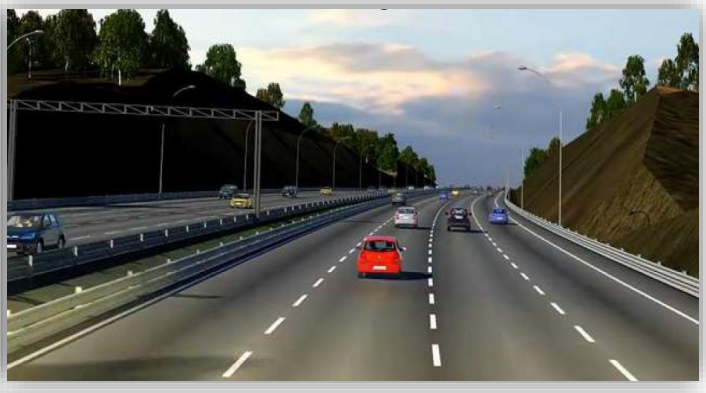
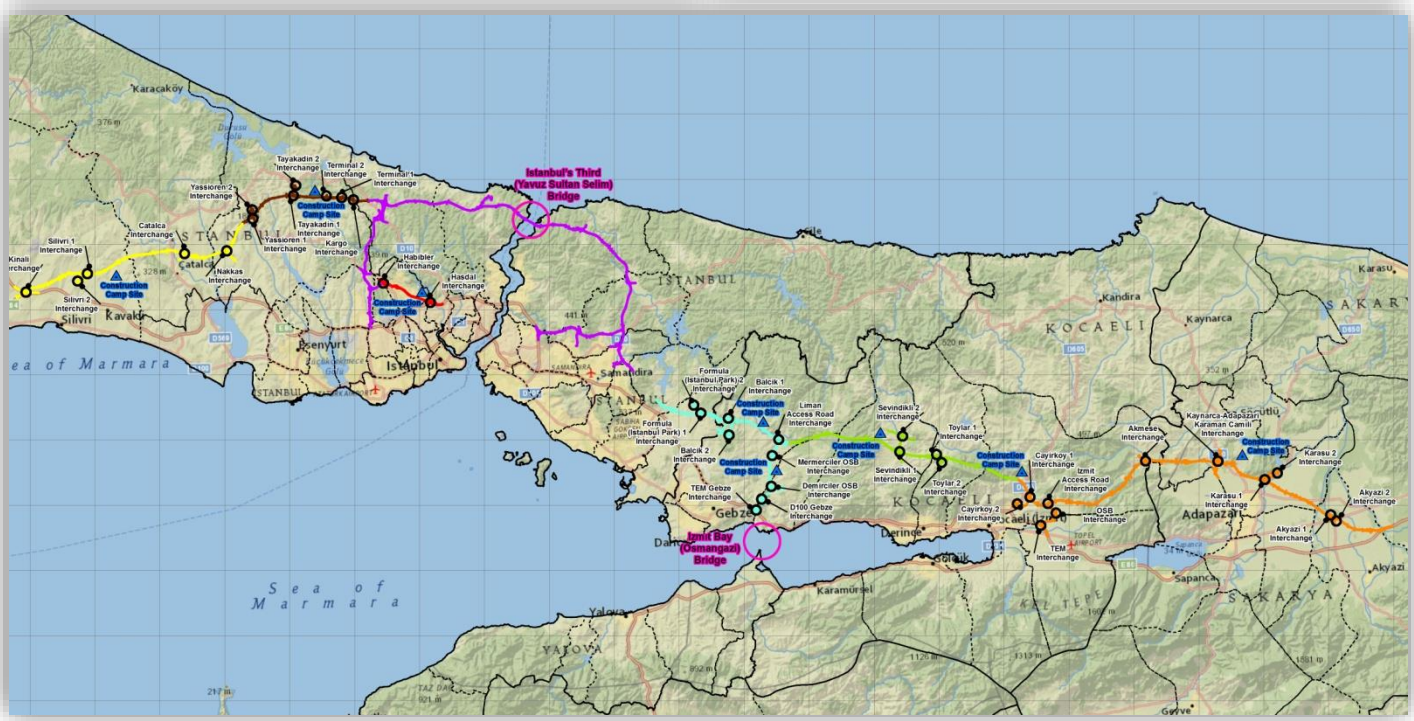
MARMARA OTOYOL İNŞAATI
ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

AVRUPA OTOYOLU
YATIRIM VE İŞLETME A.Ş.

NORTH MARMARA MOTORWAY PROJECT

(EUROPEAN PART: KINALI-ODAYERI SECTION)





ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT

ENVIRONMENTAL AND SOCIAL ACTION PLAN

encon

ENCON ENVIRONMENTAL CONSULTANCY CO.

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1. INTRODUCTION

In accordance with the Law on Implementation of Some of the Investments and Services in the Framework of Build, Operate and Transfer Model (Law No: 3996), the Turkish Ministry of Transport, Maritime Affairs and Communications (MoTMAC), General Directorate of Highways ("KGM" or "the Administration"), has tendered for contracts in May 2016 for the overall North Marmara Motorway Project (including European and Asian sections), which starts at Kinali toll plaza near Alipasa neighborhood in Silivri district of Istanbul province, crosses the city of Kocaeli and ends at Akyazi Trans European Motorway (TEM) toll plaza in Akyazi district of Sakarya province, where the sea crossing is provided by the existing Yavuz Sultan Selim (Istanbul's Third Bosphorus) Bridge and its associated motorways that are operational since August 2016. As a result of this tender, KGM has commissioned two different special purpose vehicles (SPV) for the implementation of the European and Asian sections of the North Marmara Motorway Project under the related Build, Operate and Transfer (BOT) contracts. In this regard, Avrupa Otoyolu Yatirim ve Isletme A.S. (Avrupa OYIAS) has been awarded with a BOT Contract for the implementation of the European part (European sections: Kinali-Yassioren, Yassioren-Odayeri and Habibler-Hasdal sections) of the Project and KMO Anadolu Otoyol Isletme A.S. (Anadolu OIAS) has been awarded with a BOT Contract for the implementation of the Asian part (Asian sections: Kurtkoy-Liman; Liman-Izmit and Izmit-Akyazi sections) of the Project. These two entities together form the Marmara Otoyolu Joint Venture (MOJV) and referred as Project Sponsors in the scope of the Environmental and Social Impact Assessment (ESIA) studies.

This Environmental and Social Action Plan (ESAP) has been prepared by ENCON Environmental Consultancy Co. ("the Independent Environmental and Social Consultant (IESC)" or "ENCON") for the European part (European sections: Kinali-Odayeri and Habibler-Hasdal) of the North Marmara Motorway Project ("the European part of the Project"). The Asian part of the Project is subject to a separate ESIA Report and ESAP.

ENCON has prepared this ESAP in order to set out the actions that are needed to be implemented by Project Sponsors to ensure that the Project meets IFC Performance Standards during prior to financial close, construction and operation phases.

2. PROJECT PROGRESS

The North Marmara Motorway is a project that has been tendered out in the framework of BOT model. As the winning bidder, the companies forming MOJV seeks finance from financial institutions/potential lenders, who would require international environmental and social standards and guidelines to be adopted in the implementation of the Project. In consideration of Equator Principles, World Bank policies and IFC's Sustainability Framework, the Project is evaluated to be likely to include activities and components that are to be effectively managed to avoid or minimize significant environmental and social impacts. In this respect, the North Marmara Motorway Project would be classified as a Category A Project, for which the borrower is responsible for preparing an Environmental Impact Assessment (EIA) Report/full-scale ESIA. Similarly the EU's EIA Directive and the Turkish EIA Regulation, which has been harmonized with EU's EIA Directive also define the motorway construction projects as Annex I activities, for which an EIA is required. Thus, to meet the environmental and social requirements of the

potential lenders, who would require international environmental and social standards and guidelines to be adopted in the implementation of the Projects that are to be financed by them, a full-scale ESIA process has been started for the Project in November 2016.

