Republic of Türkiye Ministry of
Environment, Urbanization and Climate Change
General Directorate of Construction Affairs

TÜRKİYE EARTHQUAKE RECOVERY AND RECONSTRUCTION PROJECT

(TERRP)

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This Environmental and Social Management Plan is developed by the EMAY within the scope of "Consultancy Services for Design Review and Reconstruction Supervision of Rural Housing (Ref: TERRP/CS-DESSUP-03)" under Türkiye Earthquake Recovery and Reconstruction Project.

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List of Abbreviations

AFAD	:	Disaster and Emergency Management Presidency
AoI	:	Area of Influence
C-ESMP	:	Contractor Environmental and Social Management Plan
CFP	:	Chance Find Procedure
CHS	:	Community Health and Safety
DSI	:	State Hydraulic Works
E&S	:	Environmental and Social
EBRD	:	European Bank for Reconstruction and Development
EMAY	:	EMAY International Engineering and Consultancy Inc.
ESHS	:	Environmental, Social, Health and Safety
ESMF	:	Environmental and Social Management Framework
ESMP	:	Environmental and Social Management Plan
ESS	:	Environmental and Social Standard
GDCA	:	General Directorate of Construction Affairs
GRM	:	Grievance Redress Mechanism
IFC	:	International Finance Corporation
LMP	:	Labor Management Procedure
MoEUCC	:	Ministry of Environment, Urbanization and Climate Change
N.	:	Neighborhood
OGM	:	General Directorate of Forestry
OHS	:	Occupational Health and Safety
PCA	:	Preventive/Corrective Action
PDoEUCC	:	Provincial Directorate of Environment, Urbanization and Climate Change
PIU	:	Project Implementation Unit
PPE	:	Personal Protective Equipment
PPP	:	Pollution Prevention Plan
PWWTP	:	Package Wastewater Treatment Plant
RCA	:	Root Cause Analysis
RP	:	Resettlement Plan
SEA	:	Sexual Exploitation and Abuse
SEP	:	Stakeholder Engagement Plan
SH	:	Sexual Harassment
TEDAŞ	:	Türkiye Electricity Distribution Inc.
TERRP	:	Türkiye Earthquake Recovery and Reconstruction Project
TMP	:	Traffic Management Plan
V.	:	Village
WB	:	World Bank
WBG	:	World Bank Group
WMP	:	Waste Management Plan
WSWW	:	Water Supply and Wastewater
WWTP	:	Wastewater Treatment Plant

1 Introduction

The World Bank (WB) is supporting the Ministry of Environment, Urbanization and Climate Change (MoEUCC) in implementing the Türkiye Earthquake Recovery and Reconstruction Project (TERRP). WB finances TERRP activities under Component 3, Rural Housing Reconstruction and Recovery, and Component 4.3, Project Management, Monitoring and Evaluation.

TERRP will overall support restoring access to essential municipal and health services and earthquake-resilient rural housing in selected provinces affected by the February 2023 earthquakes in Türkiye. The MoEUCC is implementing the Project activities for Components 3 and 4.3, in close collaboration with the Disaster and Emergency Management Presidency (AFAD). AFAD will carry out tasks as part of its ongoing organizational and legal mandates in collaboration with the MoEUCC.

Under the scope of this Environmental and Social Management Plan (ESMP), it is aimed to assess the possible negative environmental-social risks and impacts that may arise from the construction of a total of 79 rural houses in Arıcak and Alacakaya districts of Elazığ province, and to minimize or completely eliminate these impacts. The destroyed or severely damaged houses and basic infrastructures in the selected villages/neighborhoods will be reconstructed in new settlement locations. The details regarding the villages, new settlements, number of rural houses to be reconstructed, etc. will be given in the following chapters of the plan. This Environmental and Social Management Plan (ESMP) also includes health and safety measures, stakeholder engagement activities to be carried out, and the establishment of a Grievance Redress Mechanism (GRM). Finally, the ESMP outlines the responsibilities of relevant parties within the sub-project scope.

2 The Rationale of the Environmental and Social Management Plan

In accordance with the Environmental and Social Framework (ESMF) of the TERRP, the Project Implementation Unit (PIU) operating within the General Directorate of Construction Affairs (GDCA) of MoEUCC has completed the Environmental and Social (E&S) Screening, and the Screening Studies are given in Appendix 2. The project's E&S Risk Rating was assessed as **"moderate"**, based on anticipated environmental and social risks and impacts. Following the guidelines outlined in the ESMF, and based on the findings of the E&S screening and subsequent assessment, the project-level ESMP needed to be customized for the subproject namely "Elazığ Province Alacakaya and Arıcak District Rural Housing Project – Cluster1" (hereinafter "the Project").

EMAY International Engineering and Consultancy Inc. (EMAY) under its assignment "Consultancy Services for Design Review and Reconstruction Supervision of Rural Housing" with the name of the 'supervision consultant' took the responsibility to prepare the ESMP in Annex-4 of the Environmental and Social Management Framework for the subproject. In the course of these studies, EMAY visited the subproject sites in Arıcak and Alacakaya Districts on 12-13-14/01/2024 having meetings with the muhktars of the relevant villages/neighborhoods (Gürçubuk, Halkalı, Çevrecik, Saman and Haberci) and examine the new locations where the rural houses to be constructed.

It is the responsibility of the Contractor to regularly review, revise, and update the ESMP according to its planning and decisions. The ESMP contains site-specific measures developed based on the available information. During the planning and construction phases, adjustments to construction methods may occur due to feasibility and technical considerations. In the event of such changes in the Contractor's construction approach, the ESMP must be reviewed and revised by the Contractor and then submitted to EMAY for review. The Contractor must ensure that the ESMP accurately reflects site conditions and should proactively incorporate any revisions into the plan. The Waste Management Plan, Pollution Prevention Plan, Labor Management Plan, OHS Plan, Community Health, Safety and Traffic Management Plan, etc., will be prepared by the Contractor, reviewed by EMAY and submitted to the PIU for approval, including the company's opinions.

3 Legal and Institutional Framework

The TERRP's ESMF provides a comprehensive overview of the legal and institutional framework in Section 3. This section outlines Türkiye's legal framework, followed by a brief explanation of the national environmental and social assessment regulatory process, including permitting, and identifies any disparities between the WB Environmental and Social Standards (ESSs) and legislative requirements.

During the development of the ESMP, both the WB ESSs and the national legislation applied for Project-related activities are taken into account. Feasible and effective mitigation measures are then documented based on these considerations.

The ESMF for the Project (both English and Turkish) could be found at the following website:

https://kadiyap.csb.gov.tr/cevresel-ve-sosyal-proje-dokumanlari-i-110820

4 Project Description

Within the scope of the Project (Cluster1), a total of 79 rural houses will be constructed in new locations in Arıcak and Alacakaya districts of Elazığ province. The details regarding the villages/neighborhoods, number of houses and new locations are summarized in Table 1, and in the following sub-titles.

Table 1. Project Description

District	Settlement (Village (V.) or Neighborhood (N.))	Number of Rural Houses	New Location (lot/parcel)	Registry Status of the New Location
Alacakaya	Gürçubuk V.	14	104/2	Forestry
Alacakaya	Halkalı V.	10	111/1	Pastureland
Arıcak	Çevrecik V.	17	105/1	Forestry
Arıcak	Saman N.	36	162/1	Forestry
Arıcak	Haberci N.	2	210/1	Forestry

4.1 Gürçubuk Village

The sub-project includes the construction of 14 rural houses, and construction of roads and pavement within the parcel, the installation of street lighting, sewerage and drinking water network and the impermeable septic tank on a new location within parcel 104/2 in Gürçubuk village, Alacakaya district.

The parcel is registered as forestry, and has a total area of 58,152.37 m^2 but only 57% of the parcel will be used within the scope of the project. No action will be taken regardingthe entire parcel. AFAD has allocated only the area shown in Figure 1 as construction site.

The sub-project will not involve any risks of forced labor, child labor and other harmful forms of labor. Direct, contracted, local, and primary supply workers will be used in the construction process. Occupational health and safety risks will be managed by the hierarchy of controls. All measures will be involved in OHS Plan. With the measures to be taken during both the construction and operation phases, there will be no moving out, and people's business/commercial/livelihood activities will not be disrupted. Nor will there be any foreseen adverse impacts on the vulnerable individuals or groups. Finally, the locals have given their consent to the parcel determined by AFAD for rural housing construction.

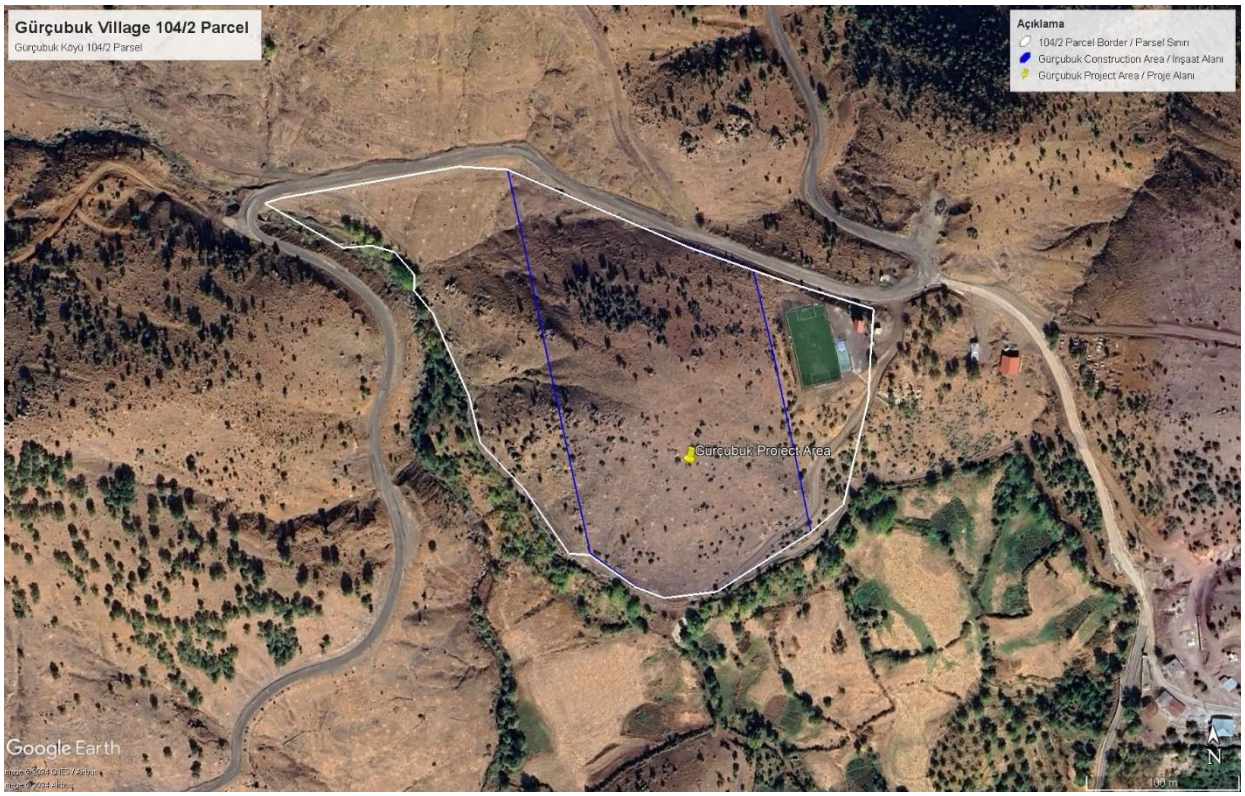

Figure 1. Satellite Image of Gürçubuk 104/2 Parcel and Construction Area

The parcel and the construction site as well as the close dwellings and facilities are shown in Figure 2 and the distances to the close dwellings and other facilities and features are given in Table 2.

