
41. Environmental and Social Framework for sustainable Cities Project II Additional Financing, ILBANK. Web site: <https://www.ilbank.gov.tr/ihale/ib-a2c5PIF1-terms-of-reference-for-consultancy-services-for-preparation-of-technical-feasibility-studies-under-sustainable-cities-project-ii-additional-financing-scp-ii-af-group-1/3997>
42. International Finance Corporation (IFC). 2007. Environmental, Health, and Safety Guidelines World Bank Group: Washington DC. Web site:
https://www.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/sustainability-at-ifc/policies-standards/ehs-guidelines
43. ILBANK. Web site: <https://www.ilbank.gov.tr/sayfa/surdurulebilir-sehirler-projesi-ii-ek-finansman>
44. Operational Policies, World Bank. Web site: <https://www.worldbank.org/en/projects-operations/environmental-and-social-policies>



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Annex 1 Geothermal Resource Exploration License

EK-4

ARAMA RUHSATI

DÜZCE İL ÖZEL İDARESİ GENEL SEKRETERLİĐİ

İli : DÜZCE
İlçesi : Çilimli
Belde : ---
Köyü : ---
Kaynađın cinsi : Jeotermal Kaynak
Ruhsat Numarası : ARA.81.00.2020.JEO.1 (ER: 3397767)
Ruhsatın YürürlüĐe Giriş Tarihi : 01/09/2020
Ruhsat Süresi Bitim Tarihi : 01/09/2024 (Ruhsat süresi bitim tarihi 01/09/2023 olmakla birlikte, Makamın 11/10/2023 tarih ve 34302 sayılı Olurları ile bir (1) yıl süre ile uzatılmıştır.)
Ruhsat Alanı (hektar) : 1654,00 Hektar
Ruhsat Sahibi : Çilimli Belediye Başkanlıđı
T.C. Kimlik No : ---
Vergi Daire No : Çilimli V.D. / 2560034262
Ruhsatın Ait Olduđu paftalar : G26-a-4, G26-a-1

(¹)/jeotermal kaynak/dođal mineralli su /jeotermal kökenli gaz)

Ruhsat koordinatları:

	<u>1. Nokta</u>	<u>2. Nokta</u>	<u>3. Nokta</u>	<u>4. Nokta</u>	<u>5. Nokta</u>
Sađa (Y)	333100	333800	336500	339600	340100
Yukarı (X)	4526800	4529600	4528800	4528900	4527000
	<u>6. Nokta</u>				
Sađa (Y)	337100				
Yukarı (X)	4526100				

Ruhsat Sahibinin Adresi :
Belediye Başkanlıđı
Çilimli / DÜZCE


Mehmet Hayri ŞEN
Genel Sekreter




This project is co-funded by the European Union, the Republic of Turkey and the World Bank
Bu Proje Avrupa Birliđi, Türkiye Cumhuriyeti ve Dünya Bankası tarafından ortaklařa finanse edilmektedir

Annex 2 Title Deed

TAPU KAYIT BİLGİSİ

Zemin Tipi:	AnaTasınmaz	Ada/Parsel:	656/1
Tasınmaz No	101058252	AT Yüzölçüm(m2):	1616,47
İl/İlçe	DÜZCE/ÇİLİMLİ	Beđ.Böl Nitelik:	
Kurum Adı	Çilimli/ÇİLİMLİ	Blok/Kat/Giriř/BBNo:	
Mahalle/Köy Adı:	ULUCAMI M	Arsa Pay/Payda:	
Mevki:	Türbe	Ana Tasınmaz Nitelik:	Müfrez Tarla
Cilt/Sayfa No:	9/870	Kayıt Durum:	Aktif

MÜLKİYET BİLGİLERİ

Hisse No	Malik	Eİ Birliđi No	Hisse Pay/Payda	Metrekare	Toplam Metrekare	Edinme Sebebi-Tarih-Yevmiye	Terkin Sebebi-Tarih-Yevmiye
439871943	(SN:1853333) DEVLET SU İŐLERİ GENEL MÜDÜRLÜĐÜ (ĐSİ) VKN:3130025631	0	1.000/1.000	1616,47	1616,47	İlgili Kurumun Yazısı-27.07.2018 17:19:16-1460	-



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Bu Proje Avrupa Birliđi, Türkiye Cumhuriyeti ve Dünya Bankası tarafından ortaklařa finanse edilmektedir

Annex 3 EIA Opinion Letters

Düzce Province Environmental, Urbanization and Climate Change Provincial Directorate



T.C.
DÜZCE VALİLİĐİ
Çevre, Şehircilik ve İklim Deđişikliği İl Müdürlüğü

Sayı : E-30523593-305.02-3369204

07.04.2022

Konu : Çevre Düzeni Planı Görüşü

ÇİLİMLİ BELEDİYE BAŐKANLIĐINA

İlgi : 07.03.2022 tarihli ve 21361745-1903 sayılı yazınız.

İlgi yazınız ile İlimiz Çilimli İlçesi sınırlarında Ulucami Mahallesi 656 ada I parsel, Kiraztarla mevki ve Söğütlü Köyü-Söğütlü Caddesi mevkiinde Çilimli Belediye Başkanlığı uhdesinde bulunan ARA.81.00.2020.JEO.1 (ER: 3397767) no'lu Jeotermal Kaynak Arama Ruhsatında, "Kaynak Arama Amaçlı Sondaj Çalışmaları" faaliyeti için Çevre Düzeni Planı görüşümüz ile 1/100.000 Ölçekli Çevre Düzeni Planı, Lejant ve Plan Hükümleri talep edilmektedir.

Bu doğrultuda; jeotermal kaynak arama projeleri için 1/25.000 Ölçekli Düzce Merkez İlçesi ve Yakın Çevresi Çevre Düzeni Planı Plan Hükümlerinin 5.9. maddesinde "Bu plan sınırları içerisinde ihtiyaç olması halinde güvenlik, sağlık, eğitim v.b. sosyal donatı alanları, belediye hizmet alanları, büyük kentsel yeşil alanlar, kent veya bölge/havza bütününe yönelik her türlü atık bertaraf tesisleri ve bunlarla entegre geri kazanım tesisleri, arıtma tesisleri, sosyal ve teknik alt yapı, karayolu, demiryolu, denizyolu, havaalanı, baraj, yenilenebilir enerji üretim alanları, enerji iletimi ve doğalgaz depolamasına ilişkin imar planları; bu planın koruma, gelişme ve planlama ilkelerine, ilgili kurum ve kuruluşların görüşlerine uyularak ilgili idaresince yapılacak olan imar planları çevre düzeni planı deđişikliğine gerek olmaksızın ilgili idaresince hazırlanır ve onaylanır. Onaylanan planlar sayısal ortamda veri tabanına işlenmek üzere Bakanlığa gönderilir. Söz konusu tesisler/tesis alanları amacı dışında kullanılmazlar." denilmekte olup, yukarıda belirtilen tüm hususlara ve anılan plan hükümlerine uyulması şartıyla, "Kaynak Arama Amaçlı Sondaj Çalışmaları" faaliyetinin gerçekleştirilmesi uygun mütalaa edilmektedir.

Ancak, planlanan yatırım ile ilgili olarak, Çevre Düzeni Planının ilgili hükümlerine uyulması, Melen Baraj Gölü Özel Hükümlerinin ilgili hükümlerine uyulması, Su Kirliliđi Kontrolü Yönetmeliğinin ilgili hükümlerine uyulması, diđer ilgili kurum ve kuruluşların mer'î mevzuatı çerçevesinde öngörülen gerekli tüm izin ve tedbirlerin alınması gerekmektedir.

Bilgilerinize ve geređini rica ederim.

Gürbüz SALTAŐ
Vali a.
Vali Yardımcısı

Ek:

- 1 - 1/100.000 Ölçekli Çevre Düzeni Planı örneđi
- 2 - 1/25.000 Ölçekli Çevre Düzeni Planı örneđi
- 3 - Çevre Düzeni Planı Plan Hükümleri

Bu belge 20/04/2022
E-İK Kurum görsel izleniminde

07/04/2022

Ayten YERLİKAYA
Çevre, Şehircilik ve İklim Deđişikliği İl Müdürü

ÇİLİMLİ
BELEDİYE BAŐKANLIĐI

Kayıt Tarih / Sayı: 11/04/2022 / 632

Birimi: İMARET (İFA)

Bu belge, güvenli elektronik imza ile imzalanmıştır.

Dođrulama Kodu: 18801EAB-72E3-4E61-AC58-E35EBCED05AC

Dođrulama Adresi: <https://www.turkiye.gov.tr>

Hükümet Konađı Binası F - Blok Kat: 1 Merkez / DÜZCE
Tel No: (0380) 524 58 27 - (0380) 524 58 28 Faks No: (0380) 524 16 21
e-posta: duzce@csb.gov.tr İnt: <https://duzce.csb.gov.tr/>

Bilgi için: Bülgehan KIY
Harita Mühendisi





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T.C.
DÜZCE VALİLİĐİ
Çevre, Şehircilik ve İklim Deđişikliği İl Müdürlüğü

Sayı : E-30523593-305.02-3369204
Konu : Çevre Düzeni Planı Görüşü

ÇİLİMLİ BELEDİYE BAŐKANLIĐINA

İlgi : 07.03.2022 tarihli ve 21361745-1903 sayılı yazınız.

İlgi yazınız ile İlimiz Çilimli İlçesi sınırlarında Ulucami Mahallesi 656 ada 1 parsel, Kiraztarla mevkii ve Söğütü Köyü-Söğütü Caddesi mevkiinde Çilimli Belediye Başkanlığı uhdesinde bulunan ARA.81.00.2020.JEO.1 (ER: 3397767) no'lu Jeotermal Kaynak Arama Ruhsatında, "Kaynak Arama Amaçlı Sondaj Çalışmaları" faaliyeti için Çevre Düzeni Planı görüşümüz ile 1/100.000 Ölçekli Çevre Düzeni Planı, Lejant ve Plan Hükümleri talep edilmektedir.

Bu doğrultuda; jeotermal kaynak arama projeleri için 1/25.000 Ölçekli Düzce Merkez İlçesi ve Yakın Çevresi Çevre Düzeni Planı Plan Hükümlerinin 5.9. maddesinde "Bu plan sınırları içerisinde ihtiyaç olması halinde güvenlik, sağlık, eğitim v.b. sosyal donatı alanları, belediye hizmet alanları, büyük kentsel yeşil alanlar, kent veya bölge/havza bütününe yönelik her türlü atık bertaraf tesisleri ve bunlarla entegre geri kazanım tesisleri, arıtma tesisleri, sosyal ve teknik alt yapı, karayolu, demiryolu, denizyolu, havaalanı, baraj, yenilenebilir enerji üretim alanları, enerji iletimi ve doğalgaz depolamasına ilişkin imar planları; bu planın koruma, gelişme ve planlama ilkelerine, ilgili kurum ve kuruluşların görüşlerine uyularak ilgili idaresince yapılır ve onaylanır. Kullanımlardan ÇED Yönetmeliđi kapsamında kalanlar için "Çevresel Etki Deđerlendirmesi Olumlu" veya "Çevresel Etki Deđerlendirmesi Gerekli Deđerildir" kararının bulunması, ÇED Yönetmeliđi kapsamında olmayanlar için ise ilgili kurum ve kuruluşların uygun görüşü olması kaydı ile hazırlanacak olan imar planları çevre düzeni planı deđerışikliğine gerek olmaksızın ilgili idaresince hazırlanır ve onaylanır. Onaylanan planlar sayısal ortamda veri tabanına işlenmek üzere Bakanlığa gönderilir. Söz konusu tesisler/tesis alanları amacı dışında kullanılamazlar." denilmekte olup, yukarıda belirtilen tüm hususlara ve anılan plan hükümlerine uyulması şartıyla, "Kaynak Arama Amaçlı Sondaj Çalışmaları" faaliyetinin gerçekleştirilmesi uygun mütalaa edilmektedir.

Ancak, planlanan yatırım ile ilgili olarak, Çevre Düzeni Planının ilgili hükümlerine uyulması, Melen Baraj Gölü Özel Hükümlerinin ilgili hükümlerine uyulması, Su Kirliliđi Kontrolü Yönetmeliđinin ilgili hükümlerine uyulması, diđer ilgili kurum ve kuruluşların mer'i mevzuatı çerçevesinde öngörülen gerekli tüm izin ve tedbirlerin alınması gerekmektedir.

Bilgilerinize ve geređini rica ederim.

Gürbüz SALTAŐ
Vali a.
Vali Yardımcısı

Ek:

- 1 - 1/100.000 Ölçekli Çevre Düzeni Planı örneđi
- 2 - 1/25.000 Ölçekli Çevre Düzeni Planı örneđi
- 3 - Çevre Düzeni Planı Plan Hükümleri

Bu belge, güvenli elektronik imza ile imzalanmıştır.

Dođrulama Kodu: 18801EAB-72E3-4E61-AC58-E35EBCED05AC
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Dođrulama Adresi: <https://www.turkiye.gov.tr>

Bilgi için: Bilgehan KIY
Harita Mühendisi



1... 60



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Bu Proje Avrupa Birliđi, Türkiye Cumhuriyeti ve Dünya Bankası tarafından ortaklařa finanse edilmektedir



T.C.
ÇİLİMLİ BELEDİYE BAŐKANLIđI
Fen İŐleri M¼d¼rl¼đ¼

Sayı : E-42980093-599-1903
Konu : Çevre D¼zeni Planı Hk.

07.03.2022

D¼ZCE VALİLİđİ ÇEVRE VE ŐEHİRCİLİK İL M¼D¼RL¼đ¼

D¼zce İli, Çilimli İlçesi sınırlarında Ulucami Mahallesi 656 ada -1 parsel, Kiraztarla mevkii ve S¼đ¼tl¼ K¼y¼ - S¼đ¼tl¼ Caddesi mevkiinde Çilimli Belediye BaŐkanlıđı uhdesinde bulunan ARA.81.00.2020.JEO.1 (ER: 3397767) no'lu Jeotermal Kaynak Arama Ruhsatında ÇED Y¼netmeliđi Kapsamında Jeotermal Kaynak amaçlı Sondaj çalıŐmaları yapılması planlanmaktadır.

GerçekleŐtirilmesi planlanan ARA.81.00.2020.JEO.1 (ER: 3397767) nolu Jeotermal Kaynak Arama Ruhsatında, Kaynak arama amaçlı Sondaj çalıŐmaları faaliyeti kapsamında, ÇED Proje Tanıtım Dosyasında kullanılmak üzere 1/100 000 Ölçekli Çevre D¼zeni Planı, Lejant ve Plan H¼k¼mlerini içeren g¼r¼Őn¼z¼n tarafımıza verilmesi hususunda;
Geređini bilgilerinize rica ederim.

Muhsin YAVUZ
Belediye BaŐkanı

EK :
1- Koordinat Tablosu
2- Ruhat Bilgileri
3- Kurum G¼r¼Őleri

Bu belge, g¼venli elektronik imza ile imzalanmıŐtır.
Dođrulama Kodu: 4qwdGZ-b5SgKI-qPwNiw-zkegAN-43ztx2Gp Dođrulama Linki: <https://www.turkiye.gov.tr/icisleri-belediye-ebys>

Ulucami Mahallesi Pazaryeri Sk. No:01 Çilimli / D¼zce
Telefon No: (380)681 50 04 Faks No: (380)681 66 66
e-Posta: bilgi@cilimli.bel.tr İnternet Adresi: <https://www.cilimli.bel.tr>
Kep Adresi: cilimlibelediye@hs01.kep.tr

Bilgi için: Cem Hasan ÖZDEMİR
Memur
Telefon No:



1/1



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Bu Proje Avrupa Birliđi, Türkiye Cumhuriyeti ve Dünya Bankası tarafından ortaklařa finanse edilmektedir

T.C.
DÜZCE VALİLİĐİ
ÇEVRE VE ŞEHİRCİLİK İL MÜDÜRLÜĐÜ

Tarih: 24.01.2022

Sayı:

Konu: Çevre Düzeni Planı Hk.

Düzce İli, Çilimli İlçesi Sınırlarında Ulucami Mahallesi 656 Ada 1 Parsel , Kiraztarla Mevkii Ve Söğütlü Köyü Söğütlü Caddesi Mevkii' nde Çilimli Bedediyesi Başkanlığı uhdesinde bulunan ARA.81.00.2020.JEO.1 (ER: 3397767) Nolu Jeotermal Kaynak Arama Ruhsatında Çed Yönetmeliđi Kapsamında Jeotermal Kaynak Arama Amaçlı Sondaj Çalışmaları yapılması planlanmaktadır.

Gerçekleştirilmesi planlanan ARA.81.00.2020.JEO.1 (ER: 3397767) Nolu Jeotermal Kaynak Arama Ruhsatında Jeotermal Kaynak Arama Amaçlı Sondaj Çalışmaları faaliyeti kapsamında ÇED proje tanıtım dosyasında kullanılmak üzere 1/100 000 Ölçekli Çevre Düzeni Planı, İejant ve Plan hükümlerini içeren görüşünüzün tarafımıza verilmesini arz ederiz

Saygılarımızla.

Ekler

Ek1: Koordinat Tablosu

Ek2: Ruhsat Bilgileri

Ek3: Kurum Görselleri (2 adet)

Jeotermal
Kurum görselleri
Çevre ve Şehircilik
İl Müd.
Şifreli
Şifreli




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Bu Proje Avrupa Birliđi, Türkiye Cumhuriyeti ve Dünya Bankası tarafından ortaklařa finanse edilmektedir

Düzce Special Provincial Administration, Directorate of Road and Transportation Services

Fen-11

T.C.
DÜZCE İL ÖZEL İDARESİ
Yol ve Ulaşım Hizmetleri Müdürlüğü



Sayı : E-72203326-599-12964
Konu : Jeotermal Sondaj Kuyusu hk. 22.02.2022

ÇİLİMLİ BELEDİYESİ
FENİŞLERİ MÜDÜRLÜĞÜ


İlgi : 17.02.2022 tarihli ve 42980093-599/1812 sayılı yazınız.

İlgi yazı ile , İlimiz Çilimli ilçesi sınırları içinde bulunan Kiraztarla köyü yolu mevkiine denk gelen sondaj kuyusu noktasında (SK-2) Çilimli Belediyesi Başkanlığı adına ARA.81.00.2020.JEO.1 (ER:3997767) no'lu Jeotermal Kaynak Arama Ruhsatı ile Sondaj Çalışmaları için izin talep edilmektedir. Bahse konu için 21.02.2022 tarihinde mahallinde yapılan incelemede bahsi geçen Özel Idareye ait tesislere (yol, içme suyu vs.) herhangi bir etkisi olmadığı tespit edilmiş olup; Müdürlüğümüz açısından bir sakınca bulunmamaktadır. Ancak sonradan yapılacak çalışmalarda İdaremiz sorumluluk alanında yer alan tesislerin etkilenmesi halinde çalışmaların yapılabilmesi için İdaremiz ile protokol imzalanması gerekmektedir.


Bilgilerinize rica ederim.