According to internationally accepted and applied impact assessment procedures, the ESIA process started with the initial screening and scoping phases. Findings of the screening and scoping studies were documented in the Scoping Report dated December 2016. The primary aim of the Scoping Report has been the identification of the environmental and social issues and impacts that are likely to be important and delineation of the scope of the ESIA Report to be prepared.

Following the scoping phase, other key processes including examination of alternatives; stakeholder identification (focusing on those directly affected) and engagement; gathering of environmental and social baseline data by means of desk-based and field studies; impact identification, prediction, and analysis; generation of mitigation or management measures and actions; evaluation of significance of impacts and residual impacts; and documentation of the assessment process, were conducted in accordance with the requirements of the relevant Turkish laws and regulations, Equator Principles and IFC's Sustainability Framework and the findings of the entire process have been compiled in the ESIA Report, which has been prepared for the European sections of the overall North Marmara Motorway Project.

In scope of ESIA studies; the end of March 2017 was accepted as a "design freeze" date and project specific information/data and other documentation was incorporated into ESIA Report. Owing to the nature of the Project, it was observed that there have been changes in project design components. These include changes in number and location of project engineering structures, number of service areas, cut and fill volumes, quarries and storage sites along the route. In addition, Project Sponsors have obtained production permits for new quarries and identified new storage sites for excess material storage.

This report summarizes the current status of project construction works, the changes in project components and also provides information on current permitting status. Detailed information on Project design and other issues are presented in ESIA Report. It should be noted that information presented below are based on most up to date information (as of October 2017) provided by the Project Sponsors and will be prone to similar changes inevitably as the project proceeds.

Project expropriation, land use permitting issues, land preparation and construction works have already been started in all sections and progressing at different paces and different locations. According to Project Progress Report prepared by the Project Sponsors (dated August 2017); 45% of the earthworks, cut and fill, 16 % of the cement works regarding main engineering structures such as viaducts, 33 % of the small engineering structures such as culverts and 7% of tunnel excavation works have been completed. Table 1 provides a summary regarding the status of project construction works as detailed in the Progress Report prepared by Project Sponsors.

Table 1. Summary of Current Status of Project Construction Works (as of August 2017)

Activity/Task	Motorway Section	Details
Earthworks	Section 1	• Soil stripping, cut and fill operations are being continued between KM 8+000-12+000. • Soil stripping and filling works are being continued between KM 20+060-20+400 and KM23+500-24+500. • Cement column construction was completed at KM 7+716.
	Section 2	• Cement column conduction works are being continued. • Excavation on interchange arms are being continued.
	Section 7	• Earthworks has been initiated at Habibler Interchange
Engineering Structures	Section 1	• Bored pile construction was initiated for viaduct V01. • 95 % of the construction of bored piles for viaduct V02 has been completed. Construction of foundations have been initiated and construction of 4 viaduct legs was completed while 4 is being constructed. • Construction of culverts and underpasses are being continued.
	Section 2	• Foundation excavation for viaduct V03 has been initiated. Foundation excavations were completed for 9 viaduct legs. • Foundations for viaduct V04 have been completed. Elevation works are being continued. • Bored pile construction was initiated for viaduct V05. • Bored pile construction has been continued for viaduct V06. In this scope, construction of 64 piles was completed. Elevation works have been continued. • Construction of culverts and underpasses are being continued.
	Section 7	• Construction of side (A1 and A2) and center legs (P5, P4 and P1) have been completed for viaduct V08. • Construction of culverts and underpasses are being continued.
Tunnels	Section 1	• Excavation and excavation support works are being continued for upper and lower parts of tunnels T1 and T2.
	Section 7	• Excavation support works are being continued for upper part of tunnel T3
Superstructures	Section 1	• Construction of superstructures is not yet initiated.
	Section 2	• Construction of superstructures is not yet initiated.
	Section 7	• Construction of superstructures is not yet initiated.

2.1. Status of Environmental Permits and Licenses

The North Marmara Motorway Project has been exempted from the requirements of the Turkish EIA Regulation with the EIA Exemption Letter was provided by the MoEU thus no “EIA Positive Certificate” is required for the Project. Status of main environmental permits and/or licenses that would be required for the Project are listed in Table 2.

Table 2. Status of Main Environmental Permits and/or Licenses that would be Required (as of October 2017)

Project Phase	Permit/License/Approval/Agreement	Status of Permitting (Completed (C)/On-going (ONG)/ Not Started (NS)/ Not Applicable (NA))		
		Section 1	Section 2	Section 7
Land Preparation and Construction				
Land Use	Forestry permit	ONG	ONG	NA
	Permit for the use of pasturelands	ONG	ONG[1]	ONG[1]
	Permit for the use of agricultural lands for non-agricultural purposes	ONG	ONG	ONG
	Land use agreements with state authorities for state-owned lands	ONG	ONG	ONG
Construction and Camp Sites	Crossing permits/approvals for railroads, rivers, roads, canals, power supply lines, natural gas pipelines, etc.	ONG	ONG	ONG
	Workplace notification for Camp Sites	NS	NS	NS
	Utility permits for the temporary connection to existing utilities (telecom, electricity, etc.)	C	ONG	ONG
	Fuel storage permit	NA	NA	NA
	Permits for service roads	NS	NS	NS
	Provisional operation certificate/environmental permit for the operation of concrete plants	ONG	ONG	NS
	Provisional operation certificate/environmental permit for the operation of asphalt plants	NS	ONG	NA
Water/Wastewater Management	Provisional operation certificate/environmental permit for the operation of package wastewater treatment plants	NS	ONG	ONG
	Wastewater treatment plant identity	NS	ONG	ONG
	Groundwater Utilization Permit	-	ONG	-
Waste Management	Permit for temporary waste storage areas	NS	NS	NS
	Storage permit for the access amount raised by the cut	NS	NS	NS
	Waste management plan approval	NS	ONG	NS
	Agreements with licensed waste management/disposal companies	C	C	C
Quarry Operation	Raw material production/quarry operation license	C	C	C
	Permission to use long vehicles	NS	NS	NS
Blasting and Explosives Management	Blasting permit	C	C	-
	Permit for storage of explosives	ONG	ONG	ONG
Others	Private security permit	ONG	ONG	ONG
Operation				
Water/Wastewater Management	Provisional operation certificate/environmental permit for the operation of package wastewater treatment plants at the service areas or connection quality control certificate and/or wastewater channel connection document	Not Applicable at this stage.		
Others	Certificate for starting up and operating of a workplace			
	Private security permit			

[1]Completed for the Motorway.

In addition to permitting status described above, progress on water use permits is of concern. In this regard, water supply in camp sites located in Section 1, Section 2 and Section 7 are provided by means of municipal water supply systems. Currently, no groundwater sources are being used. It should be noted that application has been made to General Directorate of State Hydraulic Works and permit process for 3 groundwater wells is being continued for Section 2.

Summary of information regarding water supply is provided in Table 3.

Table 3. Information on Water Supply

	Motorway Section		
	Section1	**Section 2**	**Section 7**
Water Supply	Municipal Water Supply / ISKI	Water supply by means of tankers	Central Camp Site: Municipal Water .Supply/ISKI Tunnel Camp Site: Water supply by means of tankers
Groundwater Well Usage	-	Groundwater use application has been made. Application date: 15.08.2017	-
Groundwater Well Location	-	K1 | Ihsaniye neighborhood/Eyup/Istanbul K2 | Tayakadin/Arnavutkoy/Istanbul K3 | Yassioren neighborhood/Arnavutkoy/Istanbul	-
Water Demand	-	K1 | 20 ton/day ; 7200 ton/year K2 | 20 ton/day ; 7200 ton/year K3 | 20 ton/day ; 7200 ton/year	-
Amount of Water Permitted	-	Groundwater usage permit has not been taken yet.	-

2.2. Project Components

2.2.1. Camp Sites and Plants

During the construction works, temporary construction facilities/sites will be needed. These facilities and sites include construction camp sites, quarries, plants and service roads. Following the completion of construction activities, temporary facilities will be decommissioned and the sites will be rehabilitated. Table 4 provides a list of the camp sites and plants to be used in the scope of the Project.