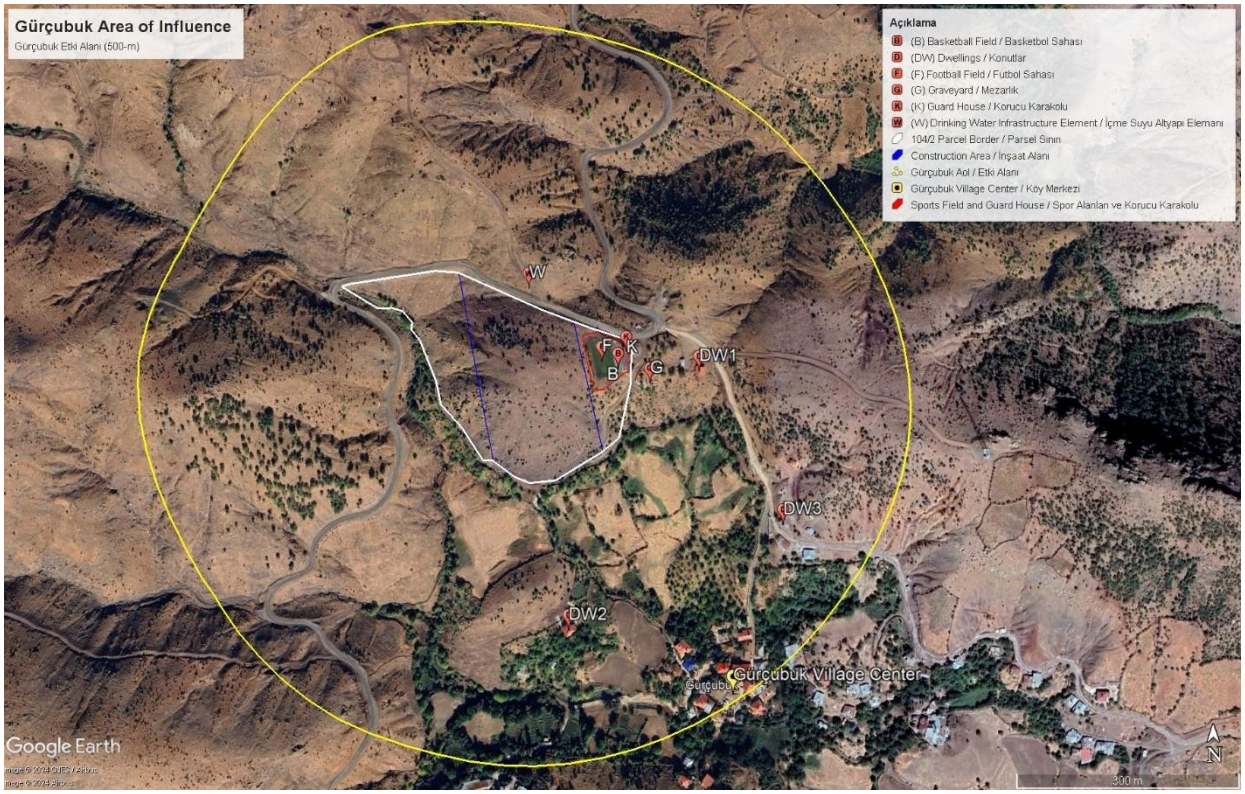

Figure 2. Gürçubuk Area of Influence

Table 2. Close Settlements to the Selected Parcel in Gürçubuk Village

Dwelling / Facilities / Features	Air Distance (m)
Dwelling1 (DW1)	140
Dwelling2 (DW2)	185
Dwelling3 (DW3)	250
Drinking Water Infrastructure Element	20
Football Field (F)	12
Basketball Fields (B)	38
Guard Station (K)	53
Graveyard (G)	62
Gürçubuk Village Center	360

4.2 Halkalı Village

The sub-project includes the construction of 10 rural houses on 111/1 parcel, and construction of roads and pavement within the parcel, installation of street lighting, sewerage and drinking water network, and impermeable septic tank in Halkalı village, Alacakaya district.

The parcel is registered as pastureland, and has a total area of 127,186.46 m² but only 7.8% of the parcel (10,020 m²) will be used within the scope of the project. No action will be taken regarding the entire parcel. AFAD has allocated only the area shown in Figure 3 as construction site, although the parcel is large.

The sub-project will not involve any risks of forced labor, child labor and other harmful forms of labor. Direct, contracted, local, and primary supply workers will be used in the construction process. Occupational health and safety risks will be managed by the hierarchy of controls. All measures will be involved in OHS Plan. With the measures to be taken during both construction and operation phases, there will be no moving out, and business/commercial/livelihood activities of persons will not be disrupted. Nor will there be any foreseen adverse impacts on the vulnerable individuals or groups. Finally, the locals have given their consent to the parcel determined by AFAD for rural housing construction

The area of influence (AoI), close dwellings and other facilities and features are given in Figure 4 and the distances are presented in Table 3.

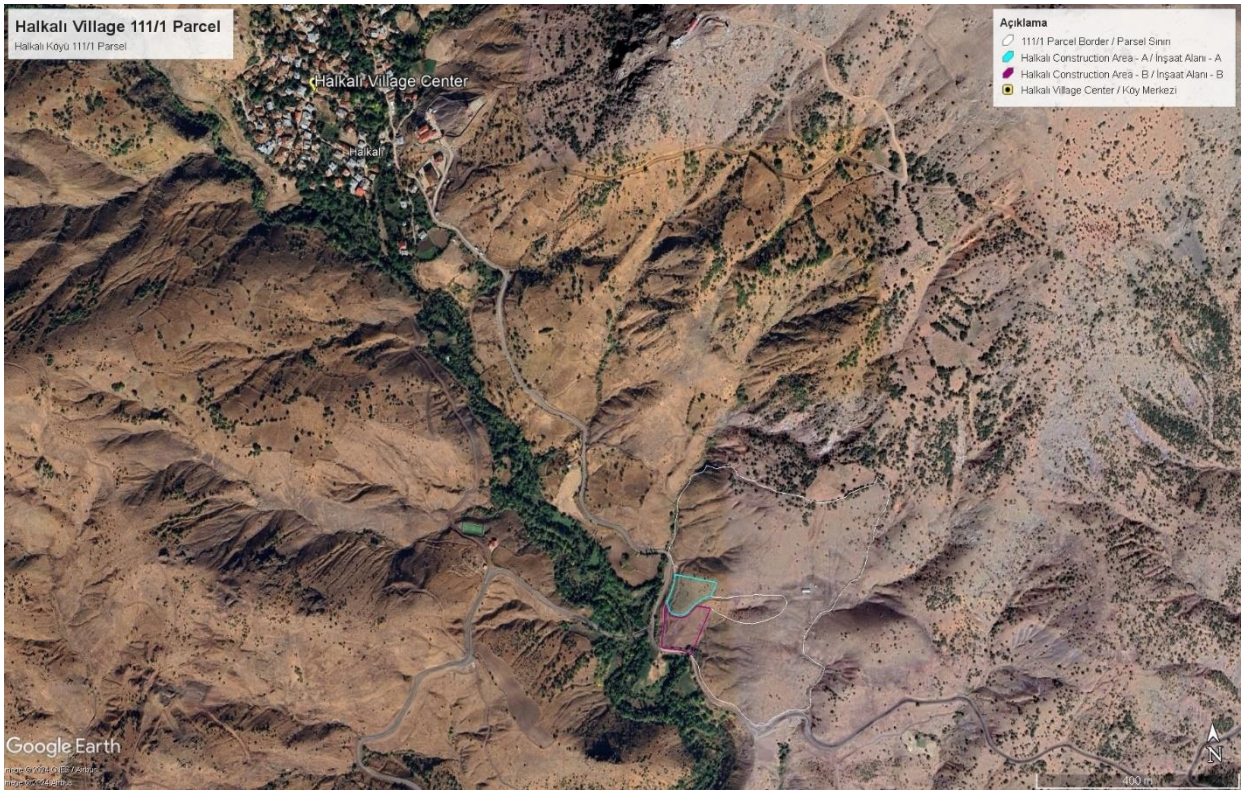

Figure 3. Satellite Image of Halkalı 111/1 Parcel and Construction Areas

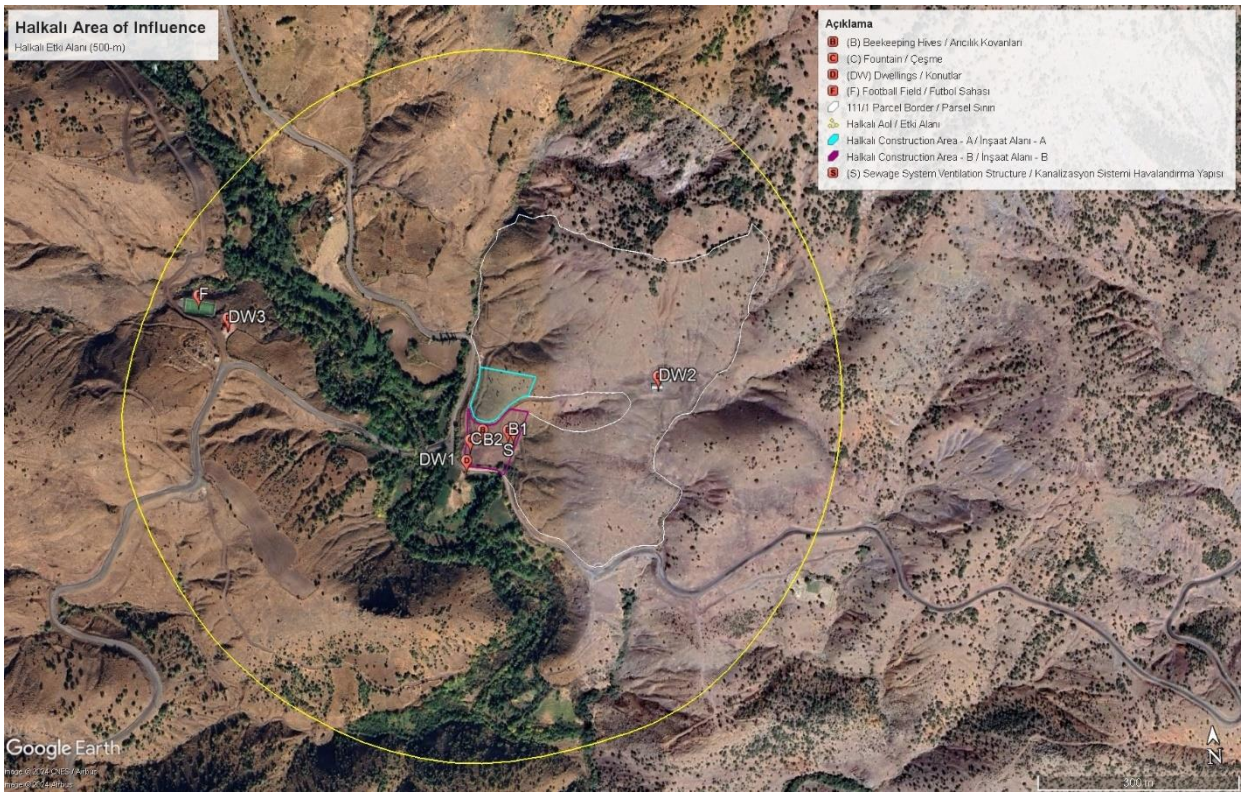

Figure 4. Halkalı Area of Influence

Table 3. Close Settlements and Other Movable/Immovable Assets to the Selected Parcel in Halkalı Village