Mehmet Hayri ŞEN
Vali a.
Genel Sekreter

Ek: Jeotermal Ekleri


Bu belge güvenli elektronik imza ile imzalanmıştır.
Doğrulama Kodu: +meue+-4QVnhi-U8M2Ak-Z30AzD-+KİsesyH Doğrulama Linki: <https://www.turkiye.gov.tr/icisleri-ebys>

Mergiş Mevkii Eski Köy Hizmetleri Binası 81010 / Düzce
Telefon No: (380)523 51 30 Faks No: (380)523 88 11
e-Posta: yatirim@duzceilozelidaresi.gov.tr İnternet Adresi:
<http://www.duzceilozelidaresi.gov.tr/>
Kep Adresi: icisleribakanligi@hs01.kep.tr

Bilgi için: Yaşar MUTLU
İnşaat Teknikeri
Telefon No: 

BELEDİYE BAŞKANLIĞI
Kayı Tarih / Sayı: 02.02.2022 / 1401
1/1
FEN İŞLERİ



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Istanbul Water and Sewerage General Directorate



T.C.
ÇİLİMLİ BELEDİYE BAŐKANLIđI
Fen İŐleri M¼d¼rl¼đ¼

01.02.2022

Sayı : E-42980093-599-1746
Konu : Çed Görüşünün Alınabilmesi Hk.

İSTANBUL SU VE KANALİZASYON İDARESİ GENEL M¼D¼RL¼đ¼NE

D¼zce İli, Çilimli İlçesi sınırları içerisinde bulunan Ulucami Mahallesi, D¼zce Caddesi üzerinde bulunan sondaj kuyusu (SK-1), Kiraztarla mevkiinde bulunan sondaj kuyusu (SK-2) ve S¼đ¼tl¼ K¼y¼, S¼đ¼tl¼ Caddesi üzerinde bulunan sondaj kuyusu (SK-3) noktalarında sondaj kuyusu noktaları Çilimli Belediye Başkanlıđı adına alınan ARA.81.00.2020.JEO.1 (ER:3997767) nolu Jeotermal Kaynak Arama Ruhsatı ile Çed Y¼netmeliđi Kapsamında Jeotermal Kaynak Arama Amaçlı Sondaj ÇalıŐmaları yapılması planlanmaktadır.

ÇED görüş¼ alınarak gerçekleŐtirilmesi planlanan ARA.81.00.2020.JEO.1 (ER:3997767) nolu Jeotermal Kaynak Arama Ruhsatı ile Jeotermal Kaynak Arama Amaçlı Sondaj ÇalıŐmaları faaliyeti yapılabilmesi ve ÇED görüş¼ alabilmemiz için öncelikle Kurumunuzca bu sondaj noktalarında bir sakınca bulunup bulunulmadıđına iliŐkin kurum görüş¼n¼z¼n tarafımıza verilmesi hususunda geređini bilgilerinizi rica ederim.

Muhsin YAVUZ
Belediye BaŐkanı

Ek:
1- Ruhsat Bilgileri
2- Sondaj Kuyularının Koordinat Tablosu

Bu belge, güvenli elektronik imza ile imzalanmıŐtır.

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1



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T.C.
İSTANBUL BÜYÜKŞEHİR BELEDİYE BAŐKANLIđI
İstanbul Su ve Kanalizasyon İdaresi Genel Müdürlüğü
Planlama ve Yatırım Dairesi Başkanlıđı



25/02/2022

Sayı : E-11255029-045.01-20220356820
Konu : Görüş Talebi

DAĐITIM YERLERİNE

- İlgi :
- 11.12.2007 tarih 26727 sayılı Resmî Gazetede yayımlanarak yürürlüğe giren Jeotermal Kaynaklar ve Doğal Mineralli Sular Kanunu Uygulama Yönetmeliđi.
 - 24.09.2020 tarihinde yayımlanarak yürürlüğe giren Melen Baraj Gölü Özel Hükümleri.
 - 01.02.2022 tarih ve E-42980093-599-1746 sayılı (01.02.2022 tarihli ve 276737 sayılı yazı ile İdaremiz Yazı İşleri ve Arşiv Şube Müdürlüğü'nde kayıtlı) yazınız.

İlgi (a) yazımız ile Düzce İli, Çilimli İlçesi sınırları içerisinde bulunan Ulucami Mahallesi, Düzce Caddesi üzerinde bulunan sondaj kuyusu (SK-1), Kirazlarla mevkîinde bulunan sondaj kuyusu noktaları Çilimli Belediye Söğütlü Caddesi üzerinde bulunan sondaj kuyusu (SK-3) noktalarında sondaj kuyusu noktaları Çilimli Belediye Başkanlıđı adına alınan ARA.81.00.2020.JEO.1 (ER:3997767) nolu Jeotermal Kaynak Arama Ruhsatı ile Çed Yönetmeliđi Kapsamında Jeotermal Kaynak Arama Amaçlı Sondaj Çalışmaları yapılmasına ilişkin İdaremiz görüşü istenmiştir.

İlgi (c) yazı ekinde verilen koordinatlara göre söz konusu: SK1 sondaj noktası; ilgi (b) Melen Baraj Gölü Özel Hükümlerine göre; Melen Barajı uzak mesafe koruma alanında, Melen yaygın ve zengin akiferler alanında, "Düzce İli 1/100.000 Ölçekli Çevre Düzeni Planı" ve "Düzce İli, Merkez İlçesi ve Yakın Çevresi 1/25.000 Ölçekli Çevre Düzeni Planı" plan sahası içinde, dere filtrasyon şeridi içinde kalmaktadır. SK2 ve SK3 sondaj noktaları; ilgi (b) Melen Baraj Gölü Özel Hükümlerine göre; Melen Barajı uzak mesafe koruma alanında, Melen yaygın ve zengin akiferler alanında, "Düzce İli 1/100.000 Ölçekli Çevre Düzeni Planı" ve "Düzce İli, Merkez İlçesi ve Yakın Çevresi 1/25.000 Ölçekli Çevre Düzeni Planı" plan sahası içinde, dere filtrasyon şeridi dışında kalmaktadır.

İlgi (b) Özel Hükümler Madde 4.40. "EK-1'de sınırları verilen alüvyon akifer, karstik akifer ve karstik çöküntü özelliđi gösteren alanlar dışında kalan bölgelerde, 3213 sayılı Maden Kanunu'nun (R.G:18785-15/06/1985) 7 nci maddesi kapsamında madencilik faaliyetlerine izin verilir. Ancak, havza genelinde çözelti madenciliđine ve kimyasal ayrıştırıcılar ya da benzeri maddeler kullanılarak yapılacak maden zenginleştirme işlemlerine ve bu işlemlerin yürütüldüğü maden zenginleştirme tesislerine izin verilmez.", Madde 4.41. "Baraj Gölü maksimum su kotundan itibaren yatayda ilk 1000 metrede kalan alanlar ile EK-1'de sınırları verilen alüvyon akifer, karstik akifer ve karstik çöküntü özelliđi gösteren alanlarda; yeni maden arama ruhsatı verilmesine, mevcut arama ruhsatlı alanlar için sondaj, araştırma çukuru, yarma ve benzeri arama çalışmalarına, deneme üretimine, ön işletme, işletme izinleri verilmesine, mevcut işletme ruhsatlı alanlar için işletme ruhsatı yenilenmesine izin verilmez." hükümlerindedir.

Talep edilen Jeotermal Kaynak Arama Amaçlı Sondaj Çalışmalarını düzenleyen ilgi (a) Yönetmelik hükümleri incelendiğinde Arama ruhsatı almak için müracaat esasları düzenleyen Madde 6 ile Arama ruhsatına ilişkin belgeler ve ruhsatın verilmesi hususlarını düzenleyen Madde 7 hükümleri incelendiğinde ilgi (c) yazı konusu sondaj işlemi için talep edilen belgelerden olan Ek-2, Ek-3, Ek-4, Ek-9 formlarında arama konusunun

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T.C.
İSTANBUL BÜYÜKŞEHİR BELEDİYE BAŐKANLIđI
İstanbul Su ve Kanalizasyon İdaresi Genel Müdürlüğü
Planlama ve Yatırım Dairesi Başkanlığı



maden olarak ifade edildiđi anlaşılmaktadır.

Netice olarak: talep konusu Jeotermal Kaynak Arama Amaçlı Sondaj Çalışması'nın ilgi (b) Özel Hükümlerin anılan hükümlerde belirtilen Madencilik faaliyeti kapsamında olup olmadığı ile ilgili tereddüt hasil olmuştur. Madencilik faaliyetleri ile ilgili yetkili kurum olan Maden Petrol İşleri Genel Müdürlüğünden Jeotermal Kaynak Arama Amaçlı Sondaj Çalışmasının Madencilik faaliyeti olarak ilgi (b) Özel Hükümlerde ifade edilen **madencilik kapsamında olup olmadığına dair** kurum görüşünün İdaremiz Çevre Koruma ve Kontrol Dairesi Başkanlığına sunulması durumunda bahse konu talebe dair İdaremiz görüşü ilgili birim tarafından değerlendirilebilecektir.

Bilgi ve geređini arz ederim.

Selami TAŐER
Genel Müdür a.
Genel Müdür Yardımcısı

Ek:Havza Konum Bilgileri.

Dağıtım:
Çilimli Belediye Başkanlığına (Fen İşleri Müdürlüğü)

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T.C.
DÜZCE İL ÖZEL İDARESİ
Ruhsat ve Denetim Müdürlüğü



25.03.2022

Sayı :E-36598281-000-14116
Konu :Jeotermal Sondaj Hk.

ÇİLİMLİ BELEDİYE BAŐKANLIđINA

İlgi : 28.02.2022 tarihli ve 42980093-599-1868 sayılı yazınız.

İlgi yazınız ile Jeotermal Kaynak Arama Ruhsatı ile sondaj çalışmalarını yapım işi kapsamında İstanbul Su ve Kanalizasyon İdaresi'nden kurum görüşü alınması için jeotermal kaynak sondaj çalışmalarının madencilik faaliyeti olup olmadığına ilişkin bilgi istenmiştir.

Bahse konu jeotermal kaynak arama için sondaj çalışmalarının madencilik faaliyeti olup olmadığına dair Maden ve Petrol İşleri Genel Müdürlüğüne görüş sorulmuş olup; sondaj çalışmalarının madencilik faaliyeti olmadığına ilişkin görüş yazısı ekte sunulmuştur.
Bilgilerinize arz ederim.

Necmettin ÇALIŐKAN
Genel Sekreter a.
Genel Sekreter Yardımcısı

Ek: Mapeg kurum görüşü.

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Dođrulama Kodu: KOZPRu-nBCovK-vcoPZq-CMq5qb-MmN533if Dođrulama Linki: <https://www.turkiye.gov.tr/icisleri-ebys>

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<http://www.duzceilozelidaresi.gov.tr/>
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T.C.
ENERJİ VE TABİİ KAYNAKLAR BAKANLIđI
Maden ve Petrol İşleri Genel Müdürlüđü



21.03.2022

Sayı : E-81251324-101.08.00.00-2022088708
Konu : Kurum Görüşü Hak.

DÜZCE İL ÖZEL İDARESİNE
(Ruhsat Ve Denetim Müdürlüđü)

İlgi : 4.03.2022 tarihli ve 13238 sayılı yazınız.

İlgide kayıtlı yazınızda; İliniz hudutları dahilinde ve Çilimli Belediye Başkanlığı adına 01/09/2020 tarih ve ARA.81.00.2020.JEO.1 (ER:3397767) no ile düzenlenen jeotermal kaynak arama ruhsatı ile ilgili olarak yapılan arama amaçlı sondaj çalışmalarının madencilik faaliyeti kapsamında olup olmadığı hususunda görüşümüz talep edilmektedir.

5686 sayılı Jeotermal Kaynaklar ve Doğal Mineralli Sular Kanununun "Tanımlar" başlığının üçüncü maddesinin yirmiyedinci fıkrası "*Faaliyet: Jeotermal kaynakların aranması, geliştirilmesi, işletilmesi ve terk edilmesi ile jeotermal ve doğal mineralli suların kullanılması hususundaki işlemleri,*" ve 5686 sayılı Jeotermal Kaynaklar ve Doğal Mineralli Sular Kanunu Uygulama Yönetmeliğinin "Tanımlar" başlığının dördüncü maddesinin "j" fıkrasında "*(Değişik:RG-24/9/2013-28775) Faaliyet: Jeotermal kaynakların ve doğal mineralli suların aranması, geliştirilmesi, işletilmesi ve terk edilmesi ile kullanılması hususundaki işlemleri,*" hükümleri bulunmakta olup yapılan çalışmaların 5686 sayılı Jeotermal Kaynaklar ve Doğal Mineralli Sular Kanunu ve Uygulama Yönetmeliği kapsamında olduğu, madencilik faaliyeti olmadığı, Genel Müdürlük görüşümüzdür.

5686 sayılı Jeotermal Kaynaklar ve Doğal Mineralli Sular Kanunu ve Uygulama Yönetmeliği hükümleri kapsamında görev, yetki ve sorumluluğunuz çerçevesinde İdarenizce işlem tesis edilmesi uygun olacaktır.

Bilgilerinizi ve gereğini arz ederim.

Murat Halit DURCEYLAN
Genel Müdür a.
Genel Müdür Yardımcısı

Bu belge, görevi bitirmek üzere iletilmektedir.
Belge Dağıtılma Kodu: belge01EY50896MILGMQDCAP00-29UQ-HIL-DZTDPAA6BFLZBQJ-araNo:2022088708
Belge Doğrulama Adresi: <https://www.turkiye.gov.tr/maden-ve-petrol-isleri-e-maden-sistemleri-ara-no-2022088708>
Maden ve Petrol İşleri Genel Müdürlüğü Mevzuat Bülteni No: 76 PK 06560 Beştepe ANKARA
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T.C.
ÇİLİMLİ BELEDİYE BAŐKANLIđI
Fen İŐleri M¼d¼rl¼đ¼

Sayı : E-42980093-599-1977
Konu : G¼r¼Ő Talebi

29.03.2022

İSTANBUL SU VE KANALİZASYON İDARESİ GENEL M¼D¼RL¼đ¼NE

İlgi : 25.02.2022 tarihli ve 20220356820 sayılı yazınız

İlgi yazınızda belirtilen; İlçemizde yapılması planlanan ARA.81.00.2020.JEO.1 (ER:3397767) no'lu Jeotermal Kaynak Arama Ruhsatı ile Jeotermal Kaynak Arama amaçlı Sondaj çalışmalarının Madencilik Kapsamında olup olmadığına dair talep edilen MAPEG (Maden ve Petrol İşleri Genel Müdürlüğü) görüşü ile Devlet Su İşleri 5. Bölgenin Jeotermal Sondaj yapılması uygun görüş yazıları ve Jeotermal Kaynak Arama Ruhsatı yazımız ekinde sunulmuş olup, Belirtilen noktalarda Jeotermal Kaynak Arama amaçlı Sondaj çalışmaları yapılmasına ilişkin bir sakınca bulunup bulunmadığına dair kurum görüşünüzün tarafımıza bildirilmesi hususunda;

Gereğini bilgilerinize rica ederim.

Muhsin YAVUZ
Belediye Başkanı

EK :

- 1- D.S.İ. Görüş Yazısı (2 Sayfa)
- 2- MAPEG Görüş Yazısı (1 Sayfa)
- 3- Jeotermal Ruhsat (1 Sayfa)

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T.C.
İSTANBUL BÜYÜKŞEHİR BELEDİYE BAŞKANLIĞI
İstanbul Su ve Kanalizasyon İdaresi Genel Müdürlüğü
Planlama ve Yatırım Dairesi Başkanlığı



Sayı : E-11255029-045.01-20220558894
Konu : Görüş Talebi

27/04/2022

DAĞITIM YERLERİNE

- İlgi :
- 01.02.2022 tarih ve E-42980093-599-1746 sayılı yazınız (ISKİ Yazı İşleri ve Arşiv Şube Müdürlüğünde 01.02.2022 tarih ve 276737 sayıda kayıtlı yazı).
 - 29.03.2022 tarih ve E-42980093-599-1977 sayılı yazınız (ISKİ Yazı İşleri ve Arşiv Şube Müdürlüğünde 29.03.2022 tarih ve 465073 sayıda kayıtlı yazı).
 - 24.09.2020 tarihinde yayımlanarak yürürlüğe giren Melen Baraj Gölü Özel Hükümleri.

İlgi (a) ve (b) yazılarınız ile Düzce İli, Çilimli İlçesi sınırları içerisinde bulunan Ulucami Mahallesi, Düzce Caddesi üzerinde bulunan sondaj kuyusu (SK-1), Kiraztarla mevkiinde bulunan sondaj kuyusu (SK-2) ve Söğütü Köyü, Söğütü Caddesi üzerinde bulunan sondaj kuyusu (SK-3) noktalarında sondaj kuyusu noktaları Çilimli Belediye Başkanlığı adına alınan ARA.81.00.2020.JEO.1 (ER:3997767) nolu Jeotermal Kaynak Arama Ruhsatı ile Çed Yönetmeliği Kapsamında Jeotermal Kaynak Arama Amaçlı Sondaj Çalışmaları yapılmasına ilişkin İdaremiz görüşü istenmiştir.

Talep konusu alanda; SK1 sondaj noktası; ilgi (a) Melen Baraj Gölü Özel Hükümlerine göre; Melen Barajı uzak mesafe koruma alanında, Melen yaygın ve zengin akiferler alanında, "Düzce İli 1/100.000 Ölçekli Çevre Düzeni Planı" ve "Düzce İli, Merkez İlçesi ve Yakın Çevresi 1/25.000 Ölçekli Çevre Düzeni Planı" plan sahası içinde, **dere filtrasyon şeridi içinde kalmaktadır.** SK2 ve SK3 sondaj noktaları; ilgi (a) Melen Baraj Gölü Özel Hükümlerine göre; Melen Barajı uzak mesafe koruma alanında, Melen yaygın ve zengin akiferler alanında, "Düzce İli 1/100.000 Ölçekli Çevre Düzeni Planı" ve "Düzce İli, Merkez İlçesi ve Yakın Çevresi 1/25.000 Ölçekli Çevre Düzeni Planı" plan sahası içinde, dere filtrasyon şeridi dışında kalmaktadır.

İlgi (a) Özel Hükümler; **Madde 10.25."EK1'de sınırları verilen alüvyon akifer, karstik akifer ve karstik çöküntü özelliği gösteren alanlarda hafriyat toprağı ve inşaat yıkıntı atıklarının dökülmesine ve depolanmasına izin verilmez. İzin verilen alanlarda yapılacak uygulamalar kapsamında yapılan hafriyat, Hafriyat Toprağı, İnşaat ve Yıkıntı Atıklarının Kontrolü Yönetmeliği'ne (RG: 25406- 18/03/2004) uygun olarak bertaraf edilir."** hükmündedir.

İlgi (b) yazı ve ekleri incelendiğinde; yazı ekinde yer alan 21.03.2022 tarih ve E-81251324-101.08.00-2022088708 sayılı MAPEG'e ait yazı ile talep konusu faaliyetin 5686 sayılı Jeotermal Kaynaklar ve Doğal Mineralli Sular ve Uygulama Yönetmeliği kapsamında olduğu, madencilik faaliyeti kapsamında olmadığına dair görüş bildirilmiştir.

Netice olarak talep konusu faaliyet ile ilgili; bulunduğu koruma alanı itibari ile ilgi (c) Özel Hükümlerde engelleyici bir hüküm bulunmamakta olup, çalışma alanlarında katı atık, hafriyat vs. atılmaması/stoklanmaması dere filtrasyon şeridi içinde kalan alanda sabit tesis yapılmaması ve yapılan çalışmalardan kaynaklanacak her türlü kirliliği önleyici tedbirlerin alınması koşullarıyla İdaremizce uygun mütalaa edilmektedir.