Table 4. List of Camp Sites and Plants (as of October 2017)

Location	**Location**			**Description of the Site/Plant**	**Area/Capacity Information**
	Province	**District**	**Nearest Neighborhood**		
Section 1					
4+500	Istanbul	Silivri	Kucukkilicli	Concrete Plant-101 (sub-contractor)	90 m^3/hr
15+700	Istanbul	Silivri	Kadikoy	Kadikoy Construction Camp Site	6,34 ha
21+000	Istanbul	Catalca	Incegız	Crusher - 101 (sub-contractor)	400 ton/hr
				Crusher - 102 (sub-contractor)	200 ton/hr
22+010	Istanbul	Catalca	Incegiz	Concrete Plant-102	90 m^3/hr
24+450	Istanbul	Catalca	Kaleici	Crusher – Mechanical Plant	400 ton/hr
24+950	Istanbul	Catalca	Kaleici	Asphalt Plant-101	320 ton/hr
Section 2					
41+400	Istanbul	Arnavutkoy	Yassioren	Concrete Plant (subcontractor)	90 m^3/hr
53+000	Istanbul	Arnavutkoy	Tayakadin	Tayakadin Construction Camp Site	33,10 ha
53+300	Istanbul	Arnavutkoy	Tayakadin	Concrete Plant -201	180 m^3/hr
59+100	Istanbul	Eyup	Ihsaniye	Asphalt Plant -201	320 ton/hr
59+100	Istanbul	Eyup	Ihsaniye	Mechanical Plant-201	400 ton/hr
61+000	Istanbul	Eyup	Ihsaniye	Concrete Plant - 202	60 m^3/hr
Section 7					
66+350	Istanbul	Sultangazi	Cebeci	Crusher 701 – Mechanical Plant	400 ton/hr
66+350	Istanbul	Sultangazi	Cebeci	Concrete Plant - 701	90 m^3/hr
66+350	Istanbul	Sultangazi	Cebeci	Crusher (Mobile)	240 ton/hr
69+300	Istanbul	Sultangazi	Zübeyde Hanim	Tunnel Construction Camp Site	5 ha

2.2.2. Quarries/Borrow Sites

During the construction works, temporary construction facilities/sites will be needed. These facilities and sites include construction camp sites, quarries, plants and service roads. Following the completion of construction activities, temporary facilities will be decommissioned and the sites will be rehabilitated.

Table 5 provides a list of the quarries/material borrow sites for which production permits are taken and to be used in the scope of the Project.

Table 5. List of Quarries/Material Borrow Sites (as of October 2017)

Location			Description of the Site/Plant	Area/Capacity Information
Province	**District**	**Nearest Neighborhood**		
Istanbul	Catalca	Incegiz	Incegiz Limestone Quarry	52,31 ha
Istanbul	Eyup	Ciftalan	II-A Group Diabase Quarry	60,26 ha
Istanbul	Catalca	Incegiz	II-A Group Limestone Quarry	6,17 ha
Istanbul	Catalca	Kaleici	II-A Group Limestone Quarry	8,64 ha
Tekirdag	Saray	Safalan	II-A Group Amphibolite Quarry	14.87 ha

2.2.3. Storage Sites

Storage sites will be used for the disposal and storage of excess excavated materials. List of storage sites identified to be used so far for the European sections along with their areas and storage capacities is presented in Table 6.

Table 6. List of Storage Sites Planned to be Used (as of October 2017)

Location	Location			Description of the Site	Area (m^2)	Storage Capacity (m^3)
	Province	**District**	**Nearest Neighborhood**			
Section 1						
2,5 km south of KM 23+000	Istanbul	Catalca	Elbasan	Storage Site-101	182.439	3.331.454
40+913	Istanbul	Arnavutkoy	Yassioren	Storage Site-102	230.821	5.117.228
Section 1 Total					**413.260**	**8.448.683**
Section 2						
49+500	Istanbul	Arnavutkoy	Tayakadin	Storage Site-201	587.895	6.815.019
51+000	Istanbul	Arnavutkoy	Tayakadin	Storage Site-202	214.385	4.409.165
52+750	Istanbul	Arnavutkoy	Imrahor	Storage Site-203	358.394	3.975.527
56+600	Istanbul	Arnavutkoy	Imrahor	Storage Site-204	301.916	3.668.508
54+250	Istanbul	Arnavutkoy	Bolluca	Storage Site-205	108.319	1.877.331
Section 2 Total					**1.570.922**	**20.745.550**

***Locations for the storage sites in Section 7 will be identified.*

2.2.4. Engineering Structures

The European part of the North Marmara Motorway Project will have components distributed in three sections, between Kinali interchange in Silivri district and Odayeri interchange in Eyup district of Istanbul (including an inner-city tunnel between Habibler and Hasdal, namely “Cebeci Tunnel”).

Main engineering structures in the North Marmara Motorway Project includes the viaducts, tunnels, overpasses and underpasses, culverts, etc. Table 7 provides a summary of the total number of engineering structures for European sections according to current design of the Project.

Table 7. Summary Table for Engineering Structures (as of October 2017)

Type of Structure	Section 1	Section 2	Section 7	Total
Interchange	4	7	2	13
Viaduct	3	4	5	12
Bridge	11	18	3	33
Tunnel	2	0	1	3
Underpass	21	8	7	36
Overpass	10	4	3	17
Culvert	33	15	4	52

Section 1: Kinali – Yassioren

Viaducts and tunnels to be constructed in Section 1 of the Motorway are listed in Table 8.

Table 8. Viaducts and Tunnels in Section1

Code	Length (m)	Location on the Route (Motorway KM)		Explanation
		Start Location	End Location	
Tunnels				
T-01	1.637	20+363	22+000	Passage of Catalca Hills and Catalca WPP
T-02	511	22+447	22+996	Passage of Catalca Hills
Viaducts				
V-01	324	26+040	26+364	River/Channel Crossing, Edirne-Istanbul Railway,
V-02	315	31+990	32+305	Hamzalidere Crossing, Buyukcekmece Lake Catchment Area
V-11		22+044		

Interchanges to be constructed in Section 1 of the Motorway are listed in Table 9.

Table 9. Interchanges in Section 1

Code	Interchanges	Location on the Route (Motorway KM)
KAV-01	Kinali Interchange	2+059
KAV-02 and KAV-03	Silivri-1 and 2 Interchange	12+150
KAV-04	Catalca Interchange	27+938
KAV-05	Nakkas Interchange	34+428

Bridges to be constructed in Section 1 of the Motorway are listed in Table 10.

Table 10. Bridges in Section 1

Code	Bridges	Location on the Route (Motorway KM)
K01	Kinali Interchange Bridge	1+890
K02	Kinali Interchange	2+024
K04	Kinali Interchange D Arm	0+450
K05	Kinali Interchange E Arm	2+390
K06	Kinali Interchange E Arm	2+660
K07	Kinali Interchange G Arm	2+005
K12	Bridge (Passage of Catalca-Subasi State Road)	26+730
K13	Catalca Interchange	27+938
K14	Catalca Interchange Access Road	1+540
K15	Nakkas Interchange	34+428
K44	KM 16+473 Bridge	16+473

Underpasses and overpasses to be constructed in Section 1 of the Motorway to provide connection between settlements, agricultural field roads or zoning roads are listed in Table 11 and Table 12, respectively.