Dwelling / Facilities / Features	Air Distance (m)
Dwelling1 (DW1)	10
Dwelling2 (DW2)	160
Dwelling3 (DW3)	355
Football Field (F)	380
Sewage System Ventilation Structure (S)	0
Fountain (C)	0
Beekeeping Hives 1 (B1)	0
Beekeeping Hives 2 (B2)	0
Halkalı Village Center	1,200

4.3 Çevrecik Village

The project includes the construction of 17 rural houses, and construction of roads and pavement within the parcel, installation of street lighting, sewerage and drinking water network, and the impermeable septic tank on a new location within parcel 105/1 in Çevrecik village, Arıcak district.

The parcel is registered as forestry, and has a total area of 187,181.41 m^2 but only 28% of the parcel (53,776 m^2) will be used within the scope of the project.No action will be taken regarding the entire parcel. AFAD has allocated only the area shown in Figure 5 as construction site, although the parcel is large.

The sub-project will not involve any risks of forced labor, child labor and other harmful forms of labor. Direct, contracted, local, and primary supply workers will be used in the construction process. Occupational health and safety risks will be managed by the hierarchy of controls. All measures will be involved in OHS Plan. With the measures to be taken during both the construction and operation phases, there will be no moving out, and people's business/commercial/livelihood activities will not be disrupted. Nor will there be any foreseen adverse impacts on the vulnerable individuals or groups. Finally, the locals have given their consent to the parcel determined by AFAD for rural housing construction.

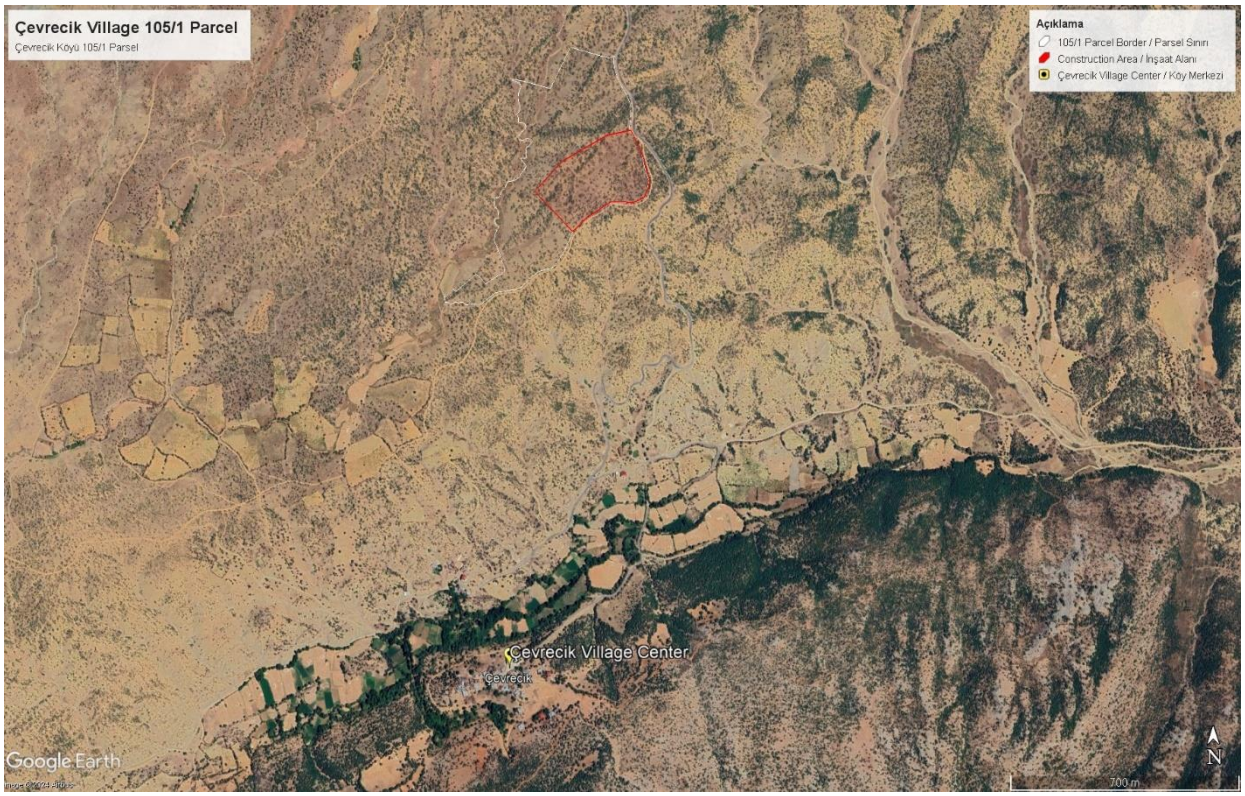

Figure 5. Satellite Image of 105/1 Parcel in Çevrecik V. and Construction Area

The AoI of the selected parcel and close dwellings and other facilities and features are shown in the following figure (see Figure 6), and distances are given in Table 4.

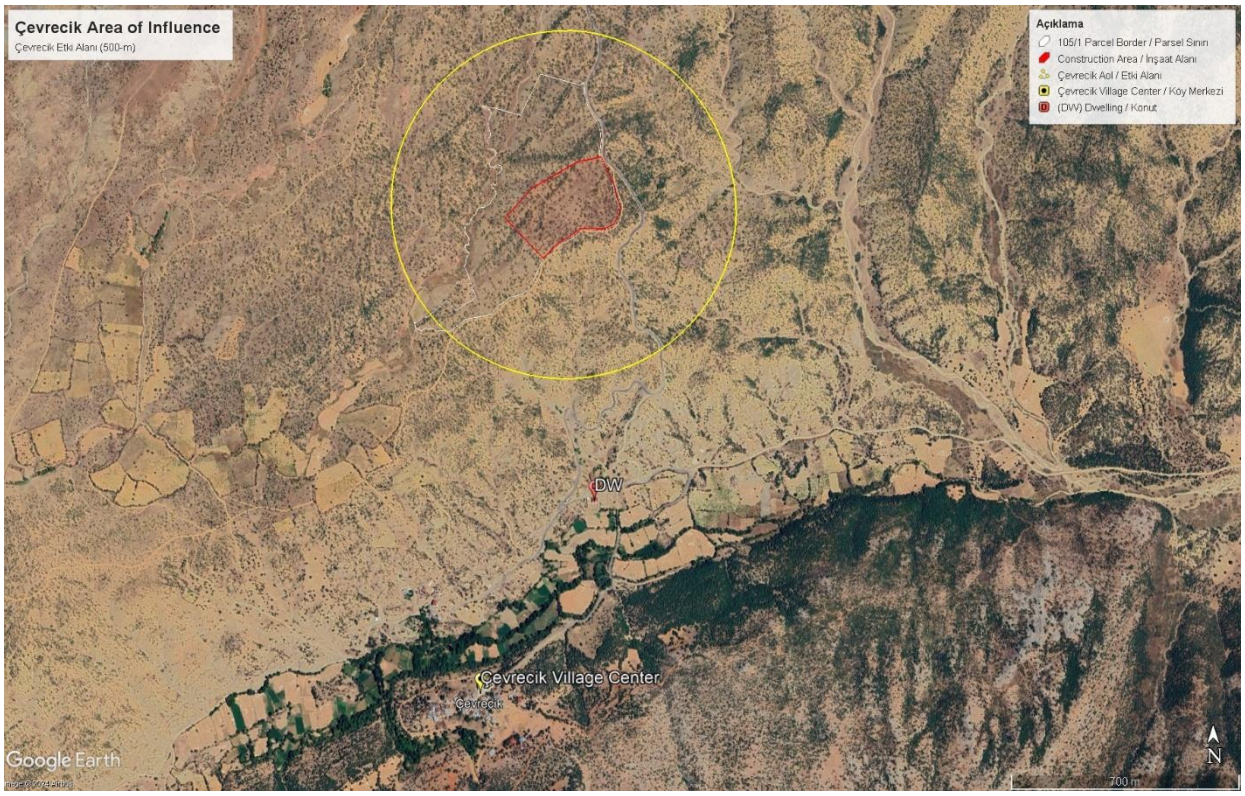

Figure 6. Çevrecik Area of Influence

Table 4. Close Settlements to the Selected Parcel in Çevrecik Village

Dwelling / Facilities / Features	Air Distance (m)
Dwelling	710
Çevrecik Village Center	1,270

4.4 Saman Neighborhood

The sub-project includes the construction of 36 rural houses on a new location within parcel 162/1, construction of roads and pavement within the parcel, installation of street lighting, sewerage and drinking water network, and the impermeable septic tank in Saman neighborhood, Arıcak district.

The parcel 162/1 is registered as forest land and has an area of 292,972.97m^2, but only 23% of the parcel (68,031 m^2)will be used within the scope of the project. Even though the land on which the rural houses will be constructed is large, AFAD has allocated this area for the sub-project.

The sub-project will not involve any risks of forced labor, child labor and other harmful forms of labor. Direct, contracted, local, and primary supply workers will be used in the construction process. Occupational health and safety risks will be managed by the hierarchy of controls. All measures will be involved in OHS Plan. With the measures to be taken during both the construction and operation phases, there will be no moving out, and people's business/commercial/livelihood activities will not be disrupted. Nor will there be any foreseen adverse impacts on the vulnerable individuals or groups. Finally, the locals have given their consent to the parcel determined by AFAD for rural housing construction.

The selected parcel is shown in Figure 7, and the AoI, close dwellings and other facilities/features are given in Figure 8 and the distances are presented in Table 5.