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Elektronik posta: zseven@iski.gov.tr





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T.C.
İSTANBUL BÜYÜKŞEHİR BELEDİYE BAŐKANLIđI
İstanbul Su ve Kanalizasyon İdaresi Genel Müdürlüğü
Planlama ve Yatırım Dairesi Başkanlığı



Söz konusu alanda planlanan faaliyetin uygulanmasında, İdaremiz görüőünde açıklanan hükümlere ve meri mevzuat hükümlerine aykırı olarak yapılabilecek ve içmesuyu havzası için zararlı faaliyet/tesis/yapılar ile ilgili İdaremizin hak ve yetkileri saklıdır.

Bilgilerinizi ve geređini arz ederim.

Selami TAŐER
Genel Müdür a.
Genel Müdür Yardımcısı

Ek:

- 1 - İlgili (b) yazı.
- 2 - İlgili (a) yazı.
- 3 - Talep Alanları.
- 4 - Havza Konumu.

Dağıtım:
Çilimli Belediye Başkanlığına (Fen İşleri Müdürlüğü)

Bu belge, gov.cih elektronik imza ile imzalanmıştır

ReferansKodu: 0NF3TO

Dođrudama Adresi: <http://www.iski.istanbul/web/tr-TR/evrak-sergulama>

ISKI Genel Müdürlüğü Çiözeltepe Mah. Osmanpaőa Cad. No:7 PK:34060
Eyüpsultan / İSTANBUL
Telefon No: 0212 321 78 35 Fax No: 0212 321 78 34
İnternet Adresi: www.iski.gov.tr
KEP Adresi: iskigeceelmudurlugu@hs01.kep.tr
Ulusal Elektronik Tebligat Adresi (UEİTS) 35806-06080-16571

Bilgi için: ZEKERİYA SENEN
Mühendis
Telefon No: 1529
Elektronik posta: zosen@iski.gov.tr





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The Ministry of Agriculture and Forest, General Directorate of State Hydraulic Works (DSI), 5th Regional Directorate, 55th Branch Office



T.C.
ÇİLİMLİ BELEDİYE BAŞKANLIĞI
Fen İşleri Müdürlüğü

01.02.2022

Sayı : E-42980093-599-1745
Konu : Çed Görüşünün Alınabilmesi Hk.

DEVLET SU İŞLERİ GENEL MÜDÜRLÜĞÜNE (Dsi 55. Şube Müdürlüğü- Düzce)

Düzce İli, Çilimli İlçesi sınırları içerisinde bulunan Ulucami Mahallesi, Düzce Caddesi üzerinde bulunan sondaj kuyusu (SK-1), Kiraztarla mevkiinde bulunan sondaj kuyusu (SK-2) ve Söğütlü Köyü, Söğütlü Caddesi üzerinde bulunan sondaj kuyusu (SK-3) noktalarında sondaj kuyusu noktaları Çilimli Belediye Başkanlığı adına alınan ARA.81.00.2020.JEO.1 (ER:3997767) nolu Jeotermal Kaynak Arama Ruhsatı ile Çed Yönetmeliği Kapsamında Jeotermal Kaynak Arama Amaçlı Sondaj Çalışmaları yapılması planlanmaktadır.

ÇED görüşü alınarak gerçekleştirilmesi planlanan ARA.81.00.2020.JEO.1 (ER:3997767) nolu Jeotermal Kaynak Arama Ruhsatı ile Jeotermal Kaynak Arama Amaçlı Sondaj Çalışmaları faaliyeti yapılabilmesi ve ÇED görüşü alabilmemiz için öncelikle Kurumunuzca bu sondaj noktalarında bir sakınca bulunup bulunulmadığına (ilişkin kurum görüşünüzün tarafımıza verilmesi hususunda gereğini bilgilerinizi rica ederim.

Muhsin YAVUZ
Belediye Başkanı

EK :

- 1- Ruhsat Bilgileri
- 2- Sondaj Kuyularının Koordinat Tablosu

Bu belge, güvenli elektronik imza ile imzalanmıştır.
Doğrulama Kodu: KTVxsZ-jM6M95-ApQQR8-CEjPMH-ehkvBg7R Doğrulama Linki: <https://www.turkiye.gov.tr/icisleri-belediye-ebys>

Ulucami Mahallesi Pazaryeri Sk. No:01 Çilimli / Düzce
Telefon No: (380)681 50 04 Faks No: (380)681 66 66
e-Posta: bilgi@cilimli.bel.tr İnternet Adresi: <https://www.cilimli.bel.tr>
Kep Adresi: cilimlibelediye@hs01.kep.tr



Bilgi için: Cem Hasan ÖZDEMİR
Memur
Telefon No:



1/1



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T.C.
TARIM VE ORMAN BAKANLIđI
Devlet Su İşleri Genel Müdürlüğü
5. Bölge Müdürlüğü
55. Şube Müdürlüğü

Sayı : E-98305166-622.02-2054195
Konu : Kurum Görüşü

ÇİLİMLİ BELEDİYE BAŐKANLIđINA

İlgi : a) 5. Bölge Müdür Yardımcısı-1 (Planlama Şube Müdürlüğü)'nün 22.02.2022 tarihli ve E-79828097-622.02-2050956 sayılı yazısı.
b) 01.02.2022 tarihli ve E-42980093--599--1745 sayılı yazınız.


İlgi (a) yazı ile; ÇED Yönetmeliđi kapsamında Düzce İl Özel İdaresinden alınan (ER-3997767) no'lu Jeotermal Kaynak Arama Ruhsatı ile Jeotermal kaynak arama amaçlı sondaj çalışmalarını yapabilmemesi için istenilen, Kurumumuzun görüşünü bildirir Bölge Müdürlüğümüzün ilgi (b) yazısı ilişikte gönderilmiştir.
Geređini arz ederim.

Deniz YILDIZ
Şube Müdürü

Ek: Yazı (1 ad.) (2 Sayfa)

Bu belge, güvenli elektronik imza ile onaylanmıştır.
Dođrulama Kodu: 506A1496-6B3D-41CD-82D9-74296E103184 Dođrulama Adresi: <https://www.tarim.gov.tr/devlet-su-isleri-ebys>
Adres: Yarınsuolu Karklı Sokak No:2 41030 Düzce

Bölge şube: Yahya ÖZ
Telefon No: (380) 314 33 10-125





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T.C.
TARIM VE ORMAN BAKANLIĞI
Devlet Su İşleri Genel Müdürlüğü
5. Bölge Müdürlüğü



Sayı : E-79828097-622.02-2050956
Konu : Kurum Görüşü

22.02.2022

DSİ 55. ŞUBE MÜDÜRLÜĞÜ- DÜZCEYE

İlgi : 5. Bölge Müdür Yardımcısı-4 (Yas Etüd ve Değerlendirme Başmühendisliği)'nün 16.02.2022 tarihli ve E-92711777-622.02-2028080 sayılı yazısı.

İlgi yazı ile; Düzce İli, Çilimli İlçesi Belediye Başkanlığınca, ÇED Yönetmeliği kapsamında Düzce İl Özel İdaresinden alınan (ER:3997767) no'lu Jeotermal Kaynak Arama Ruhsat alanı içerisinde jeotermal kaynak arama amaçlı sondaj çalışmaları yapılması ile ilgili Bölge Müdürlüğümüz görüşü istenmektedir.

Faaliyetin gerçekleştirileceği ruhsat alanı ile 2 ve 3 numaralı sondaj noktaları, Düzce Ovası Sulaması içerisinde kalmaktadır. Faaliyet gerçekleştirilirken, proje bileşenlerimize zarar verilmemesi gerekmektedir. Yapılacak tüm çalışmalarda dere yataklarına katı atık, hafriyat vs. atılmaması/stoklanmaması, sabit tesis yapılmaması, dere yataklarını daraltıcı ve akış rejimlerini olumsuz etkileyen müdahalelerde bulunulmaması, olası aşırı yağışlarda oluşabilecek çevre yüzey sularına ve su baskınlarına karşı tüm tedbirlerin faaliyet sahibi tarafından alınması gerekmektedir. Faaliyet esnasında veya sonrasında dere geçişleri için yapılması gerekebilecek köprü/menfes yapıları için 03.05.2019 tarih ve 30763 sayılı Resmi Gazete'de yayımlanarak yürürlüğe giren "Taşkın ve Rüsubat Kontrolü Yönetmeliği" hükümleri doğrultusunda boyutlandırma ve projelendirme yapılması, köprü ve menfes yapıları için İdaremizden hidrolikçe uygunluk görüşü alınmadan inşaa faaliyetine geçilmemesi, herhangi bir çalışmadan dolayı 3. kişilerin görebileceği zarar ziyan hususunda DSİ'den zarar ziyan talep edilmemesi gerekmektedir.

Proje alanında mevcut ya da planlama aşamasında herhangi bir yeraltısuyu tesisi bulunmamaktadır. Ancak planlama aşamasında 2 yıl sürecek olan Batı Karadeniz Havzası Hidrojeolojik Etüt Raporu hazırlanmaktadır.

Proje alanında 167 Sayılı "Yeraltı suları Hakkında Kanun" ve 07.04.2012 tarih ve 28257 sayılı Resmi Gazete'de yayımlanan "Yeraltı Sularının Kirlenmeye ve Bozulmaya Karşı Korunması Hakkında Yönetmelik ve Su Kirliliği Kontrolü Yönetmeliği" gibi ilgili diğer yönetmelik hükümlerine göre çalışma yapılması gerekmekte olup proje kapsamında yeraltı suları ve kaynakların korunma çerçevesinde yürürlükte bulunan tüm mevzuata uyulması gerekmektedir.

Batı Karadeniz Havzası Hidrojeolojik Etüt Raporu kapsamında 167 sayılı kanun ve 10 Ekim 2012 tarih ve 28437 sayılı "İçme Suyu Temin Edilen Akifer ve Kaynakların Koruma Alanlarının Belirlenmesi Hakkında Tebliğ" hükümlerine göre koruma alanı ve işletme sahası belirlenmesi halinde DSİ'nin tüm direktiflerine uyulacaktır. Ayrıca proje çalışmaları kapsamında özel şahıslara ait belgeli kuyular ile karşılaşılmış durumda bu kuyuların tüm haklarının korunması gerekmektedir. Proje sahası içerisinde

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Adres: Mustafa Kemal Mah. 2151/1 Cad. A Blok No:24 06520 Çankaya -ANKARA Bilgi için:Emine Özge SAN Mühendis





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içme-kullanma suyu amaçlı kuyu, kaynak ve keson kuyu bulunması durumunda ilgili Belediyeden veya kurumdan görüř alınmalıdır.

Söz konusu sahada yeraltıları hakkındaki tüm mevzuatla ilgili DSI'nin hak ve yetkileri saklıdır.

Geređini bilgilerinize rica ederim.

Fatih FÖNLÖ
Bölge Müdür Yardımcısı

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Adres: Mustafa Kemal Mah. 2151/1 Cad. A Blok No:24 06520 Çankaya -ANKARA Bilgi için: Emine Özge SAN Mühendis

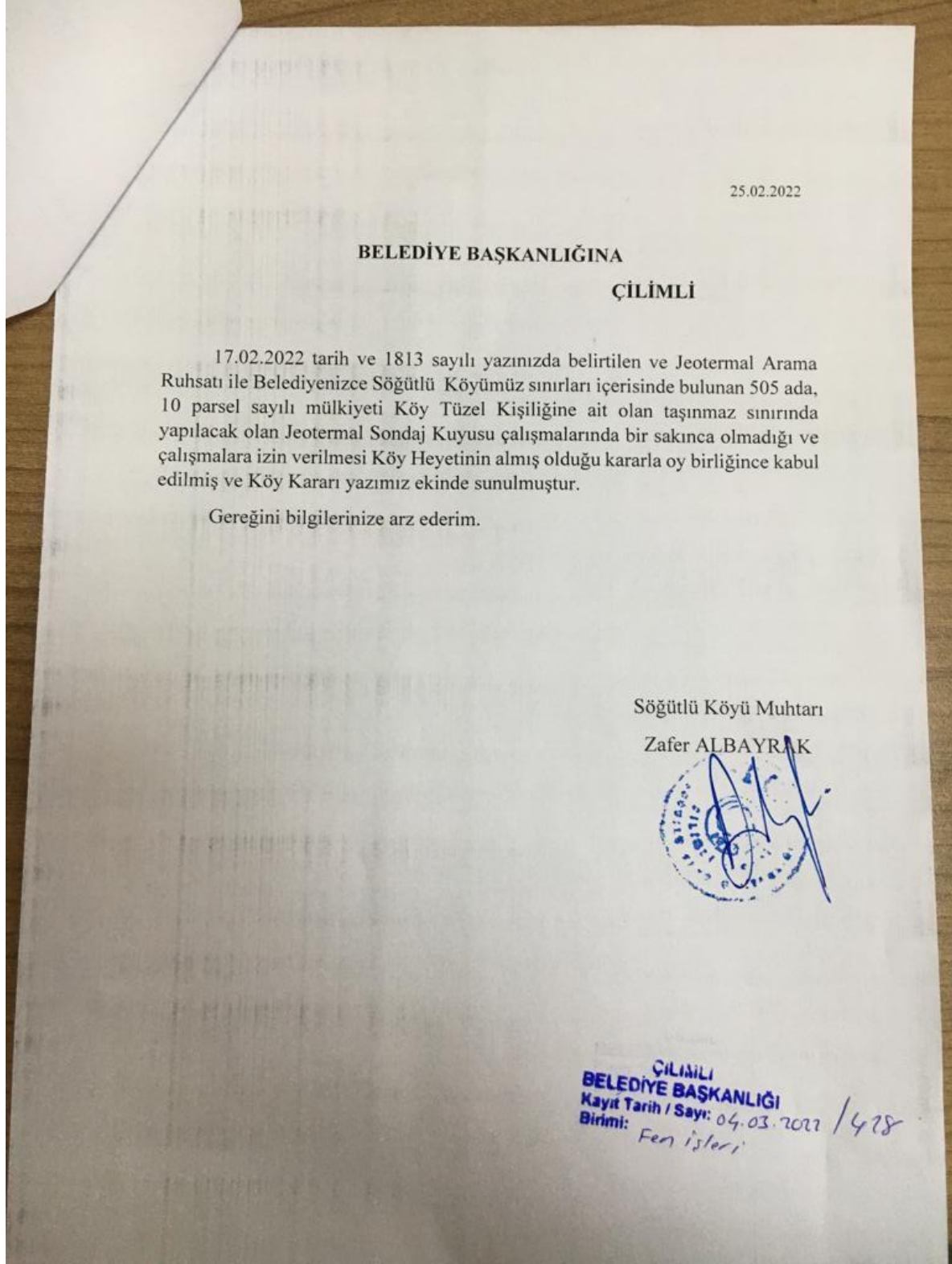


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Headman of Söđütlü Village





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Annex 4 EIA Not Required Certificate



T.C.
DÜZCE VALİLİĐİ
Çevre, Şehircilik ve İklim Deđişikliđi İl Müdürlüğü

Sayı : E-96738833-220.02-3921138

17.06.2022

Konu : Jeotermal Kaynak Arama Faaliyeti

ÇİLİMLİ BELEDİYE BAŐKANLIĐINA

İlimiz Çilimli İlçesi Ulucami Mahallesi 656 ada 1 parsel, Kiraztarla Köyü Kiraztarla Yolu Mevkii ile Söğütü Köyü Söğütü Caddesi mevkiinde Çilimli Belediye Başkanlıđı tarafından yapılması planlanan "Jeotermal Kaynak Arama Amaçlı Sondaj Çalışmaları" projesi ile ilgili e-ced portalı üzerinden başvuru yapılmıştır.

ÇED Yönetmeliđinin 17. maddesi geređince Çilimli Belediye Başkanlıđı tarafından yapılması planlanan "Jeotermal Kaynak Arama Amaçlı Sondaj Çalışmaları" projesine 03.06.2022 tarihli ve 3789621 sayılı Valilik Olur'ları ile "Çevresel Etki Deđerlendirmesi Gerekli Deđildir" kararı verilmiştir.

Söz konusu projeye iliřkin Proje Tanıtım Dosyası ve eklerinde belirtilen hususlar ile 2872 sayılı Çevre Kanunu ve bu Kanuna istinaden yürürlüğe giren ilgili yönetmeliklere uyulması, mer'i mevzaat uyarınca ilgili kurum/kuruluřlardan gerekli izinlerin alınması ve ÇED Yönetmeliđinin 18. maddesi geređince projede yapılacak deđerliklerin alınan izin ve ruhsatlar ile yatırımın başlangıç, işletme ve işletme sonrası dönemlerine iliřkin raporların Valiliđimize (Çevre, Şehircilik ve İklim Deđerlikliđi İl Müdürlüğü) gönderilmesi gerekmektedir.

Bilgilerinize ve geređini rica ederim

Nurhan KARTAL
Vali a.

Çevre, Şehircilik ve İklim Deđerlikliđi İl Müdürü

Ek: ÇED Gerekli Deđerdir Belgesi

Dađıtım:

Geređi:

Çilimli Belediye Başkanlıđına

Bilgi:

ÇEV MED ÇEVRE MED. MÜH. EĐT. MAD.
MAK. DAN. PAZ. SANAYİ VE TİCARET LTD.
ŞTİ.NE(Ek konulmadı)
Mustafa Kemal Mahallesi 2079 Sk. VİA-GREEN İş
Merkezi B-Blok No:52 Çankaya ÇANKAYA /
ANKARA

Bu belge 3870 sayılı
e-İb. Kanunu geređince elektronik ortamda
17.06.2022

Çilimli Belediye Başkanlıđı

İmza

Deđerleme Kodu: 7DC9093E-A501-6685-9357-C3A2CDE44158
Hükümet Konađı: Binnaz F - Blok Kat: 1 Merkez / DÜZCE
Tel No: (0380) 324 58 27 - (0380) 324 58 28 Faks No: (0380) 524 16 21
e-posta: duzce@csb.gov.tr / https://duzce.csb.gov.tr/

Deđerleme Adresi: <https://www.turkiye.gov.tr>

Bilgi için: Ayşe ERDOĐAN
Mihendis





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T.C.
ÇEVRE, ŞEHİRCİLİK VE İKLİM DEĐİŐİKLİĐİ BAKANLIĐI
Çevresel Etki Deđerlendirmesi, İzin ve Denetim Genel MÜdürlüĐü



Karar Tarihi : 13.06.2022
Karar No : 96738833 220-02 E-202294

ÇEVRESEL ETKİ DEĐERLENDİRME BELGESİ

25.11.2014 tarih ve 29186 sayılı Resmi Gazete'de yayımlanarak yürürlüĐe giren Çevresel Etki Deđerlendirmesi YönetmeliĐi'nin Ek-II listesinde yer alan "Jeotermal Kaynak Arama Amaçlı Sondaj Çalışmaları" projesi ile ilgili olarak inceleme-deđerlendirme yapılmıő ve Proje Tanıtım Dosyasında çevresel etkilere karşı alınması öngörülen önlemler yeterli görülmüőtür. Ayrıca ÇED Raporu hazırlanmasına gerek bulunmadıđı tespit edilmiő olup, söz konusu projeye ÇED YönetmeliĐinin 17. Maddesi gereĐince ValiliĐimizce "Çevresel Etki Deđerlendirmesi Gerekli Deđildir" kararı verilmiőtir.