Table 11. Underpasses in Section 1

Code	Dimensions	Connection Provided Between/To	Location on the Route (Motorway KM)
A01	12x6	Seymen neighborhood	0+468
A02	10x6	Seymen neighborhood	1+325
A04	2x(10x6)	Kucukkilicli-Alipasa	4+286
A05	10x6	Fenerkoy-Alipasa	5+563
A06	10x6	Fenerkoy-Alipasa	5+996
A07	10x6	Fenerkoy-European Motorway	7+716
A08	2x(10x6)	Fenerkoy-Gazitepe	9+706
A11	10x6	Zoning Road-Ziya Otcu Avenue	27+210
A12	10x6	Catalca Interchange Access Road	1+072
A13	10x6	Catalca Interchange Access Road	1+669
A14	2x(7,5x6)	Izzettin-Catalca	29+713
A15	10x6	Izzettin-Catalca	30+193
A16	10x6	Nakkas Interchange B Arm	0+299
A17	10x6	Nakkas Interchange A Arm	1+482
A18	2x(7,5x6)	Nakkas-Yesilbayir	35+722
A19	10x6	Agricultural Field Roads	36+252
A37			4+030
A38			4+900
A39		Kinali-TEM Intersection	
A40		Silivri Additional Underpass	
A41		Nakkas Interchange Underpass	34+823

Table 12. Overpasses in Section 1

Code	Connection Provided Between/To	Location on the Route (Motorway KM)
U02	M. Kemal Avenue-European Motorway	8+322
U04	Akoren-Gazitepe	11+161
U05	Kurfalli-Gazitepe	13+962
U06	Akoren-Kadikoy	17+482
U07	Akoren-Kadikoy	18+742
U08	Incegiz-Agricultural Field Road and Catalca	24+576
U11	Nakkas-Yesilbayir	35+375
U21		33+510
U22		38+688
U24	Kinali-TEM Intersection	

Culverts of different dimensions to be constructed in Section 1 of the Motorway are listed in Table 13.

Table 13. Culverts in Section 1

Code	Dimensions (m x m)	Location on the Route (Motorway KM)	Code	Dimensions (m x m)	Location on the Route (Motorway KM)
M01	2x2	0+505	M30	9x5	23+207.000
M04	3x3	6+169.85	M31	2x2	23+916.150
M05	3x2	7+058.210	M32	2x2	27+181.338
M07	3x3	7+695	M33	3x2	28+249.000
M08	5x4	7+855.57	M34	3x3	28+314.000
M11	8x4	9+179.439	M35	2x2	28+580.660
M12	4x3	9+573.869	M37	3x2	29+630.950
M13	4x4	9+875.309	M38	4x4	30+225.280
M14	3x3	10+773.50	M39	5x4	30+700.40
M17	3x3	12+439	M40	2x2	36+708.11
M18	3x3	13+180.988	M41	2x2	37+880
M22	2x2	15+175.000	M70	2x2	13+420
M23	4x4	15+770.953	M71	3x3	26+738.590
M26	4x3	16+780.399	M72	2x2	32+964.250
M27	3x3	18+107.549	M73	2x2	33+330.620
M28	3x3	19+044.81	M74	2x2	36+139.480
M29	3x3	19+573.59			

Section 2: Yassioren – Odayeri

Viaducts to be constructed in Section 2 of the Motorway are listed in Table 14.

Table 14. Viaducts in Section 2

Code	Length (m)	Location on the Route (Motorway KM)		Explanation
		Start Location	End Location	
Viaducts				
V-03	447	40+397	40+420	Agricultural land, pastureland
V-04	492	43+050	43+542	Topographical conditions
V-05	280	52+550	52+830	Passage of geotechnically problematic zone
V-06	857	59+679		Passage of forestry and road

Interchanges to be constructed in Section 2 of the Motorway are listed in Table 15.

Table 15. Interchanges in Section 2

Code	Interchanges	Location on the Route (Motorway KM)
KAV-06 and KAV-07	Yassioren-1 and 2 Interchange	41+600
KAV-08 and KAV-09	Tayakadin-1 and 2 Interchange	48+283
KAV-10	Terminal-2 Interchange	54+129
KAV-11	Terminal-1 Interchange	56+521
KAV-12	Kargo Interchange	58+210

Bridges to be constructed in Section 2 of the Motorway are listed in Table 16.

Table 16. Bridges in Section 2

Code	Bridges	Location on the Route (Motorway KM)
K17	Yassioren-1 Interchange	41+167,45
K18	Yassioren-1 Interchange	41+634,00
K19	Yassioren-2 Interchange Access Road	1+681,00
K20	Tayakadin-1 Interchange C Arm	0+401,18
K21	Tayakadin-1 Interchange C Arm	0+565,29
K22	Tayakadin-1 Interchange D Arm	1+017,90
K24	Tayakadin-2 Interchange D Arm	0+304,05
K26	Road Crossing	52+567,54
K27	Terminal-2 Interchange C6 Arm	0+527,30
K28	Terminal-1 Interchange Main Road Bridge	56+280,80
K29	Terminal-1 South Access Road Bridge	2+971,37
K30	Terminal-1 North Access Road Bridge	2+872,07
K31	Terminal-1 Arm-6 Bridge	0+330,06
K32	Terminal-1 Arm-7 Bridge	0+573,51
K33	Terminal-1 Arm-7 Bridge	0+775,69
K34	Terminal-1 Arm-8 Bridge	0+264,71
K35	Terminal-1 Arm-8 Bridge	0+832,77
K36	Kargo Interchange Bridge	58+210,51

Underpasses and overpasses to be constructed in Section 2 of the Motorway to provide connection between settlements, agricultural field roads or zoning roads are listed in Table 17 and Table 18, respectively.

Table 17. Underpasses in Section 2

Code	Dimensions	Connection Provided Between/To	Location on the Route (Motorway KM)
A20	10x6	Agricultural roads	44+590,00
A21	10x6	Dursunkoy-Boyalik Road	45+060,30
A22	10x6	Dursunkoy-Baklali Road	46+717,30
A23	10x6	Forest Road	49+898,00
A24	10x6	Terminal-2 Interchange Main Road C1 Arm	54+129,69; 0+423,49
A25	10x6	Terminal-2 Interchange Main Road C6 Arm	54+390,26; 0+696,59
A26	10x6	Terminal-2 Interchange Main Road Arm 8	56+089,12; 0+510,45
A36		Yassioren Access Road	

Table 18 Overpasses in Section 2

Code	Connection Provided Between/To	Location on the Route (Motorway KM)
U12	Nakkas-Interchange	40+145
U13	Yassioren-Dursunkoy	42+444
U14	Agricultural roads	43+632
U15	Baklali road	47+838

Culverts to be constructed in Section 2 of the Motorway are listed in Table 19.

Table 19. Culverts in Section 2

Code	Dimensions (m x m)	Location on the Route (Motorway KM)
M45	3x2	44+547,951
M46	9x5	44+931,150
M49	9x5	46+838,051
M50	2x2	47+482,294
M52	3x3	49+517,131
M53	2x2	51+286,450
M54	3x3	53+590,514
M55	2x2	54+611,00
M56	3x3	57+000,00
M57	2x2	57+574,00
M58	2x2	58+840,75
M59	2x2	1+247
M60	2x2	1+000
M61	2x2	1+900
M62	2x2	0+269

Section 7: Habibler - Hasdal

Viaducts and tunnels to be constructed in Section 7 of the Motorway are listed in Table 20.

Table 20. Viaducts and Tunnels in Section 7

Viaduct	Length (m)	Location on the Route (km)		Explanation
		Start Location	End Location	
Tunnels				
Main (Cebeci) Tunnel*	3614 (L) 3600 (R)	65+720 (L) 65+720 (L)	69+334 (L) 69+320 (R)	Passes under Cebeci, Gazi and Zubeydehanim neighborhoods
Viaducts				
V-07	452	0+527	0+979	Left arm connection viaduct
V-08	285	70+882	71+169	Right arm connection viaduct
V-09	312	0+642	0+954	B Arm viaduct
V-12		2+461		Left arm connection viaduct
V-13		69+416		Right arm connection viaduct

*A cut-cover tunnel of 460 m length will be constructed before the start of Cebeci Tunnel

Interchanges to be constructed in Section 7 of the Motorway are listed in Table 21.

Table 21. Interchanges in Section 7

Code	Interchanges	Location on the Route (km)
KAV-13	Habibler Interchange	61+813
	Hasdal Interchange	

Bridges to be constructed in Section 7 of the Motorway are listed in Table 22.

Table 22 Bridges in Section 7

Code	Bridges	Location on the Route (Motorway KM)
K37	Main Road Bridge	62+074
K38	Collecting Road Bridge	0+944
K39	E Arm Bridge	1+163

Underpasses and overpasses to be constructed in Section 7 of the Motorway are listed in Table 23 and Table 24, respectively.