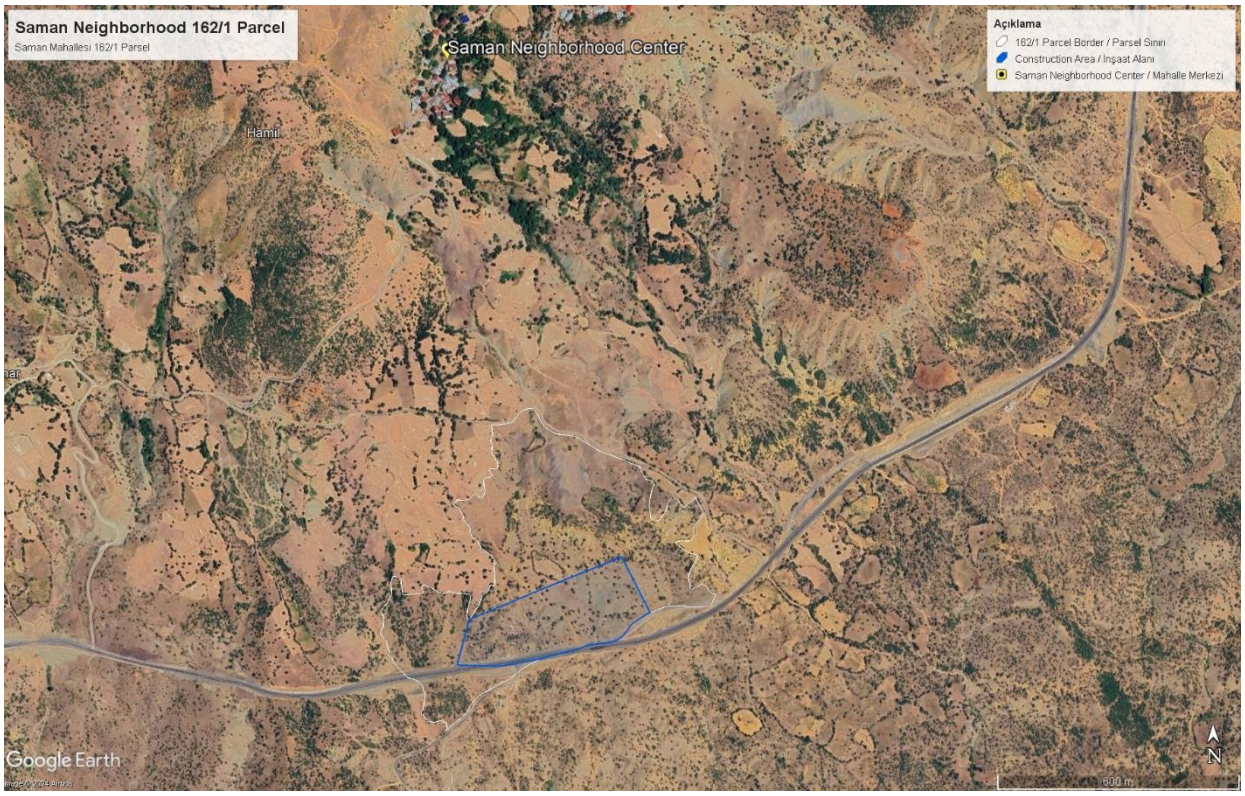

Figure 7. Satellite Image of the 162/1 parcel in Saman and Construction Area

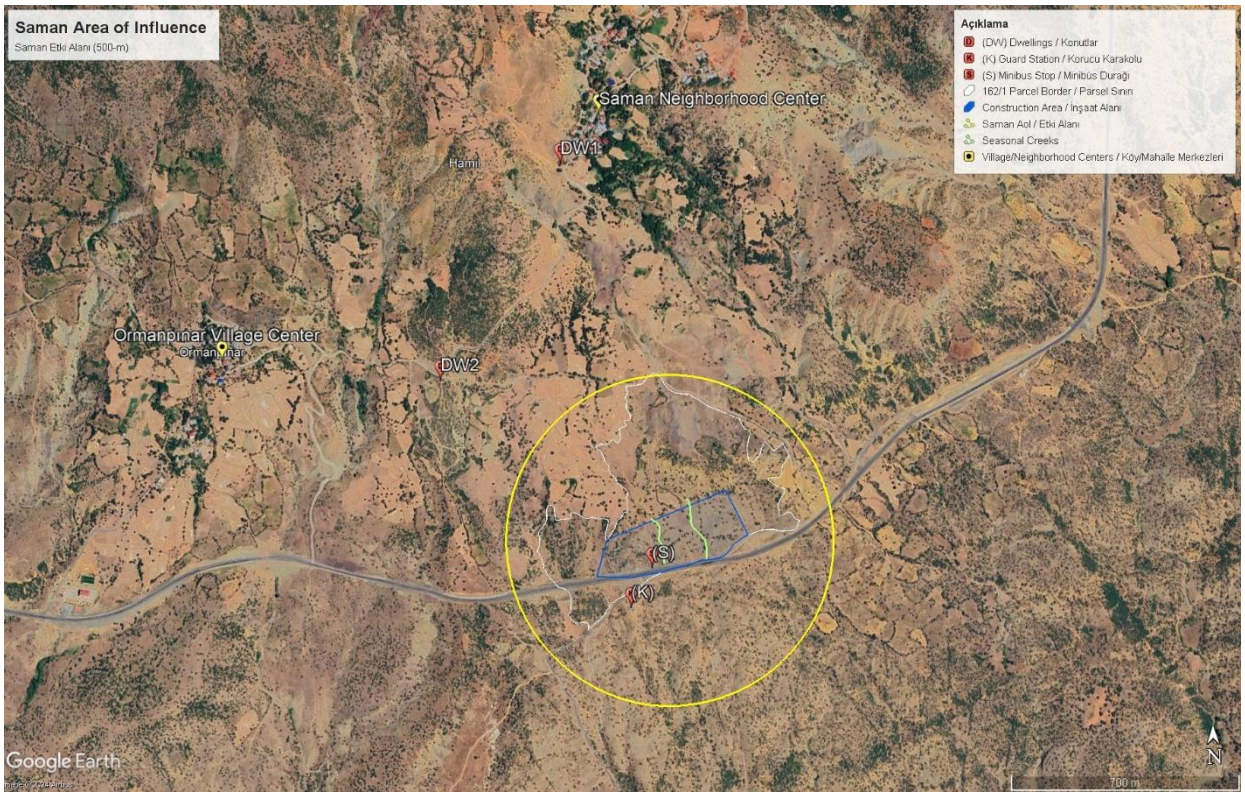

Figure 8. Saman Area of Influence

Table 5. Close Settlements and Other Movable/Immovable Assets to the Selected Parcel in Saman Neighborhood

Dwelling / Facilities / Features	Air Distance (m)
Dwelling1 (DW1)	1,075
Dwelling2 (DW2)	685
Seasonal Creeks	0
Minibus Stop (S)	0 (at the border)
Guard Station (K)	85
Saman Neighborhood Center	1,190
Ormanpınar Village Center	1,265

4.5 Haberci Neighborhood

The project includes the construction of 2 rural houses on a new location within parcel 210/1, construction of roads and pavement within the parcel, sewerage and drinking water network, and the impermeable septic tank in Haberci neighborhood, Arıcak District.

The parcel is registered as forest land and has a total area of 2,236,562.29 m^2 but only 0.9% of it will be used within the scope of the project. No action will be taken regarding the entire parcel. AFAD has allocated only the area shown in Figure 9 as construction site.

The sub-project will not involve any risks of forced labor, child labor and other harmful forms of labor. Direct, contracted, local, and primary supply workers will be used in the construction process. Occupational health and safety risks will be managed by the hierarchy of controls. All measures will be involved in OHS Plan. With the measures to be taken during both the construction and operation phases, there will be no moving out, and people's business/commercial/livelihood activities will not be disrupted. Nor will there be any foreseen adverse impacts on the vulnerable individuals or groups. Finally, the locals have given their consent to the parcel determined by AFAD for rural housing construction.

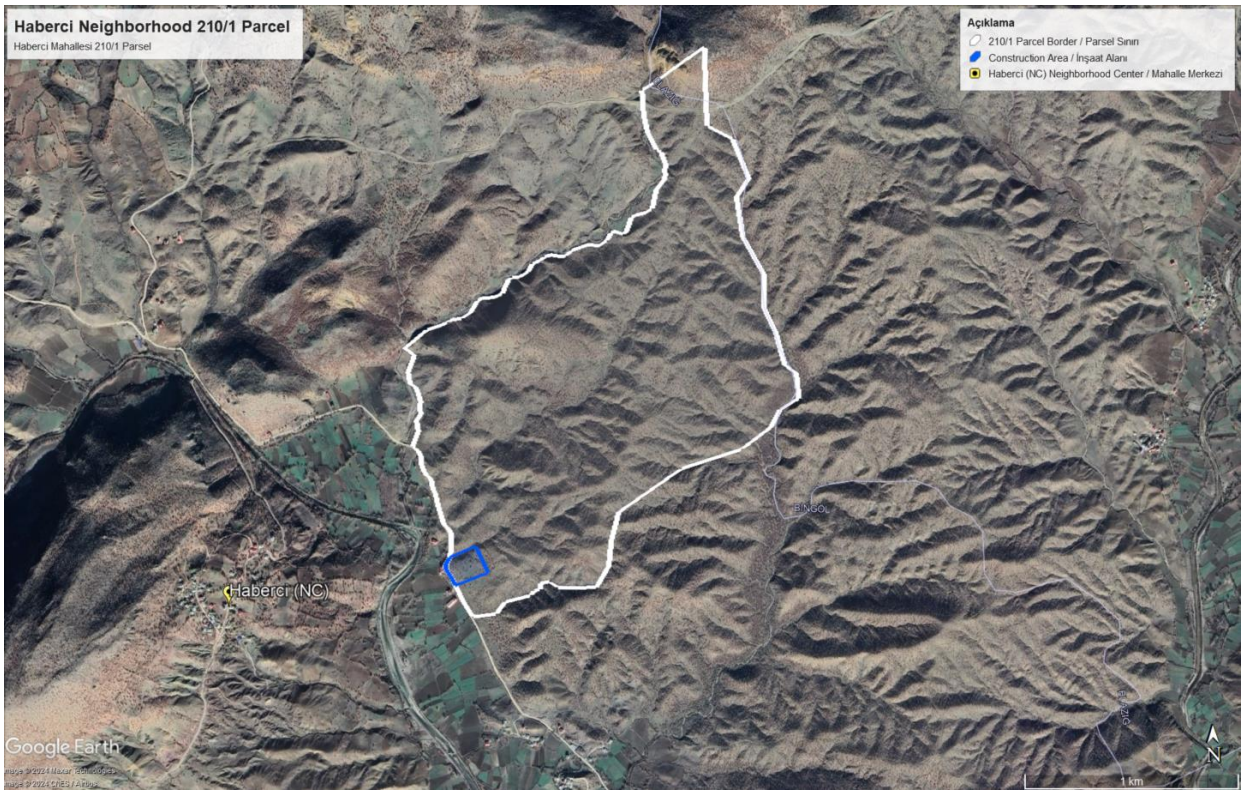

Figure 9. Satellite Image of Haberci 210/1 Parcel and Construction Area

The parcel and the construction site as well as the close dwellings and facilities are shown in Figure 10 and the distances to the close dwellings and other facilities and features are given in Table 6.