Gürbüz SALTAY
Vali a.
Vali Yardımcısı

Proje Sahibi : Çilimli Belediye BaşkanlıĐı
Proje Yeri : Düze İli Çilimli İlçesi Ulucami Mah. 656 Ada 1 parsel, Kiraztarla Köyü Kiraztarla Yolu Mevkii
ve Söğüdü Köyü Söğüdü Caddesi Mevkii
Kapasite : DerinliĐi 1000 metre 3 Adet Sondaj



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Annex 5 Chance Find Procedure



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Çilimli Geothermal Well Drilling Project

Chance Finds Procedure



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1 Scope

This Chance Finds Procedure (CFP) will be implemented on the ilimli Geothermal Well Drilling Project in order to manage any chance finds that may be encountered during the construction activities. The purpose of the CFP document is to:

- outline the applicable legislation and standards relevant to this procedure;
- define roles and responsibilities;
- define project commitments, operational procedures, training requirements and guidance relevant to this procedure; and
- define monitoring and reporting procedures.

Although there are no known archaeological sites or remains within the project area, it is considered that there may be a potential to encounter archaeological findings during the construction of the project. Activities which have high potential to lead to discover or adversely affect the archeological resources are;

- topsoil stripping
- excavation and earthworks

This CFP is prepared in order to provide information to the contractors and employees regarding the actions to be taken in case of an archaeological chance find discovery.



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2 Legislation and Standards

Legislation and standards that apply to the project comprise the following:

- World Bank Operational Policy (OP 4.11) Physical Cultural Resources
- applicable Turkish laws and national standards
- other commitments to and requirements of Turkish government authorities
- other industry guidelines with which the project has committed to comply

In Turkey, movable and immovable cultural and natural assets are protected and preserved by the Law on Preservation of Cultural and Natural Assets (Law No. 2863) published in the Official Gazette dated 23.07.1983 and numbered 18113. Law 2863 establishes legal protection for the following:

- all natural assets and immovable cultural assets constructed up until the end of the 19th century,
- any immovable cultural asset from after the end of the 19th century, identified by the Ministry of Culture and Tourism as an important asset worthy of preservation,
- all immovable cultural assets located within archeological sites,
- buildings/areas that have witnessed significant historical events during the National War and the foundation of the Turkish Republic and dwellings that have been used by Mustafa Kemal ATATÜRK, regardless of time and registration.

The Ministry of Culture and Tourism is the responsible body to take decisions for protection of cultural heritage in Turkey at the national level. As part of the Ministry, the High Commission for the Protection of Cultural Assets is responsible for protecting and restoring immovable cultural assets. Implementation of the decisions and regulations issued by the Ministry are undertaken by local administrations. At local level, there are Cultural Assets Protection Regional Boards defined by the Ministry of Culture and Tourism, which are responsible for preservation, registration and classification of cultural heritage within their respective jurisdictions. The relevant Regional Boards for the project is the “Istanbul 5th Cultural Assets Protection Regional Board Directorate and Istanbul 6th Cultural Assets Protection Regional Board Directorate”.

According to Law 2863, all the natural and cultural assets qualified for legal preservation are properties of the State. Therefore, regional boards have the power and authority to provide legal protection to the preservation sites and to approve or reject all the activities which have potential negative impacts on the preservation sites such as construction, demolition and excavation activities.



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3 Roles and Responsibilities

Principal roles and responsibilities for the implementation of this procedure are outlined below.

Role	Responsibilities
Contractor - Project Manager	<ul style="list-style-type: none">• Overall responsibility for the development, review, approval and coordination of the numerous activities required to initiate, conduct and complete construction.• Ensure that this procedure is prepared, and updated as required, based on the activities undertaken as part of the project.• Ensure that adequate resources are made available to implement the procedures and guidelines outlined in this procedure.
Contractor - Environmental and Social (E&S) Expert	<ul style="list-style-type: none">• Initiation, development, implementation and coordination of the CFP during construction.• Ensure that adequate training is given to all site personnel and sub-contractors, covering the procedures and guidelines outlined in this procedure. Establish appropriate control procedures and conduct audits as necessary.• Consultation with and reporting to relevant government bodies in case of potential archeological chance finds.• Record all confirmed chance finds by filling up the “Chance Find Reporting Form” and maintain copies in a log-book. Ensure that the chance finds log-book is functional and up to date.
Contractor - Site Manager	<ul style="list-style-type: none">• Day-to-day implementation of the provisions of the CFP in the field during construction.• Notify the E&S Expert regarding potential chance finds during construction.
Employees	<ul style="list-style-type: none">• Understand and comply with archeological chance finds procedures and guidelines outlined in this procedure.• Reporting of the potential chance finds to the Site Manager.



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4 Impact Avoidance and Mitigation

In the event of an archaeological discovery, the following actions shall be implemented:

- All staff involved in land clearance and excavation activities will take the responsibility for managing archaeological protection and will be trained in these aspects by the E&S Expert.
- In case any potential chance find is encountered, all construction activities will cease immediately in the vicinity of the chance find.
- The Site Manager will be contacted immediately. The discovered site location, the characteristics of the potential archaeological material and photos will be recorded by the Site Manager, who in turn will inform the E&S Expert.
- Düzce Konuralp Museum Directorate will be notified at the latest within three days after the chance find is encountered. Contact details of the Düzce Konuralp Museum Directorate are given below:
Address: Konuralp Çiftepınarlar Mahallesi No: 50 Düzce
Telephone: (0380) 541 37 70
E-mail: konuralpmuzesi@ktb.gov.tr
- The site and its vicinity will be secured 24 hours a day against damage or loss, until inspection by the authority.
- The E&S Expert will fill up a “Chance Find Report Form” for each confirmed chance find and inform the Project Manager about the date that the construction work can resume, which is determined by the authorities concerning the conservation of the heritage.
- Further steps to be followed and proper plan to be implemented for the management of the finds (Changes in the layout, conservation, preservation, restoration and salvage) will be decided and reported in writing by the authorities in charge.
- Photographs of the potential artifacts that are likely to be encountered in the construction site are presented in the following pages to be used during the training of the relevant staff.



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5 Verification and Monitoring

E&S Expert will record all cases of archaeological chance finds. He/she will fill up a “Chance Find Reporting Form” for each chance find confirmed by the authority and maintain copies in a logbook. A sample of a reporting form which can be used to record chance finds is included below. The chance find logbook will be summarized on an annual basis and records included in annual monitoring reports to verify that correct management procedures have been followed. Action items will be taken in cases of non-adherence to this CFP.



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Çilimli Geothermal Well Drilling Project Chance Find Reporting Form

REGISTRATION

Name of recorder:

Date and time of discovery:

Site Name:

Coordinates

X

Y

Description of find:

Photograph numbers:

Estimated weight and dimensions:

CONTACT PERSON

Name/Title/Duty:

Date and Time:

Contact information:

Details of conversation:

DECISIONS

Any protection measures to be implemented:

Movable or immovable: If moved, please specify the new location.

Further actions required:

Recommence date and time:

Notes:

SUBMISSION

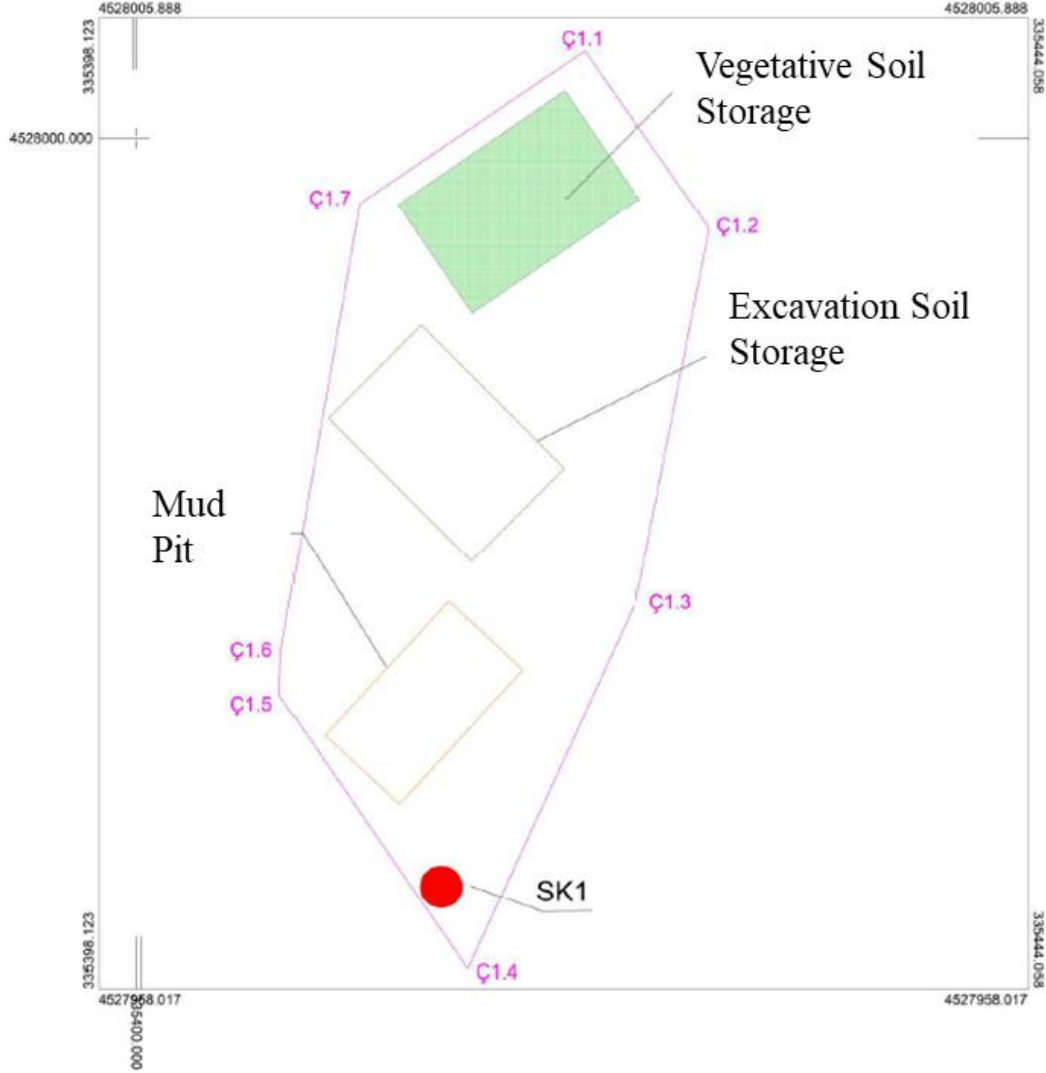
Name:

Date:



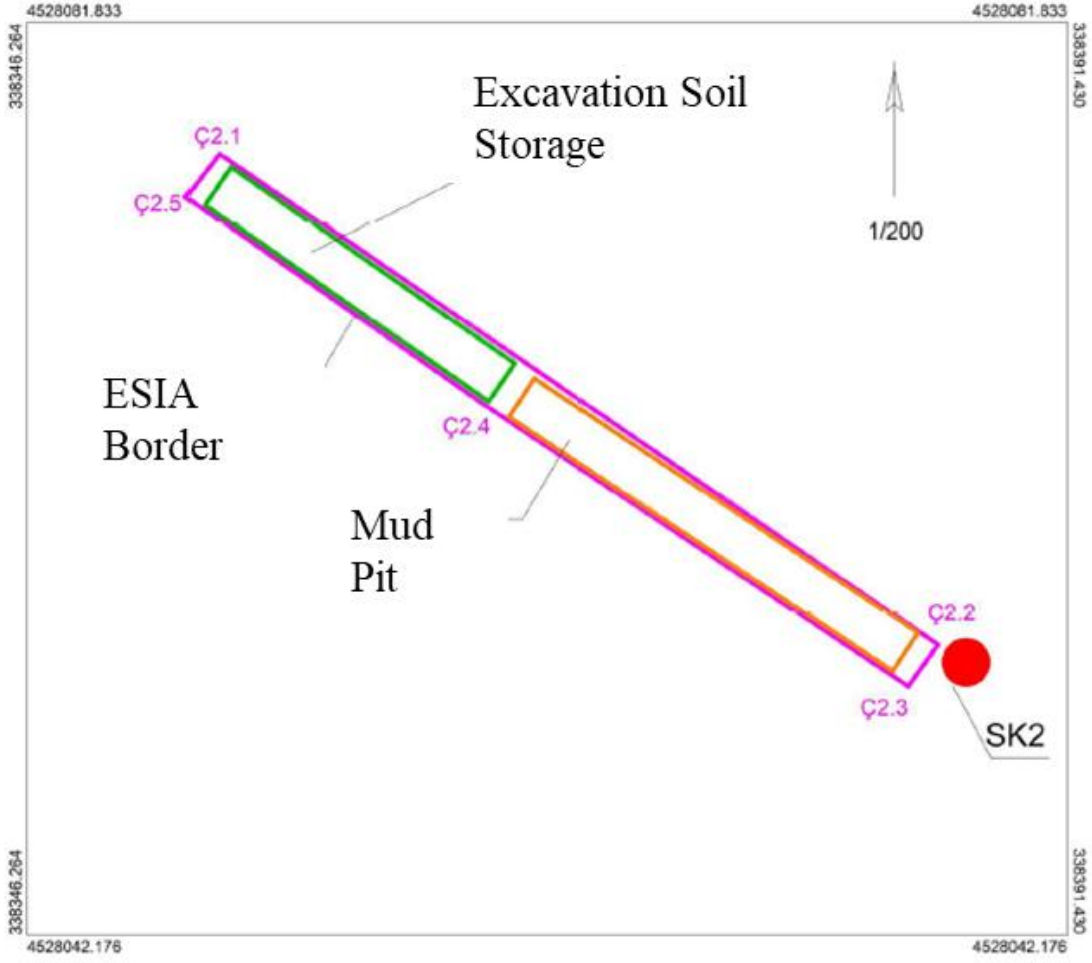
This project is co-funded by the European Union, the Republic of Turkey and the World Bank
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Annex 6 Site Layout Plans



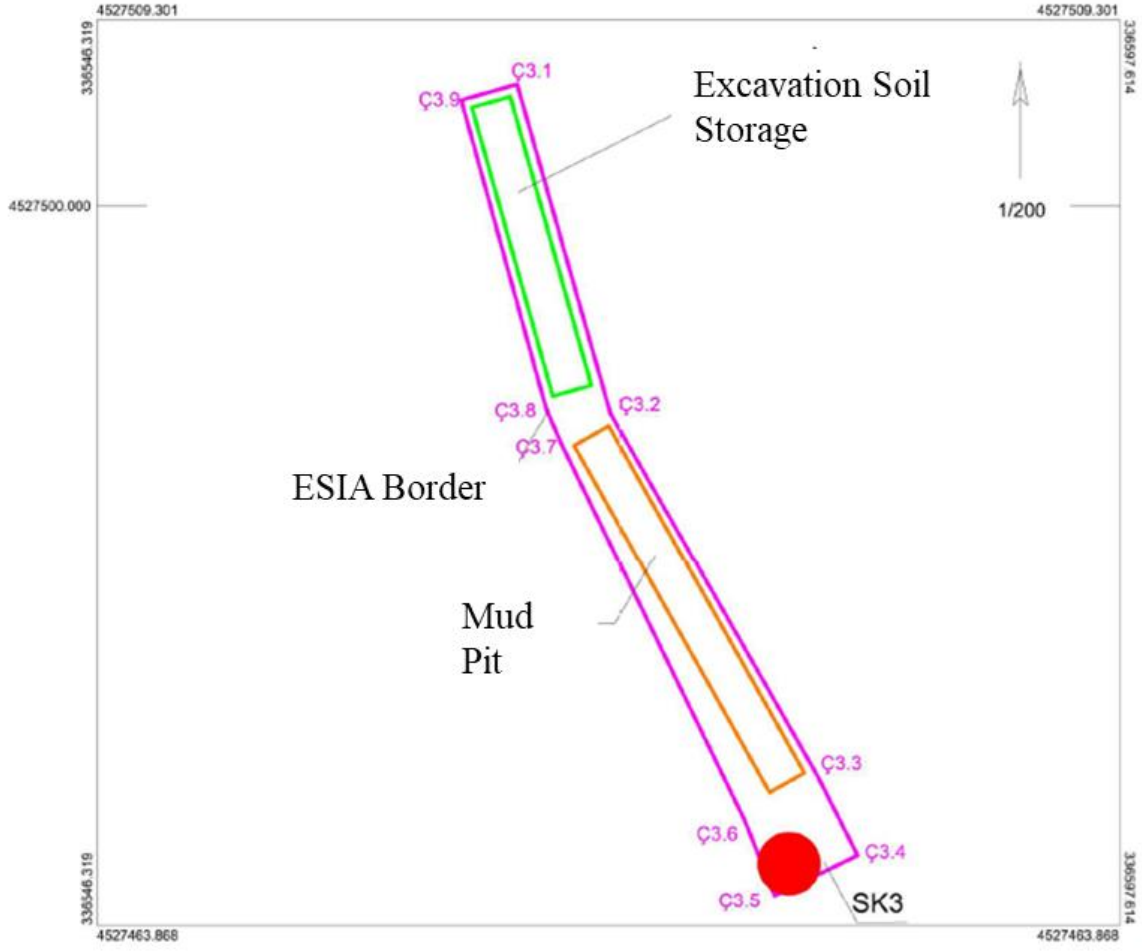


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Annex 7 Grievance Form

	ÇİLİMLİ MUNICIPALITY Project Code: Çilimli Geothermal Well Drilling Project			
	GRIEVANCE FORM			
Person Filling the Form:				Date:
Interview Agenda:				Reference No:
1. INFORMATION ABOUT THE COMPLAINANT				
Name Surname:	How to receive the complaint			
Turkish ID Number:	Phone		<input type="checkbox"/>	
Phone:	Face to face		<input type="checkbox"/>	
Address:	Web-site/ E-Mail		<input type="checkbox"/>	
Email:	Other (Explain)		<input type="checkbox"/>	
Stakeholder Type				
Public Institution <input type="checkbox"/>	Project Affected People <input type="checkbox"/>	Private Enterprise <input type="checkbox"/>	Trade Association <input type="checkbox"/>	NGO <input type="checkbox"/>
Interest Groups <input type="checkbox"/>	Industry Associations <input type="checkbox"/>	Workers' Union <input type="checkbox"/>	Media <input type="checkbox"/>	University <input type="checkbox"/>
2. DETAILED INFORMATION ON THE COMPLAINT				
Description of the Complaint:				
Type of the Complaint • Damage of trees and property • Issues related to transportation and traffic; • Increase in environment pollution; • Impact on community health and safety; • Issues arising out of sharing of employment and business opportunity; • Concerns over the impact on local cultures and customs				
Resolution method requested by the Complainant				
Registered Person Name Surname/Signature	Complainant Name Surname/Signature			



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Annex 8 Grievance Close-Out Form