Table 23. Underpasses in Section 7

Code	Location on the Route (Motorway KM)
A27	61+813
A28	62+461
A29	62+347
A30	62+486
A31	1+237
A33	62+735
A35	1+638

Table 24. Overpasses in Section 7

Code	Location on the Route (Motorway KM)
U16	61+362
U17	63+886
U20	70+342

Culverts to be constructed in Section 7 of the Motorway are listed in Table 25.

Table 25. Culverts in Section 7

Code	Dimensions (m x m)	Location on the Route (Motorway KM)
M63	3 x 3	61+960.129
M64	3 x 3	0+982
M65	3 x 3	0+291
M75	2 x 2	63+543.600

2.2.5. Service Areas

In the scope of the North Marmara Motorway Project, service areas will be built on each side of the Motorway, opposing to each other. Connection between two sites will be provided by suitable road structures (e.g. culvert, overpass, etc.). Parking areas for passenger vehicles and heavy vehicles will be separated. Service areas to be constructed in the European part of the Motorway are listed in Table 26.

Table 26. Service Areas in European Part

Service Areas	Location on the Route (Motorway KM)
Section 1	
Type D Service Area	19+000
Type B Service Area	37+500
Section 2	
Type B Service Area	51+000
Section 7	
Type B Service Area	64+400

2.3. Excavation and Fill Volumes

Excavations (cut) and embankment (fill) operations to be done to scope with the topographical conditions along the selected Motorway route will result in permanent changes in the topography throughout the entire alignment. Excavation and fill volumes estimated for each section of the Motorway is listed in Table 27.

Table 27. Excavation and Fill Volumes for the European Sections (as of October 2017)

Section	Excavation-Fill Balance			Management of Excavated Material	
	Excavation (m^3)	Fill (m^3)	Balance (Excavation-Fill) (m^3)	Amount to be Reused (%)	Amount to be Stored (%)
Section 1	13.661.146	5.874.062	7.787.084	50	50
Section 2	20.000.941*	6.424.330	13.576.611	0	100
Section 7	7.549.342	5.858.115	1.691.227	50	50
Grand Total	**41.211.429**	**18.156.507**	**23.054.922**	**24**	**76**

**Total excavation in Section 2 will be sent to storage sites.*

3. ENVIRONMENTAL AND SOCIAL ACTION PLAN (ESAP) FOR THE NORTH MARMARA MOTORWAY PROJECT (EUROPEAN SECTIONS: KINALI-ODAYERI)

ESAP was prepared in order to set out the actions that are needed to be implemented by Project Sponsors to ensure that the Project meets IFC Performance Standards during prior to financial close, construction and operation phases. ESAP prepared for the European Sections (Kinali – Odayeri) of the North Marmara Motorway Project is presented below:

ENVIRONMENTAL AND SOCIAL ACTION PLAN (ESAP)
FOR THE NORTH MARMARA MOTORWAY PROJECT
(EUROPEAN SECTIONS: KINALI-ODAYERI)

A. Prior to Financial Close

No.	Mitigation Measure/Action	Requirement (Legislative, IFC PSs, Best Practice, Volunteer, Project-level needs)	Resources, Investment Needs	Responsibilities	Timetable	Target and Evaluation Criteria for Successful Implementation	Status
PS 1	**Assessment and Management of Environmental and Social Risks and Impacts**						
1.1.	Develop Project-specific Environmental and Social Management System (ESMS)	-PS 1	MOJV's own resources	-MOJV	2017 Q4	-Written Project-specific Environmental and Social Policy -Written Project-specific Environmental and Social Management Plan (including sub plans/procedures) -Permit/License Register	Done/on-going
1.2.	Establish and maintain a competent Organizational Structure	-PS 1	MOJV's own resources	-MOJV	2017 Q4	-Organizational structure with defined roles and responsibilities (including contractors' relevant departments/personnel)	Done
1.3.	Develop a Project-specific Emergency Preparedness and Response Plan (EPRP)	-PS 1	MOJV's own resources	-MOJV	2017 Q4	- Written Project-specific Emergency Preparedness and Response Plan for Construction Phase -Emergency personnel assignments done -Drills conducted -Trainings given for EPRP	Done
1.4.	Prepare Environmental, Health and Safety Risk Assessment	-PS 1	MOJV's own resources	-MOJV	2017 Q4	-Written Environmental, Health and Safety Risk Assessment	To be done
PS 2	**Labor and Working Conditions**						
2.1.	Develop a Human Resource Management Procedure under Project's Labor and Employment Policy for construction phase	-PS2	MOJV's own resources	-MOJV	2017 Q4	-Written Labor and Employment Policy (under Environmental and Social Policy) and Human Resource Management Procedure	Done
PS 5	**Land Acquisition and Involuntary Resettlement**						
5.1.	Develop administrative and design measures to minimize impacts on land use/users of the lands	-Legislative -KGM's technical requirements -PS5 -Project-level needs -Volunteer	MOJV's own resources	-KGM -MOJV	2017 Q4	-Locations/length of viaducts and tunnels, culverts, underpasses, overpasses, side access roads, etc. planned to ensure access to lands (agricultural, pasture, etc.)	Done

No.	Mitigation Measure/Action	Requirement (Legislative, IFC PSs, Best Practice, Volunteer, Project-level needs)	Resources, Investment Needs	Responsibilities	Timetable	Target and Evaluation Criteria for Successful Implementation	Status
PS 6	**Biodiversity Conservation and Sustainable Management of Living Natural Resources**						
6.1.	Conduct additional ecological field survey(s) at sensitive habitats identified in the ESIA Report	-PS6 -Project level needs	MOJV's own resources	-MOJV -Flora and Fauna Experts	2017 Q3	-Report on the additional Ecology Field Survey conducted by experts	Done

B. Construction Phase

No.	Mitigation Measure/Action	Requirement (Legislative, IFC PSs, Best Practice, Volunteer, Project-level needs)	Resources, Investment Needs	Responsibilities	Timetable	Target and Evaluation Criteria for Successful Implementation	Status
PS 1	**Assessment and Management of Environmental and Social Risks and Impacts**						
1.1.	Implement Project-specific Environmental and Social Management System (ESMS)	-PS 1	MOJV's own resources	-MOJV	2017 Q4	-Written Project-specific Environmental and Social Policy -Written Project-specific Environmental and Social Management Plan (including sub plans/procedures) -Management System Certificates (ISO 14001 and OHSAS 18001) obtained by Project sponsors -Permit/License Register	On-going
1.2.	Implement Project-specific Emergency Preparedness and Response Plan (EPRP)	-PS 1	MOJV's own resources	-MOJV	2017 Q4	- Written Project-specific Emergency Preparedness and Response Plan for Construction Phase -Emergency personnel assignments done -Drills conducted -Trainings given for EPRP	Done
1.3.	Implement Environmental and Social Monitoring Plan	-PS 1	MOJV's own resources	-MOJV	2017 Q4	-Assignment of Monitoring Consultant by lenders -Periodic ESMP Performance Review and Monitoring Reports	To be done
1.4.	Implement Stakeholder Engagement Plan (SEP)	-PS 1 -PS 5	MOJV's own resources	-MOJV	2017 Q4	- Written SEP and regular review -Disclosed ESIA documents -Stakeholder engagement database established -Records on the stakeholder engagement activities/events conducted -Presence/functionality of Project web-site/hotline -No unresolved complaints about insufficient information disclosure for stakeholders	On-going/To be done
1.5.	Implement external Grievance Mechanism in line with the SEP Implement Grievance Procedure	-PS 1	MOJV's own resources	-MOJV	2017 Q4	-Records on the grievance and comment forms available at locations/platforms (e.g. company web site) in line with the SEP -Grievance logs -Assignment of personnel(s) for the management of grievances -Separate mechanism established for workers' grievances	On-going
PS 2	**Labor and Working Conditions**						
2.1.	Implement Human Resource Management Procedure under Project's Labor and Employment Policy for construction phase	-PS2	MOJV's own resources	-MOJV	2017 Q4	-Written Labor and Employment Policy (under Environmental and Social Policy) and Human Resource Management Procedure -Employment data for the Project -Records on stakeholder engagement activities done with the settlement headmen and local associations to inform them about	On-going