Table 6. Close Settlements and Other Movable/Immovable Assets to the Selected Parcel in Haber Neighborhood

Dwelling / Facilities / Features	Air Distance (m)
Dwelling1 (DW1)	88
Dwelling2 (DW2)	30
Dwelling3 (DW3)	35
Barn1 (B1)	10
Barn2 (B2)	55
Sewage Ventilation Structure (S)	0
AFAD Tent (T)	0
Mervansuyu Stream	145
Haberci Neighborhood Center	990

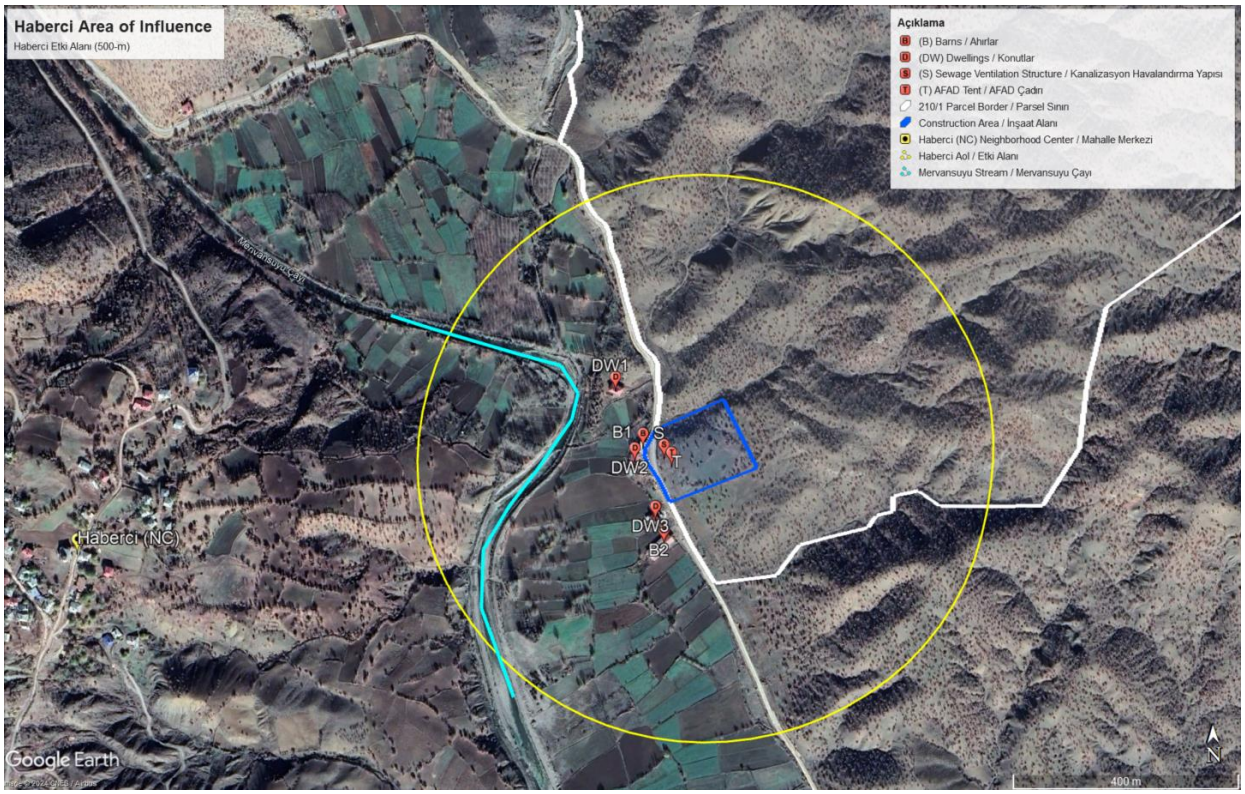

Figure 10. Haberci Area of Influence

4.6 Project Characteristics

The features regarding the houses to be constructed and the awarded Contractor are listed as follows:

- The rural houses to be constructed will cover an area of 105.0525 m^2, and the each house will have a 14.04 m^2 veranda.
- The rural houses will be concrete with 3 bedrooms.
- The number of workers of the Contractor are estimated to be maximum 200.
- The estimated duration for the completion of the construction is 10 months,
- Settlement plans prepared for each new location have been approved by MoEUCC; however, they might be revised, if deemed necessary.
- There will not be any construction of concrete plant within the scope of the Project. The concrete need for the construction of the rural houses will be procured from the nearest licensed facility.

  The concrete plant is 17 km to Gürçubuk village, 15 km to Halkalıvillage, 8 km to Çevrecik village, 5.5 km to Saman neighborhood and 26 km to Habercineighborhood.
- Wastewater will be collected in the impermeable septic tanks in both the work site and resettlement area. The more detailed information related to the subproject is given in Screening Form in Appendix 2.

5 Information Activities and Stakeholder Engagement for ESMP

This section will be prepared after the Public Participation Meeting.

6 Environmental and Social Management Plan

The Table 7 below outlines the Environmental and Social Management Plan (ESMP), which delineates the requisite measures for the construction Contractor to adhere to during Project activities. This plan also encompasses foreseen environmental and social risks and impacts specific to the sub-project, along with recommended mitigation measures. It provides details on the stages where these risks and impacts are expected, indicators within the monitoring system, monitoring frequency, assigned responsibilities, and estimated costs. The ESMP thoroughly articulates the strategies to address these risks and impacts throughout the project timeline.

EMAY will oversee the implementation of specified measures, the Contractor's execution system, organizational structure, site-specific Environmental and Social (E&S) management plans, their efficacy, and the monitoring plan to be executed by the Contractor. The Contractor will be subject to supervision to establish an effective system for managing and monitoring E&S concerns related to sub-project activities. Besides, the Contractor shall review the ESMP prepared by the Consultant and commit to implement it or prepare the C-ESMP, if needed. The Contractor shall also prepare sub-management plans, e.g. Waste Management Plan, Pollution Prevention Plan, Labor Management Plan, OHS Plan and Community Health, Safety and Traffic Mangement Plan, etc. and submit them to the consultant for review. The consultant in turn will send these documents with his/her comments to the PIU for approval.

Table 7. Environmental and Social Management Plan

Potential Risks and Impacts	Proposed Mitigation Measures	Phase			Indicators for monitoring	Frequency			Responsibility for Implementation and Monitoring	Estimated Cost
		Planning	Construction	Operation		Continous	Monthly	Quarterly		
General for All Construction Works										
Environmental and Social Management: Inadequate management of environmental and social risks and impacts	The Contractor will prepare and submit for approval and subsequently implement its Contractor ESMP (C-ESMP). **The C-ESMP should be submitted prior to the commencement of construction works and no construction activities will be carried out under the Project until approval of the C-ESMP.** The C-ESMP will include at least the following site-specific management plans where the necessary outlines are given in the ESMF of TERRP: • Occupational Health and Safety (OHS) Plan including Risk Assessment Report and Emergency Response Plan (ERP) • Community Health, Safety (CHS) and Traffic Management Plan (can be prepared separately as CHS Management Plan and Traffic Management Plan (TMP)) • Waste Management Plan (WMP) • Pollution Prevention Plan (PPP) • Chance Find Procedure (CFP) • Water Supply and Wastewater (WSWW) Management Plan • Labor Management Plan to be prepared in accordance with project LMP • Grievance Redress Mechanism (GRM)	**X**	**X**		All sub-management plans are approved prior to construction and implemented throughout the construction period.		**X**		Contractor (*implementation*) Supervision Consultant (*supervision*)	Included in the cost of construction

Potential Risks and Impacts	Proposed Mitigation Measures	Phase			Indicators for monitoring	Frequency			Responsibility for Implementation and Monitoring	Estimated Cost
		Planning	Construction	Operation		Continous	Monthly	Quarterly		
	At least one full-time Class A/B OHS Specialist, one full-time Environmental Specialist and one full-time Social Specialist are employed before starting construction work. The Contractor shall submit the resumes of those specialists for approval. These specialists should be present at the site throughout the construction period.	**X**	**X**		Relevant E&S staff is mobilized and maintained throughout the construction period		**X**		Contractor (*implementation*) Supervision Consultant (*supervision*)	Included in the cost of construction
	The Contractor will prepare a Training Program and provide training to all its workers, before the start working on site, on basic environmental, social, health and safety (ESHS) risks associated with the proposed construction works and the workers' responsibility. The Training Program shall be repeated on a monthly basis. The Contractor's monthly training program will also cover topics related to Code of Conduct such as sexual harassment particularly towards women and children, violence, including sexual and/or gender-based violence and respectful attitudes while interacting with the local community.	**X**	**X**		Training Program approved and all relevant staffed are trained. Training records		**X**		Contractor (*implementation*) Supervision Consultant (*supervision*)	Included in the cost of construction
	All necessary permits will be obtained and the installation of facilities is ensured before the construction. The permits which may be needed for the Project but not limited to the followings: • Official letters/permits from relevant governmental agencies • Official letters/permits from Türkiye Electricity Distribution Inc. (TEDAŞ) for the electric poles within the selected parcels in Gürçubuk village and Halkalı village if the relocation of the poles are essential • Land use permits (if necessary) • Waste disposal permits from the Municipality	**X**			Permissions and relevant official letters	**Once before the start of construction**			Contractor (*implementation*) Supervision Consultant (*supervision*)	Included in the cost of construction

Potential Risks and Impacts	Proposed Mitigation Measures	Phase			Indicators for monitoring	Frequency			Responsibility for Implementation and Monitoring	Estimated Cost
		Planning	Construction	Operation		Continous	Monthly	Quarterly		
	• Environmental permits (if necessary) • Water usage permits from the DSI (if necessary) • Waste disposal protocols with licensed disposal facilities and/or Municipalities • Excavation waste disposal protocols with municipalities • Electricity connection and usage permits									
Air Quality: Dust generation around the Project site due to construction activities, and emissions from construction equipment and vehicles	Dust from exposed work sites will be minimized by applying water on the ground regularly during the dry season. Construction debris shall be kept in a controlled area and sprayed with water to reduce debris dust. Stockpile of aggregate materials will be kept covered to avoid suspension or dispersal of fine soil particles during windy days or disturbance from stray animals. In case of pneumatic drilling during excavation, dust shall be suppressed by ongoing water spraying and/or construction dust screen enclosures at the site. The surrounding environment such as roads, etc. shall be kept free of debris to minimize dust. The construction/waste materials at the site will not be burned. Construction vehicles will not be run idle on construction sites. The operation hours of generators/machines/equipment/vehicles will be reduced as appropriate. Vehicle speed will be controlled when driving through community areas is unavoidable so that dust dispersion from vehicle transport is minimized. The trucks that transport materials shall be covered to decrease dust emissions. In villages/neighborhoods with dwellings close to the construction		**X**		Visual inspection of air quality control measures Records of maintenance Records of complaints	**X**			Contractor (*implementation*) Supervision Consultant (*supervision*)	Included in the cost of construction

Potential Risks and Impacts	Proposed Mitigation Measures	Phase			Indicators for monitoring	Frequency			Responsibility for Implementation and Monitoring	Estimated Cost
		Planning	Construction	Operation		Continous	Monthly	Quarterly		
	site, such as Gürçubuk, Halkalı and Haberci protective barriers will be installed to prevent the dwellings from dust if necessary.Dust measurements shall be conducted by an authorized laboratory accordingly if any grievance regarding dust generation is received from the nearest receptors. If measured levels are above limit values, mitigation measures shall be enhanced in this respect, i.e., increasing wet suppression / watering activities, applying non-toxic chemicals, further reducing speed/traffic.									