	ÇİLİMLİ MUNICIPALITY Project Code:..... Çilimli Geothermal Well Drilling Project	
	GRIEVANCE CLOSE OUT FORM	
Reference No:		
1. DETERMINATION OF CORRECTIVE ACTION		
1		
2		
3		
4		
5		
Responsible Departments		
2. CLOSE OUT THE GRIEVANCE		
<i>This section will be filled and signed by the Complainant in case the complaint stated in the "Grievance Registration Form" is resolved.</i>		
Date: /...../.....	Name Surname / Signature of the Person Closing the Complaint	Name Surname / Signature of Complainant




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Annex 9 Grievance Register Table




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Annex 10 Consultation Form

	CILIMLI MUNICIPALITY Project Code: Çilimli Geothermal Well Drilling Project			
	CONSULTATION FORM			
Person Filling out the Form:	Date and time:			
Meeting Agenda:	Consultation Registration No:			
1. CONSULTATION INFORMATION				
Interviewed Institution:	Communication Type			
Date and Venue:	Phone / Hotline <input type="checkbox"/>			
Phone:	Face to Face Meeting <input type="checkbox"/>			
Address:	Website / E-mail <input type="checkbox"/>			
Email:	Other (Explain) <input type="checkbox"/>			
Stakeholder Type				
Public Institution <input type="checkbox"/>	PAP <input type="checkbox"/>	Private Enterprise <input type="checkbox"/>	Professional Chamber <input type="checkbox"/>	NGO <input type="checkbox"/>
Interest Groups <input type="checkbox"/>	Industry Associations <input type="checkbox"/>	Labor Unions <input type="checkbox"/>	Media <input type="checkbox"/>	University <input type="checkbox"/>
2. CONSULTATION DETAILS				
Questions about the Project:				
Project concerns/feedback:				
Responses to the views expressed above:				
<i>Recorded by</i> <i>Name-Last Name/Signature</i>	<i>Complainant</i> <i>Name-Last Name/Signature</i>			



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	CILIMLI MUNICIPALITY Project Code: Çilimli Geothermal Well Drilling Project			
	CONSULTATION ASSESSMENT FORM			
Main Topic:	Date and time:			
Meeting Agenda:	Consultation Registration No:			
1. CONSULTATION INFORMATION				
Interviewed Institution:	Communication Type			
Stakeholder Types				
Public Institution <input type="checkbox"/>	PAP <input type="checkbox"/>	Private Enterprise <input type="checkbox"/>	Professional Chamber <input type="checkbox"/>	NGO <input type="checkbox"/>
Interest Groups <input type="checkbox"/>	Industry Associations <input type="checkbox"/>	Labor Unions <input type="checkbox"/>	Media <input type="checkbox"/>	University <input type="checkbox"/>
2. CONSULTATION SUMMARY				
List of Participants and Stakeholder Type				
Summary of Consultation Findings				
Brief of presentations				
Summary of questions raised and answered				
Prepared By Name-Last Name/Signature				



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Annex 11 Information Related to Preliminary Stakeholder Consultation Meeting

Announcement for Public Informing about the Preliminary Public/Stakeholder Consultation Meeting



Çilimli Municipality Geothermal Well Drilling Project

INVITATION TO THE PUBLIC CONSULTATION MEETING

Within the scope of İBank Sustainable Cities Project, Environmental and Social Impact Assessment (ESIA) studies are carried out for the "Çilimli Municipality Geothermal Well Drilling" Project planned by the T.R. Municipality of Çilimli. Within the scope of this study, the "Public Consultation Meeting", the details of which are given below, will be held in order to inform the public about the project and to receive the views and suggestions of the public.

It is announced with respect to all our people.

T.R. Çilimli Municipality

Meeting Date : 2.11.2021

Meeting Time : 14:00

Meeting Place: T.R. Çilimli Municipality Conference Hall

Project Owner : T.R. Çilimli Municipality Mayoralty

Phone: +90 (380) 681 50 04- Fax: +90 (380) 681 66 66- E-mail: bilgi@cilimli.bel.tr



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Newspaper Advertisements of Preliminary Public/Stakeholder Consultation Meeting

T gündem 23 Ekim 2021 Çarşamba

Kırgızistan Türkiye'den SIHA alacak

11

CUMHURBAŞKANI ERDOĞAN

Afrika Türkiye'yi KEŞFEDİYOR

"Afrika ile kazanan kazanan tarafların de çabalarıyla, Türk yatırımcılarına kapıları açıyor. Afrika'nın doğurduğu Türkiye'nin turizm, sağlık, altyapı ve tarım alanındaki imkânlarını keşfediyor"

ISMAIL KAPAN
NOKTALAR

Gri listenin başında hangi ülke olmalı?!

Maliye Bakanı Gökçe GÜLER, 2021 yılı için hazırlanan Gri Listesi'ni açıkladı. Ülkelerin 2021 yılında en yüksek riskli olarak değerlendirildiği ülkelerin başında Türkiye'nin bulunduğu bir liste yayımlandı.

Cumhurbaşkanı Recep Tayyip Erdoğan, Afrika ile kazanan kazanan tarafların de çabalarıyla, Türk yatırımcılarına kapıları açıyor. Afrika'nın doğurduğu Türkiye'nin turizm, sağlık, altyapı ve tarım alanındaki imkânlarını keşfediyor.

HERKES LÜTTAL FAĞİZİNİN İSTANBUL'DA

Yalan haberler milli güvenliği tehdit ediyor

4 Erbakan'ın hayallerini gerçeğe dönüştürdük

Gri listenin başında hangi ülke olmalı? Ülkelerin 2021 yılında en yüksek riskli olarak değerlendirildiği ülkelerin başında Türkiye'nin bulunduğu bir liste yayımlandı.

4 Erbakan'ın hayallerini gerçeğe dönüştürdük

ÖLÜMÜNE HUKUKYARSA CEZA

'Teslim olacağım' diyen 2 bin 700 kişi serbest bırakıldı

CHP, ÇOCUK HAKIRANI UÇURME İLE DOLURMUS

Heykel biraz ucuz gelmiş!

CİLİLİ

Çilimli Yerleşim Künyesi Projesi HALKIN BİLİLENDİRME VE İZİNİ TOPLANTISINA DAĞ



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Brochure Distributed during the Preliminary Public/Stakeholder Consultation Meeting

Geothermal Well

ÇİLİMLİ MUNICIPALITY GEOTHERMAL WELL DRILLING PROJECT

Public Information Brochure

Çilimli Municipality Geothermal Well Project will be realized by Çilimli Municipality within the scope of Sustainable Cities Project (SCP) II - Supplementary Financing program carried out by İller Bank with the support of the World Bank.

SCP II - The Supplementary Funding Program aims to support municipalities to develop and strengthen their urban planning, infrastructure and capital investment planning capacities, and to increase access to targeted municipal services. The program will support the development of the environmental, economic, financial and social sustainability of Turkish cities by improving access to priority municipal services. Within the scope of the program, financing will be provided for municipal infrastructure investments aimed at improving public transportation, water and wastewater, solid waste management, energy, environment, resilience to disasters and climate impacts, and social infrastructure services.

Geothermal Well is located in Düzce province, Çilimli district. 68.8% of the population lives in the city (as of the end of 2020). The area of the province is 2,492 km².

Geothermal energy is a heat energy. This heat energy is carried from underground to the earth with water, steam and gases. Water, steam and gases cannot be kept for a long time without losing the heat energy loaded on them and cannot be stored in large quantities.

As with other types of energy, it is not possible to choose the desired size by transporting and storing water, steam and gases produced from other fields and reservoirs. Geothermal energy is an **inexhaustible renewable energy source for humans**. At the same time, it is a green energy source that does not emit greenhouse gases harmful to human and environmental health.

Current Status of the Project

Projects are currently in the planning stages.

Çilimli Municipality is planning to use a financing loan from İLBANK to support the development of the project. One of the loan terms requirements is that the project is carried out in accordance with the environmental regulations in Turkey and the Safeguard Policies of the main financier, the World Bank. In this context, it is necessary to conduct an Environmental and Social Impact Assessment (ESIA) study, in which the environmental and social impacts of the project are determined.

For the ESIA study, İLBANK by ACE Consulting and Engineering Inc. firm was commissioned.

The ESIA study was initiated in August 2021. The works are planned to be completed in December 2021 and there may be changes in the project completion schedule.

This brochure has been prepared to inform the public, to ensure that the ESIA study addresses all relevant issues, and to obtain views on environmental and social issues that are important and considered to be addressed.

Possible Environmental and Social Impacts

Possible environmental and social impacts related to the Project are summarized below:

- Waste generation
- Wastewater generation
- Traffic increase (during construction)
- Dust formation (during construction)
- Noise
- Worker health and safety
- Public health, safety and security

Opportunity to Express Opinion

This document has been prepared with the aim of communicating with the institutions and individuals (referred to as Stakeholders) who may be affected by the Project or who are interested in the Project and its impacts, to provide information about the Project and to get their opinions. Thus, comments received can be taken into account in the ESIA study.

The main methods to be used in communicating with the stakeholders include the preparation and distribution of informative brochures, meetings with the Municipality of Akçakoca, holding a public consultation meeting in Akçakoca to get the opinions of the local people about the proposed Project, and announcements made in local newspapers.

With this project information brochure, we invite you to present your views on the main environmental and social issues of the Project and the measures to be taken.

You can share your views through the following communication channels:

Çilimli Municipality Geothermal Well Project

T.R. Çilimli Municipality Mayorality

Address

Ulucami Neig. Düzce Street 81750

Çilimli Düzce

E-mail:

bilgi@cilimli.bel.tr

Phone: +90 (380) 681 50 04



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Grievance Form Distributed during the Preliminary Public/Stakeholder Consultation Meeting

ÇİLİMLİ GEOTHERMAL WELL DRILLING PROJECT - VIEW/COMPLAINT FORM		
INFORMATION ABOUT THE PERSON REPORTING AN VIEW AND/OR COMPLAINT (If you prefer to express your opinions anonymously, leave this section blank.)		
Name:		
Date:		
Contact Information: (Please, fill according to your preferred communication type)		
Address		
Phone		
E-Mail		
Purpose: <input type="checkbox"/> View <input type="checkbox"/> Complaint Recorder: <input type="checkbox"/> Person reporting view/complaint <input type="checkbox"/> Other (please specify name)		Signature that a copy of the completed View/Complaint Form has been received:
VIEWS ON THE PROJECT (Continue using the back page if necessary)		
INFORMATION ABOUT THE COMPLAINT		
State your complaint: (Continue using back page if necessary)		
The date and frequency of the complaint: <input type="checkbox"/> Once (Date) <input type="checkbox"/> More than once (How many times?) <input type="checkbox"/> Ongoing (The problem is still happening)		
What are your suggestions to fix the problem? (Continue using back page if necessary)		
This section will be filled by the Municipality.		
STATUS OF VIEW		
Opinion recorded (Y/N)	Date of opinion submitted:	Recorded by:
Needs to be answered (Y/N)	Date the comment was answered:	
STATUS OF THE COMPLAINT		
Complaint registered (Y/N):		
Date the complaint was answered:		

You can send the comment form to the postal or e-mail address given below :
ÇİLİMLİ MUNICIPALITY
Ulucami Neig. Düzce St. 81750 Çilimli Düzce
E-mail: bilgi@cilimli.bel.tr



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Presentation Given in the Preliminary Public/Stakeholder Consultation Meeting

DÜZCE-ÇİLİMLİ JEOTERMAL KUYU PROJESİ

Halkın Bilgilendirilmesi Toplantısına Hořgeldiniz





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Photographs from the Preliminary Public/Stakeholder Consultation Meeting





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Participant List

**ÇİLİMLİ BELEDİYESİ JEOTERMAL KUYU PROJESİ HALKIN KATILIMI
TOPLANTISI
02.11.2021
Çilimli Belediyesi Fen İşleri Müdürlüğü**

KATILIMCI LİSTESİ				
No	AD SOYAD	MESLEĞİ	TELEFON	MAIL
1		insaat		
2		giyim		
3		Emekli		
4		ÇOCU		
5		insaat Mak		
6		Emekli		
7		is Mak		
8				
9		publiser		
10		muhter		
11		muhter		
12				
13				
14				
15				
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17				
18				
19		Tatik		
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21		stajer		
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30				



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Annex 12 Information Related to Stakeholder Consultation Meeting 2

Çilimli Geothermal Well Drilling Project Public/Stakeholder Consultation Meeting Minutes 04 January 2024

The second Public/Stakeholder Consultation Meeting was conducted on 4th of January 2024 at Çilimli Municipality Conference Hall. The meeting was held with the participation of 19 people. 14 out of 19 participants were employees of Çilimli Municipality, one (1) participant was an engineer at Çilimli Organized Industrial Zone, three (3) participants were citizens of neighborhoods and there was one (1) mukhtar who attended the meeting.

The meeting was announced via newspaper advertisements in Türkiye and Manşet Newspapers on 28th December 2023. The meeting was also announced through flyers placed at certain locations (such as mukhtar offices, public places) by Çilimli Municipality. Çilimli Municipality informed all the project mukhtars about the date/time and location of the planned public consultation meeting.

The Draft Environmental and Social Management Plan and the Draft Stakeholder Engagement Plan were disclosed in the Çilimli Municipality website as of 22nd of December 2023.

Brochures were provided to mukhtars to be distributed to the residents in their neighborhoods. Brochures were distributed to participants during the meeting. Çilimli Municipality representatives and ACE Experts were available during the meeting. A presentation was given to the participants by ACE. The presentation covered the following main headings:

- Project Executor, Implementer and Financier
- Project Description
- Expected benefits of the Project
- Environmental and Social Studies
- Potential environmental and social impacts
- Mitigation measures and management strategies
- Stakeholder engagement and how stakeholders can be involved in the process
- Questions and answers

At the end of the meeting, there was a question/answer session. However, none of the participants raised a question. There was only one comment raised by a participant who stated that if the geothermal well drilling project is put into operation as a geothermal facility, it is considered to be beneficial for the development of the region.



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The newspaper announcements, the flyer, the disclosure page of ESMP and SEP, the brochure, the presentation given at the meeting, the photographs taken during the meeting and the participant list are provided below.



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Newspaper Advertisements of Public/Stakeholder Consultation Meeting

gündem

28 Aralık 2023 Perşembe 11

ERDOĞAN: NE KADAR KURUM VARSA HEPSİ SINIFTA KALDI

Netanyahu'nun Hitler'den farkı yok

Cumhurbaşkanı "Gözlerimizin önünde insanlığa ait tüm değerler kurşuna dizildi. Sizin Hitler'den ne farkınız var?" diye sordu.

31 farklı üniversite ve araştırma kurumundan bilim insanına 7 bilim ödülü, 1 özel ödül, 1 hizmet ödülü ve 18 teşekkür ödülü verildi.

KAPILARIMIZ SİZE AÇIKTIR

Geçmiş günlerde Gazze'ye desteğini açıkladığı için Batı toplumlarının istifa zorluğu akademisyenleri gündeme getiren 'Üniversite açık davet' diyerek manşetleri çığırda bulmuştu. Beşer bir ülke Cumhurbaşkanı Erdoğan da yaptığı Sadece uluslararası çabalar değil, Batı'daki kefil üni. üniversiteler de Gazze sınırdaki maddesi ilas etmiş. 80 ül. Ü. Akad. Alınır. Ya sında olduğu gibi bugün de Gazze'deki zulme 'ulmim' denme cesareti gösteren bilim insanları başıyla ve tehdide maruz tutulmaktadır. Gazze'de insanlık onuruna savaşağı için basıya maruz kalan bilim insanlarına çağrı yapıyoruz. Türk üniversitelerinin kapıları sizlere sonuna kadar açıktır.

ISMAIL KAPAN NOKTALAR

ismail.kapan@ig.com.tr

Türkiye'nin önünü kesemeyecekler..

Bugüne kadar Türkiye'nin büyümesine, güçlenmesine set çekmek için akla hayale gelmedik kalleşliklere başvuran dış güçler ve onların yitli birlikleri, hedeflerine ulaşamadı. Asla ve katabilecekler..

Türkiye ne zaman önemli bir siyasi veya ekonomik hamle yaparsa, şer güçler derhal sabotaj için harekete geçer. 22 ve 23 Aralık günlerinde, Irak'ın kuzeyinde askerlerimize karşı girilen kalleş saldırı da bu çerçevede değerlendirilmeli. Türkiye Orta Doğu, Bakınlar, Kafkaslar ve Kuzey Afrika'da, bölgesel ve küresel barışa hizmet eden çok önemli bir rol oynuyor. Geleceğimiz Türkiye'nin bu deneye ekli olmasını bizler hiç istemeyebiliriz. Bu gerçeği on yıllardır hep görüyor ve izliyoruz. Ülkemiz kendi iç problemlerine hapsedecek, sadece kendi derbiriyle meşgul edecek, uluslararası arenada önemli bir aktör olmasını önlemeye çalışıyorlar. Bunun için de fitne üstüne fitne konyollarıyor. Türk-Kürt, Alevi-Sünni, laik-anti laik vs. kırk tezgahları, iktidarın enerjisini çok büyük oranda bu alanlarda tüketmeye mecbur bırakıyorlar. Tam kırk yıldan beri bölücü örgüt PKK'nın arkasındaki bölge ve küresel gücün desteğiyle memleketimize verdiği hasarı büyük ölçüde ortada. Devletimiz kararlı ve başkanı mücahede, bölücü terör örgütü ve hep arkasındaki çevrelerin baskılarını boşa çıkardı. Ancak bir kısmı dost ve müstebit kalleş gücün, millet birik ve bölünmüşlüğü yönüne hasmane politikaları hiç de sonlanmasa gibi görünürken, bu demerik ki, yakın ve uzak gelecekte, bölücülik fitnesiyle daha geniş çarıfta mücahede etme mecburiyeti doğabilir. Bunu herhangi bir katımsarık fidesi olarak almıyor. Blikas tehlikenin boyutlarına ve ona karşı yapmamız gereken ciddi hazırlara bir işaret ediyor. Daha açığa, bu meselede bazı büyük güçler doğrudan çok kritik hesaplaşmalarını içine görebilir..

Irak'ın Kuzeyinde, Hakkari, Gazze, Zap ve Metina bölgelerinde kahraman askerlerimize karşı yapılan kalleş saldırılarımız, bu konuda birçok puca veriyor. Ele geçen silah ve malzeme net olarak adresi gösteriyor. Bu menfur hadiseğin kısa bir maddesi önce, Irak canlarından ülkemize; Başbakan-Dışişleri ve Savunma Bakanlığının sıvayesinde ziyaretleri gerek esmesi. Ki ülke arasında güvenle ilgili çok önemli kararların alınması ve Türkiye-Irak Kalkınma Yolu projesine dair ciddi adımların atılması, birliktir kens mahkûmdur.