No.	Mitigation Measure/Action	Requirement (Legislative, IFC PSs, Best Practice, Volunteer, Project-level needs)	Resources, Investment Needs	Responsibilities	Timetable	Target and Evaluation Criteria for Successful Implementation	Status
						the recruitment process and employment opportunities for the locals, in case needs of worker	
2.2.	Implement measures to ensure adequate working conditions during construction phase	-Legislative -PS2 -IFC EHS Guidelines	MOJV's own resources	-MOJV	2017 Q4	-Adequate working conditions provided to Project personnel including contracted workers -No unresolved grievances from Project personnel related with accommodation conditions	On-going
2.3.	Implement Occupational Health and Safety Plan during construction and operation phases	-Legislative -PS2 -IFC EHS Guidelines	MOJV's own resources	-MOJV	2017 Q4	-Written Project-specific Health and Safety Plan -Written HSE Training Program covering occupation health and safety aspects	On-going
2.4.	Implement HSE Training Plan	-PS2	MOJV's own resources	-MOJV	2017 Q4	- Written HSE Training Program -Training records	Done
2.5.	Implement Contractor Management Plan	-PS2	MOJV's own resources	-MOJV	2017 Q4	-Written Contractor Management Plan -Training Records -Contracts to include environmental, health, safety and social requirements of MOJV	On-going
2.6.	Implement Protection and Safety Plan	-PS2	MOJV's own resources	-MOJV	2017 Q4	-Written Protection and Safety Plan	On-going
2.7.	Implement regular checks by site HSE staff in accordance with the checklist on workers accommodation conditions quarterly.	-IFC EHS Guidelines	MOJV's own resources	-MOJV	2017 Q4	-Written checklist on workers accommodation conditions to be prepared taking into account relevant IFC Workers Accommodation: Processes and Standards Guidance -Records of regular checks conducted by HSE staff and actions taken	To be done
2.8.	Implement maintenance and operational checks of fire safety equipments/systems annually	-Legislative -PS2 -IFC EHS Guidelines	MOJV's own resources	-MOJV	2019 Q3	-Records of regular maintenance and checks -Fire drill reports	To be done
2.9.	Carry out a third party labor audit on an annual basis.	-PS2	MOJV's own resources	-MOJV	2017 Q4	-Records regarding labour audit	To be done
2.10.	Carry out payroll checks quarterly.	-PS2	MOJV's own resources	-MOJV	2017 Q4	-Records regarding labour audit - Payroll checks against issues such as sub-contractor wage rates, payment of benefits and timely payements	To be done
PS 3	**Resource Efficiency and Pollution Prevention**						
3.1.	Implement soil management and	-Legislative	MOJV's own	-KGM	2017 Q4	-Soil Management and Erosion Control Procedure to be developed	On-going

No.	Mitigation Measure/Action	Requirement (Legislative, IFC PSs, Best Practice, Volunteer, Project-level needs)	Resources, Investment Needs	Responsibilities	Timetable	Target and Evaluation Criteria for Successful Implementation	Status
	erosion control measures Implement Soil Management Plan	-PS3 -Project-level needs -Volunteer	resources	-MOJV		-Top soil management and storage measures taken -Amount of materials to be extracted from quarries/material borrow sites and ratio of excavated materials reused/to be reused	
3.2.	Obtain permits from relevant authorities regarding storage sites for excavation soil.	-Legislative	MOJV's own resources	-MOJV	2017 Q4	-Permits taken regarding excavation soil storage areas. -Amount of excavation soil to be stored and capacity of designated storage sites.	On-going
3.3.	Rehabilitate road construction sites where the construction activities are completed	-Legislative -PS3 -Project-level needs -Volunteer -IFC EHS Guidelines	MOJV's own resources	-MOJV	2017 Q4	-Written Rehabilitation Plan for road construction and camp sites -Amount of top soil volumes (m^3) reinstated and reinstation locations	On-going
3.4.	Implement Quarry Management Procedure in the scope of the ESMP after the completion of operations at quarries and material borrow sites	-Legislative -PS3 -Project-level needs -Volunteer -IFC EHS Guidelines	MOJV's own resources	-MOJV	2017 Q4	-Raw material production/quarry operation licenses obtained -Quarry production and closure plans	On-going
3.5.	Implement Solid and Hazardous Waste Management Procedures and waste management measures Implement Waste Management Plan and under this plan implement the following: -Procedure for Management of Hazardous Waste and Storage Sites -Procedure for Management of Contaminated Soil -Procedure for Management of Waste Vegetable Oils -Procedure for Management of Recyclable Wastes and Storage Sites	-Legislative -PS3 -IFC EHS Guidelines	MOJV's own resources	-MOJV	2017 Q4	-Temporary Waste Storage Areas (having the required features) established at work sites -Waste management/disposal agreements done with licensed service providers -Inventory of hazardous materials purchased/used/disposed of -Training and inspection records	On-going

No.	Mitigation Measure/Action	Requirement (Legislative, IFC PSs, Best Practice, Volunteer, Project-level needs)	Resources, Investment Needs	Responsibilities	Timetable	Target and Evaluation Criteria for Successful Implementation	Status
	-Procedure for Separate Collection and Disposal of Municipal Wastes -Procedure for Management of Medical Wastes -Procedure for Management of Waste Tires -Procedure for Management of Waste Batteries and Accumulators -Procedure for Management of Excavation, Construction and Demolition Wastes						
3.6.	Implement Water Quality, Wastewater and Stormwater Management Procedure Implement Water and Wastewater Management Plan	-Legislative - PS 3 -IFC EHS Guidelines -KGM's technical requirements	MOJV's own resources	-MOJV	2017 Q4	-Environmental and Social Monitoring Plan applied (for water quality) -Permit for wastewater management and disposal - No unresolved grievances on the subjects of water quality deterioration and water resources management -Presence and functionality of drainage system -Water supply permits	On-going
3.7.	Implement Air Quality and Emissions Management Procedure and measures to reduce and control air emissions Implement Air Quality Control Plan	-Legislative -PS 3 -IFC EHS Guidelines -KGM's technical req.	MOJV's own resources	-MOJV	2017 Q4	-Environmental and Social Monitoring Plan applied (for air quality) -Permits/licenses taken/to be taken for emissions from associated plants and facilities -No unresolved grievances received in the subjects of air quality deterioration	On-going
3.8.	Implement Noise Management Procedure and measures to reduce and control noise generation Implement Noise Control Plan	-PS 1, PS 3 -IFC EHS Guidelines -Legislative -KGM's technical requirements	MOJV's own resources	-MOJV	2017 Q4	-Environmental and Social Monitoring Plan applied (for noise) -No unresolved grievances on the subjects of noise and vibration disturbances	On-going
3.9.	Take permits from related institutions prior to initiation of night time activities.	-Legislative	MOJV's own resources	-MOJV	2017 Q4	-Permits regarding night time activities.	On-going
3.10.	Apply landscaping projects to minimize visual impacts/disturbances along the	-PS 3	MOJV's own resources	-MOJV	2017 Q4	-Landscaping Plan to be implemented	On-going
						-Landscaping activities conducted	On-going