Potential Risks and Impacts	Proposed Mitigation Measures	Phase			Indicators for monitoring	Frequency			Responsibility for Implementation and Monitoring	Estimated Cost
		Planning	Construction	Operation		Continous	Monthly	Quarterly		
Noise: Noise generation due to construction vehicles and equipment	Especially in Haberci neighborhood, where the Project site is very close to the dwellings and barns, and in Gürçubuk village where the project site is close to the village center; the construction activities will be limited to the restricted times defined in the national legislation and plan activities in consultation with nearby communities so that the noisiest activities are undertaken during periods that will result in the least disturbance. During operation, the engine covers of generators, air compressors, and other powered mechanical equipment shall be closed, and equipment placed as far as away from residental/community areas as possible. All equipment will be maintained to keep it in good working order by manufacturing maintenance procedures and installing acoustic enclosures around generators to reduce noise levels. When needed and feasible, noise-control methods such as fences, barriers or deflectors (such as muffling devices for combustion engines or planting of fast-growing trees) will be used. Unnecessary use of alarms, horns and sirens will be avoided. Project transportation through community areas will be minimized. A buffer zone (such as open spaces, rows of trees or vegetated areas) between the project site and residential areas will be created to lessen the impact of noise to the living quarters. Noise measurements shall be conducted if any grievance regarding noise generation is received from the nearest receptors. If measured levels are above limit values, mitigation measures shall be enhanced in this respect, i.e., installing acoustic barriers for mechanical equipment, limiting the hours of operation for specific pieces of equipment or operations, etc.		**X**		Visual/audial inspection of noise control measures Records of complaints	**X**			Contractor (*implementation*) Supervision Consultant (*supervision*)	Included in the cost of construction

Potential Risks and Impacts	Proposed Mitigation Measures	Phase			Indicators for monitoring	Frequency			Responsibility for Implementation and Monitoring	Estimated Cost
		Planning	Construction	Operation		Continous	Monthly	Quarterly		
Occupational Health and Safety: OHS-related risks due to unsafe practices and hazards at work sites such as work at height, rotating and moving equipment, electrical safety, working with hazardous materials, etc.	When planning activities, following steps should be considered with OHS specialist to avoid people getting injured: • Construction place: Are there any hazards that could be removed or should warn people about? • The people who will be taking part in construction: Do the participants have adequate skill and physical fitness to perform their work safely? • The equipment: Are there checks you could do to make sure that the equipment is in good working order? Do people need any particular skills or knowledge to enable them to use it safely? • Electricity safety: Do any electricity good practices such as the use of safe extension cords, voltage regulators and circuit breakers, labels on electrical wiring for safety measures, awareness on identifying burning smells from wires, etc. apply at the site? Is the worksite stocked with voltage detectors, clamp meters and receptacle testers?	**X**			Visual inspection Employee records Equipment records		**X**		Contractor (*implementation*) Supervision Consultant (*supervision*)	Included in the cost of construction
	Appropriate signposting of the construction sites will inform workers of key rules and regulations to follow. The contractor's OHS specialist will provide a brief daily toolbox talk to the construction workers on OHS risks associated with the construction activity that will be carried out on that particular day that particular day. The Contractor will ensure a safe working environment for the workers and before construction activities will supply appropriate Personal Protective Equipment (PPE) in line with international best practice and Turkish Legislation (hard hats, gloves, dust masks, goggles, harnesses and safety boots, etc.). All activities will be implemented in line with both the Law on Occupational Health and Safety (Official Gazette No:28339, dated		**X**		Visual inspection of control measures OHS records Employee records Incident statistics and records Records of	**X**			Contractor (*implementation*) Supervision Consultant (*supervision*)	Included in the cost of construction

Potential Risks and Impacts	Proposed Mitigation Measures	Phase			Indicators for monitoring	Frequency			Responsibility for Implementation and Monitoring	Estimated Cost
		Planning	Construction	Operation		Continous	Monthly	Quarterly		
	June 30, 2012) and its relevant regulations and also with the WBG EHS Guidelines. The Contractor will immediately notify the MoEUCC PIU (through supervision consultants) about any serious incident which may have significant adverse effects on the environment, the affected communities, the public or workers. Then, MoEUCC will notify the WB about any serious incident in 48 hours and send an incident investigation report together with the root cause analysis and corrective action plan in 30 days to the WB.				workers' complaints					
	The worksite will be kept clean and free of debris on a daily basis. First aid kit with bandages, antibiotic cream, etc. will be provided at the construction sites, and controlled regularly (monthly). Following safety guidelines will be ensured for the storage, transport, and distribution of hazardous materials aiming to minimize the potential for misuse, spills, and accidental human exposure. Corrosive fluids and other toxic materials will be kept in properly sealed containers for collection and disposal in properly secured areas. It will be ensured that structural openings are covered/protected adequately. Loose or light material that is stored on roofs or open floors will be secured. It will be ensured keeping hoses, power cords, welding leads, etc. from laying in heavily travelled walkways or areas. During heavy rains or emergencies of any kind, all work will be suspended. The below measures will be followed for construction involving work at height:		**X**		Visual inspection of control measures OHS records Employee records Incident statistics and records Records of workers' complaints Training records of workers for specific tasks such as working at height, working	**X**			Contractor (*implementation*) Supervision Consultant (*supervision*)	Included in the cost of construction

Potential Risks and Impacts	Proposed Mitigation Measures	Phase			Indicators for monitoring	Frequency			Responsibility for Implementation and Monitoring	Estimated Cost
		Planning	Construction	Operation		Continous	Monthly	Quarterly		
	• Do as much work as possible from the ground. • Do not allow people with the following personal risks to perform work at height tasks: eyesight/balance problem; certain chronic diseases – such as osteoporosis, diabetes, arthritis or Parkinson's disease; certain medications – sleeping pills, tranquilizers, blood pressure medication or antidepressants; recent history of falls – having had a fall within the last 12 months, etc. • Only allow people with sufficient skills, knowledge and experience to perform the task. • Check that the place (e.g., a roof) where work at height is to be undertaken is safe. • Take precautions when working on or near fragile surfaces. • Clean up oil, grease, paint, and dirt immediately to prevent slipping; and • Provide fall protection measures e.g. safety hardness, and simple scaffolding/guard rail for working at height. The contractor shall hire trained operators for the safe operation of specialized vehicles such as forklifts, including safe loading and unloading.				with electric, etc.					
	Moving equipment with restricted rear visibility is outfitted with audible backup alarms. A flagman will be provided to each moving equipment operator to guide the movement of equipment. The contractor shall mark all energized electrical devices and lines with warning signs. The contractor shall check all electrical cords, cables, and hand power tools for frayed or exposed cords and follow manufacturer recommendations for the maximum permitted operating voltage of the portable hand tools. There must be a leakage current relay in electrical panels.		**X**		Visual inspection of control measures OHS records Employee records	**X**			Contractor (*implementation*) Supervision Consultant (*supervision*)	Included in the cost of construction

Potential Risks and Impacts	Proposed Mitigation Measures	Phase			Indicators for monitoring	Frequency			Responsibility for Implementation and Monitoring	Estimated Cost
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	Both trainings and incidents (fatalities, lost time incidents, any significant events including spills, fire, etc.) including near-misses will be recorded.				Incident statistics and records Records of workers' complaints					
Community Health and Safety: Community health and safety risks associated with construction activities including traffic and road-related risks (such as risks to the population due to inadequate construction and traffic management) from increased traffic volume and movement of heavy-duty vehicles	The construction area will be surrounded by rope or a similar material and material stocks/storage areas will be kept away from the public. Warning signs will be posted, including in unsafe areas. Children will not be allowed to play in construction areas. All earth borrow-pits will be filled in once construction is completed to avoid standing water, water-borne diseases and possible drowning. The driving speed of vehicles will be controlled particularly when passing through a community or nearby school, children park, health center or other sensitive areas. If school children are in the vicinity, include traffic safety personnel to direct traffic during school hours. A site-specific Traffic Management Plan should be prepared for Gürçubuk and Halkalı villages where the sports fields are adjacent or near to the construction site and used by the children. The project site will be illuminated during the night. The surrounding construction area will be kept clean, without waste disposed of there. The broken glass should be cleaned immediately to avoid any fires. Safety guidelines will be followed for transportation of hazardous materials to the site aiming to minimize the potential for spills and accidental human exposure due to traffic accidents. Regular maintenance of vehicles will be carried out to minimize potentially serious accidents caused by equipment malfunction or		**X**		Visual inspection of control measures Traffic accident records Records of complaints	**X**			Contractor (*implementation*) Supervision Consultant (*supervision*)	Included in the cost of construction

Potential Risks and Impacts	Proposed Mitigation Measures	Phase			Indicators for monitoring	Frequency			Responsibility for Implementation and Monitoring	Estimated Cost
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	premature failure. The local people will be informed about the work to be carried out, including the measures taken regarding communicable diseases relating to labor influx and post-disaster context (i.e., COVID-19 virus), using appropriate communication tools and methods (e.g., online/virtual and/or physically) in areas accessible to all stakeholders (including work sites). In case of any epidemic or pandemic / communicable disease, including COVID-19, the guidance, guidelines, and recommendations to be provided by the Ministry of Health, the Ministry of Family and Social Services, the Ministry of Labor and Social Security, and the World Health Organization will be followed, and all relevant measures will be taken for both employees and workplaces in terms of OHS and CHS. In addition, all construction works will follow the WB guidelines to minimize the risk of COVID-19 transmission during the execution of civil works. Any traffic diversions should take into account the needs of disabled persons. The Contractor will ensure the construction site is properly secured and construction-related traffic regulated properly (including proper route planning). This will include but not be limited to: • Signposting, warnings, barriers, and traffic diversions: the site will be visible, and the public warned of all potential hazards. • Traffic management system and staff training, especially for site access and near-site heavy traffic. Provision of safe passages and crossings for pedestrians where construction traffic interferes. • Adjustment of working hours to local traffic patterns, e.g. avoiding major transport activities during rush hours or times of livestock movement.									