51 VEKİLE DANIŞILACAK 81 ilin temayülü bugün bitiyor

Yerel seçim hazırlıklarının sürdüren AK Parti'de çalışmalar yoğun bir şekilde devam ediyor. 28 büyükşehirin temayülü gerçekleştirildi. Cumhurbaşkan Recep Tayyip Erdoğan, dün de Mardin ve Maraş teşkilat ile görüştü. Boyutlu Erdoğan 30 büyükşehirin temayülünü bitirecek, aday belirlene çalışmalarında sona erecek. 31 Mart 2024'te tüm il ve ilçelerde zafer hedeflenen AK Parti'de diğer partilerle ittifak görüşmelerinde devam ediyor. Edinilen bilgiler, Yeminlen Refah ile görüşmeler sürerken HUDA PAR ile temaslarda herhangi bir durum bulunmuyor. **Emrah Özcan ANKARA**

KÜRESEL DIPLOMASININ MERKEZİ OLUYORUZ

BM İstanbul'da 'eş güdüm ofisi' kuracak

Esmâ Altın ANKARA

İzlenmiş Milletler (BM) İstanbul'da Kalkınma Eşgüdüm Ofisi açacak. İstanbul'da kurulacak ofise ilişkin uluslararası anlaşma TBMM Dışişleri Komisyonunda kabul edildi. Kalkınma Eşgüdüm Ofisinin bölgesel temelde koordinasyonu sağlamak amacıyla dünya genelinde 5 bölgesel ofisinin olduğunu hatırlatan Dışişleri Bakan Yardımcısı Burak Akçapar "Bunlardan birisi de İstanbul. Diğer bölgesel ofisler Panama, Addis Ababa, Orta Doğu için Amman ve Bangkok" dedi. "Soz konusu ofisin kuruluşu aynı zamanda İstanbul'un New York veya Cenevre gibi bir BM merkez haline gelmesi vizyonumuzda da uyumlu, ona hizmet eder nitelikte" diyen Akçapar "İstanbul'da kurulacak BM Kalkınma Eşgüdüm Bölgesi Ofisi, Avrupa ve Orta Asya'da görev yapan 18 BM mükin koordinatörünü destekleyecek" bilgisini verdi. AK Parti Gaziantep Milletvekili ve Dışişleri Komisyonu üyesi Ali Şahin de "Bu anlaşma Türkiye'nin, ülkemizin küresel diplomasi merkezlerinden birisi haline gelmesi bakımından da son derece önemli ve müspet" değerlendirmesinde bulundu.

MEHMET ASLAN: İZNE GELECEKTİ, TEMELLİ GELDİ

Şehit babası oldum hain babası değilim

Irak'ın kuzeyinde Peris-Kürt Hakkari bölgesinde teröristlerle olan çatışmada şehit düşen piyade sözleşmeli Er Kemal Aslanın babası Mehmet Aslan, oğlu ile son görüşmesini anlattı. Baba Mehmet Aslan şunları söyledi: Şehidim ile en son konuşmamız aynı gün oldu. Saat: 14:00 civarında konuşuk. Beni götürülmü aradı. Ne yapayız diye sordüğümde, Bugün burada yağmur ve sis vardı dedi. Konuşuyorduk ama telefon tam çekiyordu. Uc güdümlü hava açmadı dedi. İzne gelmes istiyordum, gelemedi. Sabah ot, işallah gelirdin dedim. Yağdır kesilip yağar daniel-se bana söz vermiş ben izne gönderecektim dedi. Temelli izne geldi, gurur duyuyorum. Allah ondan razı olsun. en azından şehit babası oldum. hain babası değilim. Oyle olsaydım izne buraya gelmezdi. Su an her taraftan anıyorlar. Telefonlara yetiştiriyorlar.

DEM PARTİ ÖNÜNDE SARI TORBA BIRAKILTI

Şehit ve gazi yakınları PKK'nın siyasi kolu olan DEM Parti önünde eylem yaptı. Terörü kınayan tezahüratlarını yapıldığı eylemde, DEM Parti'nin terör örgütü PKK ile ilişkisine vurgu yapıldı. Genel Merkez'de san torba bırakıldı.

DUYURU

Çilimli Jeotermal Kuyu Sondaj Projesi Çilimli Su, Yağmur Suyu ve Kanalizasyon Şebekesi İnşaatı Projesi

HALKIN BİLGİLENDİRİLMESİ VE KATILIMI TOPLANTISINA DAVET

İller Bankası Sürdürülebilir Şehitler Projesi'li EK Finansman kapsamında T.C. Çilimli Belediyesi tarafından yapılacak olan "Çilimli Jeotermal Kuyu Sondaj Projesi" ve "Çilimli Su, Yağmur Suyu ve Kanalizasyon Şebekesi İnşaatı Projesi" için Çevresel ve Sosyal Yönetim Planı çalışmalarına ilişkin olarak halk bilgilendirilmek, halkın görüş ve önerilerini almak üzere aşağıda detayları verilen "Halkın Bilgilendirilmesi ve Katılımı Toplantısı" düzenlenecektir.

Tüm hakımızca saygıyla duyurulur.

T.C. Çilimli Belediyesi

Toplantı Tarihi : 04.01.2024
Toplantı Saati : 11:00
Toplantı Yeri : T.C. Çilimli Belediye Başkanlığı Hizmet Binası Konferans Salonu

Proje Sahibi : T.C. Çilimli Belediye Başkanlığı
Tel : +90 (380) 681 50 04
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Resmî İlanlar www.ilan.gov.tr/ile BASIN: 1958231



This project is co-funded by the European Union, the Republic of Turkey and the World Bank
Bu Proje Avrupa Birliği, Türkiye Cumhuriyeti ve Dünya Bankası tarafından ortaklaşa finanse edilmektedir

Manşet

HABER

28 Aralık 2023 Perşembe

3

Düzce'de eğitimcilerin sesine kulak verilecek

Millî Eğitim Bakanlığı'nın hayata geçirdiği eğitim politikalarına ilişkin başta okul yöneticileri ve öğretmenleri istişarelerde bulunmak üzere karşılaşılan problemleri çözüme kavuşturmak amacıyla bakan yardımcılar ile bütün genel müdürlerin katılımıyla 81 il ziyaretleri başlatıldı. Millî Eğitim Bakanı Yusuf Tekin'in talimatıyla onumuzdeki günlerde Düzce'ye gelecek olan 4 bakan yardımcısı ile 20 genel müdür, eğitim öğretimi faaliyetlerine ilişkin idareci ve eğitimcileri istişarelerde

bulunacak. Toplantılarda, eğitim öğretim süreçlerinin değerlendirilmesinin yanı sıra yerelde karşılaşılan problemlerin çözüme kavuşturması için yol haritası belirlenecek. İl ziyaretinde genel müdürler, daire başkanları ile birlikte il ve ilçe yöneticileri, okula müdürleri, öğretmen ve öğrencilerle buluşma fırsatı yakalayacak. Sınıflarda derslere katılacak olan genel müdürler, öğretmenler odasında da öğretmenler ile bir araya gelecek. Ayrıca her kademedeki yöneticilerin katılımıyla

toplantılar yapılacak. Yapılan toplantılarda yönetici ve öğretmenlerin görüş, önerileri ve talepleri alınarak eğitim öğretimi ilişkin yürütülen faaliyetler değerlendirilecek. Ayrıca bakanlığın yürüttüğü politikalar ve Öğretmenler Odası Buluşmaları'nda alınan kararlara bağlı olarak yapılan değişiklikler ile gerek yerel gerekse ulusal düzeyde yapılabilecekler üzerine görüş alışverişinde bulunulacak.

Haber: Canan Üstüner

Eğitimdeki sorunların aşarlığına düşürülmesi amacıyla Bakanlık heyeti Düzce'ye gelecek. Millî Eğitim istişarelerinde bulunulmak üzere bakan yardımcılar ve tüm genel müdürleri onumuzdeki günlerde şehre gönderecek. Merkez ve ilçelerdeki eğitim kurumlarını ziyaret edecek olan üst düzey bürokratlar öğretmenlerin fikir ve önerilerini dinleyecek.



MEB'den topyekûn saha ziyaretleri başladı

Sinema öğrencilerinden başarı



Düzce Üniversitesi Sanat, Tasarım ve Mimarlık Fakültesi Radyo, Televizyon ve Sinema Bölümü 4. Sınıf öğrencisi Güner Tuncer, bilime projesi kapsamında Dr. Öğr. Üyesi Mehmet Emrah Erkan'ın danışmanlığında gerçekleştirdiği "Mola" isimli kısa filmiyle İstanbul, Ankara ve İzmirde düzenlenen festivallere damga vurdu. Güner Tuncer'in filmi Mola, 15-17 Aralık 2023 tarihlerinde Ankara'da düzenlenen 7. Afsad Uluslararası Kısa Film Festivali'nden Jüri Özel Ödülü ile ödünen, Yedigöze Üniversitesi ile Ay Yapım ortaklığında İstanbul'da düzenlenen 3. Luma Kısa Film Festivali'nde Finalist olma başarısı gösterdi. Festival kapsamında İstanbul sinemaseverlerin beğenmesine sunulan film bir diğer başarısı ise İzmir'den geldi. Mola, Uluslararası 3. Bornova Kısa Film Günleri'ne geçerek, Kurmaca Film Seçkisi başlığı altında 15-17 Aralık 2023 tarihleri arasında İzmir'de izleyicilerin beğenmesine sunuldu. Radyo, Televizyon ve Sinema Bölümü 4. sınıf öğrencisi Duhan Kavakoğlu'nun yönetmenliğini yaptığı "Şikar" adlı kısa film ise, 2. Kocaeli Film Festivali kapsamında Öğrenci Filmleri Finalisti olarak festivalde yer alma başarısı gösterdi. Düzce Kuvvetli Yorum Film 2.0

Kasım 2023 tarihleri arasında Kocaeli'de gösterime girdi. Radyo, Televizyon ve Sinema Bölümü'lk mezunlarımızdan ve bölümümüzü birincilik derecesiyle tamamlayan Aslı Sura Akyol'un kısa filmi 'Şizlik Kapısı', 24. Randoev İstanbul Uluslararası Film Festivali kapsamında 22 Aralık 2023 tarihinde Taksim AKM Yeşilçam Sineması'na gösterime girdi. Film, Dr. Öğr. Üyesi Mehmet Emrah Erkan ve Öğr. Gör. Turgay Danışmanlığında 2022 yılı TÜRSAK 19. Geleceğin Sineması'na seçilen finalist projeler arasında yer almıştı. Filmin kurgusu Arş. Gör. Korhan Topcu tarafından gerçekleştirilen, projede lisans ve yüksek lisans öğrencileri aktif görev aldılar. Çekimleri Düzce'de gerçekleştirilen üç filmde de Sanat, Tasarım ve Mimarlık Fakültesi Radyo, Televizyon ve Sinema Bölümü öğrencileri ve akademisyenleri aktif rol üstlendiler. Dr. Öğr. Üyesi Mehmet Emrah Erkan'ın ortak yapımcısı olduğu film Mulaj'nın sanat yönetmenliğini Arş. Gör. Korhan Topcu üstlenirken, Duhan Kavakoğlu'nun filmi Şikar için ekipman desteği Dr. Öğr. Üyesi Evren Günevi Uslu ve Öğr. Gör. Murat Uslu tarafından sağlandı. Kaynak: Düzce Belediyesi



Ek ödenek konulması talebi kabul edildi



Düzce Belediye Meclisi aralık ayı toplantılarının tamamlanmasının ardından olağanüstü toplantıda bir araya geldi. Kabul edilen ek ödenek konulması talebi başta olmak üzere 3 gündem maddesi meclis üyelerinin onayıyla karara bağlandı. Düzce Belediyesi'nden yapılan açıklamaya göre, Düzce Belediyesi Meclisi aralık ayı 4 birleşimi

olağanüstü toplantı şeklinde 3 gündem maddesinin görüşülmesi ile gerçekleştirildi. Meclisin ilk gündem maddesinde ek ödenek konulması talebi meclis üyeleri tarafından kabul edildi. Meclis, aralık ayı toplantılarının tamamlanmasının ardından gerçekleştirilen ikinci olağanüstü toplantıda başkanvekili Hüdaaver Gösterişli başkanlığında bir araya

gelirken, ilk olarak bir önceki meclis toplantısının tutanak özeti oylandı. Tutanak özeti birliği ile kabul edilmesinin ardından geçilen, gündem maddelerinde ilk olarak, ek ödenek konulması talebi meclis üyeleri ile paylaşıldı. Yapılan oylamada madde kabul edilirken, ikinci gündem maddesinde Çerkezaşköprü ve Kadoğlu mahalleleri sınırları içinde kalan alana yönelik kamu, yaran kararı maddesi görüşülerek karara bağlandı. Olağanüstü toplantının son gündem maddesinde ise Akyazı, Kızıllı, Otlaoğlu ve Taşköprü köylerinin belediye sınırları içerisinde katılım meclis üyelerinin oylamasının ardından kabul edildi. Meclisin bir sonraki toplantısı 2 Ocak 2024 Salı günü saat 18.00'da yapılacak. Kaynak: Düzce Belediyesi

Çilimli Jeotermal Kuyu Sondajı Projesi Çilimli Su, Yağmur Suyu ve Kanalizasyon Şebekesi İnşaatı Projesi ÇİLİMLİ BELEDİYE BAŞKANLIĞI

HALKIN BİLGİLENDİRİLMESİ VE KATILIMI TOPLANTISINA DAVET

İller Bankası Sürdürülebilir Şehirler Projesi-II Ek Finansman kapsamında T.C. Çilimli Belediyesi tarafından yapılması planlanan "Çilimli Jeotermal Kuyu Sondajı Projesi" ve "Çilimli Su, Yağmur Suyu ve Kanalizasyon Şebekesi İnşaatı Projesi" için Çevresel ve Sosyal Yönetim Planı çalışmaları ile ilgili olarak halkı bilgilendirmek, halkın görüş ve önerilerini almak üzere aşağıda detayları verilen "Halkın Bilgilendirilmesi ve Katılımı Toplantısı" düzenlenecektir. Tüm halkımıza saygıyla duyurulur.

T.C. Çilimli Belediyesi
Toplantı Tarihi : 04.01.2024
Toplantı Saati : 11:00
Toplantı Yeri : T.C. Çilimli Belediye Başkanlığı Hizmet Binası Konferans Salonu
Proje Sahibi : T.C. Çilimli Belediye Başkanlığı
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Flyer for Public Informing about the Public/Stakeholder Consultation Meeting

Çilimli Jeotermal Kuyu Sondajı Projesi Çilimli Su, Yađmur Suyu ve Kanalizasyon řebekesi İnřaata Projesi



HALKIN BİLGİLENDİRİLMESİ VE KATILIMI TOPLANTISINA DAVET

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Tüm halkımıza saygıyla duyurulur.

T.C. Çilimli Belediyesi |

Toplantı Tarihi : 04.01.2024

Toplantı Saati : 11:00

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Çilimli Municipality Website - Disclosure Page for ESMP and SEP

cilimli.bel.tr/detay/surdurulebilirler-sehirler-projesi

681 50 04

Sık Kullanılanlar

Basın Odası

CILIMLI BELEDİYESİ

ÇILIMLI KEŞFETİ BAŐKAN YONETİM MÜDÜRLÜKLER PROJELERİMİZ HİZMETLERİMİZ İLETİŐİM

Haberler ve Duyurular

Anasayfa / Haberler ve Duyurular / Sürdürülebilirler Şehirler Projesi

Sürdürülebilirler Şehirler Projesi

Kategori: Haberler ve Duyurular Tarih: 22.12.2023 Okunma: 66

Çilimli Jeotermal Kuyu Sondajı Projesi Çevresel ve Sosyal Yönetim Planı

Çilimli Jeotermal Kuyu Sondajı Projesi Paydař Katılım Planı

Çilimli Su, Yađmur Suyu ve Kanalizasyon Şebekesi İnřaatı Projesi Çevresel ve Sosyal Yönetim Planı

Çilimli Su, Yađmur Suyu ve Kanalizasyon Şebekesi İnřaatı Projesi Paydař Katılım Planı

#	DOSYA ADI	İNDİR
	Çilimli Su, Yađmur Suyu ve Kanalizasyon Şebekesi İnřaatı Projesi Çevresel ve Sosyal Yönetim Planı Sürdürülebilirler Şehirler Projesi	DOSYAYI İNDİR
	Çilimli Su, Yađmur Suyu ve Kanalizasyon Şebekesi İnřaatı Projesi Paydař Katılım Planı Sürdürülebilirler Şehirler Projesi	DOSYAYI İNDİR
	Çilimli Jeotermal Kuyu Sondajı Projesi Paydař Katılım Planı Sürdürülebilirler Şehirler Projesi	DOSYAYI İNDİR
	Çilimli Jeotermal Kuyu Sondajı Projesi Çevresel ve Sosyal Yönetim Planı Sürdürülebilirler Şehirler Projesi	DOSYAYI İNDİR

BASIN ODASI

- Haberler ve Duyurular
- Basın Kiti
- Foto Galerisi
- Video Galerisi
- E-Katalog
- Dokümanlar

SIK KULLANILANLAR

- Meclis ve Komisyon Kararları
- Meclis İlanları
- Gelir Tarifeleri
- İlanlar
- Vefat Edenler
- Otobüs Saatleri
- Elektrik Kesintileri
- Dokümanlar

İçerik Ara



This project is co-funded by the European Union, the Republic of Turkey and the World Bank
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Project Information Brochure

sıvısı/çamuru ve jeotermal su oluşacaktır. Diğer olası çevresel ve sosyal riskler arasında iş sağlığı ve iş güvenliği, toplum sağlığı, güvenliği ve emniyeti bulunmaktadır. ÇSYP'de inşaat öncesi dönem, inşaat aşaması, sondaj aşaması ve kuyu kapatma aşamaları dikkate alınarak tüm potansiyel etkiler için etki azaltma planları ve izleme planları hazırlanmıştır. Çilimli Belediyesi, proje faaliyetlerinin çevresel ve sosyal etkilerini, ilgili ulusal mevzuat ve uluslararası standartları da dikkate alarak izleyecek ve raporlayacaktır.

ÇSYP'nin uygulanmasından sorumlu ana kurum Çilimli Belediyesi'dir. Projenin sorumlu tarafları arasında Çilimli Belediyesi tarafından açılacak ihale süreci ile belirlenecek ve İller Bankası A.Ş. tarafından onaylanacak olan Denetim Danışmanı ve proje faaliyetlerinin uygulanması için ihalenin verileceği Yüklenici'de olacaktır.

Paydaş Katılımı ve Şikayet Mekanizması

Projenin paydaşlarının belirlenmesi, paydaşlarla katılım yöntemlerinin tanımlanması ve Çilimli Belediyesi ile paydaşlar, etkilenen topluluklar ve ilgili gruplar arasında bir diyalog kurulması ve bu diyalogun korunmasını amaçlayan bir Paydaş Katılımı Planı (PKP) hazırlanmıştır.

Projenin inşaat, sondaj ve kapatma aşamalarında tüm paydaşların görüşlerini,

endişelerini, şikayetlerini ve önerilerini almak üzere bir Şikayet Mekanizması kurulacaktır. Bu mekanizma aracılığı ile iletilen şikayetler, hızlı ve hassas bir şekilde ele alınacaktır. Şikayet mekanizmasının kurulmasından ve uygulanmasından Çilimli Belediyesi sorumlu olacaktır.

Paydaşlar, şikayetlerini ve görüşlerini aşağıda belirtilen kanallar aracılığıyla iletebileceklerdir:

- Paydaş Katılımı Toplantıları
- T.C. Çilimli Belediyesi

İnternet sitesi: <https://www.cilimli.bel.tr/>
E-posta: bilgi@cilimli.bel.tr
Telefon: +90 380 681 50 04
Resmî yazışma adresi: Ulucami Mah. Pazaryeri Sk. No: 01 Çilimli / DÜZCE

- İller Bankası A.Ş.