No.	Mitigation Measure/Action	Requirement (Legislative, IFC PSs, Best Practice, Volunteer, Project-level needs)	Resources, Investment Needs	Responsibilities	Timetable	Target and Evaluation Criteria for Successful Implementation	Status
	Motorway route						
PS 4	**Community Health, Safety and Security**						
4.1.	Implement Community Health and Safety Plan	-Legislative -IFC EHS Guidelines -PS4 -Project-level needs	MOJV's own resources	-MOJV	2017 Q4	-Written Community Health and Safety Plan -No unresolved grievances related with community health and safety	On-going
4.2.	Implement Traffic Management Procedure and measures for construction traffic safety Implement Traffic Management Plan	-Legislative -IFC EHS Guidelines -PS4 -Project-level needs	MOJV's own resources	-MOJV	2017 Q4	-Written HSE Training Program covering construction traffic safety aspects (e.g. speed limits, specified routes, traffic signs, working hours, etc.) -Accident statistics due to Project-related construction traffic -No unresolved grievances related with construction traffic/safety	On-going
4.3.	Implement measures during blasting operations to ensure community health and safety	-Legislative -IFC EHS Guidelines -PS4 -Project-level needs	MOJV's own resources	-MOJV	2017 Q4	-Relevant permits obtained for blasting -Competency/training documents/certificates of experts who will conduct operations related with blasting -Records on blasting measures taken (access restrictions, signing, information, announcements, scheduling, etc.) -No unresolved grievances related with blasting operations	On-going
4.4.	Implement measures against airborne/communicable diseases	-Legislative -IFC EHS Guidelines -PS4	MOJV's own resources	-MOJV	2017 Q4	- Written HSE Training Program covering general hygienic rules to be followed by personnel -Presence of medical rooms and competent medical personnel at Camp Sites	On-going
4.5.	Implement measures for security personnel arrangements during construction phase	-Legislative -PS4	MOJV's own resources	-MOJV	2017 Q4	-Security Plan to be prepared -Permits to be obtained from authorities -Contractual agreements done with relevant contracting companies/employment data on security personnel -No unresolved grievances regarding the acts security personnel	On-going
4.6.	Conduct geological-geotechnical surveys for all sections	-Legislative -PS4	MOJV's own resources	-MOJV	2017 Q4	-Geological-Geotechnical Survey Reports	On-going
4.7.	Collaborate with local communities on	-IFC EHS	MOJV's own	-MOJV	2017 Q4	-Written activity reports and records of activities	To be

No.	Mitigation Measure/Action	Requirement (Legislative, IFC PSs, Best Practice, Volunteer, Project-level needs)	Resources, Investment Needs	Responsibilities	Timetable	Target and Evaluation Criteria for Successful Implementation	Status
	education concerning traffic and pedestrian safety in settlements close to camp sites and where sensitive receptors (such as school) are close to dense traffic.	Guidelines -Volunteer	resources				done
PS 5	**Land Acquisition and Involuntary Resettlement**						
5.1.	Implement administrative and design measures to minimize impacts on land use/users of the lands	-Legislative -KGM's technical requirements -PS5 -Project-level needs -Volunteer	MOJV's own resources	-KGM -MOJV	2017 Q4	-Locations/length of viaducts and tunnels, culverts, underpasses, overpasses, side access roads, etc. planned/constructed to ensure access to lands (agricultural, pasture, etc.) -No unresolved complaints about land access issues	On-going
5.2.	Implement measures to avoid any significant disruption to existing infrastructures and distribution of utility services	-Legislative -IFC EHS Guidelines	MOJV's own resources	-MOJV	2017 Q4	-Records on the measures taken to restore/maintain/improve affected infrastructure (e.g. roads) relocated/ maintained/improved	On-going
PS 6	**Biodiversity Conservation and Sustainable Management of Living Natural Resources**						
6.1.	Collect and plant critical flora species identified in the ESIA Report at alternative habitats	-PS6 -Project level needs	MOJV's own resources	-MOJV -Flora Experts	2017 Q4	-Records/reports on collection and planting actions taken	On-going
6.2.	Implement measures to minimize impacts on terrestrial fauna species	-PS6 -Project level needs	MOJV's own resources	-MOJV -Fauna Experts	2017 Q4	-Bridges, viaducts and culverts designed/constructed for the needs of terrestrial fauna species	On-going
6.3.	Conduct potential bird species monitoring at the reproductive period in intersection area of Buyukcekmece Lake KBA, IBA and Project area	-PS6 -Project level needs	MOJV's own resources	MOJV -Ornithology Experts	2018 Q2	- Monitoring of the Buyukcekmece KBA aspects and reproductive activities of potential birds	On-going
6.4.	Conduct *Aquila heliaca* monitoring at reproductive period and no regular vehicle traffic will be allowed on the roads within a distance of 1 km of *Aquila heliacal* nests (if available)	-PS6 -Project level needs	MOJV's own resources	MOJV -Ornithology Experts	2018 Q2	- Controlling of *Aquila heliaca* nest monthly conducted for the check situation due to impacts of construction activities	On-going
6.5.	Implement Afforestation Plan	-PS6 -Volunteer	MOJV's own resources	-MOJV -Related Ministry	2017 Q4	-Afforestation protocols made with the Ministry of Forestry and Water Affairs -As mentioned in the ESIA report and in Afforestation Plan (Annex	On-going

No.	Mitigation Measure/Action	Requirement (Legislative, IFC PSs, Best Practice, Volunteer, Project-level needs)	Resources, Investment Needs	Responsibilities	Timetable	Target and Evaluation Criteria for Successful Implementation	Status
						4) the number of trees to be removed will be 126.217 while the amount of plantation will be five times of this number. -Monitoring of afforestation activities conducted in line with Afforestation Plan and protocols made	
PS 7	**Indigenous Peoples**						
7.1.	Not Applicable (NA)	NA	NA	NA	NA	NA	NA
PS 8	**Cultural Heritage**						
8.1.	Comply with the requirements of the Regional Board for Conservation of Cultural Heritage mentioned in their decisions/official views (i.e. additional research, test or salvage excavation) given for the Project in the scope of the Law No: 2863 with regard to the sites to be potentially affected	-Legislative -PS8	MOJV's own resources	-KGM -MOJV	2017 Q3	-Records on avoidance or mitigation measures taken in accordance with the requirements of the authorities and national legislation -Approval letters/permits obtained from related state authorities regarding Project's compliance with national legislation and their specific requirements	On-going
8.2.	Implement Cultural Heritage Management Plan and Chance Find Procedures and conduct archaeological monitoring at critical sites identified within the ESIA Report	-PS8	MOJV's own resources	-MOJV	2017 Q3	-Employment of Project archaeologist/cultural heritage expert throughout the construction phase -Records on sites/cases for which Chance Finds Procedure have been operated -Training records proving all workers are trained regarding Chance Find Procedure. -Regular inspection records ensuring the implementation of the relevant plans/procedures (i.e. Cultural Heritage Management Plan and Chance Find Procedure).	On-going

C. Operation Phase

No.	Mitigation Measure/Action	Requirement (Legislative, IFC PSs, Best Practice, Volunteer, Project-level needs)	Resources, Investment Needs	Responsibilities	Timetable	Target and Evaluation Criteria for Successful Implementation	Status
PS 1	**Assessment and Management of Environmental and Social Risks and Impacts**						
1.1.	Implement Project-specific Environmental and Social Management System (ESMS)	-PS 1	MOJV's own resources	-MOJV	2019 Q3	-Written Project-specific Environmental and Social Policy -Written Project-specific Environmental and Social Management Plan (including sub plans/procedures) -Management System Certificates (ISO 14001 and OHSAS 18001) obtained by Project sponsors -Permit/License Register	To be done
1.2.	Develop and Implement Project-specific Emergency Preparedness and Response Plan (EPRP)	-PS 1	MOJV's own resources	-MOJV	2019 Q3	-Written Project-specific Emergency Preparedness and Response Plan for Operation Phase -Emergency personnel assignments done -Trainings given for EPRP	To be done
1.3.	Implement Environmental and Social Monitoring Plan	-PS 1	MOJV's own resources	-MOJV	2019 Q3	-Assignment of Monitoring Consultant by lenders -Periodic ESMP Performance Review and Monitoring Reports	To be done
1.4.	Implement Stakeholder Engagement Plan (SEP)	-PS 1 -PS 5	MOJV's own resources	-MOJV	2019 Q3	- Written SEP and regular review -Disclosed ESIA documents -Stakeholder engagement database established -Records on the stakeholder engagement activities/events conducted -Presence/functionality of Project web-site/hotline -No unresolved complaints about insufficient information disclosure for stakeholders	To be done
1.5.	Implement external Grievance Mechanism in line with the SEP Implement Grievance Procedure	-PS 1	MOJV's own resources	-MOJV	2019 Q3	-Records on the grievance and comment forms available at locations/platforms (e.g. company web site) in line with the SEP -Grievance logs -Assignment of personnel(s) for the management of grievances -Separate mechanism established for workers' grievances	To be done
PS 2	**Labor and Working Conditions**						
2.1.	Implement Human Resource Management Procedure under Project's Labor and Employment Policy	-PS2	MOJV's own resources	-MOJV	2019 Q3	-Written Labor and Employment Policy (under Environmental and Social Policy) and Human Resource Management Procedure	To be done