Potential Risks and Impacts	Proposed Mitigation Measures	Phase			Indicators for monitoring	Frequency			Responsibility for Implementation and Monitoring	Estimated Cost
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	• Active traffic management by trained and visible staff at the site, if required for a safe and convenient passage for the public. • The Consultant will train all Contractor staff on SEA/SH, Gender Equality and GBVH and explain the Code of Conduct in detail. All staff employed on the project will sign a written commitment to comply with the Code of Conduct. The sub-project will introduce a Code of Conduct for all staff working in the field and establish a Grievance Redress Mechanism for project staff.									
Land Acquisition and Resettlement: Involuntary land acquisition and relocation of community members to new resettlement plots (if needed), including livelihood impacts	Since there is no land acquisition or expropriation for the Project's land use, there is no need to prepare a Resettlement Plan (RP). However, the Contractor will conduct its activities in coordination with the supervision consultant. WB ESS5 will be followed in relevance with the Turkish legislation. There is no physical or economic displacement or resettlement envisaged within the scope of the Project. However, if any damage occurs to third-party assets, lands, crops, etc. during construction activities, the Contractor will compensate the damage according to WB ESS5 requirements, based on the "full replacement cost." In addition, if any damage is done by the project activities to the animals in barns near the construction sites in Haberci neighborhood, it will be compensated by the Contractor. There are beekeeping hives in Halkalı village, however, those will be removed from the site by the owners before construction activities start. Therefore, no livelihood impact is expected. Categories of stakeholders, particularly the vulnerable groups, will be monitored closely, and Stakeholder Engagement Plan (SEP) and Grievance Redress Mechanism (GRM) will be implemented properly.	**X**			Records of complaints Records of compansation payments (if any)		**X**		Contractor (*implementation*) Supervision Consultants (*supervision, support to Contractor, if required*)	Included in the cost of construction

Potential Risks and Impacts	Proposed Mitigation Measures	Phase			Indicators for monitoring	Frequency			Responsibility for Implementation and Monitoring	Estimated Cost
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Water Quality and Wastewater: Water pollution in nearby surface waters due to wastewater/waste generated at the construction area due to construction activities	The site will establish appropriate erosion and sediment control measures such as e.g. hay bales and/or silt fences to prevent sediment from moving off-site and causing excessive turbidity in nearby surface waters. Storage or disposal of generated wastewater on the site will be minimized. Temporary or final waste disposal and wastewater discharge without treatment near/in surface waters (such as seasonal creeks in Saman neighborhood and/or Mervansuyu Stream flowing near Haberci neighborhood) is strictly forbidden to prevent possible adverse impacts on surface waters. No soiled materials, solid wastes, toxic or hazardous materials will be stored in, poured into or thrown into water bodies/dry stream beds for dilution or disposal. The training on the waste management/ environmental awareness will definitely include and emphasis those issues. The seasonal creeks within the selected parcel in Saman neighborhood will be integrated into project design if feasible and appropriate. This integration includes the positioning of houses and roads in the layout plan in order to prevent the natural bed structure of seasonal streams from being damaged, and if deemed necessary and appropriate, placing various fences and similar barriers on the edges of the stream beds, and separating them from the project area and preventing the houses to be built from being affected by possible inundations and floods. Construction vehicles and machinery will be washed only in areas where runoff will not pollute natural surface waters. The wastewater will be deposited in an impermeable septic tank in accordance with "Regulation on Pit Opening Where Sewer System Construction is not Applicable" published in Official Gazette No: 13783 dated 19.03.1971. Toilets with temporary septic tank might be used for this purpose as well. Septic tank effluent will be removed		**X**		Visual inspection of control measures Septic tank effluent disposal records (if any) Effluent quality measurement records (if any) Records of complaints	**X**			Contractor (*implementation*) Supervision Consultant (*supervision*)	Included in the cost of construction

Potential Risks and Impacts	Proposed Mitigation Measures	Phase			Indicators for monitoring	Frequency			Responsibility for Implementation and Monitoring	Estimated Cost
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	periodically by sewage trucks, and disposal will be provided within the scope of the protocol to be made with the relevant municipality that has a licensed wastewater treatment plant (WWTP). The Protocol will be submitted to the PIU. If feasible and applicable, wastewater collection system of the new rural houses can be connected to the existing sewage system in Halkalı village and Haberci neighborhood. It would be appropriate for the contractor to check this issue first. Activities will not affect the availability of water for drinking and hygienic purposes. If feasible and applicable, the drinking water (tap water) system of the new rural houses can be connected to existing system near the construction site in Gürçubukvillage without causing any damage to the existing system. It would be appropriate for the contractor to check this issue first. The flow of natural waters will not be obstructed or diverted in a manner that could lead to drying of river beds or inundation of residential areas. Concrete works will be separated from waterways, especially seasonal creeks, and mixing will be kept separate from drainage to waterways									
Soil and Groundwater Quality: Soil and groundwater pollution due to improper waste management and accidental spills, and soil erosion	The mitigation measures specified in the "Solid and Hazardous Waste" section will be applied for proper waste management. Residual (left out) concrete in concrete mixers will not be allowed to wash out into the construction site, its vicinity, or access roads of construction sites. Related trainings will be provided to concrete mixer drivers. Hazardous and dangerous chemicals and materials will be secured in a designated storage area to prevent spillage and tip-over. Semi-used chemical-containing containers will have lids and lids		**X**		Visual inspection of control measures Incident records Training records	**X**			Contractor (*implementation*) Supervision Consultant (*supervision*)	Included in the cost of construction

Potential Risks and Impacts	Proposed Mitigation Measures	Phase			Indicators for monitoring	Frequency			Responsibility for Implementation and Monitoring	Estimated Cost
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	will be closed while they are not in use. In case of a spill of any hazardous material or hazardous wastes, spill prevention methods will be put in place in order to limit the exposure area. Workers who might intervene in such incidents will have relevant trainings on emergency response to spills. Proper spill kits will be placed at appropriate locations in the construction area. Construction will be scheduled during the dry season if appropriate. The length and steepness of slopes will be contoured and minimized. Mulch, grasses or compacted soil will be used to stabilize exposed areas. Topsoil will be quickly laid on the construction areas once work is completed, and these areas will be revegetated (grass, fast-growing plants/bushes/trees will be planted). Channels and ditches will be designed for post-construction flows and line steep channels/slopes (e.g., with palm frowns, jute mats, etc.).				Records of complaints					
Solid and Hazardous Waste: EHS risks due to inappropriate management of waste generated due to construction activities (such as construction demolition wastes, hazardous waste, biodegradable waste, recyclable waste, non-	Wastes will be managed in accordance with the waste management hierarchy (prevent, reduce, reuse, recycle, recover, dispose) and personnel will be trained to raise awareness on waste management. Waste will be segregated as recyclable, hazardous and non-hazardous waste. Mineral construction wastes will be separated from general refuse, organic, liquid, and chemical wastes by on-site sorting and stored in appropriate containers. Non-hazardous wastes, inert and biodegradable wastes and also recyclables will be collected separately, and special attention will be paid to prevent hazardous wastes from mixing with other types of waste. Collection, storage and transportation of waste to appropriately designated /controlled licensed disposal areas/facilities (such as		**X**		Visual inspection of control measures Waste generation and disposal records Training records Records of	**X**			Contractor (*implementation*) Supervision Consultant (*supervision*)	Included in the cost of construction

Potential Risks and Impacts	Proposed Mitigation Measures	Phase			Indicators for monitoring	Frequency			Responsibility for Implementation and Monitoring	Estimated Cost
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hazardous waste, etc.)	excavation waste storage areas, sanitary landfills, recycling/recovery facilities, etc.) will be ensured. An official letter stating that these wastes will be accepted to licensed sites will be submitted to PIU. Temporary waste storage area (to be established at the construction area) should be on impermeable ground, covered with a roof, and equipped with a suitable drainage system, proper spill kits and appropriate firefighting equipment. Wastes shall be temporarily stored in this area in separate compartments (labeled with waste codes) according to their types in order not to react with each other. Except for medical wastes, hazardous wastes shall be stored in the temporary waste storage area for a maximum of six (6) months and non-hazardous wastes for a maximum of one year. If one thousand kilograms or more per month hazardous waste is produced, a temporary storage permit should be obtained from the PDoEUCC. Excavation waste will be re-used for backfilling purposes as much as possible and recovery and other re-use options will be considered as appropriate. The excess excavation waste shall be transported and disposed of separately by licensed transport vehicles to existing licensed excavation waste storage area(s), identified by the relevant governmental authorities, in the district/region. Municipal solid waste will be collected by the relevant municipality within the scope of the protocol to be made. Hazardous waste shall be transferred to a licensed disposal facility via licensed waste transportation companies, and recyclable wastes to a relevant licensed recycling/recovery facility. All protocols shall be submitted to the PIU. On-site storage of wastes prior to final disposal (including earth dug for foundations) should be at least 300 meters from rivers, streams, lakes and wetlands. A secured area will be used for refueling and transfer of other toxic fluids distant from the settlement area (and at least 50 meters from				complaints					

Potential Risks and Impacts	Proposed Mitigation Measures	Phase			Indicators for monitoring	Frequency			Responsibility for Implementation and Monitoring	Estimated Cost
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	drainage structures and 100 meters from important water bodies); ideally on a hard/non-porous surface. Workers will be trained on correct transfer and handling of fuels and other substances and require the use of gloves, boots, aprons, eyewear and other protective equipment for protection in handling highly hazardous materials. Small amounts of maintenance materials such as oily rags, oil filters, used oil, etc. will be collected and properly disposed of. Spent oils will never be disposed of on the ground and in water courses as they can contaminate soil and groundwater (including drinking water aquifers). After each construction site is decommissioned, all debris and waste shall be cleared. All records of waste generation and disposal will be kept. Whenever feasible, the Contractor will reuse and recycle appropriate and viable materials. Temporarily storage on site of all hazardous or toxic substances will be in safe containers with labels detailing composition, properties, and usage information. The containers of hazardous substances shall be placed in a leak-proof container to prevent spillage and leaching. It is forbidden to use unapproved toxic materials including lead-based paints, un-bonded asbestos, etc.									
Stakeholder Engagement and Grievance Mechanism: Construction-related complaints and temporary disruption to the local	The relevant measures suggested in the SEP will be taken and followed. Early liaison and effective communication will be carried out with local people (including those with special needs) who may be affected by the work of the contractor and supervision consultant. A liaison program will be implemented during the construction process to make sure that the local environment is overseen and		**X**		Records of complaints Stakeholder engagement records		**X**		PIU (*implementation*) Supervision Consultant (*supervision*)	Included in the cost of construction

Potential Risks and Impacts	Proposed Mitigation Measures	Phase			Indicators for monitoring	Frequency			Responsibility for Implementation and Monitoring	Estimated Cost
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community including eligible property owners	the well-being of residences is protected. The supervision consultant will appoint a certain person(s) accountable for community liaison. This person(s) will engage with the community to provide the appropriate information and to be the first line of response to resolve issues of concern. Grievance boxes will be located mostly at the separate (female and male) entrances of the mosques, and the entrances of condolence houses. The locations of the boxes should and will be accessible by all, especially by disadvantageous groups like women, children, and disabled people. Moreover, the needs, demands and complaints of local people and right holders will be collected both at the participation meetings and via a designated telephone number (i.e., via WhatsApp, direct massages and direct calls). Accordingly, the Project Grievance Redress Mechanism will be operated by the opening and closing of forms and complaints. The names and contact telephone numbers and e-mail addresses of all site personnel with responsibilities for both supervision and management of the works will be displayed on the site hoarding. The rangers in the guard stations and the mukhtars in Gürçubuk village and Saman neighborhood were informed in the previous visit regarding the construction activities to avoid any social conflict/disturbance. Once planning consent is obtained, those who could potentially be affected by the construction of the rural houses will be informed via the mukhtar of the neighborhood/village. The consultation will be proceeded with the relevant E&S risk management instruments. Outside normal working hours, security personnel will act as the main point of contact via a designated phone number. Security will alert the person(s) accountable for liaison, if necessary (available 24 hours). All workers will sign/commit to and be trained on the Code of									