İnternet sitesi: <https://www.ilbank.gov.tr/form/bilgiedinmesululararasi>
E-posta: bilgiedib@ilbank.gov.tr ve etikuidb@ilbank.gov.tr
Telefon: +90 312 508 79 79
Resmî yazışma adresi: İLBANK Uluslararası İlişkiler Dairesi, ŞÇM Ekibi Emniyet Mahallesi Hipodrom Caddesi No:9/21 Yenimahalle/ANKARA

- Cumhurbaşkanlığı İletişim Merkezi (CİMER)

İnternet sitesi: www.cimer.gov.tr
Çağrı Merkezi: 150
Telefon numarası: +90 312 525 55 55
Faks numarası: +90 312 473 64 94
E-posta: cumhurbaşkanligi@tcbb.gov.tr
Resmî Yazışma Adresi: T.C. İletişim Başkanlığı Kınırlıca Mah. Mevlana Bulvarı No:144 Çankaya/ANKARA



This project is co-funded by the European Union, the Republic of Turkey and the World Bank
Bu Proje Avrupa Birliği, Türkiye Cumhuriyeti ve Dünya Bankası tarafından ortaklaşa finanse edilmektedir

SÜRDÜRÜLEBİLİR ŞEHİRLER PROJESİ-II Ek Finansman

ÇİLİMLİ JEOTERMAL KUYU SONDAJI PROJESİ BİLGİLENDİRME BROŞÜRÜ



ARALIK 2023



Çilimli Jeotermal Kuyu Sondajı Projesi (Proje), Dünya Bankası desteği ile İller Bankası A.Ş. tarafından şehirlerdeki sürdürülebilir kalkınmayı desteklemek için yürütülen Sürdürülebilir Şehirler Projesi-II-Ek Finansman (SŞP-II-EF) programı kapsamındaki alt projelerden biridir.

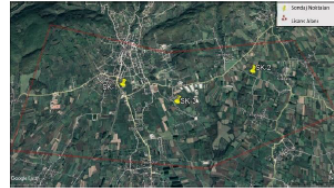
Proje, Dünya Bankası tarafından finanse edilecek olup, İller Bankası A.Ş. aracılığı ile T.C. Çilimli Belediyesi tarafından yürütülecektir.

Proje, Düzce İli, Çilimli İlçesinde üç jeotermal kuyu sondajından oluşmaktadır. Proje, jeotermal suyun potansiyel kullanımını belirlemeyi, araştırmayı ve geliştirmeyi amaçlamaktadır. Proje kapsamı yalnızca jeotermal kaynağın potansiyel kalitesi ve gelecekteki kullanımını belirlemek amacı taşıyan bir keşif aşamasından oluşmaktadır. Proje kapsamında kuyuların işletimi bulunmamaktadır.

Kuyu konumları, Düzce İli, Çilimli İlçesinde bulunan 1.654 hektar (ha) alan için 01.09.2020 tarihinde Düzce İl Özel İdaresi Genel Sekreterliği'nden alınan ve 01.09.2024 tarihine kadar geçerli olan ARA.81.00.2020.JEO.1 sayılı Jeotermal Kaynak Arama Ruhsatı içindedir.

İlk sondaj noktası (SK-1) Ulucami Mahallesi, 656 blok, parsel no 1'de Düzce Caddesine bitişik olan kullanılmayan bir arazi

üzerindedir. İkinci sondaj noktası (SK-2) Kırızlarla Köyünde, Kırızlarla Köyü iç yolunun 510. m'sine bitişik olan bir alandır. Son sondaj noktası (SK-3) Söğütü Köyünde, Söğütü Sokağının 600. m'sine bitişik olan bir alandır.



Şekil 1. Jeotermal Kuyu Konumları

Sondaj derinlikleri SK-1 sondaj kuyusu için 700 m, SK-2 ve SK-3 sondaj kuyuları için 600 m olacaktır. SK-1, SK-2 ve SK-3 için proje alanları sırasıyla 581,74 m², 96,65 m² ve 146,19 m²'dir. Sondaj kuyusu konumları ya belediye ya da devlet arazisi olduğundan Proje ile ilişkili herhangi bir kamulaştırma/yeniden yerleşim olmayacaktır.

Proje için Çevre, Şehircilik ve İklim Değişikliği Bakanlığı tarafından 13 Haziran 2022 tarihli "Çevresel Etki Değerlendirmesi Gerekli Değildir" kararı verilmiştir.

Proje süresinin üç ila dört ay arasında olması beklenmektedir. Üç kuyu eş zamanlı olarak değil sırayla açılacaktır.

Proje kapsamında 10 kişinin istihdam edileceği öngörülmektedir.

Sondaj kuyusu testleri başarılı olursa, kuyu ağız bir vana ile kapatılacaktır. Kuyu testleri düşük bir jeotermal kaynak potansiyeli gösterir ise kuyu kapatma işlemi gerçekleştirilecektir.

Tüm sondaj noktalarında bir sondaj çamuru havuzu ve bir hafriyat toprağı depolama alanı kurulacaktır. SK-1 sondaj yerinde üst toprak depolama alanı gerekli olacaktır. SK-2 ve SK-3 sondaj yerleri yola bitişik veya kısmen yol üzerinde bulunduğu için bir üst toprak depolama alanına ihtiyaç yoktur.

Proje, ulusal mevzuat ve Dünya Bankası koruma önlemleri politikaları ile uyumlu olarak yönetilecektir.

Çevresel ve Sosyal Yönetim Planı

Projenin inşaat ve sondaj faaliyetlerinin çevresel ve sosyal etkilerinin olması beklenmektedir. Projenin potansiyel çevresel ve sosyal etkilerini ve ilgili etki azaltma önlemlerini belirlemek amacıyla bir Çevresel ve Sosyal Yönetim Planı (ÇSYP) geliştirilmiştir.

Projenin ana potansiyel çevresel ve sosyal etkileri/riskleri; sondaj aşaması sırasında oluşacak olan hafriyat atığı, atıklar, hava emisyonları ve gürültü olarak belirlenmiştir. Kuyu geliştirme aşamasında sondaj



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Presentation Given in the Public/Stakeholder Consultation Meeting

SÜRDÜRÜLEBİLİR ŞEHİRLER PROJESİ-II Ek Finansman

ÇİLİMLİ JEOTERMAL KUYU SONDAJİ PROJESİ

Halkın Bilgilendirilmesi ve Katılımı Toplantısına Hoşgeldiniz
04.01.2024

1

Kapsam / Gündem

- Proje Yürütücüsü, Uygulayıcısı ve Finansörü kimdir?
- Projenin Tanıtımı
- Projenin beklenen faydaları nelerdir?
- Çevre ve Sosyal Çalışmalar nedir?
 - > Olası çevresel ve sosyal etkiler
 - > Etki Azaltıcı Önlemler ve Yönetim Stratejileri
- Paydaş Katılımı
 - > Sürece Nasıl Dahil Olabilirsiniz?
- Sorular ve Cevaplar (Proje ile ilgili soru, beklenti, görüş ve öneriler)

2

Proje Yürütücüsü, Uygulayıcısı ve Finansörü

Proje Yürütücüsü: İLBANK
Proje Uygulayıcısı: CILIMLI
Proje Finansörü: THE WORLD BANK

3

Projenin Tanıtımı

- Çilimli Jeotermal Kuyu Sondajı Projesi (Proje), Dünya Bankası desteği ile İller Bankası A.Ş. tarafından şehirlerdeki sürdürülebilir kalkınmayı desteklemek için yürütülen Sürdürülebilir Şehirler Projesi-II-Ek Finansman (SŞP-II-EF) programı kapsamındaki alt projelerden biridir.
- Proje, jeotermal kaynakların geliştirilmesi için üç farklı sondaj kuyusunun (SK-1, SK-2 ve SK-3) kurulmasıdır.
- Kuyu konumları, Düzce İli, Çilimli İlçesinde bulunan 1.654 hektar (ha) için 01.09.2020 tarihinde Düzce İli Özel İdare Genel Sekreterliğinden alınan ve 01.09.2024'e kadar geçerli olan Jeotermal Kaynak Arama Ruhsatı içindedir.
- Sondaj derinlikleri SK-1 kuyusu için 700 m, SK-2 ve SK-3 kuyuları için 600 m olacaktır.
- SK-1, SK-2 ve SK-3 için proje alanları sırasıyla 581,74 m², 96,65 m² ve 146,19 m²'dir.

4

Projenin Tanıtımı

- Proje için Çevre, Şehircilik ve İklim Değişikliği Bakanlığı tarafından 13 Haziran 2022 tarihli "Çevresel Etki Değerlendirmesi Gerekli Değildir" kararı verilmiştir.
- Proje süresinin üç ila dört ay arasında olması beklenmektedir. Üç kuyu eş zamanlı olarak değil sırayla açılacaktır.
- Proje kapsamında 10 kişinin istihdam edileceği öngörülmektedir.
- Tüm sondaj noktalarında bir sondaj camur havuzu ve bir hafriyat toprağı depolama alanı kurulacaktır. SK-1 sondaj yerinde üst toprak depolama alanı gerekli olacaktır. SK-2 ve SK-3 sondaj yerleri yola bitişik veya kısmen yol üzerinde bulunduğu için bir üst toprak depolama alanına ihtiyaç yoktur.

5

Projenin Yeri

Jeotermal Kuyu Konumları

- SK 1 sondaj noktası, Ulucami Mahallesindeki Düzce Caddesi üzerinde bulunan İlçe Devlet Hastanesinin kuzey doğu köşesinde 656 blok, parsel no. 1'dedir.
- SK-2 sondaj noktası, Çilimli İlçesinde Akçakoca İlçesi Yoluna giden Sarımeşe yol kavşağında, Kırzıtarla Köyü yolunun 510. metresinde konumlanmıştır.
- SK-3 sondaj noktası, Soğutlu Köyündeki Soğutlu Sokağının 600. metresinde yol üzerinde bulunmaktadır.

6

Projenin Yeri

SK-1 Sondaj Lokasyonu, SK-2 Sondaj Lokasyonu, SK-3 Sondaj Lokasyonu

7

Projenin Amacı

- Proje, jeotermal suyun potansiyel kullanımını belirlemeyi, araştırmayı ve geliştirmeyi amaçlamaktadır. Proje kapsamı yalnızca jeotermal kaynak potansiyel kalitesi ve gelecekteki kullanımını belirlemek amacı taşıyan bir keşif aşamasından oluşmaktadır.
- Bir sonraki aşamada, kaynağın kalitesi ve sıcaklığına bağlı olarak bu kaynağın jeotermal tesis, spa veya sulama amaçlarıyla kullanılabilmesi için Belediye tarafından çalışmalar gerçekleştirilmektedir.
- Sondaj kuyusu testleri başarılı olursa, kuyu ağız bir vana ile kapatılacaktır. Kuyu testleri düşük bir jeotermal kaynak potansiyeli gösterir ise kuyu kapatma işlemi gerçekleştirilecektir.
- Proje kapsamında kuyuların işletimi bulunmamaktadır.

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Proje Arazileri

- Tüm sondaj kuyusu konumları ya belediye ya da devlet arazisi olduğundan, Proje ile ilişkili herhangi bir kamulaştırma/yeniden yerleşim olmayacaktır.
- SK-1 sondaj alanı Devlet Su İşlerine (DSİ) aittir ve SK-2 sondaj alanı, Düzce İl Özel İdaresi sorumluluğu altında olan bir belediye arazisidir; gerekli onaylar DSİ ve Düzce İl Özel İdaresinden alınmıştır.
- SK-3 sondaj alanı bir belediye arazisidir ve Söğütlü Köyü tüzel kişiliğine bağlı bir arazinin yanında yer almaktadır. Söğütlü Köyü Muhtarından köy meclisinin sondaj çalışmalarına bir itirazı olmadığını belirten ve ilgili çalışmalar için onay veren bir görüş yazısı alınmıştır.



9

Proje Aşamaları

- Üst toprağın sınırlanması:** Çamur havuzlarının kazı çalışması yapılmadan önce sondaj faaliyetinin gerçekleştirileceği kısımlardaki bitkisel toprak saha yüzeyinden sınırlanacaktır. Sınırlanmış toprak daha sonra arazi ve yapı alanların rehabilitasyonunda kullanılmak üzere geçici olarak sahada belirlenen bir alanda depolanacaktır.
- Kazı işleri:** Çamur havuzlarının kazısı sırasında çıkarılan toprak kazı toprağı depolama alanlarında depolanacaktır. Sondaj tamamlandıktan sonra çalışma alanları eski haline getirilecektir.
- Sondaj kulesinin kurulması:** Sondaj kulesi sistemi çekme işleri, vinç sistemleri, kasnaklar ve motorlardan oluşur. Sondaj kulesi konvansiyonel sabit veya taşınabilir/mobil olabilir. Kule parçaları proje alanına getirilir ve yerinde monte edilir. Sondaj makinesinin kule yapısı, sondaj aleti ve boru sırasını statik ve hareketli olarak taşıyaya ve aynı zamanda belirli bir rüzgâr gücüne dayanmaya yetecek kadar güçlü olacaktır. Kulenin yüksekliği arttıkça tek seferde alabileceği boru uzunluğu da artar, böylece sondaj süreci hız kazanır.
- Çamur havuzlarının kurulması:** Sondaj faaliyetlerinde temel işlemlerden biri de çamur sisteminin oluşturulmasıdır. Proje kapsamında sondaj işlemi sırasında oluşturulacak olan çamur havuzuna ek olarak sondaj suyunun hazırlanması için bir temiz su tankı, sondaj işlemi sırasında ortaya çıkan suyun yeniden kullanılmasını sağlamak için bir temiz su tankı oluşturulacaktır. Sondaj işlemi sırasında kullanılan suyun yeniden kullanılması için bir devirdaim tankı oluşturulacaktır.



10

Proje Aşamaları

- Sondaj işleri:** Proje kapsamında jeotermal kaynağın araştırılması için sondaj yönteminde dönen bir sondaj makinesi kullanılacaktır. Dönen sondaj tekinininde basınç altında dönen sondaj aletinin kesici diğeri tarafından formasyonun kırılması sonucunda oluşan formasyon parçaları suya birlikte çıkarılır. Bu yöntemde dönmeye yolculuğa suyun basıncı ve ilerleme basıncı ve tork tarafından sağlanır. Dönme işlemi, dönen sondajda sondaj işlemini yaratan sistemdir. 17,5 inçten 70 metrekil derinliğe inilecektir ve yüzeydeki gevşek formasyonu ve varsa yeraltı suyunu izole etmek için 24-inçlik bir spiral kaynaklı muhafaza borusu indirilecektir.
- Borulama işleri:** Borulama, proje kapsamında belirlenen sondaj derinliğine kadar yapılır.
- Cimentolama işleri:** Cimentolama, muhafaza borusu/kuyu duvarlarını çimento harcı ile doldurma işlemidir. Çimento harcı olarak bilinen materyale çimento ve suyun karıştırılmasıyla oluşturulur. Cimentolama işlemi, muhafaza borularının birbirlerine ve kuyu duvarına (formasyon) bağlanarak özel kuyu koşullarına karşı yük taşıma ve direnç göstermesini sağlar. Ek olarak, muhafaza borularını aplan ve kapatılan kuyular yüzeye kadar cimentolacaktır.
- Kuyu tamamlama testleri:** Proje kapsamında kaynak temininde kuyu başları kuyu başı ekipmanı ile donatılacaktır. Jeotermal kaynağın tespiti edilmiş kuyular, ekipmanın sağlıklı olması ve çevreyi kirlenmesini için Üretim kuyularında kullanılan ekipmanın yeni kuyu başının yerleştirilmesinden sonra kapatılacaktır.
- Arazi rehabilitasyon faaliyetleri:** Her bir sondaj noktasında sondaj işleri tamamlandıktan sonra, çıkarılan toprakları yerli toprakla serilecektir ve alanın rehabilitasyonu gerçekleştirilecektir.



11

Çevresel ve Sosyal Yönetim Planı (ÇSYP)

- Projenin inşaat ve sondaj faaliyetleri ile ilgili olarak potansiyel çevresel ve sosyal risklerini ve etkilerini (fiziksel, doğal, kültürel, sosyal ve sozyo-ekonomik çevre üzerine etkiler/riskler) ve ilgili etki azaltma önlemlerini belirlemek amacıyla bir Çevresel ve Sosyal Yönetim Planı (ÇSYP) geliştirilmiştir.
- ÇSYP çalışması ACE Danışmanlık ve Mühendislik A.Ş. tarafından yürütülmüştür.
- ÇSYP'de inşaat öncesi dönem, inşaat aşaması, sondaj aşaması ve kuyu kapatma aşamaları dikkate alınarak tüm potansiyel etkiler için etki azaltma planları ve izleme planları hazırlanmıştır. Cilizli Belediyesi, proje faaliyetlerinin çevresel ve sosyal etkilerini, ilgili ulusal mevzuat ve uluslararası standartları da dikkate alarak izleyecek ve raporlayacaktır.
- ÇSYP'nin uygulanmasından sorumlu ana kurum Cilizli Belediyesi'dir. Projenin sorumlu tarafları arasında Cilizli Belediyesi tarafından yapılacak olan Denetim Danışmanı ve proje faaliyetlerinin uygulanması için ihalelenmiş verilecek yükleniciler de olacaktır.



12

Yönetim Planları

Çevresel ve Sosyal Etkileri azaltmak için alt yönetim belgeleri hazırlanacak ve tüm çalışanlara şu konularda gerekli eğitim sağlanacaktır:

- Hava Emisyonları Yönetim Planı
- Gürültü ve Titreşim Yönetim Planı
- Atık Yönetim Planı
- Üst Toprak Yönetim Planı
- Erozyon Kontrol Prosedürü
- Kimyasal ve Tehlikeli Madde Yönetim Planı
- Trafik Yönetim Planı
- Acil Durum Müdahale Planı (halk sağlığı, güvenliği ve emniyeti konusunda acil durum sorunları dahil)
- Halk Sağlığı, Güvenliği ve Emniyeti Planı
- Diğ Şikayet Çözüm Mekanizması (ŞÇM) dahil PKP
- "İç ŞÇM" İşeren İnsan Kaynakları Yönetim Planı ve Prosedürleri
- İSG Yönetim Plan ve Prosedürleri



13

Toz ve Gaz Emisyonları

Olası Etkiler

- Üst toprağın kazılması, hafriyat çalışmaları ve arazi temizliği işlemleri sırasında toz emisyonu meydana gelebilir.
- Sondaj öncesinde çamur kuyuları oluşturmak için kuyu konumlarında kazı işleri yürütülecektir. kazılan toprak kamyonlara yüklenerek ve hafriyat toprağı depolama alanlarına taşınacaktır.
- Proje faaliyetleri sırasında kullanılacak inşaat makinelerinin eşzamanlı işletilmesi sebebiyle egzoz gazı emisyonu olması beklenmektedir.