No.	Mitigation Measure/Action	Requirement (Legislative, IFC PSs, Best Practice, Volunteer, Project-level needs)	Resources, Investment Needs	Responsibilities	Timetable	Target and Evaluation Criteria for Successful Implementation	Status
2.3.	Implement Occupational Health and Safety Plan during construction and operation phases	-Legislative -PS2 -IFC EHS Guidelines	MOJV's own resources	-MOJV	2019 Q3	-Written Project-specific Health and Safety Plan -Written HSE Training Program covering occupation health and safety aspects	To be done
2.4.	Implement measures to ensure safety during the road maintenance or landscaping works	-Legislative -PS2 -IFC EHS Guidelines	MOJV's own resources	-MOJV	2019 Q3	-Written Operation and Maintenance Plans/Procedures covering health and safety aspects for road maintenance and landscaping personnel	To be done
2.5.	Implement maintenance and operational checks of fire safety equipments/systems (especially in the tunnels)	-Legislative -PS2 -IFC EHS Guidelines	MOJV's own resources	-MOJV	2019 Q3	-Records of regular maintenance and checks	To be done
2.6	Carry out a third party labor audit on an annual basis.	-PS2	MOJV's own resources	-MOJV	2017 Q4	-Records regarding labour audit	To be done
2.7.	Carry out payroll checks quarterly.	-PS2	MOJV's own resources	-MOJV	2017 Q4	-Records regarding labour audit - Payroll checks against issues such as sub-contractor wage rates, payment of benefits and timely payements	To be done
PS 3	**Resource Efficiency and Pollution Prevention**						
3.1.	Implement Solid and Hazardous Waste Management Procedures and waste management measures Implement Waste Management Plan and under this plan implement the following: -Procedure for Management of Hazardous Waste and Storage Sites -Procedure for Management of Contaminated Soil -Procedure for Management of Waste Vegetable Oils -Procedure for Management of Recyclable Wastes and Storage Sites -Procedure for Separate Collection and Disposal of Municipal Wastes	-Legislative -PS3 -IFC EHS Guidelines	MOJV's own resources	-MOJV	2019 Q3	-Temporary Waste Storage Areas (having the required features) established at work sites -Waste management/disposal agreements done with licensed service providers -Inventory of hazardous materials purchased/used/disposed of	To be done

No.	Mitigation Measure/Action	Requirement (Legislative, IFC PSs, Best Practice, Volunteer, Project-level needs)	Resources, Investment Needs	Responsibilities	Timetable	Target and Evaluation Criteria for Successful Implementation	Status
	-Procedure for Management of Medical Wastes -Procedure for Management of Waste Tires -Procedure for Management of Waste Batteries and Accumulators -Procedure for Management of Excavation, Construction and Demolition Wastes						
3.2.	Implement Water Quality, Wastewater and Stormwater Management Procedure Implement Water and Wastewater Management Plan	-Legislative - PS 3 -IFC EHS Guidelines -KGM's technical requirements	MOJV's own resources	-MOJV	2019 Q3	-Environmental and Social Monitoring Plan applied (for water quality) -Permit for wastewater management and disposal - No unresolved grievances on the subjects of water quality deterioration and water resources management -Presence and functionality of drainage system -Water supply permits	To be done
3.3.	Implement Air Quality and Emissions Management Procedure and measures to reduce and control air emissions Implement Air Quality Control Plan	-Legislative -PS 3 -IFC EHS Guidelines -KGM's technical req.	MOJV's own resources	-MOJV	2019 Q3	-Environmental and Social Monitoring Plan applied (for air quality) -Permits/licenses taken/to be taken for emissions from associated plants and facilities -No unresolved grievances received in the subjects of air quality deterioration	To be done
3.4.	Implement Noise Management Procedure and measures to reduce and control noise generation Noise measurements will be regularly conducted annually according to IFC standards at critical receptors determined by noise modeling report presented at ESIA. Noise measurements will be conducted at least for 48 hours which represent a week day and a week end during which the traffic load is high.	-PS 1, PS 3 -IFC EHS Guidelines -Legislative -KGM's technical requirements	MOJV's own resources	-MOJV	2019 Q3	-Environmental and Social Monitoring Plan applied (for noise) -No unresolved grievances on the subjects of noise and vibration disturbances	To be done

No.	Mitigation Measure/Action	Requirement (Legislative, IFC PSs, Best Practice, Volunteer, Project-level needs)	Resources, Investment Needs	Responsibilities	Timetable	Target and Evaluation Criteria for Successful Implementation	Status
	Noise measurement results will be submitted to the environmental consultant and the facility agent in 30 calendar days at the latest. In case that results of annual noise measurements at critical locations approach (2 Dba) to noise limits specified at IFC guidelines, the installation of the noise barriers will begin soon before subsequent noise measurement results and completed in a reasonable time. Timeline for installation of noise barriers may delay as the number of vehicle passes realized and the results of sound measurements are below the predicted values. Nevertheless, annual noise measurement activities at critical locations specified in the ESIA Report will continue. In case the measurements are not conducted, the locations, installation time and the total number of noise barriers determined as per the most up-to-date noise modeling will be valid. Noise modeling studies and the critical receptors determined in the model will be revised based on increase in predicted annual number of vehicle passes, design changes or other mitigation measures applicable at critical locations. Noise modeling will be conducted based on the annual						

No.	Mitigation Measure/Action	Requirement (Legislative, IFC PSs, Best Practice, Volunteer, Project-level needs)	Resources, Investment Needs	Responsibilities	Timetable	Target and Evaluation Criteria for Successful Implementation	Status
	hourly average vehicle passes. Assumed number of vehicle passes together with the revised model will be submitted to the review of environmental consultant and to the approval of facility agent. Implement Noise Control Plan						
3.5.	Apply landscaping projects to minimize visual impacts/disturbances along the Motorway route	-PS 3	MOJV's own resources	-MOJV	2019 Q3	-Landscaping Plan to be implemented	To be done
					2019 Q3	-Landscaping activities conducted	To be done
PS 4	**Community Health, Safety and Security**						
4.1	Implement Community Health and Safety Plan	-Legislative -IFC EHS Guidelines -PS4 -Project-level needs	MOJV's own resources	-MOJV	2019 Q3	-Written Community Health and Safety Plan -No unresolved grievances related with community health and safety	To be done
4.2.	Implement measures to ensure structural safety, traffic safety and pedestrian safety during operation	-KGM's technical requirements -PS4	MOJV's own resources	-MOJV	2019 Q3	-Written Operation and Maintenance Plans/Procedures covering health and safety aspects for community -Accident statistics during operation -No unresolved grievances related with the locations of passage structures (culverts, underpasses, overpasses, etc.)	To be done
4.3.	Implement measures to avoid geological/geotechnical risks during operation	-KGM's technical req. -Project-level needs -PS4	MOJV's own resources	-MOJV	2019 Q3	- Status of structural motion, undermining, maintenance requirements of engineering structures to be identified through site audits by experts	To be done
PS 6	**Biodiversity Conservation and Sustainable Management of Living Natural Resources**						
6.1.	Implement Afforestation Plan	-PS6 -Volunteer	MOJV's own resources	-MOJV -Related Ministry	2019 Q3	-Afforestation protocols made with the Ministry of Forestry and Water Affairs	Ongoing

No.	Mitigation Measure/Action	Requirement (Legislative, IFC PSs, Best Practice, Volunteer, Project-level needs)	Resources, Investment Needs	Responsibilities	Timetable	Target and Evaluation Criteria for Successful Implementation	Status
						-As mentioned in the ESIA report and in Afforestation Plan (Annex 4) the number of trees to be removed will be 126.217 while the amount of plantation will be five times of this number. -Monitoring of afforestation activities conducted in line with Afforestation Plan and protocols made	
PS 7	**Indigenous Peoples**						
7.1.	Not Applicable (NA)	NA	NA	NA	NA	NA	NA