Potential Risks and Impacts	Proposed Mitigation Measures	Phase			Indicators for monitoring	Frequency			Responsibility for Implementation and Monitoring	Estimated Cost
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	Conduct to manage the potential adverse impacts on social cohesion and Sexual Exploitation and Abuse/Sexual Harassment (SEA/SH) risks. Received complaints will be logged, fully investigated, and responded to quickly, with some suitable advice about the action to be taken. Complaints will be registered and reported to the Contractor, Supervision Consultant and also PIU. Public notice boards will be set at site entrances providing contact details of the person(s) accountable for liaison.									
Labor and Working Conditions: Risks associated with potential labor influx and presence of worker camps (such as accommodation conditions, child labor risks, gender-based violence and harassment, human rights risks, etc.) and other labor issues	The relevant measures in labor management plan to be prepared in accordance with project LMP will be followed. Workers will be provided with information and documentation that is clear and understandable regarding their terms and conditions of employment such as their rights under national labor and employment law (which will include any applicable collective agreements). Workers will be paid on a regular basis as required by national law and project LMP. Workers will be provided with adequate periods of rest per week, annual holiday and sick, maternity and family leave, as required by national law and project LMP. Workers will receive written notice of termination of employment and details of severance payments in a timely manner. Workers will be employed on the principle of equal opportunity and fair treatment, and there will be no discrimination with respect to any aspects of the employment relationship. Project workers, including specific groups of workers, such as women, people with disabilities, migrant workers and children of working age, will be provided with appropriate measures of protection and assistance in line with ESS2 of WB ESF. This process		**X**		Visual inspection of control measures Health records Employee records Training records Records of workers' complaints	**X**			Contractor (*implementation*) Supervision Consultant (*supervision*)	Included in the cost of construction

Potential Risks and Impacts	Proposed Mitigation Measures	Phase			Indicators for monitoring	Frequency			Responsibility for Implementation and Monitoring	Estimated Cost
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	will be executed in accordance with the project LMP. Workers are allowed to participate, or seek to participate, in workers' organizations and collective bargaining or alternative mechanisms. Children under the minimum age of 18 will not be employed or engaged by the Contractor in connection with this sub-project. Forced labor, which consists of any work or service not voluntarily performed that is exacted from an individual under threat of force or penalty, will not be used in connection with this sub-project. A worker's GRM will be established by the Contractor at the construction site for all workers to raise workplace concerns. Contact details of the worker's GRM will be provided. All workers will receive training about their rights under national labor and employment law and regarding the GRM upon recruitment and before the implementation of the work. Code of Conduct will be shared with project workers during employment. All workers are obliged to comply with the Code of Conduct and sign relevant documentation at the time of employment. Movement in and out of the construction site will be controlled, and unauthorized access to the site will be prevented. Contractor will confirm that workers are fit for work before they start work, paying special attention to workers with underlying health issues or who may be otherwise at risk. The Contractor shall provide information and awareness of communicable diseases to workers. The Contractor shall arrange safe drinking water, adequate toilet facilities, accommodation, rest and dining areas for the workers. The Contractor shall provide a first aid kit with bandages, antibiotic cream, etc. or health care facilities, and shall identify and train an									

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	adequate number of workers to provide first aid during medical emergencies. The Contractor will comply with the provisions of Workers' Accommodation: Processes and Standards – A Guidance Note by International Finance Corporation (IFC) and European Bank for Reconstruction and Development (EBRD) for the conditions of camp sites/worker accommodation areas.									
Cultural Heritage: Chance find	Cultural or historic sites will not be disturbed. Tangible or intangible values and heritage important to the local people (such as graveyard in Gürçubuk village) will not be damaged. If encountered with any cultural heritage/assets, chance find, during construction works (especially excavation and earthworks), the chance finds procedure (see Annex-9 of ESMF of the project) will be implemented.		**X**		Chance find records		**X**		Contractor (*implementation*) Supervision Consultant (*supervision*)	Included in the cost of construction
Biodiversity: Potential risks to flora and fauna due to construction activities and improper waste management	If trees need to be cut in new resettlement plots, at least two times more than the trees cut will be planted at the site (preferably a site in the nearby region) identified by the General Directorate of Forestry, as per the commitment of the MoEUCC within the scope of the Project.	**X**			Tree plantation records			**X**	PIU	Included in the cost of construction
	There will be no cutting of trees or destruction of vegetation other than on construction site. No hunting, capture of wildlife or collection of plants are allowed.		**X**		Visual inspection of control measures	**X**			Contractor (*implementation*) Supervision Consultant (*supervision*)	Included in the cost of construction
Specific to Rural Road Construction Works										
General Considerations	Road construction in unstable soils, steep slopes and nearby stream banks will be avoided. Additional measures (see the section below	**X**			Design approval	**Once during design**			PIU	

Potential Risks and Impacts	Proposed Mitigation Measures	Phase			Indicators for monitoring	Frequency			Responsibility for Implementation and Monitoring	Estimated Cost
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	on slope protection) need to be applied where there is no alternatives for road alignments.									
	Placement of all construction waste (including earth cuts) to approved disposal sites (at >300 m from streams,) will be controlled. Erosion control measures should be implemented before the rainy season begins, preferably immediately following construction. The measures will be maintained and reapplied until vegetation is successfully established. Sediment control structures should be applied where needed to slow or redirect runoff and trap sediment until vegetation is established.		**X**		Visual inspection of control measures	**X**			Contractor (*implementation*) Supervision Consultant (*supervision*)	Included in the cost of construction

Potential Risks and Impacts	Proposed Mitigation Measures	Phase			Indicators for monitoring	Frequency			Responsibility for Implementation and Monitoring	Estimated Cost
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Slope protection	Protect slopes from erosion and landslides by the following measures: • Indigenous Species, fast-growing grass will be used on slopes prone to erosion. These grasses help stabilize the slope and protect soil from erosion by rain and runoff. Locally available species possessing the properties of good growth, dense ground cover and deep root shall be used for stabilization. • Preventive/stopping ditches, which are especially effective in areas of high-intensity rainfall and where slopes are exposed, will be constructed. This type of ditch intercepts and carries surface run-off away from erodible areas and slopes before reaching the steeper slopes, thus reducing the potential surface erosion. • For steep slopes, a stepped embankment (terracing) is needed for greater stability. • A retaining wall will be placed at the bottom of the unstable slope. There should be drainage holes for drainage of the road sub-base, thus reducing pressure on the wall. • Rocks (riprap) can be used in addition to protect the slope. • With sufficiently wide drainage ditches, uncontrolled discharge of water from the road surface will be removed from the slope.		**X**		Visual inspection of control measures	**X**			Contractor (*implementation*) Supervision Consultant (*supervision*)	Included in the cost of construction
Specific to Wastewater Systems										
General Considerations for	Septic tanks must have a vent pipe to prevent the build-up of gas inside the chamber and shall have a 'manhole' that provides access	**X**			Design approval	**Once during design**			PIU	Included in the cost of

Potential Risks and Impacts	Proposed Mitigation Measures	Phase			Indicators for monitoring	Frequency			Responsibility for Implementation and Monitoring	Estimated Cost
		Planning	Construction	Operation		Continous	Monthly	Quarterly		
Septic Tanks (If used by the Contractor during construction)	inside the tank if needed. It will be ensured that the septic tanks have two chambers: the first chamber is for settling sludge, and the second chamber is for aerobic treatment. These chambers will generally treat wastewater better. Partially treated septic tank effluent can pollute groundwater and surface water. If this is not possible, septic tanks will be impervious and designed in accordance with "Regulation on Pit Opening Where Sewer System Construction is not Applicable" published in Official Gazette No: 13783 dated 19.03.1971.									construction
	The effluent of septic tank will not be discharged to an open drain or other surface water. The effluents need to be treated before final disposal. This may be achieved through (i) an underground leach field, (ii) a vegetated leach field, or (iii) a pit for soaking away. If this is not possible, septic tank effluent will be removed periodically by sewage trucks, and disposal will be provided within the scope of the protocol to be made with the relevant municipality that has a licensed wastewater treatment plant. Community awareness should be raised so that the community inspects the septic tanks periodically and ensures that the septic tanks are emptied every few years for the tank to continue to function properly.			**X**	Effluent disposal records (if any) Records of community awareness activities Records of complaints		**X**		Local Authority (Mukhtar, municipality)	Included in the cost of construction
General Considerations for PWWTP (If used by the Contractor during construction for their workers))	If PWWTPs will be used to treat domestic wastewater generated by the workers, design approval of package facilities will be obtained before the construction. PWWTP and discharge permits (Environmental Permits) will be received from the relevant governmental authorities before its operation. It will be ensured that the PWWTP is operating in accordance with the requirements and that the wastewater quality complies with national discharge standards.	**X**		**X**	Design approval Environmental Permits Wastewater quality analysis	**Once during design and once before operation**			Contractor (*implementation*) Supervision Consultant (*supervision*)	Included in the cost of construction

Appendices

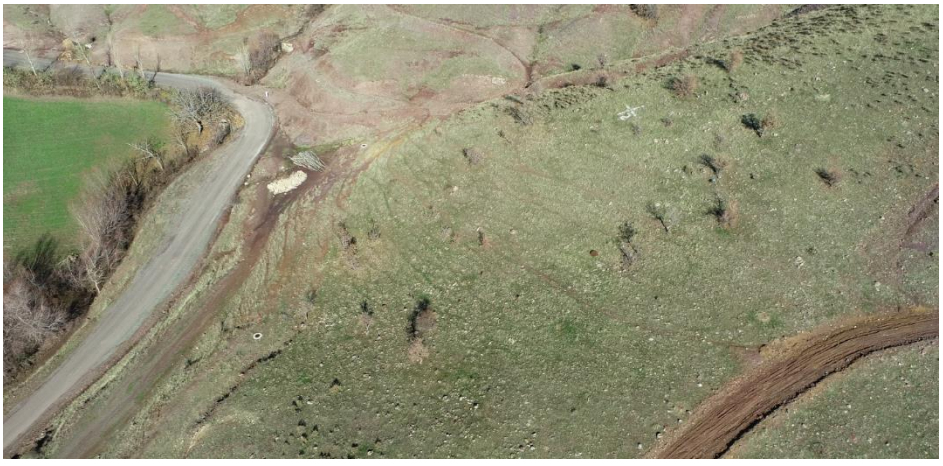
Appendix 1. Site Photographs

Site Photographs of Gürçubuk Village






Site Photographs of Halkalı Village



Site Photographs of Çevrecik Village

Site Photographs of Saman Neighborhood






Site Photographs of Haberci Neighborhood

Appendix 2. Screening Studies

(Given as a separate document)