Alinacak Önlemler

- Yükler, toz oluşumunun azaltılması için uygun materyalle (muşamba vb.) ile örtülecektir.
- Nakliye sırasında, hafriyat malzemeleri naylon örtü ile örtülecektir.
- En fazla tozunu oluşturan alanlarda koruyucu örtüler veya perdeler kullanılacaktır.
- Gerekirse doldurma, boşaltma ve altarma çalışmaları sırasında su püskürtme suretiyle toz bastırma işlemi yapılacaktır. Boşaltma işlemi dikkatlice yapılacaktır.
- Projenin konumu içinde ve etrafında hareket edecek olan araçlar için hız sınırlaması getirilecektir.
- Materyallerin sahaya taşınması sırasında, toz emisyonlarını önlemek için araçların tekerlekleri düzenli aralıklarla yıkanacaktır.
- Toz emisyonlarını azaltmak için iş makineleri ve araçların düzenli olarak kontrol edilmesi ve ilgili ekipmanların bakımını yapılacaktır.
- En yakın alıcılardan toz ile ilgili herhangi bir şikayet gelmesi durumunda toz ölçümleri buna göre yapılacaktır.
- Faaliyet kapsamında olacak gaz emisyonlarının kontrolü için yeni ve bakımı araçlar kullanılacaktır.
- Makine ve ekipmanın gerektirdiği kullanılması sonucu ortaya çıkan emisyonlar engellenecektir.



14

Gürültü ve Titreşim

Olası Etkiler

- Proje kapsamında kullanılacak sondaj kulesi ve diğer araçların (su tankı, yükleyici, kamyon ve jeneratör) işletimi sırasında gürültü ve titreşim meydana gelebilir.
- Gürültü ve titreşim oluşumunun, proje sahalarını çevreleyen alanlardaki işçiler, yerel halk ve hayvanlar üzerinde potansiyel olumsuz etkileri olabilir.

Alinacak Önlemler

- Proje için gürültü azaltıcı susteruculara sahip olmayan araçlar kullanılmayacaktır.
- Kullanılacak makineler yeni ve kaliteli, son teknoloji ürünler olacaktır ve trafik denetimi ve egzoz ölçümleri sürekli olarak gerçekleştirilecektir.
- Herhangi bir faaliyet yapılmadan önce daha fazla duzeltilici faaliyet ve gerekirse etki azaltma önlemlerinin belirlenmesi için en yakın hassas alıcılarda mevcut durum gürültü ölçümleri yapılacaktır.
- Çalışmalar yalnızca gündüz vakti yürütülecek ve akşam ve gece vakti dönemlerinde çalışma olmayacaktır.
- Yakındaki yerleşim yerlerinde ikamet eden bölge sakinlerini inşaat faaliyetlerinin süresi hakkında bilgilendirilecektir.
- Yakındaki konut alıcıları, hastaneler ve okullar gibi hassas alıcılar dikkate alınarak proje sahaları civarında kesintisiz çalışma sahası gürültüsü için 55 dbA sınır değeriyle (gündüz vakti) (Dünya Bankası Grubu ÇŞG Kilavuz İllikleri Çevresel Gürültü) uygunluk sağlanacaktır.



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Gürültü ve Titreşim

Alinacak Önlemler

- Araçların yıllık muayenesi kontrol edilecek ve uygulanacaktır. Girişimde gürültüye sebep olacak tüm makineler ve ekipmanlar düzenli olarak bakımından geçirilecek ve ekonomik ömürleri sona erdiğinde yenilenecektir. İşletme ekipmanları aynı anda çalıştırılmayacaktır.
- Araçların taşıma hız sınırlarını aşmamasına özel olarak dikkat edilecektir; araçların aks titreşim üzerindeki yük konusunda sınırların aşılmasına dikkat edilecektir.
- Çalışanlar gürültü azaltma önlemleri konusunda eğitilecektir. Kamyon ve araç sürücüler, belirlenen hız limitlerine uyacak ve inşaat aşamasında korna kullanarak gerektirdiği gürültü yapmalarını konusunda uyarılacaklardır.
- Gürültüye yol açan makine ve ekipmanın gerektirdiği kullanılması engellenecektir. Halihazırda kullanılan olmayan araçların rölantide kalması önlenmektedir.
- Gürültü bariyerleri uygulanacaktır.



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Toprak Kalitesi

Olası Etkiler

- Araçlardan ve diğer makinelerden kaynaklı akaryakıt oluşabilir ve bu akaryakıtın, araçlara ve diğer iş makinelerine düzgün şekilde bakım yapılmadığı takdirde toprağı kirlenmesi söz konusu olabilir.

Alınacak Önlemler

- Yoğun yağışlı dönemlerde faaliyetlerden mümkün olduğunca kaçınılacaktır.
- Temiz su akışı ayrılmak veya ayrı bir yere yönlendirilecektir.
- Yol genişliği, yüzey malzemesi, sıkıştırma ve bakıma bağlı olarak yeterli yol drenajı sağlanacaktır.
- Sızıntının önlenmesi için bir Kimyasal ve Tehlikeli Madde Yönetimi Planı uygulanacaktır. Tanım arazilerine sızdı olduğu takdirde, bir Acil Durum Müdahale Planı (halk sağlığı, güvenliği ve emniyeti konularındaki acil durumlar dahil) ve bir Halk Sağlığı, Güvenliği ve Emniyeti Planı uygulanacaktır.
- "Erozyon Kontrol Prosedürü" uygulanacaktır.

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Atık Yönetimi

Olası Etkiler

- Sondaj Çamuru Sondaj kulelerine hasar gelmesini önlemek için sondaj işleri sırasında sondaj çamuru hazırlamak için tehlikesiz bir kil materyali olan bentonit ve sudan oluşan bir karışım olacaktır.
- Evel Niteleli Kati Atık Hafriyat Atığı ve Üst Toprak Sondaj faaliyetleri ve çamur çukurlarının kazı işleri sebebiyle hafriyat toprağı ortaya çıkması
- Atık Yağlar Jeotermal kaynak keşfi sırasında sondaj kulesi ve araçlarının bakımı ve yağ değişimleri servis atık yağ oluşumu olabilir

Alınacak Önlemler

- Proje kapsamında her bir sondaj alanında bir çamur çukuru oluşturulacaktır. Çamur çukuru hacimleri tüm sını sondaj atıklarını toplamaya yetecek kapasitede olacaktır.
- Çamur çukuru ve üst kapama sisteminde doğal / jeoentetik kil veya jeomembran kullanılarak geçirimsizlik sağlanacaktır.
- Çamur kurumaya bırakılacak, daha sonra atık özelliklerinin belirlenmesi için test edilcek ve test sonuçlarına dayalı olarak (atıl, tehlikesiz veya tehlikeli) atık yönetim yönetmelikleri doğrultusunda lisanslı bir şirket tarafından bertaraf edilecektir. Bertaraf yönetimi çamurun özelliklerine dayalı olacaktır (atıl, tehlikesiz veya tehlikeli) ve çamur buna uygun olarak lisanslı bir bertaraf tesisine gönderilecektir.

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Atık Yönetimi

Alınacak Önlemler

- Ambalaj atıkları bağımsız, her atık tipi için işaretleme ve faaliyet alanına yerleştirilmiş konteynerlerde toplanacak ve ayrı ayrı depolanacaktır (cam, metal, plastik, kağıt/karton ve ağış).
- Ambalaj atıkların Çilimli Belediyesi'nin lisanslı geri dönüşüm ve toplama sistemine teslim edilecektir.
- Ambalaj Atıklarının Kontrolü Yönetmeliği'ne uyulacaktır.
- Sahada atık yağ oluşumu durumunda Atık Yağların Yönetimine Dair Yönetmelik'in gerekliliklerine uyulacaktır.
- Atık yağlar geçirimsiz kapaklı, kapalı, uygun renkte ve atık kodlarıyla işaretleme ve özel alanlarda bulunan konteynerlerde toplanacaktır (en az 25 cm kalınlığında beton zemimlerde yağ geçirmez, jeomembran veya epoksi kapama).

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Kimyasal ve Tehlikeli Madde Yönetimi

Olası Etkiler

- Proje faaliyetleri sırasında araçların ve diğer iş makinelerinin bakımı için bakım yağları gibi kimyasallar kullanılacaktır. İnşaat aşamasında kullanılan araçlardan ve diğer makinelerden kaynaklı akaryakıt oluşabilir ve bu akaryakıt, araçlara ve diğer iş makinelerine düzgün şekilde bakım yapılmadığı takdirde çevreyi kirlenebilir.
- Proje faaliyetleri süresince, basınçlı gaz tüpleri, kostikler, boyalar, tinerler gibi tehlikeli maddelerin dökülmesi veya sızması nedeniyle toprak ve su kirliliği meydana gelebilir.

Alınacak Önlemler

- Üzerlerinde bilgisi, özellikleri ve taşıma bilgileri bulunan sızdırmaz kaplar, dökülmeyi ve sızıntı olmasını önlemek için geçici depolama olarak kullanılacaktır.
- Çalışmalar sırasında kullanılacak araç, gereç ve diğer makine ekipmanlarının ne durumda oldukları düzenli bir şekilde gözden geçirilecektir.
- Çalışanlara kimyasal ve tehlikeli maddelerin yönetimi ile ilgili eğitim verilecektir.
- Acil bir durumda gerçekleştirilecek eylemler ve acil durum ekiplerinin görevi olan eylemler tanımlanacaktır.
- Döküntü kileri, inşaat alanında derhal kullanılmak üzere sahada hazır tutulacaktır. Döküntüler/bazılar derhal kontrol altına alınacak ve etiketleri ve sonuçlarının azaltılması için temizlenecektir. Döküme ve kaza durumları için uygun temizleme ekipmanları temin edilerek sahada bulundurulacak ve bu ekipmanların kullanımı için temizlik ekipleri görevlendirilecektir.

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Toplum Sağlığı, Güvenliği ve Emniyeti

Olası Etkiler

- Yol güvenliği, proje faaliyetleri sırasında halk için en önemli topluluk-güvenliği risklerinden biridir
- Tehlikeli maddelere maruziyetten kaynaklanan kimyasal tehlikelere ek olarak, sıcak bileşenlerle temas, ekipman arızası vb. gibi fiziksel tehlike riskleri de halk sağlığı ve güvenliği üstünde olumsuz etkiler yaratabilir.
- İnşaat aşamasındaki kamyon hareketleri sebebiyle proje lokasyonlarına giden erişim yollarında trafik yoğunluğunun artması beklenmektedir.
- Gürültü ve hava kirliliği (özellikle H2S emisyonlarına maruziyet) faaliyet alanına yakın yerlerde yaşayan topluluklarda rahatsızlık ve hava aracı hastalıklarına (astım, alerji vb.) sebep olabilir.
- Ayrıca, sondaj faaliyetleri sırasında yeraltı suyu akiferi kirlenirse ve/veya jeotermal sivilan yerüstü sularına bopalarak kirliliğe yol açarsa, içme suları ve tarımsal faaliyetler için kullanılacak sulama sularının kalitesi olumsuz etkilenebilir.

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Toplum Sağlığı, Güvenliği ve Emniyeti

Alınacak Önlemler

- "Faryolu Trafik Planı" ayrıca, onaylı trafik sirkülasyon projelerine uygun olarak trafik akışı, güvenlik tedbirleri ve uyarı levhaları ile sağlanacaktır.
- Çalışma sahası güvenlik sınırları oluşturularak işgü ve sessiz uyan levhaları ile güvenlik sağlanacaktır. "Sağlık ve Güvenlik İşaretleme Yönetmeliği" uyarınca Proje alanında görünürlük uyarı ve bilgilendirme levhaları yerleştirilecektir.
- Topluluk üzerindeki muhtemel olumsuz etkileri en aza indirmek için inşaat sahasına izinsiz girisi engelleyecek bariyerler (çit, uyarı levhaları vb.)
- Sürücüler ve iş makinesi operatörleri güvenli sürüş hakkında bilgilendirilecek ve tüm çalışanlar Trafik Yönetim Planı hakkında eğitilecektir.
- Trafik akışı, ana ulaşım yollarında trafik sıkışıklığı olan saatlerden kaçınarak programlanacaktır. Kullanılacak yolların okulu veya yerleşim yeri gibi hassas alanlara sahip olmayan yerlerden geçmesi sağlanacaktır.
- Hız sınırlarına uygunluk sağlanacaktır.
- Taşıma faaliyetleri sırasında mevcut yollara zarar verilmeyecektir. Yollara herhangi bir zarar gelmesi durumunda bunlar onarılacaktır.
- Bölge sakinleri, yapılacak olağandışı çalışmalar hakkında en az bir hafta önceden bilgilendirilecektir.
- "Halk Sağlığı, Güvenliği ve Emniyeti Yönetim Planı" ve "Trafik Yönetim Planı" ve trafikle ilgili acil durumlar dahil olmak üzere "Acil Durum Müdahale Planı" uygulanacaktır.
- Şikayet Kaydı tutulması.

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Kültürel Varlıklar

Olası Etkiler

- Proje kapsamında ilk adım olarak proje alanının arazi düzenleme faaliyetlerini kapsayan hafriyat işleri yapılacağından, inşaat aşamasının bu etabında bir kültür varlığı bulma olasılığı bulunmaktadır.

Alınacak Önlemler

- Kültürel veya tarihsel bir değere sahip olabilecek tarihi eserler ve materyallerin bulunması halinde tüm faaliyetler askıya alınacaktır ve Kültürel Varlıklar ve Müzeler Genel Müdürlüğü ile iletişim kurulacak ve resmi bir talimat beklenilecektir.
- Tüm buluntular için, ilgili makamlarla iletişime geçilmesini ve "Kültür ve Tabiat Varlıklarını Koruma Kanunu" nun uygulanmasını belirten bir "Rastlantısal Buluntu Prosedürü" uygulanacaktır.
- Çalışanlar rastlantısal buluntu prosedürü konusunda eğitilecektir.

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Flora ve Fauna

Alınacak Önlemler

- Mevcut yollar kullanılacaktır.
- Gerekli alan kullanımı önleneyecektir.
- Faaliyet alanında fauna türleriyle karşılaşılması durumunda bunlar rahatsız edilmeyecek ve işçiler/çalışanlar onları gördükçe kadar bekleyecek veya onların güvenli biçimde taşınması ve uygun bir çevreye yeniden yerleştirilmesi için sahadaki çevre uzmanının desteğini isteyeceklerdir.
- Faaliyet sırasında görsel kontroller yapılacak ve hayvanlar çevre uzmanları tarafından ve alanlardan uygun yöntemlerle benzer yaşam alanlarına taşınacaktır.
- Proje alanının yakın çevresinde yaşayan hiçbir fauna türüne müdahale edilmeyecektir.
- Çalışanlar uzman biyologlar tarafından doğal hayatın korunması konusunda eğitilecektir.
- Proje kapsamında yürütülen tüm faaliyetlerde, 4915 sayılı Kara Avcılığı Kanunu, her yıl yapılan Merkezî Avcılık Komisyonu Kararları ve Bem Sözleşmesinin 6. ve 7. Maddeleri doğrultusunda yaban fauna türlerine asla kastlı olarak zarar verilmeyecektir.

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Paydaş Katılımı

Projenin paydaşlarının belirlenmesi, paydaşlarla katılım yöntemlerinin tanımlanması ve Çilimli Belediyesi ile paydaşlar, etkilenen topluluklar ve ilgili gruplar arasında bir diyalog kurulması ve bu diyalogun korunmasını amaçlayan bir Paydaş Katılım Planı (PKP) hazırlanmıştır.

Projenin inşaat, sondaj ve kapatma aşamalarında tüm paydaşların görüşlerini, endişelerini, şikayetlerini ve önerilerini almak üzere bir Şikayet Mekanizması kurulacaktır.

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Paydaş Katılımı

Paydaşlar, şikayetlerini ve görüşlerini aşağıda belirtilen kanallar aracılığıyla iletebileceklerdir:

- **Paydaş Katılım Toplantıları sırasında**
- **Şikayet mekanizmasını kullanarak**
- **T.C. Çilimli Belediyesi**
İnternet sitesi: <https://www.cilimli.bel.tr/>
E-posta: bilgi@cilimli.bel.tr
Telefon: +90 380 681 50 04
Resmî yazışma adresi: Ulucami Mah. Pazaryeri Sk. No: 01 Çilimli / DÜZCE
- **İller Bankası A.Ş.**
İnternet sitesi: <https://www.illerbank.gov.tr/bilgi edinme uyarıları>
E-posta: bilgi@illerbank.gov.tr ve etik@illerbank.gov.tr
Telefon : +90 312 508 79 79
Resmî yazışma adresi: İLBANK Uluslararası İlişkiler Dairesi, ŞÇM Ekibi Emniyet Mahallesi Hipodrom Caddesi No:9/21 Yenimahalle/ANKARA

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Paydaş Katılımı

Paydaşlar, şikayetlerini ve görüşlerini aşağıda belirtilen kanallar aracılığıyla iletebileceklerdir:

- **Cumhurbaşkanlığı İletişim Merkezi (CİMER)**
İnternet sitesi: www.cimer.gov.tr
Çağrı Merkezi: 150
Telefon numarası: +90 312 525 55 55
Faks numarası: +90 312 473 64 94
E-posta: cumhurbaşkanligi@tcibb.gov.tr
Resmî Yazışma Adresi: T.C. İletişim Başkanlığı, Kızılkarak Mah. Mevlana Bulvarı No:144 Çankaya/ANKARA
- **Yabancılar İletişim Merkezi (YİMER)**
İnternet sitesi : www.yimer.gov.tr
Çağrı Merkezi : 157
Telefon numarası : +90 312 5157 11 22
Faks numarası : +90 312 920 06 09
E-mail: yimer@acik.gov.tr
Resmî Yazışma Adresi: Türkiye Cumhuriyeti, Göç Yönetimi Genel Müdürlüğü, Çamlıca Mahallesi 122. Sokak No:4 Yenimahalle/ANKARA

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SÜRDÜRÜLEBİLİR ŞEHİRLER PROJESİ-II Ek Finansman

ÇILIMLI JEOTERMAL KUYU SONDAJI PROJESİ

Katılımınız ve İlginiz için Teşekkür Ederiz.

Sorular ve Görüşler

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Photographs from the Public/Stakeholder Consultation Meeting





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Participant List


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Çilimli Jeotermal Kuyu Sondajı Projesi
Çilimli Su, Yağmur Suyu ve Kanalizasyon Şebekesi İnşaatı Projesi
HALKIN BİLGİLENDİRİLMESİ VE KATILIMI TOPLANTISI
04.01.2024

No	AD SOYAD	MESLEĞİ	KATILIMCI LİSTESİ		
			TEMSİL ETTİĞİ KURUM / YERLEŞİM YERİ	TELEFON	İMZA
1		öğrenci	ulu camii mahallesi		
2		öğrenci	yeşil mahalle		
3		memur	Çilimli Belediyesi		
4		memur	Çilimli Belediyesi		
5		memur	Çilimli Belediyesi		
6		Muhtar	Yeşil köy		
7		İSS	Makam Mahallesi		
8		memur	Çilimli Belediyesi		
9		Memur	Çilimli Belediyesi		
10		Şİ Memur	"		
11		İSS	"		
12		İSS	"		
13		Mühendis	"		
14		Mühendis	Çilimli OSB		
15		Memur	Belediye		




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04.01.2024

No	AD SOYAD	MESLEĞİ	KATILIMCI LİSTESİ		
			TEMSİL ETTİĞİ KURUM / YERLEŞİM YERİ	TELEFON	İMZA
1		Belediye Sirkatında	Belediye		
2		Mar. İŞİ M.D.	Belediye		
3		Açıkta Hızlı Mad.	Belediye		
4		Başkan Yardımcısı	Belediye		
5					
6					
7					
8					
9					
10					
11					
12					
13					
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15					

